

# Factors Determining the Development of Rail Passenger and Freight Transport on the Example of the Podkarpackie Voivodeship

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## Summary

The availability of EU funds for the modernization of infrastructure, including railways (infrastructure renovations and rolling stock purchases) has led the local authorities of the Podkarpackie Voivodeship to acquire diesel-powered rolling stock initially and later electric, too. Renovations of the railway network are – on the one hand – carried out by the infrastructure owner Polskie Linie Kolejowe (PLK), which is managed centrally, and – on the other hand – more complicated due to costs as well as legal and procedural issues (the need to comply with EU law). Thus, for example, the modernization of LK 91 Kraków – Rzeszów only began in 2011; for comparison, the first diesel vehicles were purchased by the Marshal's Office of the Podkarpackie Voivodeship in Rzeszów in 2004, and electric vehicles in 2013. As more vehicles were acquired (by mid-2023 the number – including those ordered – was 49) and the infrastructure was renovated. Then it was decided to launch a Suburban Agglomeration Railway (PKA), connecting Rzeszów with towns located up to 50 km from the capital of the Podkarpackie Voivodeship via the existing railway infrastructure. A comprehensive modernization of Rzeszów Główny Station is underway now including renovation of the station building. Also, due to the proximity of the border with Ukraine, the modernization of the eastbound railway lines and border stations of PLK and UZ (1435 + 1520 mm) started a few years ago. After the Russian invasion of Ukraine in February 2022, they proved to be much needed given the need to transport refugees and international aid to Ukraine.

**Keywords:** Podkarpackie Voivodeship, PLK, PKA (Suburban Railway in Podkarpacie), Jasionka Airport

## 1. Introduction

Podkarpacie is a region located in the south-eastern part of Poland (Rzeszów is the capital of the voivodeship), bordering Ukraine to the east and Slovakia to the south (Fig. 1). Currently, a key role in the region's railway communication is played by the LK 91, i.e. the double-track electrified Kraków – Rzeszów – Przemyśl – Medyka line, the modernization and revitalization of which was completed in 2015, allowing a maximum speed of 160 km/h on the Kraków – Rzeszów section (120 km/h on the remaining section) (Fig. 2) [1, 2]. Further lines such as Przeworsk – Stalowa Wola (LK 68) and Rzeszów – Ocice (LK 71) (Fig. 3), electrified and with two and one track respectively, allow speeds of up to 120 km/h. The remaining lines are mostly single-track non-electrified lines where the operating speed does not exceed 80–100 km/h. Due to its proximity to Ukraine, the Podkarpackie Voivodeship has several railway border

crossings with that country, as well as transshipment stations built to allow freight transshipment between the 1435 mm and 1520 mm gauge rail networks:

- Przemyśl Main and Medyka (Fig. 4) and Żurawica (UZ – Mostyska II Station) play a role in passenger and freight transport between PKP and UZ, respectively. At the UZ – Mostyska II Station, the TSP SUW 2000 site system (now closed) is mounted for automatic gauge adjustment [3, 4].
- Werchrata located on LK 101 Munina – Hrebennie, serves as a local freight border crossing; LK 116 (1520 mm) from Rava-Ruska in Ukraine is connected to Werchrata Station.
- Malhowice on LK 102 Przemyśl – Malhowice (– Chyrów) – Krościenko – Zagórz (LK 108), is a former line running in transit through the Soviet Union (until 1991), and now through Ukraine from Przemyśl to Zagórz. At Krościenko there is a local passenger border crossing with Ukraine (now closed)<sup>2</sup>.

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<sup>2</sup> At Malhowice Station, there has never been a border crossing, and transit journeys by PKP trains until 1994 (due to PKP's resignation) took place without border controls, with disembarkation or embarkation prohibited.



Fig. 1. Railway network in the Podkarpackie Voivodeship [own work]

Due to the different rail gauges (PKP and UZ), it is necessary to change the bogies on the wagons for transport between the two countries (except at border stations where tracks of both gauges are laid). Both the classic method (exchanging bogies using Kutruff jacks) and automatic switching are used. The relevant switching points are located at the following stations:

- classic switching – Przemysł Main and Mostyska II (passenger traffic), Medyka (freight traffic);
- automatic switching – Mostyska II (passenger traffic, SUW 2000 system, currently not in use).

It should be added that the exchange of wagon bogies currently only applies to passenger transport. The exchange of bogies for freight wagons was abandoned after 1989, in preference to transshipment at border stations and due to the withdrawal of the permission to enter the PKP network for wagons with a 1-WM

clearance gauge<sup>3</sup>. A stretch of the Broad-Gauge Metallurgy Line (LHS) also runs through the Podkarpackie Voivodeship, where the Wola Baranowska transshipment station (1520 + 1435 mm) is located.



Fig. 2. Sędziszów Małopolski Wschodni Station on LK 91 (8 July 2023) [photo: P. Demska / PLK]



Fig. 3. LK 71 Ocice – Rzeszów (11 December 2021) [photo: K. Dzidek / PLK]



Fig. 4. Medyka Station (1435 + 1520 mm) (28 July 2015) [photo: M. Graff]

Railway communication with Slovakia, on the other hand, is realized through one local non-electrified border crossing, Łupków – Medzilaborce, used for seasonal passenger traffic or, if necessary, as a backup crossing for freight traffic between Poland and Slovakia. Currently, the crucial rail-related investments in the Podkarpackie Voivodeship are:

- launching communication as part of the Subcarpathian Agglomeration Railway, i.e., a connection between Rzeszów and towns located up to 50 km from the capital of the voivodeship – Przeworsk, Dębica, Kolbuszowa, and Strzyżów at intervals of 0.5 / 1h during peak / off-peak periods;
- construction of new stops within PKA;
- building of technical and maintenance facilities for the Suburban Agglomeration Railway near Rzeszów Staroniwa Station and an analogous facility for PKP Intercity (PKP IC) at the Przemyśl Bakończyce station (in progress): in mid-June 2023, it was announced that a contractor will be selected (in Q3 2023) for the modernization of the Przemyśl Bakończyce train maintenance station to be carried out on behalf of PKP IC at a cost of 380 million PLN [5]. Thus, an environmentally friendly year-round washing facility will be built, and the station's track layout will be rebuilt to accommodate more trains. The facility is to be adapted to handle, among other things, ED250 Pendolino trains;
- modernization of Rzeszów Główny Station (track superstructure replacement, station building renovation), completed in 2021<sup>4</sup>;
- electrification and revitalization of LK 71 Rzeszów – Ocice (completed in 2021) (Fig. 5);
- electrification and revitalization of LK 68 Stalowa Wola Rozwadów – Lublin (a stretch of the line lies in the Podkarpackie Voivodeship, the rest – in Lubelskie Voivodeship; completed in 2020);
- revitalisation of LK 106 Rzeszów – Strzyżów – Jasło (non-electrified line);
- construction of a railway line to the Jasionka civil-military airport near Rzeszów (about 5 km) as part of PKA, completed at the end of September 2023. [6];
- revitalization of border crossings with Ukraine, particularly Medyka, which serves as the crucial freight station in PKP – UZ communication, and Werchrata, which is a border station on the local line and possibly local lines connected to Wola Baranowska Station on LHS. Modernization of the Krościenko border station, i.e., the LK 108 access line, was not envisaged;

<sup>3</sup> Wagons of eastern operators can enter the PLK network (after changing bogies to 1435 mm gauge), mostly as exceptional consignments.

