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State of the Art Report about mobility problems
and policy challenges within ETP follower
regions - Szombathely (HU)

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1. Introduction

Remote regions in central Europe share the same risks and issues related to the fact that they are located at the periphery of main transport networks. Inadequate and under-used services, excessive costs, lack of last-mile services and proper intermodality, poor communication and information to users and car commuting are some of the challenges that many central European regions face.

The SMACKER project addresses these disparities and promotes public transport and mobility services that are demand-responsive and that connect local and regional systems to main corridors and transport nodes.

Within SMACKER mobility issues related to peripheral and rural areas, main barriers are assessed and addressed and solutions drawn on the best international know-how are provided. SMACKER promotes demand-responsive transport services to connect local and regional systems to the main transport corridors and nodes. Soft measures (e.g. behaviour change campaigns) and hard measures (e.g. mobility service pilots) are used to identify and promote eco-friendly solutions for public transport in rural and peripheral areas, with the aim of achieving more liveable and sustainable environments and better integration of population to the main corridors. SMACKER helps local communities to re-design their transport services according to user needs, through a coordinated co-design process between local/regional partners and stakeholders; SMACKER also encourages the use of new transport services through motivating and incentivizing campaigns. The direct beneficiaries of the actions are residents, commuters and tourists.

Participation reflects the overall integration of citizens and groups in planning processes and policy decision-making and consequently the sharing of power. In particular, transport planning and transport relevant measures are often the subject of controversial discussions within the urban community. The concept of Sustainable Urban Mobility Planning has established the principle that the public should be included from the very beginning of the transport planning process and not only when the plans are largely completed and only minor amendments can be carried out. For that reason, public authorities need to open-up debate on this highly specialised and complex subject area and make participation a part of the planning process. In order to ensure participation throughout the process, the development of an engagement strategy would be necessary.

This deliverable “State of the Art Report” on mobility problems and policy challenges within ETP follower regions is the starting point for a better knowledge of the 10 selected Smacker Enlarged Transfer Programme (ETP) partners’ sustainable mobility challenges. The scope of these analysis is to map the needs, problems and expectations of each ETP follower region in low carbon mobility planning. Moreover, it defines the roles of ETP followers and policy leverages. It paves the way for local Action plans in ETP follower regions.

2. Project area description

Szombathely is situated in the west of Hungary in the region Alpokalja. It is the seat of Vas County and has 80 thousand inhabitants (Figure 1). 13 percent of the people living in Szombathely are under 15 years, 25 percent are above 60 years, while the majority of the population (62%) is between 15 and 60 years. Almost 25 percent of inhabitants has a higher education degree [1] (source of data: 2011).

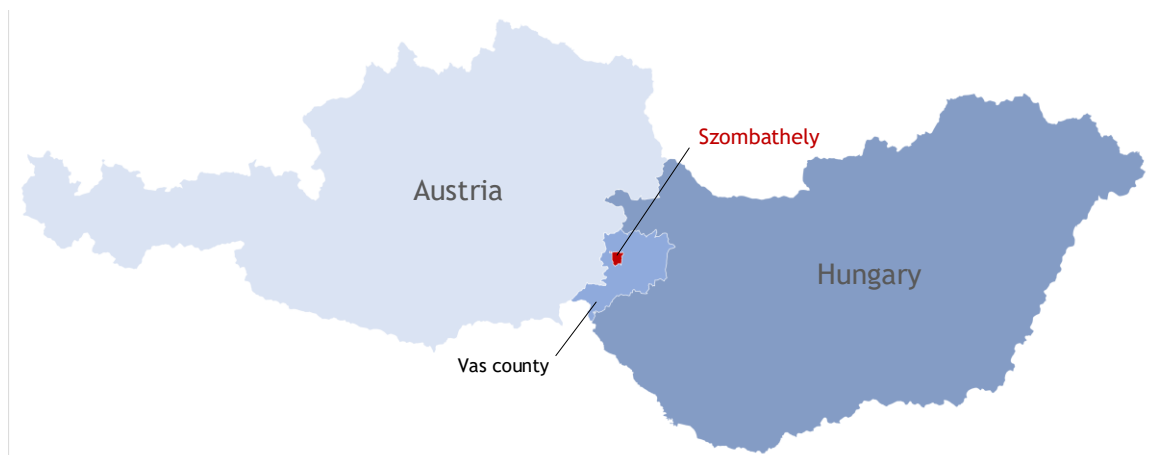


Figure 1. Project area - macroscopic view

The city of Szombathely has a basically central structure: the center is in the middle of the city, which is surrounded by housing estates. The Markusovszky Hospital and the building of the Szombathely Faculty of Eötvös Loránd University are also closely connected to the center. There are three lower level, quarter centers in the city: DOMUS, Market Hall and Savaria Plaza, where basic and extra services as well as shopping malls are available. There are two traffic hubs generating high number of passenger : (i) the bus station in the center, which plays a crucial role interurban and regional traffic; and (ii) the highly important railway station, which is next to the center. These two transport hubs are more than a kilometer from each other. The core area and the surroundings are visible on Figure 2.

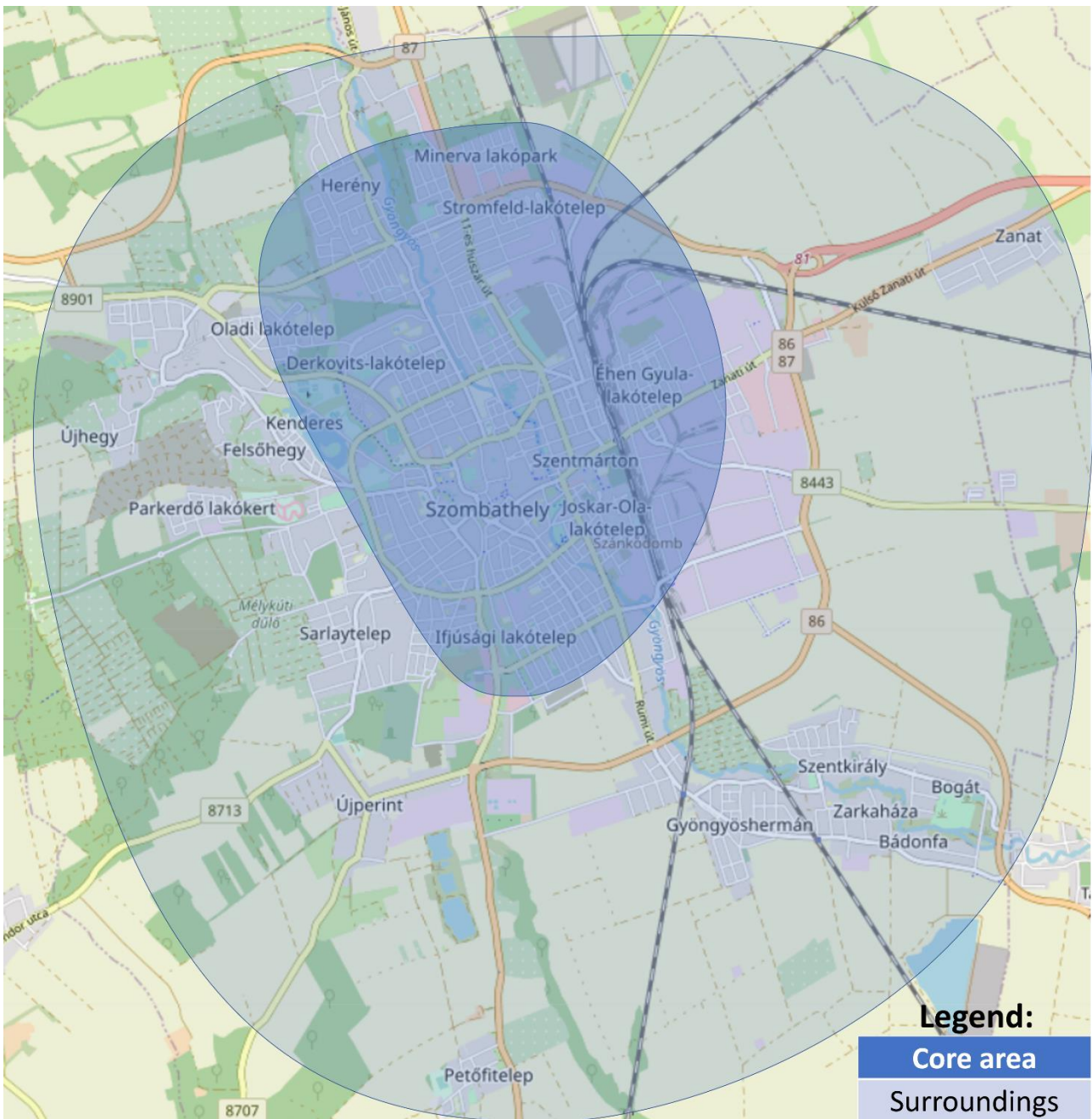


Figure 2. Core area and surroundings of Szombathely

The zones of a city can be categorized according to their functions and their location within the settlement [2]. Table 1 shows the various zones located in Szombathely, with examples, while the categorization of the various parts according to functions (housing estate, transport hub etc.) is given in Table 2.



	Name	Characteristics	Example [Szombathely]
A	Center	- mainly inner city - authorities, local governments, administration, tourism, catering services	Fő tér and its surroundings
B	Around the center	- adjacent to the center - attracts less traffic than the center	Joskar-Ola housing estate, Hospital and its surroundings, area between Dózsa György út and the ring road
C	Quarter center	- center of a larger quarter - small shops, basic services (bank, pharmacy, government office) - not all cities have it	Derkovits Shopping Center and surroundings, Market Hall, Savaria Plaza and surroundings
D	Far from center	- far from the center (more than 2 km) - near the quarter center ("C")	Derkovits housing estate, Kámon
E	Periphery	- near city boundary - residential area	Olad, Újperint, Zanat, Petőfi-telep

Table 1. Categories in Szombathely city according to location (sources: [2], [3])



Categories of functions	Characteristics of the categories	Example [Szombathely]
Large housing estate	<ul style="list-style-type: none"> - blocks of flats with 20-30 flats - medium sized green areas (maybe with a playground) - blocks of flats with public institutions (which attract a lot of people, maybe from outside the border of the city as well) - smaller shopping units (food, clothes, administration) 	<ul style="list-style-type: none"> - Derkovits housing estate - 4 - Oladi housing estate - 5 - a part of Ifjúság housing estate - 9 - Joskar-Ola housing estate - 12
Medium housing estate / large residential park	<ul style="list-style-type: none"> - blocks of flats with 10-20 flats - medium sized green areas - blocks of flats with some public institutions 	<ul style="list-style-type: none"> - a part of Ifjúság housing estate - 9 - Minerva residential park -Stromfeld housing estate - 17
Small housing estate/residential park	<ul style="list-style-type: none"> - blocks of flats with 5-10 flats - medium sized green areas - blocks of flats without public institutions 	<ul style="list-style-type: none"> - Northern town center - 2 - South western city center - 3
Detached-houses area	<ul style="list-style-type: none"> - typically houses with 1-2 flats and a garden - low density of population - basic level of public institutions - large green areas 	<ul style="list-style-type: none"> - Rigóvölgy-Középhegy - 6 - Náriai út, Alsóhegyi út - 8 - Southern quarter - 10-12 - Éhen-Gyula garden suburb - 14 - Zanat - 15, - Kámon-Herény - 18,
Inner city	<ul style="list-style-type: none"> - office buildings, institutional buildings - buildings with cultural functions (e.g. museum) 	<ul style="list-style-type: none"> - inner city, Fő tér and its surroundings - 1
Industrial area	<ul style="list-style-type: none"> - manufacturing and other factories - residential function is minimal - shopping malls might be present 	<ul style="list-style-type: none"> - industrial area - 10
Educational area	<ul style="list-style-type: none"> - universities and campuses - schools and kindergartens 	<ul style="list-style-type: none"> - ELTE
Hospital	<ul style="list-style-type: none"> - hospital buildings 	<ul style="list-style-type: none"> - Markusovszky Hospital
Shopping malls	<ul style="list-style-type: none"> - well separated shopping area (e.g. market, market hall) - large shopping malls (supermarkets, hypermarkets) 	<ul style="list-style-type: none"> - Tesco, Interspar, Praktiker, Metro
Natural areas, tourist destinations	<ul style="list-style-type: none"> - outdoor recreational areas - environment of tourist attractions - recreational sports grounds 	<ul style="list-style-type: none"> - Csónakázó-tó boating lake and its surroundings
Transport hub	<ul style="list-style-type: none"> - railway stations - bus stations - intermodal traffic hubs - harbours - airports 	<ul style="list-style-type: none"> - railway station - bus station
Cemetery	<ul style="list-style-type: none"> - cemeteries 	<ul style="list-style-type: none"> - Szent Márton cemetery, Újtemető, minor cemeteries (e.g. Olad, Szőlős)
Sports area	<ul style="list-style-type: none"> - stadiums, sports grounds, swimming pools, sports centers 	<ul style="list-style-type: none"> - Haladás Sports Center, city swimming pool

Table 2. Categories in Szombathely city according to functions (sources: [3], [4])



The different categories of city parts according to location and function are depicted in Figure 3. Letters denote location within the city (according to Table 1), colour code indicates the functional categories (according to Table 2), while the numbers refer to the exact territory in the city (see in Table 3).

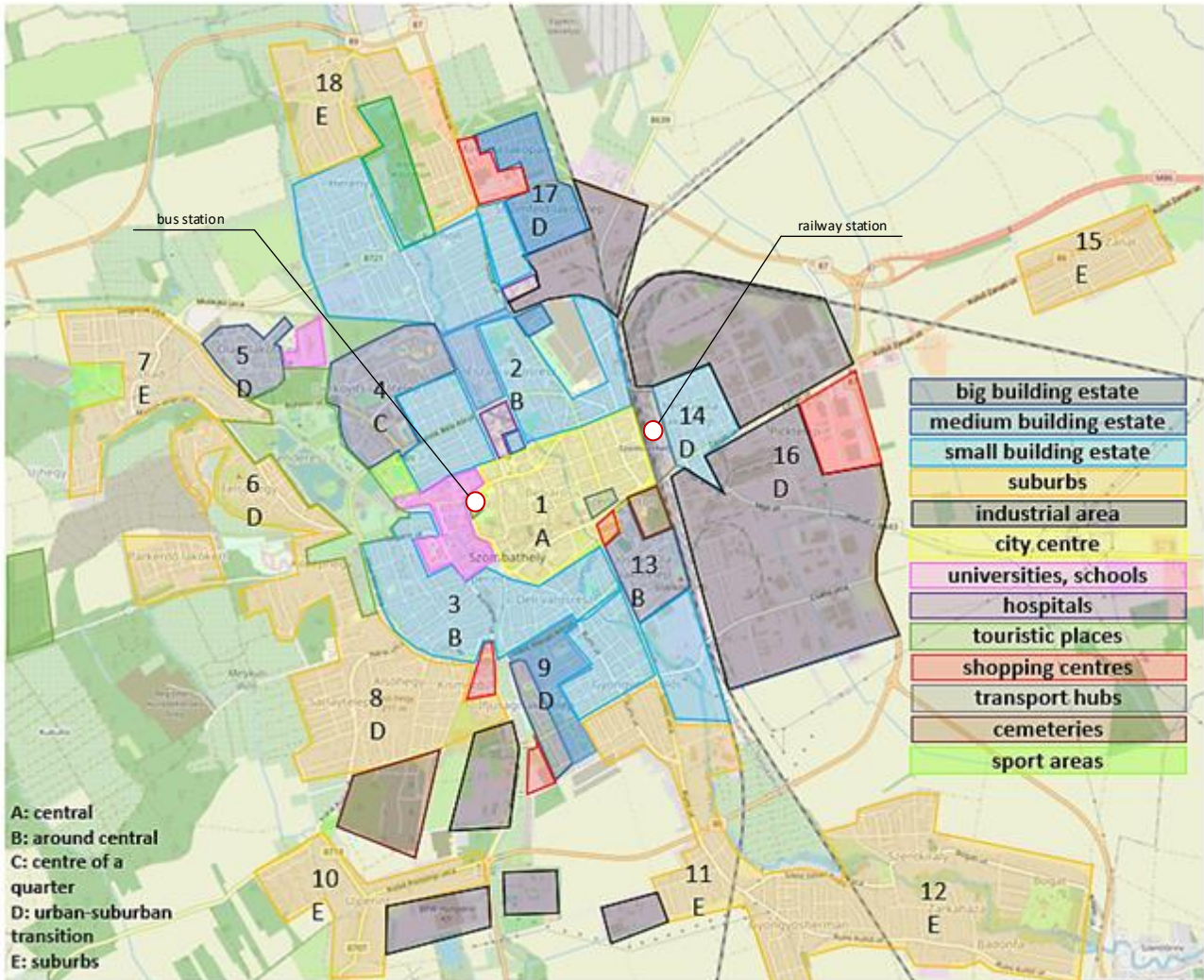


Figure 3. Parts of Szombathely (source: [3])

Further characteristics of residential areas, such as size of area, number of inhabitants, location category are given in Table 3 and Figure 4. The most densely populated areas are the Olad quarter and the Derkovits housing estate. More densely populated areas are located near the city center, while less densely populated areas such as garden suburbs are farther away from the center.



