

ABANDONED TRAIN STATIONS. KATOWICE-ZWARDOŃ-ŽILINA-RAJEC

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Abstract

The subject of the paper is train station. The research deal with those train stations that either no longer serve their purpose or are now abandoned. By abandoned train stations, the author of the paper means rail buildings that do not provide passengers with the necessities of cash desk and a waiting room or toilet. Stations that have abandoned their original purpose. Such stations were analysed on the only railway line connecting Poland and Slovakia operating on a daily basis. Mentioned line is connecting cities Katowice – Zwardoń – Žilina – Rajec. Much of this railway architecture is abandoned and unused. The work described in the paper aims to create a database of abandoned train stations based on authors own research and points to a large number of abandoned train stations that have potential for their future development. The data was collected by means of various methods described in the paper and was valid as of 31.12.2021. The situation today may differ.

Keywords: Train station; Abandonment; Database; Poland; Slovakia; Reception building; Railways, Utilisation.

1. INTRODUCTION

We live in a time of urbanisation, which often ends unhappily in the form of urban sprawl. Cities are spreading wide and abandoned and unused buildings remain in their centres. The subject of the paper are abandoned train stations on the selected line connecting Slovakia and Poland through the cities Katowice – Zwardoń – Žilina – Rajec. The railway line was not chosen at random. It is the only line connecting the two neighbouring countries working on a daily basis. There are two other rail links, but these have not been operational for several years. During the research, one of them started occasional passenger transporting. The rail connection between these neighbouring countries can be considered very poor. Before the pandemic, long-distance trains ran on this line, linking the Polish seaside city of Gdynia with the Slovak industrial town of Žilina. The closure of the borders due to the pandemic restrictions caused the cancellation of this

connection as well. Today, there is very little traffic near the border and no international traffic. This is evidenced by the abandoned station buildings at almost half of the train stops on the researched route. Many of them are of great historical value, some are no longer standing, and few are being used. Created database, which is to be described in this article, intends to highlight their history and architectural qualities as well as their potential. The work described in this paper is part of a master's thesis [1], the main aim of which was to show the wide range of possibilities for the adaptation of abandoned railroad stations.

2. STATE OF RESEARCH

The reasons for the decline of railway stations can be found in various spheres. One of them could be the stagnation or decline of railway companies and the lack of progress and innovation, which is causing a drop in passenger interest in this mode of transport.

Urbanisation and migration to cities also play a role. Unfortunately, railways are still not seen as an integrated part of inner-city mobility [2]. Moreover, most of the rail network was built in its early years of 20th century and many lines existing till today connect locations that are no longer in demand. These are mainly narrow-gauge railway lines, which in the past were mostly used for transport purposes. In such cases, the closure of the entire railway line is often involved. Poor station accessibility for passengers can also be a problem. If the station is in a poorly accessible location for pedestrians, cyclists, public transport passengers or drivers, the interest in train transport weakens again. With declining passenger and rail interest, rail companies' revenues are automatically reduced, resulting in the closure of the least busy stations to the travelling public. The reasons are many. But the result is only one. Railway buildings are being left abandoned.

Properties that have lost their sense of use and fallen into disuse can be found in villages, suburbs or cities. They represent "black spots" on the map, are associated with the disorder, increased crime, in some cases land contamination, and represent an economic problem for municipalities when struggling to cope with them. Vacant and abandoned properties have negative spillover effects that impact their neighbourhood. The longer the building is vacant and exposed to decay, the more negatively it affects its surroundings. In general, an abandoned empty property becomes a problem when the property owner relinquishes the basic responsibilities of ownership such as routine maintenance [3]. Such unmaintained and abandoned properties are beginning to attract social phenomena. The "broken window theory" is proof of this. It can simply be understood that if a window in a building is broken and is left unrepaired, all the rest of the windows will soon be broken. The theory was first studied and confirmed in 1969 by Stanford sociology professor Philip Zimbardo [4]. Vacant properties are also a lure for thieves. "When a structure's doors and windows are stolen, it is further exposed to inclement weather and quicker deterioration, which devalues the property" [5]. A deterioration of the building's technical condition as well as the worsening of living conditions in the neighbourhood can be caused by squatters as well, by moving into an unused property without legal permission. Many more accompanying phenomena of abandoned properties, railway architecture including, could be found.

