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Urban Sustainable Mobility in focus: student education, community involvement and participative planning

SUMP Research Report *Győr, Hungary*



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Contents

PART 1. The SUMP environment in Győr, Hungary - Review of SUMP literature and institutional framework	3
1.1 State of the art regarding research and other academic publications in the country	3
International policy documents (Basic documents).....	3
Scientific literatures.....	4
1.2. The institutional framework for sustainable urban mobility planning	7
Institutional framework	7
Hungarian policy papers and documents.....	7
County-related development documents	9
1.3. Coverage by the local media	10
1.4. Conclusions	11
PART 2. Exploring the residents' and key stakeholders' behaviour and opinions on SUMP	13
2. 1 The case study area (Ménfőcsanak & Gyirmót).....	13
Rail transport	15
Road transport	15
Bicycle lanes.....	18
Conclusion.....	20
2.2 Interviews with key stakeholders	21
Interviews with local authority members	21
Interviews with local associations and educators	23
2.2 Focus group meetings.....	25
Challenges and problems in adopting a SUM policy and Plan in Győr-Ménfőcsanak	25
Potential in adopting a SUM policy and plan in Győr-Ménfőcsanak / Proposals	26
2.3 Online questionnaire survey	27
2.3.1 Profile of participants	27
2.3.2. Findings of the survey	30
2.3.3. Conclusions	39
2.4 Conclusions - Discussion	41
Bibliography.....	45

PART 1. The SUMP environment in Győr, Hungary - Review of SUMP literature and institutional framework

1.1 State of the art regarding research and other academic publications in the country

The concept of the Sustainable Urban Mobility Plans (SUMP) was developed by the European Commission with the aim of helping European cities to move towards sustainability. Thus, these documents are “the” planning tools for cities that bring together different sectors and stakeholders in order to improve the mobility of the urban environment. In order to these plans come to existence as many places as possible, the European Commission provides trainings, good practices, datasets, guidelines, financial schemes to support the professionals, and authorities in the development of a well-used integrated mobility plan.

International policy documents (Basic documents)

- **White Paper (2011)**

A key document of the European Commission's transport policy, which sets out policy frameworks to reduce the carbon footprint of transport by 2050, on which all the Member States' sectoral documents (including Sustainable Urban Mobility Plans) should be based.

- **Urban Mobility Package (2013)**

The mechanism for developing SUMPs were designed in the framework of the Urban Mobility Package in 2013. The Urban Mobility Package was set up by the Urban Mobility Observatory, namely the Eltis, which gives a platform for local and regional authorities to equip them with a general methodology for developing low-carbon strategies. The Eltis is funded by the European Commission's Directorate-General for Mobility and Transport. Actually, the Eltis provides the ultimate help in developing sustainable urban mobility plans (SUMP). The SUMP Guidelines (thereafter referred as SUMP) are available for local authorities, urban transport and mobility professionals and for the stakeholders as well who were / are involved in the preparation of the SUMP. As urban transport plans are preferred in this method within the European Union, the above-mentioned guide provides a very good basis for defining the SUMP toolkit, its design and implementation methods and its specific objectives.

The first guideline was developed in 2013 and it combines the process of planning a mobility, from designing a vision to selecting specific plans, implementing them and drawing conclusions. Each of the 12 step of the process is complemented with best practices, tools and information. The updated version of the SUMP was launched in January 2020, which is now divided into 12 sections, including 5 milestones and 32 more detailed tasks.

- **Opinion of the European Committee of the Regions - EU Bicycle Roadmap (2016)**

It formulates policy recommendations on cycling and envisages the development of an EU Bicycle Roadmap. Among other, it advises for the European Commission to set a target of doubling the rate of cycling in the EU Member States over the next ten years (raising the current 7-8% share of cycling to around 15%). This recommendation is an important guideline during the development and as well as the implementation of a SUMP.

Scientific literatures

- **Managing mobility in an urban environment**

Jászberényi, Melinda (2008): A mobilitás menedzselése városi környezetben. Vezetéstudomány, 10. 34-44. pp.

Mobility Management tools are based on information, communication and promotion, and they are responsible for providing diverse information, advices, and modifying transport patterns on mobility opportunities. At the end of the 20th century, the development of transport means the expand of the infrastructural network, the innovation of vehicle technologies, the introduction of new telematics systems and the increasement of intelligent transport systems. They are essentially the "hard" means of transport development. The "soft" mode of transport development is a completely new approach in this process, taking into account the environmental and sustainability considerations. This approach of transport development does not contradict the view of the environmentalists but denies that the future of transport is only a negative development, serving reduced demand. It does not focus on the quantitative parameters of transport but aims to make better use of existing capabilities, moreover it promotes the sustainable character of transport development and accepts the limited transport infrastructure development only.

- **New directions in urban development: Opportunities for walking cities**

Szűcs, Petra – Lukovics, Miklós – Kézy, Béla (2017): Új irányok a városfejlesztésben: a sétálható városok nyújtotta lehetőségek. Competitio, 2017/2. 23–42. p.

Nowadays, the so-called urban handicaps are the followings: noise, air pollution, congestion, etc., and they are increasingly being addressed in and for cities. Motor vehicles are taking up more and more space, which degrade the quality of life socially and economically are also

damaging. Sustainable urban mobility can be a solution, with green public transport (as a well-known element), and walking (as a less-popular element). The latter are gaining prominences in the development of sustainable urban development strategies; however, walkability measurements have been conducted primarily in major cities in the US and Western Europe. The study try to answer how the concept of walkability can be interpreted for medium-sized European cities and what urban development opportunities it entails. It introduces three methods to quantify the walkability of local economies: Walk Score, Walkability Audit and Walkability Index. The empirical parts were conducted in Szeged and Valencia. The structure of the methodology involved three levels: participatory observation, questionnaire and in-depth interviews with local stakeholders and local decision makers. The authors made suggestions for increasing the level of walking in Szeged and Valencia (eg. proposal the development of thematic walking routes, improvement of the condition of the sidewalks).

- **Urban mobility, public goods, sustainability**

Fleischer, Tamás (2019): Városi mobilitás, közjavak, fenntarthatóság. Közgazdasági Szemle, 2019. október. 1056–1072. p.

In this study the Authors reviewed the public domain properties of urban public spaces, distinguishing four domains based on two criteria (exclusion and disability): private goods, public goods, common goods with finite inventory and conditional access (or club) goods. It was also examined - and this is the most important added value of the study – that it was discussed the expected role of the electric vehicle and the self-driving vehicle in sustainable transport: the electric cars – besides its declared and recognized benefits – are no more beneficial to urban land use than conventional ones so its unilateral support works against sustainability. Regarding the self-driving vehicle, the communication and organization within the network is more important for sustainability than the results for the individual vehicle.

- **Symptoms and “get-outs” of increased motorization in urban-suburban environments**

Munkácsy, András – Szele, András – Hideg, Viktória (2018): A fokozódó motorizáció városi-elővárosi tünetei és a kiutak. In: Horváth, Balázs – Horváth, Gábor – Gaál, Bertalan (szerk.): Technika és technológia a fenntartható közlekedés szolgálatában: Közlekedéstudományi Konferencia , Győr, Magyarország : Universitas-Győr Nonprofit Kft., pp. 53-60.

In this article, the case studies have been explored based on general and specific problems that were not necessarily addressed by previous planning practices identified urban transport exclusively with metropolitan transport. The most important virtue of the analyzed SUMPs are that they bring new approaches to both the planning and development processes as well. In the context of increasing motorization in smaller and larger cities, the development of

transport-related approach is not only a matter of common use (influencing travel habits) but it is also an urgent task for decision makers and planners. SUMP is a suitable framework for rethinking legacy systems and procedures. It was also evident in the analyzed cities that a unified and new approach regarding mobility planning would provide a “missing tool” for municipalities, planners and inhabitants.

- **The challenges of establishment of sustainable urban mobility plans**

Dr. Munkácsy András – Virág Álmos: A fenntartható városi mobilitási tervek megalapozásának kihívásai. (will be published in June 2020 ???)

As the authors say many municipalities are committed to the sustainable mobility development but the SUMP commitment is primarily fueled by the document being a "must-have" of some ERDF transport development projects. It would be a good idea to gather the experiences of the cities made SUMP in a guide to help every other cities which want to develop the transport issues based on the SUMP methodology but have not perceived the necessity to carry out the planning of mobility development because of the absence of large-scale transport development projects.

In accordance with the responses of the questionnaire survey, it can be concluded that the vast majority of SUMP prepared in Hungary so far do not differ significantly from the contents of the SUMP Guideline. In this context, on the one hand, it should be noted that the revised SUMP Guideline has been launched this year and based on this new guideline, the Hungarian version will be also amended by the new contributions therefore the planners will have to use this one. On the other hand, it is worth emphasizing that some planners diverged from the original Guideline because the municipality also set out tasks that are only indirectly related to SUMP (network planning, scheduling, etc.). As these may not necessarily be integrated into the design concept of SUMP, it would be advisable to implement them in another procedure. Experience showed that it is unfortunate to build in not finalized development documents or plans to the SUMP. Knowledge of these are important for the planners but only in the approved versions, so they are advisable to be prepared before SUMP development. In regard to the planners feedbacks, it can be concluded that the 16 assessed Hungarian SUMP – with the exception of one – were largely established in accordance with the SUMP Guideline (with the appropriate involvement of local governments and the involvement of relevant stakeholders).

1.2. The institutional framework for sustainable urban mobility planning

Institutional framework

Urban mobility planning in Hungary is based on traditional planning tools, including transport development concepts or strategies. Hungarian cities and Budapest districts prepared these for 10-20 years periods to determine the future of mobility. During the preparation of these concepts or strategies, most of the cities used an infrastructure-based approach. At the same time, several local municipalities have already prepared sector-specific strategies, plans and studies for road networks, public transport or bicycle infrastructures. From 2004, it is a recommendation for larger-scale transport infrastructure investments to be based on urban and regional development strategies. Integrated Urban Development Strategies contain mobility-specific chapters and other urban planning documents also have mobility sections which are often prepared together with project-oriented feasibility studies.

Despite the Urban Mobility Package (2013) advised for the member states to adapt the SUMP approach during the mobility planning, there was no governmental initiative in Hungary for several years (eg. the National Transport Strategy unfortunately does not mention SUMP). Though, some cities, who participated in European projects and trainings, experienced the concept of SUMP lacking of capacity and support they were not able to develop them.

The situation changed in 2015, when the SUMP became a precondition for cities to access Cohesion Fund moneys for specific urban mobility projects. In parallel, SUMP preparation became eligible for ERDF funding.

There is a platform for cities where they can exchange experiences on sustainable urban mobility, it is Magyar CIVINET, the Hungarian-speaking CIVITAS network.

Hungarian policy papers and documents

- **National Climate Change Strategy 2008-2025 (2008)**

Strategic basic document of the environment protection, which formulates measures and tools for the development of transport as well. In this way, the strategy can be taken into consideration during the development of the SUMP, even its limited extent.

- **National Development and Regional Development Concept (2014)**

The document sets out the strategic goals and priorities of the Government's development policy in the timeframes of 2014-2020 and up to 2030. From the point of view of the SUMP, it makes recommendations on sustainable urban development.

- **National Transport Infrastructure Development Strategy (2014)**

The strategic document for the development of domestic transport, with a long-term perspective up to 2050. The first preparation steps of any SUMP must be in line with the development tools proposed by the National Transport Infrastructure Development Strategy. These development tools include developments and investments, to which specific projects can be linked. The prospective SUMP must contain these projects or idea of projects. The National Transport Infrastructure Development Strategy contains those elements, which are important inputs for the prospective SUMP of the City of Győr however “the SUMP term” or any allusion regarding the SUMP concept or methodology cannot be found in the document.

- **Ányos Jedlik Plan (2015)**

Basic document for the development of e-mobility, which should be taken into account considering the sustainable transport modes.

Unfortunately, so far Győr has no SUMP and there is no in the pipeline. The following table contains the Hungarian cities with SUMP:

Table 1: Cities with SUMP in Hungary and the number of inhabitants

	City	Inhabitants (2018)
1	Budapest	1.752.286
2	Debrecen	201.432
3	Miskolc	154.521
4	Szeged	160.766
5	Pécs	142.873
6	Nyíregyháza	116.799
7	Kecskemét	110.687
8	Székesfehérvár	96.940
9	Tatabánya	65.845
10	Kaposvár	61.441
11	Veszprém	59.738
12	Zalaegerszeg	57.513
13	Eger	52.898
14	Dunaújváros	44.200
15	Paks	18.623
16	Zirc	6.831

County-related development documents

- **Regional Development Concept of Győr-Moson-Sopron County (2013)**

The task of this document is to formulate the county's development policy, to define the main directions of the regional development of the county, its strategic development goals and the most important tools for their achievement in the long term. The document also has a transport subdivision, which describes the county's transport network so it can be taken into consideration when compiling the state of art section of the SUMP.

The Regional Development Concept of Győr-Moson-Sopron County contains those elements which can be important for the the state of art section of the prospective SUMP of the City of Győr. They are the followings: road transport development regarding the area of Győr and the catchment area of Győr; electrification of the Győr – Pápa – Celldömölk railway line and the construction of the Győr – Győrújbarát – Nyúl – Écs or Győr – Nyúl – Écs – Pannonhalma cycle routes.

- **Regional Development Program of Győr-Moson-Sopron County (2014)**

The task of this document is to summarize the projects of each development policy document involving Győr-Moson-Sopron County (among Győr as well), so it can be paid respect when compiling the project section of the SUMP. The third priority (Improving the accessibility of the county and its settlements) contains the most important developments by transportation sectors. From the scope of the SUMP, the followings are the most important ones: development of secondary roads (national, municipal, inter-municipal); development of inland roads, development of a coherent cycle route networks and development of suburban and microregional-level public transport networks (eg. renewal of suburban networks, improvement of microregional connections)

- **Settlement Development Concept of the City of Győr (2014)**

One of the most important documents during the preparation of the SUMP. The settlement development concept of Győr also discusses similar elements in terms of transport as the Integrated Urban Development Strategy of the City of Győr does (eg. urban private transport, parking development, public transport development, see in the next section in details), but for understandable reasons it makes them much more comprehensive, due to its genre. At the same time, the settlement development concept should include the state of art of each sector (inter alia the transportation) supported by analyzes and figures using statistical datas, but this is unfortunately missing. However, the Establishment Study related to the Settlement Development Concept of the City of Győr (see later as ES) fills this gap with detailed statistical analyses and textual contents.