	Unit	Zones	Population [person]	Population density [person/ km ²]	Type
1.	Inner city	A	9697	8149	inner city
2.	Norther quarter center	B	7597	6813	small estate housing
3.	South western quarter center	B	6665	6528	small estate housing
4.	Derkovits housing estate	C	10789	18133	large estate housing
5.	Olad housing estate	D	6533	28654	large estate housing
6.	Rigóvölgy - Középhegy	D	1783	691	garden suburb
7.	Olad plateau	E	2508	2320	garden suburb
8.	Nárai út, Alsóhegyi út	D	2509	1901	garden suburb
9.	Ifjúság housing estate	D	5200	13368	large / medium sized housing estate
10.	Újperint	E	1899	660	garden suburb
	Petőfitelep	E	2253	525	garden suburb
11.	Gyöngyösszőlős-Gyöngyöshermán	E	2772	5073	garden suburb
12.	Szentkirály-Bogát	E	1149	2149	garden suburb
13.	Joskar-Ola quarter	B	5669	18112	large estate housing
14.	Éhen Gyula Garden suburb	D	1252	693	garden suburb
15.	Zanat	E	1718	878	garden suburb
16.	Industrial area	D	1342	376	industrial area
17.	Minerva-Stromfeld housing estate	D	3125	3094	medium sized housing estate
18.	Kámon-Herény	E	2687	4980	garden suburb

Table 3. Characteristics of areas (source: [1][3])

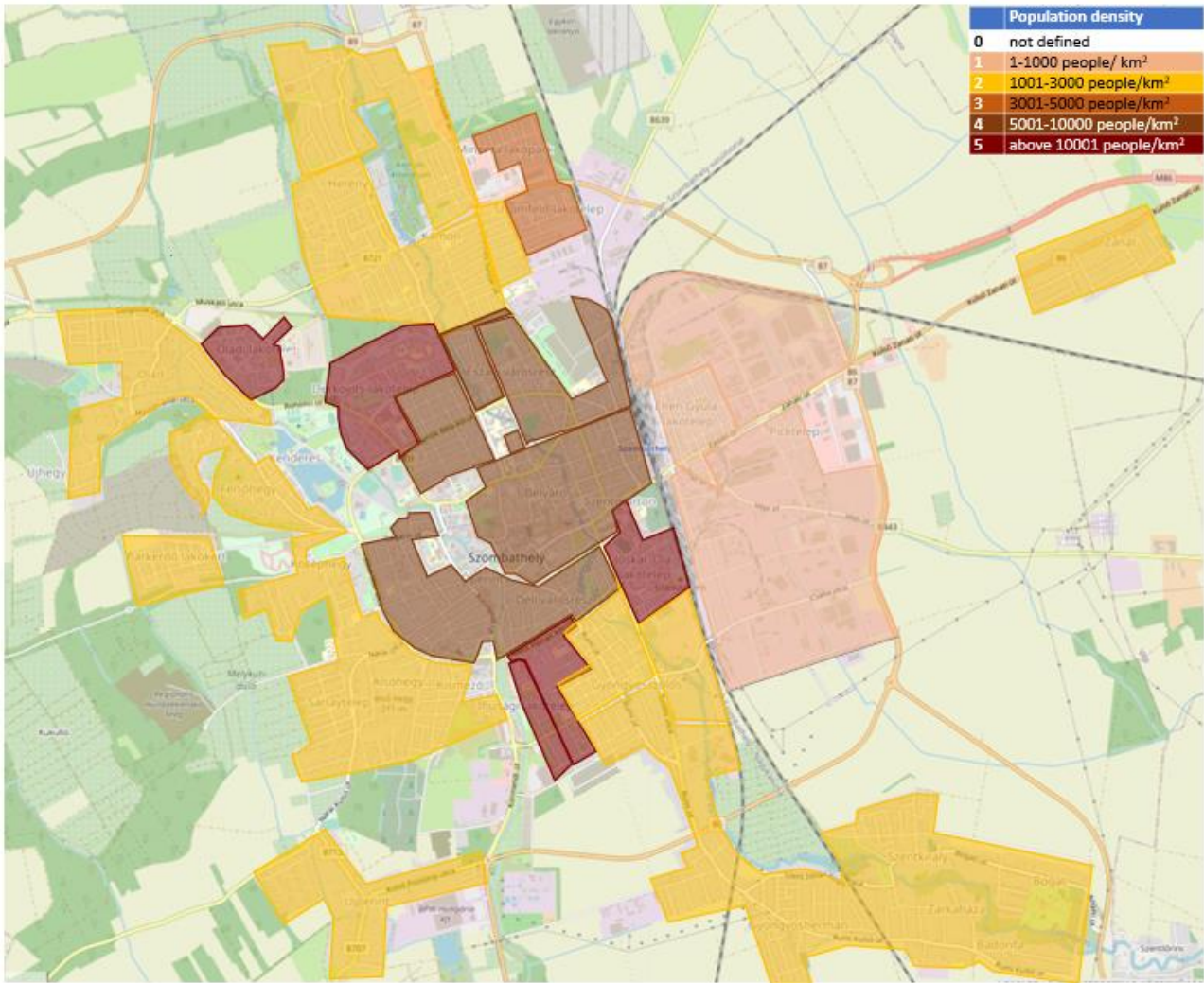


Figure 4. Population density of Szombathely zones (sources: [1], [3])



3. Description of the mobility demand and needs (relations and attractor poles)

Origin-destination (OD) matrixes among zones or public transport stops can be created based on travel demand according to different attributes (time, motivation, travelling population etc.). Travel demands can be surveyed in the following ways:

- directly - by passenger counting or surveying passengers;
- indirectly - by surveying areas (traffic attracting institutions, population density etc.).

The reliability of the direct method is higher. But as a high reliability requires a high number of counts/surveying, it increases the costs compared to the indirect method. However, such samples are not always representative, and thus some demands remain hidden, for which estimations should be made. No such travel demand survey has been conducted in Szombathely in the past decades.

According to the local government, a comprehensive passenger count is to take place in Szombathely this year. The last passenger count was conducted in spring 2014, in connection with the intermodal hub designed for Éhen Gyula tér. All local lines were included in that survey, and counting was done on each working day. Additionally, traffic counts were also conducted for public roads and bicycle roads both for individual roads and interchanges. Based on this survey [5], the number of passengers on local lines is 33,000 persons/working day. The highest number were recorded for line 30Y (nearly 4000 passengers /day). Lines 2A, 2C, 5, 6 and 9 also carried more than 1000 passengers a day (Figure 5). The highest load is around 7 a.m., while the numbers recorded for the afternoon peak hours are also exceptionally high.

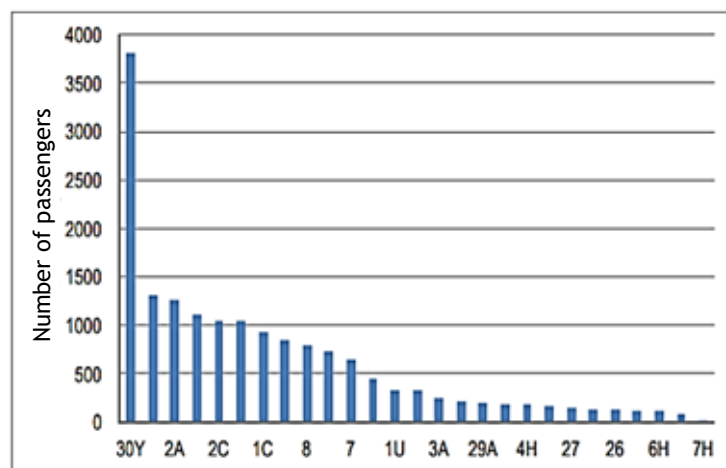


Figure 5. Number of passengers in Szombathely bus lines (source: [5])

The bus stop with most passengers is at the railway station (4475 passengers/day). Out of the other nine stops with high passenger values, seven are located in the inner city, while one is at the DOMUS local center, and the other is at the Ifjúsági Housing Estate. Most journeys on local lines are started or ended at the railway station or in the inner city. However, high traffic was recorded at local centers (DOMUS, Market Hall, Savaria Plaza). As the Derkovits and Olad Housing Estates include several public educational units, the traffic is high in peak hours. Traffic is also attracted by the cemetery Újtemető, and at shift changes the Industrial Area. Passenger volumes for local bus lines are shown in Figure 6.



Figure 6. Passenger volume (source: [5])

Based on earlier partial passenger counts and the structure of the city, it can be deduced that travel demands arise primarily between residential areas and the inner city with the major functions, and also between larger industrial or service areas and residential areas. This is depicted in Figures 7a and 7b.

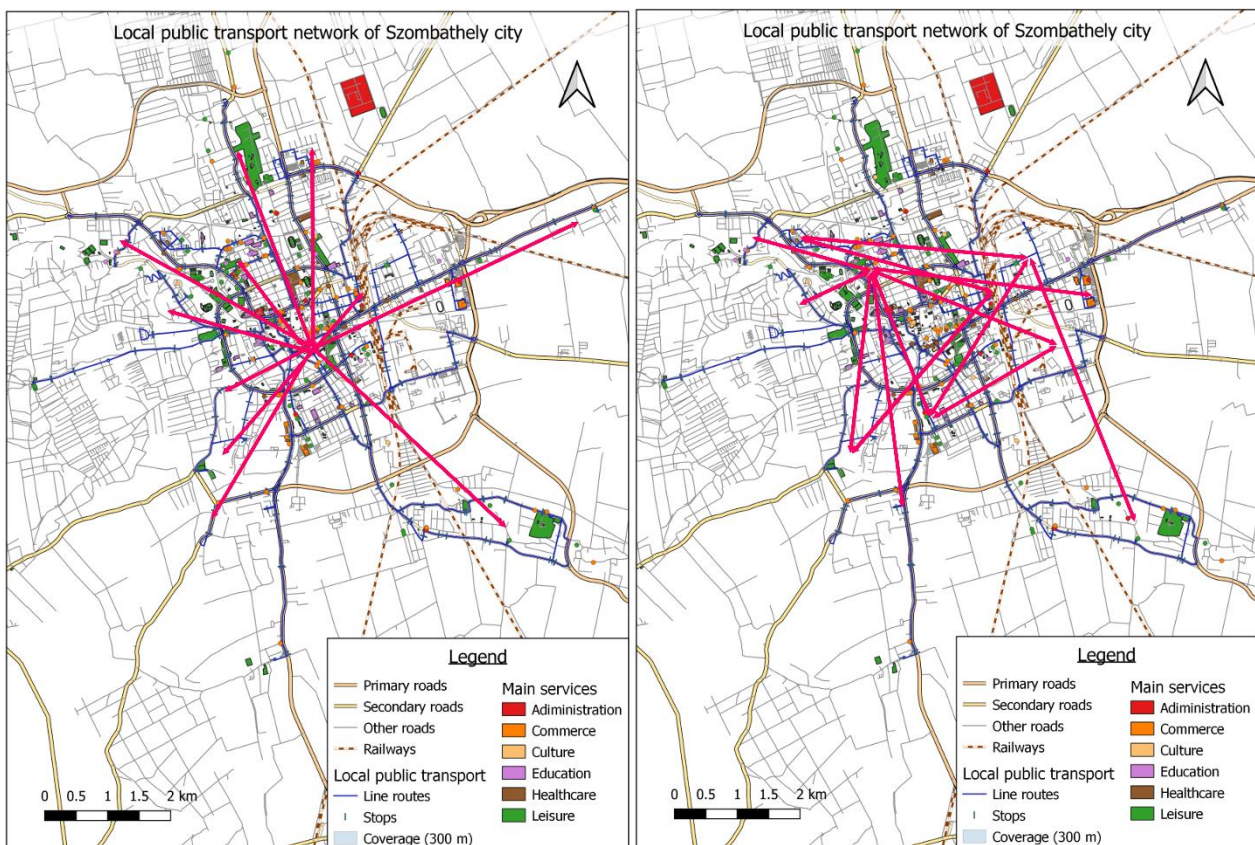


Figure 7a. (left) Major traffic demands between the center and the residential areas (source: own work)

Figure 7b. (right) Major traffic demands between industrial areas and other areas (source: own work)

The terrain of the city is favourable for bicycle use. Based on the count of cyclists, the highest bicycle traffic arises in the inner city.

For Szombathely, the modal share values based on passenger numbers, i.e. the proportions of different travel modes for work motivated travels are shown in Figure 8 according to the 2011 Census [1]. Almost half of the journeys are carried out by private motor vehicles (car or motorcycle). The shares of walking and



cycling are also high, the proportions are 1/6 and 1/4, respectively. Public transport is used in 14% of the journeys, out of which the overwhelming majority are bus trips (13.1%), while the train is used in 0.9% of the trips.

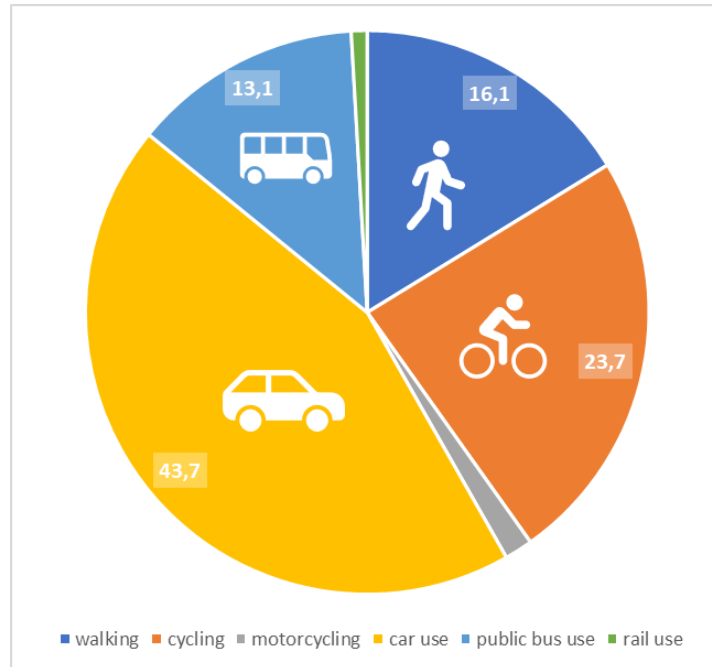


Figure 8. Modal-share, worked-based journeys on weekdays [%] (data source: [1])

According to the estimation of the local government, the modal share has different values (not only for work motivated trips) (Figure 9).