The disposal of such properties is often complicated by complex ownership relations. However, railway

companies do not place their properties under municipal building management [6]. A railroad corporation is usually a superior organization that manages its assets separately and independently from other municipal or governmental institutions. By setting up the right system, railway companies could profit from the lease or sale of unnecessary and non-strategic real estate. Otherwise, they will have derelict properties of no use. However, the problem lies in poorly set legislation, or the unwillingness and lack of interest of railway employees in railway architecture. For example, a non-functional train station, which only has a tool store in one of its many rooms, is considered to be an operating station. With a policy set up in this way, there can be no true database and subsequent disposal of abandoned railway architecture.

3. DEFINITIONS

Based on the confusing definitions and differences in the terminology of train station and a train stop, the author decided to create her own definitions for the purposes of the research. Hence a train station is characterised as a railway infrastructure object, which includes the passenger reception building and the infrastructure belonging to it. While a train stop is a place on the railway line where a train stops following the railway timetable to serve passengers. It does not include any building for passengers' service. Thus, the basic difference between a train stop and a train station is in the reception building, or in its absence [7]. The above definition was adopted and used for the research described in this paper.

As far as the abandoned railway architecture is the subject of the matter, the term abandoned train station needs to be correctly understood. Unfortunately, the universal definition not only of abandoned train stations but also of any abandoned buildings themselves is lacking. In recent years, the term brownfield or blackfield has become more common. In most cases, they are characterised as abandoned industrial sites, neglected premises or dilapidated buildings suspected of the presence of a hazardous substance, pollutant, or contaminant while blackfields can be described as the worst variant of the more general term brownfield [8]. The problem lies in the fact that the concept of brownfield is not defined in spatial planning legislation. That complicates efforts to count them and create a registry for easier working processes. If such a term has not its own definition, it is difficult for cities and municipalities to deal with it.

Hence abandoned train stations are characterised by the author of the paper as significant railroad properties that played an important role in the past in both the railroad industry and the development of the town or village in which they are situated. Such properties are today empty, or their partial use can be insignificant and the purpose for which they were built is no longer fulfilled. The basic facilities offered by every well-functioning train station as ticket sales, waiting room and luggage storage are no longer available for passengers.

4. MATERIALS AND METHODS

To describe the current situation in the architecture of the railway sector, the observation method was used. The in-situ research was necessary to be conducted for getting closer information about the stations on the line. Except for the above-mentioned research methods, a survey method was also applied specially to review the railway real estate market. To create an overview of the working procedures in the disposal of real estate, the author tried to establish



Figure 1. Division of stations by type of receiving building and current function, elaborated by Dominika Ľudviková [1]

contact with the representatives of railway companies in Poland and Slovakia. The method of historical research was applied during the study of historical background [9–11]. Memorial books and the websites of the municipalities in which the stations are located were used to write a sketch of the history of each station. The last method chosen for the research was a method of logical argumentation. An analysis of individual features and events was created, followed by their synthesis and assessment of them at the end of the paper.

The database, which is the subject of the paper, describes the railway line connecting the cities of Katowice-Zwardoń-Žilina-Rajec. Originally the line starts in the Polish city of Katowice and finishes in the Slovak city of Žilina. As the author of the thesis currently lives in Rajec, which is the terminal station of railway line 153 Žilina-Rajec, researched line was prolonged to the town of Rajec [12]. On a route of approximately 186 kilometres, the train stops 69 times, of which up to 30 times at stations that are abandoned and therefore do not provide passengers with basic rail services such as ticketing, waiting rooms or luggage storage. All these services are provided to passengers at only 14 stations, seven per each state. The remaining stations either serve a different purpose or are train stops due to the lack of reception building with all the proper services. Such cases are in the very small villages where the reception building was never meant to be built, or the building was demolished due to abandonment, redundancy, poor technical condition or other similar problems. The issue is described in the attached diagram, which schematically shows all the stations and stops on the described line.