- **Integrated Urban Development Strategy of the City of Győr (2014)**

The most important document during the preparation of the SUMP. In the followings, the transport related project packages will be described:

1. Project packages related to urban road network development 2014-2020
 - 1) Completion of Győr outer-east bypass in the framework of public investment (Route No. 813)
 - 2) Construction of the bypass of one of the main roads in Győr (Route No. 82)
 - 3) Construction of the inner-west bypass
 - 4) Construction of an inner-east bypass
 - 5) Construction of a new bridge between Kunszigeti út and Töltés utca
 - 6) Reconstruction of Szauter Ferenc utca
 - 7) Review of strategic noise map of Győr
2. Project packages for the development of cycling and walking 2014-2020
 - 1) Improvement of the urban and suburban cycle network
3. Project packages related to community transport development 2014-2020
 - 1) Development of an intermodal junction in Győr (with the integration of the train station, the inter-city bus station and the local bus center in Révai út)
 - 2) Development of fixed-track urban-suburban public transport system
 - 3) Modernization of bus fleet
 - 4) Developing an approach to sustainable transport (Awareness-raising campaigns, target groups: pre-school, primary and secondary school pupils)
4. Project package related to alleviating parking problems 2014-2020
 - 1) Managing parking problems in Győr

1.3. Coverage by the local media

- The City Hall of Győr become a bicycle-friendly workplace
<https://www.kisalfold.hu/kozelet/helyi-kozelet/kerekparosbarat-munkahely-lett-a-gyori-varoshaza-6807438/>
- Győr got new Mercedes buses in January 2020
<https://www.kisalfold.hu/kozelet/helyi-kozelet/mercedes-buszokat-kap-januarban-gyor-6621477/>
<https://www.kisalfold.hu/kozelet/helyi-kozelet/uj-varosi-autobuszok-gyorben-fotok-video-6705420/>
- Photo competition advertised and took place on the sustainable transport in Győr

<https://www.kisalfold.hu/kozelet/helyi-kozelet/tisztabb-fenntarthatobb-varosi-kozlekedes-gyorben-on-hogyan-mutatna-be-kepekben-6388971/>

- New pedestrian bridge inaugurated in Györszentiván

<https://www.kisalfold.hu/gyor-es-kornyeke/atadtak-a-latvanyos-gyalogos-kerekparos-hidat-gyorszentivanon-fotok-video-6349344/>

- “The electric scooter is not as environmentally friendly as it has been thought earlier”

<https://www.kisalfold.hu/eletstilus/megsem-annyira-kornyezetbarat-az-elektromos-roller-110782/>

<https://www.kisalfold.hu/eletstilus/nem-arra-hasznaljuk-az-elektromos-rollereket-amire-kellene-6348393/>

- The free parking lot transformed under the Petőfi bridge

<https://www.kisalfold.hu/gyor-es-kornyeke/atalakitanak-az-ingyenes-parkolot-gyorben-a-petofi-hid-alatt-6346065/>

- More and more settlement joined the Car Free Day

<https://www.kisalfold.hu/helyi-ertek/auto/minden-eddiginel-tobb-telepules-csatlakozik-az-automentes-naphoz-6340722/>

- Driving drunken in the digital age

<https://www.kisalfold.hu/sopron-es-kornyeke/roadshow-gyorben-a-digitalis-kor-ittas-vezetese-a-vezetes-kozbeni-mobilozas-video-fotok-6259944/>

- NGOs of Győr encouraged the development of suburban rail transport

<https://www.gyorplusz.hu/gyor/elovarosi-vasutkozlekedest-akar-a-civilek-gyorert-egyesulet/>

- Last year launched bike storage system – GyőrBox – expanded with 16 bicycles

<https://www.gyorplusz.hu/gyor/tovabb-bovult-a-gyorbox-rendszer/>

1.4. Conclusions

Examining the circumstances of the preparation of the SUMP, it should be interpreted, as an important point that the plan has to be in line with the already existing planning processes and strategies of the given cities. In the Integrated Urban Development Strategy of the City of Győr, the information related to transport development are project-based, less detailed. However, the ES contains enough information to provide an initial guideline for making the

SUMP (along with the county-level development concept and strategy) but it needs to be updated because the analyzation of the datas end around 2011. Therefore, new statistical data-research and analyzes are required during the compilation of the state of art of the SUMP. Moreover, not only the datas but also the textual contents of the ES need to be revised, according to the new development claims and demands emerged after 2015.

PART 2. Exploring the residents' and key stakeholders' behaviour and opinions on SUMP

2. 1 The case study area (Ménfőcsanak & Gyirmót)

Ménfőcsanak is situated at the southern part of Győr, next to the road No. 83 and railway tracks towards the City of Pápa. Ménfőcsanak has a mixed, small-town built-up area which is a very popular for people moving from Győr to the suburban fringe.

The two neighbourhoods is located at one of the most problematic spot from transportation aspect in Győr. Although previously the railway played an important role, today the dominant commuting platform are the public roads. Population almost exclusively travel to the inner city by private cars or local buses. The previous and expected infrastructural developments also aim to support the road transport, focusing on the expansion of the capacity. Furthermore, some bicycle path development has been made, however, usually only as the subsidiary investment of the main transport line. The growing agglomeration however would require a complex development method, also involving the expansion and harmonisation of different transportation methods.

Ménfőcsanak and Gyirmót were separate settlements until 1969, today they are part of the City of Győr (with 130.000 population). Both neighbourhoods were annexed to the city in 1970. Ménfőcsanak itself was also evolved in 1934 from the integration of three smaller settlements: Csanakfalu, Csanakhegy and Ménfő. Since the fusion with the city, Gyirmót has experienced smaller, while Ménfőcsanak experienced a bigger population growth.

Table 2: Population growth in the two neighbourhoods (1969-2011)

	1969*		2011**	
	Population	Number of residences	Population	Number of residences
Ménfőcsanak	5009	1475	9522	3610
Gyirmót	1206	341	1359	518

Sources: KSH (1970) Győr-Moson-Sopron megye statisztikai évkönyve 1969. KSH, Budapest, and KSH Magyarország Helységnévtára 2019. http://www.ksh.hu/apps/hntr.main?p_lang=HU

The population of Győr has been stagnated in the last two decades, with small decreases and small increases. The reason behind this is that besides the great number of incomers, powerful suburbanisation processes has also started. To the population number of the City, an agglomeration of approx. 60 thousand people needs to be also added, which includes the neighbouring 30 settlements, also causing a great commuting traffic towards the City.

Ménfőcsanak and Gyirmót has a unique condition: according to the attributes of the settlement-development they are considered as a typical suburban settlements, however they

are located within the administrative boundary of the City. During the last 1,5 decades, many people has moved here from other neighbourhoods of the city (especially from the nearby huge building estates). Their mobility situation is very similar to the suburban settlements, except from the advantage that these two neighbourhoods are connected with the city centre via local bus-networks. As the local public transportation is not divided into separate zones, there is no difference between the inner city and outskirt tariffs.

Map 1: Orthophotos of the case study area (1965 and 2020)



On the other hand, the character of the two neighbourhoods is very different. Ménfőcsanak has originally evolved from vineyards and traditional farming areas. The main road of Ménfőcsanak (Győri street) is basically the former major road, but the traffic has moved to the bypass built in the beginning of 90ies. Today, this bypass basically separates Ménfőcsanak from Gyirmót.

Taking into account the planning of public transportation it is important to highlight that eastwards of the former main road Ménfőcsanak is situated on a wavy foothill landscape. To adapt to this terrain, long and remote streets have formulated from the Győri street. Therefore, the network of streets is not orderly, and considerably narrow in many places. Public transport with buses is only possible on the main roads, so a large proportion of the residential areas is far away from the bus stops.

On the western part of the Győri street residential plots emerged in the early 20th century, today these are spread until the bypass. This territory is flat, the roads are regular, properly wide. Today, the network of streets has thickened, due to the opening of new streets and residential plot sharing. Especially the northern part (closest to the inner city) has a flat territory, typical suburban area. As the newest development, a new housing complex has been built on the south-eastern part.

In the followings, the public transportation, railway and road transportation as well as the bicycle transportation will be presented in both of the analysed neighbourhoods.

Rail transport

Ménfőcsanak is crossed by the No 10 railway line (Győr-Celldömölk). The line has been built in 1871, as the branch line of the Székesfehérvár-Szombathely-Graz railroad. Within the administrative border of Győr there are three railway stops (Ménfőcsanak upper, Ménfőcsanak, Győr-Gyárváros) and three railway stations (Győrszentiván, Győr pu., Győrszabadhegy). In the target area there are two railway stops:

- *Ménfőcsanak-felső*: the stop is located on the north-eastern border of the settlement, in the suburban residential area. There is neither station building, nor ticket purchase.
- *Ménfőcsanak megálló-rakodóhely*: the stop (and loading area) is located at the south-western border of Ménfőcsanak, after the crossing of Koroncói út connecting Ménfőcsanak with road No. 83. The station building is in poor condition, the ticket purchase is closed. From the schedule changing of December 2019, the trains do not stop here.

Table 3: Train connections between Győr and Ménfőcsanak (pair of trains)

		Workdays	Saturday	Sunday
	Ménfőcsanak, felső	11	11	11

Even the introduction of a frequent transportation would not mean a more applicable alternative to the residents of Ménfőcsanak and Gyirmót. City passes are not applicable on the railway, therefore it means an extra cost to travellers. Rail transportation can be strengthened by the fact that the traffic on main road No 83 (leading to the inner city) has increased dramatically in the last two decades. Despite the expansion of the road network, the peak time is characterized by congestions and traffic jams, which affects both the private cars as well as buses.

To sum it up, under the current circumstances rail transportation could only mean an alternative, if someone lives within walking distance to the only train stop (there are no parking places), works in the inner city, and the rare timetable is suitable to them. Obviously, this is only a very little group of travellers. With smaller or bigger developments the number of people travelling with railway could be enlarged. This would be conceivable if the southern train stop would open up again, and P+R parking areas would be available to them.

Road transport

The biggest problem both to Ménfőcsanak and Gyirmót is the significant extension of the traffic. By looking at the road connections of the two neighbourhoods, they are located in an area, which has developed remarkably in the last 30 years. Main road No 83 collects the traffic of the southern agglomeration. The M1 highway (Budapest-Vienna) is located between the area of Ménfőcsanak and the inner city, entering the motorways is possible from the main road No 83. The intersection and the motorway section has been completed in 1995, which

created a basically new traffic situation in the area. In 2018 the main lines were broadened, therefore until the middle of the neighbourhood a modern, high capacity road is leading from the inner city. Furthermore, the main department store service of the city was developed around this significant intersection. The traffic of road No 83 is further increased by the connection with side roads coming from the agglomeration (road No 8416, No 8309 and No 8311). All these justify that the road No 83 has an extraordinary traffic load.

Table 4: Traffic counts alterations on the examined area (1995 and 2018)

No of main road	Location of the measure	1995		2018		Alteration 1995-2018 (%)	
		V/day	pc/day	V/day	pc/day	V/day	pc/day
83	Administrative boundary of Győr	5415	3476	10890	7422	201,1	213,5
83	Border of inland area of Győr	11321	7761	27951	23348	246,9	300,8
8311	Inner area of Ménfőcsanak	3205	1679	3538	2710	110,4	161,4
8309	Inner area of Ménfőcsanak	805	611	2628	1867	326,5	305,6

V/day = motor vehicle per day; pc/day = from which passenger car per day

Source: Based on data of road operators own editing

Bus transport dominates the public transportation of the two neighbourhoods. The lines can be divided into two groups: the local (city) buses, and the additionally appearing interurban (regional) buses. The latter one provide connection between the surrounding villages and the city, however they also involve several stops in Ménfőcsanak and Gyirmót. The timetable of the regional buses do not fit within the system of local buses. Both types can be used with local tickets and local passes within the administrative boundary of the city. There is no zone-based tariff system in Győr, which means that the local tickets/passes and the regional tickets/passes can be purchased separately. On the whole, there is no harmonised system neither in the tariffs, nor in the timetables. Furthermore, coordination of the rail transport and bus transport is also not typical, there is no interoperability between these two systems. From 2020 both the local and the regional buses are operated by the same (state-owned) company (Volánbusz), therefore the strengthening of harmonization is expected.

The neighbourhoods are reached by 11 bus lines. Majority of the numbered local/city buses connects Ménfőcsanak and Gyirmót with the inner city terminal (Révai street). There are two lines, which leads to another part of the city: No 1 bus starts from Gyirmót, crosses the inner city and stops at a further neighbourhood (Újváros); while No 20Y starts from Ménfőcsanak and stops at the AUDI factory.

