

Factors Influencing the Use of Regional Rail Transport Based on the Example of the Lubelskie Voivodeship

Marek GRAFF¹

Summary

Railway reconditioning, i.e., infrastructure repairs and purchases of new rolling stock plus reconditioning of in-service vehicles in the Lubelskie Voivodeship, has been successfully implemented for several years, with the advent of EU aid funds. The first investment project was the construction of a short railway line (< 4 km) to an airport near Lublin, carried out as part of preparations for EURO 2012 (the line has been used since late 2012), i.e., the European Football Championship organized by Poland and Ukraine. Further investment projects soon followed, including the electrification of the LK 68 Lublin – Stalowa Wola, the reconditioning of the LK 7 Warsaw – Lublin, and the rebuilding of Lublin Główny station. Other efforts included the revitalization of LK 30 Łuków – Lublin and work on LK 72 Zamość – Hrubieszów. Further, the reconstruction of the stations in Biała Podlaska, Małaszewicze, and Terespol was completed, together with the reconditioning of the LK 2, playing a vital role in freight connections with Russia and Belarus. However, the importance of this railway line has significantly decreased after February 2022 (due to Russia's invasion of Ukraine). The Broad-Gauge Metallurgical Railway Line (LHS) has been revitalized, and its importance in communication with Ukraine has significantly increased. However, the metropolitan railway connecting Lublin with Chełm and Zamość as well as the district cities of Puławy, Kraśnik, Parczew, and Lubartów has not been launched (a concept for a Lublin region metropolitan railway is under development).

Keywords: Lublin, Eastern Poland Programme, Kolej+ Programme, reconditioning, LK 7, LK 68, LHS

1. Introduction

Located in eastern Poland, the Lublin region has borders with Ukraine and Belarus to the east. As such, there are also 1520 mm gauge sections in that region, not only at the border stations but also in the form of the Broad-Gauge Metallurgical Railway Line. Lublin, the region's key urban center, is linked to Warsaw by a main arterial route (LK 7), upgraded in the last few years to enable speeds up to 160 km/h. While much of the railway network in the Lublin region is electrified, there are still non-electrified lines leading to one of the former provincial cities – Zamość (Fig. 1). Apart from the 2020 electrification of the northern section of LK 68 Lublin Zemborzyce – Stalowa Wola Rozwadów was done, other electrification efforts are planned, e.g., for the Lublin – Parczew – Łuków line and the line to Zamość. Border stations were reconditioned under the Eastern Poland Programme, including the 1435 mm railway network and the 1520 mm

Dorohusk, Terespol, and Małaszewicze network (excluding Hrebenne). The Dorohusk station used to house a Military Transshipment Area (WRP), which was built for the military needs of the Soviet army and remained in use until the early 1990s. Among other things, it featured facilities for transferring petroleum products, some of which proved useful for international aid to Ukraine during the Russian invasion.

On the other hand, the Terespol border crossing or the system of transshipment stations at Terespol station (plus Kobylany and Małaszewicze) was expanded. It could be defined as part of developing the New Silk Road/One Belt One Road, i.e., container traffic from China to Europe. The border station in Hrebenne was not revitalized because it is used only for low-volume passenger traffic, and the role of the nearest freight border station with Ukraine is played by the Werchrata station on the LK 101 line, equipped with a rail network of both gauges (1435/1520 mm). The construction of a new border crossing in Włodawa,

¹ Ph.D.; Institute of Chemistry and Nuclear Technology; e-mail: marek.graff@infotransport.pl.

including a bridge over the Bug River, or the construction of a 1520 mm section between Włodawa and Chełm² currently appears to be inexpedient due

to the reluctance of the European Commission to co-finance the construction of a 1520 mm gauge rail network within the Member States³.



Fig. 1. Railway network in the Lublin region [own work]

² The Chełm station includes a rail network section with a gauge of 1520 mm (LK 63, Dorohusk – Chełm – Zawadówka Naftobaza).

³ The EC intends to co-finance the construction of 1435 mm railway lines outside the territory of the Member States – in Ukraine and Moldova. For more details, see *The European Commission Strategy for the EU integration of the Ukrainian and Moldovan rail systems*, 11 July 2023.

The main railway line running through the Lublin region is the double-track electrified LK 7 Warsaw – Dęblin – Puławy – Lublin – Chełm – Dorohusk. The Warsaw – Lublin section was reconditioned (increasing speed to 160 km/h), and the Lublin – Chełm – Dorohusk section was revitalised on selected segments. The LK 581 Świdnik – Świdnik Port Lotniczy/Lublin Airport, a short railway line to the Świdnik airport (3.695 km), was also built and electrified. One major investment project in the Lubelskie Voivodeship was the comprehensive reconditioning of the Lublin Główny station (replacement of the railroad surface, overhead line, signalling equipment, etc.), combined with such things as the construction of a new Lublin Zachodni stop, as well as a single-track electrified connector between the LK 7 and LK 68 (LK 588, Lublin Rury R3 – Lublin Rury R12; 0.98 km) in 2022, which has eliminated the need to change direction at the Lublin Główny station and increased the station's capacity. The electrification of the LK 71 in the Podkarpackie region (the Rzeszów – Ocice line) has made it possible to run long-distance trains along the entire Warsaw – Lublin – Rzeszów route using electric rolling stock, particularly electric multiple units. The successful electrification of the LK 68 (in 2017–2020) allowed some SA103- and SA134-series railcars to be removed from service on this line and employed on other non-electrified lines:

- Rejowiec – Zawada – Zamość/Bełżec (LK 69); in peak season via Hrebenne and Lubaczów (LK 101) to Jarosław and optionally Rzeszów;
- Lublin Północ – Parczew – Łuków (LK 30);
- Chełm – Włodawa (LK 81, with trains running seasonally).

The Zamość – Hrubieszów (LK 72) and Zwierzyniec – Biłgoraj – Stalowa Wola Południe (LK 66) lines are only used for long-distance traffic (PKP IC trains). Indeed, despite having the appropriate rolling stock, the local authorities have decided only to launch short-range services (Fig. 2). The reason for this is likely the low population density, which does not guarantee passenger flows at an appropriate level in the districts of Biłgoraj (59.9 people/km²), Zamość (56.7 people/km²), Hrubieszów (49.3 people/km²), Tomaszów (55.3 people/km²) or Włodawa (30.4 people/km²); data as of 30 June 2020. For comparison, the average density for the Lubelskie Voivodeship is 81 people/km².

The Lublin Voivodeship Marshal Office has decided to develop the concept of a metropolitan railway, i.e., a network of local connections between Lublin and towns located up to around 50 km away: Puławy, Kraśnik, Świdnik, Parczew, and possibly, Chełm and Zamość. The vehicles would run on electrified and non-electrified lines (the Voivodeship operates both new and upgraded rolling stock).



Fig. 2. SN81-002 at the Lublin station (1 May 2006)
[photo by M. Graff]

The Broad-Gauge Metallurgical Railway Line (LK 65), running from Hrubieszów LHS station to Sławków LHS station in the Dąbrowa Basin (394.6 km), begins in the Lublin region. The importance of the Broad-Gauge Metallurgical Railway Line has increased in the last few years due to container shipments from China and, since 2022, because of cooperation with Ukraine, including on grain shipments. The planned electrification of the Broad-Gauge Metallurgical Railway Line, or even the Hrubieszów LHS border station, will not be pursued due to a lack of funding (the estimated costs exceed PLN 1.5 billion). An extension of the Broad-Gauge Metallurgical Railway Line, e.g., by including the Chełm – Rejowiec – Zamość section and a further section to Włodawa, is unlikely to happen (much like the proposed extension of the line to the Kędzierzyn Koźle station, where the river port on the Oder is located) due to excessive expenditure compared to the expected profits.

With numerous refugees arriving in Poland from Ukraine starting in February/March 2022 in the wake of Russia's invasion of Ukraine, it became necessary to increase the number of passenger connections between the two countries and, possibly, the available seats on trains already running. Although the principal station in passenger transport between Poland and Ukraine is Przemyśl Główny, which receives several UZ long-distance trains per day and operates at the limit of its capacity, the presence of a non-electrified 1520 mm rail network at Chełm station means that it can be reached by broad-gauge passenger trains, allowing passengers to then transfer to PKP IC trains. A stopover at Chełm station (Fig. 3) is advantageous for Ukrainian passengers, especially those heading to Warsaw, as this shortens the journey time in Poland, reducing costs compared to traveling from Przemyśl to Warsaw. The capital of the Podkarpackie Voivodeship provides favorable transport connections to Kraków, Katowice, and Wrocław, as well as Prague, Budapest, Vienna, and Berlin, at a lower cost compared to a journey via Warsaw. However, while UZ

has added several carriages to the Warsaw-Kyiv long-distance train (an increase from 3 to 6) and the Dni-pro/Kyiv – Chełm train hauls about 15 railcars, it was decided to run another connection via the Hrebenne – Rava-Ruska border crossing. The Ukrainian Railways (UZ) hired SKPL, a Polish operator using SN84-series diesel multiple units, to provide services on the PLK network (Fig. 4). Since the Hrebenne – Rava-Ruska section is exclusively standard gauge, a stopover takes place at UZ Rava-Ruska station, from where the DPKr1-series DMUs arrive from Kolomyia via Lviv on a non-electrified line. The refurbishment of part of the Rawa Ruska station⁴ and the reconstruction of the infrastructure for the border services were carried out expeditiously. The success of this connection is evidenced by the high occupancy rates (80–90%; UZ data).



Fig. 3. Chełm station (1435 + 1520 mm)
[photo by P. Mieszkowski, A. Lewandowski/PLK]



Fig. 4. SN84-001 by SKPL (1435 mm) as a train to Warsaw and UZ's DPKr-3-005 (1520 mm) as a train from Kolomyia and Lviv at Rava-Ruska station, Ukraine (15 October 2023)
[photo by M. Szymajda]

Revitalizing the Lublin region's railway network

In late December 2016, PLK announced the commencement of several major infrastructure

reconditioning projects in the Lublin region, which would help significantly reduce travel times and increase safety thanks to new control systems [1]. Indeed, the basic list alone provided for as many as eight investment projects, totaling more than PLN 3.2 billion, as part of the National Railway Programme (KPK) in the Lubelskie Voivodeship.

