



Development of railway infrastructure in connection with the settlement structure in the Wrocław metropolitan area exemplified by a selected railway line – case study.

Summary of the results of measure 4.2.3

Imprint

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1 Goal and structure of the study

The study was divided into two parts.

The basic goal of part I was to conduct the general analysis in the scope of:

- Existing infrastructure of railway transport in order to determine the potential of the railway network against the background of population changes in the Wrocław metropolitan area,
- Demand for railway services with the opportunity to introduce additional passenger flows,
- Identification of the selected railway line for detailed analysis as part of the case study in part II on the basis of the SWOT analysis.

The goal of part II of the study was to conduct the detailed analysis, the case study, for the railway line selected in part I within the scope of:

- Identification of opportunities and benefits stemming from the activation of public railway transport as an alternative means of passenger transport in the Wrocław metropolitan area,
- Directions of development of the railway line impact area.

As a strategic document concerning the determination and utilisation of the potential of railway network in the context of launching passenger transport against the background of population changes in the Wrocław functional area and on the basis of a specific railway line, the case study may become an example for self-government authorities, railway operators and other entities functioning in the railway transport area with regard to the possibilities of execution of policy concerning the development of sustainable railway transport in the Wrocław metropolitan area, as well as the method of creation of functional and spatial structure in the railway line vicinity.

What is also essential is the social and economic aspect related to the effective functioning of railway transport that involves the creation of suitable conditions for increasing the mobility of the inhabitants of a given area in the context of improvement of their access to work places, schools or various services. To this end it is necessary to guarantee the adequate maintenance parameters of the railway line, raise the supply of offered transport services and improve the efficiency of collective transportation that conditions the appropriate quality of regional connections.

2 Area of study

The area of study is the Wrocław metropolitan area that, by agreement, covers the following districts: Wrocław, Strzelin, Oława, Oleśnica, Milicz, Trzebnica, Wołów, Środa Śląska and the City of Wrocław. The analysis was expanded with three directions: Świdnica, Legnica and Brzeg.

3 Functional and spatial analysis of selected railway lines

The analysis covered the following railway lines:

- a) Wrocław – Oborniki Śląskie – Żmigród – Korzeńsko,
- b) Wrocław – Trzebnica,
- c) Wrocław – Oleśnica – Milicz – Cieszków,
- d) Wrocław – Oleśnica – Twardogóra – Międzybórz,
- e) Wrocław – Oleśnica – Syców,
- f) Wrocław – Oleśnica – Bierutów,
- g) Wrocław – Dobrzykowice – Jelcz Laskowice,
- h) Wrocław – Siechnice – Jelcz Laskowice – Biskupice,

- i) Wrocław – Oława – Brzeg,
- j) Wrocław – Strzelin – Biały Kościół,
- k) Wrocław – Sobótka – Świdnica,
- l) Wrocław – Kąty Wrocławskie – Mietków,
- m) Wrocław – Miękinia – Środa Śląska – Malczyce – Legnica,
- n) Wrocław – Brzeg Dolny – Wołów – Małowice.