The created database describes a total of 30 abandoned train stations depicted in black colour in figure number 1. All the train stations on the Polish and Slovak sides were examined personally by the author of the thesis. From the data collected in situ, data obtained in cooperation with railway companies and information from books and the Internet, tables with basic information about the station, its location and the receiving station building itself were created. The first table provides information on the launching of the station in its original name, and the position on a particular line with the established track gauge. The number of stops a train makes at a given station and the goods carried through it was also ascertained. The second table collects data regarding the location in which the train station is situated. The locality is described by its population, the size of the municipal-

ity and its population density. The character of the site was also important for the model solutions. Of the stations studied, the locations are tourist, residential, industrial, or holiday locations. In addition to the site itself, the location of the train station within the municipality was explored. The distance of the station from the centre of the town was measured and the location pattern was evaluated, either in the centre, in the suburbs or on the periphery. For the purposes of integrated transport, it was necessary to investigate the cycle routes in the vicinity of the stations, as well as the possibility of transferring to another public transport mode. The third table collects data on the station building itself. An important piece of information examined is the current condition of the building. After the survey, three categories emerged, namely buildings in good condition, buildings in need of renovation and stations in a dilapidated state. All the derelict stations described were built for the purpose of rail transport and thus their function has never been altered. The current use of the station is also an interesting attribute. In most cases, it is a negligible percentage of the flooring that is currently in use. The station surroundings have been divided into five categories based on terrain and the predominant type of greenery, namely step terrain, low greenery, high greenery, shrubbery and paved surface. Within the station area, the number of tracks and platforms and their connectivity via an underpass or overpass were surveyed. Furthermore, the existence of basic furnishings necessary for the travelling public such as shelter, benches and toilets. Within the reception building, information was gathered for each station regarding the floor area, roof type, floor space and provided services such as restaurant, ticket shop or waiting room; parking near the station was

FUNDAMENTAL INFORMATION		LOCALIZATION	
TITLE	Sól	LOCALITY	Sól
HISTORICAL TITLE	Sól 1917-1939, Sól 1939-1945	REGION	Silesia
LAUNCHING	1917	CHARACTER	tourist locality
TRACK	139 Katowice - Zwardoń	POPULATION	1 750
POSITION ON TRACK	104.81 km	DENSITY	66.5
TRACK GAUGE	1435 mm	AREA	26.28 km ²
TRAIN STOPOVERS	24	ELEVATION	537 m
CARGO	yes	TRANSPORT HUB	no
		STRUCTURE	periphery
		CENTRE DISTANCE	1.5 km
		CYCLOPATHS	no

BUILDING			
TYPE	train station	FLOORS	2+attic
CONDITION	renov. req.	ROOF	overlaid hip
UTILIZATION	dispatcher	AREA	280 m ²
FORMER STATUS	train station	WINGS	3
TRACKS	2+2	TOILETS	closed
PLATFORMS	1	RESTAURANT	no
SHELTER	yes	SURROUNDINGS	low greenery
		CASH DESK	closed
		WAITING ROOM	closed
		PARKING	yes
		BENCHES	yes
		UNDERPASS	no
		OVERPASS	no
		OTHER BUILDINGS	yes

Figure 2.

Tables with information about polish station Sól, elaborated by Dominika Ľudviková [1]

considered an additional service. The number of railway buildings within the station area was also studied, which could have played a significant role in the case of redevelopment.

There were three more sections created for each of the abandoned train station lists. The first of them is a site plan. Every map was printed on a scale of 1:5000 and shows the broader relations of each station. For better knowledge of the current status of each station, some photographs were taken by the author of the thesis. Every picture has a date of rendering as far as today's situation may be different. The last section in the database is trying to depict the history of the station. The historical plot together with historical photographs is not shown for seven stations, five of which are Slovak. No information could be found probably due to their later construction and their short historical development. Railway companies do not keep archives with information concerning the history and construction of individual buildings, and therefore information is largely obtained from municipal websites or commemorative books. All the accumulated information was collected at the end of 2021 and thus may no longer be valid to date.