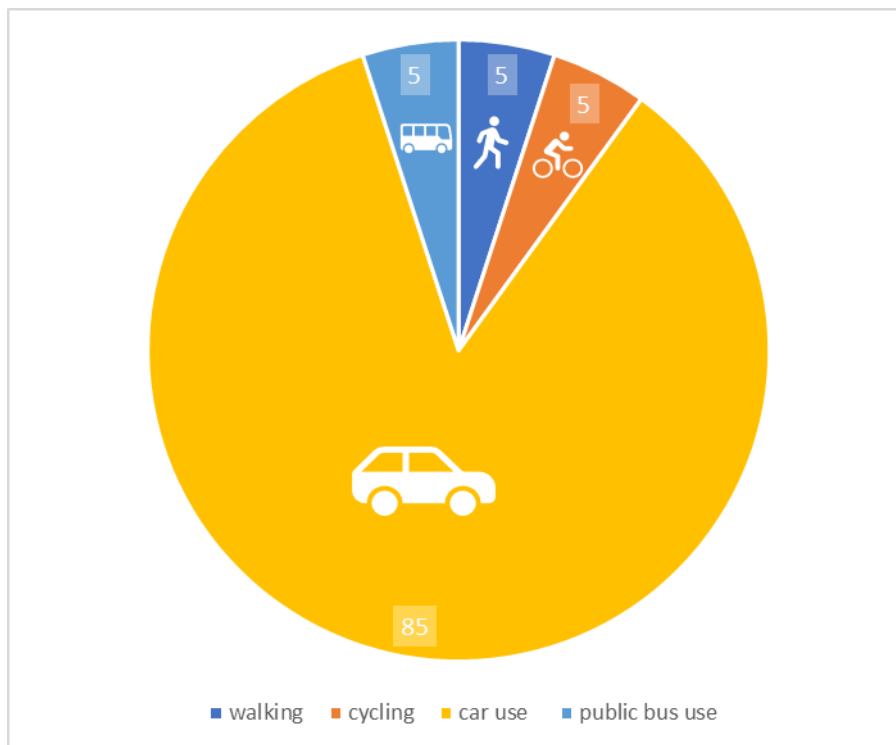


Figure 9. Modal-share on weekdays [%] (estimation of the local government)



The differences between the values based on the 2011 census and the estimation of the local government may be due to the fact that the local government considered not the working-related travels. However, a travel survey is required to reveal the present situation.

In the lack of such a survey, travel demands can only be determined indirectly, by estimation. The major socio-demographic and geographical factors influencing travel demands are the following:

- socio-demographic factors: age structure, proportion of sexes, employment structure, income, possession of driver's licence;
- geographical factors: degree of motorization, modal share, type of zone, built-up density, number of inhabitants, population density, distance between zones, transport network and infrastructure, transport services (availability and accessibility), traffic attracting institutions.

Based on the above data, real, expected and even latent mobility needs can be estimated.

In addition to the estimation of mobility needs, necessary transport modes can also be determined for a given area by a multi-criteria analysis of area characteristics. If passengers cannot be surveyed, area characteristics can be determined by expert estimation. Although the reliability and the accuracy of expert estimation does not reach those of a comprehensive travel survey and the resulting model, it can provide a satisfactory approximation.

It is a general principle that public transport with a fixed timetable is a highly demanded mode of transport in densely populated areas. In contrast, demands in more sparsely populated areas such as garden suburbs can be satisfied better by demand-responsive transport (DRT). Out of other, demand-responsive shared transport modes, bicycle sharing systems can successfully serve the needs in sports and recreational areas, as well as in densely populated and central areas. Car sharing is less relevant in towns and minor cities. Car pool services are ideal for interurban trips; therefore, their advantages (cost sharing) cannot be exploited within minor cities. Taxis and similar services are primarily offered as comfort services, especially in the peripheries of cities, where public transport is sparse [6].



4. Public transport services and related multimodal accessibility

4.1. Public transport supply

Local public transport (PT) services are provided by the Volánbusz Zrt. for Szombathely, a city with county rights. Based on the contractual agreement on the provision of public transport services, Szombathely is regularly served by 35 lines, with 45 buses. The order and the responsible authority of the local public transport service is the local government. The interurban service is ordered by the State and operated also by Volánbusz Zrt as a state-owned company. There are different regulatories for the local and interurban public transport services (e.g. different tariff-system, compensation subsidy, sustainer).

As data in Table 4 prove, the performance of PT services has considerably dropped in the past almost 20 years. Compared to 2002, the number of vehicle journeys and the performance have changed minimally on school days and school holidays, but on Saturdays, Sundays and public holidays performance decreased by more than 20%. Concerning Sundays and public holidays, in the year of 2021, the covered vehicle kilometers were approximately 1000 km less than in 2002, mainly as the consequence of the reduction in the number of vehicle journey. Consequently, the accessibility of services at weekends is highly hindered for passengers [7], [8], [9].

	Performance/day [vehicle km]					Number of vehicle journeys				
	2002	2013	2021	Δ 2013-2021	Δ 2002-2021	2002	2013	2021	Δ 2013-2021	Δ 2002-2021
School day	6 046	5 666	5 998	5.9%	-0,8%	844	723	790	9.3%	-6.4%
Work day in school holiday	4 953	4 792	5 140	7.3%	3,76%	606	570	672	17.9%	10.9%
Saturday	3 450	2 438	2 529	3.7%	-26,7%	364	230	306	33.0%	-15.9%
Sunday	3 440	2 130	2 675	25.6%	-22,2%	362	218	326	49.5%	-9.9%

Table 4. Changes in PT performance and the number of vehicle journey between 2002 and 2021. (sources: [7], [8], [9])

However, focussing on 2021, we can see an increase in the performance of the local PT system compared to 2013. In 2013, the number of vehicle journeys was increased. This primarily affected the weekend, most of all the Sunday services.

Table 4 was compiled based on detailed data, such as number of vehicle journeys broken down to weekday, hours and directions for each day, which are given in the Appendix for 2002, 2013, and 2021. These data show that the peak hours for Szombathely are between 5 and 8 in the morning, and between 1 and 6 in the afternoon. Typically, shift changes in factories are in the following periods: 6-7 a.m., 1-2 p.m., 9-10 p.m.

Lines can be grouped into 4 categories based on their function in the network, operation times and the number of vehicle journeys (density):

1. Core lines
2. Temporary lines
3. Work-related lines
4. DRT-based lines

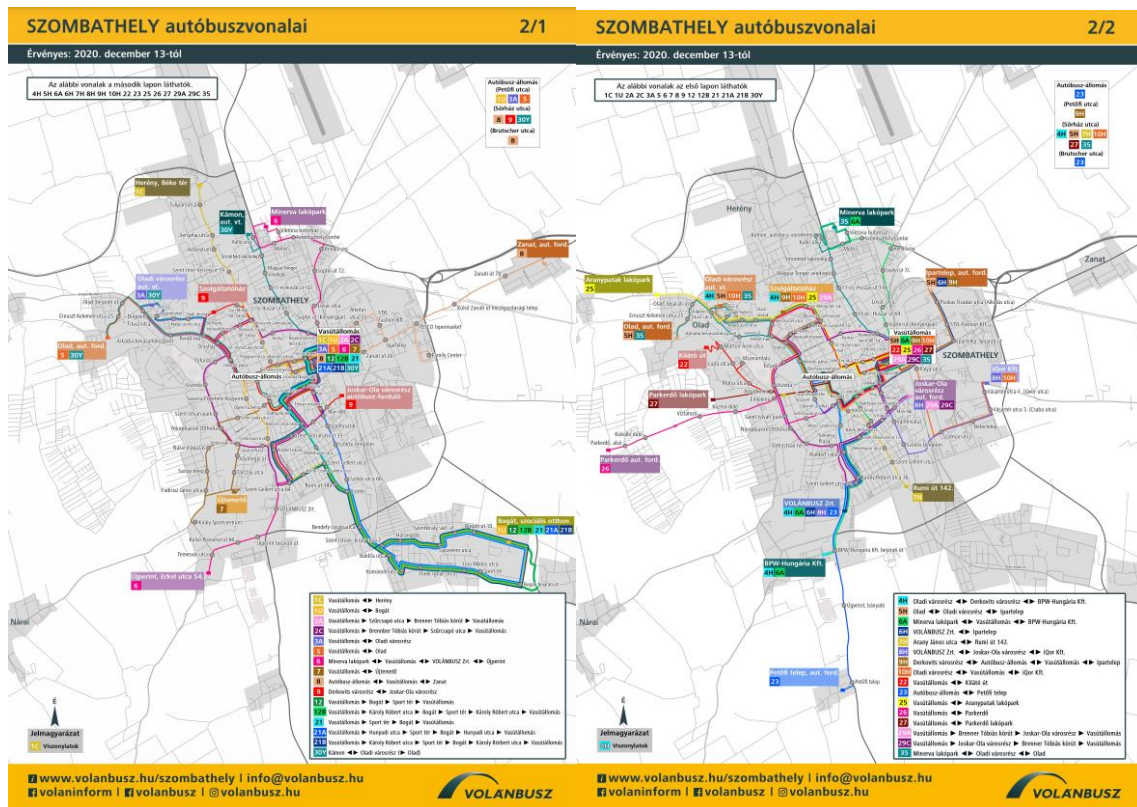


Figure 10a. (left): Public transport network map regarding the core lines

Figure 10b. (right): Public transport network map regarding periodic, work-related lines

1. Core lines

These lines (Figure 10a.) typically connect the parts in the central area of Szombathely (bus and railway stations, hospital), or serve between the inner city and the outer housing estates (with 5 to 11-storied buildings). Thus, their function is to serve the north-south and east-west axes of the city. Each line is served all day of the week, but the frequency of vehicle journeys differs. Typically, frequency is higher in the peak hours of school days and workdays in the school holidays: 2 to 4 vehicle journeys per hour per line in each direction, i.e. buses run every 15-30 minutes. However, in other periods of the day, there are only 1-2 vehicle journeys per line per direction, i.e. in every 30 or 60 minutes. However, at weekends there are only 1, maximum 2 vehicle journeys per hour.

2. Periodic lines

Periodic lines (Figure 10b.) connect the inner city of Szombathely with the more sparsely inhabited residential areas in the suburbs, which are characterized by detached houses with gardens and residential parks. Parts of the traffic system can be regarded as periodic in one of two ways: (i) some lines only operate on working days; (ii) some other lines operate daily, but there are very few (maximum 3) vehicle journeys per day. Lines serving between the inner city and the residential parks at the city periphery (e.g. the lines between the railway station and the peripheral Kilitó út, or the Aranyptak Residential Park) belong to the first category. Lines in the second category primarily serve recreational and picnic areas or holiday zones. There are typically 1 or 2 vehicle journeys in the mornings and the evenings (e.g. the line between the railway station and the Parkerdő Forest Park). Consequently, some areas within the city boundary are unserved by public transport on certain days or in certain time periods. Concerning frequency, lines operating only on working days typically have 1 vehicle journey per hour in peak hours, while in other time periods, only occasionally.



3. Work-related lines

These lines (Figure 10b.) have a unique sign (the line number contains the letter H), and their main function is to connect the southern and eastern industrial zones (iQOR Kft., BPW Hungary Kft., etc.). These lines operate as a public transportation service (local government orders them and everybody can use them), primarily to serve the needs of large factories, manufactories (these are not operated by a special contract). Consequently, these lines operate according to the work schedule of the relevant companies. Typically, there are 1-3 vehicle journeys at work shifts. In general, with very few exceptions, these lines only operate on working days.

4. DRT-based lines

Since December 2020, DRT lines have been operating to transport the passengers of the ISEUM Intercity train from Budapest to Szombathely Railway Station arriving at 10:49 p.m. according to schedule. The lines connect the railway station and the major parts of the city (primarily those in the inner area). 1 vehicle journey on 3 lines has been established, which only operates if there are passengers intending to transfer to these lines from the train. It is important to note that the vehicles and drivers are available at the arrival of the train. Passengers need to consult the drivers to express their need to travel. That is, the vehicle and the personnel are present at the railway station until the time of departure given in the timetable, irrespective of the future number of passengers. Moreover, owing to the curfew measures introduced due to the coronavirus pandemic (in Hungary there was a curfew between 8 or 10 p.m. to 5 a.m. between 4 November 2020 and 1 May 2021), no real experience is available.

4.2. Ticketing

Local public transport can be used with a fee determined by the local government. Passengers can buy tickets or passes at the ticket offices and ticket machines at major transport hubs (e.g. the railway and bus stations), online by mobile phones through the application “Mobiljegy” or directly from the bus driver. Fees depend on the time of travel (peak hours on working days vs. in other periods), the way of purchase (bought in advance or from the driver), and the age of the passenger (under 14 years there is a discount price, above 65 years it is free), but the fee does not depend on the length of the journey. The tickets cost between 0.6 and 1 Euro. There are several types of passes: according to validity (valid for 7 days, half a month or 1 month); valid for 1 work-related line or for all lines; depending on the discount available for passengers (full price, student, retired, parent with young child) determined by the Provider [14].

Tariff systems for local (within the border of the city) and interurban travel differ, i.e. they are not integrated. Consequently, interurban services can be used for local tariffs only in special cases within the boundaries of Szombathely (e.g. Petőfi-telep from 3 May 2021). Thus, interoperability is only achieved for certain lines, although both lines are operated by the same state-owned company, Volánbusz Zrt. The reason for this situation is that the organization and control of local and interurban public transport services are managed at different institutional levels in Hungary; consequently, integration in space and time is not comprehensive.

A typical example of the lack of integration is the difficulty in travelling between the Aranypatlak Residential Park and the inner city (Figure 12a. and 12b.). While on workdays, there are 24 or 25 vehicle journeys per day per direction between the residential park and the inner city offered by interurban services, only 11 or 12 vehicle journeys per day per direction are available between the same locations offered by local public transport. Therefore, if passengers wish to be able to use all 35 and 37 vehicle journeys per direction, they must buy two passes, with different tariffs.

Journey planning is facilitated by journey planner software using static data, together with printed timetables (pdf or paper) and line network maps. Online available journey planners include ones using the freely available interactive map offered by the Operator, and the menetrendek.hu homepage displays interurban and some local timetables for several modes of transport (bus, railway, ship). While the previous services can plan journeys between exact addresses, using several transport modes including walking or



changes between transport mode, the latter online platform provides information solely on services between given stops, i.e. can be used only with prior knowledge of the place. The city homepage does not handle local transport as a highlighted issue.

4.3. Railway

Szombathely is an important regional railway hub, as 6 lines meet here. 3 lines are characterized by long-distance services, while the other 3 are typically used for regional passenger traffic (Figure 11.).

Within the borders of Szombathely, it is possible to travel by train from three parts of the city into the center. In the northern part, the train on line 18 (Szombathely-Kőszeg) stops at Kámon; in the south, the train on line 17 (Szombathely-Nagykanizsa) stops at Gyöngyöshermán; and the train on line 21 (Szombathely-Szentgotthárd) stops at Szombathely-Szőlős. From these stops, the train reaches the central railway station in 4-7 minutes. From these stops, destinations outside Szombathely can also be reached (e.g. Bük, Sopron, Zalaszentiván, Vasvár, Körmend, Szentgotthárd). Modern, low-floor motor passenger trains with air conditioning run on lines 17 and 21 (Stadler, FLIRT, Siemens Desiro), while the 18 line is served by diesel motor trains (serial number 547) with high-floors by Győr-Sopron-Ebenfurt Vasút (GySEV) company. The vehicle journeys available in 2021 from the 3 stops within Szombathely are given in Table 5.

Stop	Line	Frequency [train/direction/day]	
		Working days	Weekend
Kámon	Szombathely-Kőszeg (18)	17	12
Gyöngyöshermán	Szombathely-Nagykanizsa (17)	11	10
Szombathely-Szőlős	Szombathely-Szentgotthárd (21)	20	18

Table 5. Train services offered within the city of Szombathely from the 3 available stops (source: [10])



Figure 11. The map of railway lines around Szombathely



Multimodality and passenger services to the railway stops are not solved in Szombathely. These stops have no direct bus links, the nearest bus stops are accessible after 300-400 meters walk. Each stop is equipped with a bike park (B+R), and Szombathely-Szőlős has a P+R parking lot for 30 vehicles.

Integration between local PT and the railway is not solved neither concerning tariffs nor information. Szombathely local tickets and passes are not valid for trains. However, on railway line 17, a combined pass is available for the section Püspökmolnári-Szombathely; and on line 21 for the section Nádasd-Körmend-Szombathely. These are also valid for the inner area of Püspökmolnári and for travels between Körmend and Nádasd. The “Combined Pass Plus” product is also valid for the local lines in Szombathely. Both types of combined passes are valid for 30 days. Despite the availability of these passes, on the whole, the integration of the railway into the local traffic system is not solved yet.

