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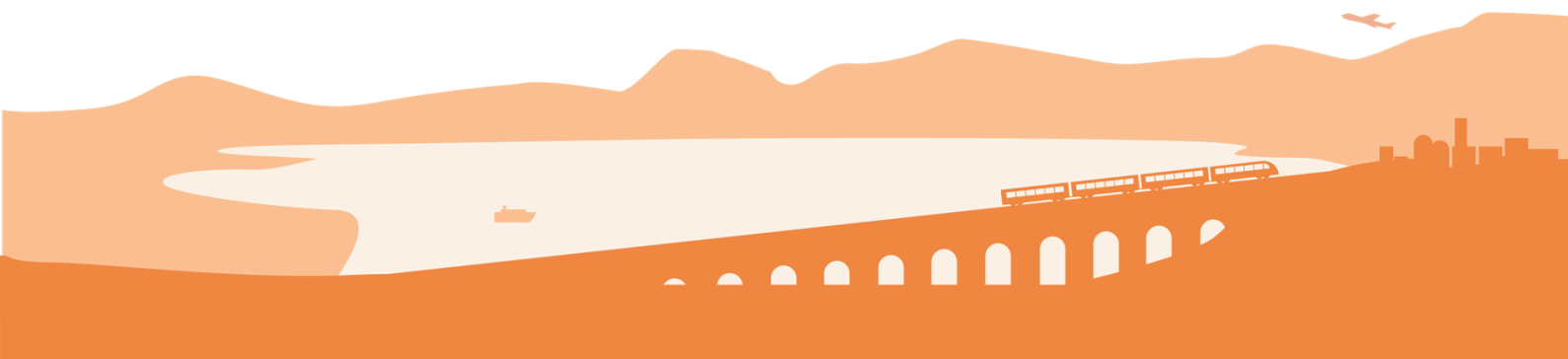
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WORK PACKAGE 2

VISION CO-CREATION BASED ON TRANSNATIONAL
COOPERATION

DELIVERABLE D2.4.2: Regional / local action plan
of Moravian-Silesian Region (CZ)

Version1
04/2026





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| AUTHOR(S) | ORGANISATION |
|-------------|--|
| Aleš Trnka | PP 6 - Moravian-Silesian Region (MSR) |
| Ulrich Leth | PP 2 - Technische Universität Wien (TU Wien) |

1. DELIVERABLE 2.4.2 overview

| | |
|-----------------------------|--|
| PROJECT TITLE | strengthening public Transport to enhance accessibility in rural central Europe |
| PROJECT ACRONYM | NUTSHELL@CE |
| PROJECT ID | CE0200933 |
| PROGRAM SPECIFIC OBJECTIVE | SO3.1: Improving transport connections of rural and peripheral regions in central Europe |
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| DELIVERABLE TITLE | D2.4.2 Regional / local action plan of Moravian-Silesian Region (CZ) |
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2. DELIVERABLE 2.4.2 description

Deliverable 2.4.2 describes the Action Plan for the Moravian-Silesian Region with an extended introduction on the background, the vision and strategy.



3. DELIVERABLE 2.4.2: Regional / local action plan of Moravian-Silesian Region (CZ)

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Background

Summary of existing goals from national/regional/local government documents

Quality of transport

The aim is:

- Removing barriers in public transport, public administration buildings, health and social facilities, schools and cultural institutions.
- Ensuring free and safe movement for people with disabilities, seniors, parents with children and other groups.

Regional document

- MORAVIAN-SILESIA REGIONAL PLAN FOR EQUALIZING OPPORTUNITIES FOR CITIZENS WITH DISABILITIES 2025

National document

- National Accessibility Programme for All (2026-2035).

Ecology of Transport

The aim is:

- Pilot projects for hydrogen buses and trains, especially in regions with high pollution.
- Building hydrogen filling stations, supporting the production of green hydrogen from renewable sources.
- The Moravian-Silesian Region is currently dealing with the selection of a suburban transport provider with the aim of providing 4 hydrogen buses on the Havířov - Ostrava route.

Regional document

- STRATEGY FOR THE DEVELOPMENT OF HYDROGEN TECHNOLOGIES IN THE MORAVIAN-SILESIA REGION FOR 2024-2034

National document

- Hydrogen Strategy of the Czech Republic (issued 06/2024).

Organization of Transport

The aim is:

- Efficiency and regularity - minimizing waiting times, optimizing routes and timetables.
- Passenger safety - technical condition of vehicles, camera systems.

- Economic sustainability - effective use of public finances.

Regional document

- Transport Service Plan of the Moravian-Silesian Region

National document

- Act No. 194/2010 Coll., on Public Passenger Transport Services and on Amendments to Other Acts - imposes the obligation to create a plan
- Act No. 129/2000 Coll. on Regions stipulates that the region has the right to provide transport services within its independent competence.

The Transport Infrastructure Development

The aim is:

- Satisfactory parameters of roads - lanes, width arrangement of roads according to their function and traffic intensity
- Suitable parameters of stops and stations
- Maintenance of roads in winter

Regional document

- Winter Road Maintenance Plan - Moravian-Silesian Region (2024/2025)

National document

- CZ state Norm no. 73 6110 Designing of local roads
- Decree No. 501/2006 Coll., on General Requirements for the Use of Land
- CZ state Norm no. 73 6425-1 Bus, trolleybus and tramway stops, interchanges and stations - Part 1: Design of stops'
- Decree No. 398/2009 Coll. on the barrier-free use of buildings

Development of Tariff integration

The aim is:

- One common tariff for different types of public transport, regardless of the customer and carrier

Regional document

- ODIS (integrated transport system ODIS in the Moravian-Silesian Region) tariff
- ODIS Contractual Conditions of Carriage

National document

- Unified Czech fare system OneTicket

- EU Regulation No. 1370/2007 and methodological and procedural instructions of the Ministry of Transport of the Czech Republic on compensation of discounts.

