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MUTABLE

Mobility Supply Analysis: Tolna, Hungary

Regional Fact Sheets (D.1.1.1)

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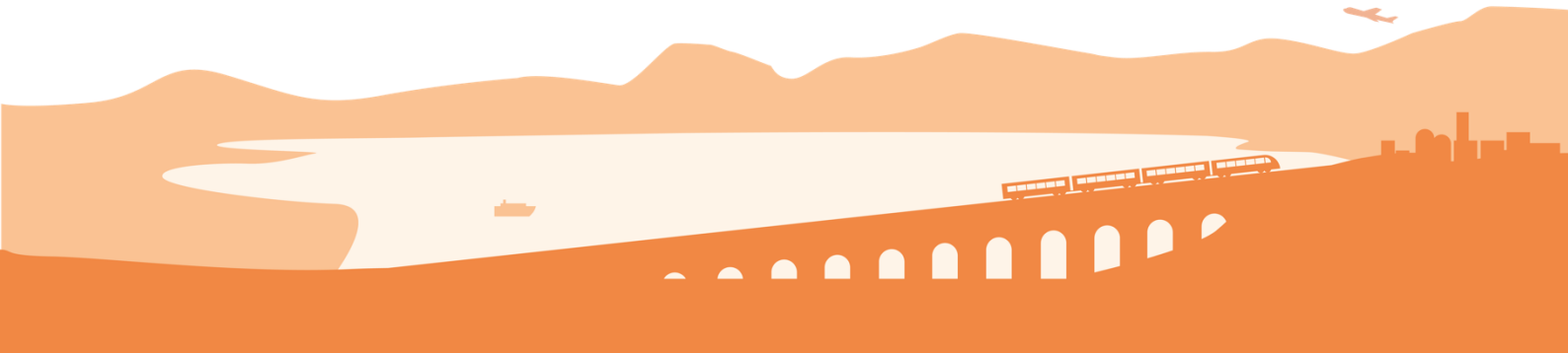

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A. Introduction

Public transport systems in the MUTABLE partner regions generally provide an adequate level of service to central locations and larger towns. However, accessibility, service frequency and coverage are often poorer in rural and peripheral areas. This creates structural mobility gaps, particularly affecting people without access to a private car, such as young people, older residents, those on low incomes and people with reduced mobility. Alternative mobility solutions to conventional public transport remain limited, while dispersed settlement patterns, demographic change and long travel distances further increase the need for flexible, inclusive mobility options.

Therefore, the challenge lies not only in providing transport services, but also in improving the coordination of infrastructure, information, funding, public transport planning and user needs across large and diverse territories. In this context, mobility management can play an important role by connecting existing services more effectively, promoting alternatives to private car use and supporting flexible, demand-responsive transport solutions. It can also make sustainable mobility options more visible and accessible for residents, commuters, businesses and visitors.

Across the partner regions, three Pilot Demonstration Sites (PD) aim to test innovative, demand-responsive approaches that are adapted to local and regional needs:

- PD1 Adapting Existing Public Transport Lines to Local Demand north of Chemnitz, Germany
- PD2 Capitalising on Synergies Between Public Mobility Services in Paks, Hungary
- PD3 Mainstreaming of Public On-Demand Mobility Services in Tišina, Slovenia

The goal is to make better use of existing operational capacities, improve service availability and strengthen the cooperation of administrative bodies, transport providers and other relevant stakeholders. To develop a shared understanding of regional public mobility systems and to serve as a basis for establishing a mobility management role, a Regional Fact Sheet (Deliverable 1.1.1) has been created for each area as part of a joint Mobility Supply Analysis (Activity 1.1). The fact sheets provide a concise analytical summary of the current regional mobility supply at administrative and provider levels, identifying key challenges and development needs.

They also support the identification of untapped potential for innovation and transnationally developed conclusions, thereby acting as a basis for the preparation of tests in the PDs. Furthermore, the fact sheets provide a transferable knowledge base that can support the replication and adaptation of mobility management measures in other regions facing similar challenges.

B. Regional Analysis

1. Overview of the Central Danube Priority Area

Amendment to Act XXI of 1996 on Regional Development and Spatial Planning, which entered into force on 1 July 2020 made it possible to establish a new priority development region in Hungary, the Central Danube Priority Area comprising 99 municipalities. Demand on the declaration of the Central Danube Region as a priority area has been strengthened by the fact that the provision of high-level human resource needs during the construction of the large-scale investments expected in the area raises unique institutional development and cooperation needs, which expectations provide the right foundations and opportunities for achieving long-term sustainable regional development.

The Central Danube Priority Area is a key functional region within Central Europe characterised by its strong geographical, economic, and administrative links along the Danube corridor, located within the NUTS2 region of Dél-Dunántúl (HU23. It is a mixed territorial space where medium-sized towns, smaller settlements, and rural communities are closely interlinked, but show very different levels of accessibility and public service provision. These territorial differences strongly shape everyday mobility patterns and the availability of public transport across the region.

