



BUDAPEST
TRANSPORT DEVELOPMENT
STRATEGY

2014-2030

BMT

BALÁZS MÓR PLAN
Draft for public consultation

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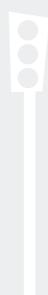
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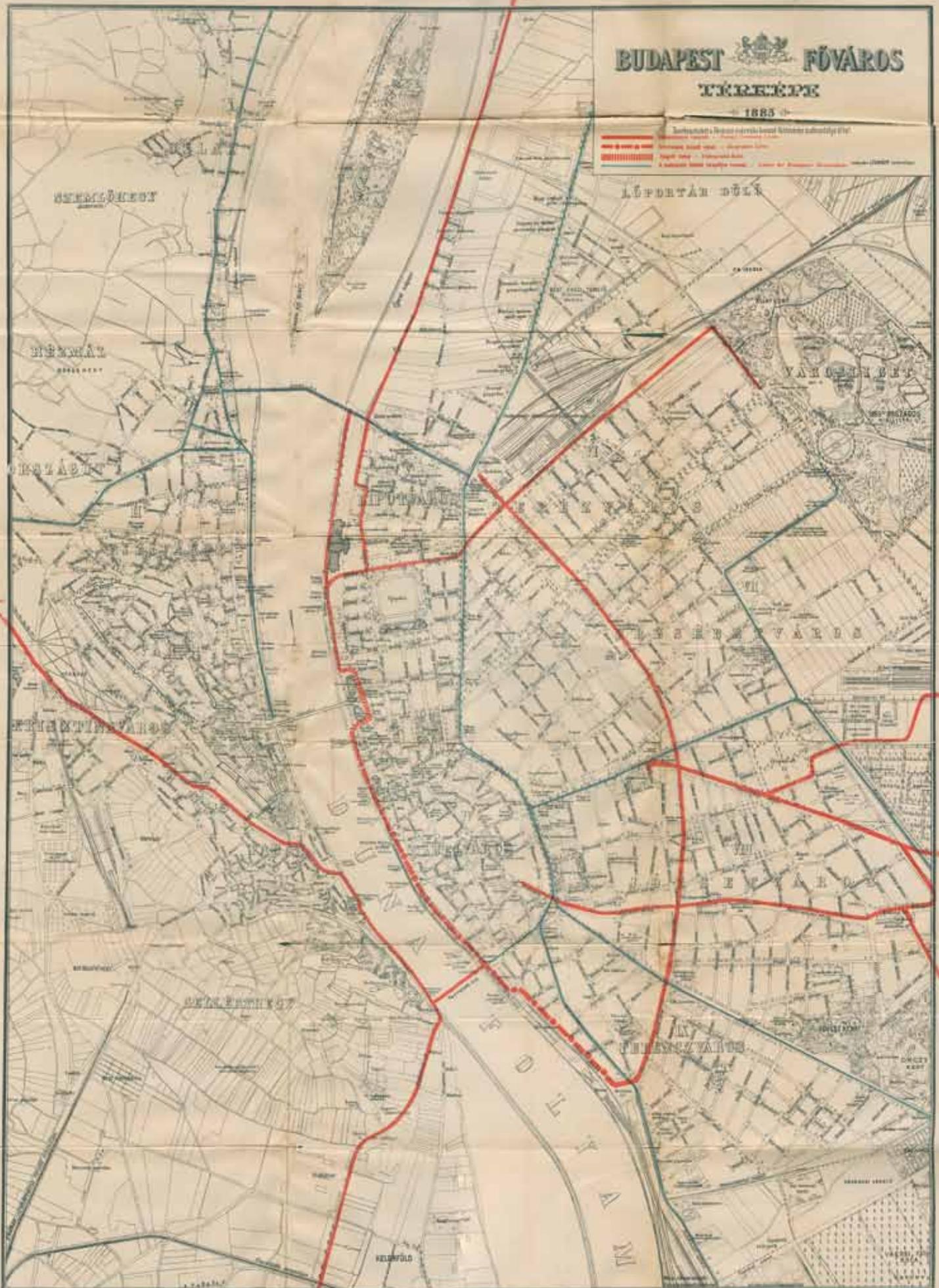
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Gőzmozdonyu tramway-hálózat tervrajza.

Balázs Mór ajánlata.



A sepia-toned portrait of Mór Balázs, a man with a beard and mustache, wearing a dark suit, a light-colored vest, a white shirt with a bow tie, and a dark hat. He is looking slightly to the right of the viewer. The portrait is set against a light, textured background.

MÓR BALÁZS, THE EPONYM OF THE PLAN

Mór Balázs (5 March 1849, Pest – 1 August 1897, Wauheim)

A prominent Hungarian transport engineer of the 19th century, Mór Balázs can be credited with a number of innovations which, to this day, define the transport system and cityscape of Budapest. Having studied in England, he returned to Hungary in 1884. By 1886, he had developed a plan, titled “Budapest Stream Tramway Network”, laying down the groundwork for an advanced track-based transport system. In this, he discussed introducing an electric urban railway: a revolutionary idea at that time.

In order to break down the monopoly enjoyed by the operator of horse-drawn carriage lines, the Budapest Iron Track Road Company (BKVT), Balázs founded the Budapest Urban Tramway Company (BVVT). With support from the city government, he launched Budapest’s first tram service on the Grand Boulevard (Nagykörút) in 1887. Seeing its success, starting in 1889, he proceeded to lay down subsequent tramlines across the centre of Pest. Spanning the current Baross, Király and Podmaniczky streets, following Nagykörút and continuing along the bank of the Danube, his network made Budapest the eighth city in the world to see the introduction of electric transport.

The idea and implementation of the Millennium Underground Railway line is also associated with the name of Mór Balázs: thanks in no small part to his contributions, the first metro line on the Continent was built in the course of only 20 months. Finished in 1896, the 3.2 km long track was served by the world’s first cars on bogies (practically low-floor trams). Emperor Franz Joseph eventually granted Balázs a noble title for his achievements.

Balázs played an important role in the transformation of Budapest into a world metropolis, but, sadly, many of his plans remained unrealized, as he lived only 48 years. Today, his name is commemorated by an award, founded by the Budapest Transport Company (BKV Zrt.) in 1997, granted to its employees for outstanding achievements in public transport.





PREFACE



The transport system is one of the most essential components of Budapest infrastructure: hence, its development fundamentally determines the future of the Hungarian capital. When we contemplate transportation, the starting point is the citizen, inhabiting and using the city. Compiling the new strategy for Budapest transport development, our ultimate aim is to offer citizens – residents and visitors alike – an attractive and competitive metropolis. A capital for the nation, whose friendly atmosphere, reliable public services, cleaner air, well-maintained green surfaces and appealing public spaces provide a liveable everyday environment – and an hub for enterprise, with appropriate, dependable and modern infrastructure in place to boost economic performance.

It is, thus, evident that transport does not only deserve constant attention and care from urban policy for its own sake, but also to ensure the environmental and economic sustainability of the city and its metropolitan region, as well as urban development. All of our tasks, including the assessment of the real mobility demands of the users of public spaces and transport services, the provision of quality services meeting those demands, as well as the constant renewal and development of the existing transport system – are equally important.

With the preparation of the Balázs Mór Plan, based on the Urban Development Concept approved by the General Assembly of the Municipality of Budapest in 2013, such a mobility plan has been created, incorporating clear goals and objectives – a ‘compass’ for sustainable transport development in Budapest. The transport related objectives of this mobility plan are in line with our overall urban development concept, and its chapters define the current development tasks concerning each transport mode. The transport development projects of the next two EU financing periods must serve the realisation of these objectives.

The Balázs Mór Plan is the worthy continuation of the development process commenced by the restructuring of the Capital’s transport governance system. Keeping to the guidelines expressed in the Plan is indispensable for Budapest to successfully face the challenge of competition between European metropolises, offering attractive opportunities for residents, workers, entrepreneurs and visitors alike.



A handwritten signature in blue ink, which appears to be 'István Tarlós'.

István Tarlós,
Mayor of Budapest

EXECUTIVE SUMMARY



ANTECEDENTS

Following the change of the political regime, the first complex transport development plan was prepared in Budapest in 2001 (BKRFT). Apart from a review and the idea of co-operation of transport modes, this plan also addressed areas beyond the city boundaries.

The plan was reviewed in 2009 in the spirit of regional integration, supplemented with an action plan, valid until 2020. The system plan laid down progressive objectives, although contained overly ambitious developments, as the increasing economic recession after 2008 substantially limited the opportunities.

THE SPIRIT OF THE BALÁZS MÓR PLAN

The Balázs Mór Plan, the review of a system plan prepared in 2013, based on the decision of the General Assembly of Budapest, is the transport development strategy for 2014–2030, prepared in the spirit of sustainable urban mobility planning. Relying on the transport development experience of the recent past, international best practices and the key problems of Budapest transport, this mobility plan, innovative in the Hungarian practice, the Municipality of Budapest and the Centre for Budapest Transport (BKK), the integrated transport organizing authority, set out to apply the transport development experience of the recent past and international best practices to the key problems of Budapest transport, in order to achieve the strategic development objectives of the Capital and to create a comprehensive system encompassing the most important transport improvements. Its state-of-the-art approach puts city-dwellers and their urban environment into the focus of planning. The new strategy is in line with the guidelines laid down in the White Paper issued by the European Commission in March 2011.

The completion of the Balázs Mór Plan opens a new chapter in the transport development of Budapest. Transport development projects to have significant impact on the life of Budapest will be planned and implemented in this framework in line with urban development ideas, strengthening their synergy. We will introduce a strategic transport development practice which gives priority to the improvement of the quality of urban life by, through its measures, satisfying and favourably influencing the mobility needs of the citizens and enterprises.



METHODOLOGY

The strategy was prepared in line with the EU requirements for the programming of development resources in order to be prepared for applying for EU funds supporting urban transport. However, EU funds may be used only in certain areas of development, therefore Hungarian (local government, public and private) funds will also have to be used efficiently per schedule for the implementation of the other measures.

The methodology uses a problem tree, based on an analysis (of the existing situation), a vision, a hierarchy of goals and objectives (complex, strategic and operational objectives), as well as the areas of intervention (priorities) and measures assigned to the strategic objectives. Those measures may be broken down to development projects in a synergic relationship with each other.

Other indispensable factors of the methodology are partnership including also a communication plan, a strategic environmental review and an ex-ante (independent) evaluation prior to implementation.

KEY ISSUES

The analysis of the current state of play reviews the deterioration of the conditions of transport (both of the infrastructure and of the assets) that imposes a threat to operation, the significant network inadequacies, fragmented developments without being integrated into a system, an obsolete sector-based approach and outdated regulations. The future vision is presented by Budapest's urban development concept: "Budapest is a liveable, attractive capital city with a unique character and is a respected member of the European network of cities as the innovative economic and cultural centre of the country and the region."

According to the general goal, the transport of Budapest must improve the competitiveness of the town and its region and must also contribute to establishing a sustainable, liveable, attractive and healthy urban environment. The operational goals required for achieving the strategic objectives (liveable urban environment, safe, predictable and dynamic transport services, cooperative regional relations) appear in four areas of intervention: infrastructure, vehicles, services and the governance system, i.e., more connections, attractive vehicles, better services and efficient governance.

The strategic objectives of the four areas of intervention are reflected in the following operational goals:

- ✦ implementation of liveable public spaces,
- ✦ integrated network development,
- ✦ interoperable systems and intermodal connections,
- ✦ environmentally friendly technologies,
- ✦ comfortable, passenger friendly vehicles,
- ✦ active and conscious awareness raising,
- ✦ improved service quality,
- ✦ consistent regulation, and
- ✦ regional cooperation.

The approximately sixty measures that serve the operational objectives, cover all urban modes of transport and sub-sectors (from walking through cycling and public transport to individual transport, also including parking, freight transportation, taxi services as well as technology- and IT-based developments) with a systematic, yet differentiated approach, and also manages complex issues such as the developments concerning the river Danube (bridges, waterborne transport), tourism needs and public space improvements.

In the practice of the European Union, the principle of partnership includes the dialogue between the EU, the Member States and the regions, as well as the cooperation between local communities, local governments, NGOs, professional organisations, enterprises, transport service operators, authorities and other institutions. In the course of the preparation of the Balázs Mór Plan, numerous professional and public consultation sessions were held with district, metropolitan area and county (local) governments, professional and non-governmental organisations, interest groups and authorities. The conditions of cooperation were defined in separate agreements with several NGOs. All comments and proposals were evaluated and utilised. A communication plan will also be prepared for the implementation of the Balázs Mór Plan which will determine the means and the timeline of maintaining contact with the relevant groups of society.

The essence of the Balázs Mór Plan may be summarised in the following three terms: integration, efficiency and overall quality. Based on these principles, the plan intends to contribute to the lively and liveable future of Budapest.



THE STARTING POINT

A.1 PROGRESS IN STRATEGIC PLANNING

The Municipality of Budapest approved a complex development plan for the transport system of Budapest (BKRF) in 2001. The plan had introduced an – at the time – novel approach as it extended beyond the administrative boundaries of the city and included the idea of cooperation of transport sub-sectors, yet it lacked the impact analysis and the ranking of projects, and an adequate programming of funding. The plan was reviewed in 2009 in the spirit of regional integration and an action plan up to 2020, was also added. This system plan set progressive objectives, yet failed to take into account that only few development projects could be implemented due to the economic crisis, emerging from 2008.

The BKRF, prepared in 2009, already proposed the introduction of the ‘mobility planning’ approach, but it could not be fully incorporated into strategic planning practice prior to the Budapest transport governance reform. The review of 2013, based on a decision of the General Assembly of Budapest, was determined by the concept of mobility planning. The approach was applied to the review of the goals and objectives of transport development in Budapest, to the development of measures and to the selection and ranking of projects. The entire strategic planning process had to be revised. The thematic concept of the Budapest sustainable urban mobility plan was identified on the basis of the manual recommended by the EU Commission, based on which the Balázs Mór Plan (BMT) has been developed, relying on the previously approved transport development plans of Budapest, yet aiming at a more easy-to-understand though professional phrasing of strategic goals and measures.



The process of strategic planning does not stop at the completed Balázs Mór Plan, as in addition to the development strategy, project preparation and implementation, the applied methodology also contains an evaluation of the implemented projects and takes into account the experience and impacts of the capital investments in the course of the preparation of subsequent projects. The BMT reflects the principles of integrated transport development in cooperation and puts more emphasis on cost-effective fund absorption than previously.

In the urban context, a mixed strategy involving land-use planning, pricing schemes, efficient public transport services and infrastructure for non-motorised modes and charging/refuelling of clean vehicles is needed to reduce congestion and emissions. Cities above a certain size should be encouraged to develop Urban Mobility Plans, bringing all those elements together. Urban Mobility Plans should be fully aligned with integrated urban development plans.

EU White Paper (17.)

With sustainable urban mobility planning, a new chapter will be opened in the transport planning of Budapest, in which the major development projects will be prepared and implemented in line with the urban development concepts, strengthening each other's impacts. A strategic transport planning practice will be introduced which is aimed at improving the quality of urban living, while at the same time the plan will satisfy and favourably influence the mobility needs of the population and also of businesses. Through strategic planning, Budapest has also been prepared for the next EU financing period and will thus be able to successfully apply for development funds improving urban transportation.



A.2 TIME FRAME

THE BALÁZS MÓR PLAN LAYS DOWN THE STRATEGY OF SHORT- AND MEDIUM-TERM TRANSPORT DEVELOPMENT IN BUDAPEST FOR THE PERIOD BETWEEN 2014 AND 2030.

A.3 PARTNERSHIP

The principle of planning the future with the stakeholders is a fundamental component of any EU operational programme. In the practice of the European Union, the interpretation of partnership includes the dialogue between the EU, the member states and the regions, as well as the cooperation among local communities, local governments, NGOs, professional organisations, enterprises, transport service operators, authorities and other institutions. The actors take part in the preparation of the strategy, in programme development, in the preparation and implementation of the projects and in impact monitoring, and cooperate with each other vertically and horizontally throughout those activities.

Professional and public consultations were held with district, metropolitan area and county level local governments, professional and non-governmental organisations, interest groups and authorities in the course of the review of the system plan as a preparatory step towards the Balázs Mór Plan. The Budapest Municipality built close cooperation with the planners engaged in the parallel strategic planning processes relating to Budapest and its region in order to come up with complex solutions for complex regional and urban development challenges. BKK entered into separate agreements with various NGO's, including the Hungarian Cyclists' Club and the Urban and Suburban Transport Association, to lay down the conditions of partnership and, prior to any change in transport services, intends to address the concerned residents through various communication channels, including also the internet. BKK evaluated the comments and proposals received from the cooperating interest groups and institutions involved. The strategic issues were presented and the remarks were clarified during discussion forums.

A communication plan will be prepared for the implementation of the Plan, which will lay down the means and the schedule of maintaining contact with the relevant social groups. The European Union supports the implementation of the public involvement process in the framework of the Intelligent Energy Europe programme "CH4LLENGE" research and development co-operation.

A.4 ANALYSIS OF THE CURRENT SITUATION

From the 1960s for almost three decades, urban planning and development principles were determined by the prevailing modernisation approach, and by the specific social and economic environment. The concept of autonomous individuals was not reflected at all in that coordinated, heavily organised and hierarchically technocratic system. The idea of functionality also determined the approach to public spaces: motorised transport was given priority at the expense of other aspects; a liveable environment was a secondary issue. The response to the trend of motorisation, which had already been questioned more and more frequently in international practice at the time, served primarily the spectacularly growing demand through continuous capacity enhancement. Towns were quickly transformed to accommodate passenger car transport, without considering the detrimental effects on citizens and the public spaces they inhabited – wide footpaths, tree-lined walkways and abundant parking opportunities became a thing of the past. The urban planning practice, committed to motorisation, can also be witnessed in Budapest, although the number of passenger cars in Hungary has been lower than the Western European average. As a result of the process, the preferences in choosing places of residence along with transport habits have changed.

No transversal components were built in the ring-radial transport network, because it was believed that traffic, at a much smaller level than nowadays, could be managed by increasing the capacity of the roads leading across the city centre. All these aspects affected the development of urban spaces and the positioning of pedestrian crossings. Pedestrian underpasses were built in the inner city; trams disappeared from the most important avenues of Budapest and the freed surfaces were used by additional traffic lanes on Üllői út, Rákóczi út, Váci út and Bajcsy-Zsilinszky út.



4
METRO LINES



260
BUS LINES



30
TRAM LINES



5000
LICENSED TAXIS

4500 KM
OF ROADS



2200 PUBLIC TRANSPORT
VEHICLES OPERATING DAILY



5 MILLION TRIPS A DAY
IN BUDAPEST

1000 RESIDENTS

330 PASSENGER
CARS (BUDAPEST)



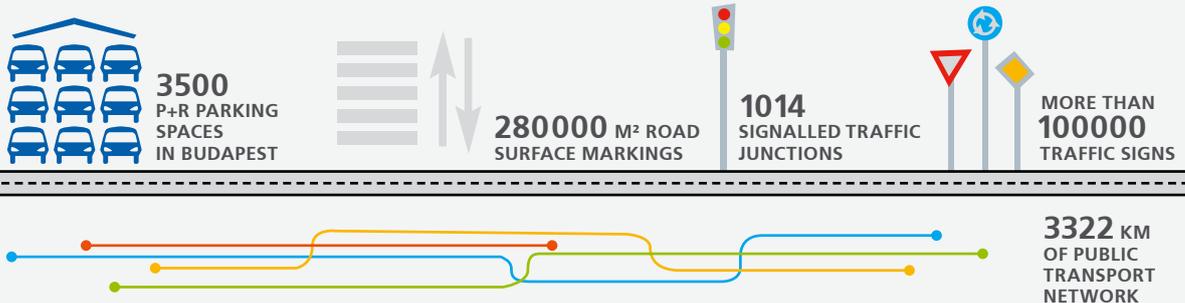
357 PASSENGER
CARS (PEST COUNTY)

In order to use metro lines more intensively, the previous long transport lines were segmented and turned into feeder lines for the metro network thereby increasing the number of forced changes. The fewer tram lines deteriorated the degree of integration of the track-bound network and made changes cumbersome. Transport planning focused on technical-operational aspects and not on the comfort of passengers. At the most important traffic interchanges, priority was given to the possibility of turning round public transport vehicles, terminus functions and the storage of vehicles instead of passenger movements and the utilisation of urban development opportunities. Typical examples include Széll Kálmán tér, Baross tér, Örs vezér tere or Móricz Zsigmond körtér. These changes, however, did not distort the breakdown of transport modes immediately, because the majority of the residents of the city were compelled to use public transport.

