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# NON-URBAN PUBLIC BUS TRANSPORT AGAINST THE COVID-19 PANDEMIC – EVIDENCE FROM THE LOW BESKIDS AND THE BIESZCZADY COUNTIES<sup>1</sup>

## *Pozamiejski publiczny transport autobusowy wobec pandemii COVID-19 – przykład powiatów Beskidu Niskiego i Bieszczad*

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**Abstract:** Mid-March 2020 surprised societies of many countries with restrictions resulting from a need to curb the spread of a pandemic caused by a new type of coronavirus. Poland joined this group very quickly. The growing isolation of society also had an impact on non-urban public transport, especially one that was operated at the carriers' own risk. The author of the article had a database, current as of spring 2019, with the number of bus connections in the area of six counties covering the ranges of the Low Beskids and the Bieszczady Mountains. This was an ideal starting point for trying to answer the question what the situation is like almost exactly a year later. Based on a study conducted in early April 2020, a catastrophic picture of public transport in the area has emerged. In the case of Bieszczady and Lesko Counties, there was a total lack of local bus connections. In Sanok, Krosno, Jasło and Gorlice Counties, the network of connections serving mainly the capitals of these units of administrative division has been severely limited. One of the main reasons for the observed process is suspension of school activities. This is also accompanied by a reduction in adult mobility resulting from a fear of a serious disease and a greater tendency to use other means of transport, as well as resignation from commuting by people working in jobs where remote work is possible or in companies that suspended their activity. Maintaining this situation poses a threat of huge economic problems for carriers. If it continues for many months, it may result in difficulties in traveling to schools that may appear after the holidays.

**Keywords:** the Low Beskids, the Bieszczady, COVID-19 pandemic, non-urban public transport, transport exclusion

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## Introduction

Mid-March 2020 surprised societies of many countries with restrictions resulting from a need to curb the spread of a pandemic caused by a new type of coronavirus. Poland joined this group very quickly. The growing isolation of society also had an impact on public transport, especially one that was operated at the carriers' own risk. Hence an initiative emerged to examine the stigma that these restrictions imposed on the functioning of transport. This article aims to document these changes and indicate their potential consequences based on the example of six counties situated in the mountain ranges of the Low Beskids and the Bieszczady (i.e. counties of Gorlice, Jasło, Krosno, Sanok, Lesko and Bieszczady).

The author of the article had a database and maps documenting the shape of the network of non-urban public transport in the above-defined area, current as of spring 2019. It was created as part of research conducted within the framework of a research project financed by the National Science Centre entitled: An empirical pilot study on transport exclusion in mountain areas based on the example of the Low Beskids and the Bieszczady counties (Miniatura 2, contract number 2018/02/X/HS4/00451). This was an ideal starting point for a similar study in a specific crisis situation that is observed almost exactly a year later. For full data comparability, also in this study, suburban lines launched as part of urban bus transport (from the towns of Gorlice, Jasło, Krosno and Sanok) were excluded. Due to a more than marginal transport offer, rail transport was also excluded as not having any significance in the described area. The study was conducted in the week immediately preceding Easter holidays. On the one hand, such a short time span leads to its high temporal homogeneity; on the other hand, we must remember that in the examined period some carriers changed their timetable several times, practically from day to day. Surprisingly, except for one case, the subject of cancelling connections practically did not hit the pages of local portals or the press. This posed some difficulty in obtaining data. Therefore, in the absence of other sources of information, in the case of about 10 routes, mainly from Jasło and Krosno Counties, due to the lack of any current passenger information, the number of actual trips had to be estimated indirectly. It is worth noting that very often contact telephone numbers provided by carriers are not picked up. Unfortunately, obviously, this state has practically not changed, and what A. Ciechański (2019) observed a year ago is still valid – for a large group of bus operators there is still a lack of reliable and easily available sources of knowledge about their timetables outside their area

of activity. Still, information on suspended routes is reliable at a level close to 100%.

Unfortunately, the picture that has emerged from the study is not optimistic. In the case of Bieszczady and Lesko Counties, there was a total lack of bus connections. In the case of Sanok, Krosno, Jasło and Gorlice Counties, the network of connections serving mainly the capitals of these units of administrative divisions was severely limited. It can be suspected that the main reason for the observed process is the suspension of school activities. This is also accompanied by adults' limitation of mobility with a use of public transport that results from a fear of a dangerous disease, as well as resignation from commuting by people working in jobs where remote work is possible or in companies that suspended their activity. If this situation continues, it poses a threat of huge economic problems for carriers, and it may result in difficulties in getting to schools after the holidays.