Mobility in the area is generally uneven. Larger towns tend to have more stable and structured public transport connections, while smaller and more remote settlements often experience limited service coverage, low frequency, or in some cases no regular public transport at all. This leads to a high dependence on private cars, particularly in rural areas, and creates clear accessibility challenges for residents without individual transport options. At the same time, there are several transport resources in the region that are not fully coordinated or efficiently used. Services such as school transport or municipally supported mobility schemes often operate in isolation, rather than being integrated into a more flexible, system-level approach. This indicates a clear potential for better coordination and for more demand-responsive solutions that build on existing capacities.

Within this context, CDDA operating under the Central Danube Development Council, plays an important coordinating role in supporting territorial cohesion and sustainable regional development, as it is a work organisation responsible for performing the operative tasks of the Central Danube Development Council. The agency was established on 4 August 2020 and its commercial court registration took place on 23 November 2020.The agency works across municipalities, SMEs, civil society organisations, and local communities to strengthen cooperation, promote knowledge transfer, and support the implementation of regional development priorities. Its work covers areas such as infrastructure, economic and human development, innovation and green transition, and tourism, while also placing strong emphasis on social innovation and the adaptation of good practices from both national and international contexts. Since 2020, CDDA has been contributing to building a more connected regional ecosystem and supporting collaborative approaches that link economic, social, and environmental development goals.

The Central Danube Priority Area (CDPA) consists of three clearly defined territorial units:

- Rural zone/Western zone comprising small settlements (Tamási, Bonyhád, Szekszárd and Sárbogárd districts): These settlements are mainly small villages, hamlets and tiny hamlets, which are only indirectly connected to the economic core area due to the main roads running along the periphery. The western areas of the CDPA also cover one of the country's largest internal peripheries (Enying, Tabi, Tamási, Dombóvár, Sásd, Komló and Szigetvár districts).
- A developed urban axis (the so-called economic and technological core area, the Danube corridor): This category includes the central part of the CDPA, namely the settlements

lining the Danube, the M6 motorway and Main Road No. 6; the most significant of these are Dunaföldvár, Solt, Paks, Kalocsa, Tolna and Szekszárd.

- Eastern region of transitional development, the Bačka region (settlements in the Priority Region lying east of the Danube): This category includes areas situated east of the Danube, within Bács-Kiskun County, which are primarily based on agricultural activity. Although they are located further away from the core economic areas, this region is not among the peripheries with the worst socio-economic conditions[1].

As a result, the CDPA is well positioned to serve as a testing ground for innovative mobility solutions, particularly those that aim to make better use of existing resources and improve access in underserved areas. Strengthening cooperation between local authorities, service providers, and new coordination roles such as mobility managers is becoming increasingly important in this process.