1. The largest project in the Lubelskie Voivodeship was the reconditioning of the Warsaw – Lublin line (LK 7, about 170 km), with approximately 50% of the above amount earmarked to be spent in the Lubelskie Voivodeship itself. After reconditioning, i.e., raising the speed to 160 km/h, travel time on the Warsaw – Lublin route was reduced to 1.5 hours. The LK7 line has also gained a new stop – Lublin Zachód. The investment project budget for the LK 7 Warszawa Wschodnia Osobowa – Dorohusk line on the Warsaw – Otwock – Dęblin – Lublin section, stage I, is over PLN 3.5 billion, with more than PLN 2.9 billion from the EU OPI&E 2014–2020. The investment was completed in 2022.
2. The revitalization of the LK 30 between Parczew and Łuków will make it possible to use the above line as a diversion route during the reconditioning of line 7 and to resume passenger services from Parczew to Łuków, as well as to Lubartów and Lublin.
3. It will bring improvements for freight train traffic from the Bogdanka Mine to the Połaniec Power Plant, among other things.
4. Work is also expected to take place at the Dorohusk – Jahodyn border crossing with Ukraine and the Terespol – Brest border crossing with Belarus (1435 and 1520 mm gauge network).
5. The Operational Programme Eastern Poland (OP EP) will finance the reconditioning and electrification of the Lublin – Stalowa Wola Rozwadów line, which will reduce journey times by around 20 minutes.

The investment projects aim to improve transport links between Lublin and Warsaw, as well as with Rzeszów, Kielce, Olsztyn, and Białystok, as part of the concept of the so-called Eastern Railway Main Line. The infrastructure manager also plans to build railway connectors in Rejowiec and Zawada. It will cut journey times between Lublin and Zamość by around 50 minutes, i.e., almost by half (from around 2 hrs 10 mins to 1 hr 18 mins), by eliminating the requirement to change direction twice, among other things. Zamość is also set to gain new railway stops: the Mokre stop has been in operation since 11 December, preceded by Zamość Starówka and Zamość Wschód. The National Railway Programme (KPK) reserve list includes six items for more than PLN

⁴ PKP/PLK IC trains to UZ Rava-Ruska station ran between 2000 and 2005 (the line was closed between 1944 and 1996).

800 million, i.e., a total of 14 projects valued at over PLN 4 billion. Completing the KPK projects has resulted in the following reductions in journey times:

- by about 45 minutes on the Warsaw – Lublin route: from ca. 2 h 15 min to ca. 1 h 30 min;
- by about 52 minutes on the Lublin – Zamość route: from ca. 2 h 10 min to ca. 1 h 18 min;
- by about 25 minutes for regional trains, from 1 h 50 min to ca. 1 h 25 min, and by about 15 minutes for long-distance trains, from 1 h 20 min to ca. 1 h 05 min, on the Lublin – Stalowa Wola route;
- by about 20 min on the Lublin – Stalowa Wola – Rzeszów route (thanks to a reduced travel time on the Lublin – Stalowa Wola section, from ca. 1 h 50 min to ca. 1 h 16 min);
- by about 8 min on the Lubartów – Parczew route, from 36 min to approx. 28 min.

Reconstruction of Lublin Główny station

The Lublin Główny station (Lublin Main Station) was rebuilt as well, including the railroad surface, overhead line, platforms, pedestrian subways, and signalling equipment [2, 3] (Fig. 5–7). The investment project was co-financed under the OPI&E. Approximately 70 turnouts were replaced throughout the Lublin Główny station [4]. Modern signalling equipment was installed at the Lublin Local Control Centre (LCS). The new IT system will make it possible to increase the station's throughput and traffic safety (as of August 2020, LCS technical acceptance was still underway). The railway viaducts over Diamentowa and Droga Męczenników Majdanka Streets, as well as bridges over the Bystrzyca and Czerniejówka rivers, were rebuilt (increasing the maximum axle load). To ensure that passenger services are carried out continuously, a temporary platform was built on the Kunickiego Street flyover, on the side of Garbarska Street, as a substitute for the station's unavailable platforms. In early March 2018, the temporary platform was used to service trains to and from Chełm, Stalowa Wola, and Zamość. Measuring 130 m in length and about 4 m in width, the temporary platform was illuminated and featured tactile paths for the visually impaired. The platform was marked and included a shelter, benches, lighting, and an information board. A ramp was provided for people with limited mobility while passengers continuing their journey on long-distance trains, e.g., to Warsaw, could use a signposted walkway next to the station to reach platforms 1 and 2 (crossing Kunickiego Street and then Pocztowa Street). The Lublin station's timetable accounted for the time needed for the transfer and access (about 7 minutes). The platform was used during the period of intensive work, up until the turn of 2018/2019. Once the temporary platform was in service, the contractor started work on platform 2, with only one edge being maintained. Access from the station building was provided via platform 1 and

a walkway to platform 2 from the west (i.e., Warsaw). Reconstruction work, including building a new tunnel under the tracks from platform 3 to platform 1, was also commenced. Following the completion of the works, access to the platforms is possible now using lifts. By mid-May 2020, platforms 2 and 3 were already in operation (100 m long shelters had been installed), with increased height compared to the old structures [5]. The construction of a new platform one, next to the station building was also underway.



Fig. 5. Lublin station before reconditioning (25 October 2014) [photo by M. Graff]



Fig. 6. Lublin station after reconditioning (23 October 2021) [photo by M. Graff]

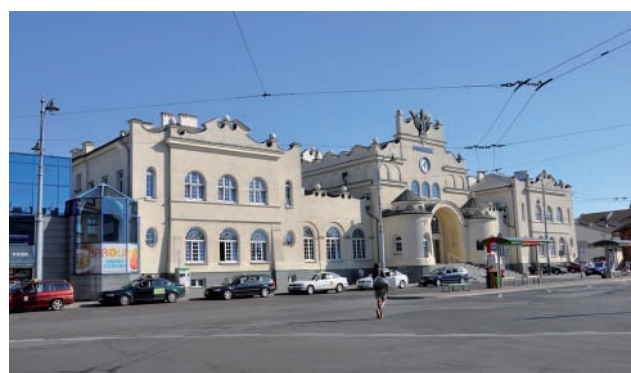


Fig. 7. Lublin station (4 July 2015) [photo by M. Graff]

Reconditioning the LK 7 Warsaw – Lublin line

In April 2016, the European Investment Bank (EIB) granted PKP PLK a loan of EUR 250 million for the modernization of 171 km of the Warsaw – Lublin railway line and the revitalization of a 51 km section of the non-electrified Łuków – Lublin diversion line, which provided additional capacity during the reconditioning of the LK 7 [6]. Reconditioning the Warsaw – Lublin section, i.e., raising the speed from 120 km/h to 160 km/h, has made it possible to shorten passenger journeys and freight transport times. The Warsaw – Lublin – Dorohusk line belongs to the TEN-T network, is included in the AGTC agreement as C 28, and is part of the connection between the Baltic Sea ports and the border crossings with Ukraine. The upgraded railway line will also improve safety thanks to new traffic safety systems. Owing to the attractive financing terms offered by the EIB, PLK was able to benefit from lower financing costs and a long loan repayment period. The reconditioning of the LK 7 is another project co-financed by national and EU funds – a result of cooperation between the EIB and PLK. To this date, the EIB has provided PKP PLK with 15 loans totaling around EUR 2.3 billion. The EIB is an EU institution owned by the Member States. The EIB has assisted railway investment projects in Poland for 25 years. Still, railway infrastructure reconditioning is just one area supported through EIB loans. The OPI&E project 5.1-11 „Works on the railway no. 7 Warszawa Wschodnia Osobowa – Dorohusk on the Warsaw – Otwock – Dęblin – Lublin section” was put forward for EU funding from the Cohesion Fund under the Operational Programme Infrastructure and Environment.

LK 7: Otwock – Lublin section

Modernization of the Warsaw – Lublin section of the Otwock – Lublin line started in June 2017. (Fig. 8) The first phase involved rebuilding the section between Pilawa and Lublin. The works on the Otwock – Pilawa section have been carried out between December 2018 and December 2019. The project „Works on the railway no. 7 Warszawa Wschodnia Osobowa – Dorohusk on the Warsaw – Otwock – Dęblin – Lublin section” is valued at over PLN 3.5 billion, with more than PLN 2.9 billion from the EU OPI&E 2014–2020. After reconditioning the LK 7, the shortest possible travel time between the capitals of the Mazowsze and Lublin regions will be around 90 minutes. The train stations and stops have been equipped with new platforms, shelters, benches, and lighting and adapted for people with reduced mobility. As many as 42 level crossings were reconditioned which has enhanced safety as well.

In mid-February 2018, the tracks on the Dęblin – Lublin section were dismantled for the first phase

of works, as planned. Earthworks were carried out if the weather permitted it. Two railway viaducts near Puławy and Klementowice were demolished. Work began on the structures over Diamentowa Street and the Czerniejówka River; pile driving for the overhead line poles commenced as well. Service roads were constructed to improve material deliveries. Work started on the construction of the Local Control Centre (LCS) in Lublin and the signal box at the Puławy Azoty station. Signal boxes were built at the Puławy, Klementowice and Nałęczów stations. Demolition of the old platforms and work on the pedestrian tunnels began at the Pilawa and Dęblin stations. Tracks, turnouts, lighting, and overhead lines were dismantled. In addition, at the Dęblin station, work was being carried out on a nearby railroad bridge and a culvert. One track and the overhead line were dismantled on the Pilawa – Dęblin section (Q1 2018). At that time, work was carried out on the engineering structures, and the subgrade was prepared. Dismantling of old signalling equipment and tracks continued across various stops and stations, including at Garwolin, Ruda Talubska, Łaskarzew Towarowy, Sobolew, and Życzyn. New turnouts are being delivered.



Fig. 8. Dęblin station after reconditioning [photo by G. Biega/PLK]

In early January 2019, the first payments were made to the subcontractors of Astaldi, a company that withdrew from two contracts for the Lublin – Warsaw and Poznań – Wrocław sections of the railway line [7]. By the end of December 2018, PLK had paid out PLN 100 million, including PLN 89.2 million to LK 7 subcontractors. Over PLN 30 million was paid out at the turn of 2017 and 2018. PLK continued to mediate with Astaldi's subcontractors. Ongoing meetings and mediation regarding disbursements included subcontractors of construction works, service providers, and suppliers who found themselves in a difficult financial situation due to Astaldi's conduct. Indeed, Astaldi failed to deliver on contracts that were vital to society. While the company was selected following

the applicable procedures and declared its full commitment and responsible performance, it eventually placed the ordering party, PLK, in a precarious position. Thus, PLK acted swiftly to continue both contracts regarding the LK 7 Lublin – Warsaw and LK 271 Poznań – Wrocław lines. An inventory was completed on the Leszno – Lower Silesia Voivodeship border section. In October 2018, PKP PLK signed a contract with Zakład Robót Komunikacyjnych DOM Poznań Sp. z o.o. to carry out track work, including on overhead lines and securing engineering structures between Rawicz and the border of the Lower Silesia Voivodeship, i.e., track 2 and track 1 between Bojanowo and Leszno. ZRK DOM carried out works at the Rawicz and Bojanowo stations and facilities on the Rydzyna – Leszno route, among other locations. In December 2018, an inventory was completed on the Dęblin – Lublin section. This allowed new contractors to be brought onto the construction sites in March 2019.