Following Western European trends with a lag, the previous approach began to change gradually in Budapest as well after the turn of the century and the criteria of liveability began to be applied also at the strategic level: pedestrian zones, cycling infrastructure, traffic calming, public transport prioritisation, reinstatement of bus lanes and long bus routes. The demand emerged to regulate car and road freight traffic coming to Budapest and to form a public transport tariff community; a long-term plan was made for the integration of railway lines into city transport (S-Bahn concept) in order to reduce the number of forced changes and to cut back the further increase in car traffic.

A.5 PROBLEM TREE

A detailed status review and problem analysis were conducted in preparation for the BMT which identified the root and recurrence causes and mechanisms behind the disturbing factors that occur as symptoms. The concentrated result of the analysis is summarised in a problem tree.



PROBLEM TREE



PROBLEMS IDENTIFIED ON THE BASIS OF THE STATUS REVIEW

PROBLEMS APPEARING IN TRANSPORT

ROOT CAUSE



TRAFFIC

REGULATION

A.6 KEY PROBLEMS

The most important conclusions of the analysis are summarised in the following key problems:

I1- Deterioration of conditions threatening the sustainability of operation

The most striking historic debt which imposes a threat to everyday operation is the long-term neglect of maintenance both in infrastructure and the vehicles and the lack of periodic renewals.

I2- Fragmented developments out of their urban context and implemented outside of a system

Urban planning practice, focused on modernisation, has resulted in a transport network subservient to motorisation. Surplus movements are required in transport owing to the distorted urban structure, urban sprawl and bypassing of derelict brownfield areas. The use of urban space for purposes other than their original functions lead to increasing tensions.

I3- Inappropriate responses to a changing lifestyle and polluting solutions

Instead of the analysis of the actual situation, the development activities were either based on concepts that are now obsolete or on foreign examples, which are not adaptable in Budapest due to the specificities of the city (e.g.: extension of traffic lanes, design of a multi-storey car park in a zone designed for traffic calming). All these activities cause increasing and permanent problems primarily because of the acceleration of the suburbanisation processes.



14) Significant inadequacies in the network structure

The overemphasising of developments did not result in the elimination of the key network inadequacies, which is a complex problem concerning approach and priorities. Radial transport network development was preferred to transversal development, car transport to public transport and the development of the bus network to tram services. Due to the construction of the metro network, surface public transport developments were postponed.

15) Fragmented regulations, impeding complex solutions

The legal, governance and regulatory background affecting the overall planning environment impedes reasonable cooperation, which is reflected in discrimination within transport (e.g., in the rigid separation of local and regional transport) and also in the hindrance of multi-actor cooperation.

16) Continuation of sectoral and sub-sectoral approach, lack of cooperation

The routines and habits within the sector have impeded advanced solutions for a long time. They include the exaggeration of technology and operational problems, and giving priority to the operator's approach to the service-providing role of transport. Thus each transport hub is determined by operational criteria and not by the comfort of passengers, the rigid separation of the track-bound systems deteriorates the quality of services. This problem will be preserved for subsequent decades if only vehicles fitting into the existing network are purchased.

The most typical common characteristics of the identified key problems are the fragmentation and lack of cooperation, which may be resolved by applying an integrated approach. An integrated review of maintenance, operation and development is required for the optimal use of funds for the operation of the transport system with a calculable financing background. Sub-sectoral integration and a joint regional approach to transport and other sectoral policies are indispensable for defining the appropriate directions for transport development and for managing the identified problems. The main responsibility of the Balázs Mór Plan is to eliminate the lack of coordination and to introduce cooperation, which is in harmony with the described principles of advanced mobility planning and the requirements stemming from international experience and the need for an integrated urban approach.

B



WHERE ARE WE HEADING?

Transport is a major city-forming power, an economy-developing and environment-shaping factor, a part of urban policy, and therefore its impacts must be used to assist urban development. The objectives of the Budapest transport development strategy must be identified by taking into account three fundamental aspects for effectively managing transport problems:

- ↳ the complex development goals of the capital city,
- ↳ tendencies, European and national objectives based on international transport development experience
- ↳ general and specific transport problems identified in the status review and the correlations of the problem tree.

Summary of the main EU transport policy objectives:

reduction of the burden on the environment,
reduction of greenhouse gas emission and local pollution,
energy security, reduction of dependence on hydrocarbon-based fuels,
making the regions of Europe more competitive,
improving the quality of life for European citizens,
transport safety as a priority.



The objectives of the Balázs Mór Plan reflect the development of Budapest and its urban area in line with the approved urban development plans, and therefore individual measures may be implemented in a coordinated and comprehensive context and not in isolation. The social and transport development objectives of the following Budapest and national development documents, prepared at various levels, and often simultaneously, were taken into account in the Balázs Mór Plan:

- ↳ OFTK: National Development and Regional Development Concept (2014)
- ↳ PMTFK: Pest County Regional Development Concept (2013)
- ↳ NKS: National Transport Strategy (2014)
- ↳ OVK: National Railway Development Concept (2014)
- ↳ NKP: National Environmental Protection Programme
- ↳ VFK: Budapest 2020–30 Urban Development Concept
- ↳ BTFK: Budapest Regional Development Concept
- ↳ FKP: Budapest Environmental Programme
- ↳ TSZT: Budapest Urban Structural Plan
- ↳ IVS: Budapest Integrated Urban Development Strategy
- ↳ TFP: Thematic Development Programmes
- ↳ Budapest Danube Area Utilisation Concept
- ↳ Budapest Tomorrow and the Day after Tomorrow (The Cultural Capital of the Danube)
- ↳ Budapest Track-Bound Vehicle Strategy 2013–2027 (2013)

Of the listed documents, the Budapest and Pest County Regional Development Concepts contained several joint proposals for the development of the region of the capital city, which are priorities among the objectives of the Balázs Mór Plan.

Following the identification of problems and an analysis, understandable, clear and measurable goals, complying with the SMART criteria, were defined in the mobility plan.

SMART OBJECTIVES

SPECIFIC

DESCRIBED EXACTLY WITH QUANTITATIVE AND/OR QUALITATIVE DATA, FACTS UNDERSTANDABLE TO EACH RELEVANT GROUP.

MEASURABLE

ALL CHANGES WILL BE MEASURED ON THE BASIS OF THE MEASURABLE AND KNOWN DATA OF THE CURRENT SITUATION.

ACHIEVABLE

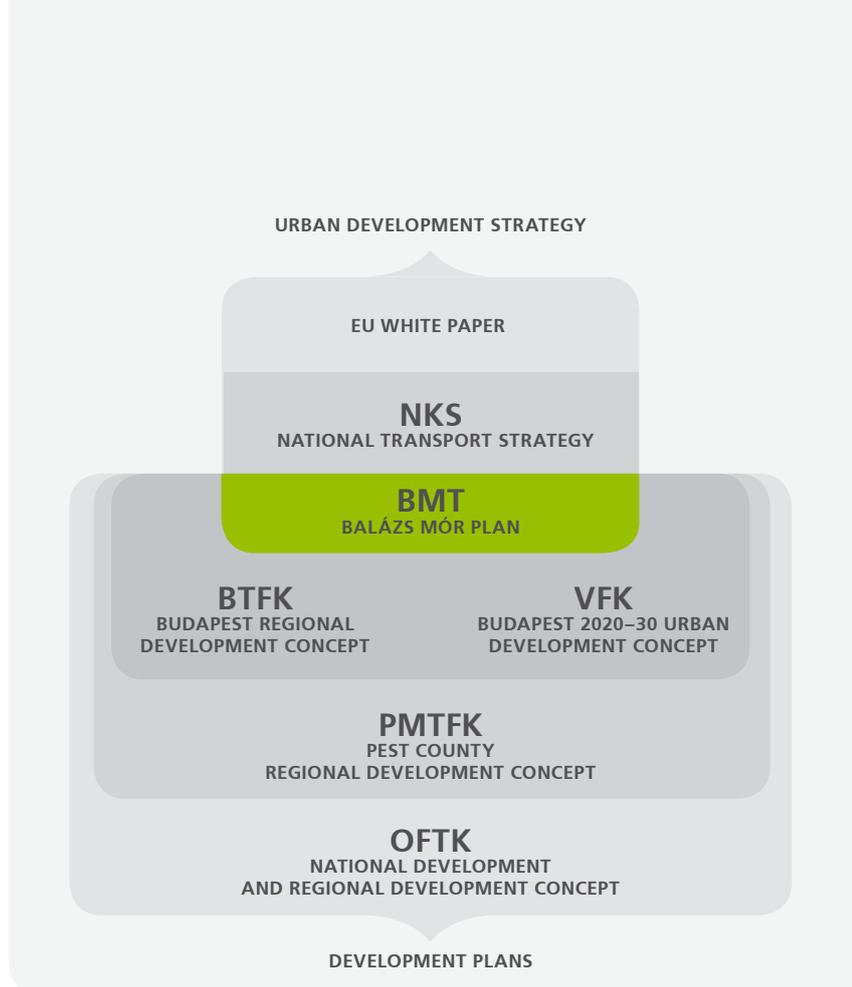
THE GOALS ARE BASED ON ACHIEVABLE TECHNICAL, OPERATIONAL AND FINANCING COMPETENCIES AND THE AGREEMENT AND COMMITMENT OF THE RELEVANT GROUPS.

REALISTIC

BASED ON KNOWN AND MANAGED RISKS AND RESOURCES.

TIMELY (TIME-BASED)

THE KEY DATES FOR ACHIEVING THE GOALS MAY BE DEFINED CLEARLY.



*POSITIONING OF THE BALÁZS MÓR PLAN IN
THE HIERARCHY OF NATIONAL AND LOCAL PLANS*

B.1 FUTURE VISION

The transport of Budapest must serve the implementation of the future vision laid down in the Budapest urban development concept: **“Budapest is a liveable attractive capital city with a unique character and is a respected member of the European network of cities as the innovative economic and cultural centre of the country and the city region.”**

B.2 GENERAL GOAL

The development of the city has a great effect on transport behaviour and mobility needs. Transport is a major city-forming power, a shaping factor of economic development and the environment, a part of urban policy. The Balázs Mór Plan is based on the future vision of Budapest’s urban development, stating that the objectives laid down in the Budapest 2030 Urban Development Concept must be supported with the means of transport.

In line with the flagship initiative “Resource Efficient Europe” and the new Energy Efficiency Plan 2011, the paramount goal of European transport policy is to help establish a system that underpins European economic progress, enhances competitiveness and offers high-quality mobility services while using resources more efficiently. In practice, transport has to use less and cleaner energy, better exploit a modern infrastructure and reduce its negative impact on the environment and key natural assets like water, land and ecosystems.
EU White Paper (17.)

General goal of transport:

„The transport system of Budapest should improve the competitiveness of Budapest and its region and contribute to a sustainable, liveable, attractive and healthy urban environment.“

FUTURE VISION

BUDAPEST IS A LIVEABLE, ATTRACTIVE CAPITAL CITY WITH A UNIQUE CHARACTER AND A RESPECTED MEMBER OF THE EUROPEAN NETWORK OF CITIES AS THE INNOVATIVE ECONOMIC AND CULTURAL CENTRE OF THE COUNTRY AND THE CITY REGION.

GENERAL GOAL

THE TRANSPORT SYSTEM OF BUDAPEST SHOULD IMPROVE THE COMPETITIVENESS OF BUDAPEST AND ITS REGION AND CONTRIBUTE TO A SUSTAINABLE, LIVEABLE, ATTRACTIVE AND HEALTHY URBAN ENVIRONMENT.

STRATEGIC OBJECTIVES

**I
LIVEABLE URBAN ENVIRONMENT**

**II
SAFE, RELIABLE AND
DYNAMIC TRANSPORT**

**III
COOPERATION IN
REGIONAL CONNECTIONS**

INVENTION AREAS/PRIORITIES

**1
MORE
CONNECTIONS**

**2
ATTRACTIVE
VEHICLES**

**3
BETTER
SERVICES**

**4
EFFICIENT
GOVERNANCE**

CORRELATION BETWEEN THE FUTURE VISION AND KEY STRATEGIC OBJECTIVES

B.3 STRATEGIC OBJECTIVES

The EU transport policies conceived with an integrated approach (where the keywords are sustainability, competitiveness, integrated approach, involvement of the stakeholders in defining the objectives and the tasks, systematic monitoring of decisions and evaluation of implemented projects), focus on the healthy lifestyle of people and their communities and the liveability of cities.

The BMT also applies an integrated approach, where the goal becomes transport specific at the level of transport measures.

With regard to transport specific strategic objectives, the key concept of the Balázs Mór Plan is integration. Sustainable urban mobility planning achieves integration on three different target areas, and terminates the unilaterally sectoral and transport-based approach, as well as the approach that does not go beyond the city's administrative boundaries and links:

- ↳ the urban development and the transport development approach,
- ↳ the methods of development and operation of the various transport modes, and
- ↳ local, regional and macro-regional systems.

Consequently, the specific objectives of transport development in Budapest from 2014 are as follows:

I LIVEABLE URBAN ENVIRONMENT

– transport development, integrated into urban development by influencing transport needs and mode selection, reducing environmental pollution and enhancing equal opportunities

Transport solutions must be integrated into the objectives of urban planning in order to achieve one of the basic conditions of sustainable development of Budapest, which is the effective management of existing values, spaces and instruments. The surfaces used for transport must be integrated into the urban public spaces as their organic parts, taking the actual needs and spatial specificities into consideration. Liveable urban space utilisation and the desired shaping of mobility require not only balanced urban structural development that follows the principles of the 'compact city', but also the environmentally conscious use of the already built infrastructure. That is why less polluting transport modes such as walking, cycling and public transport must be made readily available and their self-evident, everyday use needs to be promoted.

II SAFE, RELIABLE AND DYNAMIC TRANSPORT

– the integrated development of transport modes through efficient organisation, stable financing and target-oriented development

Safe transport spaces, predictable and reliable transport means, built on consistent principles, are required in order to enable residents to reach the sites of their everyday activities. If our intention is to operate our city predictably, stable financing has to be provided for transport that facilitates cost-effective development, maintenance and operation. The means of operation and development must be designed to facilitate interoperability between the transport modes, an increase in cooperation between services and service operators and the environment-specific division of labour between sub-sectors.

III COOPERATION IN REGIONAL CONNECTIONS

– regional integration of Budapest with the help of a transport system that supports regional cooperation and strengthens economic competitiveness

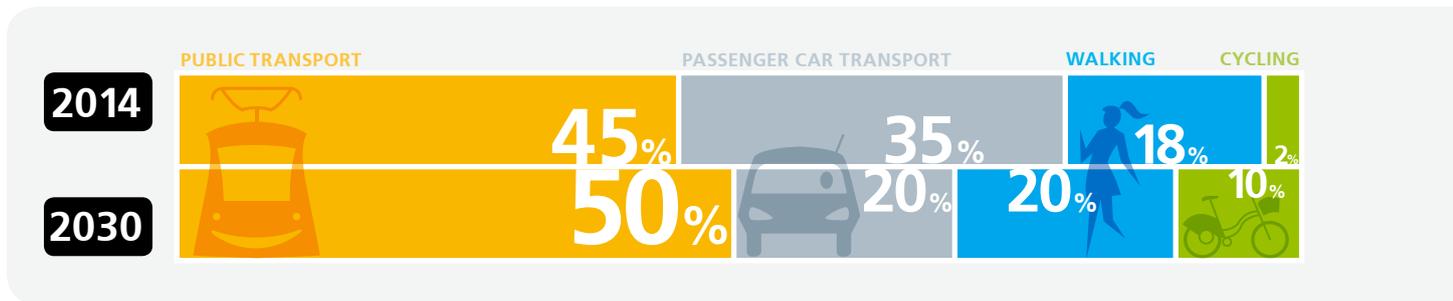
Budapest is situated at the intersection of international, national and regional transport networks. Taking advantage of the opportunities stemming from this location would result in the establishment of an economic area that is competitive also at a global level. Budapest and its surrounding area, forming a consistent region, can provide an environment for a wide range of activities. Well-coordinated economic cooperation requires, among others, an integrated system of transport networks and the optimisation of their connections.

The optimisation of macro-regional – international and national – transport systems requires the effective interconnection of railways, roads, waterways and air transport networks and the integration of those networks with the regional and local ones.

The optimisation of regional transport systems requires a complex network and regulatory structure which facilitates cooperation on a daily basis. A basic principle that is essential for achieving the development objectives of the capital city in line with the efforts of the European Union is to apply an integrated approach in transport policy that goes beyond administrative boundaries. The development of regional transport network connections,

transferable (interoperable) systems and intermodal transfer points and the introduction of related services, governance and regulations are important tasks for Budapest.

B.4 INTERVENTION AREAS, PRIORITIES



MODALSPLIT
figures with the current and estimated values

The intervention areas link the transport development means with integrated strategic goals and determine the tasks for each traditional technical field of transport. The Balázs Mór Plan focuses on four transport intervention areas, i.e., infrastructure, vehicles, services and the system of institutions:

1 MORE CONNECTIONS

- ACHIEVED BY INTRODUCING OF NEW CONNECTIONS AS WELL AS THROUGH THE SAFE AND RELIABLE DEVELOPMENT OF THE EXISTING TRANSPORT NETWORKS, THE REDISTRIBUTION OF PUBLIC AREAS AND THE DEVELOPMENT OF PASSENGER-ORIENTED INTERMODAL CONNECTIONS

“Infrastructure shapes mobility. No major change in transport will be possible without the support of an adequate network and more intelligence in using it.”

EU White Paper (10.)

An accessible, well-maintained, safe infrastructure, satisfying the requirements of our times, forms the scene of everyday transport in Budapest and an important component of the urban environment. The availability of that infrastructure must be ensured continuously in terms of operation, maintenance and development. Integrated

infrastructure development leads to the revised use of public areas and the redistribution of urban spaces, which simultaneously remedies the disproportionalities of the transport network and creates an attractive, healthy and liveable urban environment. The development of the competitiveness of walking, cycling and public transport improves both the mobility and the environmental situation of the city. The objective, by the more efficient utilisation of the existing infrastructure, is to establish well-managed public spaces and community places where all transport modes are accessible and can be used safely.

② ATTRACTIVE VEHICLES

– THROUGH A COMFORTABLE AND PASSENGER FRIENDLY VEHICLE FLEET AND THE DISSEMINATION OF ENVIRONMENTALLY FRIENDLY TECHNOLOGIES

“Urban transport is responsible for about a quarter of CO₂ emissions from transport, and 69% of road accidents occur in cities. The gradual phasing out of ‘conventionally-fuelled’ vehicles from the urban environment is a major contribution to significant reduction of oil dependence, greenhouse gas emissions and local air and noise pollution. It will have to be complemented by the development of appropriate fuelling/charging infrastructure for new vehicles.”

EU White Paper (30.)



As preventive maintenance and development have always been postponed, the technical standards of the vehicles and infrastructure of public transport in Budapest are significantly lower than required. The majority of the vehicle fleet is well beyond its economically and technically ideal active life, including also vehicles that have gone through value-adding refurbishment.

The commissioning and operation of advanced, comfortable and safe public transport vehicles gradually replacing the ageing vehicle fleet is an urgent task. A comfortable, accessible and clean vehicle running on time per schedule can make public transport more attractive in itself than passenger cars. An advanced service and maintenance background is also needed to ensure that vehicles of sufficient quality are available for the passengers every day.

In accordance with the EU guidelines, one of the objectives of future developments is to reduce the level of environmental pollution caused by public transport vehicles operating in Budapest. Apart from the renewal of the public transport vehicle fleet, the measures regulating the taxi and city logistics services also encourage the improvement of the environmental characteristics of the vehicles used in Budapest in order to make the air cleaner in the capital city.



3 BETTER SERVICES

– THROUGH AN EFFECTIVELY ORGANISED AND INTELLIGENT, WIDELY AVAILABLE, INTEGRATED TRANSPORT SYSTEM THAT PROVIDES ESSENTIAL INFORMATION

To promote more sustainable behaviour, better mobility planning has to be actively encouraged. Information on all modes of transport, both for travel and freight, on possibilities for their combined use and on their environmental impact, will need to be widely available.

EU White Paper (48.)

The availability, extent and quality of transport services are important parts of the quality of urban life. Public, real-time travel information, transparent and fair tariffs and state-of-the-art fee payment methods promote the use of the system and, simultaneously, facilitate more effective utilisation of the transport infrastructure and vehicles in both individual and public transport. In the public transport system of Budapest, more stress must be put on accessible informational technology applications that assist the movement of people and influence their needs and the usage, as well as on advanced traffic control and passenger information systems.