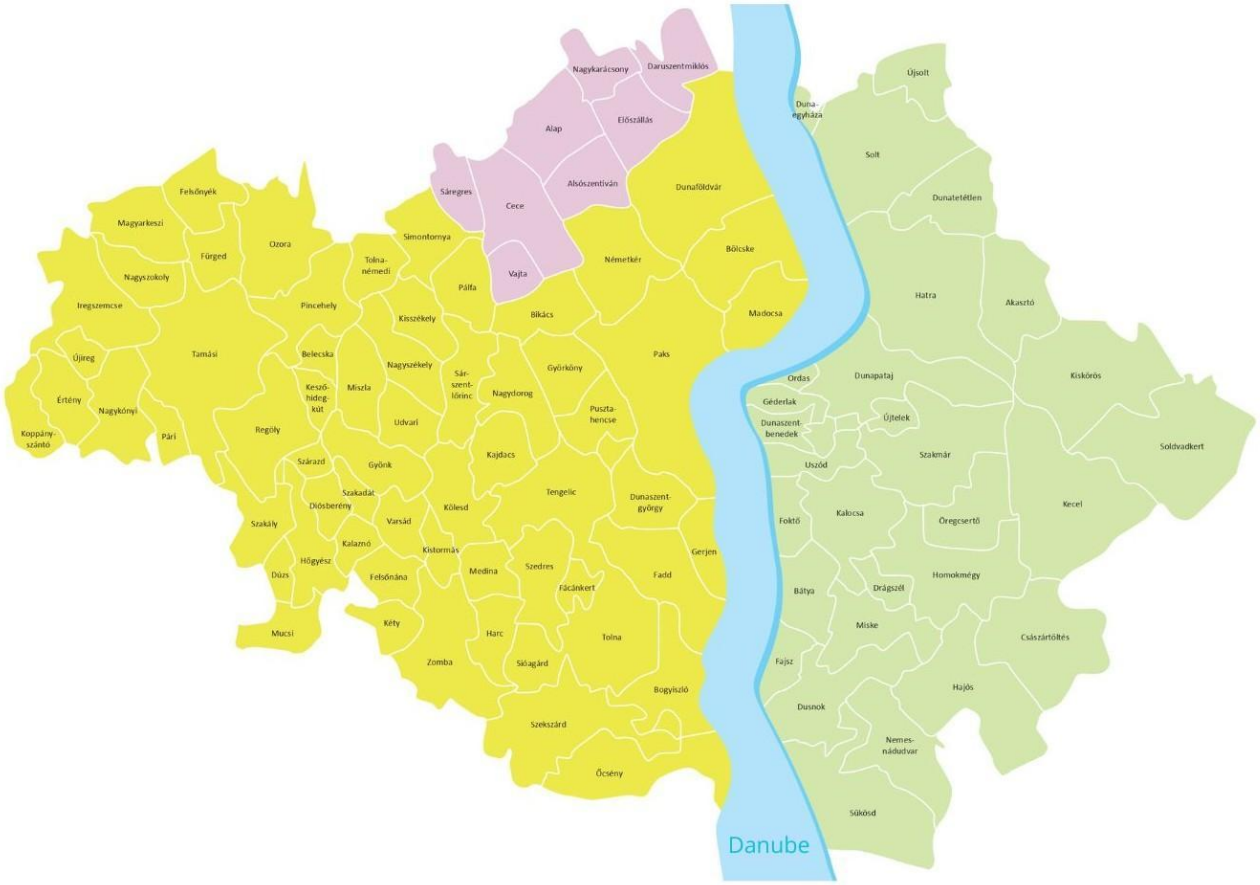

Figure 1: Central Danube Priority Area

[1] The Spatial Development Concept for the Priority Area along the Middle Danube 2021–2035 (28 May 2021)

2. Joint Development

Ensuring the joint development of these three territorial units, each with its own distinct characteristics, poses a significant challenge for planners due to their differing needs. However, despite these differences, there are common priorities which, if addressed effectively, will enable the implementation of integrated development measures, ensuring that the economic stimulus provided by the planned Paks II power station investment can be felt throughout the entire priority area.

Nothing illustrates the significance of the power station investment better than the fact that, without it, the population decline currently experienced in the CDPA and the region's ageing trend could not be halted, as the influx of young people and the region's ability to retain its population would diminish. Conversely, if the investment is implemented successfully and without undue delay, the population of the Paks District, located at the heart of the CDPA, and particularly the town of Paks itself, could increase by as much as 45–50 % during the construction phase. During the operational phase following the project's completion, the population could remain 10–15 % higher than current levels. Without an influx of young, skilled and generally highly qualified residents, the ageing index will continue to rise from its already elevated level, further threatening the sustainability of the regional economy as a whole.

At present, Tolna County has the worst net internal migration balance in the region, which, based on 2019 data, stands at -4.9 persons per 1,000 inhabitants. Since only the more economically developed regions are able to attract young, skilled workers, it is evident that human capital development is an essential prerequisite both for the power station investment and for the projects closely linked to it, including the implementation of the Operational Programme for the CDPA.

Naturally, in order to successfully implement the power station investment and to achieve the objective of extending the resulting economic benefits across the entire CDPA, it is necessary to identify the areas requiring development and establish priorities within each of them.

The areas for development in the regions are defined by the CDPA's Operational Programme:

- infrastructure development,
- economic development,
- tourism development,
- innovation and green development,
- community and institutional development,
- human development[2].

Although transport is mentioned as a priority in the Operational Programme only within the 'innovation and green development' project component, it is clear that transport and the planning and implementation of related infrastructure developments are essential to ensuring the operational viability of all project components.

3. Overview of the Pilot Area

The pilot area is located in central Hungary along the Danube River, centred around the municipality of Paks in Tolna County [Tolna (HU233)]. The area forms part of a structurally important transport corridor within the wider Central Danube space, linking the Transdanubian region with areas east of the Danube. Its accessibility is strongly influenced by major national transport axes, in particular the M6 motorway and the

[2] Development Programme for the Priority Area along the Middle Danube, Operational Programme 2021–2027 (16 March 2022)

parallel 6th main road, which provide the primary north–south connection towards Budapest and regional centres such as Szekszárd and Dunaföldvár. Despite these main corridors, the Danube still acts as a significant spatial divider, meaning that cross-river connectivity remains limited and relies on a small number of bridges and ferry connections in the wider region. This contributes to a fragmented settlement and mobility structure, where travel patterns are strongly shaped by available crossing points and radial routes towards larger centres.

The settlement structure around Paks is characterised by a compact urban core with surrounding smaller villages and rural settlements. Paks functions as the main local service, employment, and administrative centre, concentrating key functions such as education, healthcare, and public services. Surrounding settlements are more dispersed and typically depend on Paks for access to these services, resulting in regular daily commuting flows towards the town.

Public transport provision in the area is mainly based on regional bus services operated within the national system, complemented in Paks by a local urban network. While weekday connections are generally available, service frequency and coverage tend to decrease significantly in more peripheral settlements and during weekends. This creates uneven accessibility conditions, particularly for those living outside the main urban centre. From a mobility perspective, the area shows a clear dependence on private car use in less accessible locations, as public transport does not always provide sufficient flexibility or coverage. At the same time, the presence of existing but not fully optimised transport services - such as school transport and municipal mobility arrangements - indicates potential for better coordination and more efficient use of available capacities.

A further characteristic of the area is the strategic importance of planned and ongoing infrastructure developments in the wider region, including improvements to road connectivity and cross-Danube accessibility. These developments are expected to gradually strengthen regional integration and improve accessibility between settlements, including Paks and its surrounding hinterland.