The presented study is purely documentary and falls in line with similar works created in Poland over the last few decades. It is worth remembering that in the case of non-urban bus transport, the research output is much more limited than for railways. There is a definite lack of studies chronologically showing the development and regression in the commuter network in various spatial scales. Unfortunately, such an approach to the problems of bus transport was missing in one of the fundamental works by Prof. T. Lijewski – *Geografia transportu Polski* [eng.: *Geography of transport in Poland*] (1986). Surprisingly, even during the PRL [the People's Republic of Poland], although access to timetables was much easier, no one ventured to present a study of the chronology of changes in the bus network in Poland. For this reason, the work by T. Lijewski, J. Lenk and H. Piotrowska (1967), very synthetically presenting the issue of bus transport on a national scale, is rather disappointing. Unfortunately, it does not provide information about the chronology of opening new links and the number of scheduled trips. The work by M. Kozanecka (1980) did not have some of the abovementioned shortcomings. The attached ribbon cartograms capturing the image of non-urban bus transport in several temporal cross-sections are particularly valuable from the viewpoint of the research presented later in the article.

The stream of research of a regional character includes a monograph on communication in the Białystok Voivodship by T. Lijewski (1962). Unfortunately, it is burdened with the shortcomings that have already been mentioned above in the case of the work from 1967 by the same co-author. R. Guzik and A. Kołoś (2015) conducted this type of research

on the public transport network in the Pomeranian Voivodeship.

Another group of studies is research documenting the shape of public transport (mainly bus) in agglomerations or Functional Urban Areas (FUA). An article by M. Stawicki (2014), which depicts the number of links of Mazowsze towns with Warsaw in 2014 (outside the area of validity of City Transport Authority tickets) should be considered as purely documentary. In this context, a study by J. Chodkowska-Miszczuk (2006) looks much better. Comparing interesting cartograms for the public transport network in five selected agglomerations for 1985, 1995 and 2005, she already noticed the intensification of polarization processes of bus transport (a significant decrease in the number of connections in peripheral areas). The study by A. Ciechański (2020), synthetically showing changes in the bus and rail transport network in the Low Beskids and the Bieszczady regions between 1990 and 2019, also partly relates to the character of that work, although in supra-regional terms. In their research for the Olsztyn Functional Urban Area, R. Guzik et al. (2016) estimate that 1/3 of FUA residents (except Olsztyn) have poor transport availability in their place of residence, and 1/7 of citizens have no access to public transport at all. Also noteworthy is the detailed documentation and in-depth analysis that M. Wolański et al. conducted for the network of non-urban public transport in nine FUAs (2014, 2016). This work, unfortunately, is not optimistic – there is no intervention in areas where transport services have been discontinued, and, in terms of transport, most authorities unfortunately limit themselves to purely administrative functions.

By contrast, M. Dej (2010) works on a purely local scale. She points out that often the route and locations of stops are not adapted to the needs of employees of production plants situated, for example, in rural areas. P. Kretowicz (2010) operates on the same scale, focusing on the substitution of connections provided thus far by state carriers in Gorlice County. A study by S. Książek (2016) regarding ownership transformations in bus transport in the Lower Silesian Voivodeship is also of a local character.

This article consists of four parts. The first one introduces the subject and presents it in the context of the current research of transport geography. The second part presents the condition of the bus network in the studied area in the spring of 2019, while the third part describes the results of research from early April 2020 regarding the response of non-urban bus transport to the situation related to the development of the epidemic. The fourth and final part presents conclusions and recommendations resulting from the conducted research.

## 1. Network of transport links in 2019

To capture properly the scale of changes at the beginning of April 2020, it is worth reaching for a similar study from a year before. In 2019, significant polarization was mainly noticeable in the public non-urban bus transport network (Fig. 1). On the one hand, one can observe a very large number of routes along national road (DK) no. 28, but, on the other hand, the southern, mountainous and less populated parts of the analysed counties were mostly characterised by a much worse transport offer. Particularly worrying was a decrease in the network cohesion relative to the beginning of the period of economic and political transformation. Impenetrability of county borders was a new bad phenomenon. It was impossible to get directly from Gorlice to Nowy Żmigród, from Krempna to Dukla or from Wola Niżna to Moszczaniec (interestingly, although Moszczaniec is located in Krosno County, it was served only from Sanok County) and from Wola Michowa to Żubracze. It was no longer possible to travel from Bukowiec to Czarna. Surprisingly, neither was there a previously existing connection between Tylawa and Jaśliska, after all functioning within one county (Krosno). This was similar in Gorlice County, between Małastów and Gładyszów (Ciechański, 2020).