4 EFFICIENT GOVERNANCE

– THROUGH CONSISTENT REGULATION, AND PASSENGER FRIENDLY DEVELOPMENT OF NATIONAL, REGIONAL AND LOCAL NETWORK CONNECTIONS

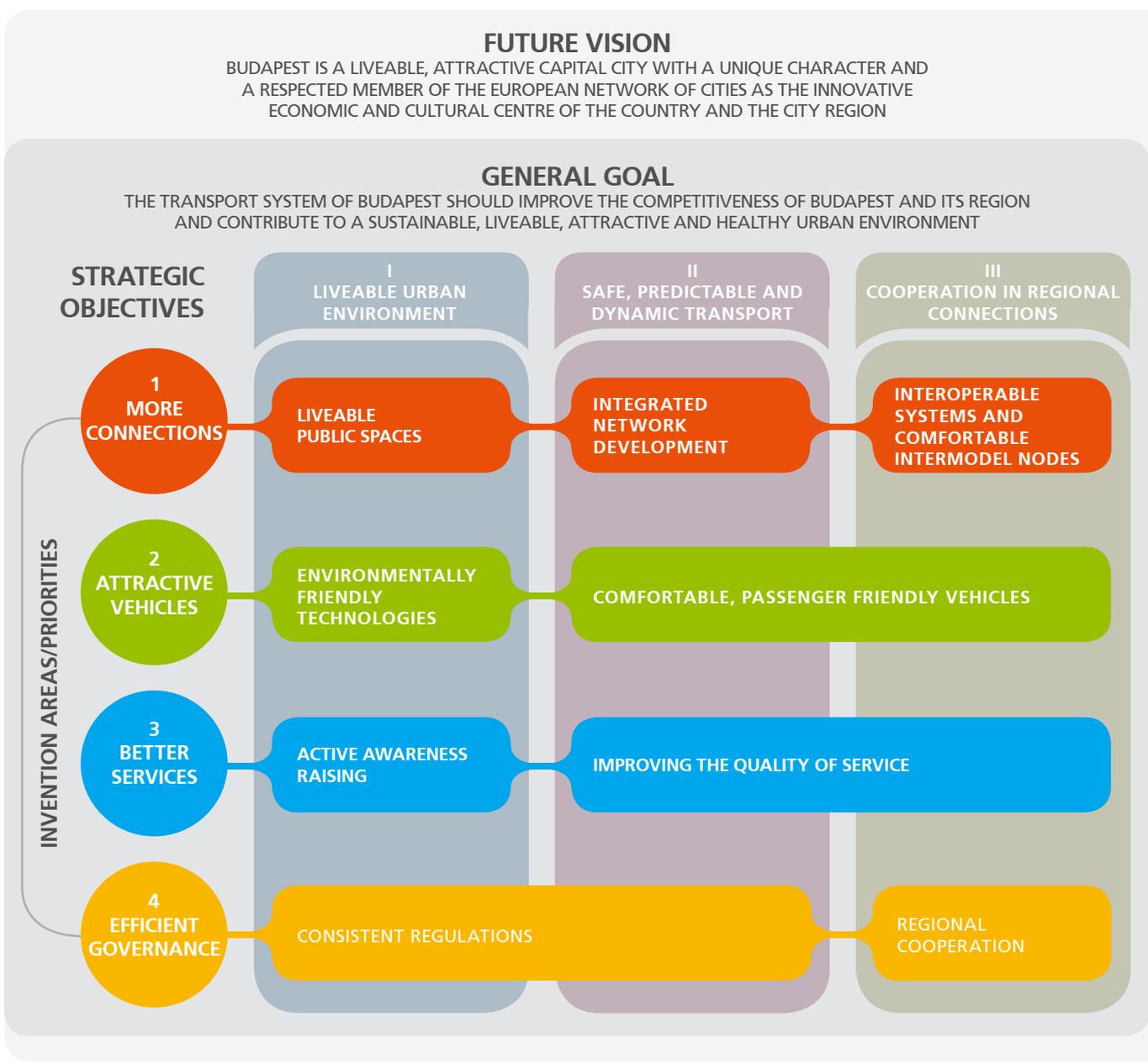
“The objective is to enable the residents, economic actors and various institutions to find high-quality homes in the city in an excellent infrastructure, sustainable natural and built environment under appropriate organisational and legal conditions.”

Budapest 2030 VFK

The transport governance system of Budapest must support the achievement of the set urban policy objectives. Since 2010, the transport matters of Budapest have been implemented in a consistent, well-coordinated form, due to the establishment of BKK and the subsequent institutional reorganization. The main task for the subsequent years will be to ensure the operation as an integrated system of the currently separate public transport services, which operate within the city and on the metropolitan area networks. The formation of a consistent timetable, consistent tariffs and a consistent information system is conditional upon the needed governance background. The set of institutions of the consistent transport service system and the framework of cooperation of the participating organisations must be put in place. In addition, a stable, sustainable and predictable financing framework is required for an effective governance system that can function as the background of quality transport services.

B.5 OPERATIONAL OBJECTIVES AND MEASURES

The most important operational objectives have been defined for the four intervention areas of the Plan and a set of measures were assigned to each. The projects, developed and implemented on the basis of the presented measures, will be the instruments for implementation of the strategy.



OPERATIVE OBJECTIVES FITTING INTO STRATEGIC OBJECTIVES AND INTERVENTION AREAS

1



MORE CONNECTIONS

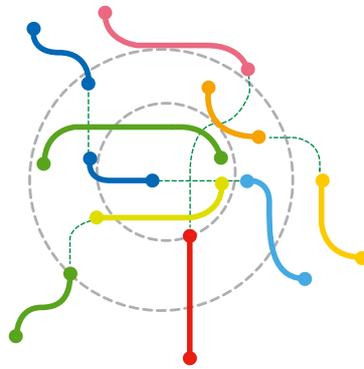
ACHIEVED BY INTRODUCING NEW CONNECTIONS AS WELL AS THROUGH THE SAFE AND RELIABLE DEVELOPMENT OF THE EXISTING TRANSPORT NETWORKS, THE REDISTRIBUTION OF PUBLIC AREAS AND THE DEVELOPMENT OF PASSENGER-ORIENTED INTERMODAL CONNECTIONS

+50%

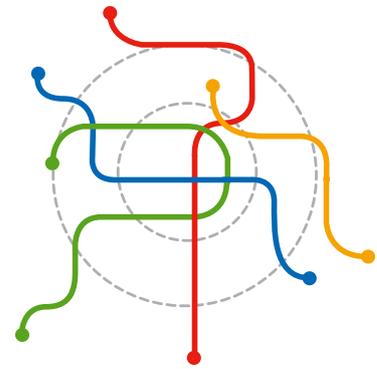
THE NUMBER OF TRACK-BOUND CONNECTIONS CROSSING THE ADMINISTRATIVE BORDERS OF THE CITY AND REACHING THE CITY CENTRE WITHOUT ANY CHANGE WILL INCREASE BY 50%

+100%

THE NUMBER OF AT LEAST 15 KILOMETRE-LONG, TRACK-BOUND AND DIRECT CONNECTIONS WILL BE DOUBLED BY 2030



2014



2030



Budapest has changed a great deal over the last three decades, but the development of urban transport could not flexibly follow the urban processes. All that is an especially great problem in suburbs and in the metropolitan area, where the most intensive changes took place encouraging car use. The problem stretches across the whole city increasing congestion of public roads also in areas that are well served by public transport.

The ring-radial main road network of Budapest has only been developed in the inner areas. The development of the spatial structure and the urban sprawl were not followed by any considerable road network development in the suburbs. The transversal road and rail connections were not put in place in full; the existing network components are incomplete and fragmented in certain parts of the city. There are no continuous high-capacity, transversal connections in suburban districts either by road or by public transport, and therefore an increasing share of road traffic, not headed to the city centre, also uses the historic, centuries-old narrow streets of the inner city and the centrally located Danube bridges. It will be a task for the forthcoming period to eliminate the fragmentation in the radial track-bound transport system and to introduce the transversal connections, primarily on the Pest side due to its topography.

Since the 1970s, the public transport system of Budapest has been mainly determined by public transport lines feeding to and from the metro lines. None of the existing four metro lines reach the suburbs, thus passengers need to transfer to the suburban railways, buses, trams or trolleybuses at the metro terminuses. Apart from a few exceptions, surface transport services operating in the inner parts of the city have not, until recently, had any connections with services operating in the outer parts of the metropolitan area. The connecting services were cut off at metro stations and, apart from the feeder function their role in the network was eliminated.

Although the capacity of the public transport network would permit adequate performance for the size and the needs of the city, but the limitations on the track-bound network due to the obsolete infrastructure, deteriorate not only travel time and reliability, but also the performance of the network. Therefore reconstruction is required.

Over the last few decades, urban and transport development ignored the importance of cycling and dealt with it separately from motorised transport as a weightless problem, which is also reflected in the shape of Budapest's road network today. The complex design and implementation projects aimed at infrastructure refurbishment and development to make public spaces more liveable, have recently focused intensively on cycling.

Three operational objectives promoting integration with urban development, integration of transport modes and regional integration relate to infrastructure development:

- ↳ integrated network development
- ↳ liveable public spaces
- ↳ interoperable systems and comfortable intermodal nodes

1.1 INTEGRATED NETWORK DEVELOPMENT

THROUGH INTELLIGENT URBAN STRUCTURAL CONNECTIONS AND THROUGH NETWORK DEVELOPMENT REDUCING TRAFFIC DISPROPORTIONALITY

The basic infrastructure of urban transport comprises the rail, suburban rail, metro and bus network, as well as the main road network, providing various regional and long-distance connections and connecting the urban districts. The further network elements of surface transport, including secondary roads, form the fine layers of the infrastructure. According to the underlying principle of the Plan, those systems need to be managed and developed with an integrated approach. The integrated approach is an overall requirement in network development; only development of such spirit should be implemented. This section summarises the measures according to the respective transport modes.

Mobility needs cannot be satisfied with quality services without developing the infrastructure. Traces of former, partially implemented road development may be seen primarily in suburban areas: important network components were not or only partially completed (e.g. Danube bridges, ring road network components on a single carriageway, intersection legs); elsewhere excessive multilane roads were constructed near residential areas with calmed traffic. The lack of network components of the fixed-rail infrastructure and the intersection of various, not interoperable fixed-rail networks force bus transport to replace track-bound services on a permanent basis. That is why the number of buses on the roads is disproportionately high, which entails more environmental pollution than absolutely necessary and high operating costs compared to track-bound transport. In order to achieve basic level equal opportunities in transport, otherwise unnecessary parallel functions must be established and maintained in the network in the short run.

The fragmentation of the tram network many decades ago and the gradual reduction of its service area assumed the expansion of the metro network at an impossible rate and a much smaller than the actual increase in road traffic. By now it has become clear that the renewed tram service is a significantly cheaper, more effective and passenger friendly solution than the metro.





New tram track on the outer section of Bécsi út

Surface extension of metro line M3 to Káposztásmegyér (residential area)

Northern extension of tram line 2, extension of tram line 3 to Angyalföld

Possible routes for extension of metro line M1

New tram line to Újpalota

Merging of metro line M2 and suburban railway lines H8/H9

Extension of the cogwheel railway to Normafa and to Széll Kálmán tér

Reconstruction of previous tram tracks on Bajcsy-Zsilinszky út

Extension of suburban railway lines H6 and H7 to the city centre

Extension of tram line 1 to Kelenföld railway station

New subsurface routing of suburban railway line H6 via the centre of Pesterzsébet

Extension of tram line 42 to Havanna and Gloriett residential areas

Extension of suburban railway line H7 to Erdősor utca

- Existing or soon-to-be-built tram lines
- - - Planned tram line
- - - Planned subsurface route section
- - - Planned deep-bored route section
- New transfer points
- - - Cancelled route section and station

1.1.1 PUBLIC TRANSPORT ROUTES PROVIDING DIRECT CONNECTIONS

The connection of isolated components of various urban rail networks would allow for high-quality services, which are competitive with motorised individual transport both in capacity and in travel time in the long run. Apart from the establishment of specific connections and connecting elements and standardisation of the parameters of technical operation, a sufficient number of attractive P+R car parks and B+R storage facilities should also be established at the stations of the suburban sections.

The development of the public transport track network, as a unified system, requires the reconstruction of some of the previously terminated network connections and the introduction of a few new connections, as well.

Thus the continuous track network can eliminate the current insular operations: diverging and interconnecting line groups may be built that cover large impact areas, yet provide attractive services and sufficient capacity to passengers on shared sections.

Main directions of development:

- 11 ➔ integration of urban and suburban track-bound networks,
- 12 ➔ building of the missing interconnections of the track-bound network in the city centre,
- 13 ➔ expansion of the track-bound network in densely built zones,
- 14 ➔ establishment of transversal track-bound connections.

Integration of urban and suburban track-bound networks

A network is consistent when the city centre and important transport axes can be accessed from existing suburban lines without any discomfort in changing and any loss of time. In order to have integrated development, the existing suburban railway lines need to be reconstructed, barrier-free access has to be provided, the vehicles must be replaced and P+R components must also be constructed at several locations along the roads leading into town, both within and outside the administrative boundaries of Budapest. In relation to these developments, the total feeder and distribution bus network should be reviewed to eliminate any unnecessary parallel functions. Advanced, high-capacity suburban lines reaching the city centre without the need to transfer, can improve the quality of the connections of suburban districts and the metropolitan area significantly.

Through the development of the east-west axis and the connection of metro line M2 with the existing suburban rail network, the residents of the eastern parts of the city and surrounding

settlements may also get access to the metro service. The travel time will be reduced significantly on the reconstructed routes and the constraint to transfer at Örs vezér tere via an underpass will also be eliminated. Simultaneously with the development, some of the level crossings, separating settlement parts, can also be eliminated. High capacity P+R car parks should be formed at motorway intersections (M0, M31), and P+R car parks adjusted to local demand should be put in place at other stations.

The purpose of the north-south regional high-speed railway is to connect the Szentendre-Csepel Island main transport axis through a new railway tunnel underneath the city centre. The thus connected three suburban railway lines will create a new route from the Danube Bend and from the South Pest area, which now can only be covered by several changes and detours. Travel time will be reduced significantly in both directions, thus the daily commuting distance may increase and the existing railway infrastructure, underused in many places, will also become a more effective alternative to parallel bus and individual transport.

Developing the missing interconnections of the inner-city track-bound network

Simultaneously with the construction of the radial metro network in the 1970's, the surface transport routes were cut in the city centre and tram services were removed from several routes. Since then, longer connecting services have been introduced on the bus network, but forced transfers for one or two stops are still required when travelling by tram. That makes public transport less attractive to other modes of transport and has an adverse effect on the appreciation of areas in the centre. Environmental pollution, caused by multilane roads on the surface is another contributing factor.

The purpose of the new network connections is to eliminate those inadequacies on the north-south axis in Pest, i.e. on Váci út and Bajcsy-Zsilinszky út, on the Danube embankment on the Buda side of the city and in an east-westerly direction on Rákóczi út–Kossuth Lajos utca. The developments will restore the consistency of the track-bound network of the city, which improves accessibility in many directions and allows for traffic calming along the main arteries of the centre.

Expansion of the track-bound network in densely built zones

The network development did not follow the urban structural changes of the previous decades and therefore several housing estates, constructed between 1970 and 1990, were left without any sufficient track-bound transport connection. New sections of the tram network, the connections of the suburban railways to the



network and the extension of the metro network requiring only a few stations in the vicinity of the new housing estates have not been implemented either. By eliminating those deficiencies, the utilisation and economical operation of the existing network can be improved and the congested bus routes can also be relieved.

To provide competitive fixed-rail services to the Havana and Gloriett housing estate in District 18, the main axis in District 14 (Thököly road), the Újpalota housing estate in District 15, Újlipótváros in District 13, the Buda Hill areas in District 12 (Svábhegy, Széchenyi-hegy, Normafa) and outer Óbuda (Bécsi út, Aranyvölgy) is a fundamental task. In the medium term, it is necessary to connect the Óhegy and Újhegy housing estates in District 10, in Óbuda a new north-south connection will have to be constructed on the main axis of the housing estate. The Infopark and the Lágymányos Campus will have to be connected to the existing network and the technology and business park in District 18, situated on the border of the metropolitan area close to Vecsés will have to be connected to the city centre through fixed-rail services.

Further tasks include the extension of the Millennium Underground Railway (metro line 1) in Zugló and the connection of the line to tramline 2 which runs along the river Danube. That project also includes the provision of barrier-free accessibility on the 120-year-old railway line and the replacement of the special vehicle fleet.

The northern extension of metro line M3 will facilitate a connection to the Újpest and Káposztásmegyer housing estates and to the national and suburban railway lines, offering further connections to the M0 ring road and the M2 motorway.

Establishment of transversal fixed-rail connections

The lack of transversal (diagonal, avoiding the centre) lines is one of the serious disadvantages of the spatial structure of Budapest. That is why many trips are forced to use the radial routes and the city centre, even if their actual destinations lie elsewhere.

The main components of this measure include the construction of tramline 1 along Hungária körút all the way to the Kelenföld intermodal hub and the extension of the external Pest tram ring, i.e. of line 3 to Angyalföld through the brown-field site in Rákosrendező. Later, the external ring may also be extended to Pesterzsébet, Csepel and, finally, with the help of a new bridge across the Danube, to Albertfalva and Budafok in several phases. The development actions must be implemented simultaneously with the construction of parallel transversal roads.

1.1.2 MODERNISATION OF THE EXISTING TRACK-BOUND NETWORK

The adequate interoperability of the integrated fixed-rail network is not only limited by the missing components, but also by the poor condition of a considerable part of the existing sections. Although within a consolidated framework of operation, it is an issue of operation, at present the phenomenon is so extensive in Budapest that unless the issue is resolved, the usability and interoperability of the whole network is at risk.

In order to ensure the long-term capacity of the network, the modernisation and replacement of the deteriorated components of the existing infrastructure is an outstanding task on the whole track-bound network which must be performed at a pace that facilitates the gradual elimination of the backlog. The modernisation also requires a regulatory environment that can keep up with the development of the technical solutions. In the complex approach to the reconstruction of the transport networks, the reconstruction of the infrastructure (where connectible) involves the reconstruction of the entire cross-section of the public space.

Among the most important backbone network components, metro line M3, which carries the largest number of passengers, even when compared to national rail lines, requires reconstruction. The majority of the suburban railway lines are in a bad condition; the existing infrastructure must be aligned to the requirements of the 21st century and the conditions of safe operation. New services must be introduced at the stations via the necessary technical interventions, the width of the platforms must be extended and accident black spots have to be eliminated. Speed is limited on a considerable part of the lines, which also decreases the quality of the service. Apart from the track and station infrastructure, the energy supply systems of the lines and some of the vehicle depots also require reconstruction. Simultaneously with those tasks, connections must be built for the metro network, the majority of the level crossings need to be eliminated, disabled access will have to be introduced and the capacity of parallel bus transport services will have to be reduced with an integrated approach.

Most tramlines have been reconstructed since the 1990s and consequently the condition of the infrastructure has improved. Some sections need to be gradually refurbished and reconstructed again according to the life cycles. In order to ensure sustainability, a continuous reconstruction financing system must be put in place on the tram-track network that helps to maintain the condition of the lines. Those capital expenditures, implemented with an integrated approach, should be aligned in terms of timing and financing with the construction of the new line sections and accessible platforms as well as with vehicle procurements. In the course of reconstruction, noise and vibration protection tasks and, wherever required, landscaping activity must also be performed.



On trolleybus lines, the main development tasks of the forthcoming period include the reconstruction of the obsolete power supply systems and the introduction of fast switches. Simultaneously with vehicle procurement, the trolleybus network may be complemented by sections without overhead wires for battery-based off-wire operation.

1.1.3 CONNECTION OF SEPARATED PARTS OF THE CITY VIA NEW DANUBE BRIDGES AND GRADE SEPARATED ROAD-RAIL CROSSINGS

In the inner parts of the city, traffic concentration may be eased, the transit passenger car traffic can be gradually eliminated, new connections may be established between external district centres and the traffic load of the central Danube bridges and the related road network can be substantially reduced by constructing new bridges across the Danube. Through the construction of new bridges across the Danube and the development of the surrounding areas, a better balanced and less centralised urban structure can be created. The Danube crossings, currently missing from the transport structure of Budapest (Csepel–Albertfalva, Újpest–Aquincum and Galvani utca–Kén utca) will also be the main pillars of the city's ring-shaped transport connections. The cluster of open spaces and green islands on the North Budapest Danube section, and along the Ráckeve-Danube branch could be organised into a permeable system with a few localised interventions, and the recreational network of the Danube corridor may be expanded significantly by the construction of a few lesser bridges for pedestrians and cyclists across the side-branches of the Danube (Óbuda Island, Molnár Island). A feasibility study summarising the implementation options will be prepared for the construction of the new Danube bridge.

The road-rail level crossings of the main and collection road network of Budapest make the concerned parts of the town separated, reduce the capacity of the routes significantly, impede the continuous flow of road traffic and are also prone to accidents. They may be replaced primarily in relation to the reconstruction of railway lines, through the construction of grade separated crossings within the framework of certain railway projects.