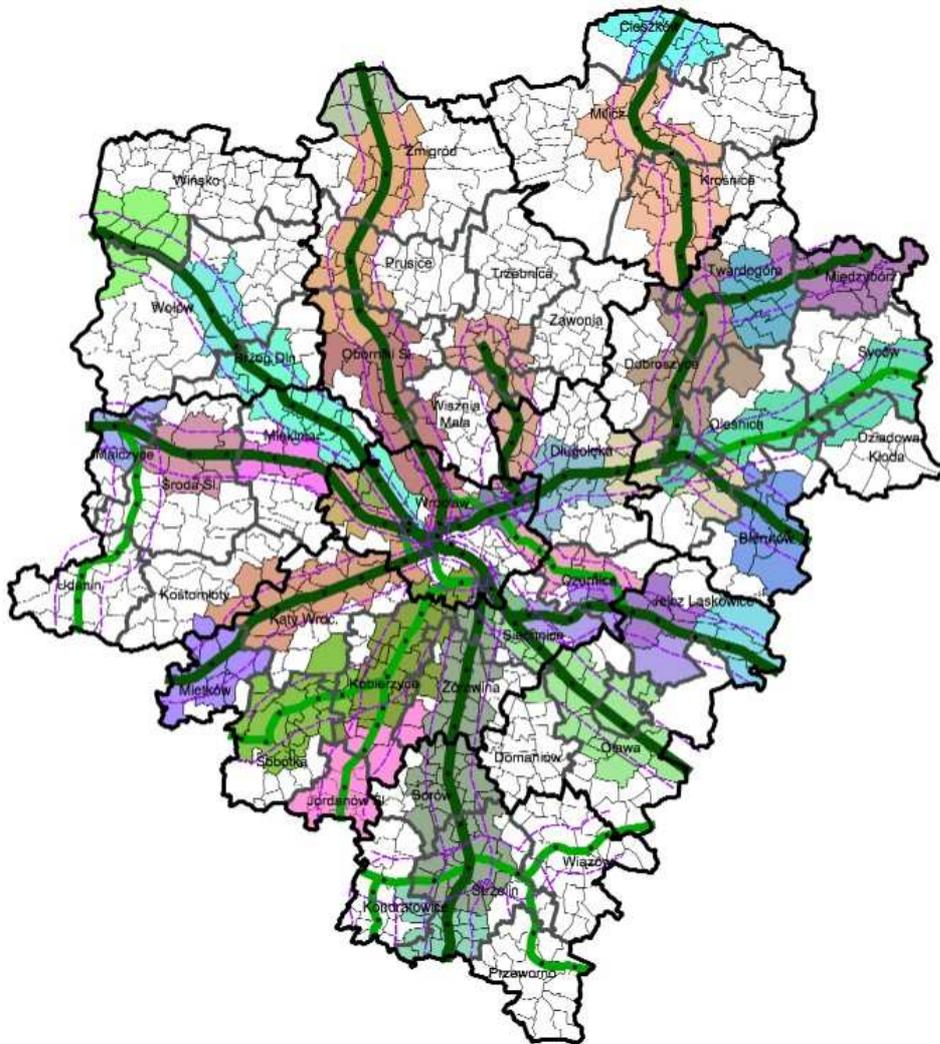


Figure 1 Railway lines in the Wrocław metropolitan area subject to analysis

The study involved:

- a) Analysis of spatial management of the area,
- b) Review of investment plans concerning roads and railways within the area of study,
- c) Competitiveness analysis,
- d) Current demand analysis,
- e) Analysis of population changes.



Figure 2 Planned road and railway investments

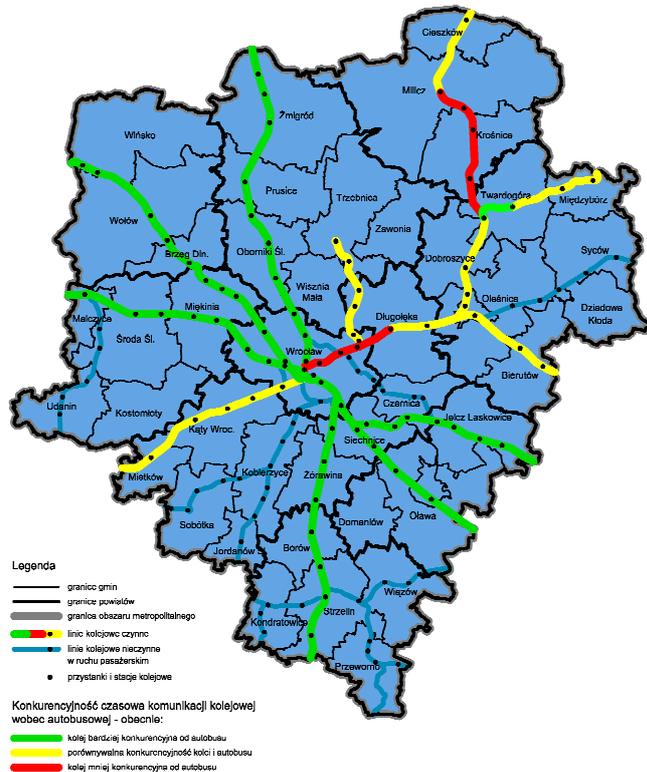


Figure 3 Comparison of the present competitiveness of railway and bus transportation