4.4. Accessibility

Based on the above (Section 4.1.), the accessibility of the local PT system concerning the zones within Szombathely should be explored both with respect to space and time.

On working days, lines operate in all four categories (core, periodic, work-related and DRT), which serve both the inner areas and the outskirts. This is depicted in Figure 12a (on the left). The map shows the major public buildings, institutions and other traffic attracting places, as well as the area covered by the 300 m circles of each PT stop. It must be emphasized, however, that southern and western outskirts are almost exclusively served in peak hours.

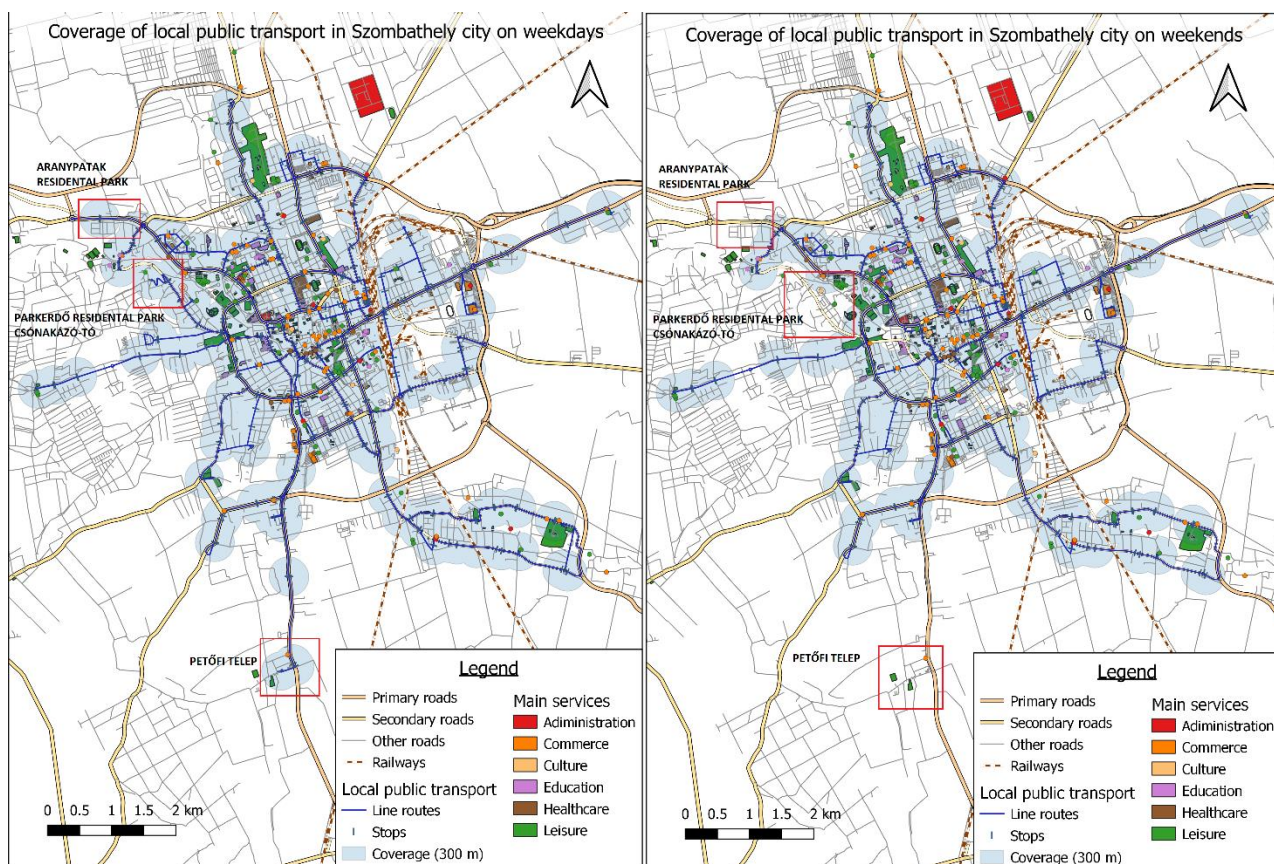


Figure 12a. (left) Coverage of local public transport on working days (source: own work)

Figure 12b. (right) Coverage of local public transport at the weekends (source: own work)

On weekends (Fig. 12b on the right), core lines operate primarily (besides a very low number of periodic, work-related and DRT-based lines). Consequently, some parts of Szombathely are inaccessible by public transport on weekends. Inaccessible parts of the city include Petőfi-telep in the south (from 3 May 2021,



interurban buses serve this area with local tariffs); the Parkerdő Residential Park in the west, and the area around the Csónakázó-tó (boating lake), which includes an outdoor museum and a lookout tower; and the Aranypatak Residential Park at the north western border of the city. Although the Aranypatak Residential Park is accessible by interurban buses, the tariffs are different from the local ones. Thus, the problem of tariffs described in Section 4.1. arises. The other areas mentioned above are inaccessible by public transport on weekends.



5. Mapping the governance framework and relevant actors

5.1. Planning and regulatory framework

In 2014, Szombathely created their integrated strategy for settlement developments, which was modified in 2017 [13]. This document describes the future vision of the city and determines overall objectives and milestones. It analyzes the present state of the city's land use, the expected developments and determines the measures to be taken in order to achieve the goals. Ideas concerning the traffic system are mentioned only superficially. The completion of the Sustainable Urban Mobility Plan (SUMP) for Szombathely is in progress. The valid strategy highlights the role of the railway in connecting the agglomeration area with the city, emphasizing the importance of public transport and environmentally friendly transport modes. The creation of an integrated PT system is regarded as a priority.

At present, as in the whole of the PT system of Hungary, the city offers both local and interurban public transport. The primary aim of the local network is to serve the local needs. To provide such a network is the responsibility of the local government, but it is not mandatory to create one. In contrast, the interurban public transport system, which is managed by the state, connects settlements. Despite this duality in responsibilities, both systems are provided by the same company, Volánbusz Zrt. Recently, the Local Government of the City of Szombathely published a call for tender for the operation of the local PT system from 1 January 2022. Thus, the Client is the local government, which is obliged to pay the uncovered costs of the local PT system to the Operator. Thus, the aim of the local government is to have the highest possible level of mobility services at the lowest possible price.

The network and the timetable can be expanded if the vehicles operating in the interurban public transport system can be used with the tickets and passes of the local network within the city boundaries. Hungarian legislation allows such solutions. In such a case, the local government, the state and the Provider sign a trilateral contractual agreement, according to which the city pays the state for the possibility of using the interurban network for local purposes. As for Szombathely, such a trilateral contract was in effect, but recently it has expired. As a result, the level of available services lowered, both spatially and temporally. At the same time, it is again possible to use the interurban lines for local purposes at local tariffs in the case of Petőfi-telep since 3 May 2021. However, in other parts of Szombathely, interurban lines can only be used if interurban tickets or passes are purchased.

Demand-responsive traffic services are only available to a limited extent (see Section 4.1.). The Act XLI of 2012 of Hungary on the public transport services regulates DRT services [11]. This mode of public transport is defined as a “public transport service organized by information technological devices arranged for flexible routes with a flexible timetable”. DRT services can only be offered if the Provider obtains a permit for the line or signs a contract for public services. If DRT services are integrated into the public transport system, the legislation valid for the PT system must be applied for such a system, with the exception of requirements for the timetable.

The contract for the provision of the public transport system must include the possibility of applying DRT services. In regions with sporadic settlements, where the population density is under the national average, and in settlements where the lack or the state of public road infrastructure justifies it, public transport services can be provided by DRT systems both at the regional and the agglomeration levels. The Act determines the temporal and spatial requirements for the establishment of DRT services. According to this, DRT services should be primarily organized in the following cases:

- in time periods when work- and education-related needs do not arise;
- on weekends and on public holidays;
- in order to ensure transport to settlements with a higher level of local transport systems;
- in order to secure transport to transfer points to the regular public transport system;



- in order to serve less densely populated areas.

5.2. Identification of Stakeholders and key target groups

According to the current legislation of Hungary, the local government is responsible for ordering and providing local public transport services for the settlement. Consequently, the Local Government of the City of Szombathely plays a key role in the preparation and establishment of a DRT system. During the preparation of the expert study, the first discussion was held as a Microsoft Teams online meeting owing to the coronavirus pandemic, on 15 April 2021. On behalf of the city, the following members of the local government participated in the meeting: Soma Horváth, deputy mayor; Gyöngyvér Sütő-Komláti, the leader of the City Development Office; Ervin Kalmár, department leader of the Department for City Development and Operation; Ágnes Györffy, project administrator; Tamás Bonti, the leader of the Communal and Environmental Office. The Institute for Transport Sciences (henceforward KTI) was represented by Tóthné Temesi Kinga, the office leader. The aim of this preliminary meeting was to discuss the ideas of the city concerning the present project, which facilitated the future creation of the expert survey.

The organization of KTI can be defined as a stakeholder, since the Traffic Organizer Office for North Eastern Hungary, as an organizational unit of KTI, is responsible for the provision of PT systems at the national, regional and agglomeration levels in Vas County, KTI works as an organization commissioned by the Client. They carry out expert tasks connected to the effectiveness and quality of PT services, serving the needs of both the clients and the passengers using the relevant service systems. They facilitate the overall operation and the development of services in the field of PT systems. It is highly important to include this organization in the planning phase of the present project in order to ensure the interoperability of the relevant local and interurban PT systems, and to harmonize these services.

The local PT service is provided by the state-owned bus company, Volánbusz Zrt., based on a contractual agreement for the provision of local PT services between the city and the company. In addition, since November 2019, as the legal successor of the previous bus company, Volánbusz Zrt. is responsible also for the provision and operation of interurban bus services, based on a contractual agreement on the provision of PT services between the company and the Ministry for Innovation and Technology (ITM), as the national organization responsible for transport. It must be highlighted that Volánbusz Zrt. is an indispensable stakeholder in the present project, as the provider for bus services. It must be emphasized that the relevant contract between the city and the bus company for the provision of local PT for Szombathely expires on 31 December 2021, and the call for tender was published. If a new PT provider wins this tender, the new contractor should be included as a stakeholder in the present project. In general, all the providers of the local and interurban PT services must be included in such projects as stakeholders.

For the sake of multimodality, companies providing railway PT services should also be stakeholders. In the present case, these are the Hungarian state-owned MÁV-Start Zrt. and the GySEV Zrt, which is owned by the Hungarian and the Austrian states. An integrated local and interurban PT system for Szombathely and the harmonization of these services can be achieved if the railway providers are included as stakeholders. It must be noted that with respect to their owner, Volánbusz Zrt. and MÁV-Start Zrt. both belong to the MÁV-VOLÁN Group.

According to the present legislation, in Hungary DRT services should not focus on serving work- or education-related mobility needs. Savaria Turizmus Nonprofit Kft., as the organization responsible for the touristic destination management of Szombathely, is also a stakeholder in the present project. This company offers touristic marketing services, develops products and provides information services; it is also responsible for the organization of the Savaria Historical Carnival. If the mobility needs of tourists are explored and mapped, the events and programs can be served by DRT services.

Hungarian Scientific Association for Transportation (henceforward KTE) was established in 1949. It has 4000 individual members and over 100 supporters, legal members or patrons, which makes it one of the largest national technical-scientific NGO of Hungary. KTE has 19 county-level groups and 9 groups for Budapest,



thus covering the whole territory of Hungary and a wide spectrum of traffic experts. One of the most important results of the KTE was the establishment of a community reuniting Hungarian experts. KTE's Regional Organization of Vas County has an important role in the discussion process about the operation, maintenance and planning of the local PT system of Szombathely. Consequently, KTE must be regarded as a stakeholder in the present project.

The Centre for Budapest Transport (henceforward BKK Zrt.) is primarily responsible for the organization of the public transport system of the capital city. However, as active participants in R&D projects (e.g. SMACKER project), they must be regarded as stakeholders in the present project.

The stakeholders of the present project are depicted in Figure 13.

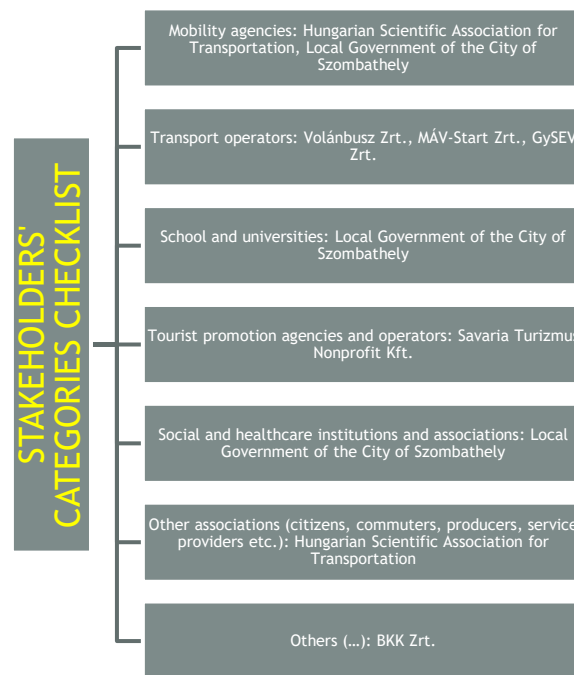


Figure 13. Categories of stakeholders (source: own work)

Concerning target groups, considerable overlaps are present with the stakeholders, as the maintainers of certain public institutions (e.g. educational and health services) and the service providers (e.g. transport) are the above described organizations and companies. Table 6 summarizes the target groups.



Smacker Target Groups	Brief description
Local public authority	The Local Government of the City of Szombathely is responsible for maintaining the city and provide public services. The local government manages public institutions (e.g. health centers etc.) and organizes and operates public services (e.g. garbage collection).
Regional public authority	At the regional level, transport is organized by the KTI, as described above.
Infrastructure and (public) service provider	The maintenance of the city infrastructure is the responsibility of the City Development and Operation Department of the Local Government of the City of Szombathely. Local and national public road transport is provided and operated by Volánbusz Zrt. (local and domestic public bus transport provider) as the railway providers are MÁV-Start Zrt. and GySEV Zrt.
General public	The Local Government of the City of Szombathely and its body of representatives represent the interests of the inhabitants of the city.
Education/training center and school	The Local Government of the City of Szombathely is responsible for providing primary and secondary levels of education and maintaining preschools and nursery schools.
Other	Cultural and recreational programs are organized by Savaria Turizmus Nonprofit Kft., which is responsible for tourism-related tasks. BKK Zrt. is an active participant of R&D projects of the European Union.
SME	-
Higher education and research	In Szombathely, the following higher education institutions work: ELTE Savaria University Centre; Szombathely Centre of the Faculty of Health Sciences, University of Pécs. The research center in Szombathely is the ELTE Gothard Astrophysical Observatory. Universities in the city are not concerned with the problems of transport.
Sectoral agency	Transport management at the regional level is done by the KTI, as described above.
Interest groups including NGOs	As a relevant NGO, the Vas County Civilian Public Provider (Vas megyei Civil Közösségi Szolgáltató Központ) can be mentioned. Its major tasks include giving expert advice to NGOs (on tenders, legal and financial matters etc.). In addition, the Vas County Division of the KTE is a relevant NGO, as described above.
National public authority	At the national level, public services are the responsibilities of various ministries. The provision and maintenance of interurban PT services is the responsibility of the Ministry for Innovation and Technology (ITM).
Large enterprises	Several large enterprises operate within Szombathely, such as BPW-Hungária Kft., APTIV Services Hungary Kft., Falco Zrt., iQor Global Services Hungary Kft., Schaeffler Savaria Kft., STYL Fashion Kft., TDK Hungary Components Kft. The MÁV-VOLÁN Group is also among the large employers.
International organisation, EEIG under national law	-

Table 6. Key SMACKER target groups. (source: own work)



6. SWOT analysis

A SWOT analysis is appropriate for evaluating the propositions made above in connection to the offered services, needs and legislation, with respect to the strengths, weaknesses, opportunities and threats. The results of the SWOT analysis are given in Table 7.