Within this context, the pilot area is particularly suitable for testing demand-oriented mobility solutions. It combines clear accessibility challenges in rural settlements with an existing transport system that includes underutilised capacities. This creates a relevant environment for exploring more flexible and resource-efficient mobility approaches that better align transport supply with actual local needs.

4. Existing Mobility Services and Stakeholders

The local authorities of Paks, which play a central role in the project, were already aware in the 1970s and 1980s of the extent to which a major investment such as the construction of a nuclear power station could transform the life of a town, and of the level of infrastructure development required to address the associated challenges. For this reason, a significant proportion of the planned transport developments must be closely linked to the implementation of the power station project itself, ensuring that the materials and workforce required for construction can reach the site efficiently.

The north–south transport connection between the town of Paks and the CDPA's developed urban axis can be considered adequate, as it is served not only by Main Road No. 6 but also by the Dunaújváros–Paks–Szekszárd–Bátaszék section of the M6 motorway. This motorway forms part of an important V/C corridor within the European Union's transport policy and is therefore included in the Trans-European Transport Network (TEN-T).

As regards road transport, it can be said that the River Danube, which divides the CDPA into two parts, currently constrains the expansion of development due to the limited number of crossing points. To address this issue, construction of a new bridge between Paks and Kalocsa began on 10 June 2021. Located between the existing Danube crossings at Dunaföldvár and Szekszárd, it became the 20th bridge on the Hungarian section of the river upon its completion. The bridge is connected to the M6 motorway via the

Dunaszentgyörgy junction and Road 512, and, after crossing the Danube, joins Road 5122, which links Kalocsa and Foktő.

It is clear from the above that, in terms of road transport connections within the CDPA, the principal challenge lies along the east–west axis. The expressway network in the area runs predominantly in a north–south direction, reflecting the historically Budapest-centred structure of Hungary's road network. The only significant east–west connection is Main Road No. 61. However, its upgrade to a dual carriageway (2×2 lanes) has only been completed on the section bypassing Kaposvár, which was opened on 18 December 2015. From the perspective of implementing development projects within the CDPA, a further disadvantage is that this route primarily serves the northern part of the priority area, as it crosses the Danube at Dunaföldvár.

The newly constructed bridge does not fully resolve this issue – namely, the need to strengthen east–west transport links between settlements within the CDPA - as its primary effect is to reduce journey times within the priority area rather than to provide a major transport corridor in the required direction. Instead, the bridge's principal function is to connect the town of Kalocsa to the national expressway network by providing faster access to the M6 motorway.

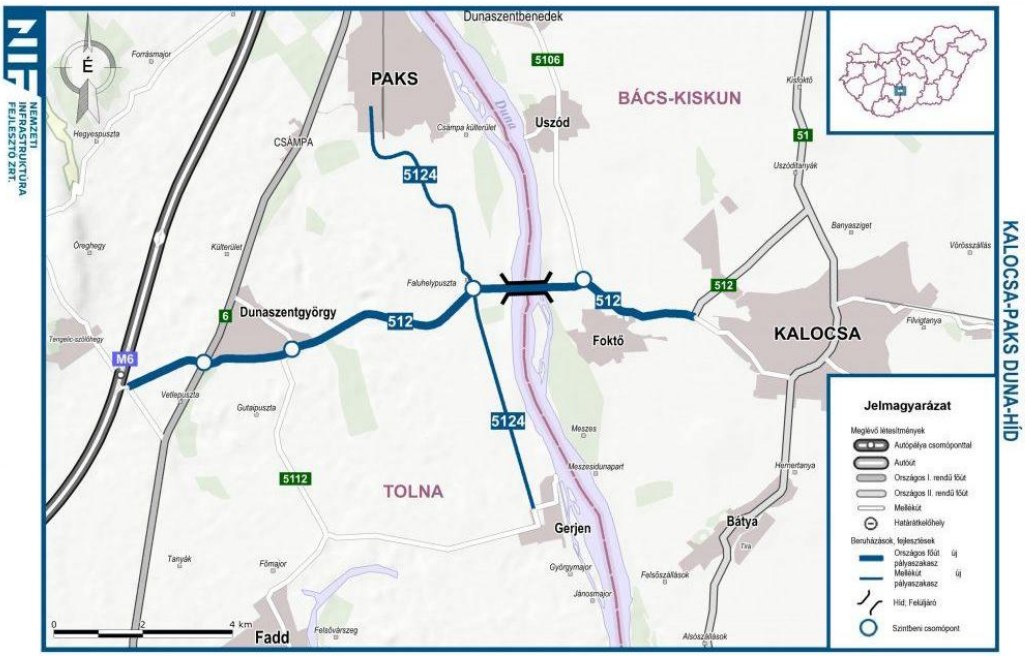

Figure 2: Kalocsa Bridge (Source: NIF Zrt.)