Description of PTSQC Status Quo Analysis

Public Transport Services and Regional Context

The following public transport services are identified in the broader Moravian-Silesian region: international and long-distance train services (Supercity, IC, RegioJet, Rychlík, REX), slower regional trains, express bus services, the urban transport system of Ostrava (Městská doprava Ostrava), and other regional and rural bus services.

The transport classification diagram shows that **rail-based services represent the highest-capacity category** [Table 1], while urban trams and city buses in Ostrava form the backbone of local accessibility in metropolitan areas. The frequency matrix demonstrates that the shortest headways (<10 minutes) are associated mainly with trunk rail lines and inner-city tram corridors. Lower-frequency services dominate in rural and border regions.

On the national scale, the network diagram highlights that long-distance railway services follow a **north-south corridor connecting the Polish border with inner Czechia via Olomouc**. This axis appears as the dominant accessibility spine of the region and explains Ostrava’s role as a transport node of supra-regional importance.

| Average course interval | Highest ranked transport means of the transport station | | | |
|-------------------------|---|--------------------------------|--|-------------|
| | Supercity, IC, Express, Rychlík, REX | Regional trains, Express buses | Trams, regional and city buses (Mestska doprava) | Other buses |
| <10 min | I. | I. | II. | III. |
| 10–20 min | I. | II. | III. | III. |
| 20–30 min | II. | III. | IV. | IV. |
| 30–60 min | III. | IV. | V. | V. |
| 60–120 min | IV. | V. | VI. | VI. |
| 120–180 min | V. | VI. | VII. | VII. |
| 180–240 min | | VII. | VIII. | VIII. |
| >240 min | | | | |

Table 1. PTSQC stop categories in the pilot area (PP6)

Pilot Area and Transport Station Distribution

Although the classification scheme covers the broader Moravian-Silesian region, the actual **geographical scope of this study is restricted to the micro-region of Město Albrechtice - Osoblaha - Jindřichov**, located along the Polish border in northern Moravia [Figure 1].

Within this micro-region, only **regional trains and rural buses** are relevant. The station distribution map shows sparse infrastructure, with stations concentrated mainly in a few local centers and largely absent from significant parts of the territory. Compared to Ostrava and the regional core, this border zone exhibits structurally weaker network density and limited modal choice.

| QC | Quality description | Spatial classification |
|----|--|---|
| A | Highest-ranking public transport development | urban |
| B | High-ranking public transport development | urban |
| C | Very good public transport connections | urban/rural, public transport axes, public transport hubs |
| D | Good public transport connections | urban/rural, public transport axes, public transport hubs |
| E | Very good basic accessibility | rural |
| F | Good basic accessibility | rural |
| G | Basic development | rural |

Table 2. Quality classes with quality description and spatial allocation

| Transport station category | Distance to transport stop | | | | |
|----------------------------|----------------------------|-------------|-------------|--------------|---------------|
| | 0 - 300 m | 301 - 500 m | 501 - 750 m | 751 - 1000 m | 1001 - 1250 m |
| I. | A | A | B | C | D |
| II. | A | B | C | D | E |
| III. | B | C | D | E | F |
| IV. | C | D | E | F | G |
| V. | D | E | F | G | G |
| VI. | E | F | G | | |
| VII. | F | G | G | | |
| VIII. | G | G | | | |