<sup>4</sup> Modernization of stations in Przeworsk, Przemyśl and Łańcut, among others, were carried out during preparations for EURO 2012; in Dębica, Sędziszów Młp. – modernization of LK 91, Kolbuszowa – electrification of LK 71. The station building at Stalowa Wola Rozwadów Station is currently undergoing renovation.

- purchase of modern rolling stock, i.e., multiple units – electric or hybrid (previously also diesel). Purchases of vehicles are carried out by the Marshal's Office of the Podkarpackie Voivodeship with EU funding;
- modernization of the Przemyśl interchange, including the construction of a new railway bridge over the San River (Fig. 6 and Fig. 7), and revitalization of LK 102 to Malhowice.



Fig. 5. Kolbuszowa Górna stop on LK 71 (8 July 2023)  
[photo: P. Demska / PLK]



Fig. 6. Bridge on the San River in Przemyśl until 2023  
(16 September 2016) [photo M. Graff]



Fig. 7. New railway bridge over the San River in Przemyśl  
[photo: T. Warszawski / PLK]

## 2. Modernization of Rzeszów Main Station

In May 2021, the modernization of Rzeszów Główny Station was completed at a cost of PLN 299.6 million, co-financed by the EU OPI&E program (PLN 209.6 million) (Fig. 8), which is also part of a broader program implemented by the Podkarpackie Voivodeship called “Construction of the Subcarpathian Agglomeration Railway – PKA” [7]. As part of the mentioned program, 14 new stops and a new railway line to the airport will be built.



Fig. 8. Rzeszów Główny Station (8 April 2023) [photo: M. Graff]

Within Rzeszów Główny Station, communication between the platforms, the station, and the city is now provided by a subway, which has replaced a footbridge over the tracks, as well as 4 lifts and 4 pairs of escalators installed on the platforms [8, 9]. A new Rzeszów Zachodni stop was put into service, too, after the installation of a lift and ramps on the platforms, among other things. Orientation is facilitated by more than 100 information signs. The investment project in Rzeszów was implemented by PKP PLK as part of the program “Improvement of the technical condition of the passenger service infrastructure (including adaptation to the requirements of the TSI PRM)”. The value of the contract, co-financed by EU funds under the Infrastructure and Environment Operational Program, was PLN 205 million net. In addition, new stops have been built on selected lines (commissioned in June 2023):

- LK 106 Rzeszów – Strzyżów: Rzeszów Galeria (now Rzeszów Centrum) and Rzeszów Os. Dąbrowskiego (eventually Rzeszów Politechnika) and Boguchwała Dolna, Lutoryż, Żarnowa;
- LK 91 Przeworsk – Rzeszów – Dębica: Rzeszów Północny (eventually Rzeszów Staromieście), Rzeszów Baranówka, Rzeszów Dworzysko and Rzeszów Wschodni (now Rzeszów Pobitno);

- LK 71 Rzeszów – Kolbuszowa: Głogów Małopolski Os. Niwa (eventually Głogów Małopolski Niwa) and Kolbuszowa Górna.

In September 2021, the construction of the new Rzeszów Wschodni stop started within PKA. The new stop featured two higher platforms, new shelters, benches, information boards, and signage as well [10]. Three lifts were installed at the exits to the platforms and in the new subway. During the work, the contractor secured the overhead line equipment and dismantled the track. A piling rig was used for the work. The work was carried out mainly at night to minimize disruption to train traffic. Works related to the construction of a subway under one of the tracks were scheduled for October 2021. Construction of the stop was completed in June 2023.

At Kolbuszowa, Zaczernie, Glinik Charzewski, and Strzyżów nad Wisłokiem stations, five additional platforms will be built accessible to people with limited mobility. The provision of information boards and tactile signage will facilitate travel. Bicycle racks will be provided for cyclists. Also, planned is the reconstruction of 7 railway crossings (single-level) and the construction of 9 engineering structures and two pedestrian subways. In addition, four passing loops will be built on LK 71 – Widełka and Zaczernie and on LK 106 – Lutoryż and Glinik Charzewski.

In early November 2021, construction of the Rzeszów Dworzysko stop on LK 91 [11] began (Fig. 9). The new stop will feature two side platforms. The Rzeszów Dworzysko stop was expected to be ready in the first quarter of 2023 (eventually, it was completed in September 2023). Facilities for people with limited mobility include 2 lifts – at the exits to the platforms and in the new subway. At the duration of the work, train traffic ran on an adjacent track. From 8 November to 11 December 2021 substitute bus service was provided temporarily for 3 POLREGIO trains on the section Rzeszów Główny – Trzciana or Rzeszów Główny – Sędziszów Małopolski.



Fig. 9. Rzeszów Dworzysko stop (8 July 2023) [photo: P. Demska / PLK]

At the beginning of December 2021, the electrified LK 71 Rzeszów – Ocice was commissioned at a cost of PLN 67 million from the budget [12, 13]. This enabled the partial abandonment of the use of diesel vehicles and also made it possible to increase the speed and frequency of trains. Power supply substations were built in Chmielów, Nowa Dęba, Cmolas, Widelce, and Rzeszów, and a passing loop was built in Majdan Królewski in 2019, increasing the capacity of LK 71. In 2016 a new stop was built in Chmielów and the platform in Głogów Małopolski was extended. The line will be used for passenger (regional and long-distance) and freight traffic. The location of the new stops will be as follows [14]:

- Sędziszów Małopolski Wschodni stop – will be located near the passage under the tracks at Księżomost Street and will gain two high platforms of 200 m in length with landscaping elements;
- Rzeszów Północny Baranówka stop – also equipped with two platforms – is planned in the area of the railway viaduct over Miłocińska Street;
- Kolbuszowa Górna stop will be built in the area of the railroad crossing on the Kolbuszowa Górna – Wojków road stretch;
- Głogów Małopolski Osiedle Niwa – the location of the stop is planned along the DK in the area of the railroad crossing, on the Jana Pawła II Street stretch;
- the Rzeszów Północny stop will be built near the railroad crossing at Miłocińska Street.