1.1.4 CONSTRUCTION OF THE MISSING COMPONENTS OF THE ROAD NETWORK

The main ring-radial road network of Budapest is complete only in the inner parts of the city. Continuous urban sprawl was less and less followed by the construction of the main road network. Mostly the transversal road connections are missing, while the existing network components are often incomplete or fragmented. Consequently, there are no continuous transversal road connections with sufficient capacity. By constructing transversal roads, the congested district centres can be

bypassed and relieved of car traffic. All that must be achieved through the integrated development of public transport options. However, the former plans, focusing on extensive expansion of capacities to accommodate increasing traffic, should not be implemented as revised developments need to be identified that fit in with the Budapest transport development concept. The most striking inadequacies may be observed on Körvasút ring road, the road connecting the South-East Pest districts, the backbone road in Csepel and in Nagy Lajos király útja.

1.1.5 ROAD RECONSTRUCTION WITH A COMPLEX APPROACH

Road reconstruction in Budapest (including the respective bridges and structures) should be prepared and designed with the basic principle of making complex changes based on the review of the traffic alignment and traffic requirements instead of making condition-improving interventions (e.g., replacement of pavement) without any change in traffic. In the course of that development, the road surface will be reallocated according to the requirements of the age whereby, if necessary, the total cross-section will be redesigned, including footpaths and green strips in the vicinity that impact walking and cycling.

The road and transport infrastructure refurbishment, implemented in detail with a complex approach, will improve the conditions of cycling and walking and, if required, the traffic lights will also be reprogrammed. Within the framework of the refurbishment, public transport stops will also be made suitable for low-floor vehicles. The required traffic safety interventions can be made by using traffic and accident data.

Each bridge and structure will be reconstructed on the basis of an individual review. In addition to the structural reconstruction of the bridges, the connecting roads will also be reconstructed based on a complex, phased schedule, in line with urban development goals.

1.1.6 CONTINUOUS MAIN CYCLING NETWORK

Parallel with the development of the previously heavily fragmented cycling network, bicycle traffic has also been growing dynamically over the last few years, whereby cyclists have become natural participants in transport and public spaces. According to regular bicycle traffic count data, the number of people cycling on working days doubled between 2006 and 2010.

In order to ensure the accessibility of the city for cyclists, a new, continuous and safe main bicycle network will be built in the inner city within the Hungária körút that will connect parts of the city in a legible way for its users, facilitating a connection between the Budapest network and regional bicycle routes, too. In the outer parts of the



city the development of local bicycle connections and connections between district centres will assist commuters cycling to work and will also improve access to regional and tourist attractions for cyclists.

1.1.7 IMPROVING CYCLING ACCESSIBILITY, A BICYCLE-FRIENDLY SECONDARY ROAD NETWORK

The urban cycling infrastructure has not been able to satisfy the dynamically increasing demand for everyday cycling: the state of the existing network is obsolete, there are frequent route alignment errors, the route surfaces are in a bad condition, and there are frequent conflicts with pedestrians and parking. Network administration, management and maintenance is not consistent, certain sections are not properly interconnected and bicycles may be stored only at a few, low-capacity points.

The role of the local infrastructure components supplementing the main cycling network in Budapest is primarily to facilitate short, 1 to 5 km long trips within districts by turning the road network into a bicycle-friendly network. The conditions of safe cycling can be ensured with the traffic engineering review of the current road network, with the redistribution of road surfaces and the introduction of zones with traffic calming. It involves numerous small interventions not only along a particular single route, but rather on an area-basis (speed limits, local area traffic management, conversion of intersections, review of traffic lights used by cyclists, prioritisation measures, the opening of one-way streets to contraflow cycling, designation of bus and cycling lanes, designation of pedestrian and cycling zones, barrier-free environment for cyclists, comfortable surfaces, accessibility of intermodal hubs by bicycle). Apart from improving the internal services of a particular area, these measures will also improve the bicycle feeder traffic to high-capacity public transport routes. The introduction of public transport vehicles, suitable for carrying bicycles, will also improve the accessibility for cyclists.

1.1.8 EXTENSION OF THE WATERBORNE TRANSPORT NETWORK AND SERVICE INFRASTRUCTURE DEVELOPMENT

New piers must be constructed both within and outside the administrative boundaries of Budapest that are able to support scheduled services and new routes to create the conditions of regional (metropolitan area) boat services in order to reach Szentendre (or even Visegrád and Vác) in the north and Százhalombatta in the south.

The quality of the boat pier infrastructure determines the attractiveness and capacity of the riverboat sector. An adequate pier can support a fast exchange of passengers regardless of the water level. On-shore facilities must be positioned at easily accessible locations, near public transport stops and quality mode switching options (P+R car parks and

B+R storage facilities depending on the site). The construction of new inner city piers (Vigadó tér, Kossuth Lajos tér, Várkert Bazár) should be coordinated with public space developments in the area, improving the conditions of pedestrian access. Tourist attractions on the river Danube should also be made accessible by boat, which requires better cooperation between commuter and touristic boat services. The Plan includes the development of infrastructure, suitable for river cruise-ships with cabins (supplementary services, connecting bus parking, well-arranged pedestrian areas) primarily on the central sections of the River Danube which do not have a World Heritage status.

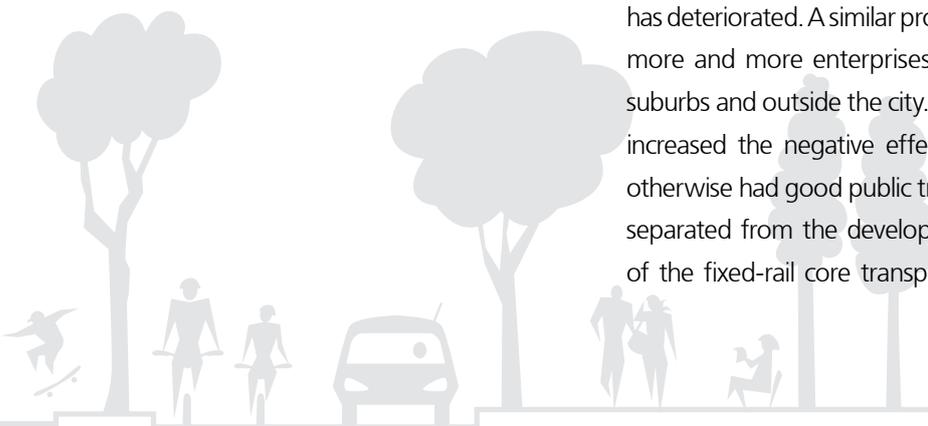
1.1.9 DEVELOPMENT OF THE SYSTEM OF CONCENTRATED LOADING FACILITIES

The end points servicing retail are important parts of the logistics system of the city, the increasing use of which is a growing problem in the urban structure. The concentrated network of loading facilities, used for urban logistic tasks for decades, and the related regulations (e.g. issuing of licenses) have hardly changed over the last few years. In the meantime, public spaces were transformed rapidly in certain parts of the city with the appearance of new and important functions requiring logistics. A city logistics concept is being developed for introducing a new basis for the supply of goods, in which the most important components, with regard to concentrated loading facilities, are as follows:

- ↳ an increase in their number,
- ↳ their time-balanced utilisation,
- ↳ clear and unified system of signage,
- ↳ facilitated access.

1.2 LIVEABLE PUBLIC SPACES THROUGH THE RELIABLE AND SAFE OPERATION AND MODERNISATION OF TRANSPORT NETWORKS, AND THE REDISTRIBUTION OF PUBLIC SPACES

Many people moving out of the city ended up in areas insufficiently covered and hard-to-serve by public transport, while utilisation in concentrated residential areas, traditionally well serviced by infrastructure, has deteriorated. A similar process took place with regard to workplaces: more and more enterprises opted for sites of operation situated in suburbs and outside the city. The lack of public transport in the suburbs increased the negative effects of motorisation in inner areas which otherwise had good public transport services. Urban development was separated from the development of public transport: the end points of the fixed-rail core transport network, which determines the main



transport circulation of Budapest, do not reach the functional city borders and there are no adequate mode-switching points either. Consequently, people travelling from and to the outer areas of the city often opt for a passenger car even despite traffic congestion.

The experience of urban development trends has revealed that the problems of individual passenger car usage cannot be managed effectively by increasing road capacity; the solutions need to be defined with an integrated transport development approach.

The redistribution of surfaces used by transport services began in the inner city over the last few years, whereby the area used for motorised transport has been decreasing and the role of public and non-motorised individual transport (cycling and walking) has been increasing.

Facilitating walking and cycling should become an integral part of urban mobility and infrastructure design.
EU White Paper (31.)

1.2.1 DEVELOPING MAJOR PEDESTRIAN CONNECTIONS

The first steps of developing a pedestrian system (Váci utca, Buda Castle and Margaret Island) have rendered contiguous parts of the city pedestrian-friendly. The development actions of the recent period, including the Heart of Budapest project and the reconstruction of the Millenáris Park in Buda, have introduced new architectural quality, garnering public support for further public space reconstruction projects.

The promotion of walking has by now been integrated into new developments taking place in the Hungarian capital and has become a general aspect of planning. Within the framework of the construction of metro line M4 and the Heart of Budapest project, several inner city public spaces and streets were reconstructed between 2007 and 2013 wherein addition to the transport requirements, those of a recreational, touristic and hospitality nature were also taken into consideration when performing the changes. Barrier-free pedestrian surfaces were provided extensively throughout the city.

The objective is to organise inner city areas and new pedestrian and cycling friendly public spaces into a single network within a liveable urban structure. For this purpose, feasibility studies have been commenced to identify the pedestrian friendly development options along the Danube banks, the Kossuth Lajos utca–Rákóczi út axis, the Nagykörút (Grand Boulevard) and the related inner city road network (Bajcsy-Zsilinszky út and Üllői út).

1.2.2 IMPROVING THE CONDITIONS OF WALKING

The often 30–40-year-old rundown pedestrian underpasses at the main city transport hubs will be reconstructed. Pedestrians are supposed to move along on the surface level; although it is not possible to fully replace the function of the underpasses, however the pedestrian and bicycle crossing points to be established above the underpasses on the surface will reduce forced underpass use. Within the framework of the complex road reconstruction activities, pedestrian movements will also be assisted with footpath construction and submerging kerbs also at places where there are no designated crossings. These measures and the designation of several pedestrian crossings will help to reduce the separating effect of certain road sections at the same time improving the options for safe crossing.

1.2.3 EQUAL OPPORTUNITIES AND BARRIER-FREE ACCESSIBILITY

The poor condition of the transport infrastructure and equipment does not only cause problems in daily operation, but it does not provide equal opportunities for passengers either. Although it is required by law, accessibility is by far not universal.



Complex equal opportunity reviews will be conducted on the existing transport surfaces, public transport vehicles and facilities (stations, stops and terminals). Accessibility will be introduced by a phased programme based on the reviews, helping not only people with a reduced mobility, but also those travelling with prams and small children. Accessibility must also be created in the new and reconstructed infrastructure as well as in state-of-the-art vehicles. Apart from the elimination of physical barriers, accessibility through information and communications technology will also contribute to equal opportunities as in the renewal of the audio passenger information system and the introduction of visible and legible special signage.

1.2.4 ACCIDENT FREE 'FORGIVING' ENVIRONMENT

Poorly aligned road sections make accident free and safe transport more difficult while inadequately selected speeds, worn road surfaces, unclear road signs and the lack of a "forgiving environment" increase the risk of accidents.

As a result of road reconstruction planning with a complex approach, human-centred "forgiving" transport spaces can be created in Budapest where accidents caused by road conditions may be prevented and accidents caused by human and vehicle errors are less severe. Where accidents occur regularly and increasingly, proposals for traffic engineering modifications are prepared with the help of targeted road safety audits.

In the course of operation, reconstruction and development of the road network of Budapest, the goal is to create clear order in traffic conditions and to make it safe: the 'self-explanatory' surfaces formed according to the road category automatically convey all the information required for safe driving such as for speed selection. Apart from the improvement of the condition road surfaces, indispensable for safe transport, road signs will also be renewed within the framework of the programme.

Within the category of the prevention of accidents, special attention will be paid to children: the traffic alignment and the condition of traffic signs are reviewed in the vicinity of schools in Budapest each year. Public transport vehicles must comply with the safety requirements on an ongoing basis. Stricter technical requirements applied to passenger transportation vehicles also contribute to transport safety.

1.2.5 DEVELOPING ZONES WITH TRAFFIC CALMING AND TRAFFIC RESTRICTIONS

In order to reduce the speed of road traffic and to increase the safety of pedestrians and cyclists in residential areas, restricted speed zones will continue to be designated, with the elements of the public road network reconstructed accordingly. The system extends to all locally important components of the road network in the inner urban zone.

The consistent development of the “self-explanatory” road system (reduction of superfluous, excessive capacities, construction of traffic safety increasing components) will assist motorists in the selection of adequate speed. There should be no urban road sections left in densely populated areas where increased speed is allowed or possible.

1.2.6 DIFFERENTIATED DEVELOPMENT OF THE INNER ZONE OF BUDAPEST (WITHIN HUNGÁRIA KÖRÚT)

The integrated development of the road network can lead to the elimination of territorial disparities, ease the central focus and can create a proportionate and balanced network through traffic regulation, differentiated according to environmental characteristics, traffic calming, even and problem-free traffic management and congestion reduction. The conditions of reducing transit traffic must be put in place in the inner zone, even by applying a total ban on certain critical sections, for instance no transit passenger traffic should enter parts of the city within the Nagykörút). Active modes of transport cycling, walking and public transport – characteristic of a liveable city are provided more room in the city centre.

Public car-parking capacities for destination traffic must be reduced in the inner areas, and short-term public parking, priced and regulated according to the actual demand and supply, introduced. Vehicles should not be stored in public areas but in underground garages, multi-storey car parks and in existing private car parks, thus freeing further space.

1.2.7 LIFE AND PROPERTY SECURITY, CRIME PREVENTION

A liveable city is also safe, and therefore surveillance and security systems will be gradually introduced on board vehicles and at intermodal nodes in Budapest.

In order to ensure the safety of passengers, the new vehicles, purchased within the framework of the development of the public transport vehicle fleet in Budapest, will be supplied with an effective camera system. Cameras will be installed at stops on busy route sections, such as on tramlines 1 and 3, where during the reconstruction, lifts operating between underpasses and the



surface stops will be equipped with security cameras. Cameras will also be installed at the docking stations of the public bike-sharing system and advanced safety protection will be applied at new public transport customer centres.

The security-system recordings will be stored in a manner and for the period specified by law, thus ensuring access and justified and conditional control, yet preventing abuse.

1.3 INTEROPERABLE SYSTEMS AND COMFORTABLE INTERMODAL NODES

THROUGH THE INTRODUCTION OF COMFORTABLE INTERMODAL NODES ON THE INTEGRATED TRANSPORT NETWORKS, THE ESTABLISHMENT OF INTEROPERABLE SYSTEMS, THE PASSENGER-ORIENTED DEVELOPMENT OF INTERMODAL CONNECTIONS AND MODE SWITCHES AS WELL AS THE IMPROVEMENT OF TOURISM-ORIENTED CONNECTIONS

The everyday mobility needs of a city are satisfied with the subsequent use of various transport modes and vehicles, forming a so called travel chain. The majority of people do not use only a single transport mode: there are no passengers who are exclusively pedestrians, cyclists, bus-, car- or taxi-users; each traveller combines those modes, optimising his or her trip in space and time from departure to destination. Passenger comfort demands fewer changes and the availability of advanced, fast and safe mode-switching points. In the past, traffic planning did not take those criteria into account.

1.3.1 INTEROPERABLE TRACK-BOUND SYSTEMS; URBAN AND SUBURBAN RAIL NETWORK

In order to ensure interoperability and smooth trips, the combination of the various rail tracks, currently operated separately, will result in an interoperable system; thus the vehicle will “transfer” from one line to another and not the passengers. This can reduce the number of changes, the travel time and make travelling more comfortable. Totally interoperable transport modes will be developed along major urban structural axes with permanently large passenger flows.

The state railway lines crossing and often separating the Capital must have a significantly greater role within the city and in the traffic between the metropolitan area and the city, which requires not only a modification of the traffic parameters of the railway lines, but also the design of the stations need to be adjusted to meet the traffic demand. In order to reduce the number of changes, an analysis will be prepared to identify how the suburban lines can be integrated



with the urban rapid railways (metro) and the state railways and the opportunities for future integrated interoperable cooperation.

Our suburban railway network has very few features of an advanced suburban rapid railway system (“S-Bahn” according to the German terminology). Although in the recent years a phased timetable was introduced almost everywhere, the modernisation of the fleet is also progressing at a good pace and the tariffs are also partly consistent within Budapest, the system needs further development: the internal interoperability of the railway network must be enhanced by restructuring the current terminal station system, by using the transversal railway lines for passenger transportation and by introducing more and more services without any transfers. The urban transport connections also require improvement; new interchanging connections need to be introduced.

Adding more stations to the railway network may cause a conflict on the current infrastructure due to mixed traffic; therefore, the track capacity must be extended by the construction of third and fourth tracks. The increase of track capacity permits the desirable 10–15 minutes of interval between services in peak periods (even shorter intervals on the merged sections), instead of the current 20–30 minutes or even longer intervals. The capacity of the terminal stations should be extended and new diametric connections should be put in place that bypass them and involve no changes.

Better modal choices will result from greater integration of the modal networks: airports, ports, railway, metro and bus stations should increasingly be linked and transformed into multimodal connection platforms for passengers. Online information and electronic booking and payment systems integrating all means of transport should facilitate multimodal travel.

An appropriate set of passengers’ rights has to accompany the wider use of collective modes.

EU White Paper (23.)

1.3.2 IMPROVING CONNECTIONS BETWEEN THE SUBURBAN RAILWAY NETWORK AND THE URBAN FIXED-RAIL NETWORK

Improving the network of interchange connection is the key to the cooperation of the suburban railway and the urban fixed-rail systems. As in Budapest the fixed-rail transport system was built independently from the railway network and currently connections exist only at some major transport hubs, the integration of the railways with urban transport and the simultaneous easement of urban traffic call for the introduction of new interchange connections.

These new connections are required at the intersections of the suburban railways and the trunk lines of the urban fixed-rail network (primarily the metro lines and, secondarily, the major tramlines). The new interchanges may be implemented in phases, together with the next scheduled development of the fixed-rail network components.

1.3.3 INTEGRATION OF THE CITY ACCESS AND BYPASS SECTIONS OF THE NATIONAL ROAD NETWORK INTO THE ROAD NETWORK OF BUDAPEST

Apart from Hungária körút, the primary objective of the road development measures is to put the missing connections of the ring-radial road network system in place. Those connections are required to bypass congested district centres and to provide a relief of car traffic through the development of public transport options. The capacity of the roads leading into the Centre from various directions must no longer be increased and there is no point in letting traffic beyond mode-switching points. A review of the system of radial connections, planned earlier between Budapest and the surrounding settlements, has been commenced.

The purpose of the developments is to facilitate reasonable and geographically better balanced traffic on the road network, to remove any unnecessary traffic from residential and service roads, to create development potential in the transitional zone and to ease traffic on the congested main routes crossing district centres. Such sections include the northwest section of the M0 motorway, the Budapest section of main road No. 10, the boulevard along the Körvasút, the Csepel trunk road connecting the Southeast Pest districts, the Budapest section of main road No. 31, the access road to Liszt Ferenc International Airport and Nagy Lajos király útja.

1.3.4 FACILITATING THE URBAN INTEGRATION OF LONG-DISTANCE PUBLIC TRANSPORT

By minimising walking distances and level differences at the interchange hubs of the long-distance rail and bus networks, by providing urban transport connections at the stations and accurate and complex passenger information, we get a much more integrated and efficient system with fewer changes. If the system of terminal stations is maintained for a long term, the changes between various long-distance services may be assisted by providing high-capacity, fixed-rail, direct connections. Urban integration will also be enhanced by making long-distance trains stop at one or two busy urban railway stations, e.g., at the airport, before reaching the terminus.

1.3.5 INTEGRATION OF RIVERBOAT SERVICES INTO URBAN AND REGIONAL PUBLIC TRANSPORT

The Danube as a transport corridor across Budapest was practically not used for decades. Over the last twenty years, passenger navigation in Budapest involved only event, tourist and leisure boats. Long-distance navigation is still limited to seasonal tourist and event boat services operating from Budapest towards Szentendre and the Danube Bend. However, this transport option should not be left unused. Similarly to other riverside metropolises, scheduled waterborne public transport services need to be developed in Budapest and its surrounding area, too. The public transport boat services will add to the range of available public transport services only if they provide new direct connections to areas with poor transport coverage.

The urban side of the Danube bank must be made more easily accessible and ports need to be connected to the public transport network. By increasing the role of navigation, road traffic in the Centre and on the embankments can be reduced, and by improving connections to the ports, citizens can be encouraged to opt for public transport, walking, or cycling.