The long-planned M9 motorway would provide a solution for strengthening Tolna County's - and, by extension, the CDPA's - east–west transport connections, as its originally proposed route would have branched off Main Road No. 61 near Kaposvár, crossed the county along the Dombóvár–Szekszárd axis, and continued towards Szeged, Békéscsaba, and Debrecen. The M9 motorway, which remains at the planning stage, was reconsidered in 2021. Under the revised plans, the motorway would bypass Tolna County entirely and, consequently, the CDPA as well. As a result, the significance of the already constructed Szent László Bridge near Szekszárd has also diminished, as - similar to the Danube Bridge linking Paks and Kalocsa - it lacks a corresponding east–west transport corridor to connect to. The modified route is also a disadvantage for settlements south of the Nagykanizsa–Kaposvár line, outside Tolna County, as it increases the distance travelled and, consequently, the journey time.

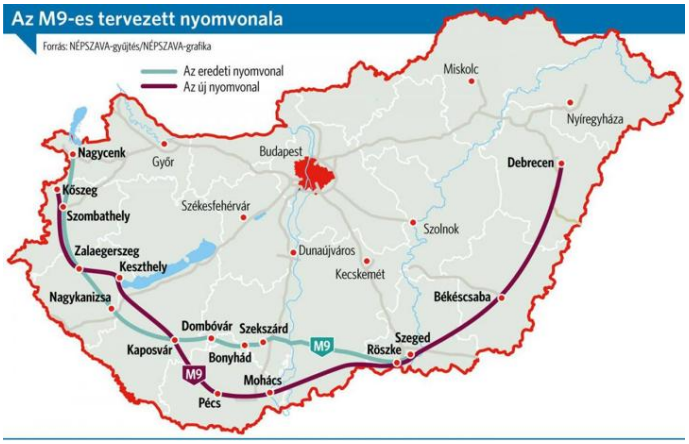

Figure 3: Proposed route of the M9 Motorway

In the case of the CDPA, rail transport can be regarded as virtually negligible, particularly from the perspective of passenger transport. This is due to the underdevelopment of the rail network, as there is no line providing a connection along the axis of the area – that is, the Danube corridor – and the east-west connection within the priority region, which is divided in two by the river, can only be realised at Baja. As regards the priority area, the only line providing genuine rail transport is Line 40, located on the western edge of the area, which connects Budapest with Pécs via Dombóvár. Of lesser significance is Line 46, which provides a link between Rétszilas, Szekszárd and Bátaszék, connecting to Line 50 towards Dombóvár and to Line 154 towards Baja. The marginal nature of this line is evidenced by the fact that it has not yet been electrified, nor is this expected in the near future.

Rail links to the town of Paks, which serves as the centre of the CDPA, are currently provided exclusively via the branch line associated with MVM Paksi Atomerőmű Zrt. and the Paks II project, however, due to a lack of demand, there is no passenger service on this section.

Figure 4: Rail links in the priority area (source: MÁV)

From a transport perspective - primarily in terms of freight transport - the River Danube, which runs along the region's north-south axis, serves as a key transport corridor for the Priority Area. Several settlements within the CDPA have ports and therefore access to waterborne transport. These include Dunaföldvár, Paks, Foktő, Fadd, and Bogyiszló.

As regards passenger transport, river transport in the region can only be considered significant in the case of ferry services, since, for example, in Paks, until the bridge was completed, this was the only means of crossing between the two banks, provided that weather conditions were suitable. It is important to emphasise that this solution applies only to private transport, whereas public transport between the two sides of the river can only be ensured via bridges.

Accordingly, while the Danube offers advantages in terms of freight transport capacity, from a transport perspective it also acts as a dividing element within the region. The opportunities it provides for tourism and leisure activities constitute an important exception to this.

As can be seen from the above - as noted previously - a common thread running through these developments is the improvement of transport infrastructure. In both sparsely populated rural areas and more developed urban settlements, as well as in the networks connecting them, it is necessary to meet the mobility needs of local residents and those arising from regional investments in a way that provides a sustainable solution not only for the construction phase of the power station, but also for its subsequent operational period. (It should also be noted that the greatest strain on transport systems and their components typically occurs during the construction phase.)

It is, however, clear that the focus of the developments to be carried out must be on Paks, the Paks District, and the larger settlements in its vicinity, the members of the urban axis. Naturally, given the impact of transport on production and economic revitalisation, and in order to ensure that all settlements within the CDPA can benefit from the investment, it is necessary to improve transport links between the settlements within the CDPA. It is clear from the above that, in this context, transport links primarily refer to road connections, a significant proportion of which have already been upgraded in recent years as part of the project's preparatory phase.

5. Stakeholders and Governance

As is evident from the above, the Central Danube Priority Area has become accustomed to relying primarily on private cars for transport, mainly due to the lack of a unified public transport system.

The fact that the public transport system has developed in this way is not attributable to the residents or to the local authorities that have governed the area in recent years, but rather to the region's structure, which consists of many small villages, as well as to the inadequacy of the rail network.

However, local bus-based passenger transport can be considered relatively well organised, yet the efficient connection of small settlements can only be achieved if services operating to a major hub with sufficient passenger-generating capacity are able to serve smaller settlements while remaining on main routes. As soon as a detour from the main transport corridors is required to reach a settlement, journey times increase significantly. Consequently, passenger numbers decline, which further undermines economic viability, in addition to already rising costs caused by increased distances travelled.