The works require changes in the organization of train traffic, including the introduction of a substitute bus service for 10 POLREGIO trains on the Rzeszów Główny – Sędziszów Małopolski section, as on to the single-track Rzeszów – Kolbuszowa line, including until the end of July 2022 on the Głogów Młp. – Kolbuszowa section, and from 1 August to 3 September 2021 on the Kolbuszowa – Rzeszów Główny section.

### 3. Suburban Agglomeration Railway

The Suburban Agglomeration Railway (PKA) is a system of fast agglomeration and suburban railways connecting the center of Rzeszów, including the suburbs of the Podkarpackie Voivodeship capital, and towns located up to 50 km from Rzeszów at intervals of 0.5 / 1 hour during peak / off-peak periods; and on public holidays – every 2 hours. (Fig. 10). It was decided to use the existing railway network, except for the section currently under construction running to the Jasionka civil-military airport, with new stops being built both within Rzeszów and on the PKA network. Advantages were also taken of the fact that

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Fig. 10. PKA diagram [PLK development]

the railway lines coming out of Rzeszów have been modernized (western stretch of LK 91), or revitalized (eastern stretch of LK 91, LK 106, LK 71), as well as electrified (LK 71) in the last 5–10 years. Funds for the development of PKA were obtained by the local authorities from OPI&E 2014–2020 with funding of PLN 117 million, with a total program value of PLN 287 million, and the funds were used for rolling stock purchases and the construction of repair and maintenance facilities. The value of investments related to infrastructure improvements – construction of new stops, platforms, passing loops, viaducts, or park & ride

car parks, as well as spot works on LK 71, LK 91 (eastern stretch), and LK 106 – is equal to approx. PLN 301 million, with EU funding of PLN 208 million. PKA was inaugurated in early January 2021.

At the beginning of August 2020, it was decided to cancel the tender for the execution of part of the works under the option right, which was transferred to the primary contract, and the entire tender was redone [15]. In addition, after the opening of proposals in May 2020, it emerged that the pre-proposals submitted by consortia led by Intop and Inżynieria Rzeszów. It was decided to change the scoring:

- need for experience on the part of the contractor (36 pts) was dropped;
- the length of the guarantee and warranty period was retained – 40 pts;
- 60 pts were awarded for price.

The execution of selected works, under the option right to be exercised by the contracting authority, was possible until the end of June 2021, which provided for the completion of 7 tasks:

- construction of a power cable, approximately 450 m long, to supply track no. three at Rzeszów Główny Station, combined with the replacement of the overhead line over track no. 35, which branches off from track no. 3 on the Rzeszów Starowina – Rzeszów Główny section;
- installation of a comprehensive photovoltaic system within the facility;
- construction of an access road and maneuvering areas made of paving stone;
- construction of a petrol station;
- integration of the railway traffic control system for PKA's technical facilities with the PKP Rzeszów Główny Station;
- construction of a cover for the Mikońska stream.

The tenders were opened on 4 September 2020. At the end of April 2021, a contract was signed for the construction of a maintenance and service centre for vehicles acquired for PKA [16]. Thus, on an area of 5726 m<sup>2</sup>, a hall with a length of 140 m, a width of 41 m and a volume of 55,103.55 m<sup>3</sup> will be built, equipped with a rolling stock washing facility and a petrol station, among other things. Three traction tracks will be rebuilt. The total length of the tracks will be 8.3 kilometers. EU co-financing of 50% was obtained for the PLN 136 million investment under the Infrastructure and Environment Operational Programme. The work will be carried out in the Design & Build system (9 months – design, 20 months – construction) by a consortium of companies: Inżynieria Rzeszów and Agat Company. Completion of the work is expected in September 2023. The maintenance centre will reduce costs, as the need to send vehicles to Nowy Sącz, Bydgoszcz or elsewhere in Poland – which was increasing repair times and reducing the level of readiness of the rolling stock – will disappear. However, it was noted that although the PKA concept was correct, comments could nevertheless be made on the implementation:

- connections operated by PKA are trains running on shorter distances, implicitly complementing POLREGIO's offer;
- on days off (weekends, holidays), the PKA rolling stock does not run; thus, modern vehicles are set aside, and old EN57s are used as trains to Tarnów or Przemyśl;

- The number of destination stations served by PKA is low, so the use of rolling stock is inefficient;
- selected lines, e.g., LK 25 Mielec – Dębica, while modernised for several hundred million PLN with EU assistance, still have an insufficient offer for passengers.

Construction of technical facilities for PKA began in early October 2022 [17]. The value of the entire PKA program is PLN 756 million, with the local authorities setting aside PLN 393 million (52%) and the remainder – PLN 363 million (48%) – coming from EU funding. Cost participation was declared by the local authorities of Rzeszów (PLN 0.375 million in 2021, PLN 5.4 million in 2022) and Łańcut (PLN 0.794 million in 2022 and 2023).

Table 1 lists selected urban centers in the Podkarpackie Voivodeship located at a distance of < 100 km from Rzeszów, which has 197.2 thousand inhabitants, i.e., dominates the region (another city, Przemyśl, has 57.2 thousand inhabitants). Thus, the current PKA concept covered localities with an average size of 10–20 thousand inhabitants, whereas larger centers such as Przemyśl, Jarosław, Tarnobrzeg, or Jasło with 30–50 thousand inhabitants – were not included in PKA. Then it seems reasonable to postulate that the PKA development concept should assume the expansion of PKA's reach, especially as the Podkarpackie Voivodeship has purchased new vehicles (purchases have been made successively since 2004) and will have 29 electric vehicles alone – once the ordered units have been delivered – plus four hybrid and 16 diesel vehicles. Now, the vehicles are “stationed” at Rzeszów Główny Station (before that they were also stationed in Przeworsk), which is an ad hoc solution. Once the repair facilities are built, it will be possible to introduce rolling stock management: that is, to extend the daily mileage of vehicles to schedule repairs (e.g. by sending fault information to the service center in advance, allowing spare parts to be ordered earlier). Ultimately achieving a one-hour interval, e.g., for journeys between Przemyśl and Rzeszów, will make it possible to acquire more passengers who, being certain that a train in one or the other direction is available within < 1 hour, will choose to travel by train rather than by bus or car. Extended PKA's network can reach to centers such as Stalowa Wola (59.6 thousand inhabitants) or Lubaczów (11.8 thousand residents) is perhaps debatable, also due to their greater distance from Rzeszów – about 100/112 km (Stalowa Wola, via Tarnobrzeg/Przeworsk) and 95 km (Lubaczów), respectively – but with the provision of transport connections at Przeworsk and Jarosław stations, it may make sense to include both cities in the PKA concept (i.e., a transfer instead of a direct train). On LK 68, which connects Stalowa Wola and Przeworsk, there are towns