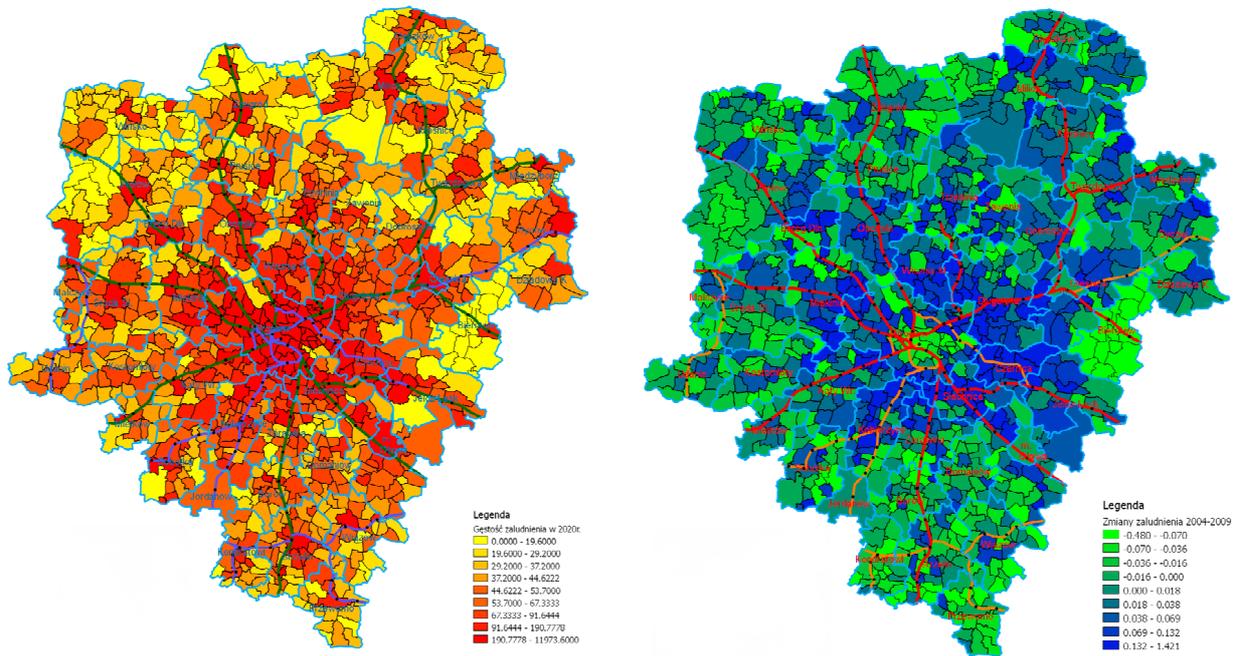


Figure 4 Demographic analyses

4 Selection of railway line for further analysis

In order to assess the railway lines situated in the Wrocław metropolitan area analysis was carried out on the basis of ten key criteria. They characterise the area along the line specifying:

- a) Population potential,
- b) Economic potential/ economic activity,
- c) Connection revitalisation impact potential with regard to unemployment reduction,
- d) Accessibility of railway services,
- e) Connection rank in the plans of infrastructure provider,
- f) Number of existing and potential transfer nodes,
- g) Economic potential of station buildings,
- h) Reduction of negative environmental impact as a result of revitalisation of analysed railway connections,
- i) Cross-border dimension of the venture,
- j) Spatial management.

The population potential of the area along a given railway line was determined to be the criterion of utmost importance. The accessibility of railway services is also a factor of great importance in the context of the present and potential usage of passenger carriages.