Table 3. Public transport station accessibility

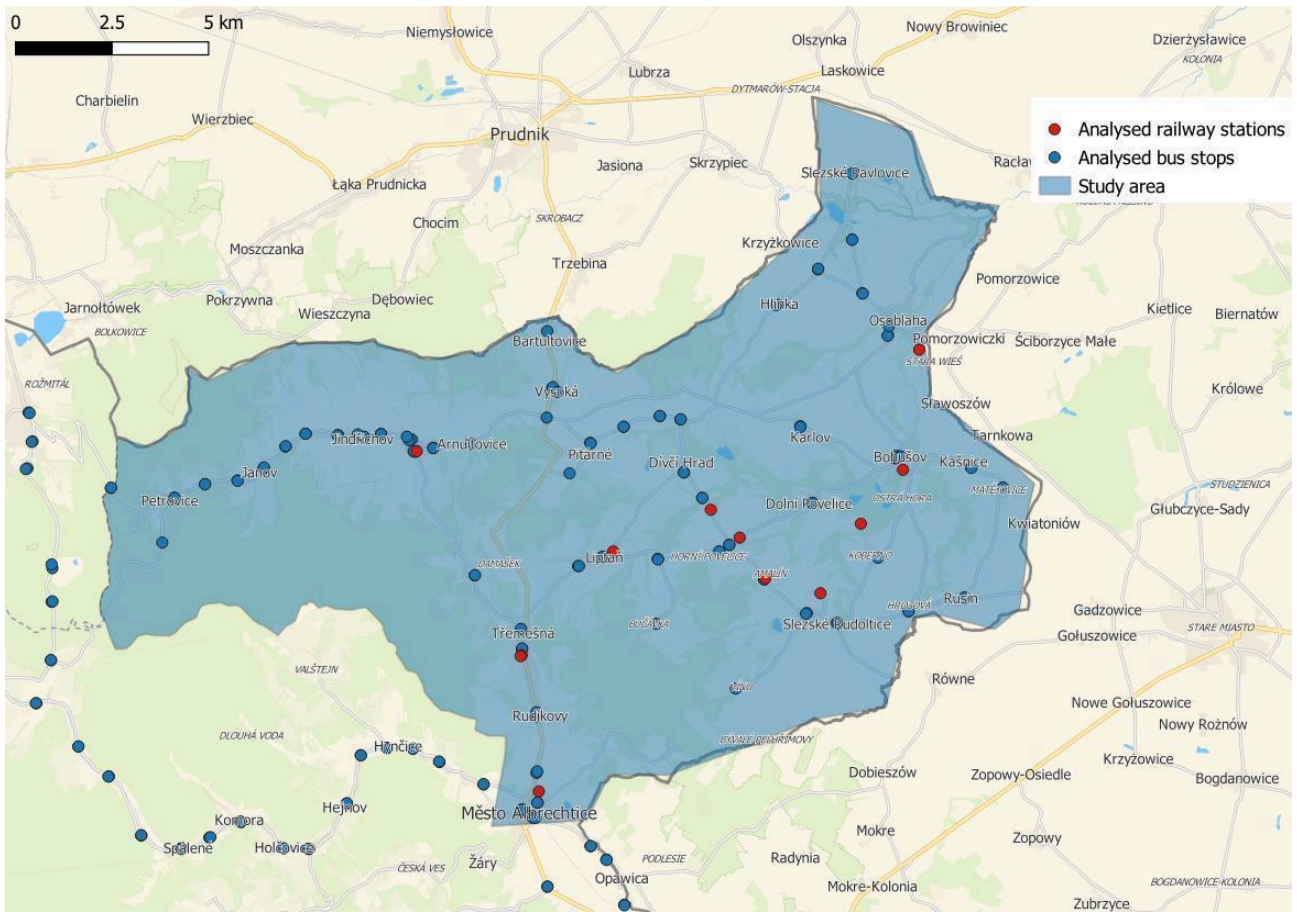


Figure 1. PT stops in the pilot area (PP6) based on GTFS sources

Population Distribution in the Pilot Area

Based on our results, the population map [Figure 2] depicts a predominantly rural, corridor-and-nodes settlement structure with small clusters concentrated around village centers and along local routes. There is no large metropolitan core within the sample; instead, categorized populations appear as compact “beads” near small towns such as Mesto Albrechtice; villages (Třemešná, Osoblaha, Jindřichov and Arnultovic) and local hamlets (eg. Liptan, Dívci Hrad, Slezské Pavlovice), with extensive hinterland displaying low categories or gaps.

According to the legend, population totals by category are as follows (in descending order of population size): **F: 1,421, G: 1,270, E: 1,231, D: 102, C: 51**. Without categorization: 3,490. The unclassified figure is sizeable compared with the categorized totals, implying that a large share of residents live outside mapped/assigned PTSQC catchments (or where categorization is unavailable).

Interpreting these values, the sample is clearly **not A/B-dominant**: the largest groups are in lower categories (F/G/E), consistent with dispersed rural settlement and small-town contexts. Accessibility enhancements may therefore be most effective if they focus on improving service frequency, coverage, and interchange quality along the few principal corridors and at secondary nodes, rather than intensifying a non-existent high-accessibility urban core.

Due to the lack of high-capacity modes and infrequent services, the highest PTSQC category reached in the study area is **category C** which appears only as small cluster in Třemešná, as evident from the zoning map where higher-quality accessibility is restricted to a narrow belt near the station area. Consequently, category D only cover a limited fraction of the area of Třemešná and Jindřichov also due to its proximity to the railway station. The prevalence of lower PTSQC categories (E-G) reflects structural conditions such as limited service frequency, small settlement size and the absence of high-capacity transport modes, rather than shortcomings in local transport provision. The maps also reveal that housing areas expand beyond reach of quality public transport, which contributes to mobility dependency on private vehicles.

Isochrone maps confirm that accessible areas are highly localized and that **most of the region lies outside short-distance walking catchments** of any major station. Transport availability decreases drastically outside the immediate surroundings of railway and bus stops.