such as Leżajsk and Nisko with a population of about 15 thousand inhabitants each, so this could be an additional argument for including these urban centers in PKA. Another city in the Podkarpackie Voivodeship – Krosno (45.9 thousand inhabitants) due to the long commute to Rzeszów (92 km, 2–3 hours), resulting from low speeds on the access lines, especially LK 108, would make sense after the construction of the Jasło by-pass planned by PLK to enable travel on the Rzeszów-Krosno route omitting the Jasło station within a reasonable timeframe (1–2 hours). It is similar to LK 71 – the inclusion of the city of Tarnobrzeg in the PKA concept automatically includes another center, Nowa Dęba (11 thousand inhabitants). Both electric (Fig. 11 and 12) and diesel (Fig. 13) vehicles are used to handle traffic on the PKA network.

Table 1

Selected urban centres in Podkarpackie Voivodeship located at a distance of < 100 km from Rzeszów

Urban centre	Population* [thousand]	Distance from Rzeszów [km]	PKA	LK
Dębica	42.7	46.92	+	91
Ropczyce	15.8	30.53	+	
Sędziszów Małopolski	12.4	25.69	+	
Łańcut	17.6	16.79	+	
Przeworsk	15.5	36.82	+	
Jarosław	37.5	51.74	-	
Przemyśl Główny	57.2	88.12	-	71**
Głogów Małopolski	10.3	12.81	+	
Kolbuszowa	8.7	29.89	+	
Tarnobrzeg	44.2	71.41	-	106
Strzyżów nad Wisłokiem	8.9	31.00	+	
Jasło	34.5	71.14	-	

\* Statistics Poland data from 2016–2022.

\*\* Tarnobrzeg – also LK 25.

One of the disadvantages of Podkarpacie, apart from the more populous Rzeszów, compared to, for example, Kraków, Lublin or Poznań, is also much smaller size of the local economy, which reduces the mobility of the population, as well as low population density in areas such as along the LK 101 Muni-na – Hrebennie route (Lubaczów district – average 42.2 persons/km<sup>2</sup>) or LK 107 Zagórz – Łupków and

LK 108 Zagórz – Krościenko (Lesko district – average 31.7 persons/km<sup>2</sup>). For comparison, the population density in Jarosław district is 116.8 persons/km<sup>2</sup>, and in the Łańcut district – 179.3 persons/km<sup>2</sup> (average value for Poland – 120.8 persons/km<sup>2</sup>). Trains used in these areas – local or long-distance – do not make sense for structural reasons; at most, it is justified during the tourist season (Fig. 14).



Fig. 11. EN63-102 (manufacturer – Newag) as a PKA passenger train between Przeworsk and Rzeszów at Łańcut Station (3 July 2023) [photo: M. Graff]



Fig. 12. EN62A-105 (manufacturer – Pesa) as a passenger train to Rzeszów at Przemyśl Główny Station (24 September 2018) [photo: M. Graff]



Fig. 13. SA140-004 and EN63-019A (manufacturer – Newag) at Rzeszów Główny Station (8 April 2023) [photo: M. Graff]





Fig. 14. SA134-029 (manufacturer – Pesa) belonging to the Marshal's Office of the Podkarpackie Voivodeship at Lublin Station (3 May 2013) [photo: M. Graff]

#### 4. Modernization of individual railway lines

In the last 10–15 years modernization of selected railway lines in the Podkarpackie Voivodeship was carried out, mostly with EU's financial support, which is particularly important for big investments with budgets > PLN 1 billion. Part of the works is being carried out without EU funding, but this concerns smaller investments (the whole is co-financed from the state budget or PLK's own funds). A short railway line to Jasionka Airport was also built.

##### 4.1. LK 626 Line (Rzeszów –) Zaczernie – Jasionka Airport

Plans for the construction of a railway line to Jasionka Airport near Rzeszów emerged back in 2009 [18]. Ideally, the intention was to run trains at intervals of 0.5 hours during peak periods and 1 hour during off-peak periods plus two hours on weekends and holidays. In February 2018, plans for the construction of the line were included in the PKA program, which involved the purchase of rolling stock and the construction of a maintenance center and a railway line to the airport (about 5 km) along with electrification, with costs at the time calculated at PLN 580 million (Fig. 15). The airport line is scheduled to be operational in 2021. Opportunities for the success of the PKA program were seen in the integration of rail and urban transport: the development of new ticket fares, and a P+R system (park and ride, fewer private cars entering the city). EU co-funding was also obtained for PKA. In the autumn of 2022, work began on the construction of a railway viaduct in Rudna Mała over DK 9 Rzeszów – Warsaw [19]. It is a single-span steel structure more than 50 meters long ensuring collision-free train traffic on the line to the airport. The viaduct was placed on temporary supports, and at the end of January 2023, the contractor began

moving the structure onto the final reinforced concrete abutments. Several days were scheduled for the above work, which also required a change in traffic organization, scheduled from 30 January to 13 February 2023. Nearly 5 km of railway line was built, providing a connection between Rzeszów and Jasionka Airport. The section runs from the village of Zaczernie and connects to the newly built Jasionka Airport Train Station. The new Głogów Małopolski Południowy / Technology Park stop has also been built on the route. PKP PLK's investment at a net cost of PLN 314,108,513.04 is co-financed by the EU OPI&E under the program "Construction of Suburban Agglomeration Railway – PKA," with an EU funding of PLN 209.6 million. In March 2023, the contractor started work on the construction of platforms for the new Głogów Małopolski Południowy stop and Rzeszów Airport Station, as well as laying track and installing the overhead line [20]. The construction of the new line to Jasionka Airport was completed at the end of September 2023. The transport offer turned out to be far from sufficient – 12 pairs of trains were scheduled to run per day (i.e., every 1.5 hours on average) but the train schedule was completely out of sync with airplane arrivals or departures (e.g., morning departure to Warsaw, or evening arrival from Warsaw) [21]. Travel time on the Rzeszów Główny – Jasionka Airport route is 18 min. The length of the Zaczernie – Jasionka Airport section (LK 626) is 5.243 km.



