ROADMAP "NEW RAIL INFRASTRUCTURE/SERVICES 2030" D.T3.2.7

WESTPOMERANIAN REGION

Final

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Table of contents

1. Introduction

The presented study was commissioned by the Central European Transport Corridor European Grouping of Territorial Cooperation (hereinafter the CETC-EGTC). The study was created in connection with the implementation of the international project *REIF - Regional Infrastructure for Railway Freight Transport - Revitalised*.

The main goal of the project is to promote and support regional rail freight transport in Central Europe. The dynamic development of road transport in the last two decades, related to the expansion of the road network, has resulted in a significant decline in the competitiveness of rail transport. In many parts of Europe, industries with a high flow of goods (e.g. wood, paper, metal, chemicals) and industrial parks often do not have direct access to the rail network. The existing infrastructure is struggling with the problem of so-called bottlenecks (local capacity constraints) that extend transit times, further adversely affecting the competitiveness of railways. The operational parameters of the available railway network (axle load, train length, speed, electrification, opening hours of posts) also require local improvements in order to adapt to the standards enabling the most effective use of rail infrastructure by its users.

This study concerns the railway infrastructure of the TEN-T Core Network Corridor Baltic Sea-Adriatic Sea and the Baltic Sea-Adriatic Sea Rail Freight Corridor (parts not overlapping with the TEN-T network). In addition to the Baltic Sea-Adriatic Sea corridor, the North Sea-Baltic Sea Core Network Corridor also plays an important role in flows between Poland and other European countries, as well as in transit flows.

The transport infrastructure included in those corridors must meet specific requirements in terms of technical parameters, in accordance with Regulation (EU) No 1315/2013 of the European Parliament and the Council, so as to ensure interoperability and proper functioning of the trans-European transport network by 2030. These requirements include parameters related to axle load (221 kN - 22.5 t), speed of freight trains (100 km/h) and the maximum permissible length of trains (min. 740 m). The corridor largely allows the parameters of the required axle load, sections that do not meet this requirement are located in the Lower Silesian Voivodeship. Greater deficiencies in compliance with the requirements for the TEN-T network concern the maximum possible speed for freight trains, in the case of the West Pomeranian Voivodeship the problem concerns a large part of the railway line no. 273. As for the possibility of trains with a length of at least 740 m, this requirement is met for less than half of the corridor length, with the prevailing permissible length being 600m. Restrictions occur on the cross-border sections between Poland and the Czech Republic and Slovakia, on the network located in Silesia, and on the entire western line of the corridor. Also, railway stations and nodes require significant improvement in terms of all three infrastructure parameters, especially in urban areas (including the Szczecin node). By 2030, all national sections are supposed to meet the axle load and speed standards, except for the section between Szczecin and Świnoujście in Poland and at the Wrocław junction (section Popowice - Mikołajów - Brochów). These are the only inconsistent sections of the corridor for which no investments are planned. However, adequate feasibility studies are under preparation, aimed at preparation for construction works between Szczecin and Świnoujście and at the Wrocław junction.

The detailed objective of this study, which is the subsequent stage of REIF project, is to **define investment priorities in the field of railway infrastructure for freight transport** to be implemented in the West Pomeranian Voivodeship. The performance of this task is consistent with the implementation of the following strategic goals:

- Increasing the share of rail transport in the transport of goods, both sent and received in a given region as well as transiting through,
- Increasing the attractiveness of railway transport for shippers and recipients of cargo located in the region,
- Improving the competitiveness of seaports by ensuring sufficient capacity for rail transport.

Therefore, the key element of this study will be a specific list of investment tasks in the field of railway infrastructure, which is to serve the highest possible degree to achieve the above-mentioned objectives. This task requires a precise diagnosis of the initial state (Chapter 2). For this purpose, base studies made in the previous stages (T1, T2) will be used, extended with additional elements, in particular with regard to the parameters of point and line railway infrastructure. The diagnosis will concern three areas of particular importance for the implementation of the project:

1. **The economic potential of the region** - defining the main directions of the flow of goods on the basis of the quantitative, qualitative and geographical structure of economic entities located in the region.

2. **Existing railway infrastructure** - analysis of the availability and quality of the existing infrastructure, with particular emphasis on transit lines, identification of bottlenecks and shortcomings in terms of operational parameters.

3. **Sea ports** - conditions of the competitiveness of ports in the region, analysis of the existing connections of the port infrastructure with the railway network, determination of the directions of development of ports in Szczecin and Świnoujście and their impact on the demand for railway infrastructure.