At the same time, ZUE's work on 12 bridges was underway. PLK commenced the procedure of selecting contractors for the remaining scope of work. Astaldi's conduct was viewed negatively for a lack of commitment to ensuring payments to subcontractors and failing to cooperate with the contracting authority, particularly in carrying out an inventory of work on the Dęblin – Lublin line. The company's representatives did not attend meetings despite requests and failed to process documents promptly, as would have been most socially beneficial. This conduct necessitated the extension of inventory procedures until the end of 2018. The work is scheduled to commence in April 2019. The contracts covered all the work that had been contracted out to Astaldi, i.e., track, overhead, and track-related work, but had not been completed. The resumption of single-track train traffic on the Dęblin – Lublin section and further towards Warsaw was planned for late September 2019. Double-track traffic was scheduled to be restored at the end of 2020.

PLK planned to sign a contract for the continuation of works on the Dęblin – Lublin section in late March 2019 [8]. The expanded scope of the works provided for constructing a connector enabling trains to exit the LK 7 onto the LK 68 without changing direction at the Lublin station (Fig. 9). The core work on the construction of the connector was completed in early October 2021 [9, 10]. A new track was laid on the approximately 1.2 km long embankment, and an overhead line was set up. The track was profiled and the overhead line was adjusted. A crossing under the tracks has been provided for residents, especially allotment garden users. Moreover, a railway viaduct was built over Stary Gaj Street. Work is continuing, and the construction of the road system is under the structure. At the same time, drainage for the track

system has been built. The work carried out by Track Tec Construction lasted until the end of October 2021, with commissioning taking place in Q2 2022. The next stage will see the installation of signalling equipment, enabling trains to pass smoothly. The signalling system was installed by Thales. Budimex was selected to carry out the work on the Dęblin – Nałęczów section, including the Nałęczów station, for PLN 616.4 million net, while Track Tec Construction was contracted to work on the Nałęczów – Lublin section, including the Lublin station, for PLN 627.7 million net. In early August 2020, the principal work on the reconditioning of the LK 7 between Lublin and Dęblin was completed on a section of over 70 km, and the adjustment of the second track and overhead line began. The contractor also completed work on platforms at the following train stations and stops: Garwolin, Ruda Talubska, Wola Rowska, Łaskarzew Przystanek, Leokadia, Sobolew, Grabniak, Mika, Życzyn, Rokitnia Stara and Dęblin. Pilawa, Garwolin, Sobolew, Dęblin, and some other stations have gained ramps and pedestrian subways with lifts to improve access for people with reduced mobility. Late August 2022 saw the commissioning of a new track between Pilawa and Otwock and new platforms at three train stations and six stops. In December the second track was put into service, effectively ending single-track operations on the Otwock – Pilawa section [11].



Fig. 9. Construction of the railway connector (LK 588) in Lublin [photo by M. Tyburk/PLK]

With the March 2023 timetable revision, train speeds were raised to 160 km/h on the reconditioned LK 7 Otwock – Lublin line [12]. The shortest journey time for a PKP IC train from Lublin to Warszawa Wschodnia is 1 hour 42 min, i.e. 17 minutes faster. The increased travel speed on the railway line was possible by obtaining certification for state-of-the-art

signalling equipment. The project included the track revitalizing and overhead line and 42 level crossings on the LK 7 along a 150 km section, among other things. The line in question now features 13 new and 31 upgraded railway bridges and viaducts. Passengers have access to as many as 77 new platforms with increased height. All facilities are adapted to the needs of people with reduced mobility. A total of 11 pedestrian subways were built, and four were revitalized. Lublin Zachodni, a new train stop with an island platform, was built at the 170.337 km mark.

In October 2021, the commissioning of the Lublin Local Control Centre (LCS) was made, which replaced four legacy signal boxes equipped with electric relay systems [13]. The LCS supervises train traffic at the Lublin Główny station and 16 km of adjacent routes. The LCS allowed 200,000 trains to travel safely, with approximately 190 passing through the Lublin Główny station daily until June 2022. Once all the work on the construction of the control system on the Klementowice – Motycz section (on the Lublin – Warsaw route) has been completed, train dispatchers will monitor traffic on a 45 km section of the line between Puławy and Lublin. Ultimately 15 level crossings between Lublin and Warsaw will be revitalized. The Lublin LCS will supervise not only the Lublin Główny station but also the Klementowice, Nałęczów, Sadurki and Motycz stations. The installation of the traffic control system on the Lublin – Warsaw section was completed in Q4 2022. The cost of building the new LCS was more than PLN 2 million.

LK 7: Warszawa Wschodnia – Otwock section

In March 2023, PLK began construction work on the Warszawa Wschodnia – Warszawa Wawer section and preparation work for revitalizing the Warszawa Wawer – Otwock section. The project „Works on the railway no. 7 Warszawa Wschodnia Osobowa – Dorohusk on the Warsaw – Otwock – Dęblin – Lublin section, stage II” will enable the separation of the metropolitan and long-distance traffic by constructing four tracks between Warszawa Wschodnia and Otwock. Thus, travel times for long-distance trains will be reduced, and the line’s capacity will be increased. The construction of a second track on the Pilawa – Otwock section is certainly worth noting [14].

Revitalizing the Warszawa Wschodnia – Warszawa Wawer section involves the construction of two new tracks on the Warszawa Goławek – Warszawa Wawer section. Work is being carried out on the line in question to build five new pedestrian subways. The existing subway at the Warszawa Wawer station, included in the municipal register of monuments, is also being rebuilt (the new platform at the Warszawa Goławek stop, under the Mars Street viaduct, was partially complete as of September 2023). A subway is being built with ramps

and stairs, a lift, and access to the platform. The platform at the Warszawa Olszynka Grochowska stop was rebuilt. The stop shelter has been renovated; a new footbridge with lifts is envisaged over the tracks as well. A dynamic passenger information system for train arrivals and departures will also be provided. Passages to the Olszynka Grochowska reserve will be built between the Warszawa Olszynka Grochowska and Warszawa Goławek stops. A new stop called Warszawa Grochów is planned between Warszawa Wschodnia and Warszawa Olszynka Grochowska stations, near the hospital on Szaserów Street. An island platform featuring a shelter and a passenger information system was built, with access to housing estates, a clinic, and more. The core work on the section between Warszawa Wschodnia and Warszawa Wawer stations is planned to end by late 2023. The reconstruction of the last section – Warszawa Wawer – Otwock – is being prepared. Engineering documentation has been prepared for the investment project. The necessary environmental decisions are currently being obtained (to be finalized by the end of 2023). A tender for the construction work for this section is planned for late Q1/early Q2 2024. The project includes the construction of 20 new pedestrian subways in 6 locations indicated by local authorities (four in the Wawer district and two in the Józefów district) and the reconstruction of one at the Warszawa Falenica station. The following stations and stops will be rebuilt: Warszawa Falenica, Warszawa Anin, Warszawa Międzyzysie, Warszawa Radość, Warszawa Miedzeszyn, as well as Michalin, Józefów and Otwock Świder. These stations will also gain subways leading to the platforms. All facilities will be adapted to the needs of people with reduced mobility and equipped with a dynamic passenger information system on the platforms. Improved safety and more efficient road communication will be ensured by four new two-level interchanges – in Falenica, Radość, Józefów and at Werbeny – Brucknera Street (the border between Warsaw and Józefów). The investment project for the Warszawa Wawer – Otwock section will be carried out between 2025 and 2027 under the European Funds for Infrastructure, Climate, and Environment program. Following the reconditioning of this section and the acquisition of the necessary permits, the travel time between Warsaw and Lublin is estimated at 90 minutes.

Electrification of the LK 68: Lublin – Stalowa Wola Rozwadów

In early March 2017, PLK signed a contract for the electrification of the section of the LK 68 from Lublin to Stalowa Wola [15]. At the same time, the line’s reconditioning was foreseen to include the replacement of the railroad structure, allowing the speed to be raised to 120 km/h for passenger trains, as well as the construction of new platforms, the reconstruction of 20 stations, the addition of two new stops (Zaklików Miasto

and Stalowa Wola Charzewice) and the modification of 75 level crossings. Work is planned on engineering structures, including the reconstruction of 24 and the renovation of 46. The engineering project is the largest initiative financed under the Operational Programme Eastern Poland provided for by the National Railway Programme and is estimated at more than PLN 460 million gross. PLK scheduled the relevant activities as follows:

- July to December 2017: work on a single track on the Lublin Główny – Lublin Zemborzyce section (the Lublin Główny – Lublin Zemborzyce section was electrified in 1976);
- December 2017 to March 2018: work on the adjacent track;
- March 2018 to July 2019: the single-track section between Lublin Zemborzyce and Stalowa Wola Rozwadów was closed (including the Lublin Zemborzyce – Kraśnik section until August 2018, and the Kraśnik – Stalowa Wola Rozwadów section from July 2019).