Fig. 15. Construction of railway line to Rzeszów Jasionka Airport (1 April 2023) [photo: P. Hamarnik / PLK]

##### 4.2. LK 25 Dębica – Mielec – Tarnobrzeg

In September 2020, freight trains started running on the revitalized line from Mielec to Kochanówka. In mid-2021, after the reconstruction of another section of LK 25, PLK PLK ensured efficient freight train traffic on the entire route from Mielec to Dębica. The work on the Mielec – Dębica section is part of PLK's contracts for PLN 224.5 million net. Tenders

estimated at PLN 170 million are in progress, including the revitalization of the 18-km Mielec – Padew section. The investment “Revitalization of railway line No. 25, section: Padew – Mielec – Dębica” is included in the Regional Operational Program (ROP) of the Podkarpackie Voivodeship 2014–2020. The total value of the program is PLN 296,717,022.32, and the amount of EU funding – 209,063,173.35 PLN. PLK’s investments for the Mielec – Dębica line also included the construction of an overhead line on the Dębica Towarowa – Dębica Osobowa section, as well as the reconstruction of railroad crossings and railway traffic control equipment. Six bridges were rebuilt, including in Mielec over the Trześć River, in Przecław over the Młynówka River, in Tuszymia over the Tuszymka River, in Brzeźnica over the Wielopolka River, and more than 30 culverts.

At the beginning of September 2021, passenger traffic was restored on the section Debica – Mielec (LK 25) [22–25]. Travel time takes 35 minutes, which is 1 hour less than before the revitalization. The investment was co-financed with EU funds under the ROP of the Podkarpackie Voivodeship. On the modernized 32 km section, the maximum speed for passenger trains is 120 km/h. The following stations and stops were rebuilt: Mielec, Wojsław, Rzochów, Rzemień, Tuszymia, Dąbie, Pustków, Kochanówka Pustków and Pustynia. The new platforms are equipped with shelters, benches, lighting, information boards, and signage. A system of tactile paths on platforms helps visually impaired people access trains. At Mielec station, three lifts were installed at the exits to the platforms and in the new subway. The 50-meter-long grade-separated pedestrian crossing replaced the footbridge over the tracks and facilitated access to the platforms. A contract for PLN 97.7 million net for the revitalization of the Padew – Mielec section was signed by PLK with a consortium of companies: Swietelsky Rail Polska Sp. z o.o., Kraków (Leader), and Swietelsky AG, (consortium member). The work was scheduled to begin in the first quarter of 2022, with funding coming from the ROP of the Podkarpackie Voivodeship.

In early November 2022, passenger train traffic was restored after 13 years on the Padew – Mielec section, a stretch of LK 25 [26]. Also, for track superstructure replacement, new platforms were handed over for use in Chorzelów, Tuszów Narodowe, and Jaślany. The investment was carried out for PLN 106 million under the ROP of the Podkarpackie Voivodeship and the National Railway Program. In September 2021, passenger trains from Dębica to Mielec were restored. Traveling the route from Mielec to Padew takes about 17 minutes, from Dębica about 50 minutes. A total of 12 railroad crossings were rebuilt. In Mielec, at Sienkiewicza Street, a grade-separated crossing – a 120 m

long road viaduct – will replace two single-level crossings: among other things, the viaduct abutments and the so-called slab were constructed and the steel structure is being assembled (Fig. 16). A road will be built nearby to connect the viaduct with the Mielec bypass. With pedestrians in mind, a new subway is being built in the area of Mielec Station. At the end of 2022, the route between Drzewieckiego and Skargi Streets will connect the housing estates next to the station. Completion of all work, including the construction of the road viaduct, took place in the first quarter of 2023.



Fig. 16. Mielec – new road viaduct (3 December 2022)  
[photo: A. Stec / PLK]

PLK’s investments were carried out as part of the program: “Revitalisation of LK 25, on the section Padew – Mielec – Dębica”. The investment is included in the ROP of the Podkarpackie Voivodeship for 2014–2020. So far, contracts have already been signed for works worth more than PLN 323 million net. According to PLK declarations, the revitalization of the last section of Dębica – Mielec – Tarnobrzeg should be completed by the end of 2023, allowing passenger traffic to resume along the entire route [27]. The Mielec – Padew Narodowa section is also of economic importance as connecting to the LHS line. Following the completion of the renovation of LK 79 Padew – Wola Baranowska and the expansion of the transshipment terminals in Wola Baranowska (Fig. 17), a full picture of the completed investment will emerge, which will be of great importance for the economic potential of the region. Works completed in May 2023 included the revitalization of 5 km of track and the replacement of traffic control equipment [28]. A bridge in Padwia Narodowa and two culverts were also repaired. In Baranów Sandomierski, the railroad crossing was rebuilt. The investment, at a net cost of more than PLN 15.6 million, was financed from the state budget. Speed limits were eliminated, the maximum speed of 60 km/h was restored, and axle loads per track were increased from 196 to 221 kN [29]. The designer and contractor was PNUIK Kraków Sp.

z o.o., which carried out the entire investment project in 2022–2023.



Fig. 17. Wola Baranowska Station on LHS (LK 65; 1520 + 1435 mm) (20.08.2016) [photo: M. Graff]

#### 4.3. LK 106 Rzeszów – Strzyżów nad Wisłokem

In early February 2022, work began on LK 106 from Rzeszów to Strzyżów nad Wisłokem [30]. The investment projects are carried out for 300 million and co-financed by EU funds under the OPI&E program, including the line reconstruction. The goal is to allow trains to run every 0.5 hours at peak traffic and every 1 hour off-peak. Work on the Rzeszów Główny – Strzyżów nad Wisłokiem section was completed at the end of 2022. From February 5 to October 2022, substitute bus service was provided for POLREGIO trains on the Rzeszów Główny – Strzyżów nad Wisłokiem section.

#### 4.4. LK 68 Przeworsk – Stalowa Wola (– Lublin)

At the end of April 2021, work began on the Przeworsk – Stalowa Wola section of LK 68 for PLN 11 million from PLK funds, which included the routine repair of the track superstructure and renovation of crossings and culverts between Nowa Sarzyna and Leżajsk (Fig. 18) and Grodzisk Dolny and Przeworsk [31, 32]. Meanwhile, on the Przeworsk – Stalowa Wola section, improvements were made to the bridge over the Malinianka River in Jelna and in two culverts. On the section Grodzisko Dolne – Przeworsk Gorliczyna, the reconstruction of 7 culverts is planned. In addition, four crossings in Jelna, Tryńcza, and Przeworsk will be rebuilt. The works on the double-track section of the line between Nowa Sarzyna and Leżajsk (a total of 4 km of the line) do not affect the flow of traffic since it is a double-track section and train traffic is carried out on a single track. The reconstruction of facilities on the single-track Grodzisko Dolne – Przeworsk section required the introduction of a substitute bus service. In 2018–2020, PLK completed tasks

on the Przeworsk – Stalowa Wola section for nearly PLN 26 million from the budget and PLK's funds. The work included the bridge reconstruction in Wierzawice over the Błotnia River and the modernization of Nowa Sarzyna Station. One of the more significant users of the railway's services is a chemical plant "Zakłady Chemiczne CIECH Sarzyna".