Lack of connections is not the only problem noted here. Over the years, service in the region of Solin reservoir has significantly deteriorated, in particular in Bukowiec (Fig. 1). Very few buses also reached the heart of the Bieszczady Mountains (Cisna, and especially Wetlina) in the off-season. The picture was almost tragic to the south of Komańcza, and the number of connections to Moszczaniec was equally low. Places such as Bartne, Konieczna, Gładyszów, Krywe, Mszana as well as Wisłoczek and Puławy Górne have significantly suffered in the process of political transformation. Interestingly, service at Dukla, Nowy Żmigród and Wysowa remained good (Ciechański, 2020).

Undoubtedly, DK 28 was characterised by a high supply of connections. The success here was determined by connecting county centres once located mostly in the same Krosno voivodeship and taking over passengers from rail transport, which admittedly offered greater capacity, but was less frequent and often required walking farther distances to reach the stop. It is also worth noting that where there is still fairly strong industry (especially oil and chemical), transport in the suburban area (Jasło, Krosno, Jedlicze, as well as Sanok) was characterised by a very large number of trips offered. Krosno, which still partly retained the functions of a regional centre with voivodeship institutions, was especially privileged

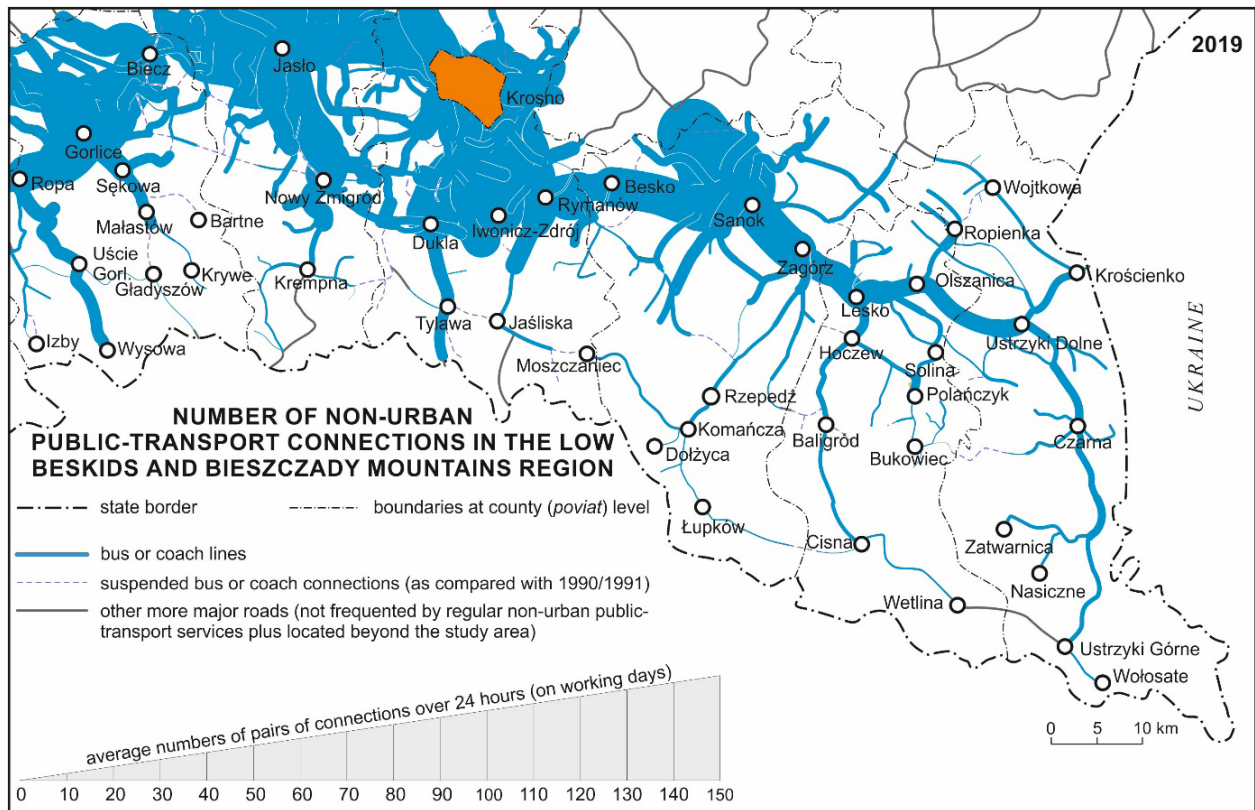


Fig. 1. The network of non-urban bus transport in the area of the Low Beskids and the Bieszczady mountains in 2019.