Map 2: Main bus lines of the case study area

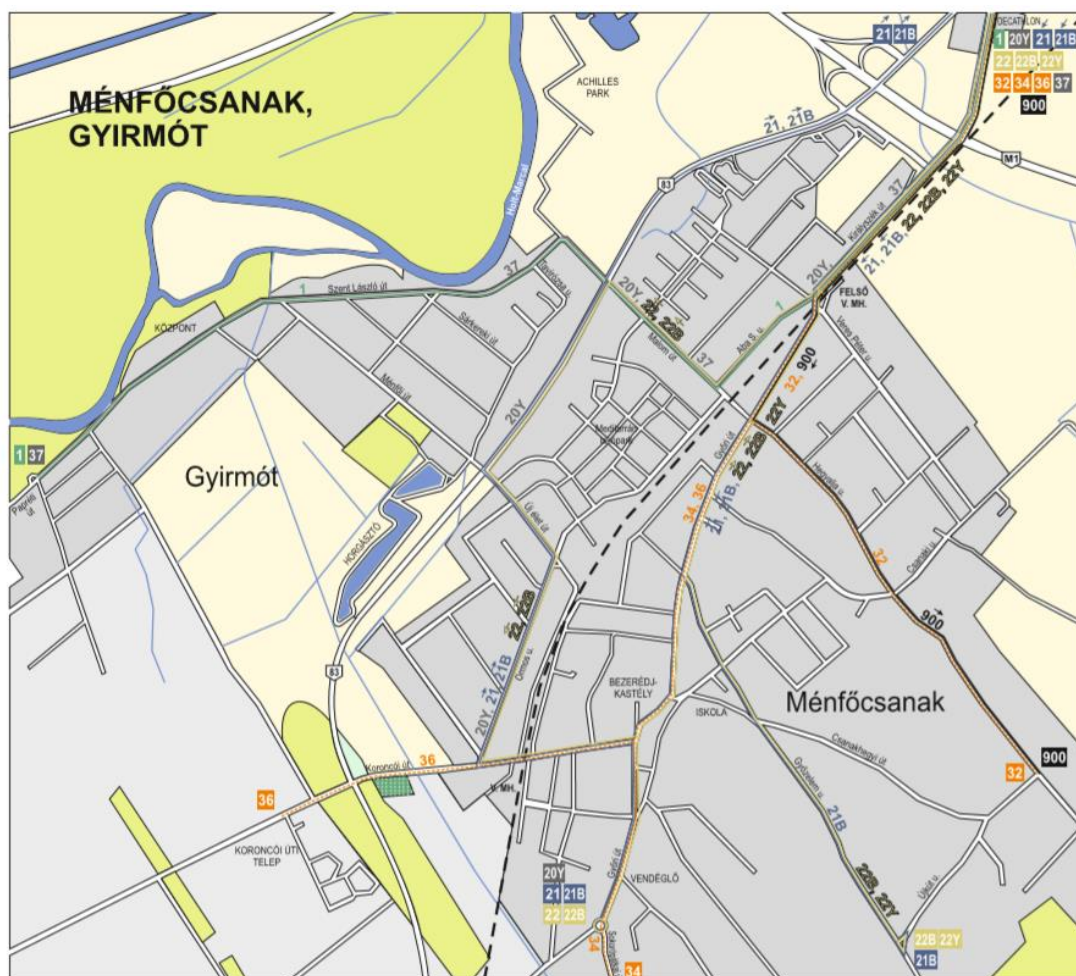


Table 5: Bus connections from Győr to Ménfőcsanak and Gyirmót (pair of buses)

Service No.	Terminals	Workdays	Saturday	Sunday
1	Gyirmót, Papréti út	25	19	19
20 Y	Ménfőcsanak, Győri út	4	-	-
21 / 21 B	Ménfőcsanak, Győri út / Győzelem utca	14		
22 / 22B / 22Y	Ménfőcsanak, Győri út / Győzelem utca	34	27	27
32	Ménfőcsanak, Hegyalja utca	17	12	9
34	Ménfőcsanak, Sokorópátkai út	20	9	9
36	Ménfőcsanak, Koroncói úti telep	14	9	7
37	Gyirmót, Papréti út	4	-	-

Table 6: No. of buses between the most important bus stops in Ménfőcsanak / Gyirmót and the city center of Győr

Name of the bust stop	Workdays	Saturday	Sunday
Ménfőcsanak, Királyszék út	127	87	81
Ménfőcsanak, Malom	39 + 47	37 + 31	37 + 25
Ménfőcsanak, Győri úti körforgalom [roundabout]	55 + 20	37 + 9	37 + 8
Ménfőcsanak, Hegyalja u. / Újkút u.	17	12	9
Ménfőcsanak, Győzelem u. / Újkút u.	14	10	10
Gyirmót, Papréti út	25	19	19

The two neighbourhoods are quite well equipped with public bus transportation, as far as the specific settlement structure allows. From the majority of residential areas the inner city is available every 30 minutes, from the northern territories (where several bus lines encounter) the service is even more frequent. By all means the bus transportation is not showing an even distribution. taking into account the travel time until the city centre, the gross access time does not make buses competitive against the private car transportation. Therefore, buses are mainly used by students and the older generation. The network coverage is relatively good, however walking distance from several residential areas to the bus stops is higher than 10 minutes. Comforts of the bus stops is low, not everywhere is roof against rain or sun heat, and the passenger information system is not developed.

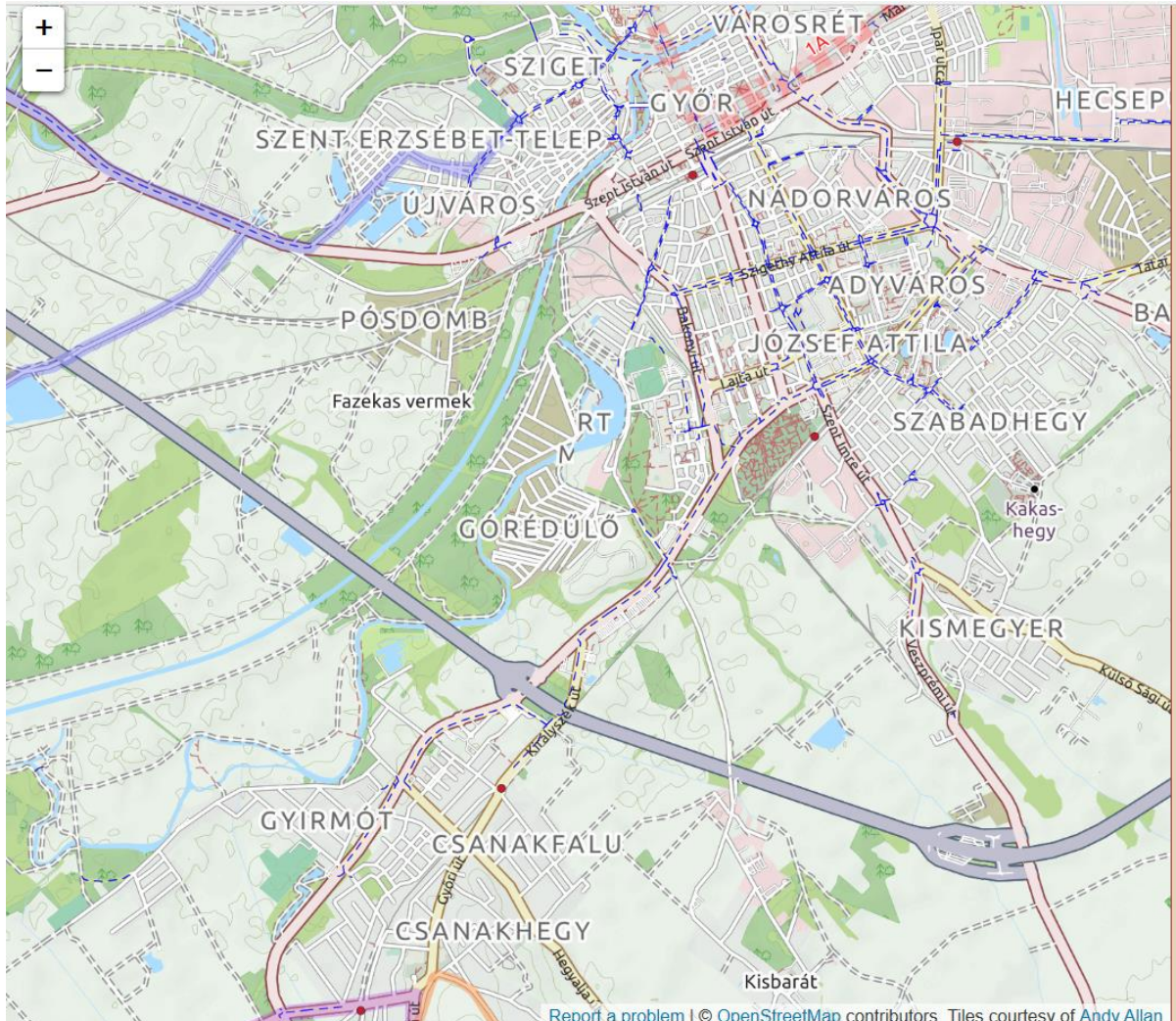
Bicycle lanes

In Győr and the surrounding areas the bicycle transport is traditional, as the geographical features are favourable. During the last three decades, many bicycle lanes have been developed across the whole territory of the city, while in the inland area more and more (open) cycle lanes are visible. Because of these, the bicycle transportation is getting more popular, however criticisms can be formulated against the road system. There are many non-bicycle friendly crossings, with a lot of road signs, and complicated and long traces. Cycle lanes do not formulate a coherent network, and sometimes the cycle traffic is lead to busy and crowded roads, making it more unsafe. The surface of the cycle lanes is quite mixed: we can find examples to modern, broad, smooth lanes, while old and neglected parts can also be found.

Ménfőcsanak and Gyirmót connects to the inner city of Győr with advanced bicycle lanes. From the centre the distance is approximately 6 km (to the edge of both neighbourhoods). The developed bicycle lane runs beside the road No 83, and the recently renovated lanes are specifically modern and good quality. The bicycle lanes last until the Új élet street

(Ménfőcsanak) and Ménfői street (Gyirmót), from here cyclers can reach the majority of residential areas on low-traffic roads.

*Map 3: Bicycle network reaching Ménfőcsanak and Gyirmótot
(Bicycle lanes: blue dashed line)*



Source: <https://www.futas.net/terkep/magyarország/kerekparut-terkep.php?cim=Gy%C5%91r>

Cycling transportation is principally typical within the neighbourhoods and between the two neighbourhoods. Gyirmót is poorly equipped with services, therefore many residents travel to Ménfőcsanak by bicycle. Commuting to Győr can also happen by bicycle, since the 6-8 km distance is viable. Together with all this, the mass bicycle transport is not characteristic between the inner city and the analysed neighbourhoods – it only has a supplementary role.

Conclusion

Both analysed neighbourhoods are located in a good traffic situation, Ménfőcsanak has a more central, while Gyirmót has a more “shady” position. This location creates a lot of possibilities, however a lot of difficulties as well. The main direction of the traffic runs towards the city centre, but the main roads also collect the traffic of other agglomeration settlements, therefore (especially during peak time) the access of the inner city is very difficult on public roads. The rapid population growth, the expansion of the settlement structure poses a great challenge on the public transportation, which is less and less competitive against the private cars. The reason behind this is that the public transport is limited mainly to buses, and although the network is quite well-developed, but the travel time is long and difficult. Buses are also victims of the traffic jams (there are no separate bus lanes). The railway practically disappeared from the alternatives, despite the fact that the railway track is crossing the neighbourhood, and there are two train stops as well. The bicycle transportation is primarily significant within the neighbourhood and between the two neighbourhoods, commuting to the city centre by bicycle only gives an alternative to a low number of travellers.

In order to moderate the road traffic it is reasonable to increase the role of the railway again. Re-entering into service the southern train-stop could strengthen this alternative. Furthermore, the creation of parking areas and bicycle lockers would be necessary. The station has a large and currently unused area, where it would be possible. This station could also operate as a traffic intersection, since it is reached by two local buses as well. From here, residents could reach the inner city within 10 minutes. A further possibility is the creation and expansion of bicycle lanes, so that the catchment area of the railway could be further increased.

2.2 Interviews with key stakeholders

In the framework of the SUMP research in Győr-Ménfőcsanak-Gyirmót, Hungary, the UrbanSCOPE team conducted interviews with members of the local authority, the Széchenyi István University educators and representatives of local organisations of the civil society. Furthermore, two focus group meetings were also organised, discussing the current situation and the potential of implementing SUM in the city neighbourhood of Győr, named Ménfőcsanak-Gyirmót. The main findings are presented in the present report.

The interviews targeting members of the local authority (municipality) of Győr, University educators as well as local organisation of the civil society took place in January and February 2020, aiming at gathering feedback regarding the position of sustainable urban mobility in the local agenda, the related policies and plans in place; and the views of the local civil society organisations. Altogether 6 interviews were conducted (see Table).

<i>Name</i>	Institute/Role	Type of interview
<i>Füke Péter</i>	Head of Settlement Development Department	Local authority
<i>Révi Zsolt</i>	Chief architect	Local authority
<i>Laczkovits-Takács Tímea</i>	Elected member of local municipality (Ménfőcsanak)	Local authority
<i>Szakonyi Petra</i>	Faculty of Architecture, Civil Engineering and Transport Sciences	Educator
<i>Tóth Péter</i>	KERET Association	NGO
<i>Lados Mihály</i>	Hungarian Urban Planning Association	NGO/Educator

Interviews with local authority members

Policy and action plan of the local authority

Currently, there is no SUMP in Győr, and it is not on the priority list of the local authority. There was an opportunity to create a SUMP for the city few years ago, but the leadership in the city did not take that chance. The last mobility plan was created in 2001 and today that plan is definitely obsolete. Currently the city does not have a transport specialist. There would be a need for a separate transport department in the city administration to deal specifically with these issues.

The parking system in Győr is forced, more cars are in the city and more parking places are needed. Quality development is needed to make public transport more attractive. One of the focal points of urban development is to encourage people to use public transport and bicycles more often.

Sustainability is important to the municipality; the mobility plans are created by considering the environmental effects. Sustainable mobility has always been a priority in the city (rebuilding the city centre), making cycling safe, developing, and building trails. It has a special place in urban development with the involvement of EU and urban resources.

One direction can be expanding cycling or walking to avoid encountering motorized devices as far as possible. However, several parts of the development cannot be done by the municipality, to achieve the whole complex plan, it requires the involvement of larger organizations.

Infrastructure facilitating SUMP in the city/case study neighbourhood

There is a continuous moving out from the downtown to the suburban city regions and to the outskirt area of Győr (for example to the case study area: Ménfőcsanak and Gyirmót). But these areas changed a lot through the years, since the residents have some new demands, thereby the constructors adapt to these changes by trying to create as many new houses/residential units at the same place as possible. Thus, these places are beginning to transform, there will not be any rustic layout, instead much more like garden city or small-town placement will be preferred.

The capacity of the existing road network is limited, the problem peaks when it arrives into the city (district of Marcalváros) since there are not enough capacity of the transport facilities (the road network in this case). The railway, which is passing through Ménfőcsanak is not used, the reason behind that are the locations of the railway stops. There is a railway stop at the beginning and at the end of the district, thereby the most crowded places are not served enough, so it is hard to reach the railway stops.

Interviewees not only emphasised the problems of the case study area, but also the wider context of the urban mobility trends, which includes the agglomeration around the city. A further problem is, that the population of the agglomeration settlements uses the city's services too, commuting to work or school, or use the shopping centre, but they do not take part in the development of the neighbourhood of the city. These villages do not have any planned infrastructures, but also building and evolving, they do not invest into the development of the city and these problems will come back to Győr. Officials do not actually know the size of the city, for example 6 suburban areas belong to the city, 6 villages do not belong to the city, but they have the same structure. There is no compact urban planning principle.