1.3.6 IMPROVING THE ACCESSIBILITY OF BUDAPEST LISZT FERENC INTERNATIONAL AIRPORT

Considering the passenger traffic of Budapest Liszt Ferenc International Airport, it would not be economical to build a dedicated fixed-rail urban connection. In the long run, accessibility of the Airport may be provided through building a high-speed railway track, with a stop at the Airport, within the framework of national railway development. The medium-term solution could be a new railway side track off the existing railway which later can function as the extension of metro line M3, depending on the passenger numbers and the development of the Airport. By road, accessibility of the Airport may be increased by the joint reconstruction of the Ferihegyi gyorsforgalmi út and the bordering Gyömrői út, through the reconstruction of the junctions and by offering frequent opportunities to ingress and egress the expressway. That is how the road leading to Liszt Ferenc Nemzetközi Repülőtér can preserve its original function, yet become a safer urban main road with higher capacity that also serves the abutting urban areas and provides attractive urban development options.

1.3.7 DEVELOPMENT OF LOGISTICS CENTRES AND THEIR CONNECTIONS

The logistics centres host economic activities that do not pollute the environment intensively, yet attract considerable traffic. An important aspect of their establishment is to position them not only in the vicinity of Budapest but at the intersection of high capacity networks of several modes of transportation (air, water, rail and road) with the consideration of regional and national connections. In order to reduce environmental pollution, preference has to be given to environmentally friendly transport modes (rail and water) and the services of new terminals must be based on them. At the moment, only the Csepel Free Port is used for cargo traffic in the European transport corridor of the Danube, hence waterborne freight transportation connections should be enhanced on the border area of Budapest and the town of Érd.

1.3.8 DEVELOPMENT OF NATIONAL AND REGIONAL CYCLING TOURISM CONNECTIONS

Cycling has an increasing share in the tourism-generated traffic of Budapest, too: more and more people plan one-day excursions near their homes and weekend tourist traffic and the number of foreign cycling tourists are also clearly rising.

Further pedestrian and cycling connections are needed along the Danube because the islands along the North Budapest Danube section and along the Ráckeve Danube branch and the strips of the bank, still in their near original natural condition, are not easily accessible and therefore their green space potential cannot be used.



The Budapest sections of the national cycling tourist core network (the “Rivers Route” cycling route along the Danube, The Budapest–Balaton route and the Budapest sections of the Eurovelo route of the East Hungary cycling tracks, built as a priority government project) are integrated into the urban network.

1.3.9 DEVELOPMENT OF INTERMODAL NODES AND HUBS IN PASSENGER TRANSPORT

Changes (transfers) cannot be fully eliminated from the urban transport network. By developing intermodal centres and hubs that facilitate passenger friendly mode switches and perform functions other than transport as well, the non-individual motorised transport modes can be made more comfortable. One of the main objectives of urban development is to build intermodal hubs and renew their surrounding area, to create more liveable and loveable urban spaces for both local residents and visitors. Intermodal hubs vary according to their location, size, function and the number of transport modes supported by them. The consistent principles required for their development and operation should be identified on the basis of the results of the “NODES” research and development project, supported by the EU Research and Technology Development Seventh Framework Programme (FP7).

1.3.10 PROVIDING THE CONDITIONS FOR SWITCHING URBAN TRANSPORT MODES

Parallel with the reconstruction and development of the track-bound network in Budapest, the construction of P+R car parks and B+R storage facilities for comfortable, safe and predictable switches between individual (motorised and non-motorised) and public transport modes will continue in the outer districts of the city, primarily along the high capacity fixed-rail public transport lines (metro, suburban railways, trams). The main purpose of the MOL Bubi public bike-sharing system is to reduce traffic congestion in the Centre, to provide easier access to the inner city and to facilitate



short trips. Thus urban cycling will become more comfortable through the installation of bicycle racks and storage facilities.

Construction of P+R car parks and B+R storage facilities along the suburban railway lines

Passengers coming from the metropolitan area should park their cars as far away from the Centre as possible and switch for public transport there. That eases traffic on the public roads of Budapest and will significantly reduce car use within the city. Consequently, the construction of P+R car parks and B+R storage facilities must be continued along the suburban railway lines.

Construction of stations with joint platforms

While developing the network, the reduction of the number of changes in a trip is an important principle, but changes should be expected even in a well-optimised public transport system owing to the reasonable cooperation between the various means of transport. Adequate transport organising can ensure that passengers lose the least amount in space, time, expenses and comfort through changes. In order to reduce the losses in space, caused by changes, stations with joint platforms will be built. Following a complex overview of interchanges, we will be able to define further network organisation and traffic measures, with which the disadvantages of changes may be alleviated significantly (barrier-free accessibility and passenger comfort are always basic requirements in planning).

Construction of shared public transport lanes

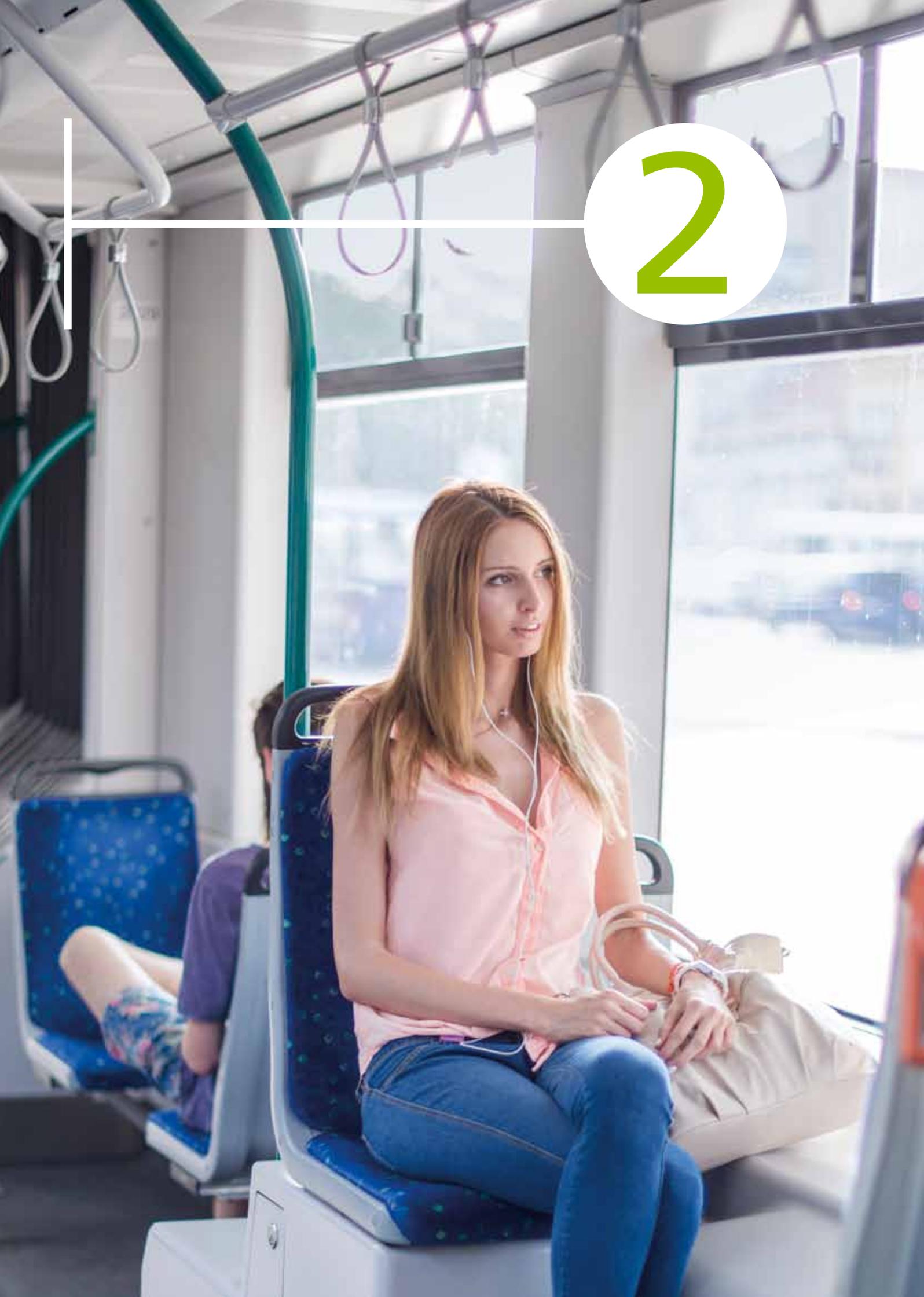
Shared public transport corridors, used by trams, buses and trolleybuses along route sections, will facilitate changes on a shared platform and common implementation of priority traffic arrangements. In addition, they will also reduce the road usage demand of public transport. Wherever traffic and the cross section of roads permit, common bus-cycle lanes will also be established as parts of the cycling infrastructure.

Short-term parking facilities (K+R)

Short-term car parks (Kiss and Ride) will be established at the intersections of public transport trunk lines and main traffic routes of the road network to facilitate changes from cars or private coaches to other vehicles.

These stops are similar to public transport stops and may be used only for the time of getting on and off. Thus passengers will not use public transport stops for such purposes as is the situation currently, which is not in line with the regulations, and is disturbing also accident-prone at the same time.

2



ATTRACTIVE VEHICLES

THROUGH A COMFORTABLE AND PASSENGER FRIENDLY VEHICLE FLEET AND THE DISSEMINATION OF ENVIRONMENTALLY FRIENDLY TECHNOLOGIES

ATTRACTIVE VEHICLE INDICATOR

25 YEARS



2014

15 YEARS



2030

BY 2030, THE AVERAGE AGE OF PUBLIC TRANSPORT VEHICLES SHOULD BE MAXIMUM 15 YEARS IN PROPORTION TO CAPACITIES



The purpose of developing the public transport vehicle fleet in Budapest is to make public transport an attractive option to travellers. There is a need for aesthetic vehicles that are in good condition and provide high quality services and further improvement is also required in accessibility.

The main objective of our work is to reduce environmental pollution caused by the transport system. On the one hand, the new vehicles will also be fuel efficient and less polluting and, on the other hand, as they offer an attractive alternative, the ratio of the use of public transport compared to individual transport modes will increase, thus the indirect effect of vehicle improvements will also be a cleaner and more liveable environment.

2.1 COMFORTABLE AND PASSENGER FRIENDLY VEHICLES

THROUGH THE RENEWAL OF THE VEHICLE FLEET ACCORDING TO ENERGY EFFICIENCY, ACCESSIBILITY AND RELIABLE MAINTENANCE

While the expectations of passengers were increasing gradually, the development of the vehicles of the Budapest public transport system lagged behind over the last few decades. Only part of the 20–30 year-old vehicles, still in adequate technical condition, went through aesthetic refurbishment. The situation may be improved by purchasing new and second-hand vehicles in good condition and by refurbishing the vehicles which continue to be in service. The measures will also improve accessibility, the reliability of services and the ratio of barrier-free vehicles.

2.1.1 MODERNISATION OF THE PUBLIC TRANSPORT VEHICLE FLEET AND ITS MAINTENANCE CAPACITIES

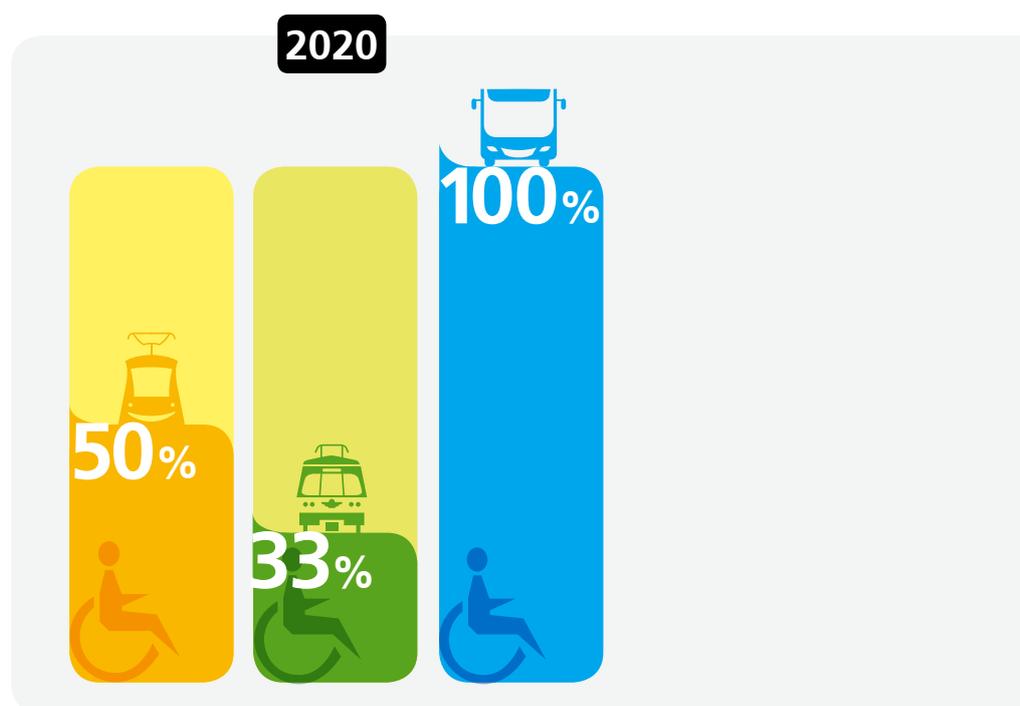
In order to catch up with the technical backlog of the last few decades, a continuous vehicle procurement and vehicle fleet reconstruction programme will be developed, in which barrier-free accessibility will play an important role.

In the bus subsector, new vehicles will be purchased, parallel to the already existing model of subcontracting high-quality services based on tenders issued for the participants in the operators' market. A more homogeneous type selection in any further vehicle and service procurements is an objective relating to effective operation. A low-floor design is a key requirement for any new vehicles.



The procurement of track-bound public transport services and the necessary related measures to be undertaken are defined in the vehicle strategy prepared by the Budapest Municipality for the period of 2013 and 2027. The purpose of that strategy is to put comfortable, low-floor, energy-efficient and environmentally friendly vehicle fleet, consisting of advanced and reliable types, into service. The replacement of the more than 40-year-old cars of metro lines M1 and M3 and that of the suburban trains, is yet another urgent task.

The modernisation of the fleet and the maintenance services of waterborne transport is also an important aspect of public transport, and the procurement of new boats can no longer be postponed either. The average age of the boats used in public services and long-distance navigation services is 30 years. They are not suitable for providing high-quality urban transport service in terms of operational dynamics or accessibility. Due to their technical specificities, none of the types is suitable for suburban passenger navigation, used for commuting to work.



RATIO OF SERVICES PROVIDED WITH ACCESSIBLE VEHICLES
IN THE TRANSPORT NETWORK OF BUDAPEST (2020)

There is a need for a good quality fleet of boats that are flexibly adaptable to weather conditions and water flows, are suitable for higher speed, fast mooring and manoeuvring, are driven with an advanced mechanism, sustainable for decades and provide a degree of comfort, which is generally expected in public transport in order to sufficiently improve the performing capacity of that transport sector. Urban and suburban services demand different types of boats. The maintenance of more advanced boats requires significantly higher quality of operation, and therefore the maintenance facilities also need to be developed.

2.1.2 ACCESSIBLE VEHICLES

Due to the poor vehicle pool and infrastructure, the majority of the transport system is not freely accessible. In addition, this problem is the gravest on the high-capacity metro and tramlines, which form the backbone of the network.

Infrastructure development is an important step in providing equal opportunity in access to transport, too, and the development of the vehicle pool will make transport more human-focused and will create the technical conditions for accessibility. Owing to the accessible vehicles, public transport services will become a real alternative to people with disabilities and public transport will be an easier, safer and more attractive option also for groups with limited capacity to use public transport services (elderly, parents with children and prams).

There are still few advanced and accessible vehicles in the bus network of Budapest, which reduces the comfort of trips and the accessibility for certain groups of society. As a result of vehicle development, the number of low-floor buses will increase, soon reaching 100% according to our plans, thus improving the mobility of individuals with disabilities.



2.1.3 CONDITIONS OF OPERATION OF THE VEHICLES, DEPOT DEVELOPMENTS

The operation of vehicles with higher technical standards and the modernisation of depots are also parts of the development of the vehicles and assets used in transport. In relation to the network enlargement projects, we shall review the location of the depots and their longer-term roles and will also make proposals for the establishment of new depots in line with urban planning.

2.1.4 PROPAGATION OF PUBLIC TRANSPORT VEHICLES SUITABLE FOR CARRYING BICYCLES

Enhancing the opportunities of transporting bicycles will extend the effective range of cycling, assist people living on hills to use bicycles, support tourist traffic, and enhance the safety, reliability and attraction of cycling. The longer-term objective is to put conditions for the transportation of bicycles, combined with reliable public transport, in place. As the first step in that process, the transportation of bicycles will be made possible on suitable vehicles in less busy periods, which may be expanded further, depending on the degree of utilisation of the system. Besides the gradual transformation of the existing vehicle pool (cogwheel and suburban train carriages) by providing bicycle-carrying capacity and more comforts, the option of carrying bicycles will be an important requirement for any new bus, tram, trolleybus or metro procurement.

2.2 ENVIRONMENTALLY FRIENDLY TECHNOLOGIES THROUGH THE ENCOURAGEMENT OF THE DISSEMINATION OF VEHICLE TECHNOLOGY SOLUTIONS THAT SUPPORT THE CLIMATE POLICY

A main objective of the European Union is to reduce the emission of transport-related greenhouse gases to around 20% below their 2008 level by 2030. The new technologies applied in vehicle development and traffic control will have a key role in this aspect. An improvement in the energy efficiency of vehicles, the support of the introduction of sustainably produced fuels and propulsion systems will reduce the harmful emission of transport.

Innovative, environmentally friendly development is encouraged in both public and individual transport.



2.2.1 PROCUREMENT OF ZERO EMISSION VEHICLES

The obsolete, diesel-engine driven buses cause severe environmental pollution in Budapest, deteriorating the quality of life, especially in densely populated central areas, which can be reduced significantly by vehicles using new propulsion technologies. The applicability of these vehicles in Budapest, with zero emission or renewable energy propulsion, is assessed within the framework of research and development partnerships.

In order to expand the environmentally friendly trolleybus network, the isolated parts should be connected and the overhead wire system must be installed in new areas, too. The service can be made even more flexible by increasing the ratio of vehicles with off-wire capability. The existing trolleybus infrastructure provides a background for the installation and extension of electronically driven buses. With technology development, the borderline between the still different sub-sectors may be faded, i.e., the bus and trolleybus services can be developed into an optimised mode of transport, in which the vehicles use overhead wires at the terminals and on the intensively used sections while they are battery-operated on the branching-off parts of the network.

2.2.2 SUPPORT OF ENVIRONMENTALLY FRIENDLY PUBLIC TRANSPORT TECHNOLOGIES

Air pollution caused by road vehicles is one of the main factors deteriorating the quality of life in cities, therefore its reduction is an objective not only in the course of the replacement of public transport vehicles, but also for individual cars. The dissemination of environmentally friendly fuels and zero emission drive systems may be supported by the introduction of preferential taxes and fees within the financial measures aimed at influencing transport modes as well as by easing the access limitations imposed for the purposes of environmental protection.

The replacement of fossil fuels by renewable energy and alternative fuels is the greatest challenge of the transport industry, for which there is still no clear answer, despite extensive research and development. That is why it is difficult to define the exact direction of development in transport measures, but it is absolutely necessary to join the research and development activities referred to above. The European Commission issued binding rules to promote the dissemination of environmentally friendly fuels. By supporting the dissemination of alternative propulsion modes and encouraging the construction of refuelling stations in line with the EU standards to be prepared by 2016, the current competitive disadvantage of environmentally friendly vehicles may be reduced.

2.2.3 MORE STRINGENT ENVIRONMENTAL REQUIREMENTS FOR TAXI SERVICES

The regulations developed in order to make the city more liveable and to reduce the environmental burden already define a requirement whereby taxi services may be provided in the Capital only by vehicles that meet the requirements of the EURO4 environmental category. Our objective is to make that requirement even more stringent and to make the EURO5 category a mandatory requirement. In order to further encourage the reduction of air pollution, hybrid, purely electric and compressed natural gas (CNG) powered taxis are granted a 20% reduction in fees payable for the use of taxi stations. Electric vehicles may not become widespread without the required infrastructure, thus the installation of integrated electric charging stations at more and more taxi stations is another objective.