As the results prove, the spatial and temporal problems deducible from the present parameters of the local PT system can be primarily solved by the introduction of a DRT service. This should serve as the basis of the future Action Plan and can be considered as the main strength of the plan. For the peripheral regions of Szombathely and for the time periods not covered by the present PT system, an effective demand-responsive, high level transport system can secure a higher share of PT in the local transport system. It must be highlighted that the preparation of the SUMP for Szombathely is in progress, and it must also be mentioned that no comprehensive traffic count has been conducted for the city. These must be categorized as weaknesses or even threats, as it is possible that there might be no real demand for a DRT service. Furthermore, for inhabitants of certain parts of the city (e.g. Kílátó út and its vicinity) with a social status much higher than the average, the introduction of a DRT service might not be considered as a real alternative.

Besides this, the introduction of a DRT service would be a highly effective and attractive solution in the off-peak hours for the peripheral residential areas (e.g. Aranypatak Residential Park, Parkerdő Residential Park, Petőfi-telep). Offering DRT services for work- and education related travels is not an option according to Hungarian legislation. The extension of DRT services to such areas would require a modification of laws, which can be regarded as a threat. In addition to serving the above mentioned peripheral areas, DRT services can be extended to ensure the transportation of people with reduced mobility, even for transport within the inner city. This should be mentioned as a strength of DRT services. In addition, the whole night service of the whole area of the city could be served by a DRT system.



STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • <i>Local PT service that covers the whole area of the city in peak hours.</i> • <i>The local government intends to raise the level of PT service.</i> • <i>The same Operator provides bus services at the local and the interurban levels.</i> • <i>DRT systems are regulated by laws.</i> • <i>Positive experiences of operators and users with already existing DRT services in Hungary (e.g. Zalaegerszeg - ZERGE Service, Budapest night and peripheral services) [12].</i> • <i>The service provider is open to offer DRT services (Volánbusz Zrt. operates DRT services in interurban traffic in growing numbers).</i> • <i>There is direct human contact between passengers and drivers of the DRT service which can be socially beneficial.</i> • <i>Telephone-based dispatcher centers are already available in station offices.</i> 	<ul style="list-style-type: none"> • <i>To create the information system to support the DRT system comprehensively has high costs. The personnel needs training to use the new software, as the station offices can only be reached by telephone at the moment.</i> • <i>There are no available data for present mobility needs.</i>



OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • <i>The introduction of DRT services makes PT possible in those parts of the city where no service is available in low-traffic periods and on weekends (e.g. Kilitó út and its vicinity).</i> • <i>An effective PT system can be set up for sparsely inhabited peripheral areas (e.g. Petöfi-telep) for low-traffic hours, DRT services are more flexible in space and time.</i> • <i>A PT service can be available in the operating hours for the inhabitants of residential parks at the periphery of the city (e.g. Aranypaták Residential Park, Perkerdő Residential Park) every day, furthermore PT system can be provided for the night hours.</i> • <i>The general level of PT in Szombathely can be significantly increased.</i> • <i>DRT services can not only satisfy the mobility needs of sparsely inhabited areas, but can also serve as a social service for those needing it (e.g. people with reduced mobility).</i> • <i>DRT services can be extended to the agglomeration of the city (e.g. Sé, Balogunyom etc.).</i> • <i>The proportion of PT in the transportation of the city can be increased. Special discounts can be offered to make the PT service even more attractive. A more flexible tariff system could be introduced (e.g. discounts for prior expression of needs, for regular travelers)</i> • <i>Complex IT solutions can be applied to manage mobility needs, vehicle journey planning, control and management, the system with high-level software can be attractive for younger generations.</i> • <i>A DRT system can be included in the future concept on the PT system of the city.</i> • <i>The operation costs of local PT can be reduced and made more effective (better utilization rate of vehicles, traditional PT is replaced by DRT services in low-traffic periods).</i> 	<ul style="list-style-type: none"> • <i>For areas not served in space or time by the present PT system, if the mobility needs are high, a regular service with a fixed timetable should be offered instead of a DRT service, which generates additional costs for the local government.</i> • <i>Mini or midi buses should be purchased to serve the mobility needs, because this type of buses are not in the operator's fleet.</i> • <i>A new DRT service might not be an attractive alternative for inhabitants with a much higher social status than the average (e.g. Kilitó út and its vicinity).</i> • <i>An accounting and financing scheme specific to Hungary should be created for the new system, especially for costs not covered by fees and price compensations for discounts.</i> • <i>The maintenance of the bus fleet is a bit less plannable for the Operator.</i> • <i>Mobility demands need to be submitted by telephone or via the internet, which might not be so attractive for the users.</i> • <i>As the present legislation in Hungary does not allow the introduction of DRT services for work- or education-related travel times, DRT services can only be applied as supplementary services.</i>

Table 7. SWOT-analysis (source: own work)

Based on earlier experiences in Hungary, the introduction of DRT services proved to be popular for inhabitants, which can be regarded as a strength. However, if the mobility needs are high and regular, DRT services might be transformed into a traditional PT service with a fixed timetable, which might mean additional costs for both the Operator and the Client (if it arises as a supplement to the earlier existing PT service).



If new services are introduced, the proportion of public transport in the transportation system of the city increases. If local and interurban systems are integrated, the sparsely populated areas around Szombathely (e.g. Sé, Balogunyom, etc.) can benefit from the higher level and more flexible service.

Special vehicles need to be purchased for the proposed DRT service (mini or midi buses), which are not currently available in the fleet of the local PT operator. Furthermore, the resources of the present PT service system should be reconstructed, both concerning the IT background (software facilitating flexible mobility needs), and human resources (managing mobility needs, planning of vehicle journeys).

In sum, the establishment of a demand-responsive transport system for Szombathely would have several opportunities and strengths for both the client and the passengers. However, the financial sources, resources and legislative changes are needed to create such a system.



7. Policy challenges

The existing DRT-service in Szombathely can not be considered as a system, because it contains 1 vehicle journey per line on a fixed route and fixed timetable. It operates only, when a passenger would like to transfer from the Intercity train to bus in the late hours (~22 pm.). Based on this and the strengths and opportunities (defined in the previous chapter), the level of public transport system can be increased and the operation costs can be reduced and made more effective by implementing a DRT-system. That means the main reasons and purposes of planning DRT-system in case of Szombathely.

The establishment of a DRT system for Szombathely poses the following policy challenges:

- the devotion of the local government and the intention of decision-makers;
- appropriate financial environment (compensation subsidy);
- the acceptance of the new service by the passengers and the operators.

The local public transport service is ordered by the Local Government of the City of Szombathely. The local government wishes to revise the local PT system and to employ a DRT service, which is not widely known in Hungary yet. This devotion is proved by the fact that the city has already introduced a DRT service, and the decision makers are planning to allocate sources for the creation of a PT concept for the city. Furthermore, the completion of a Sustainable Urban Mobility Plan (SUMP) for Szombathely is in progress, and the city has also joined the SMACKER Program. In sum, the local government tends to and is dedicated to raise the level of PT services.

As it has already been mentioned, the financing of local public transport systems is achieved in a complex manner, both by local governments and the state. In general, budgets are limited. Hungarian DRT pilot projects (e.g. the above-mentioned ZERGE) have been typically financed by European Union funds for some months. However, in order to provide a long term, continuous DRT service, if it does not replace traditional public transport systems, the present financial structure should be amended. The basis of the accounting scheme should be the number of passengers using the system. This is a key factor, as the activity and the cooperation of the Operator highly depends on the security and continuity of financing.

Another key factor concerning DRT services is their acceptance by the passengers. Passengers might not be satisfied or may be afraid of declaring their mobility needs in advance, or might find the usage of the IT devices difficult. In order to ensure a positive attitude towards such new system, the potential users must be informed comprehensively with a campaign. This promotion should improve the advantages of the DRT system for each age group, presenting the simplicity of its use and the benefits for the passengers. Among good practices it should be mentioned that in the case of the ZERGE project in Zalaegerszeg, the new system has become widely accepted by both young and aged people.



8. Conclusions and addresses for the Action Plan development

According to the current legislation, in Hungary the local public transport systems (except for the capital city) are maintained by the local governments as an optional task. There have been considerable changes in the financing structure of local transport systems (state subsidies have been changed), and the structure of settlements (new residential parks have been built in the periphery of the cities) in the past decades. The effects of these changes are reflected in the quality of local public transport systems.

Szombathely, as an ETP-follower city, is situated at the western border of Hungary. It is a county seat with 80.000 inhabitants. It offers the relevant functions of a minor city (e.g. institutions for public and higher education, hospital, offices etc.). These functions are available in the central region of the city. Industrial zones are located at the eastern and southern periphery. There are housing estates with 5 to 11 story buildings in the central area and its surroundings, while the outskirts are characterized by residential areas with houses with gardens. The latter zones are relatively sparsely populated.

Consequently, mobility needs arise radially (from the residential areas into the inner city) and circularly (from residential areas into the industrial zones). Based on discussions with the primary stakeholder of the project, it was revealed that no traffic count has been completed in the past decade. Therefore, mobility needs can only be estimated by experts. Similarly, the proportion of local public transport in the modal split of the traffic system of the city can be solely estimated (it is low, around 10%). Furthermore, experts have made estimations for the appropriate service of given areas (traditional or DRT service) based on the characteristics of the relevant area.

The local public transport system and the timetable of work-related lines match the mobility needs. Some areas of the city - except for peak hours when work-related needs are served - some zones of the city are left unserved both in space and time. These areas include the Parkerdő Residential Park in the west of the city, the environment of the Kilátó út, and the Aranypatak Residential Park in the north-east of Szombathely. The local public transport is restricted here: it is typically available in peak hours only. Although for the Parkerdő area services are available in the whole operating period, but vehicle journeys are sparse. It must be noted that in the past decades owing to financial reasons, the level of public transport has considerably reduced especially in off-peak hours and at the weekends. It is possible that the rise in the motorization level has also influenced the lowering of available service levels.

Consequently, the Action Plan to be completed within the SMACKER project will focus on the above described areas and time periods. A model analysis of transport modes, which is based on the characteristics of the served areas, can serve as a good starting point for further analyses. Therefore, the Action Plan will determine the relations and time periods which are worth serving by a DRT service, either as a new supplementary service or as one that replaces traditional public transport.



9. References

- [1] Census 2011 (In Hungarian: Népszámlálás 2011.). National Statistical Office. URL: <http://www.ksh.hu/nepszamlalas/>. Accessed on: 14. April 2021.
- [2] Hu H, Xu J, Shen Q, Shi F, Chen Y. Travel mode choices in small cities of China: A case study of Changing. Transportation Research Part D Transportation Environment. 2018; 59:361-74. DOI: 10.1016/j.trd.2018.01.013
- [3] Bálint Mátyás Determining the required mode of transport based on general territorial and transport characteristics (In Hungarian: Szükséges közlekedési mód meghatározása, általános területi és közlekedési jellemzők alapján). 2020. Budapest University of Technology and Economics. Master Thesis.
- [4] BKK Egységes Forgalmi Modell (EFM) URL: <https://bkk.hu/fejlesztések/egyseges-forgalmi-modell/>. Accessed on: 14. April 2021.
- [5] Establishment of the Szombathely Intermodal Public Transport Hub - Detailed Feasibility Study. (In Hungarian: Szombathely Intermodális Közösségi Közlekedési Csomópont létesítése - Részletes Megvalósíthatósági Tanulmány.) Szombathelyi Közlekedési Konzorcium. 2015. URL: <http://m.szombathely.hu/kozgyules/e-kozgyules/download.34052/> Accessed on: 19. April 2021.
- [6] Bálint Mátyás, Dr. Földes Dávid, Munkácsy András Mobilitási szolgáltatások szükségessége kis és közepes városokban, 2021. International Conference On Transport Sciences Győr 2021.
- [7] Timetable of local public transport sytem of Szombathely. Vasi Volán Rt. 2002.
- [8] Timetable of local public transport sytem of Szombathely. Vasi Volán Zrt. 2013.
- [9] Timetable of local public transport sytem of Szombathely. Volánbusz Zrt. 2021. URL: <https://www.volanbusz.hu/hu/menetrendek/helyi-jaratok/szombathely>. Accessed on: 14. April 2021.
- [10] Railway timetable GYSEV Zrt. 2021. URL: <https://www2.gysev.hu/#timetable>. Accessed on: 11. April 2021.
- [11] 2012. XLI. Act on Passenger Transport Services. (In Hungarian: 2012. évi XLI. törvény a személyszállítási szolgáltatásokról.) URL: <https://net.jogtar.hu/jogszabaly?docid=a1200041.tv> Accessed on: 15. April 2021.
- [12] DRT-bus - ZERGE. URL: <https://zergebusz.hu/> Accessed on: 1. May 2021
- [13] Integrated settlement development strategy of the city of Szombathely. No. 1 of consolidated amendments. (In Hungarian: Szombathely megyei jogú város településfejlesztési koncepciója integrált településfejlesztési stratégiája I. Számú egységes szerkezetbe foglalt módosítás.) URL: <https://www.szombathely.hu/onkormanyzat/koncepcioik-tervek/telepulesfejlesztes/> Accessed on: 10. April 2021.
- [14] Business rules of Volánbusz Zrt. (In Hungarian: Volánbusz Zrt. Üzletszabályzata). URL: https://www.volanbusz.hu/files/public/Kozerdeku-adatok/Uzletszabalyzat_2021-02-20.pdf Accessed on: 30. April 2021.



10. Annexes

10.1. Annex 1 - Stakeholders list

The table can be found in attached.



10.2. Public transport supply on schooldays - 2021

Line	Destination	Vehicle journeys/hour																			Σ Vehicle journeys	Length [km]	Daily performance [km]
		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
1C	Herény	1	2	3	3	2	1	2	1	3	3	3	3	3	2	1	2	1	1	40	4,8	192	
1C	Vasútáll.	2	2	3	3	2	2	1	2	2	3	3	3	3	2	2	1	1	2	42	4,7	197	
1U	Bogát			1	1					1	1	1	2						8	9,7	78		
1U	Vasútáll.	1		1	2						1	1	2	1					8	9,5	76		
2A	körjárat		2	3	3	3	2	2	2	2	2	2	2						27	9,5	257		
2C	körjárat	1	2	3	3	2	2	2	2	2	3	4	2	2					30	10,2	306		
3A	Olad			1	2					2	2	2	2						11	4,7	52		
3A	Vasútáll.			1	2					1	2	2	2	1					11	4,7	52		
5	Olad		2	2	2	2	1	2	1	2	3	1	2	2	2	1	2	1	2	30	5,3	159	
5	Vasútáll.	1	2	2	2	1	2	1	2	2	2	2	2	1	2	1	2	1	1	31	5,5	171	
6	Újperint		2	2	2	2	1	1	1	1	2	2	2	2	1	1	1	1	2	27	10	270	
6	Minerva lakópark	1	2	2	2	2	1	1	1	1	1	2	2	2	1	1	1	1	1	26	9,9	257	
6A	BPW Hungária Kft.																			0	8,1	0	
6A	Minerva lakópark																			0	8,9	0	
7	Újtemető		2	1	2	1	1	1	1	1	2	1	2	1	2	1	1	1		22	5	110	
7	Vasútáll.	1	1	2	1	2	1	1	1	1	1	2	1	2	1	2	1	1	1	23	4,2	97	
8	Zanat		1	1	2	1	1	1	1	1	2	2	2	1	1	1	1		1	22	7,2	158	
8	Autóbusz-állomás		2	1	3	1	1	1	1	1	2	2	2	2	1	1	2			25	8	200	
9	Derkovits városrész		2	2	3	1	2	1	2	1	3	3	3	2	1	2	1			32	5	160	
9	Joskar-Ola városrész	1	1	3	2	2	1	2	1	2	3	3	3	3	1	2	1	1		32	4,5	144	
12	körjárat	1	1	1	1					1	1	2	1	1	1					12	16,5	198	
12B	körjárat					1	1		1						1		1	1	1	7	16,5	116	
21	körjárat	2	1	2	1				1	1	1	1	1	2	1					14	16,2	227	
21B	körjárat					1		1								1	1			4	18,1	72	
21A	körjárat		1	1	1						2	1	1							7	14,9	104	
22	Kilátó út		2	1	1	1		1		1	2	1	1	1						13	6,3	82	
22	Vasútáll.		1	1	1	2		1		1	1	1	2	1						12	6,3	76	
23	Petőfi telep			1	1						2	1		2						7	6,9	48	
23	Autóbusz-állomás			1	1						1	2		1	1					7	6,7	47	
25	Aranypatak lakópark		2	1	1					1	1	2	1	1	1					11	5,9	65	
25	Vasútáll.	1	1	2	1						2	1	2	1	1					12	6,3	76	
26	Parkerdő				1						1				1	1				4	6,6	26	
26	Vasútáll.					1					1				1		1			4	6,4	26	
27	Parkerdő lakópark		1	1	2					1	1	2	1	2	1					12	5,2	62	
27	Vasútáll.		1	2	1	1					2	1	2	1	1					12	4,8	58	
29A	körjárat														2	1	2	1	2	9	10,3	93	
29C	körjárat														1	2	1	2	1	9	11,1	100	
30Y	Oladi városrész	1	4	4	5	3	2	2	2	3	4	4	4	4	4	3	2	2	2	1	56	8,6	482
30Y	Kámon	1	4	4	4	2	2	2	2	2	4	4	4	4	4	2	2	2	2	1	52	8,1	421
35	Olad																			0	10,3	0	
35	Minerva lakópark																			0	9,4	0	
4H	BPW Hungária Kft.		1	1							1		1	1				1	1	7	8,4	59	
4H	Oladi városrész			1								2	1	1					1	6	8,1	49	
5H	Olad		1	1							1		1						1	5	9	45	
5H	Ipartelep		1								1		1	1					1	5	8,8	44	
6H	Ipartelep		1	2							1		1						1	6	5,4	32	
6H	VOLÁNBUSZ Zrt.		1	1								1	1						1	5	5,7	29	
7H	Rumi út 142.		1																	1	3,3	3	
7H	Arany János utca										1									1	4,3	4	
8H	iQor Kft.		1		1						1								1	4	6,6	26	
8H	VOLÁNBUSZ Zrt.		1		1							1		1					1	5	7,9	40	
9H	Ipartelep		1	1							1			1						4	7,2	29	
9H	Szolgáltatóház		1								1	1								3	6,7	20	
10H	iQor Kft.		2	2	1						2	1	1	1	1				1	12	10,8	130	
10H	Oladi városrész		1	1	1	1					2	1	2		1					12	11,8	142	
901	VOLÁNBUSZ Zrt.																			1	1	12,7	13
902	VOLÁNBUSZ Zrt.																			1	1	15,3	15
903	11-es Huszár út 69.																			1	1	6,5	7