In vain there are appropriate developments and services which they could use if the city refuses to take more. There is so much commuting which loads the transport. There is conflict at the regional company and the county too about giving sources to the local transport. There were clever bus stations and tracking through a satellite tracking system too, but this was made by VOLÁN not by the city. The priorities are becoming more central nowadays. These problems are regional strategy problems, complex problems, which is hard to tackle on a city level.

Opinions regarding the wider implementation of SUMP

Fixed-track suburban transport would help to reduce car traffic, research for this transport-method was conducted in 2013. These plans can work today well, however, they should be implemented.

The Győr-Ménfőcsanak railway stations need to be expanded and connected with city bus schedules. Involving the service providers to the development would be great, but it is difficult to combine the interests of different service providers, it must be solved at the state level. The solution may be to merge and reconcile the local and long-distance lines of MÁV and VOLÁN.

It is possible to improve road networks, but it is easier to prevent problems. The ideal would be if the inhabitants do not have to sit in their cars for mobility. Their needs should be served locally. E.g.: clinic renovation, construction and renovation of nurseries and kindergartens, organization of active lifestyle programs.

The goal is to reach cooperation, to put the state actors behind the issue, to cooperate with the state and private companies to develop the established systems.

Environmentally conscious education and environmentally conscious programs are important to raise our children in a better future. Good examples to that are the organization of cycling programs from 2004. (NGOs created, expert work on bicycle investments, implementation of soft programs, bicycle awareness programs).

The important thing is to solve the problem of leaving cars. People prefer to live in car-free zones. The more cars we take out of traffic, the better it would be for those who cannot afford to maintain a car.

Interviews with local associations and educators

The issue of mobility must be approached in a complex and holistic way, all investments, transformations, rule changes, interventions in the system must be created in a way that we also take into account that there are people who will not use the system as we imagined. From this point of view, Győr is in a very special situation, there is a very high proportion of motorists (higher than in the capital, one of the highest in Hungary), and it all squeezed other mobility options into backgrounds. It is not an exactly forward-looking, complex urban development or urban planning, which has reduced public transport over the last 10 years. The current situation in the city is unsustainable in the long run, if it keeps motorists in favour. The problem will not be solved by itself, since the city core is small, and in order to reach the industrial park you have to go through the city. That should be changed.

The local bus problem is complex too. The fact that over the past few years the city has not placed enough emphasis on the local bus transport, and even withdraw funds from the system. The lower money leads to a lower quality of service, which deters users and reduces the service used, which again leads to a reduction in capital. Although there are people who need these services. One of the largest problem is the age of the buses, now they began to replace these, the other is that bus drivers' salaries are low. The drivers take great responsibilities, burdens, stress to drive a bus and they are not appreciated. It continues to spread towards the surrounding settlements too.

Since the completion of the interviews, the city of Győr has started to renew the bus fleet, by providing 17 new Mercedes buses from January 2020 and 22 more from September 2020.

This way, almost 40% of the old bus fleet will be replaced, which also means a serious reduction in the average age of the buses, however none of them are electric vehicle.

In Győr, cycling has potential. There are no great distances in the city. Children are open to this, but parents are concerned about traffic safety.

Good news is that sustainable mobility is part of the university education in Győr. They investigate the aspect of the city development, how it contributes to the sustainable transport development-planning.

This education is mostly practical education. As a first task, students investigate a city development problem and analyse who is interested in it. For example: introduce new bus network, evolving the railway, creating a pedestrian bridge, planning a scientific and innovation park, etc. The students bring the tasks, also focusing on the transportation issues. After the research students are getting familiar with the actual problems.

This is a last year subject because students have to implement their theoretical knowledge from the point of view of settlement planning, how road development evolved, diagnosis of road structure, drainage, the safety of traffic, transporting by bicycle. At the end of the half-year do a presentation of project to the major.

2.2 Focus group meetings

The two focus groups were held at the meeting room of Community Center of Győr-Ménfőcsanak-Gyirmót on 29th September and 1st October. Both focus groups brought together elected members and officials of the local authority, representatives of the local civil society organisations, teachers, shop owners and members of the public. While the first meeting focused mainly of local residents, the second involved mainly NGOs. The duration of the focus groups was approximately one and a half hours each. The first focus group meeting gathered 14 participants and the second focus group meeting gathered 8 participants. Because of the pandemic situation, strict limitations on the number of participants were made.

The focus groups' participants participated vividly in discussion and exchanged ideas regarding the current situation, problems, opportunities, and proposals in relation to a sustainable urban mobility policy and planning for the district of Győr-Ménfőcsanak-Gyirmót.

The focus group discussions centred on the following broad topics:

1. Challenges and problems in adopting a SUM policy and plan in Győr-Ménfőcsanak
2. Potential in adopting a SUM policy and plan in Győr-Ménfőcsanak / Proposals

The main findings of the discussions are presented below.

Challenges and problems in adopting a SUM policy and Plan in Győr-Ménfőcsanak

Participants were asked to identify challenges and problems in adopting a SUM policy and plan in Győr-Ménfőcsanak-Gyirmót and developing the necessary infrastructure. The responses centred greatly on two issues, namely the residents' negative mentality towards SUM and the lack of available infrastructure. In more detail, the responses of the focus group members included:

- The huge amount of transit traffic through the district makes life difficult to those who live here. To get to the city centre, which is 6-7km away, takes about an hour during peak time. Everybody uses one route to get to their destination.
- The population grow is incredibly fast and the roads can not serve this amount of traffic. The traffic jams are usual.
- The lack of available SUM infrastructure (e.g. cycleway and pedestrian network) is a serious challenge. The existing pedestrian ways and bicycle paths are in very poor condition. Those are dangerous for the users.
- The bus stations are not designed for the current population, as well as the bus schedules. Because of lack of appropriate sustainable mobility opportunities, the inhabitants are forced to use their car every day. Moreover, there are also psychological and behaviour patterns linked to the private car use; the private car is seen as a symbol of higher social/economic status and the higher income residents often reassert their status by showing off their luxury cars.

- There are two railway stops in the district, but one of them is currently out of order. The rail schedules are not reliable and those are infrequent. There is no integrated pass for the public transport. This contributes to the less usage of the rail as the main mode of transport.
- The P+R method can not be used in practice, because of lack of parking space near railway stations. But there is place for building parking places, so this is a great opportunity for the development of the district.

Potential in adopting a SUM policy and plan in Győr-Ménfőcsanak / Proposals

The participants were also asked to discuss about the potential of adopting a SUM policy and plan in Győr-Ménfőcsanak-Gyirmót and make proposals for implementation in that direction. The responses centred mainly on the role of the local government and the civil society, and concrete proposals to tackle identified problems. Proposals included:

- Constructing a bypass route to avoid the big amount of traffic through the district.
- Develop a cycleway network that would connect Győr-Ménfőcsanak-Gyirmót with the commercial centre of the city. Also, it is needed to connect the main areas of the districts with each other.
- The local government should connect the different areas of the district with the rail stations. With loading buses this can be solved. These buses should go regularly in the rush hours and less frequently during the day. This option could make the train more popular.
- Increase the density of bus and rail services. The railway stations have to be developed, and the schedules need to be reformed. The bus and rail timetables have to be unified for easier and more usable way of public transport.
- The current bus lines do not serve the right places in the city centre of Győr, for example the hospital and the main cemetery. The pensioners have difficulties coming to these territories of the city. The transport company should take into account the needs of residents.
- Develop pedestrian ways in the district to make the mobility of the pedestrians easier, especially for pensioners, and mothers with strollers.

2.3 Online questionnaire survey

In order to analyse the urban sustainable mobility issues based on the residents' views, beliefs and impressions, the Széchenyi István University (SIU) has conducted a questionnaire survey. The aim of the survey was to define current mobility trends, habits and future intentions. The questionnaire put a main emphasis on the mobility practices, the views on alternative mobility means, the SUMP related improvements and the attitudes towards a more sustainable urban mobility.

The questionnaire was designed by PRISMA, prepared in English, and was translated to national language. According to the initial plan, all participating countries would have conducted a face-to-face survey in the pre-defined case-study area, however, due to the restrictions and lockdowns of the Covid pandemic, partners decided to follow a completely online method. The online questionnaire survey offered the possibility to enlarge the scope of respondents, and therefore SIU decided to advertise the survey to the whole city area.

The online questionnaire was available from 30th June 2020 until 2nd October 2020, while the vast majority of responses was collected in July 2020. The survey was open to the wide public, with no restrictions. The dissemination of the questionnaire was carried out in cooperation with the Municipality of Győr, who made the survey available on their Facebook page and other alternative online sources. Through different channels, the participation from the case study area was further strengthened, in order to have a wider sample from Ménfőcsanak and Gyirmót. The data analysis and the examinations were performed by using Excel.

2.3.1 Profile of participants

Altogether 512 responses were collected in the online questionnaire survey. All participants are inhabitants of Győr. The main idea of the survey was to compose two groups from the responses, one containing the total sample, while the other focusing only on the case study area. This division was carried out according to the answers of "Question 6", where respondents had to enter their postcode and district. Since there are two postcodes that exclusively refer to the case study area, this distinction was easy to prepare. The questionnaire analysis will always refer to the 2 following groups:

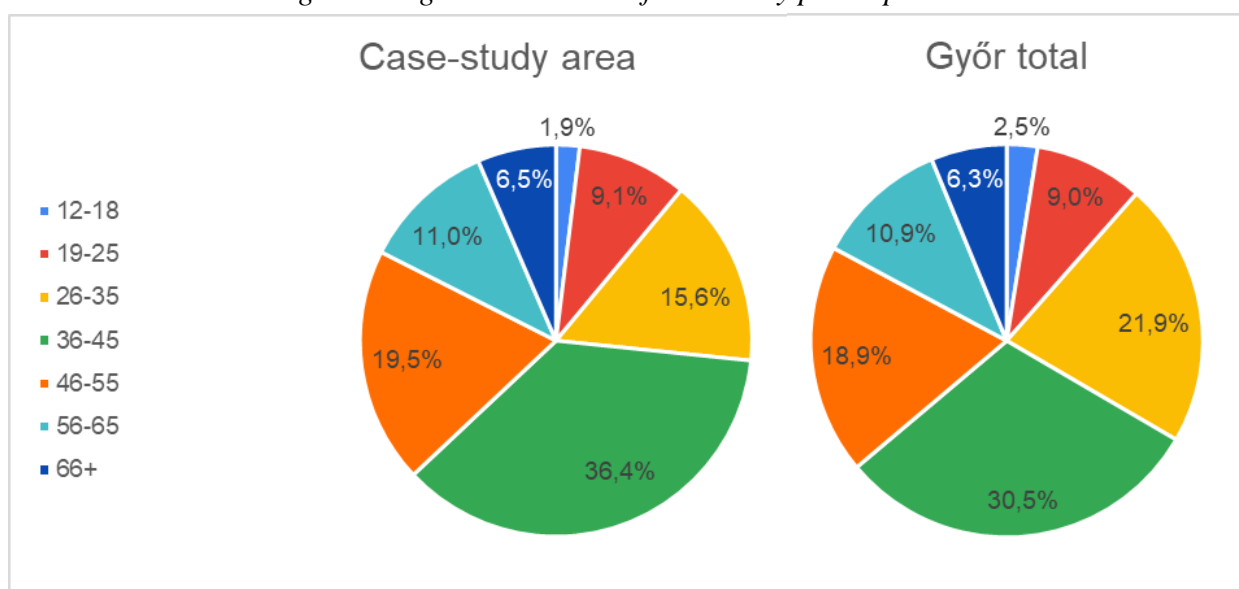
- **Győr, total:** the total sample, 512 responses, covering the whole territory of the city
- **Case study area:** only those, who are inhabitants of the case study area (postcodes are either 9012 or 9019). Altogether 154 responses, 30% of the total sample.

This distinction enables the comparison of the two groups, therefore, it is possible to analyse and examine differences and similarities between the total territory of the city and the specific case study area.

The gender rate is similar in both groups, with a female majority. 31,2% (in the case-study area) and 37,9% (in the total sample) is male, while 68,8% (in the case-study area) and 62,1% (in the total sample) is female. By looking at the age distribution (Figure 1), there is no significant difference between the case-study area and the total sample. In both cases the

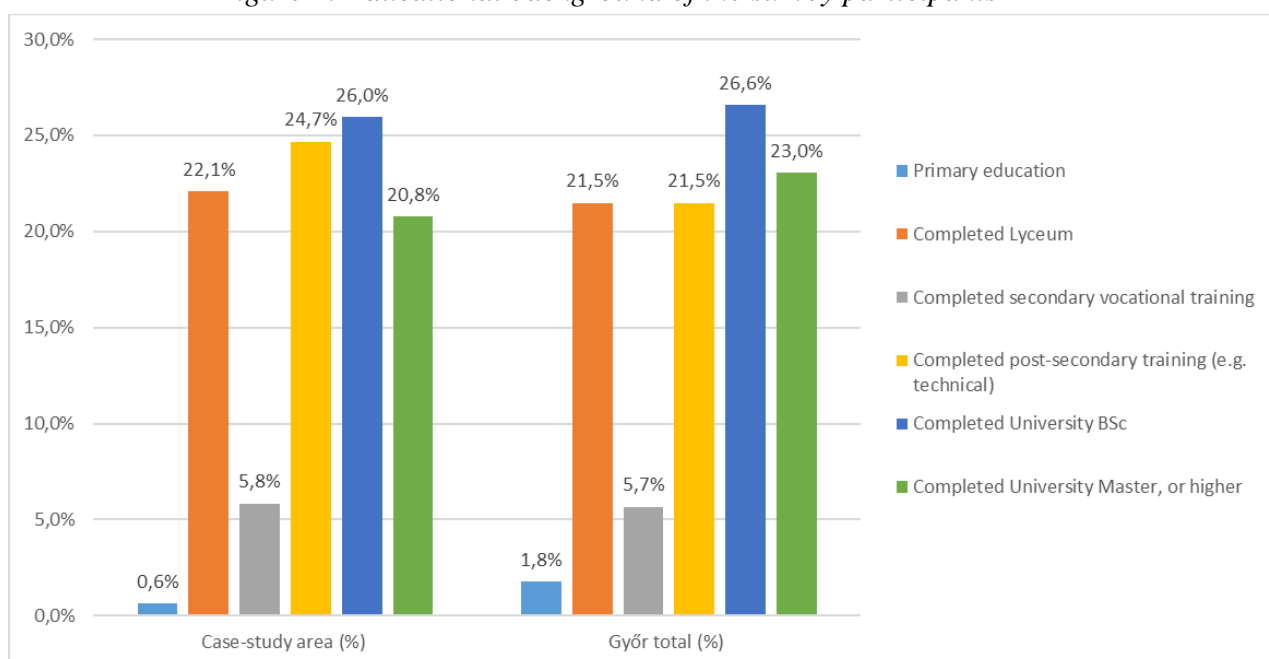
majority belongs to the age group 36-45. Within the total sample, 21,9% belongs to the age group 26-35, and 18,9% to the age group 46-55, while in the case-study area the second largest group belongs to the age group 46-55 with 19,5%. However, it is true that the middle-aged respondents dominate the survey, while other age groups remain marginal. However, this can be explained both by the nature of the online survey (middle aged people in general have wider access to the online social media platforms), and by the topic of the survey (middle aged people usually have a wider insight to urban mobility due to their multiple travel purposes).