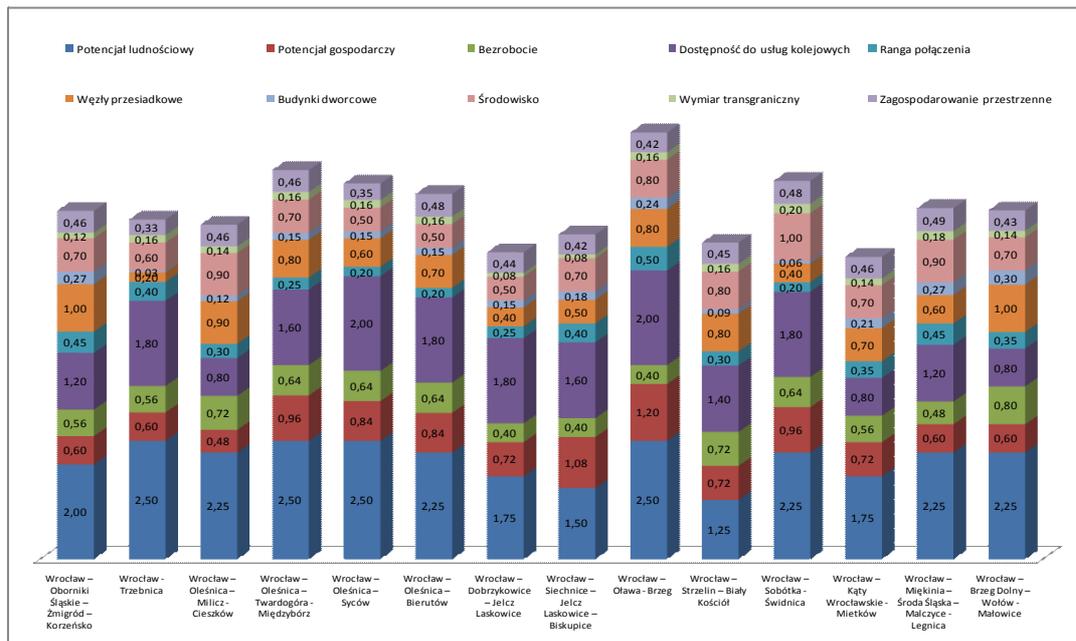


Figure 5 Final assessment of railway lines

Conclusions:

- The conducted analysis and assessment pointed to three directions that should be taken into consideration while planning the revitalisation of railway lines for the Wrocław metropolitan area:
 - Oleśnica direction (connections to Milicz, Bierutów, Miedzybórz, Syców),
 - Sobótka direction (Świdnica),
 - Oława direction (Brzeg).
- All these connections are vital from the perspective of the region's cohesion, as they constitute the connection between medium-size and small towns with the Wrocław metropolis (access to work places, schools, offices), and the metropolis with attractive recreational and leisure areas (servicing the tourist traffic). Every connection has also vital importance for the current or potential needs of the goods carriages.
- The proper functioning and the assurance of attractiveness of the Wrocław – Oleśnica, Wrocław – Oława and Wrocław – Sobótka connections conditions the reasonableness of revitalisation and development of related connections (connections to Milicz, Bierutów, Miedzybórz, Syców, Świdnica and Brzeg) with regard to links with the Wrocław metropolis.
- In case of revitalisation of railway connections it is possible to considerably reduce the negative environmental impact by the creation of attractive alternative to individual car transport travels. It is of great importance and will be particularly noticeable for the connection from Wrocław to Sobótka (Świdnica) running through attractive recreational areas with great natural values (Ślęza Mountain). The revitalisation of this railway connection should allow the limitation of high pressure on the environment caused by intensive car traffic (recommended reduction of passenger car share in travels from the current level of about 90% to below 50%).
- In the case of Wrocław – Sobótka connection rail services will be provided for shopping centres located at the outskirts of Wrocław, in Bielany Wrocławskie (Bielany Shopping Park).
- In the case of Wrocław – Sobótka connection it is possible, probably to the greatest extent, to benefit from valuable German experiences in the field of revitalisation of railway connections on the Uznam Island (UBB - Usedomer