Work commenced in July 2017. [16]. New platforms were built in Kraśnik, Krężnica Jarej, Majdan, Niedrzewica Kościelna, Leśniczówka, Wilkołazie Wieś, Pułankowice, which are much higher compared to the old ones and adapted to the needs of people with reduced mobility [17]. The rail surface was replaced along the line, and 21 new turnouts were installed. In mid-July 2018, the contractor installed the overhead line support structures on the entire Lublin Zemborzyce – Kraśnik section (44 km) (Fig. 10–13). On the Niedrzewica – Wilkołaz section, crossing signalling equipment was installed at 3 level crossings. As many as 35 engineering structures were repaired between Lublin Zemborzyce and Kraśnik stations, including 28 culverts, six bridges, and one viaduct. At the Stalowa Wola Rozwadów station, new platforms were built, the tracks at 5 platform edges and 14 turnouts were replaced, and new signalling equipment was installed. With the resumption of traffic on the Lublin Zemborzyce – Kraśnik section in early September 2018, work began on the Kraśnik – Zaklików section. During the reconditioning, the operators introduced a rail replacement bus service. Renovation work also included a three-span railway bridge (300 m) over the San River at Kępa Rzczycka [18]. The renovated structure allowed train speeds to be increased from 80 km/h to 120 km/h. The works included strengthening the structure and preparing it for electrification as well as the necessary work on the bridge supports. The outcome of LK 68's electrification and reconditioning completed in mid-December 2020 is as follows:

- 20 rebuilt stations and stops;
- two new stops;
- 75 rebuilt level crossings;
- 46 repaired and 24 rebuilt engineering structures;
- 92 km of electrified railway line and 105 km of up-graded railway line;

- 22,000 sleepers and almost 1,100 t of rail (100 km) were replaced.

The investment project is valued at PLN 367 million net (with 85% covered by EU funding). Traffic safety on the LK 68's Kraśnik – Szastarka – Rzczyca section has been supervised by the Szastarka Local Control Centre (LCS) since January 2020, covering not only Szastarka but also Kraśnik and Rzczyca stations and the passenger stops Sulów, Polichna Kraśnicka and Rzczyca-Kolonia [19]. New control centers were also built at the following stations:

- Stalowa Wola Rozwadów, which will include the Zaklików, Lipa, Stalowa Wola, and Charzewice signal boxes with the possibility of enlarging the central control area to cover other stations;
- Niedrzewica and Lublin control centres, supervising traffic on the remaining sections.

The travel time from Lublin to Stalowa Wola has been reduced by about 15 minutes, and is 1 hour 10 min for long-distance trains and 1 hour 40 min for regional trains. Passenger trains run at up to 120 km/h, and freight trains at 80 km/h [20].



Fig. 10. The old railway station in Kraśnik (30 December 2014) [photo by Pece/Wikimedia Commons]



Fig. 11. The new station in Kraśnik, a so-called system railway station (24 December 2023) [photo by M. Graff]



Fig. 12. Rzeczyca traction substation (6 October 2020)
[photo by L. Brylowski/PLK]



Fig. 13. Dart ED161-005 at Kraśnik station
[photo by A. Lewandowski/PLK]

LK 72: Zamość – Hrubieszów

In July 2022, revitalization work was completed on the LK 72 between Zamość (Figure 14) and Hrubieszów, which included installing of new rails and sleepers using a specialized Track Laying Machine [21]. Valued at nearly PLN 10 million, the investment project was financed entirely by PLK. The work was scheduled to be completed by Q4 2022. Thus, the old railroad surface was replaced along a 10 km section between Zamość Szopinek and Hrubieszów Miasto stations. The Track Laying Machine did all the work in 10 days, whereas if a "traditional" method had been used, it would have taken over a month. On one part of the route, the contractor reused some rails and sleepers acquired after reconditioning the LK 7 Otwock – Lublin Główny. More than 19,000 sleepers were replaced, of which 11,200 were taken from the LK 7. After replacing the sleepers and rails, the track was cleaned and stabilized. The classic rail connections, as used between Zamość and Hrubieszów, were replaced by a contactless connection (welded rails), effectively reducing the line's impact on the surroundings, as well as limiting noise and vibration levels.

PLK's investment is expected to shorten journeys on the revitalized section by around 10 minutes, thanks to an increase in speed from 60 km/h to 80 km/h for passenger trains and from 50 km/h to 60 km/h for freight trains.



Fig. 14. SA134-015 at Zamość station (21 February 2015) [photo by M. Graff]

LK 30: Łuków – Lublin

In December 2021, new stops were commissioned at Berejów and Laski on the rebuilt section of the LK 30 Lubartów – Parczew [22, 23]. The PLN 90 million investment project was co-financed with EU funds under the Regional Operational Programme for the Lubelskie Voivodeship. The journey times between Lubartów and Parczew will be about 18 min for long-distance trains and 30 min for regional trains. The stations and stops at Parczew, Parczew Kolejowa, Gródek, Zabiele, Brzeźnica Bychawska, Tarło, Pałecznicza, Ciecierzyn have received new shelters, benches, easy-to-read signage, new lighting and higher platforms with an anti-slip surface. Thirteen level crossings were repaired. New signalling equipment will enable the line's capacity to be increased. After revitalization, the maximum speed is 120 km/h for passenger trains and 80 km/h for freight trains. Operations in difficult winter conditions will be facilitated by new turnouts equipped with electric heating devices to limit the effects of snow and frost. The Local Control Centre (LCS) in Lubartów was expanded. Located in Lubartów, the bridge over the Wieprz River (200 m) is the largest and most important railway crossing on the Lubartów – Parczew section. Its steel truss was coated with an anti-corrosion coating and a new track was laid on the structure. The renovation of the bridge in question, as well as of 14 other engineering structures, has made it possible to run heavier and longer freight trains (221 kN – 22.5 t axle load). Valued at PLN 90 million net, the project

“Revitalisation of the LK 30 on the Lubartow – Parczew section” is co-financed with EU funds under the Regional Operational Programme for the Lubelskie Voivodeship for 2014–2020. In May 2023, PLK announced a tender for engineering documentation for the electrification of the LK 30 Łuków – Lublin [24] (Fig. 15). The estimated project value under the „Government Local and Regional Infrastructure Supplementation Programme ‘Railway Plus’ until 2029” is around PLN 378 million. The tender covers the development of engineering documentation with the engineer supervision for the electrification of the Łuków – Lublin Północny line.



Fig. 15. Łuków station (8 July 2017) [photo by M. Graff]

Reconstructing stations in Biała Podlaska, Małaszewicze and Terespol on the LK 2

In January 2017, PLK launched a tender for the reconditioning and reconstruction of signalling equipment at three stations Biała Podlaska, Małaszewicze (Fig. 16), and Terespol [25]. Replacement of the railroad structure and overhead line as well as construction of new platforms and level crossings, were also envisaged, all for a total of PLN 0.5 billion. The deadline for bids was 3 February 2017. The platforms have been equipped in new lighting, anti-slip surfaces, shelters, benches, signage and information boards. State-of-the-art public address and CCTV systems have also been installed. All facilities have been adapted to the needs of people with reduced mobility. Lifts have been installed at Małaszewicze and Terespol stations while the one at Biała Podlaska has been equipped with a comfortable access ramp. The investment project also includes the construction of grade-separated junctions in such locations as Biała Podlaska, where PLK will work with the city authorities to build a road tunnel. A Local Control Centre (LCS) has been established in Terespol. Total of 14 km of track and turnouts were planned to be replaced

within that station, and the overhead line and telecommunications system were to be rebuilt. After project completion, the speed of passenger trains has increased to 160 km/h and freight trains to 120 km/h. The project implementation period was 2017–2020. The pedestrian subway has been rebuilt; this included constructing a lift shaft. At the station itself, the power lines and overhead lines have been modified. Further, a new signal box has been built within the Małaszewicze station.



Fig. 16. Małaszewicze station [photo by K. Sabak/PLK]

In Q3 2018, the construction of a railway viaduct began in Biała Podlaska to replace the level crossing at Lubelska Street and Regional Road No. 812 Lublin – Biała Podlaska [26–28]. The contractor planned the work in a way that enabled uninterrupted train traffic. Special structures were constructed to prepare and secure the site, and train traffic was halted for several days during the work to ensure safety. On 23–26 October 2018 and 13–16 November 2018, rail replacement bus services for regional trains were provided on the Międzyrzec Podlaski – Terespol section. Rail replacement bus services for long-distance trains continued without changes on the Biała Podlaska – Terespol section. The track system at Biała Podlaska station was rebuilt; as many as 113 turnouts were replaced. Between March 2018 and April 2019, rail replacement bus services were arranged by carriers for regional trains on the Chotyłów – Terespol section and for long-distance trains on the Biała Podlaska – Terespol section. PLK replaced the railroad surface and lighting at 5-level crossings. A new bridge has been built over the Rudka River to allow the passage of trains with larger axle loads (with the axle load of 221 kN). The upgrade was scheduled for completion in August 2020.

PLK also provided for the construction of the Biała Podlaska Rozrządowa stop. The project „Preparation and execution of works on the E20 Siedlce – Terespol

railway line” for the task entitled “Works on the E20 railway line on the Siedlce – Terespol section, stage III – LCS Terespol” was financed from the EU CEF instrument. The total value of the investment project was PLN 754.9 million, with a grant of PLN 546.4 million. Additionally, since mid-2015, passengers in Siedlce, Międzyrzecz Podlaski, and Łuków have benefited from new platforms equipped with such amenities as lifts, benches, and shelters adapted to the needs of people with reduced mobility. Platforms, engineering structures, and level crossings are now covered by CCTV. Traffic safety and train traffic control are handled by the Łuków Local Control Centre (LCS).

In November 2022, PLK signed a PLN 123 million contract for the design and extension of the track system in the area of Biała Podlaska and Małaszewicze stations on the Warsaw – Terespol line, involving the construction of an additional ten tracks at Biała Podlaska station and three at Małaszewicze station (for a total of several kilometers) [29, 30]. The stations will be adapted to handle heavier and longer freight trains – 750 m. The scope of work also includes the construction of overhead lines, turnouts, signalling equipment, and drainage. The work is financed from public funds earmarked for the recapitalization of PLK as part of a National Railway Programme subsidy. The scope of the signed contract also includes the construction of a subway under the tracks at the new Biała Podlaska Wschodnia stop; the stop itself will be equipped with two single-edge platforms. The entrance to the subway tunnel will be situated on the side of Sidorska Street and Bialska Academy. The contractor is Trakcja S.A. The work is scheduled for 2022–2024.

The planned Szastarka – Janów Lubelski – Biłgoraj line

In late March 2023, PLK announced a tender for the preparation of engineering documentation for the construction of a new line from Szastarka to Janów Lubelski to Biłgoraj, connected to the LK 68 and the LK 66 [31] (see Fig. 1). This is first tender procedure financed from the „Government Local and Regional Infrastructure Supplementation Programme ‘Railway Plus’ until 2029” in the Lubelskie Voivodeship. The estimated project value is PLN 906 million. The contractor selected as part of the tender will be responsible for preparing the engineering documentation for the 18 km Szastarka – Janów Lubelski railway line and the approximately 12 km single-track railway line to Kraśnik Fabryczny, together with the Kraśnik Miasto – Kraśnik connector. Both lines will be electrified. The estimated travel time between Kraśnik Fabryczny and Lublin is 52 min and between Biłgoraj and Lublin 1 h 36 min. The engineering documentation provides for the construction of about 15 stations and stops adapted to the needs of people with reduced mobility.