Source: own elaboration.

here. Likewise, Dukla and Nowy Żmigród, providing facilities for county cities, were characterised by a good offer of bus carriers. The impact of the Marcel carrier’s offer aimed at establishing links with the voivodeship city of Rzeszów was also visible, especially in the case of Sanok, but also in Jasło and Krosno. In the case of Gorlice and Wysowa-Zdrój, direct routes to another voivodeship city – Krakow – played the same role (Ciechański, 2020).

The study did not provide a detailed analysis of the distribution of individual trips throughout the day either. In general, however, on routes with less traffic after rush hours, there are completely or almost completely no trips. It should be remembered that on other routes on Saturdays, there were often significantly fewer buses, and on Sundays and holidays there were single trips on some routes or no routes at all. Many routes were also not served on days free from school (Ciechański, 2020).

## 2. Public bus transport in the face of a pandemic

The image presented in the previous part of the article did not seem to be very optimistic in many respects. The situation in March 2020 surprised every-

one. An epidemic that had hitherto existed in media reports from China also suddenly became a reality in Europe. At first, nothing indicated that such strict isolation to which Poles were condemned since the beginning of April would be necessary. This had an impact on the functioning of non-urban public transport. Admittedly, authorities at various levels assured that commuting had to be maintained, but only some connections remained, mainly in the case of publicly owned carriers (primarily rail companies). For bus operators, economic calculation was the only limiting factor in business activity.

On March 12, 2020, school activities were suspended. This caused an outflow of a very large group of regular customers, i.e. in pupils, from suburban buses. Introduction of a holiday timetable by many carriers was a natural consequence of this process. Progressing restrictions on mobility excluded further professional groups of passengers from the market. Initially, carriers defended themselves by limiting the number of connections, especially outside rush hours and on holidays (only a few of them, such as Krosno’s Miś, kept single routes on Saturdays). The scale of changes to the offer varies. Some carriers reduced the number of trips by half. Others offered them three times a day adapting them to the hours of work shifts



in the functioning companies (except for standard hours between 6 a.m. and 5 p.m.). In many cases, due to a lack of passengers or for epidemic safety reasons, the trips were completely suspended. Despite this, it is still possible to travel by local public bus from Gorlice to Sanok. On Sundays, public transport in the area was practically non-existent.

operator Marcel suspended its route to Rzeszów on this section.

The situation is slightly different in Sanok County. The picture to the east and the south of the county capital is looking the most dramatically. The Tarzan company, which offers transport to mountain village such as Rzepedź, Komańcza, Tarnawa, and Moszcza-