- Baderbahn GmbH rail servicing attractive seaside recreational areas and the Naturpark Insel Usedom protected area).
- g) The highest potential of railway connection revitalisation impact on the reduction of unemployment lies in the connection to Oleśnica.
- h) The revitalisation of railway connection is a comprehensive venture covering measures concerning infrastructure (modernisation of the railway line – surface traffic control, etc.), rolling stock (introduction of modern rolling stock adapter to the needs of a given line), creation of attractive carriage offer (short travel time, satisfactory comfort and safety of travelling, client-oriented timetables, spatial, timetable, fare and ticket integration with other means of regional and city collective transport), as well as the surroundings (revitalisation of station buildings and their vicinity, broad promotional campaign for railway connections, etc). That is why the measures for revitalisation of the railway connection should engage not only railway entities (provider of infrastructure, carriers), but also the direct owners of the area through which the railway line is running, that is communal and district self-governments.
- i) At the present stage of revitalisation measures the best results are achieved with the limitation of railway entities interested in the venture (take, for example, the line to Trzebnica).
- j) A model revitalisation solution is always the restoration and stimulation of passenger traffic at inactive sections (e.g. the Wrocław – Sobótka line). Measures along lines with existing traffic (the Wrocław – Oleśnica line is serviced by 16 pairs of trains per day) require much more intensive promotional and marketing campaigns.
- k) The basis for revitalisation of recommended railway connections is the necessity of their comprehensive modernisation (including the elimination of numerous existing speed restrictions) that will enable the passenger trains to travel with the following maximum speeds at the entire length of connection:
- Connection to Oleśnica – speed: 120-140 km/h,
 - Wrocław – Sobótka connection - speed: 80-100 km/h.
- l) Due to the currently limited financial and other (e.g. legal) capacity with regard to undertaking effective measures in the area of railway transport by local self-governments, it is mostly expected of communal self-governments that would like to join in the revitalisation measures concerning the selected railway connection to provide support and cooperation in the following areas:
- Revitalisation and utilisation of economic potential of station buildings and their vicinity,
 - Active promotion of the railway connection (attractive railway connection can also be an element of the commune's/ district's promotion),
 - Spatial policy conducive to the development of the railway connection and its vicinity.
- m) The selection of one railway connection for further in-depth analyses should be conditioned on the interest and willingness for involvement of communes and districts (starosties) which the connection runs through.
- n) In order to determine the potential involvement of territorial self-government units in the venture, it is recommended for the Marshall Office of the Lower Silesia Region to conduct a short cycle of measures addressed to commune and district groups that are related to railway connections recommended for further analyses. It is suggested that these measures cover:
- Informing the self-governments about the project and expectations of the self-governments – letters, telephone contacts,
 - Preliminary identification of potential involvement of self-governments – short survey,
 - Organisation of 1-2 meetings with self-government representatives (in the form of 'round table' discussions or workshops that are to present the

standpoint of self-governments on the possibility of their involvement in the venture).

In the final phase of these measures it may be advisable for the self-governments to sign declarations/ letters of intent concerning the willingness to become involved in the project.

The broadly-understood revitalisation process should also include the surroundings of the railway line and its relation to other transportation means in order to increase the attractiveness of the railway transport. Revitalisation projects for both groups of regional railway lines (that is those still in operation and the inactive ones) usually provide examples of success. However, one needs to remember that these successes were always founded in comprehensive technical and organisational solutions. These project mostly covered multi-directional set of measures, including:

- Reconstruction or modernisation of track infrastructure;
- Reconstruction of stations and stops with their adaptation to perform the role of local integration nodes;
- Diversification of functions of station buildings;
- Construction of new stops in order to increase their accessibility;
- Purchase of modern and cheap-to-maintain rolling stock;
- Creation of attractive carriage offer in terms of both offered accessibility, commercial speed, frequency, and relation to other transportation means.

Revitalisation is closely connected with the regionalisation of railway transport. The process of transferring competences in the area of organisation and financing of passenger carriages in the regions started in the 1990s and is still progressing. It results in better coordination of offers of public carriers operating in the given region, and the general improvement of effectiveness due to the introduction of regulated competition and development of the carriers' market.

5 Detailed characteristics of the selected line

As a result of analyses conducted in the first part of the study the Wrocław – Sobótka – Świdnica railway line No. 285 was selected for further examination.

Apart from previous findings, the arguments for the selection of line No. 285 were:

- Fact that the line connects Świdnica, a town populated by 60,000 people, with Wrocław (commuting to work places, schools, offices),
- Line connects Wrocław with recreational and leisure areas,
- Goods carriage potential,
- Possible reduction of negative environmental impact,
- Servicing of commercial traffic to Bielany Wrocławskie,
- Possibility of comprehensive revitalisation of the line practically from the beginning.