The diagnosis of current state will be accompanied by the identification of challenges related to the implementation of proposed measures. Potential difficulties relate primarily to the financing of individual projects, intersectoral cooperation (sea ports, road infrastructure managers, PKP PLK) and cooperation between the public and private sector in terms of increasing access to railway infrastructure (i.e. construction and expansion of private sidings).

On the basis of an in-depth analysis of the existing and potential conditions, the main investment priorities for implementation of objectives were identified as follows:

1. **Construction and reconstruction of railway lines** - new lines/connections provided for businesses showing the potential to shift loads from road to rail, new lines aimed at improving the capacity of existing lines or better traffic segregation.
2. **Improvement of lines' operational standards** - bringing main lines and selected secondary freight corridors to the D3 standard (axle load 221 kN, permissible train length 600-740m), electrification or construction of a second track on sections with high traffic potential.

3. **Local investments** - reconstruction and improvement of loading tracks and ramps (the main point of railway infrastructure access for entities without their own sidings), construction of new railway stations (allowing for train crossing and overtaking) in order to increase the capacity.
4. **Feasibility studies** - conducting additional, detailed analyses aimed at defining the directions of development of the railway infrastructure in the region.

2. Lessons learned from WP.T1 and WP.T2

2.1. Economic potential of the region

2.1.1. Economic structure

The Westpomeranian Voivodeship is the fifth largest voivodeship in the country. Located in north-west Poland, it borders directly with Germany and, through the Baltic Sea, with Denmark and Sweden. This unique location means that important communication routes, both land, sea, river and air intersect in the voivodeship. The dense network of railway lines, access to sea and river ports and the airport in Goleniów create a competitive advantage compared to other provinces. This has an impact on the directions of region's development as well as the location and development of industries in the economic activity zones of the Westpomeranian Voivodeship. This is accompanied by a large development potential and diversification of investment areas, often located near important communication routes, newly built expressways, or in Special Economic Zones (areas marked out and prepared for investors by municipal governments). Westpomerania has in its investment offer over 8,000 ha of land, of which approximately 1,200 ha with the status of a Special Economic Zone (SSE). Among Westpomeranian industrial parks, which are of particular importance for the regional economic landscape, the areas in Stargard, Goleniów and Koszalin stand out.

Factors influencing the development of voivodeship's economy include border and seaside location, metropolis of Szczecin and Koszalin - Kołobrzeg - Białogard functional area with attractive investment areas, industrial processing concentrated in zones of economic activity, a large number of organic food farms, rich, intensively used tourist resources, many spa advantages and a well-developed accommodation base in the coastal strip. In the infrastructural dimension, the region's strengths are the sea ports acting as elements of multimodal transport networks, good communication with Western and Northern Europe, great potential for locating new enterprises, in particular related to the development of the blue and green economy, as well as good conditions for the development of renewable energy.

The competitive position of the voivodeship is determined by strong development position of main urban centers of the region. It is based on the role of the Szczecin metropolis and the entire region in the macroregional system of Western Poland, as well as intensified cross-border and European ties. This position of urban centers is based on two pillars - a strong local economic system (innovation, cluster systems, an important industrial component - affecting as large a part of the region as possible) and efficiency in handling functional connections and delivering high-quality public services.

Every fifth enterprise located in the Westpomeranian Voivodeship conducts international activity, which is a value close to the national average. The main trade partners for entrepreneurs from West Pomerania are European countries, including Germany, Sweden, Denmark, Great Britain, France and Norway. This is due to the geographical location of the voivodeship and its proximity to Scandinavia. It should be borne in mind that the transformations that took place in the region's economy also influenced its character. The influx of investors in industries new to the voivodeship changed the structure of goods and services sent to

foreign recipients. The main export sectors of West Pomerania are wood industry, the metal and machine industry, also shipbuilding, chemical industry, and the food sector. The proximity of Berlin also encourages economic cooperation, exchange of know-how and use of economic, residential, recreational and cultural infrastructure. In addition, the persistent differences in the level of fees for services and prices for products make the Westpomeranian region eagerly visited by Germans who shop here. This factor plays an important role in the development of services and small enterprises in the voivodeship and may support the undertaking of cross-border-oriented business activities.