10.3. Public transport supply on workdays during school holiday - 2021

Line	Destination	Vehicle journeys/hour																			Σ Vehicle journeys	Length [km]	Daily performance [km]
		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
1C	Herény	1	2	2	2	2	1	2	2	2	2	3	2	3	2	2	1	2	1	1	35	4,8	168
1C	Vasútáll.	2	2	2	3	1	2	1	2	2	3	2	3	2	2	2	1	1	2	37	4,7	174	
1U	Bogát		0	1							1		1						3	9,7	29		
1U	Vasútáll.	1			1							1	1						4	9,5	38		
2A	körjárat		2	2	2	3	2	2	2	2	2	2	2	2					25	9,5	238		
2C	körjárat	1	2	2	2	2	2	2	2	2	2	2	2	2					25	10,2	255		
3A	Olád																		0	4,7	0		
3A	Vasútáll.																		0	4,7	0		
5	Olád	1	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	26	5,3	138		
5	Vasútáll.	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	27	5,5	149		
6	Újperint		2	2	2	1	1	1	1	2	2	2	2	1	1	1	1	2	27	10	270		
6	Minerva lakópark	1	2	2	2	1	1	1	1	1	2	2	2	2	1	1	1	1	26	9,9	257		
6A	BPW Hungária Kft.																		0	8,1	0		
6A	Minerva lakópark																		0	8,9	0		
7	Újtemető		2	1	2	1	1	1	1	1	2	1	2	1	2	1	1	1	22	5	110		
7	Vasútáll.	1	1	2	1	2	1	1	1	1	1	2	1	2	1	2	1	1	23	4,2	97		
8	Zanat		1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	21	7,2	151		
8	Autóbusz-állomás		2	1	1	1	1	1	1	1	2	2	2	2	1	1	2		23	8	184		
9	Derkovits városrész		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	24	5	120		
9	Joskar-Ola városrész	1	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	1	24	4,5	108		
12	körjárat	1	1	1	1					1	1	2	1	1	1	1			12	16,5	198		
12B	körjárat					1	1		1						1		1	1	7	16,5	116		
21	körjárat	2	1	2	1				1	1	1	1	1	2	1				14	16,2	227		
21B	körjárat					1		1									1	1	4	18,1	72		
21A	körjárat																		0	14,9	0		
22	Kilátó út		2	1	1	1		1		1	2	1	1	1					13	6,3	82		
22	Vasútáll.		1	1	1	2		1		1	1	1	2	1					12	6,3	76		
23	Petőfi telep			1	1						2	1		2					7	6,9	48		
23	Autóbusz-állomás			1	1						1	2		1	1				7	6,7	47		
25	Aranypatak lakópark		2	1	1					1	1	2	1	1	1				11	5,9	65		
25	Vasútáll.	1	1	2	1						2	1	2	1	1				12	6,3	76		
26	Parkerdő				1						1				1		1		4	6,6	26		
26	Vasútáll.					1						1			1		1		4	6,4	26		
27	Parkerdő lakópark		1	1	2					1	1	2	1	2	1				12	5,2	62		
27	Vasútáll.		1	2	1	1					2	1	2	1	1				12	4,8	58		
29A	körjárat													2	1	2	1	2	1	9	10,3	93	
29C	körjárat													1	2	1	2	1	2	9	11,1	100	
30Y	Oladi városrész	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	36	8,6	310	
30Y	Kámon		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	35	8,1	284	
35	Olád																		0	10,3	0		
35	Minerva lakópark																		0	9,4	0		
4H	BPW Hungária Kft.		1	1							1		1	1				1	1	7	8,4	59	
4H	Oladi városrész			1								2	1	1					6	8,1	49		
5H	Olád		1	1							1		1					1	5	9	45		
5H	Ipartelep		1								1	1	1						5	8,8	44		
6H	Ipartelep		1	2							1		1					1	6	5,4	32		
6H	VOLÁNBUSZ Zrt.		1	1	1						1	1						1	6	5,7	34		
7H	Rumi út 142.		1																1	3,3	3		
7H	Arany János utca										1								1	4,3	4		
8H	iQor Kft.		1		1						1							1	4	6,6	26		
8H	VOLÁNBUSZ Zrt.		1		1						1		1					1	5	7,9	40		
9H	Ipartelep		1	1							1		1						4	7,2	29		
9H	Szolgáltatóház		1								1	1							3	6,7	20		
10H	iQor Kft.		2	2	1						2	1	1	1	1			1	12	10,8	130		
10H	Oladi városrész		1	1	1	1					2	1	2		1			2	12	11,8	142		
901	VOLÁNBUSZ Zrt.																		1	1	12,7	13	
902	VOLÁNBUSZ Zrt.																		1	1	15,3	15	
903	11-es Huszár út 69.																		1	1	6,5	7	



10.4. Public transport supply on Saturdays - 2021

Line	Destination	Vehicle journeys/hour																			Σ Vehicle journeys	Length [km]	Daily performance [km]
		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
1C	Herény	0	2	1	1	1	2	1	1	2	1	1	2	1	1	2	1	1	1	1	23	4,8	110
1C	Vasútáll.	1	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	25	4,7	118
1U	Bogát																				0	9,7	0
1U	Vasútáll.																				0	9,5	0
2A	körjárat																				0	9,5	0
2C	körjárat																				0	10,2	0
3A	Olád																				0	4,7	0
3A	Vasútáll.																				0	4,7	0
5	Olád																				0	5,3	0
5	Vasútáll.																				0	5,5	0
6	Újperint			1	1	1		1	1		1	1		1	1		1			1	11	10	110
6	Minerva lakópark		1	1		1	1		1	1		1	1		1	1		1			11	9,9	109
6A	BPW Hungária Kft.		1										1						1		3	8,1	24
6A	Minerva lakópark			1									1							1	3	8,9	27
7	Újtemető		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		17	5	85
7	Vasútáll.		2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		18	4,2	76
8	Zanat		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		17	7,2	122
8	Autóbusz-állomás		2	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18	8	144
9	Derkovits városrész			1	2	1	2	1	2												9	5	45
9	Joskar-Ola városrész			1	1	2	1	2	1												8	4,5	36
12	körjárat																				0	16,5	0
12B	körjárat	1	1	1		1	1		1	1		1	1		1	1		1	1	1	14	16,5	231
21	körjárat																				0	16,2	0
21B	körjárat																				0	18,1	0
21A	körjárat																				0	14,9	0
22	Kilátó út																				0	6,3	0
22	Vasútáll.																				0	6,3	0
23	Petőfi telep																				0	6,9	0
23	Autóbusz-állomás																				0	6,7	0
25	Aranypatak lakópark																				0	5,9	0
25	Vasútáll.																				0	6,3	0
26	Parkerdő					1				1				1		1					4	6,6	26
26	Vasútáll.						1				1				1		1				4	6,4	26
27	Parkerdő lakópark																				0	5,2	0
27	Vasútáll.																				0	4,8	0
29A	körjárat		1	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	26	10,3	268
29C	körjárat			2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	26	11,1	289
30Y	Oladi városrész																				0	8,6	0
30Y	Kámon																				0	8,1	0
35	Olád		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	27	10,3	278
35	Minerva lakópark		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	27	9,4	254
4H	BPW Hungária Kft.		1								1								1		3	8,4	25
4H	Oladi városrész			1								1								1	3	8,1	24
5H	Olád																				0	9	0
5H	Ipartelep																				0	8,8	0
6H	Ipartelep																				0	5,4	0
6H	VOLÁNBUSZ Zrt.																				0	5,7	0
7H	Rumi út 142.																				0	3,3	0
7H	Arany János utca																				0	4,3	0
8H	iQor Kft.																				0	6,6	0
8H	VOLÁNBUSZ Zrt.																				0	7,9	0
9H	Ipartelep																				0	7,2	0
9H	Szolgáltatóház																				0	6,7	0
10H	iQor Kft.		1								1								1		3	10,8	32
10H	Oladi városrész		1									1								1	3	11,8	35
901	VOLÁNBUSZ Zrt.																			1	1	12,7	13
902	VOLÁNBUSZ Zrt.																			1	1	15,3	15
903	11-es Huszár út 69.																			1	1	6,5	7



10.5. Public transport supply on Sundays - 2021

Line	Destination	Vehicle journeys/hour																			Σ Vehicle journeys	Length [km]	Daily performance [km]
		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
1C	Herény	0	2	1	1	1	2	1	1	2	1	1	2	1	1	2	1	1	1		22	4,8	106
1C	Vasútáll.	1	1	1	2	1	1	2	1	1	2	1	1	2	1	1	2	1	1	1	24	4,7	113
1U	Bogát																				0	9,7	0
1U	Vasútáll.																				0	9,5	0
2A	körjárat																				0	9,5	0
2C	körjárat																				0	10,2	0
3A	Olad																				0	4,7	0
3A	Vasútáll.																				0	4,7	0
5	Olad																				0	5,3	0
5	Vasútáll.																				0	5,5	0
6	Újperint			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11	10	110
6	Minerva lakópark		1	1		1	1		1	1		1	1		1		1	1			11	9,9	109
6A	BPW Hungária Kft.																				0	8,1	0
6A	Minerva lakópark																				0	8,9	0
7	Újtemető		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		17	5	85
7	Vasútáll.		2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			17	4,2	71
8	Zanat		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		17	7,2	122
8	Autóbusz-állomás		2	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18	8	144
9	Derkovits városrész																				0	5	0
9	Joskar-Ola városrész																				0	4,5	0
12	körjárat																				0	16,5	0
12B	körjárat	1	1	1		1	1		1	1		1	1		1	1		1	1		13	16,5	215
21	körjárat																				0	16,2	0
21B	körjárat																				0	18,1	0
21A	körjárat																				0	14,9	0
22	Kilátó út																				0	6,3	0
22	Vasútáll.																				0	6,3	0
23	Petőfi telep																				0	6,9	0
23	Autóbusz-állomás																				0	6,7	0
25	Aranypatak lakópark																				0	5,9	0
25	Vasútáll.																				0	6,3	0
26	Parkerdő				1						1			1		1		1			4	6,6	26
26	Vasútáll.					1					1			1		1		1			4	6,4	26
27	Parkerdő lakópark																				0	5,2	0
27	Vasútáll.																				0	4,8	0
29A	körjárat			1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	25	10,3	258
29C	körjárat			2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	1	25	11,1	278
30Y	Oladi városrész	1	4	4	5	3	2	2	2	3	4	4	4	4	3	2	2	2	2	1	56	8,6	482
30Y	Kámon	1	4	4	4	2	2	2	2	2	4	4	4	4	2	2	2	2	2	1	52	8,1	421
35	Olad																				0	10,3	0
35	Minerva lakópark																				0	9,4	0
4H	BPW Hungária Kft.																				0	8,4	0
4H	Oladi városrész			1																	1	8,1	8
5H	Olad																				0	9	0
5H	Ipartelep																				0	8,8	0
6H	Ipartelep																				0	5,4	0
6H	VOLÁNBUSZ Zrt.																				0	5,7	0
7H	Rumi út 142.																				0	3,3	0
7H	Arany János utca																				0	4,3	0
8H	iQor Kft.																				0	6,6	0
8H	VOLÁNBUSZ Zrt.																				0	7,9	0
9H	Ipartelep																				0	7,2	0
9H	Szolgáltatóház																				0	6,7	0
10H	iQor Kft.		1							1								1			3	10,8	32
10H	Oladi városrész		1								1									1	3	11,8	35
901	VOLÁNBUSZ Zrt.																			1	1	12,7	13
902	VOLÁNBUSZ Zrt.																			1	1	15,3	15
903	11-es Huszár út 69.																			1	1	6,5	7