3

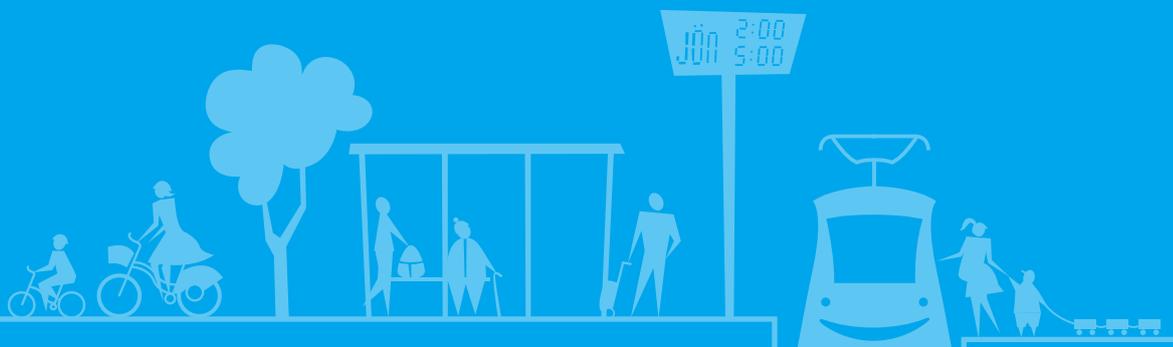


BETTER SERVICES

THROUGH AN EFFECTIVELY ORGANISED AND INTELLIGENT, WIDELY AVAILABLE, INTEGRATED TRANSPORT SYSTEM THAT PROVIDES ESSENTIAL INFORMATION



THE RATIO OF ENVIRONMENT-CONSCIOUS TRANSPORT MODES (WALKING, CYCLING AND PUBLIC TRANSPORT TOGETHER) WILL INCREASE 15 PERCENTAGE POINTS BY 2030.



“Growing out of oil” will not be possible relying on a single technological solution. It requires a new concept of mobility, supported by a cluster of new technologies as well as more sustainable behaviour.

EU White Paper (43.)

User friendly and people-oriented services are needed in order to increase the popularity of walking and cycling and the competitiveness of public transport. In Budapest, there are still many options of influencing transport mode selection which have not yet been used: the shaping of demand with administrative regulatory tools, with the introduction of alternative mobility options, with campaigns and awareness raising can supplement well the traditional, supply-based infrastructural transport development endeavours.

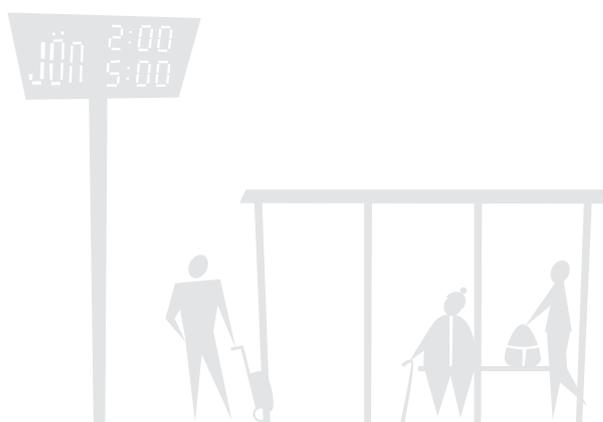
3.1 IMPROVING THE QUALITY OF SERVICE LEVEL THROUGH NORMATIVE FINANCING, UNIFORM PASSENGER INFORMATION, HARMONISED TIMETABLES AND EXPANDING INTELLIGENT SERVICES

The quality, accessibility and reliability of transport services will gain increasing importance in the coming years, inter alia due to the ageing of the population and the need to promote public transport. Attractive frequencies, comfort, easy access, reliability of services and intermodal integration are the main characteristics of service quality. The availability of information over travelling time and routing alternatives is equally relevant to ensure seamless door-to-door mobility, both for passengers and for freight.

EU White Paper (41.)

Traffic engineering measures introduced some decades ago, favouring the passenger car, have been maintained on numerous routes in Budapest, where the criteria of public transport are not taken into account at all or only to a small extent. Any service, where the majority of the travel time is spent waiting, deteriorates the overall competitiveness and attractiveness of public transport in general. Passenger transfers and changes are badly organised at several interchanges of various transport modes forcing irregular, accident-prone and ad hoc solutions to become permanent.

The currently applied tariff and ticketing system of Budapest is a uniquely out-of-date one in Europe. Obsolete technology prevents the introduction – in addition to single tickets and passes – of well-tried and popular ticket types available in other cities. The Budapest urban transport fare system is one of Europe’s most obsolete systems, while passenger information and transport information

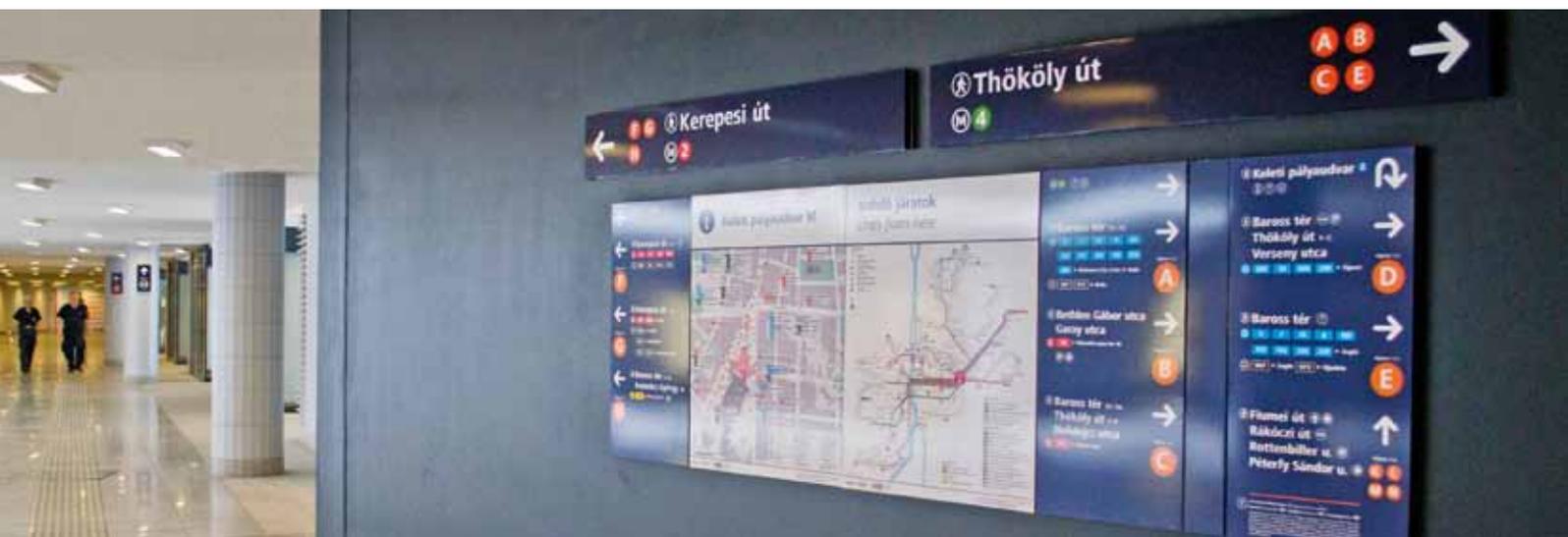


services are still not consistent, despite the development projects of the last few years.

Passenger friendly transport measures will make public transport more attractive and improve the conditions of use of the various transport modes. With the expansion of services, the travel chain will become more predictable and individual requirements can be handled flexibly.

3.1.1 CONSISTENT PASSENGER INFORMATION AND OTHER INFORMATION SERVICES

Continuous information to passengers and real-time updates on individual and public transport options are one of the key priorities for high-quality transport services in Budapest. The information and communications technology revolution of the new millennium is also taking place in the transport of Budapest: the most advanced technological innovations assist passengers in reaching their destinations as fast as possible. The integrated passenger information system, currently under development, will provide real-time and accurate traffic information minute by minute on online interfaces, accessible at the most important mode-switching points of Budapest and through mobile devices as well. With the introduction of high-quality information surfaces, the image of the transport system that determines the Budapest cityscape will also change considerably: all details of the static orientation systems will be modernised and a uniform design will be applied on internal surfaces of vehicles, on displayed orientation signs, on timetables and maps. Public transport stops will be reconstructed, the old and outdated signs will be replaced by informative and decorative information, and tourist information will be enhanced with the help of interactive orientation columns offering wifi connection at busy surface transport interchanges. Participants in transport will turn from helpless travellers into conscious passengers and from customers into partners. They can make their decisions on trips on the basis of accurate and real-time information, available before commencing their trips. Those decisions may also be assisted by personalised online and interactive on-site information, developed for modern communications tools.





3.1.2 AUTOMATED FARE-COLLECTION (AFC) SYSTEM

The fare system is an important factor in the attractiveness and competitiveness of public transport, including pricing, fare structure and access to tickets and passes, i.e., the sales system.

The introduction of a new, time-based electronic fare-collection system is a complex transport and IT development: as part of a modern system focusing on the requirements of the travelling community, the tariff system will be renewed and the paper-based system will be replaced by contactless card technology, which requires the installation of electronic ticket validating devices on vehicles and access gates will need to be installed at busy stations. Parallel with the development, the sales channels will also be expanded (internet, telephone, ATM purchase options, etc.). Within the framework of the system, the P+R car parks in Budapest will also be available for use with electronic tickets.

The time-based electronic fare-collection system will automatically track the transfers included in the fare as part of the service, and thus the system will treat each passenger as the user of a multi-component travel chain. The electronic fare system improves service quality, increases the competitiveness and attractiveness of public transport and reduces fare evasion, thereby contributing to sustainable financing.

The AFC system provides up-to-date usage data which is important for the development of the quantity and quality of the service.

3.1.3 INTEROPERABLE FARE SYSTEM AND TARIFF COMMUNITY

An integrated timetable and fare system will have to be introduced in the overall Budapest fare system in order to make public transport modes competitive with individual transport. It is especially important in regional transport, and therefore the suburban services of MÁV (Hungarian State Railways) and VOLÁNBUSZ must also become parts of the integrated system.

An integrated fare system that includes both tickets and passes is an important prerequisite of a full-value "S-Bahn" rapid railway system.

3.1.4 HARMONISATION OF URBAN AND SUBURBAN TIMETABLES AND COORDINATION OF SERVICES

It is impossible to eliminate all transfers, but all development must be aimed at improving the comfort of changes and minimising time loss. The coordination of timetables is an important aspect of that progress. An integrated timetable means that various lines meet at intersection points in a coordinated manner, which can effectively reduce time lost in changes especially on services operated with longer intervals. By coordinating suburban and urban timetables and strengthening the feed capacity of the lines,

the urban sections of the regional rail services may have a more active role in the transport of Budapest. This type of integration will involve primarily feeder bus services; the operating times must also be coordinated with transfer options adjusted to the first and last train services.

The new route signalling system of regional trains and their line numbering also contribute to the development of an integrated system. The first step of timetable integration is to establish a common timetable interface.

3.1.5 USE OF INTELLIGENT SYSTEMS IN PUBLIC TRANSPORT ORGANISATION

Providing real-time information for route choice, influencing traffic with billboards with changeable displays, parking management, coordinated and demand-driven traffic control, consistent administration and the extensive use of the databank and operation database will all contribute to predictable and effective road transport organisation.

Modern route organisation, traffic-dependent systems

The traffic review of public transport routes will identify and eliminate the factors causing idle time for vehicles and optimises the utilisation, in space and time, of road surfaces shared with individual transport. The application of traffic-dependent regulation technology solutions will give priority to public transport at due times flexibly, without any losses, and will provide a predictable and reliable service to passengers.

Modern traffic surveillance system

An advanced traffic control system ensures connections specified in the timetable even in the case of delays, in addition to effectively managing service disturbances, and provides ongoing data updates to the real-time passenger information system on current traffic conditions. If there is any service disturbance, the system informs the concerned passengers of the situation, on the measures taken for the elimination of the error and on transport options to avoid the route section involved.



Extension of solutions prioritising public transport vehicles

In order to mitigate the level of daily car use, public transport must be given real priority continuously. Instead of limitations and surcharges, the increased use of public transport will be encouraged by efficient services that are apparent and convincing on their own (direct services, bus corridors, high-speed, separated tram tracks and bus lanes, priority in traffic).

3.1.6 OPERATION AND DEVELOPMENT OF THE PUBLIC BICYCLE-SHARING SYSTEM, EXTENSION OF CYCLING SERVICES

MOL Bubi, the public bicycle-sharing service introduced in Budapest, is a new, alternative public transport service with affordable public bicycles, easily accessible for everyone in the inner, most densely populated parts of Budapest encouraging individual cycling. The system will be expanded on the basis of the actual experience of its operation.

A public cycle-parking installation programme will be launched in order to encourage everyday cycling and to improve its conditions by taking into account the requirements of local land uses and layouts, in order to make bicycle storing facilities, suitable for daily use, accessible in the vicinity of each home in Budapest and to make sure that the bicycles can be fixed conveniently and safely at the respective cycle-parking facility at any destination. That is why bicycle-parking facilities will be installed at a distance of at least 200 metres in the Centre and district centres, on office, service and work sites and in the vicinity of municipally-owned public institutions.

Supplementary services directly related to the cycling infrastructure will make the urban use of bicycles reliable and attractive. Market players may also be involved in the development of full services (rent-a-bike, fast self-service repair stations, servicing, rest areas for cyclists, cycling tour management, tour guiding, cycling centre).

3.1.7 EXTENSION OF ON-DEMAND PASSENGER TRANSPORTATION SERVICES

Not all urban transport needs can be served effectively by scheduled services especially in new residential areas with low population densities. In such places, the alternative for individual motorised transport is a demand responsive passenger transportation public service (Telebus) or the extension of the existing scheduled transport services in space or time (extended travel time or route length of the line). The current service is reviewed and extended on an ongoing basis, according to programme.



3.1.8 DEVELOPMENT OF CONSISTENT TAXI SERVICES IN BUDAPEST

The purpose of taxi service regulation in Budapest is to facilitate a predictable, transparent, consistent and reliable service for passengers with a simple tariff system. A set of conditions are required to enhance the comfort and safety of passengers that may be achieved through regular quality control by inspection. The maximisation of the age of taxis is another factor contributing to reliable urban transport.

3.1.9 CARSHARING

Schemes aimed at boosting the occupancy level of cars in the city may ease congestion in the inner parts of the city, traffic on public roads and in car parks and the resulting environmental pollution. With the help of the car sharing system, the same magnitude of vehicle usage may be achieved with fewer vehicles requiring fewer parking spaces enabling users to satisfy their mobility needs at less cost (at first 3 to 5, but later even 10 private cars might be replaced by one shared vehicle). A concept is being developed to support the dissemination of shared passenger cars with complex and specific proposals and regulatory options.

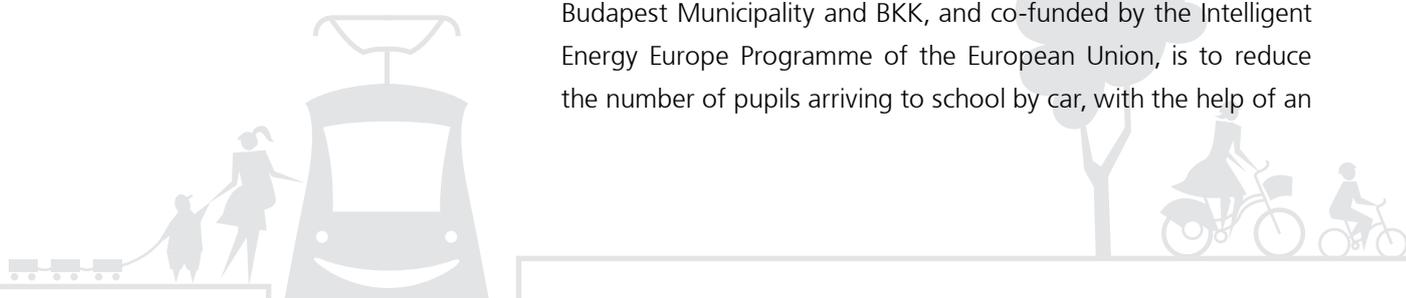
3.2 ACTIVE AWARENESS RAISING

THROUGH FACILITATING CONSCIOUS MODE SELECTION BY PROVIDING UP-TO-DATE INFORMATION AND CLIENT-ORIENTED COMMUNICATION

Our objective is to assist reaching a sustainable balance of transport modes and to enable people to find the optimal transport solutions for their everyday trips.

3.2.1 CONSCIOUS MOBILITY AND SAFE TRANSPORT EDUCATION

The transport development of the Capital is focused on people living and travelling in the city. The gradually increasing information supply, targeted campaigns and research and development cooperation all contribute to the enhancement of transport-related knowledge and people's decisions about their own mobility. Budapest continues to organise the European Mobility Week and Car-free Weekend between 16–22 September each year, calling attention to the current trends in urban and transport development, the European directives and the impacts of transport on the quality of urban life and environment. The aim of the STARS research and development project (Sustainable Travel Recognition and accreditation for Schools), conducted with the involvement of the Budapest Municipality and BKK, and co-funded by the Intelligent Energy Europe Programme of the European Union, is to reduce the number of pupils arriving to school by car, with the help of an





accreditation programme focusing on the active involvement of primary school communities (pupils, teachers and parents) and promotion campaigns.

In order to gradually reduce the number and the severity of accidents, the standard of transport culture is increased, besides providing adequate infrastructure, through targeted campaigns and educational changes at local and national levels (e.g. the integration of the Highway Code into the National Curriculum).

3.2.2 AWARENESS CAMPAIGNS AND COMMUNICATION

In order to ensure safe transport, rule-abiding conduct is promoted by the provision of information, continuous attitude forming campaigns and active communication, which focus on setting an example and on creating awareness of the social advantages of responsible road behavior. Easily understandable information with feedback opportunities is conveyed on an electronic portal, in publications, through the information centre, and with the help of maps, route planners and newsletters.

Along with an increase in the number of cyclists, the number of less experienced and uninformed users has also increased resulting in more demand for the supply and transfer of information and targeted campaigns among cyclists to promote their compliance with the rules.

3.2.3 CUSTOMER SERVICE CENTRES

It is not only the attitude of travellers that has to change, but also the approach of the service provider organising transport. In order to maximise customer satisfaction, the sales channels need to be reconsidered and a new, customer-centred approach has to be introduced.

In order to satisfy the changed demand and to improve the quality of services, customer centres will be established at the main public transport hubs and at locations with intensive passenger traffic where all transport-related requests can be managed. Apart from the AFC system, other matters relating to the integrated public transport services and, in individual cases, to the Municipality, Budapest districts and service providing partners (MÁV-Start, VOLÁNBUSZ), can also be handled there (e.g.: MOL Bubi, surcharge payment, general information, etc.). Traditional ticket offices will gradually be phased out parallel with the introduction of the new customer centres and the continuous installation of intelligent ticket vending machines.

Types of customer service centres

Based on passenger flows, two types of accessible customer centres may be introduced:

- ↳ **Customer point:** where the current ticket offices satisfy the general sales requirements, the quality of service should still be increased and managing requests and queries relating to new functions should also be made possible
- ↳ **Customer centre:** at main interchanges, where large passenger flow demands a customer service office with several customer counters.

The services and ticket sales implemented with the new approach, as well as the closely related high capacity customer centres and reliable automated ticket machines combined together are capable of serving Budapest passengers and tourists. The high-quality design and operation of the customer centres can significantly improve the general image of Budapest.

3.2.4 PRESENTATION OF TRANSPORT HERITAGE

The history of Budapest transport is marked by numerous world-standard innovations that greatly determined the identity of the Capital. Therefore, access to the preserved values by the general public will be extended. Owing to the cooperation of interested individuals and professionals, significant development has taken place in that field over the last few years, and the presentation and reconstruction of the historic technical equipment and the operation of vintage vehicles will continue. Similarly to other large cities, Budapest is also to extend its touristic offers, contributing to the expansion of local and technical history knowledge in a playful and enjoyable form and increasing the transport awareness of new generations.



4



EFFICIENT GOVERNANCE

THROUGH CONSISTENT REGULATION, AND
PASSENGER FRIENDLY DEVELOPMENT OF NATIONAL,
REGIONAL AND LOCAL NETWORK CONNECTIONS



4.1 CONSISTENT REGULATION THROUGH A SET OF INSTITUTIONS AND REGULATIONS THAT SUPPORT TRANSPORT OBJECTIVES

For the renewal and continuous development of Budapest transport it is indispensable to have a network of competent institutions representing the system of objectives, operating in line with main targets to support desired change. The creation of an adequate governance system and its stable maintenance will facilitate the implementation of the set targets and the longer-term sustainability of the system.

The regulatory environment of transport must be consistent with the complex objectives, assisting their implementation both in Budapest and in its metropolitan area.

4.1.1 FURTHER TASKS IN THE TRANSFORMATION OF TRANSPORT GOVERNANCE, NORMATIVE AND PREDICTABLE FINANCING OF PUBLIC TRANSPORT

Based on the transformation of the transport governance system of Budapest which began in 2010, all transport development actions will take place in a consistent, well-coordinated form, separated from the owner, control and service operator levels, within the framework of the Centre for Budapest Transport. Apart from further development and improvement of that model, there will be two main tasks relating to the governance system in the subsequent period.