Figure 1: Age distributions of the survey participants



Source: online questionnaire survey

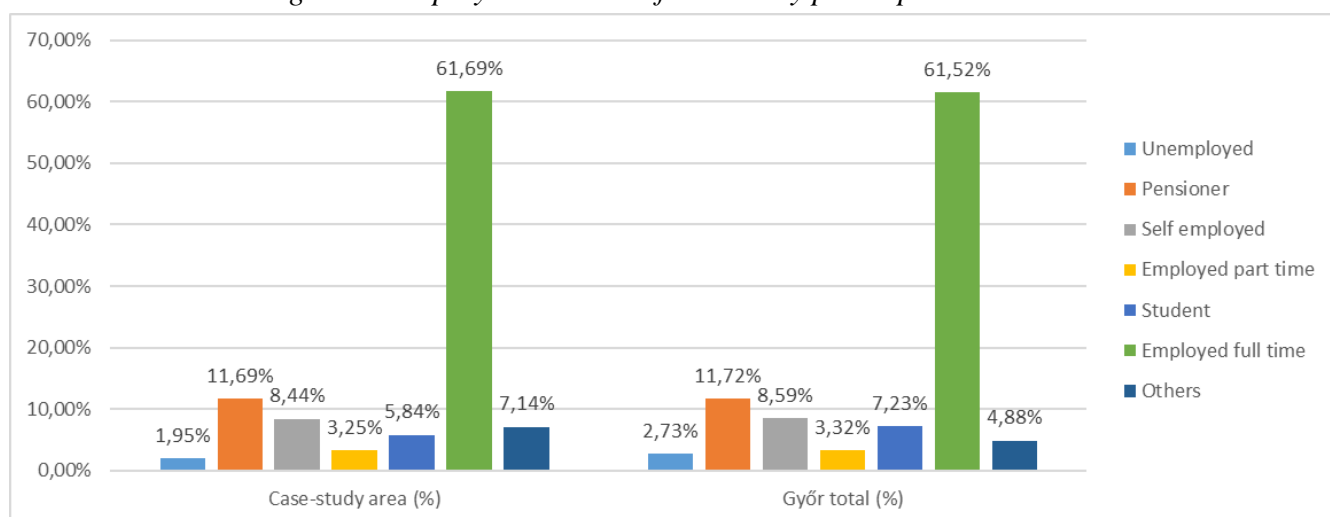
Figure 2: Educational background of the survey participants



Source: online questionnaire survey

Regarding the educational background (Figure 2), it is visible that almost half of the respondents have a completed university degree (BSc or MSc). The rate of those who completed vocational training or primary education is quite low. This also means that the rate of those who has finished the tertiary education is a bit overrepresented (but again, this is very possibly the consequence of the online survey method). Again, there is no significant difference between the total sample and the case study area.

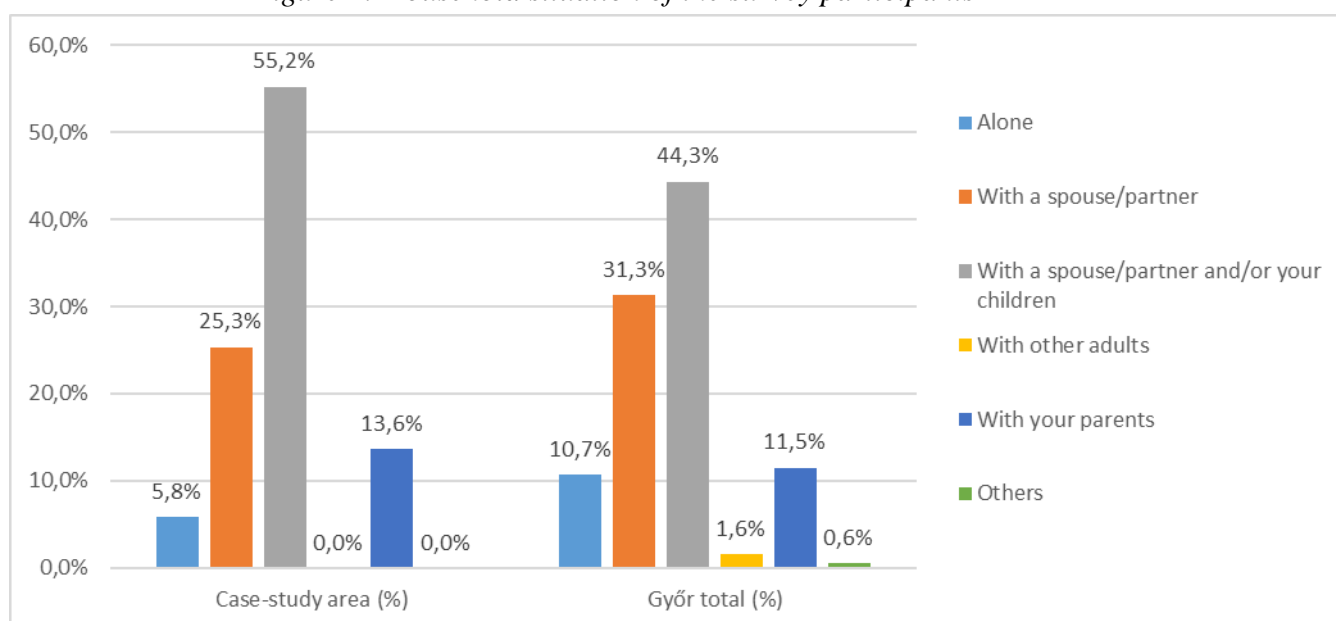
Figure 3: Employment status of the survey participants



Source: online questionnaire survey

No difference is observable regarding the employment status either (Figure 3). Vast majority of the respondents are employed full-time, the other categories remain low. Among the “other” category, most responses reflected maternity leave.

Figure 4: Household situation of the survey participants



Source: online questionnaire survey

As for the household situation (Figure 4), generally it is observable that most of the respondents live with a spouse/partner and/or children. This (common) family model is more frequent in the case-study area, with 55,2%. However, this is probably not a surprise, as the case study area (Ménfőcsanak and Gyirmót) are suburban-like neighbourhoods, ideal for families with kids. Also supporting this trend, the rate of those who live alone is twice higher in the total sample, as in the case study area. Furthermore, there is also a slight difference among those, who live with other adults. This rate is quite low in the total sample (1,6%), but 0% in the case study area. This category refers usually to those, who live together with other colleagues or university students. As the case study area lies further both from the university and from the industrial park of the city, this territory is not preferred by this category of adults.

Regarding the profile of participants, it can be stated that there are no significant differences among the distributions in the total sample and in the case-study area sample. This means, the sample is suitable to make comparisons between the total city area and the case-study area, as the single differences will not derive from the diverse profiles, but the different needs or mobility situations.

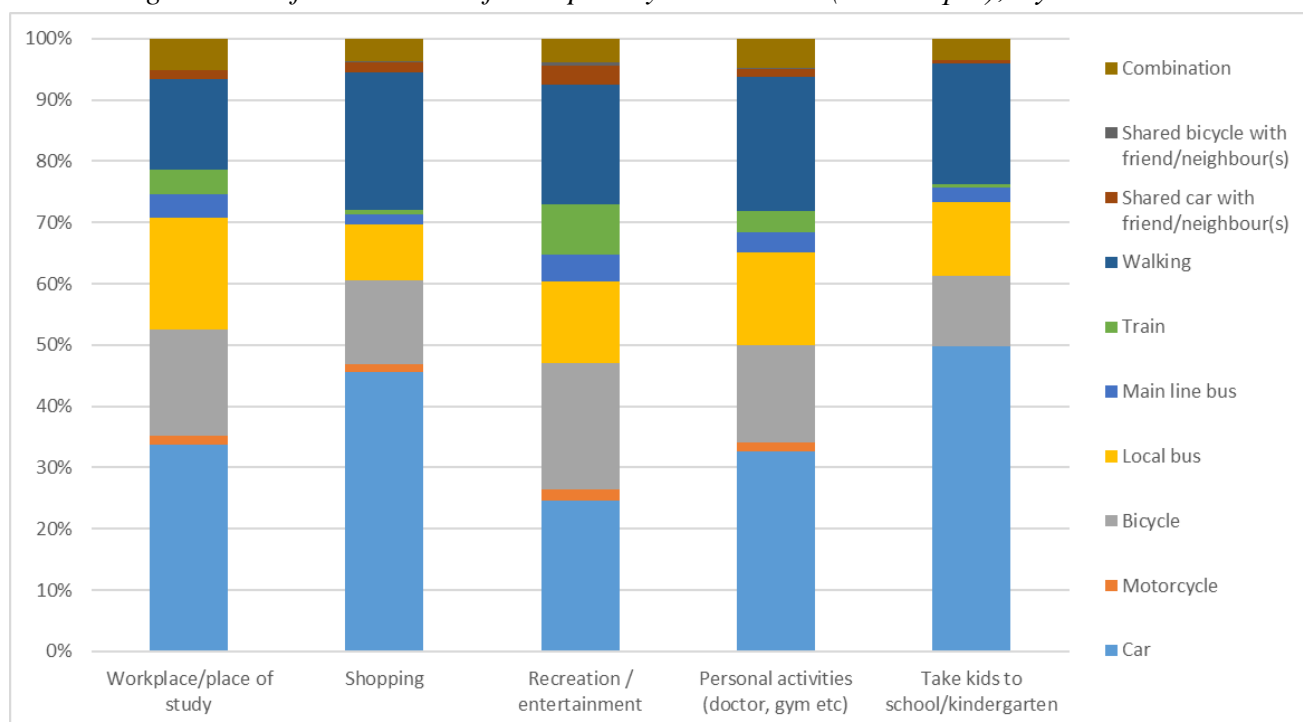
2.3.2. Findings of the survey

Regarding the **examination of current urban mobility trends**, participants were asked to determine their most commonly used transport means according to different (common) destinations. By looking at the total sample, it is visible that car is the most commonly used means of transport in all of the mentioned destination categories. (Figure 5) However, the dominance of car-use has some differences among the categories. There were two destinations, where the use of car reached almost half of the distribution: taking kids to school/kindergarten (with 49,7%) and shopping (45,7%). Reasons behind this phenomenon can obviously be explained by the comfort of private cars.

On the other hand, the lowest (although still the most significant) share was shown in the recreation/entertainment category. Here, the use of cars reached only 24,6%, while bicycle had a share of 20,6% and walking 19,5%. This result probably refers to the fact that when people are not under time-pressure, they are more likely to give up the motorized transport. As for the use of public transport, local buses were the most popular options, people rarely voted for main line buses or trains regarding any destinations. However, this is no wonder, as within the city area, local buses have the most frequent services, and although there would be a possibility to also use main line buses to get from one part of the city to another, these services are rather used by commuters. It is also visible that walking and cycling have a moderate role in the modal-split (regarding any destination), however, they are still much more popular than car-sharing or bicycle sharing. These two options remained on the bottom of the modal-split, with very low rates. However, this is not very surprising, as car and bicycle sharing is not a typical transport mean in Hungary. Although, car sharing has some popularity among those, who work in Austria (and use one shared car with colleagues), however this transport mean is usually not common for short-distance commuters. People could also

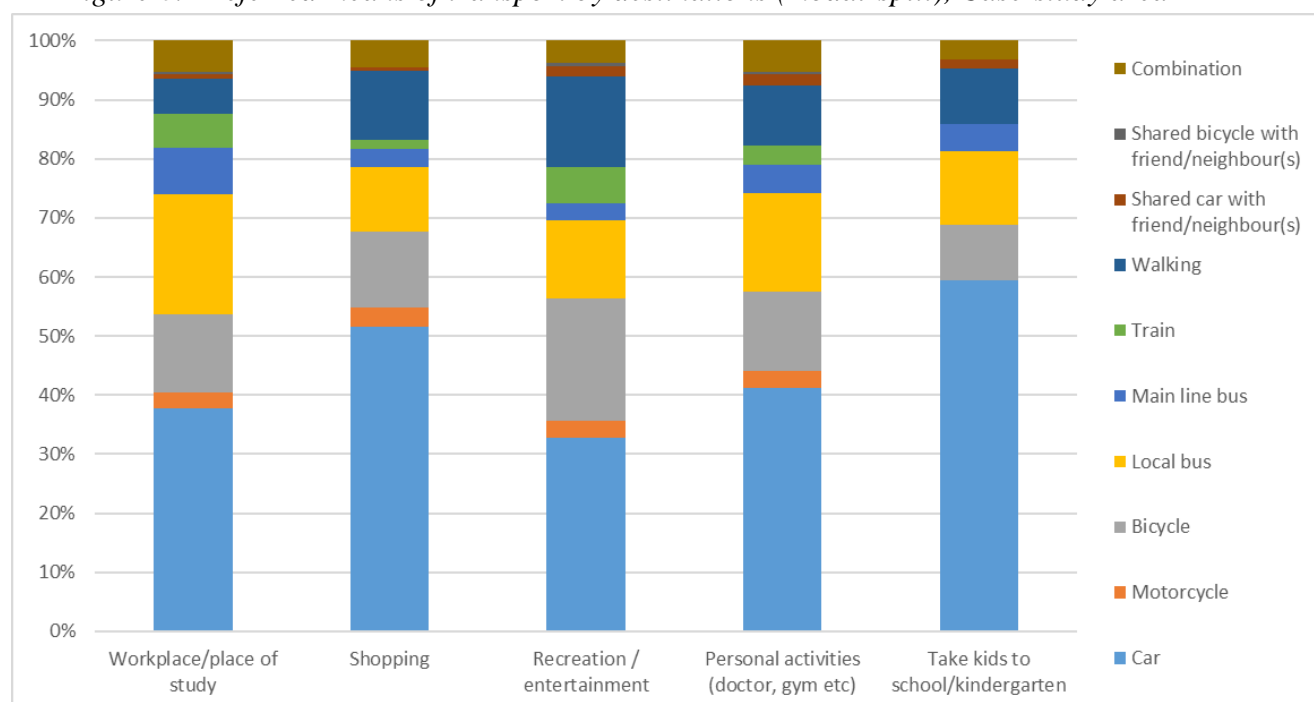
mention other means of transport that was not listed. Most of these answers include scooter (13), electric scooter (2), Győr-bike (2) and taxi (3).