10.6. Public transport supply on schooldays - 2013

Line	Destination	Vehicle journeys/hour																			Σ Vehicle journeys	Length [km]	Daily performance [km]
		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
1	Herény					1	1	2	1								2	1	1	1	10	14,5	145
1	Bogát					1	1	2	1							2	1	1	1	10	13,4	134	
1A	Bogát	1	2	3	2	1				2	3	2	2	3	2	2				25	7,8	195	
1A	Vasútáll.	1	2	3	2	1				2	3	2	2	3	2	2				25	7,3	183	
1C	Herény	1	3	3	2	1				2	3	3	3	3	2	2				28	4,7	132	
1C	Vasútáll.	2	3	3	3					2	3	3	3	3	3	1				29	4,8	139	
1U	Bogát			1	1						1	1	1	1						6	9,7	58	
1U	Vasútáll.	1		1	2				1			2		2						9	9,5	86	
2A	körjárat		2	3	3	2	2	2	2	2	2	2	2	2						26	9,5	247	
2C	körjárat	1	2	3	3	2	2	2	2	2	3	4	2	2						30	10,2	306	
3	Kámon																			0	8,1	0	
3	Olad																			0	8,6	0	
3A	Olad			1	2					2	2	2	2							11	4,7	52	
3A	Vasútáll.			1	2					1	2	2	2	1						11	4,7	52	
5	Olad		2	2	2	2	1	2	1	2	3	1	2	2	2	1	2	1	2	30	5,3	159	
5	Vasútáll.	1	2	2	2	1	2	1	2	1	2	2	2	2	1	2	1	2	1	30	5,5	165	
6	Minerva lakópark	1	2	2	2	1	1	1	1	1	2	2	2	2	1	1	1	1	1	25	10	250	
6	Újperint		2	2	2	1	1	1	1	2	2	2	2	2	1	1	1	1	1	26	9,9	257	
6A	OBV intézet	1	1	1			1				1		1		1	1				8	5,9	47	
6A	Vasútáll.		1	1	1			1			1		1		1	1				8	5,9	47	
7	Újtemető		2	1	2	1	1	1	1	1	2	1	2	1	2	1	1	1	1	22	5	110	
7	Vasútáll.	1	1	2	1	2	1	1	1	1	1	2	1	2	1	2	1	1	1	22	4,2	92	
7C	Újtemető																			0	4,8	0	
8	Zanat		1	1	2	1	1	1	1	1	2	2	2	2	1	1	1	1	1	22	7,2	158	
8	Autóbusz-állomás		2	1	2	1	1	1	1	1	2	2	2	2	1	1	1	2	23	8	184		
8A	Zanat																			0	7,2	0	
8A	Autóbusz-állomás																			0	7,1	0	
9	Derkovits városrész	1	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	1	24	5	120		
9	Joskar-Ola városrész		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	24	4,5	108		
12	körjárat																			0	16,5	0	
12B	körjárat																			0	16,5	0	
21	Sport tér		2	1	2					1	2	1	2	1	2	1				15	6,3	95	
21	Vasútáll.	1	1	2	2	1				1	1	2	1	2	1	2				17	6,2	105	
21B	körjárat																			0	18,1	0	
21A	körjárat																			0	14,9	0	
22	Erdei iskola		1	2	1	1				1	2	1	2	1						12	5,3	64	
22	Vasútáll.		2	1	2	1				1	1	2	1	2						13	5,5	72	
23	Petőfi telep			1	1						2	1		2						7	6,9	48	
23	Autóbusz-állomás			1	1						1	2		1	1					7	6,7	47	
24	Vasútáll.																			0	5,2	0	
25	Olad		2	1	1					1	1	2	1	1	1					11	6,1	67	
25	Vasútáll.	1	1	2	1					1	1	1	2	1	1					12	6,3	76	
26	Parkerdő				1						1					1				4	6,6	26	
26	Vasútáll.					1					1					1		1		4	6,4	26	
27	Falumúzeum		1	1	2					1	1	2	1	2	1					12	5,2	62	
27	Vasútáll.		1	2	1	1					2	1	2	1	1					12	4,8	58	
28	Zanat																			0	8,4	0	
29A	körjárat													2	1	2	1	2	1	9	10,3	93	
29C	körjárat														1	2	1	2	1	9	11,1	100	
30Y	Oladi városrész	1	4	4	4	2	2	2	2	2	4	4	4	4	4	2	2	2	2	52	8,6	447	
30Y	Kámon	1	4	4	4	3	2	2	2	3	4	4	4	4	4	3	2	2	2	55	8,1	446	
35	Olad																			0	11,1	0	
35	Minerva lakópark																			0	9,4	0	
3H	Ipartelep																			0	5,9	0	
3H	Kámon																			0	5,4	0	
4H	Futóműgyár		1	1							1		1	1				1	1	7	8,4	59	
4H	Oladi városrész			1							2	1	1						1	6	8,1	49	
5H	Olad		1	1							1		1					1	5	9	45		
5H	Ipartelep		1								1	1	1						1	5	8,8	44	
6H	Ipartelep		1	2							1		1					1	6	5,4	32		
6H	VOLÁNBUSZ Zrt.		1	1							1	1							1	5	5,7	29	
7H	Rumi út 142.		1																	1	3,3	3	
7H	Arany János utca										1									1	4,3	4	
8H	Ipartelep																			0	3,9	0	
8H	VOLÁNBUSZ Zrt.																			0	4	0	
9H	Ipartelep		1	1							1		1							4	7,2	29	
9H	Szolgáltatóház		1								1	1								3	6,7	20	
10H	Vépi út		1	1	1						1	1		1				1	7	6,1	43		
10H	Oladi városrész		1	1	1						1	1	1		1				1	8	6,7	54	



10.7. Public transport supply on workdays during school holiday - 2013

Line	Destination	Vehicle journeys/hour																			Σ Vehicle journeys	Length [km]	Daily performance [km]
		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
1	Herény	1	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	1	27	14,5	392
1	Bogát	1	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	28	13,4	375
1A	Bogát																				0	7,8	0
1A	Vasútáll.																				0	7,3	0
1C	Herény																				0	4,7	0
1C	Vasútáll.																				0	4,8	0
1U	Bogát			1							1	1									3	9,7	29
1U	Vasútáll.				1							1	1								3	9,5	29
2A	körjárat		2	2	2	2	2	2	2	2	2	2	2								24	9,5	228
2C	körjárat	1	2	2	2	2	2	2	2	2	2	2	2								25	10,2	255
3	Kámon																				0	8,1	0
3	Olad																				0	8,6	0
3A	Olad																				0	4,7	0
3A	Vasútáll.																				0	4,7	0
5	Olad	1	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1		26	5,3	138
5	Vasútáll.	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	1	1	27	5,5	149
6	Kámon	1	2	2	2	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	25	10	250
6	Újperint		2	2	2	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	26	9,9	257
6A	Interspar	1	1	1			1				1		1	1	1						8	5,9	47
6A	Vasútáll.		1	1	1			1		1		1		1	1						8	5,9	47
7	Újtemető		2	1	2	1	1	1	1	1	2	1	2	1	2	1	1	1	1		22	5	110
7	Vasútáll.	1	1	2	1	2	1	1	1	1	1	2	1	2	1	2	1	1	1		22	4,2	92
7C	Újtemető																				0	4,8	0
8	Zanat		1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1		1	21	7,2	151
8	Autóbusz-állomás		2	1	1	1	1	1	1	1	2	2	2	2	1	1	1	2			22	8	176
8A	Zanat																				0	7,2	0
8A	Autóbusz-állomás																				0	7,1	0
9	Derkovits városrész	1	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	1			24	5	120
9	Joskar-Ola városrész		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1			24	4,5	108
12	körjárat																				0	16,5	0
12B	körjárat																				0	16,5	0
21	Sport tér																				0	6,3	0
21	Vasútáll.																				0	6,2	0
21B	körjárat																				0	18,1	0
21A	körjárat																				0	14,9	0
22	Erdei iskola		1	2	1	1				1	2	1	2	1							12	5,3	64
22	Vasútáll.		2	1	2	1				1	1	2	1	2							13	5,5	72
23	Petőfi telep			1	1						2	1	2								7	6,9	48
23	Autóbusz-állomás			1	1						1	2		1	1						7	6,7	47
24	Vasútáll.																				0	5,2	0
25	Olad		2	1	1					1	1	2	1	1	1						11	6,1	67
25	Vasútáll.	1	1	2	1					1	1	1	2	1	1						12	6,3	76
26	Parkerdő				1						1				1		1				4	6,6	26
26	Vasútáll.					1					1				1		1				4	6,4	26
27	Falumúzeum		1	1	2					1	1	2	1	2	1						12	5,2	62
27	Vasútáll.		1	2	1	1					2	1	2	1	1						12	4,8	58
28	Zanat		1																		1	8,4	8
29A	körjárat														2	1	2	1	2	1	9	10,3	93
29C	körjárat														1	2	1	2	1	2	9	11,1	100
30Y	Oladi városrész	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	36	8,6	310
30Y	Kámon	1	4	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	1	39	8,1	316
35	Olad																				0	11,1	0
35	Minerva lakópark																				0	9,4	0
3H	Ipartelep																				0	5,9	0
3H	Kámon																				0	5,4	0
4H	Futóműgyár		1	1							1		1	1					1	1	7	8,4	59
4H	Oladi városrész			1								2	1	1						1	6	8,1	49
5H	Olad		1	1							1		1						1		5	9	45
5H	Ipartelep		1									1	1	1						1	5	8,8	44
6H	Ipartelep		1	2							1		1						1		6	5,4	32
6H	VOLÁNBUSZ Zrt.		1	1	1							1	1							1	6	5,7	34
7H	Rumi út 142.		1																		1	3,3	3
7H	Arany János utca										1										1	4,3	4
8H	Ipartelep		1	2								2	1								6	3,9	23
8H	VOLÁNBUSZ Zrt.		1	1	1						1	1	1							1	7	4	28
9H	Ipartelep		1	1							1			1							4	7,2	29
9H	Szolgáltatóház		1									1	1								3	6,7	20
10H	Vépi út		1	1	1							1	1		1				1		7	6,1	43
10H	Oladi városrész		1	1	1							1	1	1		1				1	8	6,7	54



10.8. Public transport supply on Saturdays - 2013

Line	Destination	Vehicle journeys/hour																			Σ Vehicle journeys	Length [km]	Daily performance [km]
		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
1	Herény	1	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	1	27	14,5	392
1	Bogát	1	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	28	13,4	375
1A	Bogát																				0	7,8	0
1A	Vasútáll.																				0	7,3	0
1C	Herény																				0	4,7	0
1C	Vasútáll.																				0	4,8	0
1U	Bogát																				0	9,7	0
1U	Vasútáll.																				0	9,5	0
2A	körjárat																				0	9,5	0
2C	körjárat																				0	10,2	0
3	Kámon																				0	8,1	0
3	Olad																				0	8,6	0
3A	Olad																				0	4,7	0
3A	Vasútáll.																				0	4,7	0
5	Olad																				0	5,3	0
5	Vasútáll.																				0	5,5	0
6	Minerva lakópark		1			1		1				1	1			1					6	10	60
6	Újperint				1	1	1				1	1			1						6	9,9	59
6A	BPW Hungária Kft.																				0	5,9	0
6A	Minerva lakópark																				0	5,9	0
7	Újtemető		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		17	5	85
7	Vasútáll.		2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		18	4,2	76
7C	Újtemető					1	1	1	1	1					1	1	1	1	1		10	4,8	48
8	Zanat		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		17	7,2	122
8	Autóbusz-állomás		2	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1		18	8	144
9	Derkovits városrész			1	2	1	2	1	2												9	7,2	65
9	Joskar-Ola városrész			1	1	2	1	2	1												8	7,1	57
12	körjárat																				0	5	0
12B	körjárat																				0	4,5	0
21	körjárat																				0	16,5	0
21B	körjárat																				0	16,5	0
21A	körjárat																				0	6,3	0
22	Erdei iskola																				0	6,2	0
22	Vasútáll.																				0	18,1	0
23	Petőfi telep																				0	14,9	0
23	Autóbusz-állomás																				0	5,3	0
25	Olad																				0	5,5	0
25	Vasútáll.																				0	6,9	0
26	Parkerdő					1				1				1		1					4	6,7	27
26	Vasútáll.					1					1				1		1				4	5,2	21
27	Parkerdő lakópark																				0	6,1	0
27	Vasútáll.																				0	6,3	0
28	Zanat																				0	6,6	0
29A	körjárat		1	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	26	6,4	166
29C	körjárat		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	27	5,2	140
30Y	Oladi városrész																				0	4,8	0
30Y	Kámon																				0	8,4	0
35	Olad		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	27	10,3	278
35	Minerva lakópark		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	27	11,1	300
4H	BPW Hungária Kft.																				0	8,6	0
4H	Oladi városrész																				0	8,1	0
5H	Olad																				0	11,1	0
5H	Ipartelep																				0	9,4	0
6H	Ipartelep																				0	5,9	0
6H	VOLÁNBUSZ Zrt.																				0	5,4	0
7H	Rumi út 142.																				0	8,4	0
7H	Arany János utca																				0	8,1	0
8H	iQor Kft.																				0	9	0
8H	VOLÁNBUSZ Zrt.																				0	8,8	0
9H	Ipartelep																				0	5,4	0
9H	Szolgáltatóház																				0	5,7	0



10.9. Public transport supply on Sundays - 2013

Line	Destination	Vehicle journeys/hour																			Σ Vehicle journeys	Length [km]	Daily performance [km]
		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
1	Herény	1	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	26	14,5	377
1	Bogát	1	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	27	13,4	362
1A	Bogát																				0	7,8	0
1A	Vasútáll.																				0	7,3	0
1C	Herény																				0	4,7	0
1C	Vasútáll.																				0	4,8	0
1U	Bogát																				0	9,7	0
1U	Vasútáll.																				0	9,5	0
2A	körjárat																				0	9,5	0
2C	körjárat																				0	10,2	0
3	Kámon																				0	8,1	0
3	Olad																				0	8,6	0
3A	Olad																				0	4,7	0
3A	Vasútáll.																				0	4,7	0
5	Olad																				0	5,3	0
5	Vasútáll.																				0	5,5	0
6	Kámon		1			1		1		1		1	1			1					6	10	60
6	Újperint				1	1	1				1	1			1						6	9,9	59
6A	BPW Hungária Kft.																				0	5,9	0
6A	Minerva lakópark																				0	5,9	0
7	Újtemető		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		17	5	85
7	Vasútáll.		2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		17	4,2	71
7C	Újtemető																				0	4,8	0
8	Zanat		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		17	7,2	122
8	Autóbusz-állomás		2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18	8	144
9	Derkovits városrész			1	2	1	2	1	2												9	7,2	65
9	Joskar-Ola városrész			1	1	2	1	2	1												8	7,1	57
12	körjárat																				0	5	0
12B	körjárat																				0	4,5	0
21	körjárat																				0	16,5	0
21B	körjárat																				0	16,5	0
21A	körjárat																				0	6,3	0
22	Erdei iskola																				0	6,2	0
22	Vasútáll.																				0	18,1	0
23	Petőfi telep																				0	14,9	0
23	Autóbusz-állomás																				0	5,3	0
25	Olad																				0	5,5	0
25	Vasútáll.																				0	6,9	0
26	Parkerdő					1				1				1		1					4	6,7	27
26	Vasútáll.						1				1				1		1				4	5,2	21
27	Parkerdő lakópark																				0	6,1	0
27	Vasútáll.																				0	6,3	0
28	Zanat																				0	6,6	0
29A	körjárat			1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	25	6,4	160
29C	körjárat		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	27	5,2	140
30Y	Oladi városrész		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	27	4,8	130
30Y	Kámon		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	27	8,4	227
35	Olad																				0	10,3	0
35	Minerva lakópark																				0	11,1	0
4H	BPW Hungária Kft.																				0	8,6	0
4H	Oladi városrész																				0	8,1	0
5H	Olad																				0	11,1	0
5H	Ipartelep																				0	9,4	0
6H	Ipartelep																				0	5,9	0
6H	VOLÁNBUSZ Zrt.																				0	5,4	0
7H	Rumi út 142.																				0	8,4	0
7H	Arany János utca																				0	8,1	0
8H	iQor Kft.																				0	9	0
8H	VOLÁNBUSZ Zrt.																				0	8,8	0
9H	Ipartelep																				0	5,4	0
9H	Szolgáltatóház																				0	5,7	0
10H	Vépi út		1								1								1		3	3,3	10
10H	Oladi városrész		1									1								1	3	4,3	13



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10.10. Public transport supply on schooldays - 2002