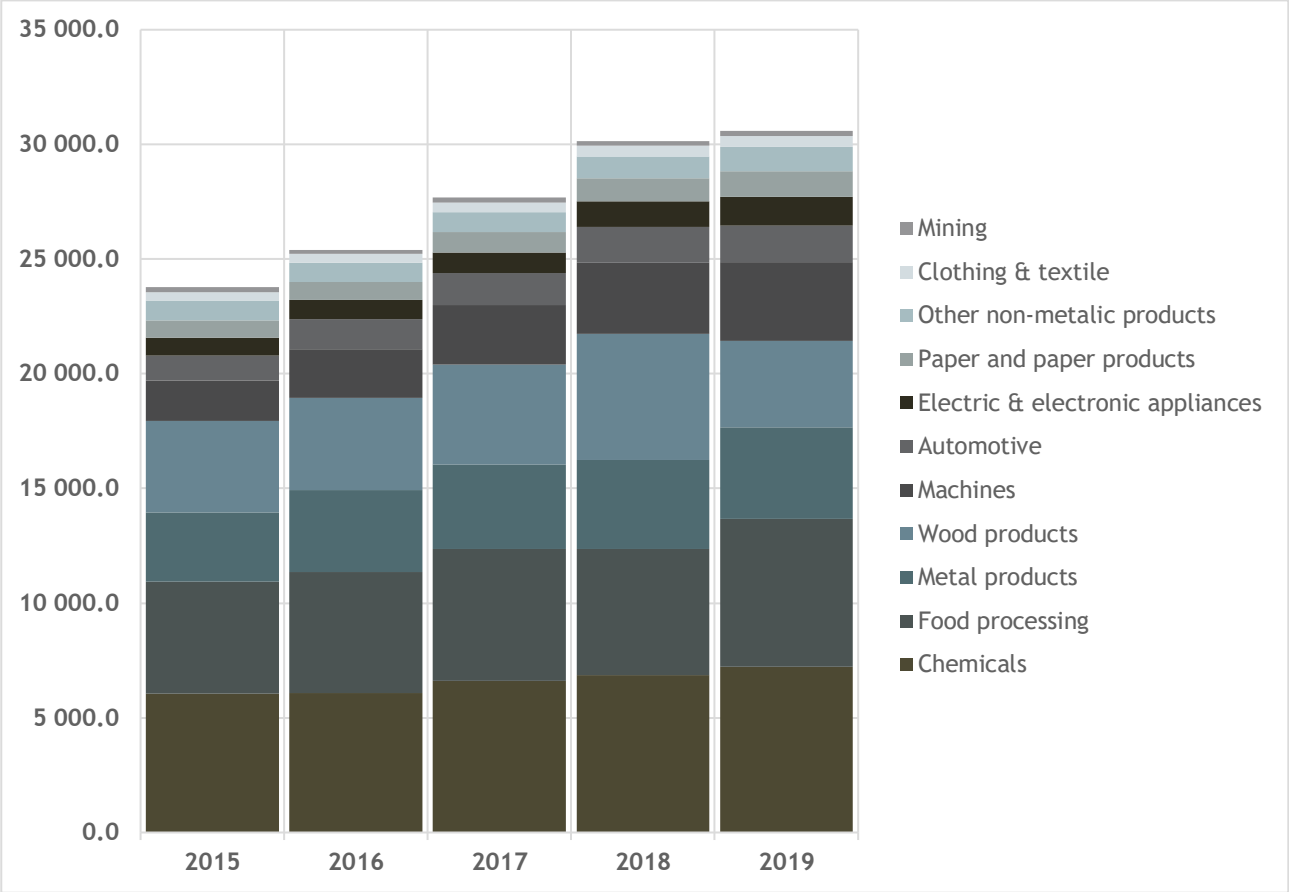
The following lists show the structure and dynamics of industrial production in the Westpomeranian Voivodeship.

Table 1. 2019 revenues - industry located in Westpomeranian Voivodeship

Sector	Revenue (2019, mln PLN)	Largest companies
Chemicals	7 229,4	Grupa Azoty Police, Zakłady Chemiczne Szczecin, FOSFAN S.A.
Food processing	6 457,0	Cukrownia Kluczewo, Polskie Zakłady Zbożowa Sp. z o.o., Bosman Browar Szczecin, Animex Foods Sp. z o.o.
Metal products	3 973,5	Van Heyghen Stal Polska Sp. z o.o., Stocznia Szczecińska „Wulkan" Sp. z o.o.
Wood products	3 769,8	Kronospan Polska Sp. z o.o., Barlinek S.A., Gryfskand Sp. z o.o.
Machines and appliances	3 423,9	Backer OBR Sp. z o.o., Morska Stocznia Remontowa Gryfia S.A.