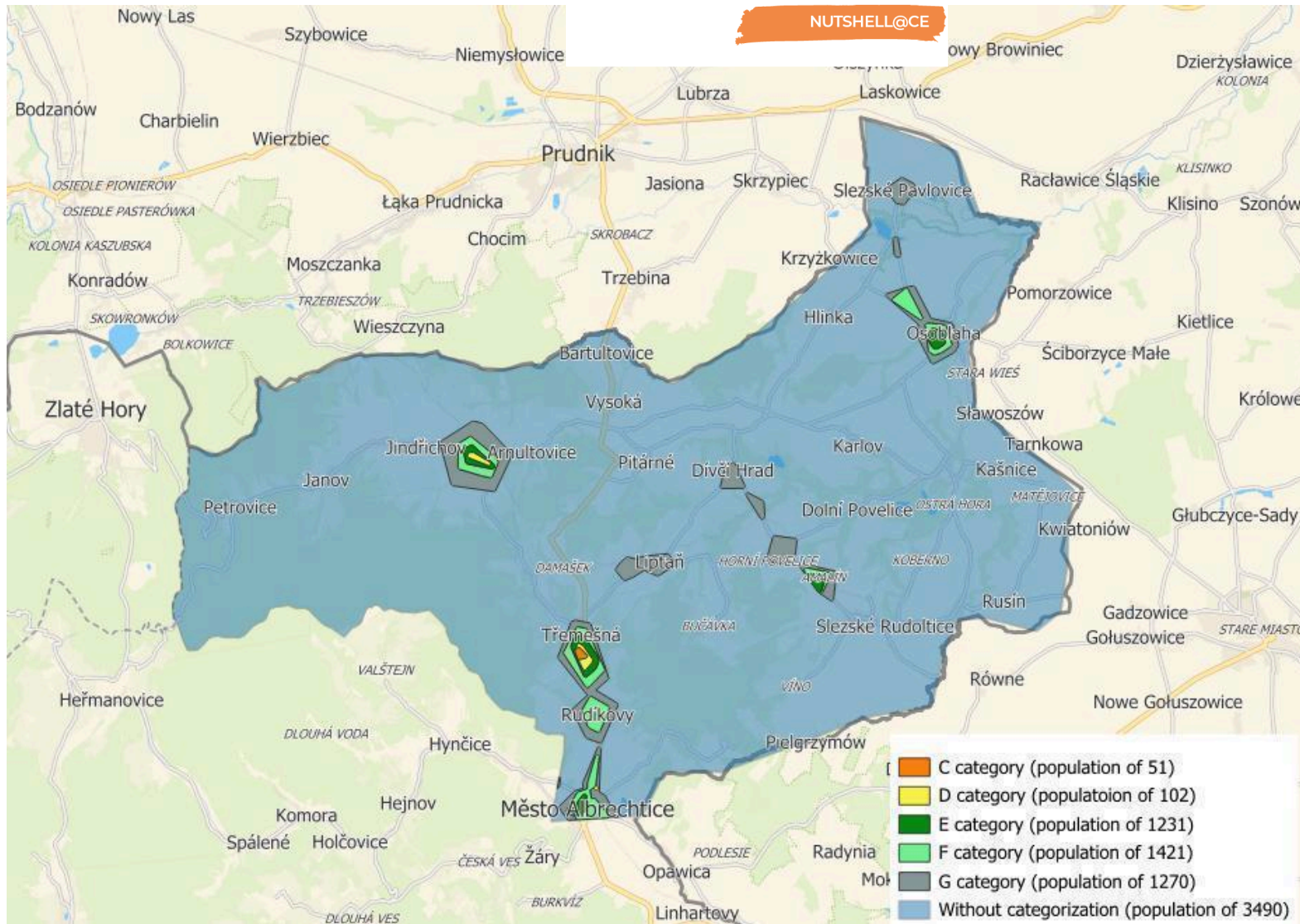


Figure 2. Population distribution of the pilot area (PP6) based on PTSQC categories

Overlay analysis demonstrates that

- the entire population lives in rural areas (in addition to the absence of categories A and B, only a negligible population lives in categories C and D)
- **almost half of the population lives outside the proximity of relevant public transport stations.** The fact that a substantial share of the population lives outside the proximity of public transport stations may have social and mobility implications, including higher reliance on private cars and reduced accessibility for transport-dependent groups.

These visualizations [Figure 3 and 4] both confirm that higher-density population cells are often located in low-quality accessibility zones, reinforcing the structural mismatch between settlement patterns and infrastructure.

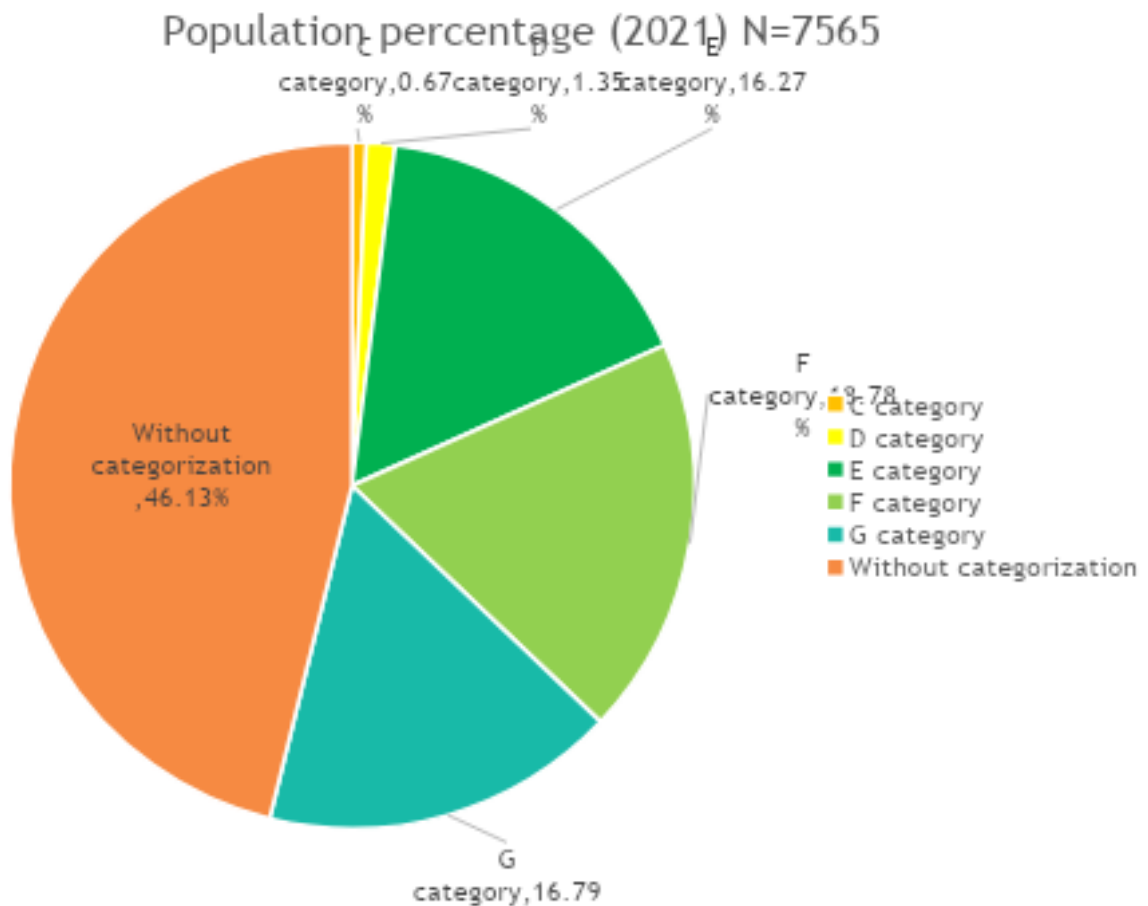


Figure 3. Population percentage in the pilot area (PP6)

Population Density and Public Transport Access

The population density map [Figure 4] shows a compact, low-to-medium-density cluster anchored at Město Albrechtice on the southern edge of the study-area boundary, with a rapid attenuation into the surrounding rural matrix.