Line	Destination	Vehicle journeys/hour																			Σ Vehicle journeys	Length [km]	Daily performance [km]
		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
1	Herény					1	1	2	1								2	1	1	1	10	14,5	145
1	Bogát					1	1	2	1								2	1	1	1	10	13,4	134
1A	Bogát	1	2	3	2	1				2	3	2	2	3	2	2					25	7,8	195
1A	Vasútáll.	1	2	3	2	1				2	3	2	2	3	2	2					25	7,3	183
1C	Herény	1	3	3	2	1				2	3	3	3	3	3	3					30	4,7	141
1C	Vasútáll.	2	3	3	3					2	3	3	3	3	3	3					31	4,8	149
1U	Bogát			1	1				1		1	1	1	1							7	9,4	66
1U	Vasútáll.	1		1	2				1		2	2	2								9	9,1	82
2A	körjárat		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	36	7,9	284
2C	körjárat	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	36	8,6	310
3	Kámon	1	4	4	4	2	2	2	2	2	4	4	4	4	4	2	2	2	2	2	53	8,1	429
3	Olád	1	4	4	4	3	2	2	2	3	4	4	4	4	4	3	2	2	2	1	55	8,6	473
3A	Olád			2	2						2	2	2	2	1						13	5,6	73
3A	Vasútáll.			3	3					1	2	2	2	2							15	5,2	78
5	Olád	1	2	1	2		1	1	1	1	2	1	2	1	2	1	2	1	2	1	24	5,3	127
5	Vasútáll.	1	2	2	1	1	1	1	1	1	1	2	1	2	1	2	1	2	1	1	24	5,5	132
6	Kámon	1	2	2	2	1	1	1	1	1	2	2	2	2	2	1	1			1	27	9,6	259
6	Újperint	1	2	2	2	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	29	10	290
6A	Interspar		1	4	3						1	3	2	4	4						22	4,7	103
6A	Vasútáll.	1	2	4	3	1					1	3	2	3	3						23	4,4	101
7	Vasútáll.	1	2	3	3	2	1	1	1	1	2	3	2	3	3	2	2	1	1		34	4,2	143
7A	Újtemető		2	3	3						3	2	3	3	3						22	5	110
7C	Újtemető					1	1	1	1	1					2	1	1	1	1	1	11	4,8	53
8	Zanat			1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	15	7,6	114
8	Autóbusz-állomás		1		1	1	1	1	1	1		3		1	1	1	1	1	1	1	17	8,5	145
8A	Zanat											2									2	7,2	14
8A	Autóbusz-állomás	1	1	1							1										4	7,1	28
9	Derkovits városrész		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	52	5	260
9	Joskar-Ola városrész	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	53	4,5	239
12	körjárat																				0	16,5	0
12B	körjárat																				0	16,5	0
21	Sport tér		2	2	2					1	2	1	2	1	2	1					16	6,3	101
21	Vasútáll.	1	1	3	3					1	1	2	1	2	1	2					18	6,2	112
21B	körjárat																				0	18,1	0
21A	körjárat																				0	14,9	0
22	Erdei iskola					1				1					1						3	3,7	11
22	Vasútáll.					1				1					1						3	3,3	10
23	Petőfi telep			1	1						1	1		1							5	6,6	33
23	Autóbusz-állomás			1	1						1	2		1	1						7	6,3	44
24	Vasútáll.				1																1	5,2	5
25	Olád		1	2	1	1	1		1	1	1	2	1	2							14	5,6	78
25	Vasútáll.	1	1	1	2	1	1		1	1	1	1	2	1	1						14	5,8	81
26	Parkerdő				1		1			1		1		1		1	1				7	6,6	46
26	Vasútáll.					1		1		1			1		1		1	1			7	6,4	45
27	Falumúzeum		1	2	1					1	1	2	1	1	2						12	4,7	56
27	Vasútáll.		2	1	2					2	1	1	2	1	2	1					12	4,3	52
28	Zanat		1																		1	8,4	8
29A	körjárat																				0	10,3	0
29C	körjárat																				0	11,1	0
30Y	Oladi városrész																				0	8,6	0
30Y	Kámon																				0	8,1	0
35	Olád																				0	10,3	0
35	Minerva lakópark																				0	9,4	0
3H	Ipartelep		1	2							1								1		5	5,9	30
3H	Kámon			1							1	1									3	5,4	16
4H	Futóműgyár		1	1							1	1							1		5	8,4	42
4H	Oladi városrész			1							1	1								1	4	8,1	32
5H	Olád		1								1	1	1							1	5	9	45
5H	Ipartelep		1	1							1	1							1		5	8,8	44
6H	Ipartelep		1	2							1	1							1		6	5,4	32
6H	VOLÁNBUSZ Zrt.	1	1								1	1	1							1	6	5,7	34
7H	Rumi út 142.		1																		1	3,8	4
7H	Arany János utca										1										1	4,8	5
8H	Ipartelep		1	2							2	1									6	3,9	23
8H	VOLÁNBUSZ Zrt.	1	1	1							1	1	1							1	7	4	28
9H	Ipartelep		1	2							1										4	6,7	27
9H	Szolgáltatóház										1	1									2	6,5	13
10H	Vépi út		1	2	1		1				1	1		1					1		9	6,1	55
10H	Oladi városrész	1		2	2		1				1	1	1	1		1				1	11	6,7	74



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10.11. Public transport supply on workdays during school holiday - 2002

Line	Destination	Vehicle journeys/hour																			Σ Vehicle journeys	Length [km]	Daily performance [km]
		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
1	Herény	1																			34	14,5	493
1	Bogát		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	33	13,4	442
1A	Bogát																				0	7,8	0
1A	Vasútáll.																				0	7,3	0
1C	Herény																				0	4,7	0
1C	Vasútáll.																				0	4,8	0
1U	Bogát				1						1	1	1								4	9,4	38
1U	Vasútáll.			1	1						1	1									4	9,1	36
2A	körjárat		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	36	7,9	284
2C	körjárat	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	36	8,6	310
3	Kámon	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	37	8,1	300
3	Olad	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	36	8,6	310
3A	Olad																				0	5,6	0
3A	Vasútáll.																				0	5,2	0
5	Olad			1	1	1		1	1	1		1	1	1	1	1	1	1	1	1	14	5,3	74
5	Vasútáll.		1	1	1	1		1	1	1		1	1	1	1	1	2	1	1	1	14	5,5	77
6	Kámon	1	2	2	2	1	1	1	1	1	1	2	2	2	2	1	1			1	27	9,6	259
6	Újperint	1	2	2	2	1	1	1	1	2	2	2	2	2	2	1	1	1	1	1	29	10	290
6A	Interspar																				0	4,7	0
6A	Vasútáll.																				0	4,4	0
7	Vasútáll.	1	2	3	3	2	1	1	1	1	2	3	2	3	3	2	2	1	1		34	4,2	143
7A	Újtemető		2	3	3						3	2	3	3	3						22	5	110
7C	Újtemető					1	1	1	1	1					2	1	1	1	1	1	11	4,8	53
8	Zanat			1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	15	7,6	114
8	Autóbusz-állomás		1		1	1	1	1	1	1		3	1	1	1	1	1	1	1	1	17	8,5	145
8A	Zanat											2									2	7,2	14
8A	Autóbusz-állomás		1	1	1							1									4	7,1	28
9	Derkovits városrész		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	52	5	260
9	Joskar-Ola városrész	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	53	4,5	239
12	körjárat																				0	16,5	0
12B	körjárat																				0	16,5	0
21	Sport tér																				0	6,3	0
21	Vasútáll.																				0	6,2	0
21B	körjárat																				0	18,1	0
21A	körjárat																				0	14,9	0
22	Erdei iskola					1				1					1						3	3,7	11
22	Vasútáll.					1				1					1						3	3,3	10
23	Petőfi telep			1	1						1	1		1							5	6,6	33
23	Autóbusz-állomás			1	1						1	2		1	1						7	6,3	44
24	Vasútáll.																				0	5,2	0
25	Olad		1	1		1	1	1		1	1	1		1	1	1				11	5,6	62	
25	Vasútáll.		1		1	1	1		1	1	1		1	1	1		1			11	5,8	64	
26	Parkerdő				1	1				1		1		1	1		1				7	6,6	46
26	Vasútáll.					1		1		1		1		1		1	1				7	6,4	45
27	Falumúzeum		1	2	1					1	1	2	1	1	2						12	4,7	56
27	Vasútáll.		2	1	2						2	1	1	2	1						12	4,3	52
28	Zanat		1																		1	8,4	8
29A	körjárat																				0	10,3	0
29C	körjárat																				0	11,1	0
30Y	Oladi városrész																				0	8,6	0
30Y	Kámon																				0	8,1	0
35	Olad																				0	10,3	0
35	Minerva lakópark																				0	9,4	0
3H	Ipartelep		1	2							1								1		5	5,9	30
3H	Kámon			1								1	1								3	5,4	16
4H	Futóműgyár		1	1							1		1						1		5	8,4	42
4H	Oladi városrész			1								1	1							1	4	8,1	32
5H	Olad		1									1	1	1						1	5	9	45
5H	Ipartelep		1	1							1		1						1		5	8,8	44
6H	Ipartelep		1	2							1		1						1		6	5,4	32
6H	VOLÁNBUSZ Zrt.		1	1								1	1	1						1	6	5,7	34
7H	Rumi út 142.		1																		1	3,8	4
7H	Arany János utca										1										1	4,8	5
8H	Ipartelep		1	2								2		1							6	3,9	23
8H	VOLÁNBUSZ Zrt.		1	1	1						1	1	1							1	7	4	28
9H	Ipartelep		1	2							1										4	6,7	27
9H	Szolgáltatóház											1	1								2	6,5	13
10H	Vépi út		1		2	1		1				1	1		1				1		9	6,1	55
10H	Oladi városrész	1		2	2			1				1	1	1		1				1	11	6,7	74



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10.12. Public transport supply on Saturdays - 2002

Line	Destination	Vehicle journeys/hour																				Σ Vehicle journeys	Length [km]	Daily performance [km]
		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				
1	Herény	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	34	14,5	493	
1	Bogát		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	33	13,4	442	
1A	Bogát																				0	7,8	0	
1A	Vasútáll.																				0	7,3	0	
1C	Herény																				0	4,8	0	
1C	Vasútáll.																				0	4,7	0	
1U	Bogát																				0	9,7	0	
1U	Vasútáll.																				0	9,5	0	
2A	körjárat			2	2	2	2	1	1	1	1	2	2	1	1	1	1	1	1	1	23	7,9	182	
2C	körjárat			2	2	2	2	1	1	1	1	2	2	1	1	1	1	1	1	1	23	8,6	198	
3	Kámon		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	36	8,1	292	
3	Olad		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	35	8,6	301	
3A	Olad																				0	4,7	0	
3A	Vasútáll.																				0	4,7	0	
5	Olad			1	1	1		1	1	1		1	1	1		1	1	1	1	1	14	5,3	74	
5	Vasútáll.		1	1	1		1	1	1		1	1	1		1	1		2	1		14	5,5	77	
6	Kámon		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18	9,6	173	
6	Újperint		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18	10	180	
6A	BPW Hungária Kft.																				0	8,1	0	
6A	Minerva lakópark																				0	8,9	0	
7	Vasútáll.		1	2	1	2	1	1	1	1	1	2	1	2	1	1	1	1	1		21	4,2	88	
7A	Újtemető		1	1	2							2	1	2	1	1					11	5	55	
7C	Újtemető					1	1	1	1	1					1	1	1	1	1	1	10	4,8	48	
8	Zanat			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17	7,6	129	
8	Autóbusz-állomás		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18	8,5	153	
9	Derkovits városrész		2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		26	5	130	
9	Joskar-Ola városrész		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1		25	4,5	113	
12	körjárat																				0	16,5	0	
12B	körjárat																				0	16,5	0	
21	körjárat																				0	16,2	0	
21B	körjárat																				0	18,1	0	
21A	körjárat																				0	14,9	0	
22	Erdei iskola					1				1					1						3	3,7	11	
22	Vasútáll.					1				1					1						3	3,3	10	
23	Petőfi telep																				0	6,9	0	
23	Autóbusz-állomás																				0	6,7	0	
25	Olad		1	1		1	1	1		1	1	1	1	1	1						11	5,6	62	
25	Vasútáll.		1		1	1	1		1	1	1	1	1	1		1					11	5,8	64	
26	Parkerdő				1	1	1			1	1	1	1	1	1	1					7	6,6	46	
26	Vasútáll.				1	1	1			1	1	1	1	1	1	1	1				7	6,4	45	
27	Parkerdő lakópark																				0	5,2	0	
27	Vasútáll.																				0	4,8	0	
28	Zanat		1																		1	8,4	8	
29A	körjárat																				0	10,3	0	
29C	körjárat																				0	11,1	0	
30Y	Oladi városrész																				0	8,6	0	
30Y	Kámon																				0	8,1	0	
35	Olad																				0	10,3	0	
35	Minerva lakópark																				0	9,4	0	
4H	BPW Hungária Kft.																				0	8,4	0	
4H	Oladi városrész																				0	8,1	0	
5H	Olad																				0	9	0	
5H	Ipartelep																				0	8,8	0	
6H	Ipartelep																				0	5,4	0	
6H	VOLÁNBUSZ Zrt.																				0	5,7	0	
7H	Rumi út 142.																				0	3,3	0	
7H	Arany János utca																				0	4,3	0	
8H	iQor Kft.																				0	6,6	0	
8H	VOLÁNBUSZ Zrt.																				0	7,9	0	
9H	Ipartelep																				0	7,2	0	
9H	Szolgáltatóház																				0	6,7	0	
10H	Vépi út		1	1			1				1				1				1		6	6,1	37	
10H	Oladi városrész			1	1		1				1	1			1	1				1	6	6,7	40	



10.13. Public transport supply on Sundays - 2002

Line	Destination	Vehicle journeys/hour																			Σ Vehicle journeys	Length [km]	Daily performance [km]
		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
1	Herény	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	34	14,5	493
1	Bogát		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	33	13,4	442
1A	Bogát																				0	7,8	0
1A	Vasútáll.																				0	7,3	0
1C	Herény																				0	4,8	0
1C	Vasútáll.																				0	4,7	0
1U	Bogát																				0	9,7	0
1U	Vasútáll.																				0	9,5	0
2A	körjárat			2	2	2	2	1	1	1	1	2	2	1	1	1	1	1	1	1	23	7,9	182
2C	körjárat			2	2	2	2	1	1	1	1	2	2	1	1	1	1	1	1	1	23	8,6	198
3	Kámon		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	36	8,1	292
3	Olád		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	35	8,6	301
3A	Olád																				0	4,7	0
3A	Vasútáll.																				0	4,7	0
5	Olád			1	1	1		1	1	1		1	1	1		1	1	1	1	1	14	5,3	74
5	Vasútáll.		1	1	1		1	1	1		1	1	1		1	1		2	1		14	5,5	77
6	Kámon		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18	9,6	173
6	Újperint		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18	10	180
6A	BPW Hungária Kft.																				0	8,1	0
6A	Minerva lakópark																				0	8,9	0
7	Vasútáll.		1	2	1	2	1	1	1	1	1	2	1	2	1	1	1	1	1		21	4,2	88
7A	Újtemető		1	1	2							2	1	2	1	1					11	5	55
7C	Újtemető					1	1	1	1	1					1	1	1	1	1		10	4,8	48
8	Zanat			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17	7,6	129
8	Autóbusz-állomás		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18	8,5	153
9	Derkovits városrész		1	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	1		24	5	120
9	Joskar-Ola városrész		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1		25	4,5	113
12	körjárat																				0	16,5	0
12B	körjárat																				0	16,5	0
21	körjárat																				0	16,2	0
21B	körjárat																				0	18,1	0
21A	körjárat																				0	14,9	0
22	Erdei iskola					1				1					1						3	3,7	11
22	Vasútáll.					1				1					1						3	3,3	10
23	Petőfi telep																				0	6,9	0
23	Autóbusz-állomás																				0	6,7	0
25	Olád		1	1		1	1	1		1	1	1		1	1	1					11	5,6	62
25	Vasútáll.		1		1	1	1		1	1	1		1	1	1		1				11	5,8	64
26	Parkerdő				1	1				1		1		1		1		1			7	6,6	46
26	Vasútáll.					1		1		1		1		1		1		1	1		7	6,4	45
27	Parkerdő lakópark																				0	5,2	0
27	Vasútáll.																				0	4,8	0
28	Zanat		1																		1	8,4	8
29A	körjárat																				0	10,3	0
29C	körjárat																				0	11,1	0
30Y	Oladi városrész																				0	8,6	0
30Y	Kámon																				0	8,1	0
35	Olád																				0	10,3	0
35	Minerva lakópark																				0	9,4	0
4H	BPW Hungária Kft.																				0	8,4	0
4H	Oladi városrész																				0	8,1	0
5H	Olád																				0	9	0
5H	Ipartelep																				0	8,8	0
6H	Ipartelep																				0	5,4	0
6H	VOLÁNBUSZ Zrt.																				0	5,7	0
7H	Rumi út 142.																				0	3,3	0
7H	Arany János utca																				0	4,3	0
8H	iQor Kft.																				0	6,6	0
8H	VOLÁNBUSZ Zrt.																				0	7,9	0
9H	Ipartelep																				0	7,2	0
9H	Szolgáltatóház																				0	6,7	0
10H	Vépi út		1	1			1				1				1				1		6	6,1	37
10H	Oladi városrész			1	1		1				1				1					1	6	6,7	40