Figure 5: Preferred means of transport by destinations (modal-split), Győr total



Source: online questionnaire survey

Figure 6: Preferred means of transport by destinations (modal-split), Case-study area



Source: online questionnaire survey

By looking at the same question focusing only on the case-study area, there are no significant differences at first sight. (Figure 6) Car is the dominant transport means regarding all of the destinations, although with a bit higher rate than the total sample. Local and main line buses are more popular than in the total sample, while the share of bicycle and walking is lower. This trend can be explained by the fact that the case-study area has a distance of around 8 km from the inner city (suburban zone), therefore, local and main line buses are more frequently used to get to the workplace or place of study, while bicycles remain at the background for the same destinations. As mentioned earlier, the case-study area has a direct connection with the inner city through railways. Travel-time only takes a few minutes, therefore it could be a viable alternative of road transport. However, as it is visible from the answers, only 5,7% of the respondents from the case study area use this transport mean when they get to the workplace or place of study (compared to 3,9% of the total sample). This supports the problems of the train connection (rare timetable, no parking space along the stations, etc.). Again, it is visible that bicycle-sharing and car-sharing options are at the very bottom of the list. A further trend is visible (both in the total and in the case study area sample), that people do not use motorcycles. Again, this is a usual trend in Hungary, and bicycle is much more popular than motorcycles.

Table 7: Modal-split according to different destinations

	Workplace		Shopping		Recreation		Personal activities		Take kids	
	<i>Győr</i>	<i>Case study</i>	<i>Győr</i>	<i>Case study</i>	<i>Győr</i>	<i>Case study</i>	<i>Győr</i>	<i>Case study</i>	<i>Győr</i>	<i>Case study</i>
Motorized transport	35,2%	40,4%	46,8%	54,8%	26,4%	35,5%	34,0%	44,0%	49,7%	59,4%
Public transport	26,1%	34,0%	11,6%	15,5%	26,0%	22,3%	21,9%	24,9%	15,0%	17,2%
Walking and cycling	32,2%	19,2%	36,0%	24,7%	40,1%	36,0%	37,8%	23,4%	31,2%	18,8%
Shared transport	1,5%	1,1%	1,8%	0,5%	3,6%	2,4%	1,5%	2,4%	0,6%	1,6%
Combination	5,1%	5,3%	3,7%	4,6%	3,9%	3,8%	4,8%	5,3%	3,5%	3,1%

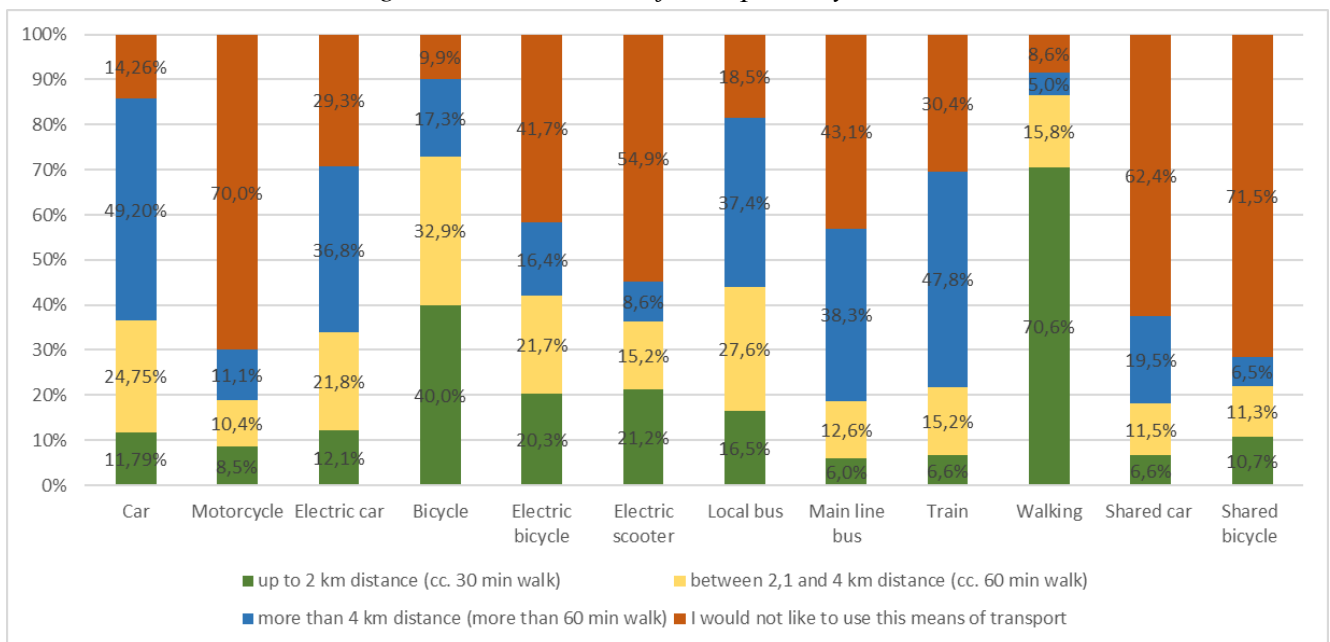
Motorized transport = car and motorcycle, Public transport = local bus, main line bus and train, Shared transport = shared bicycle and shared car

Source: online questionnaire survey

The above table summarizes the differences between the case study area and the whole city, also grouping the different transport means. (Table 7) The main derivation is observable in the use of motorized transport (which is more dominant in the case study area) as well as walking and cycling (which is less popular in the case study area). This result refers to the lack of local services, residents of the case study area usually have their workplaces within the city or the industrial park, and although there is one primary school, no secondary education institute is located in the case study area.

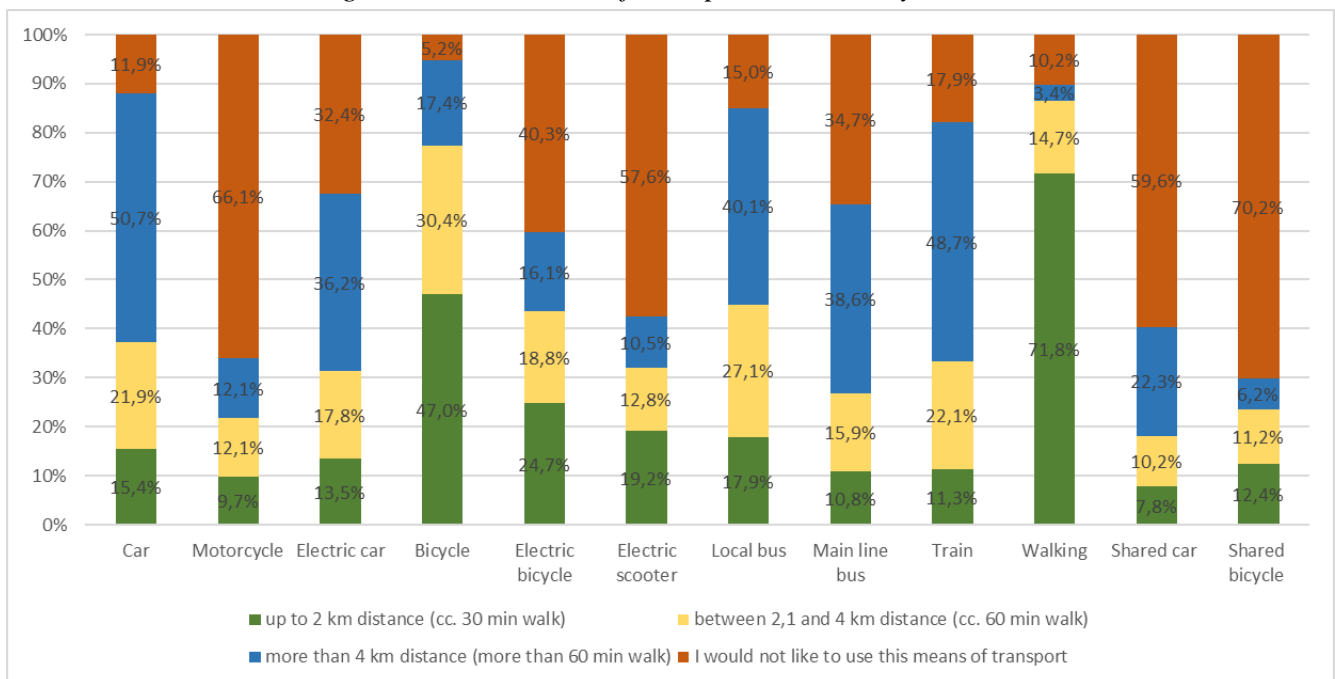
Besides the examination of the current mobility trends, the **analysis of the ideal means of transport** is also important (Figure 7 and Figure 8). Respondents could choose their ideal transport mode according to three distance ranges (up to 2 km, between 2 and 4 km, and above 4 km). Furthermore, they also had an option to state that they would not use this transport mode in any case.

Figure 7: Ideal means of transport, Győr total



Source: online questionnaire survey

Figure 8: Ideal means of transport, Case study area



Source: online questionnaire survey

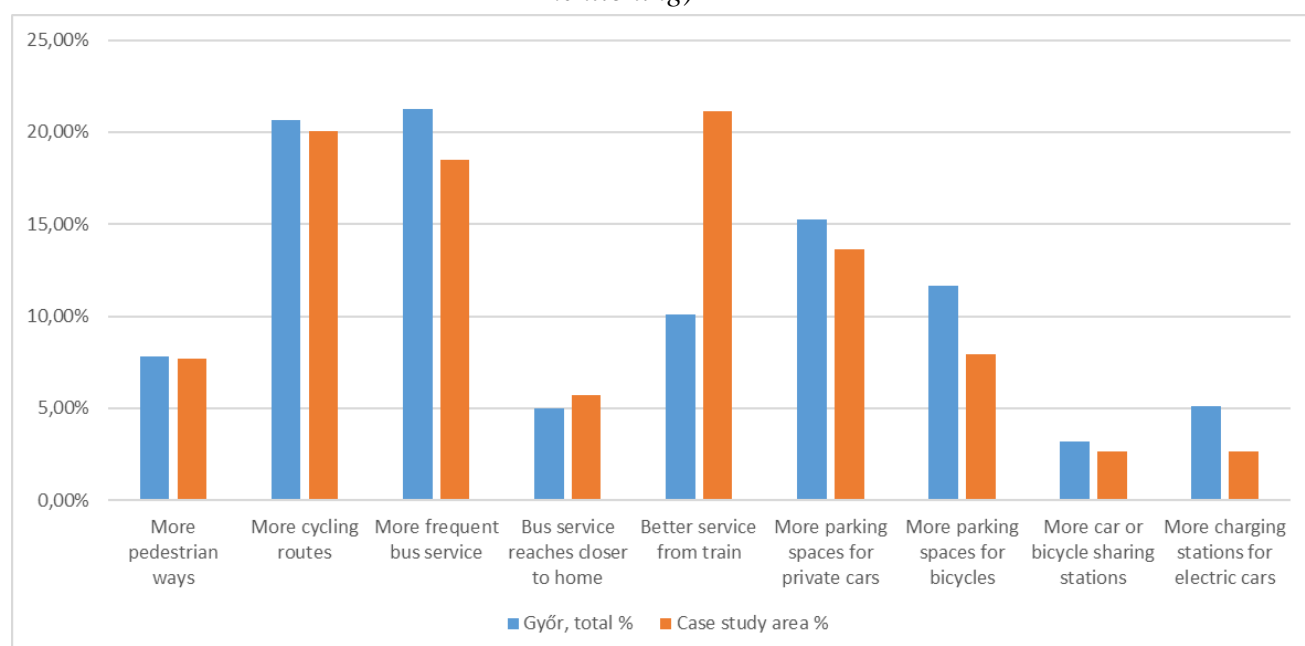
As for the shortest distance range, walking is far the most popular option, followed by bicycle as well as electric scooter and electric bicycle. Regarding the medium distance range, the results show a bit balanced distribution. Although bicycle is the most popular option, it is closely followed by local bus (27,6%) and car (24,75%). Sustainable transport modes, like electric car and electric bicycle were also popular choices. As for the highest distance range,

traditional (motorized) vehicles come into foreground, like car, train, main line bus and local bus, while electric car was also a popular option. Generally, these distributions reflect the traditional needs. However, in comparison with the current mobility trend, the dominance of motorized transport modes is not that obvious, especially on short and medium distances. This result suggests, that if basic services (like workplace, schools/kindergartens, shops) were provided and used locally, motorized transport could be cut back.

If we take a look at the same distribution focusing on the case study area, slight differences can be observed. First of all, train as an ideal means of transport is more popular in all of the distance ranges. Furthermore, much less respondents have stated that they would not use this means of transport at all (17,9% compared to 30,4% in the total sample). This result supports the idea that train could be a viable alternative in the case study area – in case the service was of a higher quality. It is also visible that the dominance of car (as an ideal means of transport) is also a bit higher within the case study area, however this can be explained by the suburban characteristic of the case study area. Last but not least, the rate of those who would not use neither car-sharing nor bicycle sharing is very dominant in both of the samples. However, this rate is a bit lower in the case study area, suggesting that advertising this means of transport could increase the rate of those who share a common car or bicycle.

A very important part of the online questionnaire was, when people were asked about the **necessary improvements in their neighbourhood**. (Figure 9) Nine options were listed, and respondents could mark those areas that need developments. Furthermore, they could also list their own views in the frame of an open question.