5. RESULTS AND DISCUSSION

Based on the information collected, analyses were created under seven thematic classes. Specifically, a category dealing with the locality itself as well as the character of the site, the historical development of the municipality and the train stations themselves, accessibility, station facilities, and station workload. The results of the analyses were used to properly implement model solutions for different types of abandoned stations.

The first part of the analysis focused on a survey of the locations in which the studied train stations are located and showed that the majority of abandoned stations are located in communities with a population of less than 6,000. The exception is the Polish city of Bielsko-Biała, which is served by several train lines and stations. Of these, there are 3 stations on the surveyed line which can be considered abandoned and non-functional according to the criteria. Stations from this city stand out among the stations surveyed also in terms of the area of the territory, which in most cases is less than 50 km². More than half of the train stations are in areas with a population density of up to 300 inhabitants per square kilometre.

The analyses from the historical development theme dealt with the construction of stations and their

launching. Half of the stations were built in the 19th century [13], with many of them built and opened in the same year in the very same architectural style. In some cases, this involved the unification of station buildings, which was common in architecture for this period [14]. In the second half of the 20th century, four new stations were built on the line under study, but these are now no longer serving their original purpose and are closed to the travelling public despite their late construction. Another attribute examined was the technical condition of the reception buildings. This can be considered good in 54% of cases. Five stations belong to the group of dilapidated station buildings. The last researched category is the technical condition that requires renovation. Based on observations, 9 train stations have been included in this group. In an attempt to correlate the condition of a building with its year of launching, interesting results emerged. Nine of the fourteen station buildings built before 1900 (65%) were in good condition at the end of 2021. In most cases, train stations of this dating have undergone a recent refurbishment, which unfortunately has not prevented their closure.

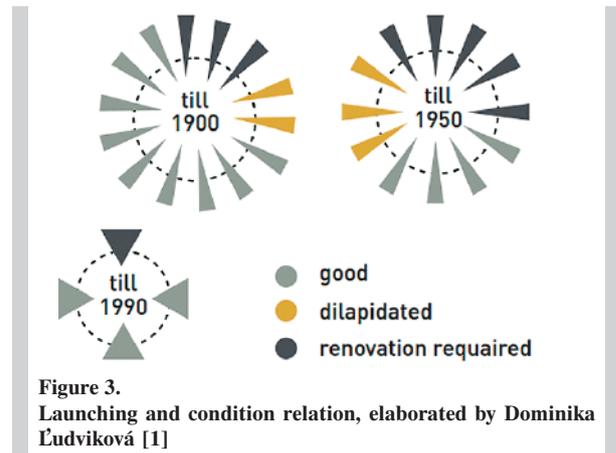
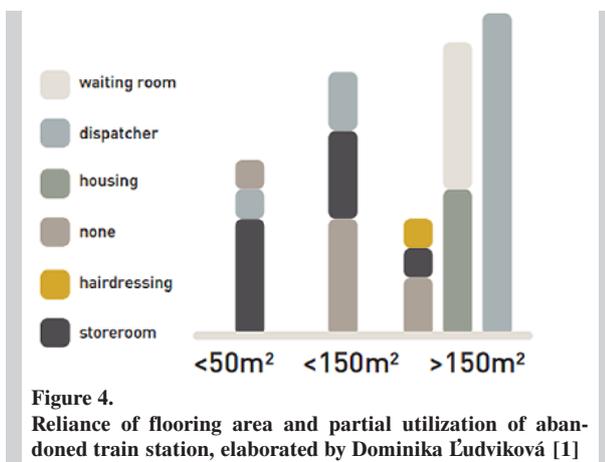


Figure 3. Launching and condition relation, elaborated by Dominika Ludviková [1]