Metropolitan area transport – which currently operates separately, as one part of Budapest’s transport – and public transport services provided on urban networks (such as railways), but not yet integrated into the city’s transport system, need to be consolidated. A consistent timetable, tariffs and passenger information system are key features of any modern metropolis and are also a prerequisite for a high-quality and competitive transport system in Budapest. However, it may be achieved only with an adequate set of institutions.

An effective set of institutions requires a stable, sustainable and predictable financing framework. The financing of public transport must be made calculable and be based on normative support to provide a framework for effective management. This financing model will facilitate efficient operation, eliminate wasteful practices and put conditions of effective development in place.

Apart from the governance tasks to organise transport, strategic planning based project development and project management practices must be enhanced, as they are prerequisites of effective fund absorption and implementation.



4.1.2 ECONOMIC AND ADMINISTRATIVE INCENTIVES

The transport system of Budapest may be shaped not only with technical, but also with financial and regulatory instruments. In order to provide effective and environmentally friendly transport services for real estate development in Budapest, a set of economic incentives must be put in place that encourage private investments in areas designated for urban development, and creates a predictable environment for development, replacing ad hoc agreements. In order to implement the future vision of the metropolis and to achieve the strategic goals, several currently used economic incentives and regulatory measures must also be reviewed and transformed. Concessions, such as free residential parking, affecting public space use for transport purposes in the Capital must be reviewed, and a new concept must be developed for introducing congestion charging to prevent urban congestion and its harmful effects.

Road pricing and the removal of distortions in taxation can also assist in encouraging the use of public transport and the gradual introduction of alternative propulsion.

EU White Paper (32.)

Through the joint application of economic and administrative regulations, encouragement must be given to major traffic-generating urban developments to be implemented near fixed-rail facilities or conditionally upon available transport services. If any such property development project is implemented on a site that is not served by a high-capacity – primarily fixed-rail – transport service, then a suitable high-capacity line should be extended as a mandatory contribution by the developer, or the required funds need to be transferred to the public sector.

Move towards full application of “user pays” and “polluter pays” principles and private sector engagement to eliminate distortions, including harmful subsidies, generate revenues and ensure financing for future transport investments.

EU White Paper (2.5.)

4.1.3 REGULATION OF PARKING

Storing of vehicles that are not participating in traffic is an increasing problem. Parking of vehicles causes the greatest problem in the centuries-old historic, densely populated parts of the city because office buildings and homes rarely offer on-site parking while surrounding public space is scarce and roads are narrow. In order to offset that, public parking



is charged in inner districts, however, the regulatory effect cannot be felt due to the large number of local parking licences, issued free of charge or for a symbolic fee. While in the inner city vehicles go round and round while seeking a parking space, almost 10,000 parking spaces in underground garages and multi-storey car parks are left unused. Public parking management is fragmented with no consistency in the designation of waiting zones, in fees and in the maximum length of the parking period.

The multi-storey car parks and underground garages in the city centre should primarily be used by local residents for storing their vehicles rather than by visitors to the city centre in order to free up the public parking facilities to implement various forms of urban community life through the reorganisation of their environment. With adequate transport supply and information in the inner districts and with economic incentives, more and more residents will realise that owning a vehicle is not a primary requirement for them as they can satisfy their transport needs in other ways, too. Comprehensive parking regulation must also support the planned measures concerning the other transport modes, including the establishment of a consistent institutional and financing system for parking and a review of the parking norms associated with developments, i.e. the improvement of the regulations for on-site office and residential parking. A consistent parking system can be established on the basis of a new concept elaborated jointly with the districts on the basis of complex surveys.

4.1.4 REGULATION OF SIGHTSEEING VEHICLES AND TOURIST COACHES

Budapest transport also comprises the vehicles, routes, departure points and stops of the sightseeing tours presenting the touristic attractions of the Capital. The detailed measures of the concept must be identified, the stops need to be designated and parking and storage facilities have to be developed with the involvement of the respective professional organisations (tourism industry, operators, transport companies) and on the basis of recent surveys. Their implementation will contribute to a more regulated use of the infrastructure and a smoother overall transport system.

The criteria of tourism should be given priority in the course of the development of navigation services, too. The balance between commuter traffic and leisure-related navigation can ensure the profitability of the system. Boat services must be aligned with the routing of touristic sightseeing trips, for which the conditions and a business plan for cooperation with the interested private service providers will be developed.

4.1.5 INTEGRATED TRANSPORT SAFETY DATABASE

Simultaneously with the Budapest transport governance reform, a separate organisational unit was created within BKK tasked with the contribution to the preservation of already improving transport safety trends. Its instruments include regulations that promote the prevention of accidents, accident records and analyses, as well as proposals and the review of development ideas on the basis of transport safety.

The first step of accident prevention is to identify the root causes of accidents. The actual tasks can be defined on the basis of the review and evaluation of the occurred events. BKK began to develop its own accident database in order to assist the exact evaluation of accidents, where significantly more accurate and detailed data than that of the Central Statistical Office are transferred directly from Budapest Police Headquarters and from the organisation responsible for public space management in Budapest. Instead of manual data collection, information is received continuously through electronic connections, and the thus created database facilitates planning activities. In line with the accident trends, accidents involving financial damage can also be recorded more and more accurately.

4.2 REGIONAL COOPERATION

BY FACILITATING INTEGRATION OF REGIONAL AND LARGE REGIONAL SYSTEMS

4.2.1 ESTABLISHMENT OF INSTITUTIONAL RELATIONS TO ENSURE AN ADEQUATE DEGREE OF INTEGRATION OF TRANSPORT SERVICES WITHIN THE BUDAPEST REGION

Although the transport governance reform of Budapest represents great progress, the institutional framework of cooperation has shrunk in urban and suburban transport services. The bureau of the Budapest Transport Association (BKSZ), formed in 2005 and responsible for preparation and implementation was closed by the owners in 2011. Cooperation in urban and suburban passenger transportation public services between the Ministry of National Development and the Municipality of Budapest is continuous, but it is not formalised. As a result of the professional dialogue, a long-term agreement between the Ministry of National Development and BKK ensures further commissioning of BKV services leaving Budapest and their integrated operation with Budapest public transport (network, scheduling, passenger information services, traffic control and fare system). As a result, municipal transport organising function has not been excluded from the metropolitan area, but significant differences have remained in the services provided for various settlements. There is a consistent ticket and pass system for the use of urban and suburban public transport services, but its development has stopped at the local and suburban pass-based tariff community level.



The current two-tier administration system of Budapest and the fragmentation of the responsibility for service provision do not favour transport integration. Daily commuting trips originating in the surrounding settlements could be supported by a regional transport organiser coordinating urban and suburban transport more intensively as a cooperation of the parties involved (The Municipality of Budapest and the competent ministry).

4.2.2 ELABORATION OF AN INTEGRATED TRAFFIC MODEL

The last representative, large-sample survey was conducted in Budapest in 2004. There are only expert estimates for the impact of the societal and economic changes on transport behaviour of the last ten years and there are no regular surveys. A decade-long deficit will be eliminated by the new integrated traffic model, prepared with the support of the European Union for Budapest and its metropolitan area to analyse the impacts of certain transport development projects and to compare development options in Budapest according to uniform criteria. During the elaboration of the model to be owned by the municipality, complex traffic surveys covering the whole region will also be conducted, for the first time in ten years, to define travel habits, mobility decision-making mechanisms and Budapest traffic volumes.

The integrated traffic model and the related continuous traffic monitoring will assist the review of the development concepts of Budapest and the surrounding area as well as the evaluation of new projects. We will be able to analyse traffic accurately, which will make the model a practical tool for up-to-date transport planning by supporting the preparations of cost-effective transport development projects and their efficient implementation in time and in space.

4.2.3 MORE STRINGENT REGULATIONS FOR THE ZONING SYSTEM, BASED ON THE TOTAL WEIGHT OF VEHICLES AND TRAFFIC RESTRICTIONS BASED ON ENVIRONMENTAL CHARACTERISTICS

Nowadays the goods supply of Budapest is heterogeneous: some trading and service companies have warehouses in the logistics zone surrounding Budapest where transportation vehicles can offload their freight and transfer them to vehicles suitable for distributing commodities within the city. However, the majority of the deliveries are still made traditionally, directly from the producers, mainly in the framework of freight distribution services. New trends have been introduced in freight transportation recently and the role of courier services and direct home deliveries has also increased due to online shopping.

Freight delivery services in the inner city are carried out incidentally as limited parking and stopping opportunities, the limited availability of concentrated storage facilities and bad utilisation of road capacity often disturb road traffic and public transport. Freight transportation is concentrated in time and in space and there are no adequate enforceable regulations and practice to avoid morning congestion.

Low-emission urban trucks must be used for freight transportation in the city, so by the application of electric, hydrogen and hybrid technologies, not only the emission of pollutants, but also noise levels can be reduced.

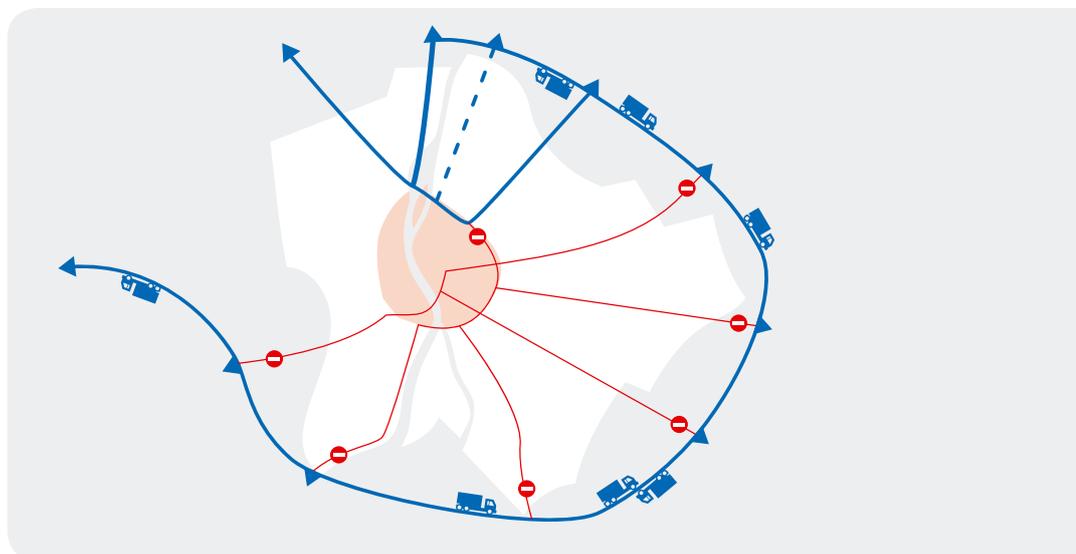
In freight transportation the interface between long-distance transport and the last phase of transport (last-mile) should be organised more efficiently. The aim is to limit individual deliveries, the most “inefficient” part of the journey, to the shortest possible route. The use of intelligent transport systems contributes to real-time traffic management, reducing delivery times and congestion for last-mile distribution. This could be performed by low-emission urban trucks. The use of electric, hydrogen and hybrid technologies would not only reduce the emission of pollutants into the air, but also noise, allowing a greater portion of freight transport within the urban areas to take place at night time. This would ease the problem of road congestion during morning and afternoon peak hours.

EU White Paper (33.)

4.2.4 OPERATION AND DEVELOPMENT OF THE FREIGHT TRANSPORT ACCESS REGULATION SYSTEM

Freight traffic demand on the territory of Budapest can be divided into three main categories:

- ↳ transit freight traffic (without any destination in Budapest)
- ↳ destination freight traffic (with a destination in Budapest)
- ↳ internal urban freight traffic (deliveries between points within Budapest)



INFLUENCING TRANSIT FREIGHT TRAFFIC

The economic processes of the last few decades have significantly changed the functions within Budapest: manufacturing plants were closed down and industrial sites abandoned in the so-called 'brown zones' and were replaced by logistics enterprises using the existing infrastructure; a process that had been continuously getting stronger until 2008 and only the total weight limitations, introduced on the whole territory of Budapest, have brought significant changes in the freight transport of the Capital. With the help of these measures and through the opening of the eastern sector of the M0 motorway the exclusion of all transit freight traffic from the territory of Budapest (with the exception of the main road no. 10 and M0 connection) has become possible. Logistics developments have also started along the city borders and in the vicinity of the M0 motorway, on sites designated for such purposes in the settlements of the metropolitan area, partly as a result of the introduced restrictions and partly due to the access charges. Development was broken by the economic decline of the previous years, but logistics and warehousing activities are still performed intensively.

Through the Budapest Freight Traffic Strategy a system has been developed that keeps transit shipments away from the city, but makes accessing the city's manufacturing and logistics sites easier. Transit freight traffic is successfully regulated by limited traffic zones



(freight traffic zones). In certain zones, internal freight transportation, i.e. delivery movements between sectors may only be conducted with licensed vehicles in possession of entry permits.

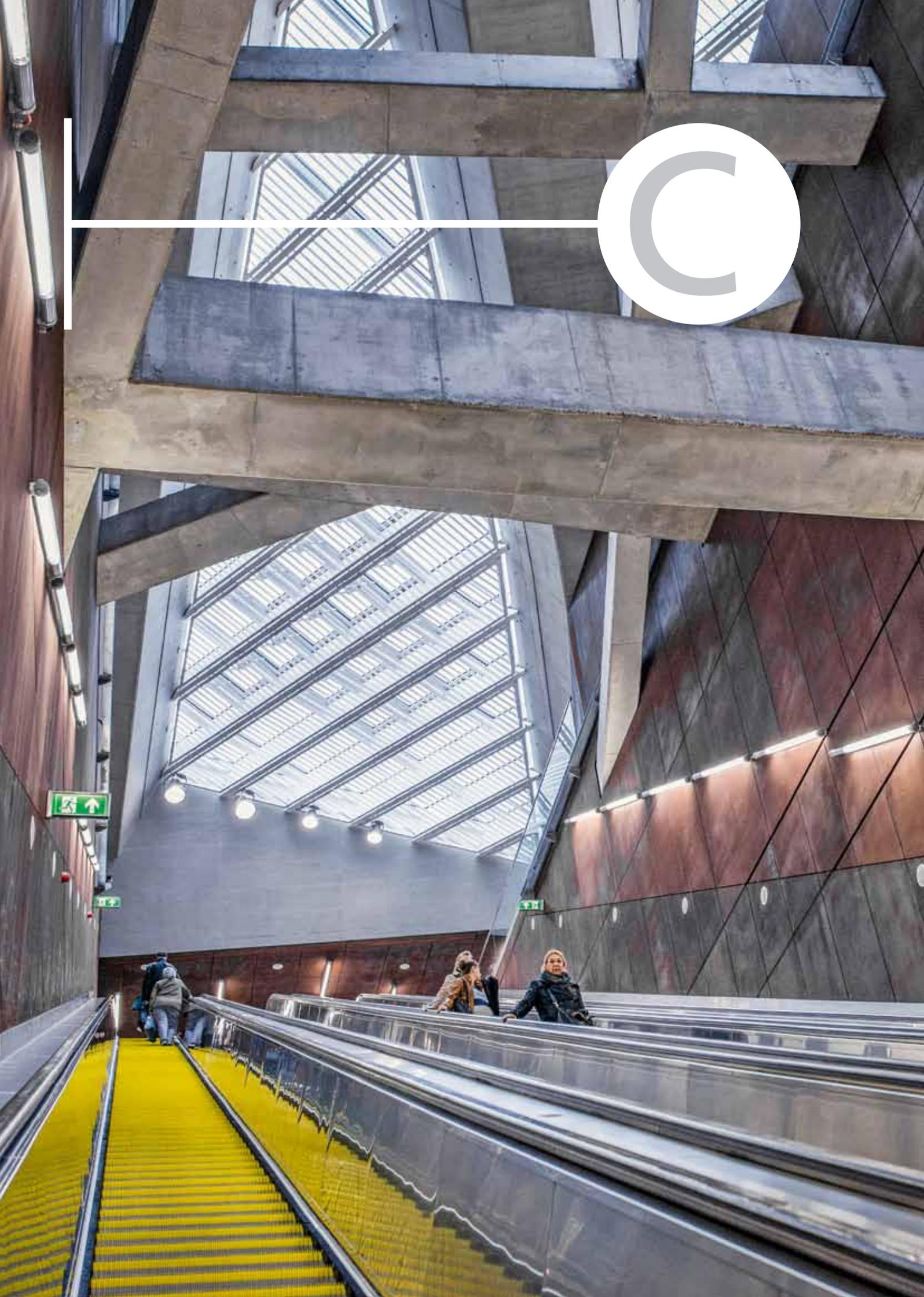
The purpose of the measures to be introduced between 2014 and 2018 is to regulate and influence the route selection and the period of freight transportation in Budapest. By reducing the number and length of the radial routes serving destination traffic served by mainly 40-ton shipments, the relocation of sites operating on inner urban logistics areas, but not serving the city per se, should be encouraged. This process may also be promoted by the increase of supply along the outer logistics ring and by growing real-estate developments in the 'brown zone'.

In the freight traffic access system, the continuous development of controlling through inspections is another indispensable factor apart from complex regulations. Inspection through stopping vehicles is inadequate and obsolete; improved controlling must be applied with the help of an intelligent technology-based system connected to the – only partially– implemented national road-toll system, and also by using countrywide experience.

4.2.5 TERRITORIAL AND TIME-BASED REGULATIONS OF LOGISTICS SERVICES, CITY LOGISTICS TASKS

By coordinating the interests of the actors involved in the logistics chain, the current urban freight supply practice may be transformed into organised city logistics, the development of which is a key task of the subsector for the next programming period 2014–2020. Special attention needs to be paid to the IT-based organisation and supervision of urban deliveries and to the optimisation of the use of concentrated storage facilities in public areas, used mainly for basic supplies. A complex city logistics concept must be devised in order to create an institutional and service background and urban supply relations, as well as to regulate logistics services in terms of space and time.

In freight transportation, the interface between long-distance transport and the last phase of transport (last-mile) should be organised more efficiently to cut individual delivery, (i.e. the least effective phase of freight transportation) shorter. The use of intelligent transport systems contributes to the reduction of delivery times and congestion. The purpose of regulating the timing of city logistics services is to make sure that most of the urban freight deliveries are made at night in order to ease the problem of road congestion during the morning and afternoon peak hours.



EVALUATION

C.1 SUMMARY OF THE STRATEGIC ENVIRONMENTAL ASSESSMENT

Government Decree 2/2005 (I.11.) on Environmental Assessment sets a requirement for a Strategic Environmental Assessment (SEA) for transport development plans. No SEA was prepared for the former BKRFT prepared in 2009 and therefore, to make up for it the assessment was prepared for the whole plan. In the course of preparation of the Balázs Mór Plan, the assessment had to be performed for the final plan, as well, due to the modifications made during the review the strategic goals.

The SEA consists of two main parts. The first one is the environmental assessment of the components of the reviewed project list, where 36 projects were analysed by environmental experts. The outcome of the first part of the SEA is a recommendation, summarised in 15 points and detailed proposals in 19 points for each project and environmental component. These proposals point to the aspects that require extra attention in the course of the design, implementation and operation of each project. Those tasks are stated also in the regulations that set out the framework for detailed planning, and have no effect on strategic planning.

In terms of the Balázs Mór Plan, the second part of SEA is of greater importance, within the framework of which experts analysed to what extent the goals and objectives of BKRFT and the BMT fit in with the aims specified in the environmental policy plans of the Capital, more specifically, to what extent they are consistent with the nine environmental objectives of the thematic target programmes. The SEA refers to this comparison presented in a table as a 'conformity matrix'. The purpose of the matrix is to present the degree of conformity between the two sets of objectives and whether or not the transport objectives serve the environmental strategic goals of the metropolis, and if there are any contradictions to the environmental objectives.