Since car ownership and private car useage already symbolised a sense of freedom prior to the political transition, once this option became widely accessible it quickly became the dominant means of transport. This trend was further reinforced by rationalisation measures in public transport - such as reduced service frequencies due to falling passenger numbers - which created a self-reinforcing cycle that further increased reliance on private transport.

However, the capacity of towns and the surrounding road network is finite. From an environmental perspective, it is important not to devote additional land to roads and car parks, but instead to increase green spaces within urban areas.

Accordingly, the primary objective of the project should be to assess and develop existing public transport links, and to contribute to the creation of new transport connections that can shift travel demand from private transport towards public transport.

At present, there are two public transport operators in the region. Inter-urban transport is provided exclusively by the state-owned MÁV Személyszállítási Zrt., which operates under a public service contract awarded through a tendering process, while in the town of Paks, Paksi Közlekedési Kft., which is wholly owned by the local municipality, operates scheduled local public transport services.

6. Legal and Financial Framework

In Hungary, the fundamental legal framework for the passenger transport sector is set out in Act XLI of 2012 on Passenger Transport Services. This Act regulates the provision of domestic and international road and rail passenger transport services.

The key objectives and provisions of the legislation are as follows:

- Minimum service standards and fundamental rights: The Act treats public transport (bus and rail services) as a fundamental service, defining minimum service standards that must be available in every municipality and region.
- System of public services: It establishes the conditions for concluding public service contracts, the respective roles of the state and local authorities in meeting mobility needs, as well as the financing framework for subsidies and fare regulation.
- Scope: It covers both scheduled services (e.g. intercity buses and rail services) and non-scheduled passenger transport.
- Passenger rights and quality: It sets requirements regarding service quality, passenger information, accessibility, and user protection.

Act XLI of 2012 on Passenger Transport Services sets out in detail the legal framework for transport organisation in Hungary. Its aim is to operate a unified, integrated, and streamlined public transport system in which the state guarantees citizens' fundamental right to mobility.

The organisation of public transport in Hungary, the assessment of demand, and the coordination of timetables take place within a multi-level governance structure, through the cooperation of the following organisations:

a) Chief decision-maker and contracting authority: Ministry of Transport and Investment[3] (formerly the Ministry of Construction and Transport (ÉKM))

Under the law, the body responsible for providing national, regional and suburban (inter-municipal) public transport is the state, on whose behalf the Minister for Transport acts.

- They determine the minimum service requirements (how often transport must be provided from each settlement).
- The Ministry concludes public service contracts with transport companies and approves the basic fare structure and timetable framework.

[3] Act XIII of 2026

b) The technical aspects are handled by KTI Hungarian Institute of Transport Science and Logistics Non-profit Ltd.

The law allows the state to designate a transport organising body to carry out technical tasks. At national level, this role is performed by the KTI's Public Passenger Transport Services Directorate. The KTI acts as the technical arm of the 'contracting authority':

- Assessing demand: It continuously analyses the travel needs of the general public, commuters and businesses.
- Timetable planning: They coordinate the planning of national rail and bus timetables, as well as annual timetable adjustments.
- Coordination (Integration): Their task is to eliminate overlaps (so that buses and trains do not run alongside each other unnecessarily) and to plan bus feeder networks that are synchronised with rail connections.

c) The service providers: MÁV-Volán Group and GYSEV

Under public service contracts, transport operators are responsible for service delivery. The state-owned MÁV-Volán Group (including MÁV Személyszállítási Zrt., following the integration of MÁV-START Zrt. for rail services and Volánbusz Zrt. for intercity bus services) and, in Western Hungary, GYSEV Zrt. participate in service provision:

- They develop detailed timetable proposals in cooperation with KTI and the Ministry.
- They ensure the day-to-day management of traffic and operations, provide information to passengers, and report any travel needs or problems that arise in practice.

d) Local transport organisation (local authorities)

The law distinguishes clearly between inter-municipal (state-level) and local (municipal) public transport. Local authorities are responsible for services within their administrative boundaries and may appoint operators through tendering procedures or by designation of municipally owned companies.

- Larger cities carry out this task through their own transport organisation (the best-known example in the capital is the Budapest Transport Centre – BKK), whilst in smaller towns this is carried out either by a department within the mayor's office or – as in the case of Paks – by a transport company owned by the local authority.
- Local authority transport organisers themselves assess local needs, plan local bus, trolleybus and tram timetables, and coordinate these with state-run (MÁV, Volánbusz) suburban services.
- The timetable is approved by the commissioning local authority, and it is the transport operator's responsibility to implement it.

How are needs assessed and services coordinated in public transport?

- Data collection and consultation: KTI and the service providers monitor ticket sales data and the results of passenger counts, and receive official enquiries from local authorities, schools and large companies (as employers).
- Public consultation: Before timetables are introduced (typically every summer/autumn), a formal public consultation process is launched. During this process, members of the public and interest groups can comment on the proposed timetable changes via online platforms.
- Final approval: The KTI incorporates the public requests received and professionally vetted into the draft. The new domestic public transport timetable then becomes official following approval by the Ministry of Transport and the provision of funding.