Source: Central Statistical Office

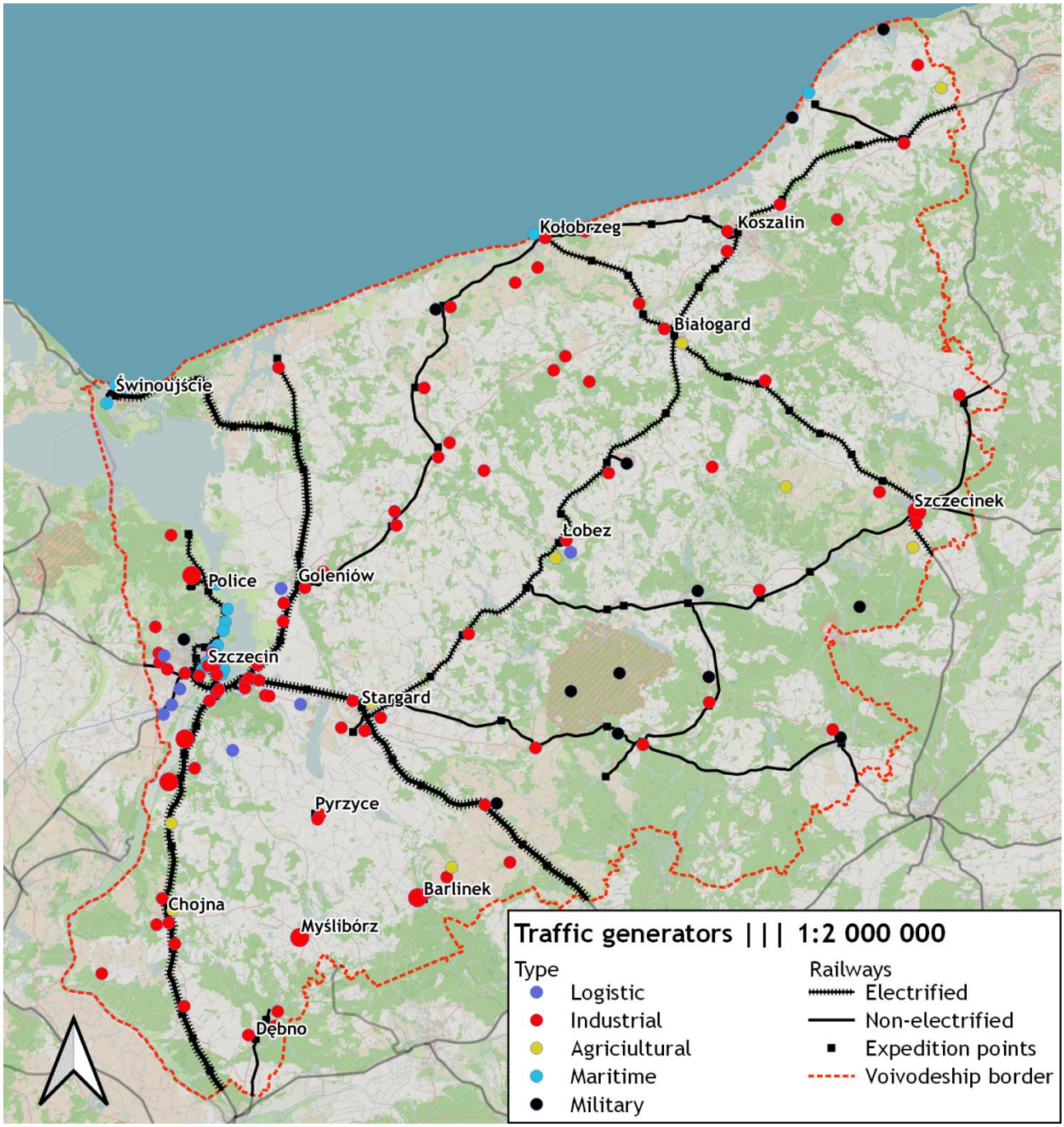
Figure 1. Dynamics of revenue in selected industry sectors



Source: Central Statistical Office

Due to the availability of maritime infrastructure and inland communication network, the vast majority of industrial plants are located within the Szczecin metropolitan area. Apart from Szczecin itself, the following business entities are conveniently located: Goleniów (the intersection of S3 and S6 roads), Stargard (the intersection of S10 and DK20 roads) and the vicinity of Dolna Odra and Chojna (close to the DK31 and inland waterway). Large wood industry plants are also located in the southern and western part of the voivodeship due to proximity of the raw material base. Other urban centers where enterprises willingly locate their plants are Koszalin, Białogard and Kołobrzeg. In the area of the exit roads from Szczecin, there are a dozen large logistic centers that mainly conglomerate traffic of goods to and from the metropolitan area. In addition, the entities generating significant cargo flows also include agricultural warehouses (grain or fertilizer depots, etc.) located relatively evenly throughout the voivodeship. The map below shows the distribution of significant freight traffic generators, i.e. entities sending or receiving large amounts of goods, both in internal and transit traffic. It allows checking to what extent the distribution of the railway network is adequate to the location of entities generating freight traffic.