Further, the engineering documentation will also include a design and technical study for the construction and electrification of another 35 km single-track railway line between Janów Lubelski and Biłgoraj. PLK has planned that the engineering documentation of the line to be completed by 2026, with construction to commence in 2027. In September 2023, PLK also signed a contract for the development of engineering documentation with the engineer’s supervision for the construction of the new line [32]. Valued at over PLN 23 million net, the engineering documentation will be prepared under a government program. The engineering documentation relates to the construction and electrification of the 35 km single-track railway line between Janów Lubelski and Biłgoraj. PLK has signed an agreement with the contractor – a consortium of Mosty Katowice Sp. z o.o. (leader) and Arcadis Sp. z o.o. (partner).

„Railway Plus” programme in the Lubelskie Voivodeship

Five tasks [33, 34] were qualified under the „Railway Plus” Programme for implementation in the Lublin Voivodeship (apart from the construction of the Szastarka – Janów Lubelski – Biłgoraj railway line) along with the improvement of rail transport accessibility in the town of Kraśnik. As such, the following actions were planned:

- construction of a new railway line: Lublin – Łęczna/KWK Bogdanka;
- revitalisation of the LK 81 Chełm – Włodawa (Fig. 17) along with the improvement of railway transport accessibility in Włodawa;
- electrification of the LK 30 Łuków – Lublin (the project tender was announced in May 2023);
- reconditioning and electrification of the LK 69 and the LK 72 on the Rejowiec – Zamość Szopinek section, together with the reconstruction and electrification of the railway connector bypassing the Zawada station.



Fig. 17. Włodawa station; SA103-007 in the background (30 August 2015) [photo by M. Graff]

The Railway Plus Programme is scheduled to continue until 2029. Run by the Ministry of Infrastructure, the Programme is estimated at some PLN 13.2 billion, including PLN 11.2 billion from the state budget and around 2 billion from local authorities.

As part of the construction of the Lublin – Łęczna/KWK Bogdanka line, a 25 km single-track line will be built, with a maximal speed of 120 km/h. A total of 12 new stations and stops are planned: Lublin Lotnisko, Trzeszkowice, Krzesimów, Ciechanki Krzesimowskie, Łęczna Szpital, Łęczna Akacyjowa, Łęczna Polna, Łęczna, Stara Wieś, Turowoła, Puchaczów and Bogdanka. The estimated value of the investment project is PLN 736 million.

PLK has also announced a tender for engineering documentation for revitalizing the LK 81 between Chełm and Włodawa, together with improved rail transport accessibility in Włodawa. Estimated at some PLN 500 million, the engineering documentation includes the revitalization of about 41 km of the line between Chełm and Okuninka Białe and the construction of around 10 km of single-track non-electrified railway line running to Włodawa via Okuninka. The maximum travel speed following the revitalization will be about 120 km/h, and traveling between Włodawa and Chełm will take around 53 minutes. Once the project has been completed, restoring regular passenger services on this line will be possible. The work is planned to include the revitalizing of 9 stops: Koza-Gotówka, Karolinówka, Ruda-Huta, Ruda-Opalin, Uhrusk, Wola Uhruska, Stulno, Sobibór, Okuninka Białe and the construction of the Włodawa Miasto station. All facilities will be adapted to serve people with reduced mobility.

The engineering documentation for both investment projects should be completed by 2026, with construction to commence in 2027. This is another one of Lubelskie Voivodeship's tender procedures financed from the „Government Local and Regional Infrastructure Supplementation Programme ‘Railway Plus’ until 2029”.

Constructing the LK 581, i.e. the Świdnik – Lublin Airport access track

In early February 2011, a contract was signed between Trakcja Polska S.A. and PKP PLK's Investment Project Implementation Centre, Lublin Branch, for the development of engineering documentation and execution of construction for the project „Modernisation of part of the technical infrastructure of the LK 7 Warszawa Wschodnia – Dorohusk at the Lublin Północny passenger stop and the Świdnik station to ensure efficient connections for the metropolitan area” [35] (Fig. 18). The scope of work included:

- reconstruction of the platforms at the Lublin Północny passenger stop together with the

technical infrastructure and adaptation for people with disabilities;

- reconstruction of the edge of platform two at the Świdnik Miasto passenger stop;
- partial reconstruction of the track system of the Świdnik station;
- construction and reconstruction of signalling equipment after reconditioning of the track system;
- reconstruction of subways with adaptation for people with disabilities;
- revitalization of the turnout junction and track system of the Lublin Północny junction signal box.



Fig. 18. SA107-002 at Lublin Airport station (4 July 2015)
[photo by M. Graff]

The total value of the investment project was more than PLN 22 million, with the contractor's remuneration specified in the contract being PLN 15.5 million. The contract was scheduled to be completed in June 2012.

At the beginning of September 2011, PKP PLK's Investment Project Implementation Centre, Lublin Branch, and KZA Przedsiębiorstwo Automatyki i Telekomunikacji S.A. in Lublin also signed a contract for the preparation of engineering documentation and the execution of construction for the task „Construction of an access track from Świdnik station to the Lublin Airport S.A. terminal in Świdnik with accompanying infrastructure” [36]. The tender committee selected the most advantageous bid in an open tender procurement procedure. The contract provided for a contractor's remuneration of PLN 2.2 million and entailed the construction of a 2.2 km long line, together with the construction and reconstruction of signalling equipment. The line connected Świdnik station with the terminal of Lublin Airport S.A. Completion of the material scope of the contract was scheduled for the end of September 2012. As per the Indicative List of Individual Key Projects, this is one of 6 projects implemented by PKP PLK's Investment

Project Implementation Centre, Lublin Branch, to receive 85% co-financing from the European Regional Development Fund under the Regional Operational Programme for the Lublin Voivodeship for 2007–2013. In early February 2012, PLK announced an open tender for the construction of an access track in Świdnik together with the associated infrastructure, excluding the signalling system on the section between Świdnik station and the Lublin Airport S.A. terminal in Świdnik [37]. The estimated value of the contract was PLN 8 million (with the final value being PLN 14 million). The LK 581 was commissioned in mid-December 2012 [38]. As part of the investment project, earthworks were carried out along the entire length of the track under construction, together with cuttings, embankments, and drainage. The track was rebuilt and a turnout was installed for the Świdnik CHP siding. Signalling equipment was installed and electrification was carried out as well. The LK 581 (3.695 km, single-track) branches off from the LK 7 at the Świdnik Miasto – Świdnik Wschód section.

Stops Programme in the Lubelskie Voivodeship

In early June 2022, PLK announced a tender for the construction of a new train stop and the reconstruction of another three ones in the Lublin region [39]:

1. The new stop will be built in Łagiewniki near Lublin, between Ciecierzyn and Rudnik on the LK 30 Łuków – Lublin Północny.
2. Reconstruction efforts would take place at the Kraśnik (LK 68), Zamość Starówka and Zamość Wschód (LK 72) train stops – the platforms will be extended and adapted for longer trains.

After the reconstruction, the platforms in Zamość Starówka and Zamość Wschód train stops would be 200 m long (100 m before the reconstruction), while at Kraśnik station the platform would be extended to 250 m. Further, the Zamość Starówka and Zamość Wschód stops have been adapted to the needs of people with reduced mobility. The construction of ramps, a tactile path system, and the installation of new shelters, benches, and information boards were also planned. The contract for the construction and reconditioning of the train stops in the elaborate-and-build system was scheduled to be signed in Q3 2022. The engineering documentation was scheduled to be wrapped up in Q4 2023. (Fig. 19).

In May 2023, PLK completed the construction of new platforms in Sarnów on the LK 26 Łuków – Dęblin [40]. This is the third new stop after Leopoldów and Grabów Szlachecki to be implemented as part of the „Government Programme for the Construction or Modernisation of Railway Stops for 2021–2025”. The engineering documentation was carried out for PLN 4.4 million, which included constructing two

new single-edge platforms, each 150 m long. Since September 2022, travellers have used new platforms in Leopoldów. Moreover, the contractor has already started dismantling the old platforms in Grabów Szlachecki. Work at the latter train stop is scheduled to be completed in mid-2024.



Fig. 19. Parczew Kolejowa train stop and SA103-012 [photo by A. Lewandowski, P. Mieszkowski/PLK]

In the Lublin Voivodeship, the Stop Programme includes the construction or reconstruction of 20 new facilities. Apart from the Łagiewniki stop, similar facilities will be created in Chełm, Grabów Szlachecki, Milanów, Bezwola, Lisiowólka, Szczepieszyn Miasto, Długie Kąta, Zamość Starówka (Fig. 20), Zamość Wschód, Jaski and Aleksandrów, Żurawnica, Leopoldów, Sarnów, Bystrzyca near Lublin, Kraśnik, Wólka Niedzieliska, Chotyłów and Zaklików Miasto. The train stops in Szczepieszyn Miasto, Klemensów, and Długi Kąt will be relocated to provide residents with easier access to railway services. The reserve list for the LK 30 includes such optional train stop locations as Milanów, Bezwola, Lisiowólka, Jaski, and Aleksandrów. The stops to be constructed include Szczepieszyn Miasto, Długi Kąt, Sarnów, Klemensów, Zamość Wschód, Wólka Niedzieliska, Żurawnica, Łagiewniki and Bystrzyca near Lublin. The work was scheduled to be completed in 2023. Currently, travellers can already use infrastructure resulting from the Programme in two locations – Leopoldów (Rycki County) and Niedzieliska Kolonia (Zamojski County).