Along the central valley belt from Třemešná through Liptaň and Dívčí Hrad toward Slezské Rudoltice, chains of medium-tone cells outline narrow linear settlement corridors aligned with local morphology and transport spurs. Secondary concentrations at Třemešná, Jindřichov, Liptaň, Dívčí Hrad, Slezské Rudoltice, and Bohušov appear as compact, yet discontinuous patches embedded within a low-density rural matrix. Across the low uplands and border ridges (the Hlinka-Rusín-Pitárné arc), the density field fragments abruptly across slope breaks and watershed divides, indicating strong topographic control on settlement continuity.

Isochrones (C-G) show modest coalescence near Město Albrechtice and short valley segments but disaggregate into small islands across the hills – consistent with sparse occupancy and longer travel times.

Recommendation: in the pilot area, the settlements to be developed in terms of public transport are mainly those where the population density is higher than average, but which are no longer classified as PTSQC: Janov, Jindřichov, Vysoká, Slezské Rudoltice, Rusín, Bohušov, and Hlinka.

Industrial-Commercial Areas and Public Transport Access

No industrial or commercial areas fall inside the studied micro-region. This fact is confirmed by the Corine land-cover overlay, which shows the nearest economic zones located outside the study boundaries.

As a result, no spatial interaction could be examined between employment zones and accessibility categories, and transportation demand within the region is primarily driven by residential and cross-border travel rather than local industrial activity.

Accordingly, the accessibility results mainly reflect residential and cross-border travel patterns rather than employment-related mobility and should therefore be interpreted primarily in relation to everyday residential accessibility and cross-border movement dynamics.

According to the Transport Study, the Osoblažsko region shows a high level of social exclusion in the field of mobility:

- Walking distance: 32% of the population is outside the comfortable limit of 400 m.
- Commuting: The dominant directions are Krnov (50%) and the town of Albrechtice (33%).
- Infrastructure: The area is sparsely populated (35 inhabitants/km²), which makes fixed lines inefficient.
- Conclusion of the analysis: The current system of "fixed" timetables does not meet the needs of the population for access to doctors and services (3,000+ people affected by transport poverty have been identified).

Punctuality & Reliability

- Although fixed lines run according to schedules, their frequency is so low that any outage or missed connection (especially at the Třemešná junction) means a loss of mobility for several hours for the citizen.
- Reliability is limited by a rigid timetable that does not respond to real demand.

T - Travel time

- The journey to the catchment centers (Krnov, Město Albrechtice) takes a disproportionately long time due to the detours of large buses and the need for transfers.
- Inefficient routing prolongs the stay of passengers in vehicles, which discourages the use of VHD.

S - Safety & Security

- Within the existing fixed lines, the safety deficit is seen mainly in the risky walking at distant and unlit stops and in the absence of guaranteed mobility in the event of a connection failure. Fixed lines fail to provide secure access to the service itself (so-called last-mile security).
- The standard VHD does not provide specific safety needs for families with children and lacks a "drop-off guarantee" at marginal times.

Q - Quality of Service

- Comfort is defined by walking distance. Study says that 32% of the population walk to a bus stop more than 400 m.
- Low comfort of "last mile" operation. The fleet is oversized (large buses for 2 people), which makes it uneconomical and uncomfortable in the narrow streets of the villages.

C - Cost & Accessibility

- Although the tariffs are perceived as cheap (output from the workshop), the physical availability is very poor. 3,000 people live in "deserts of service".
- The service is cheap, but physically unavailable for a large part of the population (seniors, disabled) without the help of a family or car.

Vision and Strategy

Local/regional vision

The local/regional vision of the Moravian-Silesian Region is to ensure accessible, equitable, and sustainable mobility that enables residents of rural and peripheral areas to have fair access to key services and opportunities..

Principles

- accessibility and equity
- efficiency
- sustainability
- safety
- fiscal realism
- resilience

The vision was defined through 5 NUTSHELL priorities:

1. Efficiency (Priority 1)

Setting up the service with an emphasis on optimizing routes and time demands on rides, minimizing unnecessary crossings and efficient use of public funds.

2. Security (priority 2)

Ensuring basic safety standards (e.g. booster seat, car seat) that are important for trust in the service.

3. Multimodality (priority 3)

The possibility of future connection to other transport systems (e.g. IDOS, tariff integration), which is technically feasible but not subject to the pilot phase.

4. Digital School-Leaving Exam (Priority 4)

Respect for the different digital literacy of users - preference for telephone ordering over self-service kiosks; the requirement for the possibility of cashless and cash payments. The involvement of information centers is not expected in the pilot.

5. Fiscal realism (priority 5)

Setting up a pilot project with regard to long-term financial sustainability and the real potential for continuation or expansion after its completion.

Attributes

| Atribut | Fleet size 1 |
|---|--------------|
| Number of cars | 1 |
| Number of rides offered (month) | 240 |
| Number of occupied seats (month) | 260 |
| Alternative travel times offered [%] | 8 % |
| Delay frequency [%] | 10 % |
| Average delay [min] | 3 |
| Maximum permitted travel delay [min] | 20 min |
| Crossing Loss [%] | 55 % |
| Average attendance time [min] | 2 min |
| Ticket price [CZK] | 20 |
| Monthly sales [CZK] | 5 600 |
| Number of operating days | 20 |
| Number of operating hours | 12 |
| Cost per hour of operation [CZK] | 600 |
| Monthly costs [CZK] | 144 000 |
| Costs after deduction of sales [CZK] | 138 400 |

Table4 - KPI

Development scenarios

- Scenario A: adjustment of existing lines
- Scenario B: hybrid model
- Scenario C: Demand Responsive Transport (DRT)

Preferred scenario

The preferred solution is Scenario C - Demand Responsive Transport (DRT), which best responds to the needs of the territory.