The third category of analyses is dedicated to the current partial utilization of train stations, their floor area, and the dependence of these two attributes. According to the flooring area, the receiving buildings of the train stations were divided into three groups, namely buildings up to 50 m², up to 150 m² and over 150 m². Fifteen out of thirty stations have a receiving building with a flooring area greater than 150 m². The group up to 50 m² has the smallest representation, which includes 6 train stations. The survey of current station utilisation identified 5 functions, with nine of the stations surveyed not perform-

ing any function at the time of the survey. The most common partial use of train stations is a room for train dispatchers. This function is questionable for the future of the railways, as many of the railway lines are already electrified today and thus the role of the dispatcher is unnecessary [15]. The next function whose existence within the train stations is questionable is the storage of railway tools. Such a use can be found only on the Slovak side of the railway, and it is evident from the in-situ observation that nothing is being stored in the building. The author of the thesis, therefore, believes that this function is in most cases fabricated by the railway company. In five cases a passenger waiting room was found. However, its operation is very limited, as most of them are only accessible at certain time intervals, possibly 15 minutes before the arrival of the train. One or two dwelling units, mostly in original condition, were found in five stations. The last feature is a hairdresser's shop, which was located in one of the Polish stations [16]. However, it occupies only a small percentage of the flooring area, is in a dilapidated building with unmaintained surroundings, and thus its function was assessed as not beneficial to the original train station. A chart dealing with the comparison of uses as a function of flooring area showed that the larger the receiving building is, the more likely a function will occur. Likewise, with a larger floor area, functions are more varied. For stations with a floor area of less than 150 m², functions such as waiting room or housing will not occur. This may also be due to the location of such small stations as they are mostly found in smaller villages.



In terms of accessibility, the distance from the centre, the structure of the site, the cycle paths and car parks close to the station, as well as the possibility of trans-

ferring to another public transport mode were examined. Finally, the overall accessibility of the stations was evaluated. The statistics showed that 50% of the surveyed stations were located on the periphery of the villages. The smallest percentage, 20%, has stations located in the city centres. Nineteen of all the stations selected provide the possibility of transferring to another public transport mode, while the distance to the station does not exceed a walking distance of 5 minutes, approximately 250 metres from the train station. More than half of the stations do not offer the possibility of legal car parking in close proximity to the station. This is also true for bicycle parking, with 57% of the stations surveyed having a bicycle path or marked bicycle route in their vicinity. The same percentage of stations have a distance from the station to the village centre greater than 1 kilometre (approximately 20 minutes). Because of this long distance, in most cases, passengers are not willing to commute and therefore choose to drive. Thirteen train stations are within a walking distance of 1 kilometre from the municipality centre. Combining all the above factors and statistics, we can evaluate that up to 97% of the stations on the described line are accessible by one of the mentioned methods. There is only one station in the database, namely Skalité Serafínov on the Slovak side near the border, which is very difficult to reach. There is no cycle path in its vicinity, no parking lots and it is not within walking distance of any other means of transport. Its distance from the centre is 7.2 kilometres.

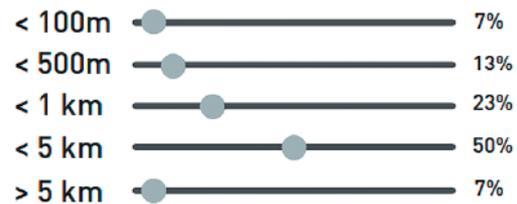


Figure 5.
Distance from the train station to municipality centre, elaborated by Dominika Ľudviková [1]

The fifth group of analyses focused on train station facilities. The first attribute examined in the group was the presence of shelters and benches, which are an integral part of the station. The statistics showed that up to 40% of the stations surveyed have no shelter or any other type of cover for cases of bad weather. 21 of the stations are equipped with at least one bench for passengers, which means that 9 stations from the database do not provide any seating option

within their premises. The existence of other railway buildings in the station areas was investigated. Within the premises of 13 abandoned train stations, there is some other railway building. These are, for instance, draws, heating plants, waterworks, depots, guard houses and housing in general among others [11]. Concerning the reception building itself, in 17 cases the building has one floor. More than half of the researched stations have an attic that could be used for new purposes. Two two-storey and one single-storey building were proved to have basements. However, the presence of basements could not be ascertained for many of the station buildings. Therefore, the statistics on the number of cellars cannot be considered reliable. The last attribute examined in the group was the number of tracks in the train station area. Sixteen stations from the database have one or two tracks. For such stations, it is not possible to consider the use of tracks for other purposes as they are essential for the operation of the train service. The remaining 14 stations possess more than 2 tracks. Thus, some of them which are not in use could be adopted for new functions.