Fig. 18. Maintenance work on LK 68 Nowa Sarzyna – Leżajsk (5 May 2023) [photo: PLK]

Electrification and revitalization of LK 68 on the section Stalowa Wola Rozwadów – Lublin Zemborzycze (– Lublin Gł.) was completed in December 2020 as part of an investment project involving EU funds from the Operational Program Eastern Poland. On the section of LK 68 in the Podkarpackie Voivodeship, two additional stops were built: Zaklików Miasto and Stalowa Wola Charzewice. The investments were carried out for more than PLN 450 million net under the EU's Operational Program Eastern Poland, and the funding amounted to 75% of the investment value.

#### 4.5. Rail border crossing Medyka – Mostyska II on LK 91 and LK 92

Between 2016 and 2020, PLK allocated more than PLN 64 million for the modernization of the Medyka rail crossing [33]. Replacement of the track superstructure for both the 1435 mm and 1520 mm railway networks (a total of 17 km) was revitalized, replacing 62 switches, catenary, and traffic control equipment. The condition of lines to transshipment terminals was improved including the CTL Północ Chełm – Hala siding in Medyka, the PKP Cargo Connect terminal of the Border Service Centre in Medyka, and the terminal of the Orlen Fuel Bottling Plant in Żurawica. In mid-June

2021, PLK announced a tender, estimated at more than PLN 26 million, for the design and execution of works on the Hurko – Krówniki lines, i.e. LK 120 (1435 mm) and LK 123 (1520 mm), which are access lines to a transshipment siding that provides domestic and international forwarding, along with the transshipment and storage of metallurgical products, iron ore, coal, aggregates, as well as bulk and industrial goods in the area of the rail border crossing in Medyka. The investment in the area of the rail border crossing with Ukraine involves the replacement of nearly 19 km of track between the Hurko and Krówniki stations, as well as 9 turnouts. The renovation of 5 engineering structures is planned: a viaduct and four culverts. Safety at the railroad crossing will be improved.

Completion of works on Hurko – Krówniki is scheduled for 2022–2023, and funding will be provided by the state budget. The task: works on railway lines No. 120 and 123 Hurko – Krówniki are carried out under the program “Investment works on the border crossing Medyka – Mostyska II”.

#### 4.6. New railway bridge on LK 91 in Przemyśl

In November 2022, construction of a new railway bridge on LK 91 on the San river in Przemyśl (in its current location) began [34]. The works started with the expansion of abutments and supports, which will make it possible to “spread out” the current spans and make space between them for the new structure. The truss bridge spans currently in use will be preserved. The new 6-span bridge, nearly 200 m long, will resemble the old structure in shape. The old railway bridge will change its function. Three spans (1 carriageway) will be adapted into a pedestrian and bicycle path, connecting two parts of the city. The remaining three spans will be used by the Przemyśl Land Museum to prepare an outdoor exhibition. By April 2023, new abutments and two pillars were built on the west side of the bridge [35]. Work on the supports on the eastern side is nearing completion, and the spans of the existing structure will soon be placed on them. In May 2023, train traffic is running on the second track thanks to the completion of the bypass. Such a solution will make it possible to shift the spans of the western carriageway of the bridge onto the already constructed target supports and build a new crossing between the spread-out structures. PLK’s investment will result in the construction of two new bridge carriageways with classic steel truss construction spans. The implemented concept also allows the historic elements of the old railway bridge to be preserved in the city’s space. In addition, the roads under the bridge will also be rebuilt to eliminate traffic restrictions.

The road works are scheduled to be completed in the first quarter of 2024. PLK’s investment in

Przemyśl is being carried out under the program: “Improving the technical condition of engineering structures, stage II”. The PLN 60 million investment is co-financed by EU funds under the OPI&E. Completion of the essential works on the bridge is scheduled for December 2023. Within the Przemyśl agglomeration, construction of the following is planned [36, 37]:

- a new stop “Przemyśl Lwowska” (temporary name) on LK 91 Kraków Główny – Medyka at Lwowska Street near the shopping center (Fig. 19);
- a new stop at Medyka Station, with the stop to be built in a more convenient location for residents – about 500 meters in the direction of Przemyśl;
- at Żurawica Station – a subway of almost 40 m and a ramp (Fig. 20). The new route will be built connecting Dworcowa and Wapowskiego Streets. The first to be built is part of the reinforced concrete structure of the subway.



Fig. 19. The new Przemyśl Wschodni stop construction site (1 April 2023) [photo: Ł. Fronc / PLK]



Fig. 20. Construction of a tunnel at Żurawica Station on LK 91 (1 April 2023) [photo: A. Mirek / PLK]

On 10 February 2022, PLK signed agreements with contractors for the design and implementation

of investments with a total value of more than PLN 12.5 million. Completion of the work is planned for the end of 2023. Contracts for the construction of an additional stop in Przemyśl worth PLN two million net, and a new platform in Medyka for PLN 2.4 million net were signed with Przedsiębiorstwo Budownictwa Specjalistycznego "Transkol" Sp. z o.o. The contract for the construction of a subway in Żurawica, with a net value of PLN 8.1 million, will be carried out on behalf of PLK by INTOP Tarnobrzeg Sp. z o.o.

### Train Stop Programme in the Podkarpackie Voivodeship

In the Podkarpackie Voivodeship, the Train Stop Programme includes nine investments from the primary list in Przemyśl, Hurko, Medyka, Żurawica, Ropczyce, Strzyżów, Mielec (two new stops) and Zaklików. A contract has been signed for the construction of the Mielec Europark, Chorzelów Południowy and Strzyżów Zachód stops. There is a tender pending for the reconstruction of platforms in Ropczyce. Eleven tasks were placed on the reserve list.

### Government Program for More Accessible Railway Communication

In May 2021, a resolution was adopted on the establishment of the "Government Program for the Construction or Modernization of Train Stops for 2021–2025", submitted by the Minister of Infrastructure, to which PLN 1 billion was allocated. Among other things, the funds will be used to build or modernize train stops and to finance works related to the availability of parking spaces for passengers. The "Government Program for the Construction or Modernization of Train Stops for 2021–2025" includes 355 locations throughout Poland. The primary list included 173 locations, and the reserve list 182.