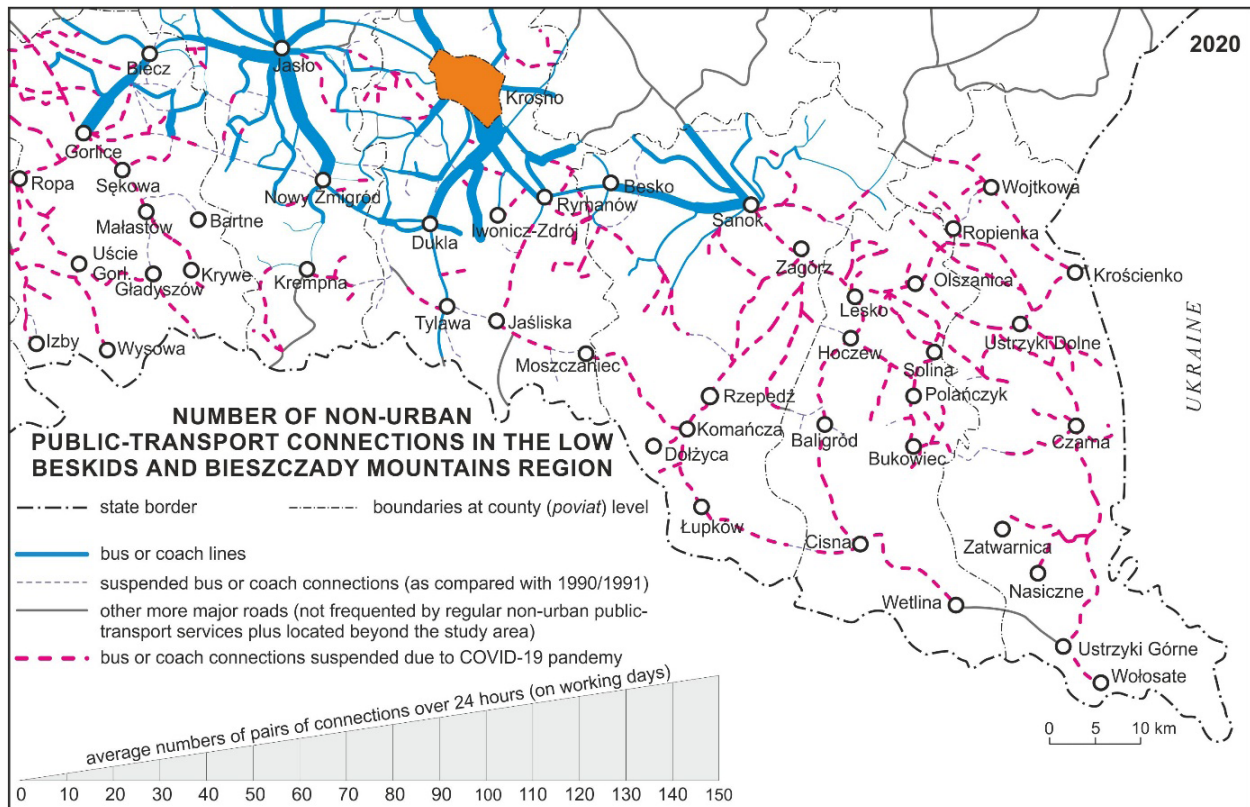


Fig. 2. The network of non-urban bus transport in the area of the Low Beskids and the Bieszczady mountains during the COVID-19 epidemic, the beginning of April 2020.

Source: own elaboration.

The main purpose of the present study was to identify changes in the network and the number of bus connections in the examined area. The image presented in Figure 2 is shocking for some counties. The entire area of Bieszczady and Lesko Counties was deprived of public transport from April 1 for at least two weeks, and probably longer. Both owned by Jarosław County, PKS Jarosław, as well as a private carrier, Bak-Bus, completely suspended their connections for at least 14 days. The receipts from tickets did not cover any costs, and limiting the transport offer could not help either. The fact that in early April 2020 Ustrzyki Dolne became a county town completely cut off from public transport is a great sensation, because long-distance routes to this town were also suspended. In the case of Lesko, a long-distance bus of the Neobus company arrives only once a day. However, there are no, even local, buses to Sanok – the

niec, has completely suspended its connections. The situation is similar in the case of the Start carrier, operating a route, among others, to Niebieszczy. However, it is worth remembering that Municipal Bus Transport buses from Sanok reach Zagórze or Sanoczek. On the remaining routes, there is a limited transport offer, primarily tailored to the needs of persons commuting to the largest nearby employer, i.e. Sanok Rubber Company. Thanks to this, buses still reach Wola Sękowa or Bukowska and the surrounding area of Besko or the northern part of the county. This plant works in three shifts, and partly also on Saturdays. Interestingly, however, employees are also transported from the neighbouring Brzozów county, which is a certain paradox due to the termination of the offer in the southern and eastern part of Sanok County. It is worth noting that in addition to public transport, for example, from Besko or the Brzozów

Counties, there is still restricted transport exclusively for employees of the already mentioned Sanok factory. The offer of the Marcel company, a mogul on the transport market to the voivodeship city of Rzeszów, has been significantly limited. However, the Neobus express bus routes have been kept. Still, the number of trips to Warsaw decreased by approx. 50%, and the number of seats on buses for was reduced by  $\frac{3}{4}$  for safety reasons.