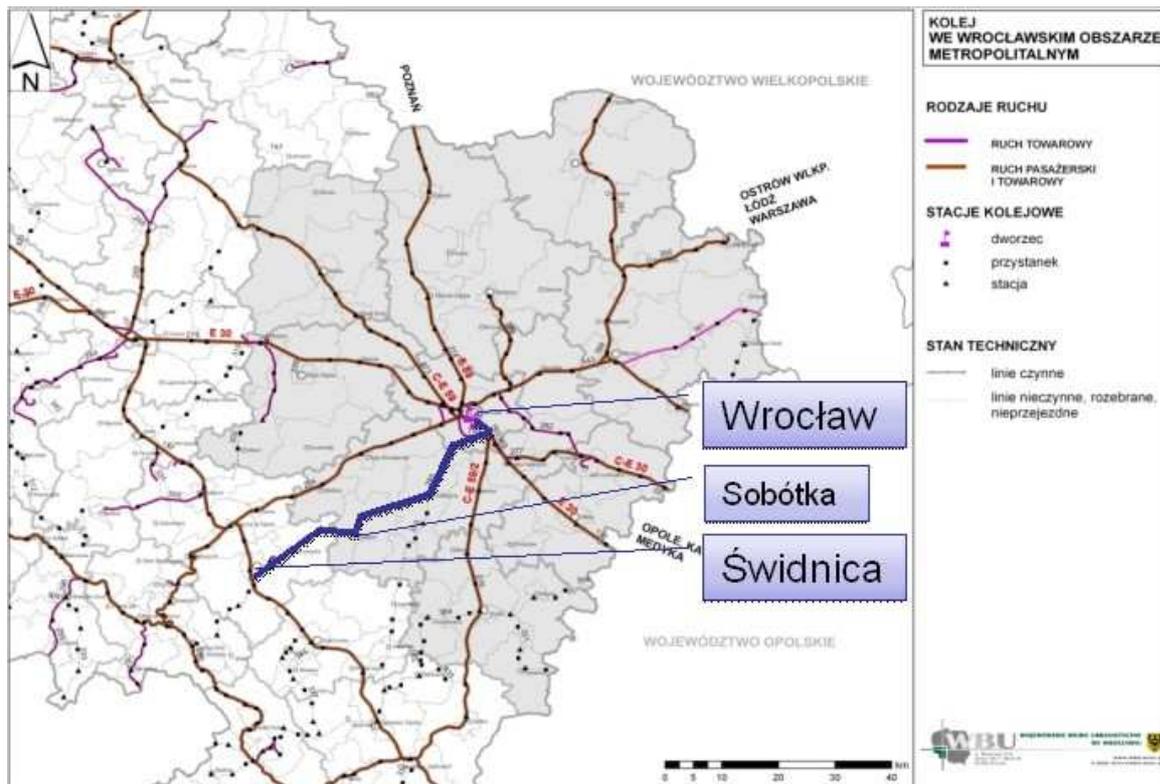


Figure 6 Location of the Wrocław – Sobótka – Świdnica line No. 285

The study described in detail:

- Characteristics of carriages servicing the line,
- Importance of the line in the railway network,
- Railway accessibility and connections to the main Wrocław stations,
- Characteristics of railway stations within the line's area,
- Characteristics of the railway station area in Sobótka.

Line No. 285:

- Constructed at the end of the 19th century,
- Passenger carriages suspended in the summer of 2000,
- Today the Sobótka Zachodnia – Wrocław section services goods carriages of aggregate,
- Line is operated by PKP Polskie Linie Kolejowe S.A.,
- Characterised by poor technical condition, trains are not permitted to run along the entire route,
- Characterised by low permitted speeds (80, 40, 20 km/h),
- Characterised mostly by poor technical condition of railway stations.

6 Railway stop in Sobótka

The railway stop in Sobótka is located in the northern part of the town directly at the border to the urban territory. The area of the stop and the railway line No. 285 are located decidedly lower than the town centre at the slope of the hill. The surrounding areas are characterised by population density which is very small for a town. It is largely dominated by loose low single-unit development and agricultural lands (mainly on the northern side). There are also many farm buildings. The area is dominated by low greenery, though on both sides of the tracks in the immediate vicinity of the stop there

are trees. Such background of the area definitely accentuates the building of the old station in Sobótka, a large two-storey brick building. The building and the stop are located at Stacyjna Street. In the vicinity, along Dworcowa Street, there is a D-category railway crossing.



Figure 7 Station building in Sobótka

The Sobótka stop itself limits its area of impact only to the centre of Sobótka and towns and villages located south and east of the town along the access roads to Strzegomiany, Przedzrowice and Kunów. This area covers practically the entire area of the so-called Old Sobótka, populated by slightly over 4,000 inhabitants, and is home to representative buildings and town offices. West of the town centre there are afforested areas of the Ślęza Mountain and, within a short distance, the Sobótka Zachodnia station.



Figure 8 Proposition for the management of the area in the vicinity of the station in Sobótka

The problem of this stop is undoubtedly its location. The location in relation to the town itself is advantageous, but the access to it poses a considerable problem. It follows marginal streets that are less important and rather not representative like Turystyczna or Dworcowa and Stacyjna. The stop's location enables the placement of small passenger car park, but the bus transport stops have to be located at Dworcowa or Chopina Streets at best.