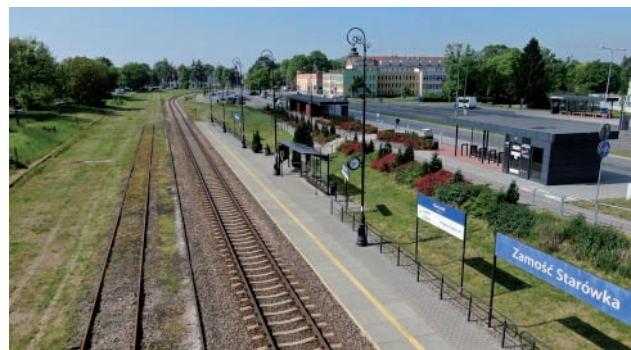


Fig. 20. Zamość Old Town Stop [photo by A. Lewandowski/PLK]

Government programme for improved rail transport

The “Government Programme for the Construction or Revitalization of Railway Stops for 2021–2025” aims to counteract transport exclusion, promote environmentally friendly means of transport, and support the Polish economy. The planned investment project tasks will enable travellers to access regional and inter-regional railways. As much as PLN 1 billion has been earmarked for this purpose. These funds will be used for the construction or reconditioning of railway stops, as well as financing tasks related to the availability of parking spaces for travellers. The “Government Programme for the Construction or Modernisation of Railway Stops for 2021–2025” covers 314 locations across Poland. The principal list covers 185 sites, with a further 129 on the reserve list.

Railway bridges in the Lublin region

In mid-April 2021, PLK allocated PLN 25 million for the renewal of railway bridges in the Lublin region in 2020–2021 [41]. So far, work valued at nearly PLN 6 million has been carried out on crossings over the Giełczew, Huczwa, and Bystrzyca rivers. Further work will include the border bridge over the Bug River in Dorohusk and the crossing in Ryki over the Zalesianka River. These efforts will ensure continued rail travel and goods transport to a mine and a sugar factory, among other sites. The tasks are being carried out using the Company’s own funds (Fig. 21, 22).

1. The ongoing work has enabled continued passenger transport and freight traffic services on the Lublin – Chełm route, including transports to the Bogdanka coal mine.
2. PLK carried out extensive work on the railway bridge over the Giełczew River in Biskupice, where new spans were installed. The bridge supports were secured against washout, and new stairs and railings were made. Two tracks were repaired, with sleepers, rails, and ballast replaced. The work has allowed the speed limit to be removed and capacity to be increased. Heavier trains can now cross the bridge as its axle-load capacity has been increased. The value of the work carried out is about PLN 3.5 million.
3. On the Łuków – Dęblin line, the bridge over the Bystrzyca River near Łuków was modified. Among other things, spans obtained from the reconstruction of the Central Railway Main Line crossing were used for this purpose. Following the required tests, the spans were qualified for reuse. A reinforced concrete slab was also constructed, enabling the passage of heavy freight trains. The bridge was secured against corrosion. Trains can now cross at speeds of up to 120 km/h. The value of the engineering documentation is nearly PLN 1.4 million.

4. Located on the Zamość – Hrubieszów line, the renovated bridge over the Huczwa River in Werbkowice enables transport services for a sugar factory. The truss bridge has had its abutments repaired. The structure was secured against corrosion and painted. The value of the work carried out is about PLN 1 million.



Fig. 21. The LK 68 before reconditioning and the bridge over the San River at Kępa Rzeczycka (Kępa – Pilchów section) [photo by PLK]



Fig. 22. The LK 68 before reconditioning; viaduct near Wilkołaz station [photo by PLK]

In 2021, PLK scheduled work on bridges in the Lublin region (Fig. 23), including the renovation of the bridge over the Biała Łada River in Biłgoraj, on the Zwierzyniec – Stalowa Wola section, the border bridge in Dorohusk, the crossing over the Zalesianka River in Ryki, on the Łuków – Radom section, as well as the one over the Wojsławka River in Krasnystaw, on the Rejowiec – Hrebenne section, for a total of PLN 19 million. In late January 2022, PLK authorities announced that eight bridges over seven rivers in the Lublin region had been repaired for around PLN 19 million [42]:

1. Two railway bridges on the Rejowiec – Zawada line (LK 69), over the Łabuńka and Wieprz rivers. After renovation, the bridge over the Łabuńka near

- Ruskie Piaski station has gained new spans, tracks, and a drainage system. A new walkway for engineering services has made it significantly easier to maintain the structure. The concrete and steel elements of the bridge were secured using protective coatings. The bridge abutments were reinforced with stone.
- A span obtained while reconstructing a bridge on the Central Railway Main Line was built into the bridge over the Wieprz River in the Zwierzyniec commune. Reinforced concrete slabs were laid, abutments were repaired, and drainage was constructed. New stairs were constructed to provide access to the maintenance walkway.
 - The renovated double-track railway crossing over the Zalesianka River in Ryki enables transport on the LK 26 Łuków – Radom. In this case, an older span was reused as well. It was sourced while dismantling a bridge on the LK 91 Kraków Główny – Medyka. The structure has been rested on new abutments and pillars. Maintenance areas were set up on the bridge.
 - The repairs included a railway bridge over the Bug River in Dorohusk, at the Polish-Ukrainian border, and in Tuligłowy near Krasnystaw (LK 69) over the Wojsławka River, on the line running towards the border crossing in Hrebennie. The scope of work in Dorohusk included replacing damaged steel elements of the bridge and anti-corrosion protection. Walkways for maintenance staff were built on both sides of the crossing. The abutments and pillars were also repaired. The repair work was carried out on the 1435 mm gauge bridge. New rails and sleepers were installed on the crossing. The structure was reinforced to facilitate the

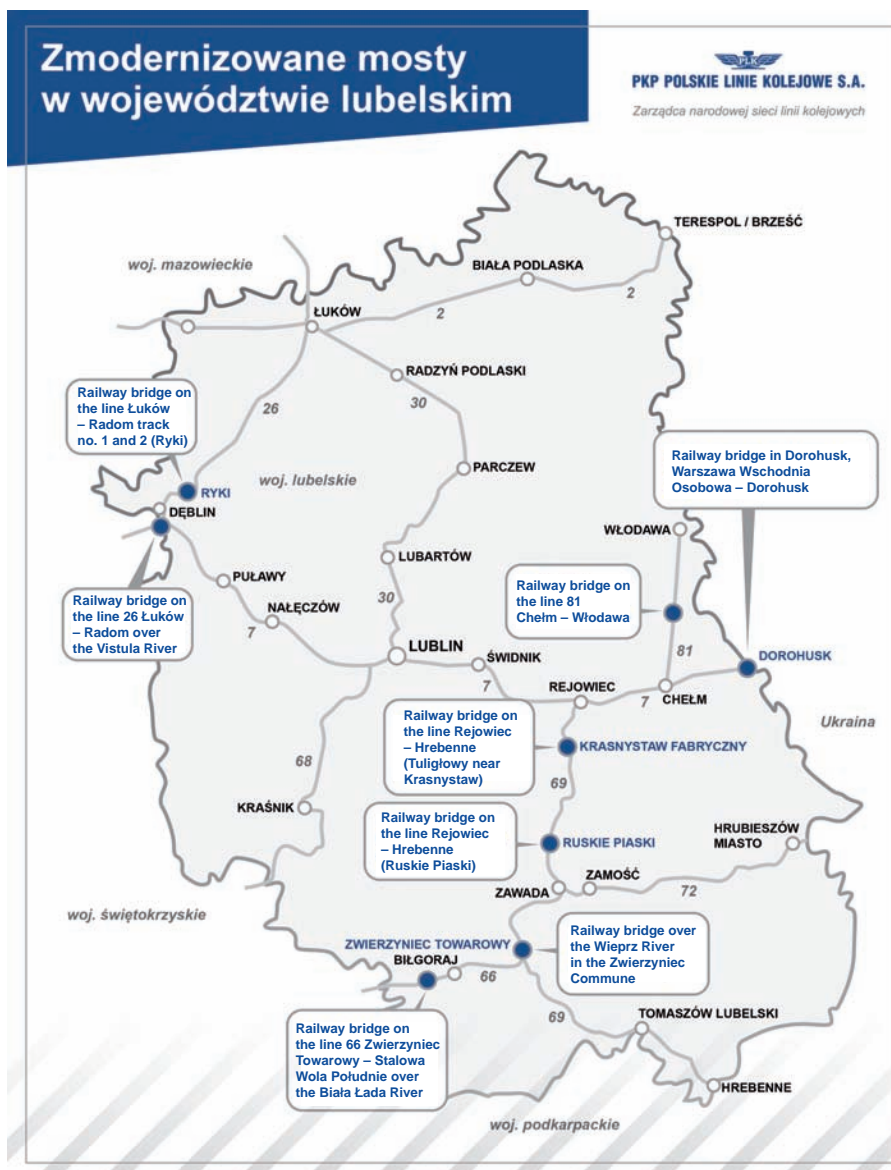


Fig. 23. Locations of renovated railway bridges in the Lubelskie Voivodeship [PLK]

passage of heavy freight trains. The bridge was secured against corrosion. A drainage system was installed. A steel maintenance walkway was constructed as well. Like in the case of the bridge over the Zalesianka River in Ryki, a span obtained while dismantling a bridge over the Vistula River in Kraków was reused in Tuligłowy. Parts from the Kraków bridge were installed on the LK 181 between Herby Nowe and Kępno [43].

Lublin Metropolitan Railway

After signing an agreement with the Lubelskie Voivodeship Board in mid-June 2020 [44], PKP announced the launch of a tender in July of that year for the selection of a contractor for the program and spatial concept of the Lublin Metropolitan Railway (LKA). PKP has undertaken to tender for the selection of a contractor for the concept, as well as to supervise its preparation. The LKA aims to enable fast and efficient access to the voivodeship capital from such locations as Puławy, Parczew, Chełm, and Kraśnik (Fig. 24, 25). The objectives include upgrading existing train stops and building new ones. The platforms will be adapted to the needs of people with reduced mobility. It is planned that increased integration with other modes of transport will be achieved thanks to interchanges. The area to be covered by the Lublin Metropolitan Railway was carefully analysed as part of the concept. The possibility of building new railway lines from Szastarka via Janów Lubelski to Biłgoraj and from Lublin to Łęczna was also investigated. The electrification of the Lublin – Łuków section was considered, as was the construction of a new connector to Lublin Airport from the Chełm side. The concept was planned to be developed in 2020–2021 for about PLN 0.4 million. The Lubelskie Voivodeship agreed to cover half of the costs of the study, with the remainder financed by PKP PLK. The concept will enable the development of a feasibility study that will determine the detailed scope of work.