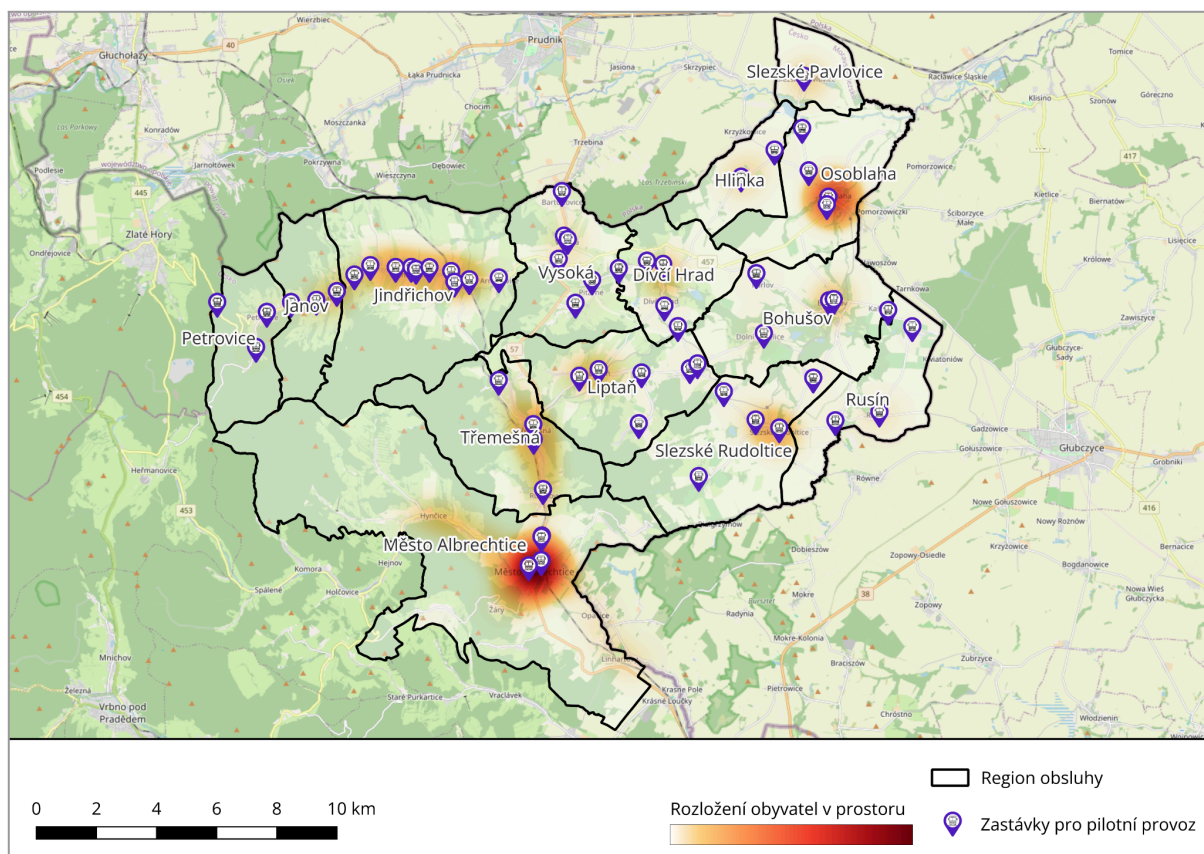


Figure 5. Service region and virtual stop network for scenario 1

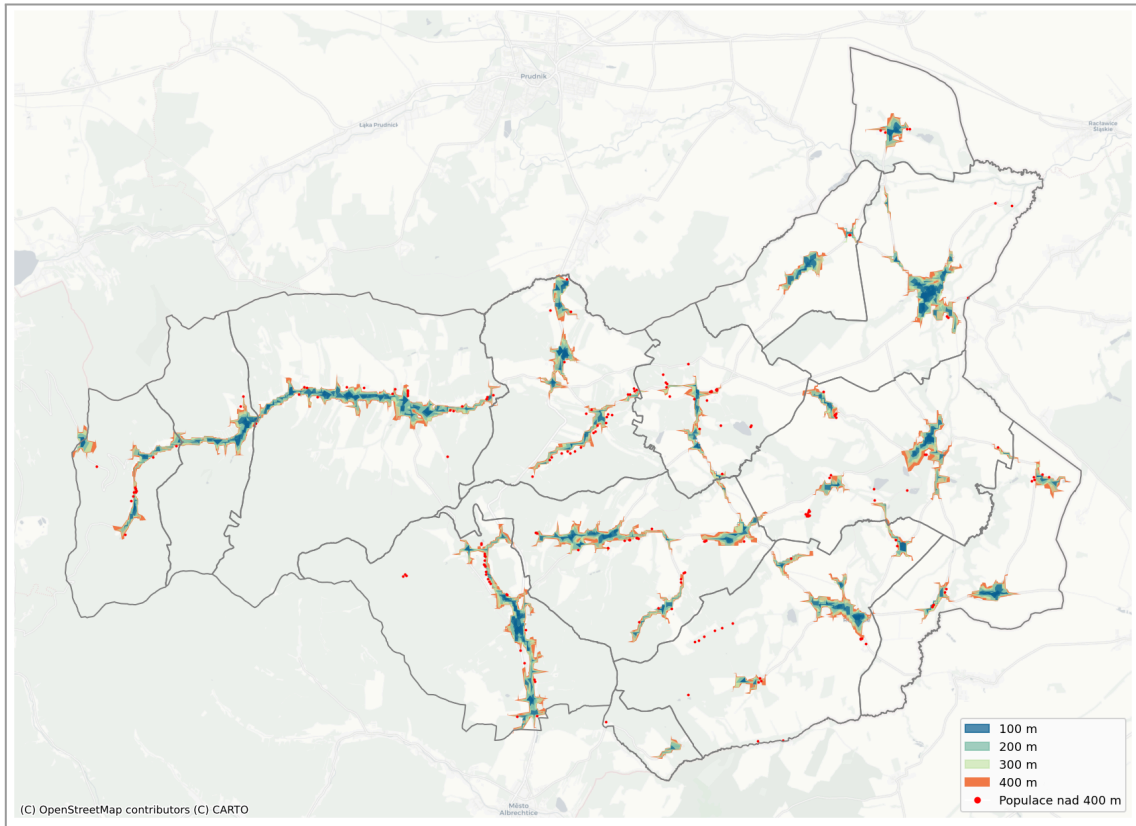


Figure 6. - Walking distance 100 to 400 m

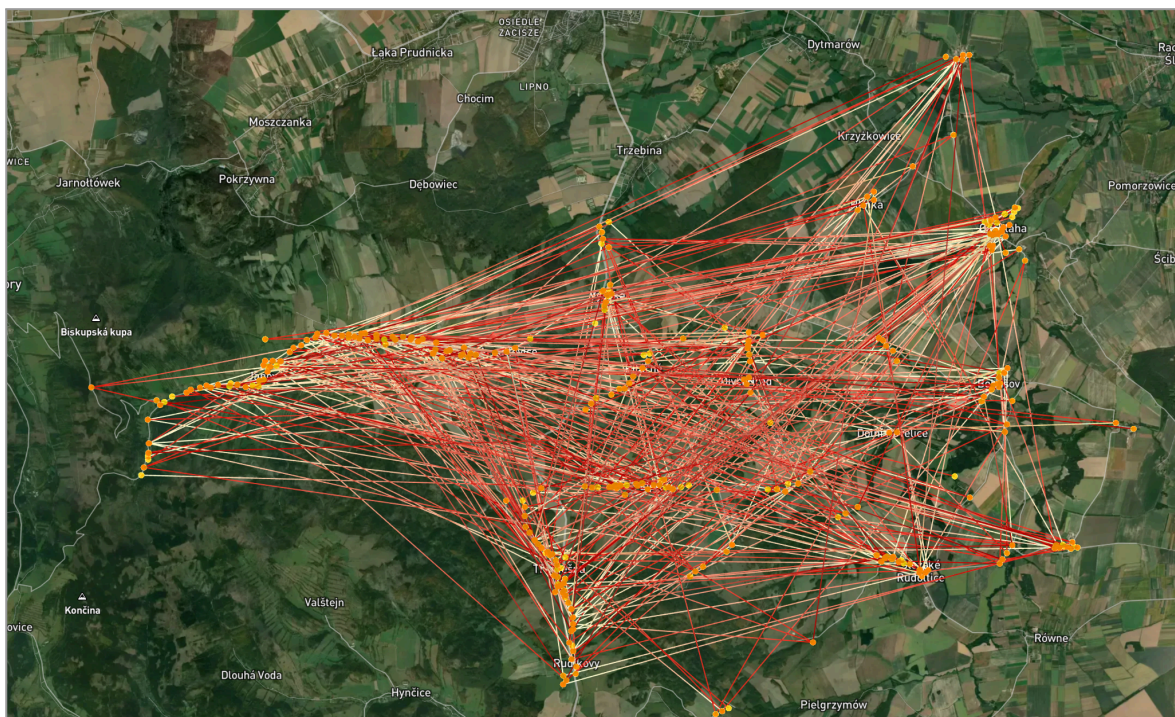


Figure 7. - Data simulation of scenario no. 1

Action plan

Planned launch of pilot activity is from May 1, 2026 to the end of October and is focused on verifying the demand system in real conditions of the Osoblaha region using minimal resources. The operation is designed in the range of 12 hours a day (weekdays 7:00 a.m. - 7:00 p.m.) with the deployment of one vehicle of category M1 (up to 4 people), while the boarding points are limited to the existing public transport stops at this stage. With a fixed tariff of CZK 40 (or CZK 20 for advantaged groups) and an average waiting time of between 12 and 17 minutes, this scenario aims to provide a fiscally sustainable alternative to underused fixed connections, provide service to socially vulnerable groups and prepare data for the future transition to a more comprehensive model with virtual stops and wider Point-to-HUB connectivity.

Pilot project

- location: Osoblaha region
- duration: from May to October 2026
- operation: weekdays 7:00-19:00
- capacity: 1 vehicle.

Measures

Measure 1 - Pilot implementation

Objective: to test the system in real conditions

The aim of the pilot implementation is to test the functionality and feasibility of demand-responsive transport (DRT) under real operating conditions in 14 municipalities of the Osoblažsko microregion. The measure aims to verify an alternative, flexible approach to public transport provision in sparsely populated rural areas, where conventional services on fixed routes are often inefficient.

The pilot project introduces a reservation-based on-demand transport service that connects smaller municipalities with each other and transport hubs, bus and rail lines. The system operates according to the actual demand for travel and allows users to access backbone public transport services at the time they need, rather than being strictly bound by fixed timetables.

The Moravian-Silesian Region (MSK) as the contracting and permitting authority for public transport provides the institutional and financial framework for the pilot project. KODIS, as the regional public transport authority (PTA), is responsible for the

operational coordination and future integration of the service into the regional transport system (ODIS) and ensures its transferability to real conditions.

The pilot project evaluates both user and operational aspects, including service use, user acceptance, improved accessibility and cost-effectiveness. Special attention is paid to transport disadvantaged groups and sparsely populated areas with limited public transport coverage.

The expected outcome is to provide evidence on whether DRT can improve everyday mobility, increase quality of life, support local socio-economic development and serve as a scalable solution for other rural regions.

Measure 2 - Operational framework

Objective: to minimize risks

The operational framework defines the conditions for the safe, efficient and reliable implementation of the Demand-Responsive Transport (DRT) pilot project. Its main objective is to minimise the operational, financial and user risks associated with the introduction of a new transport service in a rural environment.