- In the case of local public transport, these processes are carried out by the transport organiser mentioned above and are then approved by the local authority.

The issue of funding poses the greatest challenge to the sustainability of the system. In the case of inter-municipal transport, the difference between the revenue generated from scheduled services and the costs incurred is covered by the state, as the contracting authority. However, MÁV Passenger Transport Ltd. is unable to recover all its costs from the state, which exercises its ownership rights, and as a result, the service provider's infrastructure has deteriorated significantly over the years. It is not possible to carry out the necessary improvements using the company's own resources, these require the involvement of European Union funds, which have not been available in recent years.

In the case of local transport, the local authority covers the shortfall between revenue and costs. As, with the exception of Budapest, the provision of scheduled local transport is no longer a mandatory responsibility[4], the state has a say in setting fares[5], but its contribution to funding is minimal.

7. Ongoing Efforts and Challenges

Paksi Közlekedési Kft., which is responsible for transport services in the town of Paks, is currently focusing on two ongoing projects within the CDPA.

Its primary and key objective is to integrate MVM Paksi Atomerőmű Zrt., the town's largest employer, into the scheduled local public transport network. To implement this initiative, the company is seeking to secure EU funding in cooperation with the local council, as significant investment is required to ensure an appropriate service standard.

If the project is implemented, residents of Paks will be able to commute without the need to change services or use multiple operators. At the same time, local public transport will become a more attractive option for daily travel, meaning that passengers would no longer need to purchase separate season tickets for different services. As a result, it is expected that the share of public transport users may increase, thereby reducing congestion during peak commuting hours, which currently places a significant burden on the town's road network.

The second major task is to achieve the objective to be examined within the framework of the MUTABLE project, namely the integration of Paks's satellite settlements into the public transport network. As part of this project, we intend to explore several solutions, including ensuring that schoolchildren and nursery pupils can reach their educational institutions, and facilitating access for older people to services available in the town (healthcare, shopping, cultural activities). And, of course, we aim to ensure that all travel needs important to residents of satellite towns are met through public transport. In carrying out these tasks, it is necessary to examine both traditional scheduled public transport modes and the potential offered by demand-responsive transport.

The aim of the pilot activities implemented under the MUTABLE project is to address these challenges by testing and developing mobility solutions that are tailored to rural contexts and are user-centred.

[4] Section 14 of Act CLXXXIX of 2011 and Section 4 of Act XLI of 2012

[5] Government Decree No. 38/2024 (29 February)

C. Mobility Management in the Regional Context

1. Introduction of the Mobility Manager role

The introduction of the role of mobility manager presents an important opportunity to improve mobility coordination and strategic mobility planning within CDPA, and particularly in the Paks micro-region. This is due to the scattered, fragmented settlement structure with low population density and the transport difficulties faced by the ageing population. At the same time, however, as a result of the expected implementation of the power station investment, a significant influx of new residents is anticipated in the region over the coming years. Meeting their transport needs will also pose a serious challenge, particularly given that the development of the transport network - taking environmental considerations into account - is unlikely to expand significantly. Consequently, it will fall primarily to public transport to accommodate these additional mobility demands.

The role of the proposed mobility manager is to monitor these changes and to make the necessary recommendations to local authorities and transport operators.

Their role is to improve communication between stakeholders, assess mobility needs, and support the implementation of sustainable and user-centred mobility measures.

Within the framework of the MUTABLE project, the mobility manager will play an important role in supporting pilot activities relating to on-demand mobility services, as well as in strengthening cooperation between local authorities and other stakeholders involved in mobility planning and implementation.

2. Expected added value to the regional context

The role of the mobility manager could bring significant added value to the Paks micro-region, particularly as mobility services are not sufficiently coordinated.

One of the key benefits of this role is to improve coordination between the various stakeholders involved in mobility planning and service provision. The mobility manager can facilitate better communication between local authorities, transport operators, healthcare institutions, educational and social care organisations, cultural representatives and local communities.

Another important added value is a better understanding of local mobility needs, particularly in the case of older residents and other vulnerable social groups. Through direct communication with users and stakeholders, the mobility manager can help to develop mobility solutions that are better tailored to actual local conditions.

This role may also contribute to promoting sustainable and green transport – which has already been implemented in Paks – to supporting the implementation of pilot schemes, to developing services that better cater to users' needs, transferring best practices from other countries to the local authority within the framework of the project, preparing for future projects relating to public transport, further improving accessibility for vulnerable groups, and raising awareness of sustainable mobility options.

The mobility manager can also support long-term micro-regional mobility planning and contribute to the development of more integrated and sustainable public transport systems in the region.