### 4.7. LK 102 Przemyśl – Malhowice – State Border

In late September 2022, PLK completed essential work on LK 102 Przemyśl – Malhowice – State Border (12.38 km) (Fig. 21) [38]. After final acceptance, it is possible to reactivate, after 28 years, passenger connections on LK 102, which runs from Przemyśl southwards to Malhowice to the Polish-Ukrainian border. Local and long-distance passenger traffic (in season) operated until 1994 (by transit, without border control, on closed trains). A stretch of LK 102 is used to pull passenger trains from Przemyśl Główny Station to the holding tracks at Przemyśl Bakończyce Station. On the Przemyśl – Malhowice – State Border section, PLK has carried out works that may restore the line's passability with a maximum speed of 60 km/h. In addition to replacing tracks and turnouts renovation were made to platforms at Pikulice Station and at the

Hermanowice and Malhowice stops, as well as nine railroad crossings near the Przemyśl Bakończyce, Pikulice, Hermanowice and Malhowice stations, and 15 engineering structures, including four steel bridges and 11 culverts. The revitalisation of LK 102, commissioned by PLK, was carried out by Przedsiębiorstwo Napraw i Utrzymania Infrastruktury Kolejowej Kraków Sp. z o. o. for more than PLN 47million net. The work was funded by PLK.



Fig. 21. Malhowice Station (LK 102) near the Ukrainian border (1 October 2022) [photo: M. Borowiec / PLK]

### 4.8. LK 108 Zagórz – Krościenko

At the beginning of March 2022, the necessary work was carried out on LK 108 and the Uherce – Krościenko (– border with Ukraine) section with a length of about 30 km and technical acceptance was completed. It became possible to travel on the railway line that had been out of service for 12 years (until then, travel had been possible up to Uherce Station) [39, 40]. On the single-track line, among other things, the sleepers were replaced (Fig. 22). PLK has reviewed and improved visibility at rail-road crossings. The trains (running only occasionally) were operated by DMUs and run by POLREGIO. The LK 108 section is a mountain single-track railway line. In addition, PLK carried out track work on the Zagórz – Uherce section in 2021, including replacement of more than 4,000 sleepers. Visibility at rail-road crossings was reviewed and improved, and the bridge in Zagórz over the San river was repaired. Making the railway border crossing passable is crucial given the Russian aggression against Ukraine at the end of February 2022 and the transport of refugees to Poland (mostly women with young children and old people).



Fig. 22. Olszanica stop on LK 108 (26 March 2022)  
[photo: P. Hamarnik / PLK]

#### 4.9. Werchrata Station on LK 101 and 116

At the end of July 2021, PLK said that at Werchrata Station on LK 101, the track superstructure covering both the 1435 mm and 1520 mm networks (about 1.5 km) will be replaced using a ballastless track [41]. Drainage repairs are also planned. At the station in Werchrata, which is a rail border crossing, wagons from Ukraine are currently being transshipped (Fig. 23), carrying materials for ceramics production, road and industrial salt, and aggregates, among other goods. Transport from Ukraine is carried on part of LK 116 (1520 mm), and at Werchrata Station cargo is transshipped onto 1435 mm wagons and transported along the Munina – Hrebenne line (single-track, non-electrified). Clay is transported to Opoczno, while salt and aggregates – to different parts of the country. In 2020, 0.3 million tonnes of goods were handled at Werchrata Station. In the second half of 2021, an increase in transshipment of 1,000 tonnes per month was declared. The task for the design and execution of construction works on tracks No. 220, LK 116, and No. 35 LK 101 at Werchrata Station under the programme “Investment works at the Werchrata – Rawa Ruska border crossing” was carried out in 2022–2023. The investment is fully financed from the state budget.



Fig. 23. Transshipment work at Werchrata Station (LK 101)  
(31 July 2021) [photo: J. Klimek / PLK]

## 5. New generation rolling stock in the Podkarpackie Voivodeship

The first modern vehicles were ordered by the authorities of the Marshal's Office of the Podkarpackie Voivodeship in 2004 and 2005. These were diesel-powered vehicles produced by the Kolzam Racibórz plant and Pesa Bydgoszcz (two each of the SA109 series and SA103 class, respectively) intended for operating local lines on the following routes: Jarosław – Horyniec Zdrój (LK 101), Dębica – Mielec – Stalowa Wola Rozwadow (mainly on LK 25), Rzeszów – Jasło (LK 106), Jasło – Zagórz (LK 108), in season also Zagórz – Łupków (LK 107). The SA109 (Fig. 24) and SA103 (Fig. 25) vehicles ran alternately on the aforementioned lines. The operating schedule was arranged to ensure more or less equal mileage (in km) for all vehicles. The purchase of both vehicle class was carried out with the local authority's funds, i.e., without EU funding. In 2010–2011, further vehicles were acquired – five SA135s (Fig. 26), differing from the SA103 due to a modified power unit (combustion engine and axle gearbox). In 2011 and 2014, two SA134-series two-cars vehicles were acquired to operate connections, e.g., Rzeszów – Jarosław – Hrebenne – Lublin or Rzeszów – Jasło, where attendance during peak hours was higher. At the same time, passenger traffic on the LK 25 section Dębica – Mielec – Ocice was suspended in 2009, and PLK issued a tender for a feasibility study for the revitalization of LK 25 [42]. Thus, vehicles previously used to operate connections on LK 25 were released.



Fig. 24. SA109-010 (manufacturer – Kolzam) as a passenger train to Horyniec-Zdrój at Jarosław Station (22 March 2008) [photo: M. Graff]



Fig. 25. SA103-002 (manufacturer – Pesa) as a passenger train to Jasło at Rzeszów Główny Station (20 July 2005) [photo: M. Graff]



Fig. 26. SA135-012 (manufacturer – Pesa) as a passenger train to Horyniec-Zdrój on the section Jarosław – Munina (1 April 2013) [photo: M. Graff]

Between 2013 and 2015, the first Impuls electric vehicles were purchased: three-cars (EN63 plus variants) and two-cars (EN98) vehicles manufactured by Newag (Fig. 27), and between 2014 and 2018, Acatus Plus (Fig. 28) and Elf two- and three-cars vehicles as well as four-cars vehicles supplied by Pesa. This made it possible to phase out the old-fashioned EN57s. At the same time, PLK's revitalization and infrastructure modernizations allowed it to increase maximum speed and reduce travel time, making rail travel more attractive and boosting passenger numbers. One of the most recent orders foresees the delivery of hybrid vehicles, i.e., equipped with an electric drive and a combustion engine. As these vehicles have three cars at minimum, with higher capacity than SA134 or SA103 / 135, they can also be used, for example, to operate connections on LK 101 or LK 106 + LK 108 although nowadays the rather low traffic volume on these lines does not justify the need to operate

vehicles with increased capacity. All vehicles are operated by POLREGIO on a loan-for-use basis. A list of vehicles purchased by the Marshal's Office of the Podkarpackie Voivodeship is provided in Table 2.