Scoring system:	
2 points	if the intervention clearly, directly and significantly supports the achievement of the objective
1 point	if the intervention weakly or indirectly supports the achievement of the objective
0 point	if the intervention has an overall neutral effect on the achievement of the objective
NR	if the intervention does not affect the achievement of the objective
?	if the effect of the intervention cannot be judged
PR	"potential risk", if the indirect effects of the intervention represent environmental, ecological risks
-1 point	if the intervention imposes a weak or indirect threat to the achievement of the objective
-2 pont	if the intervention imposes a clear, direct and significant risk on the achievement of the objective

ENVIRONMENTAL GOALS – TRANSPORT DEVELOPMENT TRENDS CONFORMITY MATRIX

FKP (BUDAPEST ENVIRONMENTAL PROGRAMME) ENVIRONMENTAL THEMATIC TARGET PROGRAMMES 1-9 BMT STRATEGIC OBJECTIVES I-III AND INTERVENTION AREAS 1-4	Environment-conscious approach to production and consumption and to the use of natural resources	Reduction of any emission that contributes to climate change, adaptation to changing environmental conditions	Environment and health – reduction of noise and air pollution	Environmental quality of Budapest – land use and the protection of the built environment	Preservation of biological diversity, nature and landscape protection	Environmental goals, relating to sustainable land use in regional development and urban planning	Protection and sustainable use of our water resources	Enhancing the efficiency of waste management in line with environmental objectives	Environmental safety – prevention and elimination of extraordinary environmental and disaster situations
I. LIVEABLE URBAN ENVIRONMENT – transport development, integrated into urban development by influencing transport needs and mode selection, reducing environmental pollution and enhancing equal opportunities	2	2	2	2	1	2	1	2	2
II. SAFE, RELIABLE AND DYNAMIC TRANSPORT – the integrated development of transport modes through efficient organisation, stable financing and target-oriented development	1	1	2	2	1	1	1	1	2
III. COOPERATION IN REGIONAL CONNECTIONS – regional integration of Budapest with the help of a transport system that supports regional cooperation and strengthens economic competitiveness	1	1	2	2	1	1	0	1	1
1. MORE CONNECTIONS achieved by introducing new connections as well as through the safe and reliable development of the existing transport networks, the redistribution of public areas and the development of passenger-oriented intermodal connections	1	1	1	2	0	1	0	1	2
2. ATTRACTIVE VEHICLES through a comfortable and passenger friendly vehicle fleet and the dissemination of environmentally friendly technologies	2	2	2	2	0	1	1	2	2
3. BETTER SERVICES through an effectively organised and intelligent, widely available, integrated transport system that provides essential information	1	1	1	2	1	1	0	0	1
4. EFFICIENT GOVERNANCE through consistent regulation, and passenger friendly development of national, regional and local network connections	2	1	1	1	0	1	1	1	2

The completion of the table also shows whether the goals are defined specifically enough to assess the estimated environmental aspects of the steps to be taken to achieve the particular goal.

ENVIRONMENTAL GOALS – OPERATIONAL OBJECTIVES CONFORMITY MATRIX

FKP (BUDAPEST ENVIRONMENTAL PROGRAMME) ENVIRONMENTAL THEMATIC TARGET PROGRAMMES 1–9 BMT OPERATIONAL OBJECTIVES 1–9	Environment-conscious approach to production and consumption and to the use of natural resources.	Reduction of any emission that contributes to climate change, adaptation to changing environmental conditions	Environment and health – reduction of noise and air pollution	Environmental quality of Budapest – land use and the protection of the built environment	Preservation of biodiversity, nature and landscape protection	Environmental goals, relating to sustainable land use in regional development and urban planning	Protection and sustainable use of our water resources	Enhancing the efficiency of waste management in line with environmental objectives	Environmental safety – prevention and elimination of extraordinary environmental and disaster situations
1.1 INTEGRATED NETWORK DEVELOPMENT through intelligent urban structural connections and through network development reducing traffic disproportionality	1	1	1	2	0	1	0	1	2
1.2 LIVEABLE PUBLIC SPACES through the reliable and safe operation and modernisation of transport networks, and the redistribution of public spaces	2	2	2	2	1	2	1	2	2
1.3 INTEROPERABLE SYSTEMS AND COMFORTABLE INTERMODAL NODES through the introduction of comfortable intermodal nodes on the integrated transport networks, the establishment of interoperable systems, the passenger oriented development of intermodal connections and mode switches as well as the improvement of tourist-oriented connections	1	1	1	2	0	1	0	1	2
2.1 COMFORTABLE AND PASSENGER FRIENDLY VEHICLES through the renewal of the vehicle fleet according to energy efficiency, accessibility aspect and reliable maintenance	2	2	2	2	0	1	1	2	2
2.2 ENVIRONMENTALLY FRIENDLY TECHNOLOGIES through the encouragement of the dissemination of vehicle technology solutions that support the climate policy	1	2	1	2	1	1	1	1	0
3.1 IMPROVING THE QUALITY OF SERVICE through normative financing, uniform passenger information, harmonised timetables and expanding intelligent services	1	1	2	2	0	1	0	1	1
3.2 ACTIVE AWARENESS RAISING through facilitating conscious mode selection by providing up-to-date information and customer-centred communication	2	1	1	2	1	1	1	2	1
4.1 CONSISTENT REGULATION through a set of institutions and regulations that supports transport objectives	1	1	1	2	1	2	1	1	2
4.2 REGIONAL COOPERATION by facilitating the integration of regional and large regional systems	1	1	1	1	0	1	1	1	1

C.2 SUMMARY OF THE EX-ANTE EVALUATION

The ex-ante evaluation of the Balázs Mór Plan followed the development of the plan from the BKRFT review process in 2009 to its completion, then to the establishment of revised goals and objectives. The current objectives of the Balázs Mór Plan were identified gradually, and rely on the previously completed professional studies, their lessons, international experience and recommendations, and mostly on the special and unique geographic, social, institutional conditions of Budapest.

The ex-ante evaluation reflects international experience according to which although an evaluation process has important key points, it is not practical to complete the whole procedure by rigidly sticking to a particular procedure. Instead, the evaluation must be adapted to the type and conditions of the particular plan. The analysis of the existing situation in the BMT also pointed out that even though transport in Hungary and, more specifically, in Budapest and its current status depend a great deal on external circumstances, the extent to which the specific framework conditions were assessed and taken into account in the previous planning processes and their efficiency within the available room for manoeuvre are at least equally as important. With the key problems identified on the basis of the analysis of the existing situation, the authors of the BMT pointed out fragmentation, regulatory inadequacies and distorted fund allocation, the alteration of which is mainly in the hands of the professionals and can be eliminated by improving their approach and their work while, as a paradox, the essence of those steps is cooperation with others, the abandoning of a unilateral professional approach, the understanding and acknowledgement of more complex objectives and the serving of common inter-professional objectives.

Consequently, on the basis of the analysis of the existing situation, the BMT determined the objectives of the transport-specific strategy as three integration endeavours focusing on the urban development objectives of the Capital. The ex-ante evaluation showed that the three types of integration, i.e., integration within transport, integration with urban development and integration of the Budapest region can provide effective responses to the set of key problems relating to fragmentation and isolation. The BMT defines clear objectives for each integration area, always aiming at a liveable urban environment, safe and reliable transport services and cooperation-based regional connections.

Transport development is required in four intervention areas, i.e., infrastructure, vehicles, services and governance in order to achieve the three transport-specific objectives. In that respect, the internal consistency of the target system did not have to be revealed separately in the framework of the ex-ante evaluation, because the BMT itself contains its explanation when it defines the nine operational objectives of the plan in connection with the four intervention areas. The document lists the nine operational transport objectives based on the four intervention areas and attaches the measures to them.

The author of the ex-ante evaluation had regular consultations with the authors of the plan and had already prepared a preliminary ex-ante evaluation at an earlier phase. The majority of the remarks made during the process have been integrated into the BMT. The three issues that triggered professional disputes and led to conflicts of opinion are included in the detailed ex-ante evaluation.

While both the plan and its strategic environmental review went through extensive public consultation in the course of the previous plan-review, the period of preparation of the BMT between November 2013 and May 2014 was determined more by structure development, more specifically by the work processes of strategy development. As soon as the draft plan for discussion is complete, another period of extensive involvement will follow.

In its current form the BMT determines indicators only for the intervention areas. According to the author of the ex-ante evaluation, defining good indicators for the complex goals is an important and urgent practical task and such indicators are definitely required.

The completion and the spirit of the BMT represent a major progress in strategic transport planning for Budapest, yet it will have a real impact only if the approach and the consequential principles will be applied in the subsequent phases of programming, too. The projects will also be implemented in that spirit instead of building false strategic ideologies around definite project ideas.

SUMMARY OF THE MEASURES



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1 MORE CONNECTIONS

1.1 Integrated network development

- 1.1.1 Public transport routes providing direct connections
- 1.1.2 Modernisation of the existing track-bound network
- 1.1.3 Connection of the separated parts of the city via new Danube bridges and grade separated road-rail crossings
- 1.1.4 Construction of the missing components of the road network
- 1.1.5 Road reconstruction with a complex approach
- 1.1.6 Continuous main cycling network
- 1.1.7 Improving cycling accessibility, a bicycle-friendly secondary road network
- 1.1.8 Extension of the waterborne transport network and service infrastructure development
- 1.1.9 Development of the system of concentrated loading facilities

1.2 Liveable public spaces

- 1.2.1 Developing major pedestrian connections
- 1.2.2 Improving the conditions of walking
- 1.2.3 Equal opportunities and barrier-free accessibility
- 1.2.4 Accident free 'forgiving' environment
- 1.2.5 Developing zones with traffic calming and traffic restrictions
- 1.2.6 Differentiated development of the inner zone of Budapest (within Hungária körút)
- 1.2.7 Life and property security, crime prevention

1.3 Interoperable systems and comfortable intermodal nodes

- 1.3.1 Interoperable track-bound systems; urban and suburban rail network
- 1.3.2 Improving connections between the suburban railway network and the urban fixed-rail network
- 1.3.3 Integration of the city access and bypass sections of the national road network into the road network of Budapest
- 1.3.4 Facilitating the urban integration of long-distance public transport
- 1.3.5 Integration of riverboat services into urban and regional public transport
- 1.3.6 Improving the accessibility of Budapest Liszt Ferenc International Airport
- 1.3.7 Development of logistics centres and their connections
- 1.3.8 Development of national and regional cycling tourism connections
- 1.3.9 Development of intermodal nodes and hubs in passenger transport
- 1.3.10 Providing the conditions for switching urban transport modes

2 ATTRACTIVE VEHICLES

2.1 Comfortable and passenger friendly vehicles

- 2.1.1 Modernisation of the public transport vehicle fleet and its maintenance capacities
- 2.1.2 Accessible vehicles
- 2.1.3 Conditions of operation of the vehicles, depot developments
- 2.1.4 Propagation of public transport vehicles, suitable for carrying bicycles

2.2 Environmentally friendly technologies

- 2.2.1 Procurement of zero emission vehicles
- 2.2.2 Support of environmentally friendly public transport technologies
- 2.2.3 More stringent environmental requirements for taxi services

3 BETTER SERVICES

3.1 Improving the quality of service level

- 3.1.1 Consistent passenger information and other information services
- 3.1.2 Automated fare-collection (AFC) system
- 3.1.3 Interoperable fare system and tariff community
- 3.1.4 Harmonisation of urban and suburban timetables and coordination of services
- 3.1.5 Use of intelligent systems in public transport organisation
- 3.1.6 Operation and development of the public bicycle-sharing system, extension of cycling services
- 3.1.7 Extension of on-demand passenger transportation services
- 3.1.8 Development of consistent taxi services in Budapest
- 3.1.9 Carsharing

3.2 Active awareness raising

- 3.2.1 Conscious mobility and safe transport education
- 3.2.2 Awareness campaigns and communication
- 3.2.3 Customer service centres
- 3.2.4 Presentation of transport heritage

4 EFFICIENT GOVERNANCE

4.1 Consistent regulations

- 4.1.1** Further tasks in the transformation of the transport governance, normative and predictable financing of public transport
- 4.1.2** Economic and administrative incentives
- 4.1.3** Regulation of parking
- 4.1.4** Regulation of sightseeing vehicles and tourist coaches
- 4.1.5** Integrated transport safety database

4.2 Regional cooperation

- 4.2.1** Establishment of institutional relations to ensure an adequate degree of integration of transport services within the Budapest region
- 4.2.2** Elaboration of an integrated traffic model
- 4.2.3** More stringent regulations for the zoning system based on the total weight of vehicles and traffic restrictions based on environmental characteristics
- 4.2.4** Operation and development of the freight transport access regulation system
- 4.2.5** Territorial and time-based regulations for logistics services, city logistics tasks

DEFINITIONS, LIST OF ABBREVIATIONS



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ABBREVIATIONS:

BKK Centre for Budapest Transport

BKSZ Budapest Transport Association (the cooperation of regional public transport)

BKRFT Development Plan for the Budapest Transport System

MOL Bubi Budapest Bicycle –the public bicycle-sharing system

SKV Strategic Environmental Assessment

SUMP Sustainable Urban Mobility Plan

DEFINITIONS AND EXPRESSIONS

(IN THE CONTEXT OF THE BALÁZS MÓR PLAN):

Accessibility Deliberate establishment or transformation of the environment in view of people with reduced mobility in order to assist them in any activity in which they are impeded.

Backbone route One route of a public transport network that serves one territory and has the highest proportional capacity.

Bus corridor A traffic lane dedicated for the exclusive use by buses taking part in scheduled public transport.

Brown zone Abandoned industrial and other worksites.

B+R parking Bike and Ride. A bicycle storage facility with an option to transfer to other public transport means.

Carsharing A telematically controlled passenger car rental service, flexible in time and space, providing shared access to a particular fleet for registered users.

City logistics Urban freight delivery management, organisation of commercial traffic in order to reduce environmental pollution.

Commuter traffic Traffic generated during journeys to work and/or an educational institution and back and during work and/or school.

Congestion charge Traffic regulation tool which entails an obligation to pay a fee for entering or driving across a particular territory.

Diagonal service A public transport service that crosses the town centre and has its terminuses outside the central zone.

EURO environmental categories The acceptable limit of emission levels by new vehicles sold in the Member States of the European Union is expressed by limit values, stated in legal regulations. Since 1992, the limit values for emission have become stricter and stricter, and are established separately for diesel and petrol vehicles.

EuroVelo The network of 14 planned cycling touring routes across Europe, defined by the European Cycling Federation (ECF). The routes serve cycling tourism and daily cycling traffic. The EuroVelo

routes must have a specific consistent service quality and uniform signs. The routes of the Hungarian sections are specified also in the Act on National Spatial Planning. Route No. 6 crosses Budapest (Rivers route).

Feeder service A public transport service which was designed to provide further travel options through transferring to another, generally backbone fixed-rail line

Freight distribution Freight transportation, logistics: a freight transportation vehicle is loaded at the loading site and distributes goods to various sites.

Freight transport access fee Traffic regulation tool which entails an obligation to pay a fee for entering or driving across a particular territory with a lorry/truck. (At present, it equals the fee payable for the operation of a truck with a total weight greater than the total weight limitation, indicated with a sign, as authorised by the road management agency.)

Indicator An index or measure defined for indicating effects and processes.

Integrated network organisation Organisation of the transport network in a way where the aspects of various subsectors and service providers are taken into account together.

Intermodal hub An intersection of various transport modes providing change/reloading options, coordinated in space.

Intermodal transport Combination of various transport modes in an ideal travel chain in terms of environment, finances and travel time.

Interoperability, interoperable transport Problem-free interoperability between various systems. The various solutions providing interoperability of vehicle systems include, e.g., different gauge, signalling, voltage level and pantograph systems, etc. The essence of such transport is the ability of the vehicle used by passengers to use different track and infrastructure systems instead of the passenger changing vehicles.

K+R station "Kiss and Ride" – a passenger car stopping place, available for use for a short period, which is constructed in the vicinity of a public transport stop in order to enable the passenger of the car to change directly to a public transport vehicle.

Limited traffic zone Any zone where trucks, trailers, agricultural trailers and slow vehicles exceeding the permitted largest total weight indicated on the sign may not operate.

Line The scheduled route and stops of a service specified in the timetable.

Line indicator system A consistent system of the combination of numbers and/or letters to distinguish the services specified in the timetable.

Metropolitan area Metropolitan area is a co-habiting, urbanised system of settlements, in which the centre and the surrounding settlements have close economic and infrastructural connections.

The largest metropolitan area in Hungary is Budapest and its region.

Mobility needs People's needs to change places.

Mode switch Changing from one mode of transport to another.

Motorised transport mode A collective concept for travel options where the vehicle is driven by an installed power machine.

Non-motorised transport mode Collective concept for walking and cycling.

P+R car park The abbreviation comes from the English "Park & Ride" expression, which means exactly that.

It is a parking site that offers long-term parking and has been constructed specifically for enabling the users to change from a passenger car to public transport.

No parking charge may be applied in any car park, marked with the P+R sign, unless the car park is guarded as an additional service. The guarding fee that may be collected for that additional service between 6 a.m. and 10 p.m. on each calendar day cannot be higher than the lowest fare applied in public transport available in the particular settlement.

Public transport A transport system, which may be used by anyone who complies with the terms and conditions of travel. Generally known branches:

- **individual public transport** e.g., taxi, carsharing, public bicycles.
- **collective public transport** transport mode which is conducted by public transport vehicles (e.g., buses with a capacity to carry more than nine passengers).

Priority Focus or intervention area of EU development.

Railcars on bogies Railcar, the chassis and driving units of which are formed in a turning framework structure.

Rail route Part of the state railway network.

Rolling stock The general definition used for iron-wheel vehicles involved in track-bound transport.

Running dynamics A feature reflecting the movement, acceleration and deceleration capacities of a vehicle.

S-Bahn concept A concept for the development of an integrated rapid rail network for Budapest and its surrounding area, prepared in 2009.

Suburbanisation The process during which the residents and then the businesses and services move out from the city into surrounding smaller settlements.

Sub-sectoral objectives The objectives of the various branches of transport (individual, public and road, rail, waterborne and air transport).

Tariff community Common fare payment system of various subsectors and service providers designed on the basis of integrated principles.

Terminal station A station from where vehicles can move on only if they change direction.

Time-based ticket A fare product which is priced according to the time spent in travelling.

Track-bound infrastructure All transport means that require tracks, cables and/or overhead wires for operation, and where the vehicles may move only along the longitudinal axis or slightly departing from it.

Traffic calming Reduction of the volume and speed of road traffic and influencing its composition with traffic control tools.

Traffic model Transport development planning tool. Due to the complexity of transport networks, each transport development project has an effect on the social, economic and environmental features of the city. Traffic modelling is a tool for analysing those effects.

Traffic modelling is the phase of presentation of transport effects in which the decisions stemming from social and economic environment, leading to the daily movements of people, are modelled. Thus the analysis focuses on the quantity of movements within a particular area (zone) and the volume of traffic from one zone to another and its distribution by route and transport mode and where the expected effects of transport measures are forecasted.

Traffic planning Conscious shaping of transport means, infrastructure and their use, strategic and detailed planning of future transport services based on professional methodology.

Traffic surveillance Operational control of road and public transport in order to facilitate problem -free traffic and to eliminate problems as quickly as possible.

Transport corridor The scene of transport movements.

Transport mode The means for mobility (walking, cycling, public transport, passenger car, truck, etc.).

Travel chain Consecutive use of transport modes from departure point to the destination.

Walking distance to public transport stop The distance between the departure point of the trip and the closest stop of the used public transport means.

White Paper A strategic document adopted by the European Commission in 2011 with the subtitle "Road Map to a Single European Transport Area – Towards a Competitive and Resource Efficient Transport System". (In general: the final version of the strategic documents of the EU Commission)

Zero emission Operation without the emission of any harmful substances.

Balázs Mór Plan
Budapest Transport Development Strategy 2014–2030

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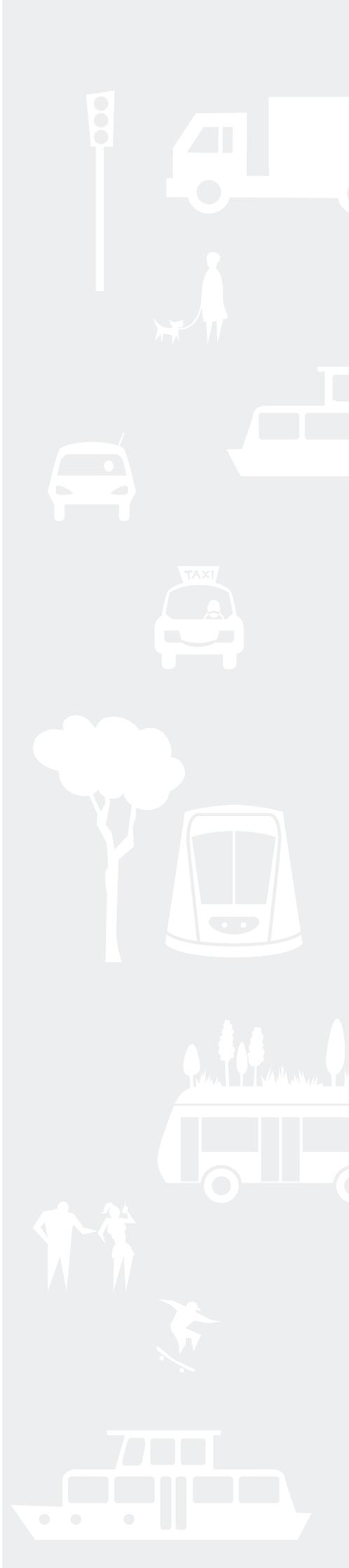
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