Figure 9: Necessary improvements in the total sample and in the case study area (% of mentioning)



Source: online questionnaire survey

As it is visible from the results, apart from a few topics, the distribution of the total sample and the case study area is very similar. In the total sample, more frequent bus service was the most frequently mentioned improvement (with 21,2%), closely followed by the need for more cycling routes (20,7%). Many respondents have also referred to the problems of parking spaces (with 15,3% concerning car-parking and 11,7% concerning bicycle-parking). However, this is a more serious problem in the inner city, than in the case study area (as it is also visible from the results). The biggest difference is observable regarding the service of the train. Considerably higher percent of respondents have stated in the case study area that they would like to see a better service from train (21,15% compared to only 10,1% in the total sample). This result again supports that with a more accurate/frequent and better service, train would be used by a greater number of case study area residents.

As for the open question regarding improvements, 50 responses have been collected. There are some differences regarding the mentioned topics in the case study area sample and the other parts of the city. (Table 8) It is visible that respondents of the case study area wanted to emphasize improvements of the bus service and the train service. On the other hand, residents of other parts of the city most frequently highlighted improvements regarding the cycle transport.

Table 8: Number and share of mentioned topics, case study area and other parts of the city

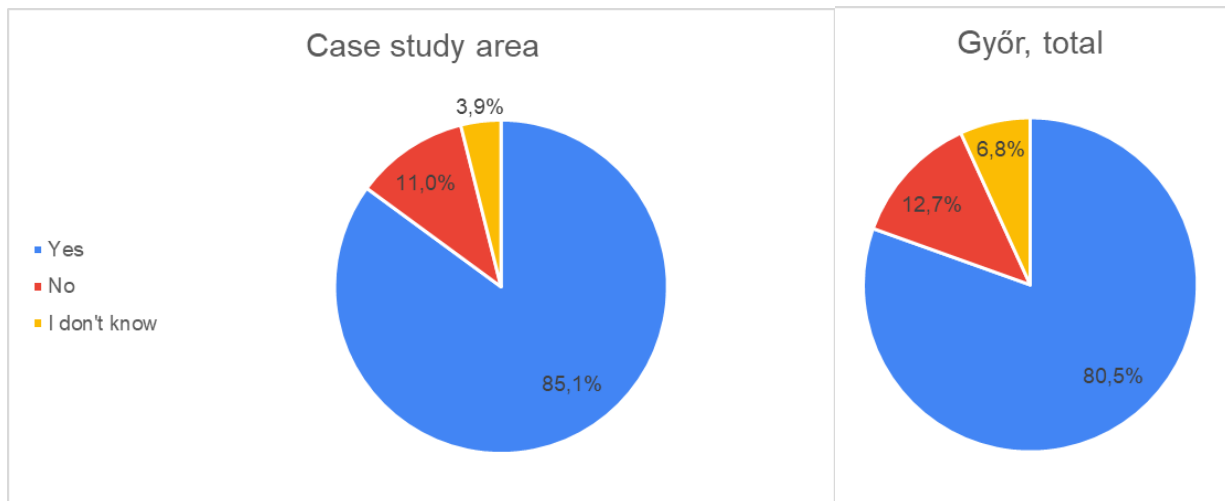
<i>Mentioned topic</i>	Other parts of the city, mentioning	Case study area, mentioning
<i>Road transport, quality of roads and parking spaces</i>	9 (25,7%)	4 (26,7%)
<i>Bus service</i>	10 (28,6%)	6 (40%)
<i>Cycle transport</i>	13 (37,1%)	1 (6,6%)
<i>Train service</i>	3 (8,6%)	4 (26,7%)

Source: online questionnaire survey

Regarding the road transport, the low quality of roads were highlighted in some parts of the city (potholes and lack of asphalt), as well as obstacle-free crossings (especially for strollers), speed limits for cars and more frequent speed monitoring. There was also a complain about the garbage tracks, that used to collect garbage also during peak times (causing traffic jams). This has been solved since the data collection, as from 5th October 2020, garbage tracks operate during the nights. Regarding the bus service, most improvements were listed in connection with the accuracy and the cancelled services. Frequency was not the main problem, but the travel time of the buses (especially from the case study area) and the service quality (comfort, sufficient number of seats). As for the cycle transport, most of the improvement needs referred to safe bicycle storage places, as well as better quality and safer cycle lanes and networks. Improvement ideas regarding the train service almost exclusively mentioned the creation of a suburban train line, which would be quite costly, however, could be a good alternative in those places, where railway is already constructed (for example, the case study area).

The last part of the questionnaire survey referred to the **attitudes of the respondents**. First of all, people were asked whether they think that transportation by private cars should be reduced for environmental reasons and better quality of life of city residents. As it is visible, respondents showed a great environmental consciousness, with more than 80% stating that private car-transport should be reduced, and there is not a big difference between the total sample and the case study area. (Figure 10)

Figure 10: The need to reduce transportation of private cars for environmental reasons



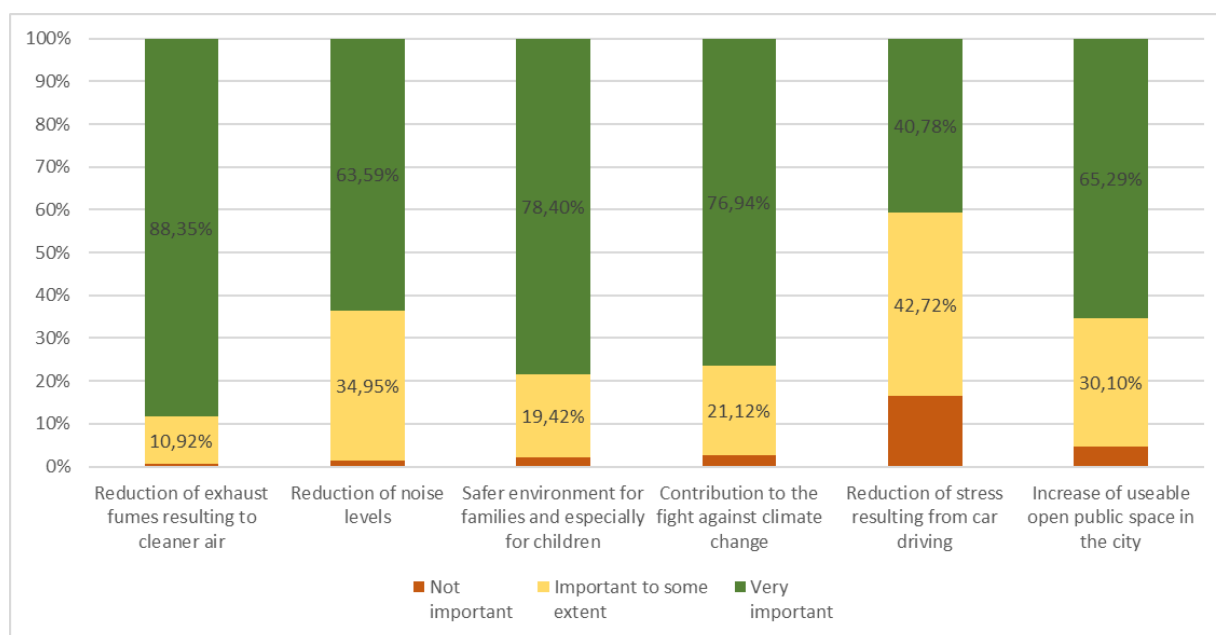
Source: online questionnaire survey

Those, who answered yes, could also rate the importance of different reasons for reducing car-transport on a 1-3 Likert scale. As it is visible from the results (Figure 11), the reduction of exhaust fumes was rated as the most important reason, followed by the safer environment for families and the contribution to the fight against climate change.

These results support that residents have a great awareness to environmental issues. On the contrary, we should not forget that the current mobility trend is obviously dominated by the private car. As for the other reasons, respondents still rated as an important factor the reduction of noise levels, as well as the increase of usable open public spaces. The least important factor was the reducing of stress resulting from car driving.

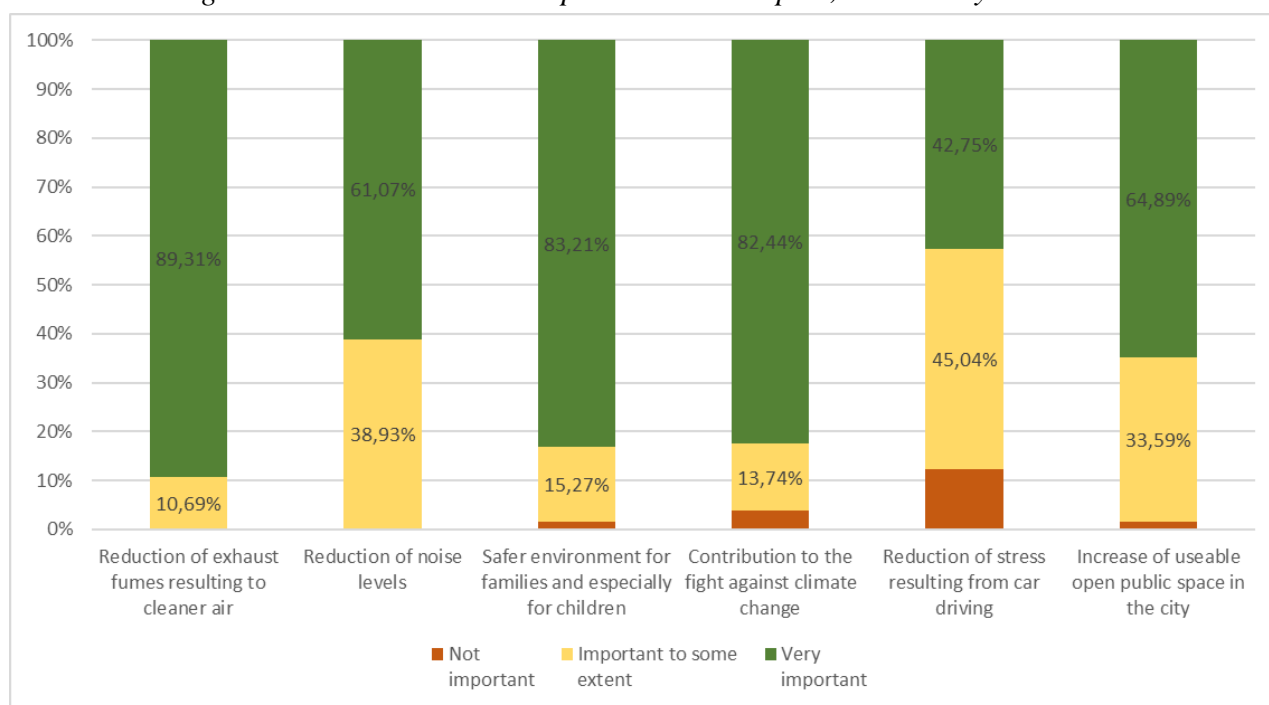
By focusing only on the results of the case study area (Figure 12), it can be mentioned that there is no big difference among the responses, although residents of the case study area even have a bit greater environmental awareness, and rated almost all of the reasons a bit more important. Otherwise, the results and the distribution is the same.

Figure 11: Reasons to reduce private car transport, total sample



Source: online questionnaire survey

Figure 12: Reasons to reduce private car transport, Case-study area

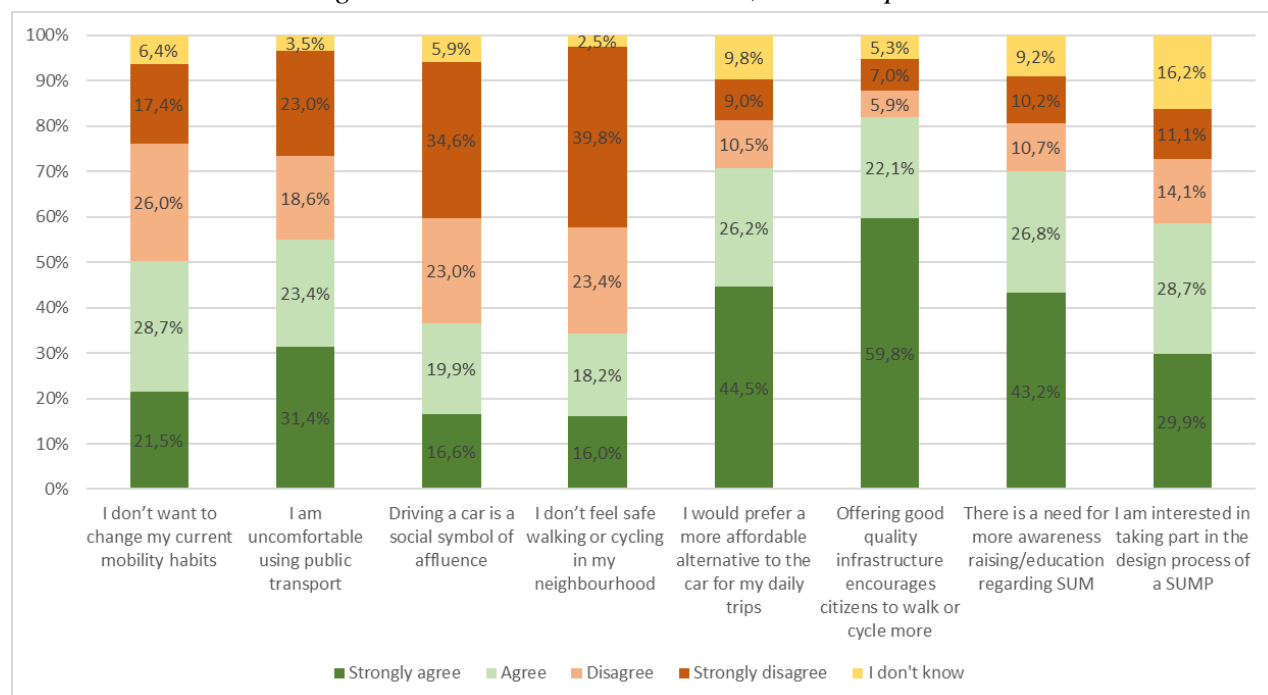


Source: online questionnaire survey

Regarding the **attitudes towards a more sustainable urban mobility**, respondents were asked to rate their understanding with different statements. As it is visible, most respondents strongly agreed with the statement that offering good quality infrastructure would encourage citizens to walk or cycle more. (Figure 13) From this point of view, a more sustainable urban