3. Responsibilities and Opportunities

The mobility manager can carry out a range of operational and strategic tasks within the region. Their main responsibilities may include:

- Coordination between mobility stakeholders
- Communication with local authorities and the public
- Supporting the implementation of pilot projects
- Organising workshops and stakeholder meetings
- Collecting data relating to mobility
- Promoting sustainable mobility measures
- Identifying local mobility challenges
- Disseminating the project's results and best practices

The project also creates opportunities for the future development of integrated and innovative mobility solutions in the Paks micro-region. Potential future opportunities include:

- Expanding on-demand transport services
- Strengthening regional cooperation between local authorities
- Integrating digital mobility solutions
- Development of mobility hubs
- Better integration between different modes of transport
- The transfer of successful pilot initiatives to other local authorities and regions.

The experience gained within the MUTABLE project can serve as an important basis for future regional mobility planning and the long-term development of sustainable mobility systems in rural areas.

D. Transferability and Synergies

The conclusions gathered in the MUTABLE mobility supply analysis across Central Saxony in Germany, Tolna County in Hungary and the Pomurje Region in Slovenia show that rural and less densely populated regions face remarkably similar mobility challenges, even though their institutional frameworks, service models and implementation capacities differ. Across all three regions, private car use remains dominant and continues to shape everyday mobility patterns, reflecting dispersed settlement structures and limited alternatives.

At the same time, buses remain the basic public mobility offer and are therefore central to any strategy that aims to improve accessibility, reduce car dependency and strengthen social inclusion. However, the usability of bus services is often limited by reduced service levels outside peak hours, especially in the evenings, at weekends and during holidays. This limits the usability of public transport for daily life, not only for commuting. Therefore, the MUTABLE supply analysis confirms that mobility planning in rural regions must be closely linked to accessibility and social inclusion, rather than being understood solely as the provision of transport services.

Despite these shared challenges, significant differences can be observed in the maturity of policy frameworks, institutional structures and service models. Germany and Slovenia already show more advanced legal or strategic frameworks to support mobility planning, including funding mechanisms. Slovenia, in particular, is developing structured instruments such as Regional Mobility Centres, supported by national and European funding. In the Tolna County, the focus is linked to the practical integration of existing transport resources, f.e. the connection between employer-based transport and municipal public transport.

Governance emerges as a decisive factor to translate mobility objectives into concrete instruments, responsibilities and investment priorities. All three regions point to the need for stronger regional coordination, because mobility patterns do not stop at municipal borders. Mobility management requires a regional perspective, even when services are delivered locally.

The three regions also demonstrate that the approach does not necessarily lie in creating entirely new systems, but connecting existing services more effectively, closing operational gaps and making better use of existing resources. This applies both to operational integration, such as better connections between buses, rail and local services, and to institutional integration, including cooperation between municipalities, counties, transport operators, employers, civil society actors and, where relevant, national institutions.

Several best practice examples have been identified in the MUTABLE partner regions, demonstrating that rural mobility management can develop from different starting points and offering inspiration:

- In Central Saxony, the **Chemnitz Model** demonstrates the value of an integrated multimodal transport system by linking tram, rail and regional bus services into a coordinated network. The relevance of this model lies not only in the infrastructure itself, but in the principle of integration: services become more attractive when passengers experience them as one system rather than as separate modes.
- This principle is also reflected in the **call-a-bus service ("Rufbus")**, which operates within the regular line-based transport infrastructure in Central Saxony. Although the current model still has clear limitations, including the absence of a digital booking option and restricted service times, its integration into the existing public transport framework makes it a practical basis for further development.
- In the Tolna County, the **integration of employee transport for the Paks Nuclear Power Plant** into the municipal bus network shows how employer-based mobility can contribute to public transport efficiency, higher vehicle utilisation and reduced car dependency. Employer-based transport is often treated as a separate system, but it can become a

strategic asset for the wider region. The example is particularly relevant for regions with major employers, industrial sites or large institutions that already generate regular transport demand.

- In the Pomurje region, the **Prostofer service** for vulnerable groups shows the potential of community-based mobility solutions. By organising on-demand transport for vulnerable groups with the involvement of local citizens, the model addresses accessibility gaps that conventional public transport cannot always cover. Its value lies in combining mobility provision with local engagement and social support.
- In addition, Slovenia's network of **Regional Mobility Centres**, supported by national government and European funding, demonstrates how strategic capacity for mobility management can be institutionalised at regional level through specific policy instruments.

The transferability of these examples lies less in copying one specific model and more in adapting the underlying principles:

- Public transport should be planned as part of a wider accessibility strategy, not only as a transport service.
- Particularly for vulnerable groups or low-demand periods, flexible and on-demand solutions can complement regular public transport.
- Employers, municipalities and civil society should be considered active partners in mobility management rather than external stakeholders.
- Particular attention should be given to people who are at risk of mobility poverty, including older people, young people, people without access to a car and other vulnerable groups.

Concluding the joint MUTABLE mobility supply analysis, this underlines the need to move beyond a narrow focus on school and commuter transport and to understand mobility as a basic condition for independent living and equal access to essential services. Rural mobility improvement depends less on one single solution than on the ability to combine different instruments into a coherent system. Progress is possible when mobility is treated as a shared regional task and when existing structures are connected more effectively. A future-oriented mobility management approach should therefore focus on coordination, integration and accessibility, with the explicit goal of enabling participation for all population groups while reducing unnecessary dependence on the private car.

E. References

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