Figure 6.
Number of tracks in abandoned train stations premises, elaborated by Dominika Ľudviková [1]

The next set of analyses dealt with station workload. It was found that 77% of the stations in the database are served by freight trains, and thus no freight trains pass through 7 of the 30 studied stations. An analysis studying the number of train stops at a station was constructed as follows. The number of trains served at each station on a typical weekday was counted, and four groups of up to 20 stops, 21 to 40, 41 to 60, and 61 to 80 stops during the day were created based on the data collected. The analysis showed that the second and third groups are represented by the largest number of stations. Only one station was included in the category above 61 stops per day, namely Goczalkowice with overall 62 stops. When comparing the two attributes mentioned above, it was found that the fewer trains and therefore passengers a station serves, the more likely it will not serve any freight trains. It can also be deduced from the data collected

that low station serviceability is also associated with locations which are more difficult to reach. Less accessible terrain with deteriorated infrastructure may be the reason for the low frequency of cargo trains. The last diagram of the group aimed to find the dependence between the population of a municipality and the number of train stops. It was shown that these values are relative to each other. As the population increases, the station serves more trains and therefore more passengers per day.

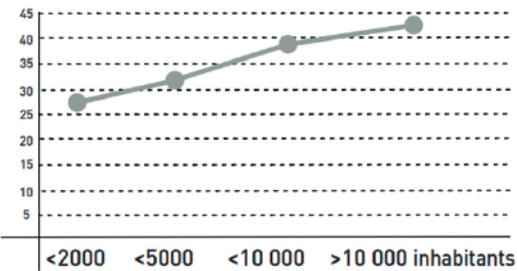


Figure 7.
Average train stopovers per population, elaborated by Dominika Ľudviková [1]

The final set of analyses focuses on the character of the locality in which the train stations are located. The surrounding survey identified 5 categories, according to the prevailing character of the adjacent terrain. Namely steep terrain, low greenery, high greenery, shrubbery and paved surface. The most represented group are the stations with a paved surface in most of the station premises, specifically 10 stations. In most cases, the paved surface is in a state of disrepair and its reconstruction is necessary. In 7 cases there are stations set in the shrubbery. According to the predominant character of the municipality in which the stations are located, four groups have been formed, namely municipalities with the character of a tourist destination, holiday resorts, sites with a predominant housing function and industrial sites. The most represented category is tourist locality with 44% of the stations. Stations in this category are located close to the border on both sides. In most cases, these are also stations with an altitude greater than 500 metres above sea level. The least represented category is the holiday resort character, which can be used to describe only one of the abandoned stations on the surveyed line. The last investigated attribute was safe rail crossing. Only 20% of the database items can be considered as stations with safe rail crossing, of which 3 have an overpass and 3 have an underpass under the track.



Figure 8.
Locality character, elaborated by Dominika Ľudviková [1]

6. CONCLUSION

The paper presented the research part of the diploma thesis, which focused on abandoned train stations on the only railway line connecting Poland with Slovakia on a daily basis. Thirty abandoned train stations were found on the Katowice-Zwardoń-Žilina-Rajec rail line, where, according to the timetable, the train stops 69 times. Almost half of these stations are unused and abandoned, left to fall into disrepair. The paper described created database of those abandoned stations and reflected the findings and results of the analyses. Described stations are often of high architectural qualities and have a great potential for further use. It is our task to work with this kind of architecture. Even more now at a time when cities are struggling urban sprawls and the buildings in their centres are being left abandoned...

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