One of the most important employers in Krosno County is the Podkarpackie Voivodship Hospital. Therefore, it is not surprising nowadays that ensuring commutes for medical staff is a priority. Hence, normally heavily loaded routes from Dukla or Lubatowa still provide a fairly good level of transport offer. The Krosno company Miś is the leader in ensuring efficient transport during this period. The situation looks a bit worse on the outskirts of the county, but where there are still strong connections with its capital, carriers (e.g. the Miś company) are trying to provide connections that would enable commutes during office hours and for all three shifts in the case of production plants. The situation is much worse in typically mountainous areas. Here we observe a similar situation as in Lesko and Bieszczady Counties. Some transport to small village was cancelled shortly after suspension of school activities (e.g. to Zawadka Rymanowska or Mszana). The Jaśliska area was also deprived of public transport. Several routes around Krosno were also suspended, but public buses arrive at least in some of these towns.

Unfortunately, in the case of Jasło County, full data is missing for some routes. However, based on timetables available from carriers who provided passenger information about the implemented changes, the author tried to estimate additional data for those carriers that did not have their own information channels. The fact that local county and municipality governments took up the role of transport operator and established the County-Municipality Transport Association in Jasło County (Powiatowo-Gminny Związek Komunikacyjny w Powiecie Jasielskim) has had a decisive impact on the shape of the current transport offer in the county. Municipal Bus Transport from Jasło and the former PKS Jasło (currently operating under the name PGZK-Jasiel) provide transport on its behalf. Thanks to this, one can say that the scale of restrictions is smaller here than in the case of neighbouring counties. Nevertheless, the Kremplna area served by PGZK-Jasiel has been deeply affected by restrictions resulting from the suspension of school activities (connections, among others, to Polany, Wyszowatka, Grab and Myscowa have been cancelled). However, symbolic communication with the county capital has been

maintained. Maintaining a good transport offer has been successful on the main local transport route connecting Jasło with Nowy Żmigród. Private carriers also tried to retain at least half of the offer. There is a large oil refinery in Jasło, which certainly has an impact on the volume of the offer.

The situation in Gorlice County looks quite the same as in Sanok County. All routes leading to strictly mountainous areas have been suspended. While in the case of small towns, such as Krywe, Małastów, Gładyszów or even Uście Gorlickie, it is not particularly surprising, but it is a bit surprising in the case of a route to the spa resort of Wysowa (which may mean that the majority of passengers were patients). A very limited offer has been preserved near the county capital and the second of the cities in this county – Biecz. Suspending connections from Gorlice to nearby cities, such as Bobowa or Grybów, is also surprising. Local giants, like Voygaer and Libropol, ceased their transport services completely. Long-distance routes of EuroPol Połec and Voyager from Gorlice to Kraków have also been suspended. However, also here the situation is more similar to what is observed in the case of the Sanok area than to what is noticeable in the case of Jasło. In addition, the Gorlice suburban area has routes operated by the local Municipal Transport Authority.

## Summary and conclusion

The situation observed at the turn of March and April 2020 will leave a deep mark on non-urban public bus transport for a long time. Unfortunately, the current crisis has only shown how fragile the financial foundations of its operation are and how dependent it is on commuting to schools. Particularly worrying is the fact that in areas with low population density there has been a situation in which whole neighbouring counties are almost completely deprived of access to public transport.

If the current crisis persists longer, its effects will be catastrophic primarily for private carriers. Currently, in some cases they are completely, and in some cases only partly, deprived of income. The problem is likely to be exacerbated by the earlier planned termination of school, which means that entrepreneurs will be deprived of significant income from pupils for at least three months and of compensation for statutory discounts. In the perspective of a few months, combined with rising unemployment, this can practically contribute to a series of bankruptcies. In September this may result in an unexpected problem, namely, that other areas will permanently become white spots on the map of Polish public transport, and thousands of secondary school pupils will de facto be deprived of

a possibility to continue education because they will not be able to get to school.

Undoubtedly, human life is the highest value, but it is worth considering whether restrictions on mobility should not apply, in the first place, to groups of people most vulnerable to the dangerous course of the new disease. Activities related to fighting the epidemic should be undertaken from the widest perspective, including not only education, but also taking into account the impact of closing schools for several months on the economy. Lack of state response to the current situation of public transport in peripheral areas can have catastrophic consequences – it, as well as the prospects for a better life for many young people, may figuratively become victims of “COVID-19 associated diseases”. Already affected areas will become even more harmed, and the social exclusion of people already excluded in their area will unfortunately increase even more. Adverse processes on a scale similar to the fall of state-owned farms can be expected.

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