The framework sets out clear rules for the design of services, including operating zones, operating hours, booking procedures and integration with existing public transport services. It also defines the roles and responsibilities of key actors, with the Moravian-Silesian Region (MSK) providing the regulatory and contractual setting and KODIS as the regional public transport authority (PTA) responsible for operational coordination within the ODIS system.

A key component is the implementation of a booking and dispatching system (via a mobile application and/or operator) that enables efficient journey planning and service management in real time. This system supports demand aggregation, route optimisation and alignment with major transport links.

Risk mitigation measures focus on ensuring service reliability, accessibility for users and financial sustainability. These include a phased rollout of services, ongoing demand and performance monitoring, user support (including non-digital access), and adaptive service parameters based on real-time data.

The framework also includes evaluation and feedback mechanisms that allow for ongoing adjustments during the pilot phase. This ensures that identified risks - such as low user uptake, operational inefficiencies or integration issues - can be promptly addressed.

Overall, the operational framework provides the necessary structure to ensure that the pilot project is implemented in a controlled, scalable and transferable

manner, supporting its potential long-term integration into the regional public transport system.

Measure 3 - Communication

Objective: to ensure public awareness

The communication framework aims to ensure a high level of public awareness, understanding and acceptance of the Demand-Responsive Transport (DRT) pilot project in the Osoblažsko microregion. Effective communication is essential to support user outreach, reduce uncertainty associated with the new service model and ensure its successful implementation.

The measure focuses on providing clear, accessible and targeted information on how the service works, who it is intended for and how it can be used in practice. Communication activities are tailored to different target groups, with a particular focus on local residents, including seniors and digitally excluded users, as well as municipalities and other local stakeholders.

A combination of electronic communication channels is used, including face-to-face meetings with the mayor, leaflets, use of municipal notice boards. Special attention is paid to practical instructions in the form of a personal presentation on booking procedures (via mobile application and/or operator), service conditions and integration with existing public transport services.

The communication strategy also includes ongoing interaction with stakeholders and users during the pilot phase. Feedback mechanisms such as surveys and direct user input are used to identify barriers to use and to improve service design and communication effectiveness.

The Moravian-Silesian Region (MSK) coordinates communication activities at a strategic level, while KODIS supports operational communication and ensures consistency with the regional transport system (ODIS). Local municipalities play an important role in disseminating information and building trust within the community.

Overall, the measure aims to build user trust, promote active use of the service and create positive perceptions of innovative mobility solutions, thereby supporting the long-term sustainability and scalability of the DRT system.

Measure 4 - Data collection

Objective: to evaluate the pilot

The data collection framework is designed to systematically monitor and evaluate the performance, impacts and user acceptance of the Demand-Responsive Transport (DRT) pilot project in the Osoblažsko microregion. Its primary objective is

to provide reliable and evidence-based insights to assess the effectiveness of the pilot project and support future decision-making.

The measure focuses on the collection of both quantitative and qualitative data. Key operational indicators include the number of users, travel demand, frequency of connections, waiting and travel times, number of rejected requests, vehicle utilization and spatial patterns of service use. This data is collected primarily through a reservation and dispatching system that allows for continuous real-time traffic monitoring.

In addition to operational data, user-related information is also collected to assess satisfaction, usability and barriers to adoption. This includes passenger feedback through interviews.

The collected data is analysed in relation to the baseline conditions and supported by analytical tools such as the PTSQC methodology, which allows for the evaluation of changes in the availability and coverage of services. This allows for a structured assessment of whether the pilot project contributes to improved mobility, better access to services and an increase in the quality of life in the region.

The Moravian-Silesian Region (MSK) oversees the evaluation process, while KODIS ensures the availability and consistency of operational data in the ODIS system. The results are regularly reviewed and used to adjust service parameters during the pilot phase.

Overall, the data collection framework ensures a comprehensive assessment of the pilot project, identifying strengths and weaknesses and the potential for further development and replication in other rural areas. An evaluation study will be prepared at the end of the pilot operation.

Operational KPIs

| KPI | Target |
|--------------------------------------|-----------|
| • Number of rides (per day) | 12 |
| • Number of occupied seats (per day) | 14 |
| • Requests not served within 45 min | <10% |
| • Average waiting time | ≤20 min |
| • Average daily revenue | monitored |

| | | | |
|-----------------|--|-------------|------------|
| Pilot operation | Implementation of the pilot operation according to the | MSR / KODIS | 04-09/2026 |
|-----------------|--|-------------|------------|

| | | | |
|----------------------------|--|---------------------|-----------------------------|
| | preferred scenario | | |
| Operating framework | Set up service scope and operating rules | MSR / KODIS | Before Starting |
| Digital solutions | Operation of the passenger application and ordering system | CITYA | Before Starting + Pilot |
| Data support | Data collection and preparation for pilot evaluation | CITYA | during the pilot's lifetime |
| Pilot evaluation | Interim and final evaluation of the pilot phase | MSR / KODIS / CITYA | after 3 and 6 months |
| Communication | Informing municipalities and the public | MSR / KODIS / CITYA | Continuously |

Table 5: Responsibility Matrix

Methodological recommendations for the completion of outputs

Based on the nature of the pilot project and the outputs of the workshop, the following methodological recommendations are formulated:

- We recommend evaluating the pilot operation in two time horizons - after 3 months (continuous evaluation) and after the end (final evaluation).
- The success of a pilot should be assessed primarily in terms of service availability, operational stability and real use, not only according to economic indicators.
- We recommend considering the expansion of the service (e.g. virtual stops, wider operating hours, connections to other transport systems) only on the basis of verified operational data from the pilot phase.
- Multimodality and tariff integration should be understood as a follow-up phase of the project outside the direct scope of the pilot operation.