Fig. 24. Impuls EN98-002 as a passenger train to Lublin at Chełm station (22 April 2023) [photo by M. Graff]



Fig. 25. SA103: 007 and 012 at Lublin station (23 December 2007) [photo by M. Graff]

Expanding and reconditioning the Broad-Gauge Metallurgical Railway Line (LHS)

In mid-January 2017, the LHS management announced the launch of an investment programme worth PLN 850 million, including the reconditioning of rolling stock and infrastructure, increasing the speed and capacity of the line and expanding terminals and transshipment yards (Fig. 26–28) [45]. To that end, the following investment projects will be carried out [46–49]:

- reconditioning of the signalling equipment at Zamość-Bortatycze LHS station;
- expansion of the track system of Hrubieszów LHS station;
- construction of the Zamość Majdan LHS passing point;
- construction of a transshipment base at Zamość Bortatycze station;
- construction of an intermodal terminal in Wola Baranowska and Upper Silesia region;
- reconditioning of Euroterminal Sławków;
- reconditioning of Sławków LHS station;
- installation of a block signalling system on the Sławków LHS – Bukowno LHS section;
- modernization of 10 ST44 locomotives (replacement of drive units).

In May 2022, the commissioning of the Zamość – Majdan LHS passing point was carried out: five tracks with a total length of 6.4 km (1520 mm + 1435 mm, including some dual-gauge sections) and a terminal comprising a 14,000 m² loading yard and an access road [50, 51]. Traffic at the station will be supervised by the Zamość Bortatycze LHS Local Control Centre (LCS) established in 2018. The contractor for the investment project was KZN Rail, and the cost was about PLN 53 million (including PLN 23 million of EU co-financing). Owned by Laude Smart Intermodal, the terminal can accommodate as many as ten trains daily. However, due to the capacity of the Hrubieszów border crossing, it can receive up to two trains a day. The

site can also handle container trains (< 15,000 TEU per year). The length of the arrival and departure tracks – 900 m – makes it possible to receive virtually all trains (on a 1520 mm gauge track). The terminal operates two 40 t cranes (the owner plans to install a third by the end of 2023), five reach stackers, and a scale. The loading yard can accommodate a container volume of 2,000 TEUs. The terminal's paved area measures 38,000 m², and the site includes several parking and manoeuvring areas. Laude has been working with Ukrainian operators since 2008. In 2022, the Broad-Gauge Metallurgical Railway Line announced investment projects totalling PLN 57 million, including [52]:

- reconstruction and reconditioning of the station and railcar hall at Hrubieszów LHS station;
- replacement of signalling equipment on the line itself, as well as at passing points and stations (stage II of the project);
- construction of the Zamość – Majdan LHS passing point;
- commissioning a storage hall at the Szczeczeszyn LHS transshipment terminal.



Fig. 26. UZ's 19-752-series grain railcars (1520 mm) at Hrubieszów LHS station (25 October 2014) [photo by M. Graff]



Fig. 27. ST44: 2027, 2008 (1520 mm) before reconditioning at Zamość Bortatycze station (21 February 2015) [photo by M. Graff]



Fig. 28. Zwierzyniec station (1435 + 1520 mm) (23 October 2021) [photo by M. Graff]

In response to increased traffic on the Polish-Ukrainian border, Ukrainian Railways (UZ) announced in 2018 that the section Kowel – Izów (– Hrubieszów LHS) would be electrifying with a voltage of 25 kV 50 Hz, with the project to be completed in 2020–2021 [54–56]. This entailed creating an electrified section of about 3 km on the Polish side. The plan was to connect the two sections (UZ and PKP LHS) with a fiber-optic cable to improve connectivity and enable future upgrades to the rail traffic control systems. The electrification of the Kowel – Izów section was completed in June 2022. Currently, the Broad-Gauge Metallurgical Railway Line has taken over the majority of iron ore traffic to Poland from the eastern direction, relieving the burden on such lines as the LK 91 Kraków – Medyka. Thus, in September 2018, the Broad-Gauge Metallurgical Railway Line management commissioned a feasibility study on the line's electrification and extension, including the advisability of the investment project and the preferred voltage (3 kV DC, 25 kV 50 Hz). The contractor of the study was the consortium IDOM Inżynieria Architektura i Doradztwo, with a completion date of 6 months from the date of the contract. In March 2022, LHS authorities finally announced that the Broad-Gauge Metallurgical Railway Line would not be electrified because of insufficient traffic volumes (around ten pairs of trains per day). It seems that a more accurate explanation would be that the electrification costs are considerable: compared to the Pomeranian Metropolitan Railway (PKM), where the cost of electrification of 1 km was estimated at PLN 4.7 million [57], the necessary outlay for electrifying the LK 65 is about PLN 1.5–2.0 billion. Therefore, it seems improbable that the Company could raise funds (of such magnitude) on its own without state guarantees. Notably, the LHS line is not part of the TEN-T network, and applying for EU funding for this electrification process may be problematic.

2. Conclusions

The Lubelskie Voivodeship is an area where the Warsaw – Lublin main arterial route has been modernized in recent years. Combined with the rolling stock purchases made by PKP IC in the last 5–10 years (Griffin locomotives, Dart EMUs, modernized passenger couches, etc.), has made it possible to increase the speed to 160 km/h and take advantage of the possibility of reducing journey times to attract more passengers. The year 2020 also saw the electrification of the LK 68 on the Lublin Zemborzyce – Stalowa Wola Rozwadów section, connecting Lublin with Rzeszów and Przemyśl, which has also made it possible to terminate the services of diesel locomotives and to operate Dart EMUs on selected routes. There is some similarity with the neighbouring Podkarpackie Voivodeship due to the presence of the 1520 mm gauge track, which is a result of the proximity to the borders with Ukraine and Belarus. Reconditioning efforts at such stations as Dorohusk and Medyka (normal and broad gauge tracks) were carried out under programs financed from the state budget. The cost of the work in these cases did not exceed the contractual value of PLN 100 million [58–60], so even though similar projects were initially funded by the EU [61], the discontinuation of EU co-financing was not viewed as too troublesome, and the effort involved in preparing co-financing applications could be used for more costly investments like the reconditioning of the LK 7. For stations such as Małaszewicze or Terespol, due to their much larger area and more extensive railway infrastructure, resulting in a significantly broader scope of work, it was decided that reconditioning would be combined with the reconditioning of the LK 2 [62, 63].

While the reconditioning or revitalization of the railway network remains PLK's, or LHS's, domain, the local authorities of the Lubelskie Voivodeship have been involved in rolling stock purchases for around 20 years. Initially, diesel-powered vehicles were acquired (single-unit in 2003–2006, two-unit in 2010–2013), which seemed the most expedient 15–20 years ago, to ensure the availability of rolling stock to serve secondary lines. Compared to other voivodeships (e.g., Podkarpackie or Lower Poland), electric vehicles were purchased relatively late (in 2021 as opposed to 2013 or 2014), which probably has influence into delays in launching the planned metropolitan railway, whose concept has to be developed in detail yet.

Yet, not all investment projects are successful. Examples in this regard include the construction of the

line to Lublin – Świdnik airport (LK 581), and this is not due to poor assumptions but rather an inherent feature of rail lines running to smaller airports: the low regularity of aircraft arrivals and departures (e.g., flights on selected days of the week) makes it difficult for rail operators to create an optimal train timetable guaranteeing high occupancy rates and thus ticket revenues. In turn, limiting the number of trains (to prevent empty runs) causes passengers to switch away from rail services. The relatively short distance of the airport from the centre of Lublin (10 km in a straight line), as well as the relatively small number of passengers using the airport (360,000 in 2019⁵), makes it seem more beneficial to launch a bus service.

The LHS management has also adopted an ambitious investment program, seeking to modernization e.g., the traffic control systems and build new passing points, which would increase the capacity of the single-track, non-electrified line mentioned above. The LHS will continue to focus on the cars of such goods as iron ore, the demand for which is stable and independent of factors like the COVID-19 pandemic. It is in contrast to container shipping from China, which profitability is more sensitive to non-business factors in the context of the EU's increasingly complicated relations with the Middle Kingdom [64], which may result, for example, in the relocation of production from China to other countries [1]. By comparison, Warsaw Chopin Airport handled 14.4 million passengers and Kraków-Balice Airport 7.4 million (Civil Aviation Authority of Poland data from 2022).

References

1. Kolejowe inwestycje za 3,2 mld PLN na Lubelszczyźnie [Railway investments worth PLN 3.2 billion in the Lubelskie Voivodeship], PLK Newsletter, 19 December 2016.
2. Stacja Lublin, kluczowa faza przebudowy peronów [Lublin station, a key phase of platform reconstruction], PLK Newsletter, 14 February 2018.
3. Budujemy nowoczesną kolej w Lublinie (fotogaleria) [We are building a modern railway in Lublin (photo gallery)], PLK Newsletter, 20 February 2021.
4. Dobre zmiany dla podróżnych stacji Lublin Główny [Positive changes for travellers at Lublin Main Station], PLK Newsletter, 6 August 2020.
5. Montaż rozjazdów na stacji Lublin Główny [Installation of switches at Lublin Main Station], PLK Newsletter, 16 May 2020.

⁵ By comparison, Warsaw Chopin Airport handled 14.4 million passengers and Kraków-Balice Airport 7.4 million (Civil Aviation Authority data from 2022).