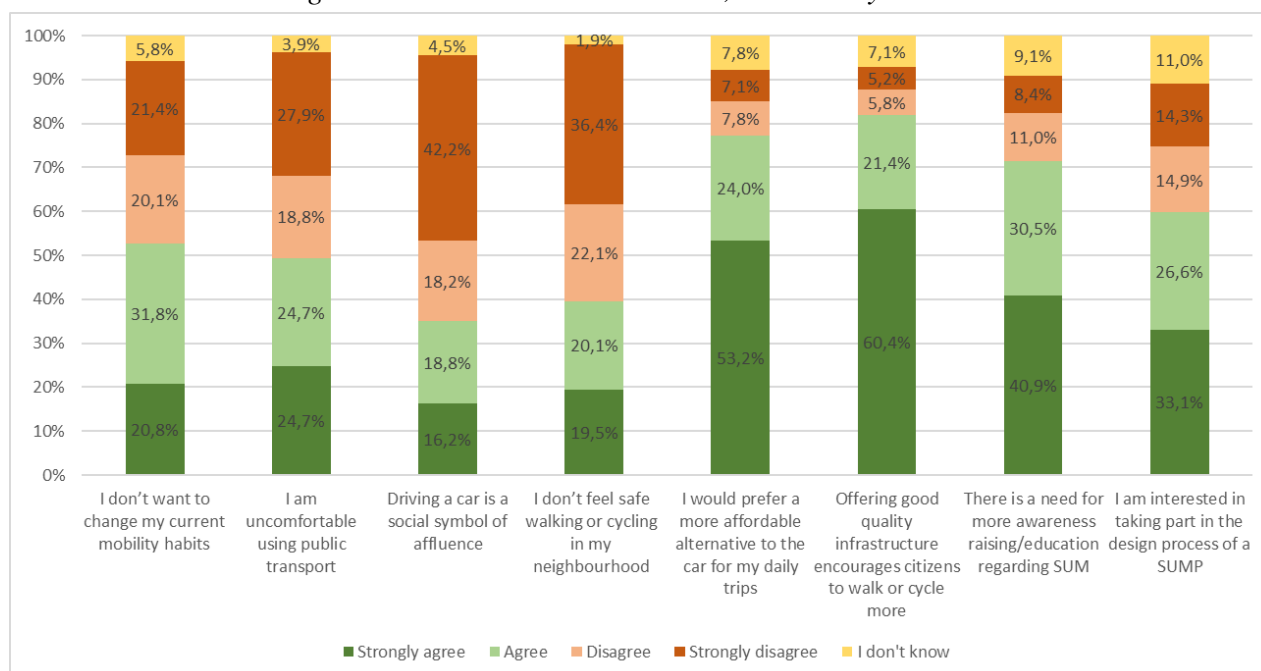
mobility is an infrastructural/supply issue. However, we shall not forget that moving towards sustainable urban mobility also requires the changing of habits, and therefore it is also a demand issue (and it is not only relying on the services offered by the municipality). And in this regard, the results show a more balanced distribution. Almost half of the respondents agreed that they do not want to change their current mobility habits, while the other half disagreed. Without people changing their habits, reaching sustainable urban mobility will not be realistic. A great progress could be made through awareness raising and the design process of a SUMP. Most of the respondents (70%) agree that there is a need for more awareness raising and education regarding SUM, which is promising. Furthermore, most of them (58,6%) are interested in taking part in a compilation of a SUMP. The city has good urban mobility potential, this is also supported by the fact that most of the respondents disagreed with the statement that they do not feel safe when walking or cycling in their neighbourhood. On the other hand, the public transport services were again emphasized, as more than half of the respondents agreed (54,8%) that they are uncomfortable with using public transport.

Figure 13: Attitudes towards SUM, total sample



Source: online questionnaire survey

Figure 14: Attitudes towards SUM, Case-study area



Source: online questionnaire survey

As for the case study area, results are similar to the total sample, however, there are some differences. (Figure 14) First of all, a bit more respondents agreed that they do not feel safe when walking or cycling in their neighbourhood. This supports the results of the focus group meetings as well, as several citizens raised the issue that the lack of bicycle lanes and low quality pedestrian ways makes walking and cycling unsafe. Furthermore, a bigger part of the respondents agreed that they would prefer a more affordable alternative for their daily trips. This can be explained by the nature of suburban zone (as mentioned earlier), since residents of the case study area often need to use the services located in the city centre, and therefore commuting is a higher burden.

2.3.3. Conclusions

Regarding the current urban mobility trends, it is visible that car is the most commonly used means of transport. On the other hand, walking and cycling have a moderate role in the modal-split (regarding any destination), however, they are still much more popular than car-sharing or bicycle sharing. These two options remained on the bottom of the modal-split, with very low rates. Within the case study area, local and main line buses are more popular, while the share of bicycle and walking is lower. This trend can be explained by the fact that the case-study area has a distance of around 8 km from the inner city (suburban zone). Train is not frequently used, which supports the problems of the train connection (rare timetable, no parking space along the stations, etc.).

Regarding the ideal means of transport, as for the shortest distance range, walking is far the most popular option, followed by bicycle as well as electric scooter and electric bicycle.

Regarding the medium distance range, bicycle is the most popular option, and it is closely followed by local bus and car. As for the highest distance range, traditional (motorized) vehicles come into foreground, like car, train, main line bus and local bus, while electric car was also a popular option. This result suggests, that if basic services (like workplace, schools/kindergartens, shops) were provided and used locally, motorized transport could be cut back.

Regarding the necessary improvements, more frequent bus service was the most frequently mentioned improvement, closely followed by the need for more cycling routes. Many respondents have also referred to the problems of parking spaces. However, this is a more serious problem in the inner city, than in the case study area. Considerably higher percent of respondents have stated in the case study area that they would like to see a better service from train. This result again supports that with a more accurate/frequent and better service, train would be used by a greater number of case study area residents. Improvement ideas regarding the train service almost exclusively mentioned the creation of a suburban train line, which would be quite costly, however, could be a good alternative in those places, where railway is already constructed.

As for the attitudes of respondents, it is visible that they showed a great environmental consciousness. On the contrary, we should not forget that the current mobility trend is obviously dominated by the private car. Most respondents strongly agreed with the statement that offering good quality infrastructure would encourage citizens to walk or cycle more. From this point of view, a more sustainable urban mobility is an infrastructural/supply issue. However, we shall not forget that moving towards sustainable urban mobility also requires the changing of habits, and therefore it is also a demand issue (and it is not only relying on the services offered by the municipality).

2.4 Conclusions - Discussion

Within the most relevant development strategies, like the National Development and Regional Development Concept (2014), the National Transport Infrastructure Development Strategy (2014), and the Jedlik Ányos Plan (2015) the guidelines of SUM planning are already included, however **no SUMP document has been worked out yet**. Among the development strategies of Győr, there are no SUMP documents either. Within the Integrated Urban Development Strategy and Development Concept, we can find plans and project ideas primarily focusing on transportation planning. Therefore, by starting the implementation of a SUMP planning process for the territory of Ménfőcsanak and Gyirmót, the UrbanSCOPE project will fill a specific gap. The size of this gap can be demonstrated by the fact that in Hungary, besides Győr, every city above 100.000 residents already possesses a SUMP.

The Regional Development Concept of Győr-Moson-Sopron County, as well as the Integrated Urban Development Strategy of the City Győr can serve as a good basis for the elaboration of the city's SUMP. Besides these, the results of the TRAVELPlusPlan project (2010) can also support the process, which was focusing on the transport development based on the guidelines of SUMP. The above facts support that the UrbanSCOPE project is gap-filling for Ménfőcsanak and Gyirmót.

Ménfőcsanak is situated at the southern part of Győr, next to the road No. 83 and railway tracks towards the City of Pápa. It was annexed to Győr in 1970. Ménfőcsanak has a mixed, small-town built-up area which is a very popular for people moving from Győr to the suburban fringe. Gyirmót is a provincial settlement located in western direction from Ménfőcsanak and was also annexed to Győr in 1970. It is bordered by the nature floodplain-reserve of Rába and Marcal Rivers from west, and the road No. 83 from east.

The **analysis of the case study area** points out, that both neighbourhoods are located in a good traffic situation, Ménfőcsanak has a more central, while Gyirmót has a more “shady” position. This location creates a lot of possibilities, however a lot of difficulties as well. The main direction of the traffic runs towards the city centre, but the main roads also collect the traffic of other agglomeration settlements, therefore (especially during peak time) the access of the inner city is very difficult on public roads. The rapid population growth, the expansion of the settlement structure poses a great challenge on the public transportation, which is less and less competitive against the private cars. The reason behind this is that the public transport is limited mainly to buses, and although the network is quite well-developed, but the travel time is long and difficult. The railway practically disappeared from the alternatives, despite the fact that the railway track is crossing the neighbourhood, and there are two train stops as well. Railway transport should be renewed, the building of new track sections and stations can be considered, in order to create a more sustainable urban mobility within the suburbia. The bicycle transportation is primarily significant within the neighbourhood and between the two neighbourhoods, commuting to the city centre by bicycle only gives an alternative to a low number of travellers.

Elected members and officials of the local authority also agreed with the importance of SUMP, as it was **observable during the interviews**. Interviewees supported the above mentioned

railway developments, the elaboration of a suburban railway transport, and the harmonization of the bus and train transportation. Civil organisations and the locally elected representative of the neighbourhood emphasized the issue even more. For a more liveable district, private car use should be cut back in favour of the train transportation, while at the same time, the quality of local services, availability of public spaces, pedestrian pavements and safe bicycle lanes should be increased. SUMP planning was strongly supported to the whole territory of the city. There is a simultaneous need for awareness raising and the development of sustainable infrastructure in order to push back the private car use. Within this topic, Széchenyi István University can give support through the education.

During the two **focus group meetings**, both the residents, as well as representatives of civil organisations and local businesses have highlighted similar problems: overloaded roads due to the dominance of motorized transport, unused railways transport, districts without direct access to public transport. As a solution, participants emphasized the importance of the integrated bus-train season ticket and the elaboration of a suburban rail. The case study area has the potential to this, however it is a fact that it would require a serious investment. The elaboration of a safe cycle lane is not only a priority between the neighbourhood and the city centre, but also within the neighbourhood. At the moment, cycling in the neighbourhood due to the overcrowded streets (traffic, parking) is dangerous. Most of the services can be found in the city centre, and therefore the even growing suburban zones create an increasing private car traffic in order to reach and use these services. In order to reduce this kind of traffic, the diffusion of services would be required.

The **online questionnaire survey** and the answers of the residents showed similar trends. 512 citizens have filled in the survey, from which 154 lives in the case study area. The total and the case study area sample has been compared, and it was visible that the distribution is very similar regarding the age groups, the educational background, and the employment status. One third of the sample is aged between 36-45 years, both groups are characterised with a larger share of finished university degree, and in both samples 61% is employed full-time. Within the case study area, the share of families is 10% higher, which is usual in the suburban zones. As a result, shopping and taking kids to school and kindergarten is generally done by cars. Due to the lack of local services, two-car-households are typical, which obviously further enhances the traffic. The environmental consciousness of the residents is supported by the result that on short distances, walking and cycling are preferred as the ideal transport modes, while personal car would be ideally used for longer (above 4 km) distances. Environmental awareness is further strengthened by the result that 80-85% of the respondents (both in the total and in the case study area sample) agreed that private car-transport should be reduced in order to improve the condition of the environment, contribute to the fight against climate change and reduce the exhaust fumes.

The following tables **summarize the main results**, also reflecting to the different and similar outcomes of the methods. The first table (Table 9) contains those problems that were identified during the whole research, while the second table (Table 10) refers to the necessary and/or desired interventions. Both tables will be useful during the SUMP planning process.

Table 9: Transport-related problems within the case study area

Problems	Desk study	Case study	Interviews	Focus groups	Survey
<i>Lack of SUMP (whole city of Győr)</i>	X		X		
<i>The two railway stops do not fulfil its purpose</i>	X	X	X	X	
<i>The train timetable is not suitable</i>		X	X	X	
<i>Enhanced parking space problems</i>		X	X	X	
<i>Increase of car traffic, overcrowded main road</i>		X		X	
<i>Limited capacity of side roads</i>		X		X	
<i>Bicycle lanes not only in the direction of the city center</i>		X	X	X	X
<i>More livable public spaces, better quality sidewalks</i>				X	X
<i>Dominant private car traffic</i>	X	X	X	X	X
<i>No harmonized local bus, regional bus and train tariffs and ticketing system</i>		X	X	X	X
<i>Public buses do not fulfil the needs</i>		X		X	X
<i>Excessive centralization of public services and residential services</i>				X	X
<i>New residential areas are left out from the public transport</i>				X	X
<i>More GyőrBike stations in Ménfőcsanak and Gyirmót</i>					X

Table 10: Necessary/desired interventions for a sustainable urban mobility within the case study area

Necessary interventions	Desk Study	Case study	Interviews	Focus groups	Survey
<i>Development of a suburban railway transportation</i>	X	X	X	X	X
<i>New railway station/stop including parking spaces for cars and bicycles in the centre</i>		X	X	X	
<i>Integrated tariffs and ticketing system for local and regional buses, as well as trains</i>	X	X	X	X	X
<i>Enlargement of main road No 83 (2x2 lanes)</i>	X	X	X		
<i>Better designed itineraries and stops in the bus transportation</i>				X	X
<i>More liveable and usable public spaces (parks, sideways, parking spaces)</i>		X	X	X	X
<i>Increasing the quality of local services</i>			X	X	X
<i>Healthier environment, decrease of emissions</i>		X	X	X	X
<i>Enhanced traffic safety</i>		X			X

On the whole, it can be stated that residents of the case study area, representatives of civil organisations as well as members of the local authority consider sustainable urban mobility of extreme importance. Despite this, private car, as a means of transport is still dominant within the modal split. All actors prefer fixed-track transportation (railway), but the conditions are not given at the moment. However, in order to get closer to a sustainable mobility, these developments seem unavoidable. This development is also necessary due to the constant enlargement of the agglomeration, since the main roads of the case study area also collect the commuters from the surrounding settlements, making these roads (especially No 83) even more overcrowded. According to the results of the questionnaire survey and the focus group meetings it can be stated that residents and civil organisations have an environmental conscious thinking, which can be further increased through community partnerships.

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