Fig. 27. EN98-001 (manufacturer – Newag) at Rzeszów Główny Station. (24 December 2022) [photo: M. Graff]



Fig. 28. EN64-001 (manufacturer – Pesa) as a passenger train running between Przemyśl and Rzeszów at Żurawica Station (16 September 2016) [photo: M. Graff]

Table 2

List of vehicles purchased by the Marshal's Office of the Podkarpackie Voivodeship

Manufacturer	Drive type	Type	Trade name	Number of wagons	Carrier designation	Inventory numbers	Number of units ordered	Number of units delivered	Years of delivery or start of operation
Kolzam	diesel	212M	Regio Van	2	SA109	007, 010	2	2	2004
Pesa	diesel	214Ma	Regio Partner	1	SA103	001, 002	2	2	2005
Pesa	diesel	214Mb	Regio Partner	1	SA135*	010-014 023	5 1	5 1	2010–2011 2016
Pesa	diesel	218Md	–	2	SA134*	022 029	2	2	2011 2014

\* The SA135 and SA134-022 series are permitted to enter the ŽSR network.

Table 2 cont.

List of vehicles purchased by the Marshal's Office of the Podkarpackie Voivodeship

Manufacturer	Drive type	Type	Trade name	Number of cars	Operator designation	Inventory numbers	Number of units ordered	Number of units delivered	Years of delivery or start of operation
Newag	electric	36WE	Signal [-]	3	EN63	001	1	1	2013
Newag	electric	37WE	Signal [-]	2	EN98	001, 002	2	2	2014
Pesa	electric	40WE	Acatius Plus	3	EN64	001, 005	2	2	2014
Newag	electric	36WEa	Signal [-]	3	EN63A	019	1	1	2015
Pesa	electric	21WEb	Elf 2	3	EN62A	101÷105	5	5	2017–2018
Pesa	electric	22WEf	Elf 2	4	EN76A	101, 102	2	2	2018
Newag	diesel	222Ma	–	2	SA140	001÷004	2 2	2 2	2018 2020
Newag	electric	36WEdb	Signal-2	3	EN63B	101÷108	8	8	2020
Newag	electric	31WE	Signal [-]	4	n/a	n/a	8	0	n/a
Newag	hybrid	36WEh	Signal [-]	3	n/a	n/a	4	0	n/a

In mid-December 2020, the delivery of eight Impuls units, both electric and diesel versions, intended for operating PKA connections was completed [43]. These vehicles were ordered in July 2019 in the number of eight three-cars unit (Impuls 2) and two SA140-series diesel vehicles. Until a vehicle maintenance centre is built near Rzeszów Staroniwa Station, the stationing location will be POLREGIO's base in Przeworsk. The vehicles will operate connections on the Dębica – Rzeszów – Przeworsk route. In mid-June 2023, the local authority of the Podkarpackie Voivodeship announced that technical and operational tests of the ordered vehicles begun at the test track of the Railway Research Institute (IK) in Węglewo near Żmigród [44]. The local authority expects deliveries to be completed by the end of 2023 for vehicles ordered in July 2022 (3-cars hybrid units and eight 4-cars electric units). The local authority also decided to order an Impuls unit simulator.

Currently, the Marshal's Office of the Podkarpackie Voivodeship has 37 modern electric and diesel vehicles at its disposal, and another 12 electric and hybrid vehicles are already ordered (Table 3) – the EU does not provide funding for diesel vehicles in its new financial perspective, i.e., 2021–2027. The last purchased diesel-powered vehicles were four SA140-series units acquired in 2018–2020. In addition to electric units, these vehicles promoted by the EU include hydrogen or battery-powered vehicles or hybrids (electric and diesel) if necessary.

Table 3

Quantities of vehicles acquired by the Marshal's Office of the Podkarpackie Voivodeship, as at the end of 2023

Type of vehicle	Number of vehicles	
	delivered	ordered
Electric	21	29
Diesel	16	16
Hybrid	0	4
<b>In total</b>	<b>37</b>	<b>49</b>

## 6. Conclusions

Despite the lack of the ambitious investment programs found in other regions of Poland (construction of new railway lines, increasing train speeds to 200 km/h), the Podkarpackie region makes good use of available EU funds (OPI&E, Eastern Poland, etc.) for large investment programs and funds from the state budget or PLK's funds for minor investments (the last solution significantly shortens the procedural path). The construction of a railway line to Jasionka Airport near Rzeszów, the launch of PKA in 2021, the modernization of the border crossing in Medyka, and the rolling stock purchases carried out testify to the local authorities' understanding of the role of the railways in the region's economy. Inauguration of PKA in early 2021, the concept of which probably needs to be modified, i.e. extended



to more urban centers, will likely be revised once the service and maintenance center has been built and all vehicles have been received from the manufacturer. Certainly, modern rolling stock running at speeds of at least 100 km/h and renovated stations and stops can be an incentive for passengers to choose rail as a mode of transport. The policy pursued by the Marshal's Office of the Podkarpackie Voivodeship for about 20 years of purchasing modern vehicles, obtained with EU funding, has resulted in a fleet of about 50 vehicles which are successively replacing, among others, the EN57s that have been in operation until now. The important element of the modernization of railways in the Podkarpackie Voivodeship is the revitalization of railway lines running towards the border with Ukraine, which is crucial for both passenger and freight traffic. The hitherto rather moderate capacity of the border crossings between Poland and Ukraine proved insufficient in 2022.

The need to expand border crossings is a result of the growing trade between the two countries, as well as the Russian aggression against Ukraine in February 2022 and the subsequent wave of refugees or international military aid provided to Ukraine. Przemyśl Główny Station serves as an essential interchange station with Ukraine for passenger transport, Medyka Station for freight transport (grain or fuel), and the Jasionka civil-military airport is crucial from the perspective of, among other things, international military aid to the fighting Ukraine.

Modernized border stations with Ukraine or access lines to border crossings of PKP PLK – UZ, in the short and medium term, will help to increase trade with Ukraine, not only now but also while transporting – probably shortly – a whole range of goods needed for the reconstruction of Ukraine.

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