6. 250 mln euro na modernizację linii Warszawa – Lublin [250 million euros for reconditioning of the Warsaw – Lublin line], PLK Newsletter, 22 April 2016.
7. PLK wobec sytuacji podwykonawców Astaldi oraz inwestycji na odcinkach linii kolejowych nr 7 Lublin – Dęblin oraz nr 271 Leszno – gr. woj. Dolnośląskiego [PLK's position on the situation of Astaldi subcontractors and investment projects on sections of railway lines No. 7 Lublin – Dęblin and No. 271 Leszno – Dolnośląskie – Voivodeship border], PLK Newsletter, 4 January 2019.
8. PLK podpisują umowy na odcinek Dęblin – Lublin, w kwietniu prace [PLK signs contracts for the Dęblin – Lublin section, with work to commence in April] PLK Newsletter, 29 March 2019.
9. Nowa łącznica w Lublinie zwiększy możliwości transportu kolejowego w regionie [Lublin station's connector to improve rail transport in the region], PLK Newsletter, 5 October 2021.
10. W Lublinie łącznica kolejowa zwiększy możliwości podróży i przewozu towarów [Lublin's short interconnector to improve travel and transport of goods], PLK Newsletter, 18 May 2021.
11. Modernizacja linii kolejowej nr 7 Warszawa – Lublin – Dorohusk [Reconditioning of the railway line 7 Warsaw-Lublin-Dorohusk] <https://siskom.waw.pl/kp-kolej-wawa-dorohusk.htm>.
12. Od 12 marca krótsze podróże pomiędzy Lublinem a Warszawą [Shorter travel times between Lublin and Warsaw starting from 12 March], PLK Newsletter, 11 March 2023.
13. Lublin – ponad 200 tys. pociągów przejechało pod nadzorem systemów komputerowych [Lublin – over 200,000 trains run completed under the supervision of computer systems], PLK Newsletter, 9 June 2022.
14. Szybciej i wygodniej koleją z Warszawy do Lublina [Faster and more convenient rail travel from Warsaw to Lublin], PLK Newsletter, 25 September 2023.
15. Jest umowa na elektryfikację linii z Lublina do Stalowej Woli [A contract has been concluded for the electrification of the Lublin – Stalowa Wola line], Rynek Kolejowy, 8 March 2017.
16. Rozpoczęła się modernizacja i elektryfikacja linii Lublin – Stalowa Wola [Reconditioning and electrification of the Lublin – Stalowa Wola line begins], Rynek Kolejowy / PLK Newsletter, 11 July 2017.
17. Nowe perony w Kraśniku i na trasie z Lublina do Stalowej Woli [New platforms at Kraśnik station and on the Lublin – Stalowa Wola route], PLK Newsletter, 18 July 2018.
18. Ruszył remont mostu na Sanie między Lublinem a Stalową Wolą [Renovation work has commenced on the bridge over the San River between Lublin and Stalowa Wola], PLK Newsletter, 1 June 2019.
19. Ponad 2 tys. pociągów pod kontrolą Lokalnego Centrum Sterowania Szastarka [Szastarka Local Control Centre monitors over 2,000 trains], PLK Newsletter, 15 April 2020.
20. Elektrycznym pociągiem z Lublina do Stalowej Woli [Electric trains to commence service on the Lublin – Stalowa Wola route], PLK Newsletter, 11 December 2020.
21. Będzie szybsze połączenie pomiędzy Hrubieszowem a Zamościem [Faster rail connection between Hrubieszów and Zamość stations], PLK Newsletter, 7 July 2022.
22. W grudniu pojedziemy pociągiem z Lublina do Łukowa [Train services to be launched on the Lublin – Łuków route in December], PLK Newsletter, 26 November 2021.
23. Na trasie Lublin – Łuków zwiększy się dostępność kolei [Increased railway service availability on the Lublin – Łuków route], PLK Newsletter, 24 May 2021.
24. Linia kolejowa pomiędzy Łukowem a Lublinem będzie zelektryfikowana [Łuków – Lublin railway line to be electrified], PLK Newsletter, 17 May 2023.
25. Stacje Biała Podlaska, Małaszewicze, Terespol wygodniejsze dla podróżnych [Biała Podlaska, Małaszewicze and Terespol stations now more convenient for travellers], PLK Newsletter, 16 January 2017.
26. Zmieniają się stacje Biała Podlaska, Terespol i Małaszewicze [Improvements continue at Biała Podlaska, Terespol, and Małaszewicze stations], PLK Newsletter, 19 October 2018.
27. W Małaszewiczach podróżni korzystają z nowych peronów [Małaszewicze's new platforms are now open to travellers], PLK Newsletter, 8 August 2018.
28. PLK zwiększają komfort obsługi na stacjach w Białej Podlaskiej, Małaszewiczach i Terespole [PLK continues to improve traveller experience at Biała Podlaska, Małaszewicze and Terespol stations], PLK Newsletter, 7 March 2018.
29. Ze stacji Biała Podlaska i Małaszewicze będzie lepszy przewóz towarów [Improvements in goods transport from Biała Podlaska and Małaszewicze stations], PLK Newsletter, 18 November 2022.
30. Większe możliwości przewozu towarów na stacji Małaszewicze [Improved goods transport possibilities at Małaszewicze station], PLK Newsletter, 21 July 2023.
31. Powstanie projekt linii Szastarka – Janów Lubelski – Biłgoraj [Design to be prepared for the Szastarka – Janów Lubelski – Biłgoraj line], PLK Newsletter, 30 March 2023.
32. Pociągi pojadą pomiędzy Szastarką, Janowem Lubelskim i Biłgorajem – podpisano umowę na projekt linii [Train travel to be made possible between

- Szastarka, Janów Lubelski and Biłgoraj – contract signed for the design of the line], PLK Newsletter, 16 September 2023.
33. Łęczna i Włodawa będą miały szybkie połączenie kolejowe z Lublinem [Fast rail connection to be established between Łęczna and Włodawa stations and Lublin], PLK Newsletter, 24 May 2023.
 34. Railway Plus Programme <https://www.plk-sa.pl/program-kolej-plus>, PLK website.
 35. Modernizacja przystanku Lublin Północny i stacji Świdnik ze środków RPO województwa lubelskiego [The Lublin Północny stop and Świdnik station to be reconditioned thanks to funding from the Lublin Voivodeship ROP], PLK Newsletter, 8 February 2011.
 36. Budowa toru dojazdowego od stacji Świdnik do terminalu Portu Lotniczego Lublin S.A. w Świdniku wraz z infrastrukturą towarzyszącą [Access track and accompanying infrastructure to be constructed between the Świdnik station and Lublin Airport terminal in Świdnik], PLK Newsletter, 8 September 2011.
 37. Koleją z Lublina na lotnisko w Świdniku [Travel by train from the Lublin to Świdnik airport], PLK Newsletter, 10 February 2012.
 38. Pierwsze samoloty i pierwsze pociągi na lotnisku w Lublinie [Lublin Airport welcomes the arrival of the first aircraft and trains], PLK Newsletter, 19 December 2012.
 39. Nowy przystanek i zmodernizowane perony – ułatwią podróże kolejną na Lubelszczyźnie [New train stop and reconditioned platforms to facilitate rail travel in the Lublin region], PLK Newsletter, 3 June 2022.
 40. Podróże z nowych peronów pomiędzy Łukowem a Dęblinem [New platforms available to travellers between Łuków and Dęblin], PLK Newsletter, 19 May 2023.
 41. Mosty kolejowe na Lubelszczyźnie – ważne dla transportu towarów [Lublin region's railway bridges – vital for goods transport], PLK Newsletter, 19 April 2021.
 42. Sprawniej kolejną na Lubelszczyźnie dzięki remontom mostów [Bridge renovations to improve railway travel in the Lublin region], PLK Newsletter, 26 January 2022.
 43. Krakowski most poprawił przewozy kolejną na linii do Kępna [Kraków bridge span reused to improve railway transport on the line to Kępno], PLK Newsletter, 12 October 2021.
 44. Coraz bliżej Lubelskiej Kolei Aglomeracyjnej [Lublin Metropolitan Railway draws ever closer], PLK Newsletter, 4 July 2020.
 45. Graff M.: *Kolej na pograniczu*, Eurosprinter Rybnik [Railway on the border, Eurosprinter Rybnik], 2024 (in preparation).
 46. Lubelskie: PKP LHS zainwestuje również w regionie [PKP LHS to invest also in the region], Rynek Kolejowy, 19 January 2017.
 47. Nowe centrum sterowania w Zamościu usprawni ruch na 47 kilometrowym odcinku LHS [New control centre in Zamość to improve traffic on a 47-kilometer section of the LHS], PKP LHS, 05 March 2018.
 48. PKP LHS z kolejnym rekordem w przewozach i inwestycjach za 2018 rok [2018 proves another record-breaking year in transport and investments for PKP LHS], PKP LHS, 21 January 2019.
 49. PKP LHS zmodernizuje stację Zamość Bortatycze [PKP LHS to recondition the Zamość Bortatycze station], Rynek Kolejowy, 19 October 2016.
 50. Nowa mijanka i plac ładunkowy na linii PKP LHS [PKP LHS gains a new passing point and loading yard], PKP LHS Rynek Kolejowy, 11 May 2022.
 51. Szymajda M.: Laude otwiera wielki terminal pod Zamościem [Laude opens a large terminal near Zamość], Rynek Kolejowy, 24 June 2022.
 52. PKP LHS z rekordowymi przewozami w 2022 roku [PKP LHS achieves record-breaking transport results in 2022], PKP LHS, 18 January 2023.
 53. W Hrubieszowie przywrócono do użytkowania bocznice kolejową przy Terminalu Gazu Płynnego [Railway siding at Hrubieszów's Liquefied Gas Terminal put back into service], *NaKolei.pl*, 21 October 2022.
 54. Będzie elektryfikacja LHS? [Will the LHS be electrified?], [Rynek Kolejowy, 2 December 2016.
 55. Iron ore route electrified, Railway Gazette International, 11 September 2018.
 56. PKP LHS wybrała wykonawcę analiz dotyczących elektryfikacji i przedłużenia linii [PKP LHS selects a contractor to analyse prospects for electrifying and extending the LHS], PKP LHS, 6 September 2018.
 57. Szymajda M.: *Pomorskie potwierdza: Będą elektryczne pociągi na PKM* [Pomeranian Metropolitan Railway to operate electric trains, declare Pomorskie authorities], Rynek Kolejowy, 23 May 2023.
 58. PLK dla lepszej obsługi terminali w rejonie Medyka – Mostiska [PLK to provide improved terminal services in the Medyka – Mostiska area], PLK Newsletter, 15 June 2021.
 59. Madrjas J.: *Większe inwestycje PLK przy granicy z Ukrainą* [PLK to increase investments near the border with Ukraine], Rynek Kolejowy, 18 July 2016.
 60. PKP Polskie Linie Kolejowe wyremontują stację Werchrata przy granicy z Ukrainą [PKP Polskie Linie Kolejowe to renovate the Werchrata station on the border with Ukraine], Rynek Kolejowy, 30 July 2021.

61. Wkrótce rusza modernizacja linii nr 63 Dorohusk – Zawadówka Naftobaza [Reconditioning of line No. 63 Dorohusk – Zawadówka Naftobaza to commence soon] PLK Newsletter, 13 July 2011.
62. Fiszer K.: *E20: Prace w rejonie Terespoli do końca roku. Trzy lata opóźnienia* [E20: Work in the Terespol area to be finished until the year's end following three years of delays], Rynek Kolejowy, 26 July 2023.
63. Fiszer K.: *Modernizacja E20: Koniec sześcioletniej przebudowy stacji Terespol* [E20 reconditioning: Six-year reconstruction effort at Terespol station comes to an end], Rynek Kolejowy, 22 August 2023.
64. Uznańska P.: *Unijne zwanie z Pekinem: szczyt UE – Chiny* [The EU clashes with Beijing: the EU-China summit], Analyses of the Centre for Eastern Studies, Warsaw, 13 December 2023.