The station buildings cannot have any vital economic potential as they are practically all inhabited. The storehouse part of the main building has the surface of about 18 m². This is accompanied by the traffic operator room with the surface of 18m², also located in this building. A separate part of utility surfaces is comprised of two typically technical buildings. One of them most likely accommodated the toilet. Both buildings have the surface of about 28 m² each.

The buildings located here may only be used for storehouse purposes. After thorough renovation it is possible to locate little trade facilities (mainly convenience shop) in the traffic operator rooms.

The specific nature of this line requires only passenger carriage infrastructure. It needs to be assumed that the carriage of goods (aggregate) may follow the Sobótka Zachodnia – Wrocław or Świdnica – Wrocław relations. Anyway, the prospect of the self-government (or self-governments) taking over railway line No. 285 without buildings seems to be much better in view of the promptitude of management of the station areas and launch of carriages.

Much greater value should be attached to this place as a site of initiation of measures of mainly cultural and tourist character. The considerable tourist values of the Sobótka area cause that it may also be home to the tourist information point, the regional information point or the coordination point for measures promoting this aspect of regional development. The town of Sobótka definitely has large potential in this field arising from the proximity of the Ślęza Mountain, and the mysteries and stories related to it.

7 Scenarios for the development of the line and the management of the area of its impact

The region's development will require efficient transportation system whose completion will involve at least several years of investment and organisational measures. At the same time, efficient transportation system will increase the accessibility of the region, which, with the active attitude of self-government authorities, may result in the increased interest of investors and tourists and the activation of the inhabitants, and accelerate the pace of economic development and the rise of the inhabitants' social activity. The revitalisation of the Wrocław – Sobótka – Świdnica line in the course of the next few years will thus create conditions for the development of the region.

Taking into consideration the foregoing and the methods of work on the line's revitalisation, there were prepared three revitalisation concepts that may be considered as connected with the potential execution of three scenarios for further development of the region:

- First scenario envisages no active measures on the part of self-governments in the course of the next few years and the preservation of the current condition ('zero concept' where measures aimed at the technical sphere of the railway line are mainly executed),
- Second scenario envisages active measures on the part of self-governments and local communities for the utilisation of climatic and landscape values through the development of tourism in the region ('tourist concept' where, apart from directly technical railway measures, railway-related measures supporting tourism are planned),

- Third scenario envisages active measures on the part of self-governments for the economic development of through investment incentives, promotion of economic initiatives, activation of the Bielany Shopping Park and economic zones (Kobierzyce, Wrocław) ('economic concept' where self-government authorities' measures are supported with the railway transportation system).

8 Scope of necessary modernisation and reconstruction works

The three suggested concepts for the revitalisation of the Wrocław – Sobótka line depend on the selection of development strategy for its surroundings. Every concept presents the minimum scope of works that need to be completed for the line to service carriages, as well as the maximum scope of works which ensures full usage results. These scopes are compared below in a general way permitted by the current progress of works on the purposefulness of revitalisation. As the works progress, particularly after detailed stocktaking, it will be possible to devise the scopes of works in greater detail.

Scopes of works related to the execution of concept I:

Minimum scope of works:

- Repair and modernisation of railway line No. 285 to the minimum speed of 80 km/h,
- Bus stops in the vicinity of every station and stop along the line,
- Organisation of bus transport to the stations/ stops,
- Correlation with buses at intermediary stations and trains at the Wrocław Główny Station,

Maximum scope of works:

- Measures as in the minimum scope,
- Reconstruction of the Sobótka – Świdnica section,
- Construction of full integration nodes at the Wrocław Klecina, Kobierzyce, Sobótka and Sobótka Zachodnia stops,
- Organisation of places of commerce and entertainment in the vicinity of stations and stops.

Scopes of works related to the execution of concept II (tourist):

Minimum scope of works:

- Repair and modernisation of railway line No. 285 to the minimum speed of 80 km/h,
- Bus stops in the vicinity of most railway stops,
- Organisation of bus transport to the stations/ stops at touristically attractive places and residential settlements,
- Correlation with buses at intermediary stations and trains at the Wrocław Główny Station,
- Construction of full integration nodes at the Wrocław Klecina, Kobierzyce, Sobótka and Sobótka Zachodnia stops, and a smaller node in Bielany Wrocławskie,
- Organisation of places of commerce and entertainment in the vicinity of stations and stops,
- Construction of a large car park in the vicinity of the Sobótka Zachodnia and Kobierzyce stations,
- Construction of smaller local car parks in Sobótka, Pustków Żurowski, Domasław, Bielany Wrocławskie and at the Wrocław Klecina stop.

Maximum scope of works:

- Measures as in the minimum scope,
- Reconstruction of the Sobótka – Świdnica section,
- Building of the tourist information system at transport nodes,
- Bike rentals at the node points,

- Integrated railway and bus ticket system,
- Railway rolling stock for the carriage of bicycles.

Scopes of works related to the execution of concept III (economic):

Minimum scope of works:

- Repair and modernisation of railway line No. 285 to the minimum speed of 80 km/h,
- Bus stops in the vicinity of most railway stops,
- Organisation of bus transport to stations/ stops at touristically attractive places and residential settlements,
- Correlation with buses at intermediary stations and trains at the Wrocław Główny Station,
- Construction of full integration nodes at the Wrocław Klecina, Kobierzyce, Sobótka and Sobótka Zachodnia stops, and a smaller node in Bielany Wrocławskie,
- Organisation of places of commerce and entertainment in the vicinity of stations and stops,
- Construction of a large car park in the vicinity of the Sobótka Zachodnia and Kobierzyce stations,
- Construction of smaller local car parks in Sobótka, Pustków Żurowski, Domasław, Bielany Wrocławskie, and at the Wrocław Klecina stop,
- Building of tourist information system at transport nodes,
- Bike rentals at node points,
- Integrated railway and bus ticket system,
- Railway rolling stock for the carriage of bicycles,
- Construction of infrastructure for goods carriages (ramps, loading platforms) at the stations and stops in Sobótka Zachodnia, Rogów Sobócki, Kobierzyce, Pustów Żurowski and Wrocław Klecina.

Maximum scope of works:

- Reconstruction of the Sobótka – Świdnica section,
- Construction of a small loading terminal for goods carriages in Kobierzyce or Wrocław Klecina.

9 Implementation conditions

For the system to be implemented it is necessary to convince the local community of the need to renew the railway connection system. The sphere of promoting this idea must be dealt with by the lowest-level self-government, as the local authorities and local community will be the beneficiaries of the railway system's success or failure. One has to remember that a new good transportation means could largely revolutionise the life of communities. That is why permanent residents of these towns and villages which the railway will run through must be aware of the fact that this railway is for them and it is their railway, and they have to help for the idea to succeed.

As shown by previous experiences, the interest in railway-related ideas has supporters among the members of higher-level self-governments. It is much worse on the communal level, mainly due to the direct contacts with regional railways.

Lower-level local self-governments should provide their own contribution in the form of investments in the areas in the vicinity of stations, that is car parks, access roads, etc., and these investments should also bring benefits to the communes. They should be supported in their action by non-governmental organisations.

The main condition for the implementation of the revitalisation project is the acquisition of funds for the execution of individual tasks. Considerable sums can be acquired from the EU funds on condition of launching the contribution of own resources from both self-government funds and non-budget resources, including those obtained through ventures executed in the public-private partnership system.

The goal of leaders undertaking the implementation of the railway line revitalisation programme should be to interest in the idea the greatest possible number of potential investors, not only from the area of impact of this zone but also from other communes or even districts that would gain access to this line thanks to the integration of bus traffic with railway traffic. The owners of hotels and tourist infrastructure devices should be included in the group of people interested in revitalisation and functioning of this line.

It needs to be remembered that if the project is implemented with the use of EU funds, the beneficiaries will be the self-government and the local community, but the owner of the railway road (railway line No. 285) is and probably will be PKP Polskie Linie Kolejowe S.A. That is why, before the commencement of the potential implementation, it is necessary to enter into an agreement with the line's owner concerning not only the scope of investment but, primarily, the maintenance of infrastructure at the proper technical level and the principles of traffic operation in accordance with the rules set by the self-government. Alternative solution is the line's take-over by a self-government company that would become the owner of the line.

The system implementation may encounter many opponents, particularly among motor entrepreneurs (buses), who may treat the railway revitalisation as an intrusion in their business.