Figure 1. Freight traffic generators by sector



Source: ZDG TOR analysis

The vicinity of Myślibórz, Pyrzyce and Barlinek deserve special attention. This region has been gradually deprived of access to the rail network over the past 20 years. Railway lines No. 411 (Stargard - Pyrzyce), 422 (Pyrzyce - Głazów) and 410 (Barnówko - Myślibórz - Głazów - Barlinek - Pełczyce - Choszczno) have been closed due to low operational work, despite the convenient location of many industrial plants with access to these lines. In the face of the main strategic goal, which is to shift the modal split in favor of rail freight transport, restoration of technical condition and restarting the abovementioned lines is of high priority.

Some entities operating in the West Pomeranian Voivodeship and located near the railway network have their own railway sidings. Below is a list of these entities with their locations. It is worth paying attention to the fact that the vast majority of sidings are actively used.

Figure 2. Private sidings

Location	Owner	Sector
Białogard	Dystrybutor Produktów Naftowych "CePeN"	energy
Białogard	"AMPOL-MEROL" Sp. z o.o.	agricultural
Chojna	Agrochem Puławy	agricultural
Darłowo	Bocznica Wojskowa 835	military
Dębno Lubuskie	PGNIG S.A. Ekspedyt w Barnówku	energy
Dolaszewo Wałeckie	Bocznica Wojskowa 848	military
Dolna Odra	Zespół Elektrowni Dolna Odra S.A.	energy
Goleniów	Swedwood Poland S.A.	industrial
Goleniów	SpeedMedia Sp. z o.o.	industrial
Gryfice	PHU Chemirol Sp. z o.o.	agricultural
Karlino	Homatrans Sp. z o.o.	industrial
Kołobrzeg	Miejska Energetyka Cieplna Sp. z o.o.	energy
Kołobrzeg	PKN Orlen S.A., Baza nr 95	energy
Kołobrzeg	Zarząd Portu Morskiego Kołobrzeg	maritime
Koszalin	IMSO Sp. z o.o. Baza Paliw w Koszalinie	energy
Koszalin	Miejska Energetyka Cieplna Sp. z o.o.	energy
Koszalin	"Progaz-Eurogaz" Sp. z o.o.	energy
Koszalin	CMC Putex Sp. z o.o.	industrial
Koszalin	"Złomstal" Renata i Zbigniew Puzio Sp.J.	industrial
Nowogard	PRD Pol-Drog Nowogard	industrial
Police	Przedsiębiorstwo Energetyki Cieplnej	energy
Police	Grupa Azoty	industrial
Prostynia	Bocznica Wojskowa 822	military
Rurka	SOLBET Sp. z o.o.	industrial
Skibno	Lafarge Cement Polska S.A.	industrial
Sławno	ABWooD Sp. z o.o.	industrial
Stargard	PEC Stargard	energy
Stargard	Cukrownia "Kluczewo" S.A.	industrial
Stargard	Van Heyghen Stal Polska Sp. z o.o.	industrial
Stargard	Zakład Produkcyjny ZPS Sp. z o.o.	industrial
Stargard	Bocznica Wojskowa 821	military
Stobno Szczecińskie	J&S ENERGY S.A.	energy
Szczecin Dąbie	InterGas Sp. z o.o.	energy
Szczecin Dąbie	Szczecińska Energetyka Cieplna	energy
Szczecin Dąbie	HARTWIG Szczecin Spedytorzy Międzynarodowi Sp. z o.o.	industrial
Szczecin Dąbie	Stena Złomet Sp. z o.o.	industrial
Szczecin Dąbie	TOM Sp. z o.o.	industrial
Szczecin Dąbie	Złomrex S.A.	industrial
Szczecin Gocław	Andreas Sp. z o.o.	maritime
Szczecin Gocław	Andreas II Sp. z o.o.	maritime
Szczecin Gocław	ZMPSiŚ - Rejon HUK	maritime
Szczecin Niebuszewo	Szczeciński Park Przemysłowy Sp. z o.o.	industrial
Szczecin Podjuchy	EKO ENERGIA SZCZECIN Sp. z o.o.	energy
Szczecin Port Centralny	Oktan Energy & V/L Service Sp. z o.o.	energy
Szczecin Port Centralny	Zespół Elektrowni Dolna Odra S.A.	energy
Szczecin Port Centralny	ALMEX Sp. z o.o.	industrial

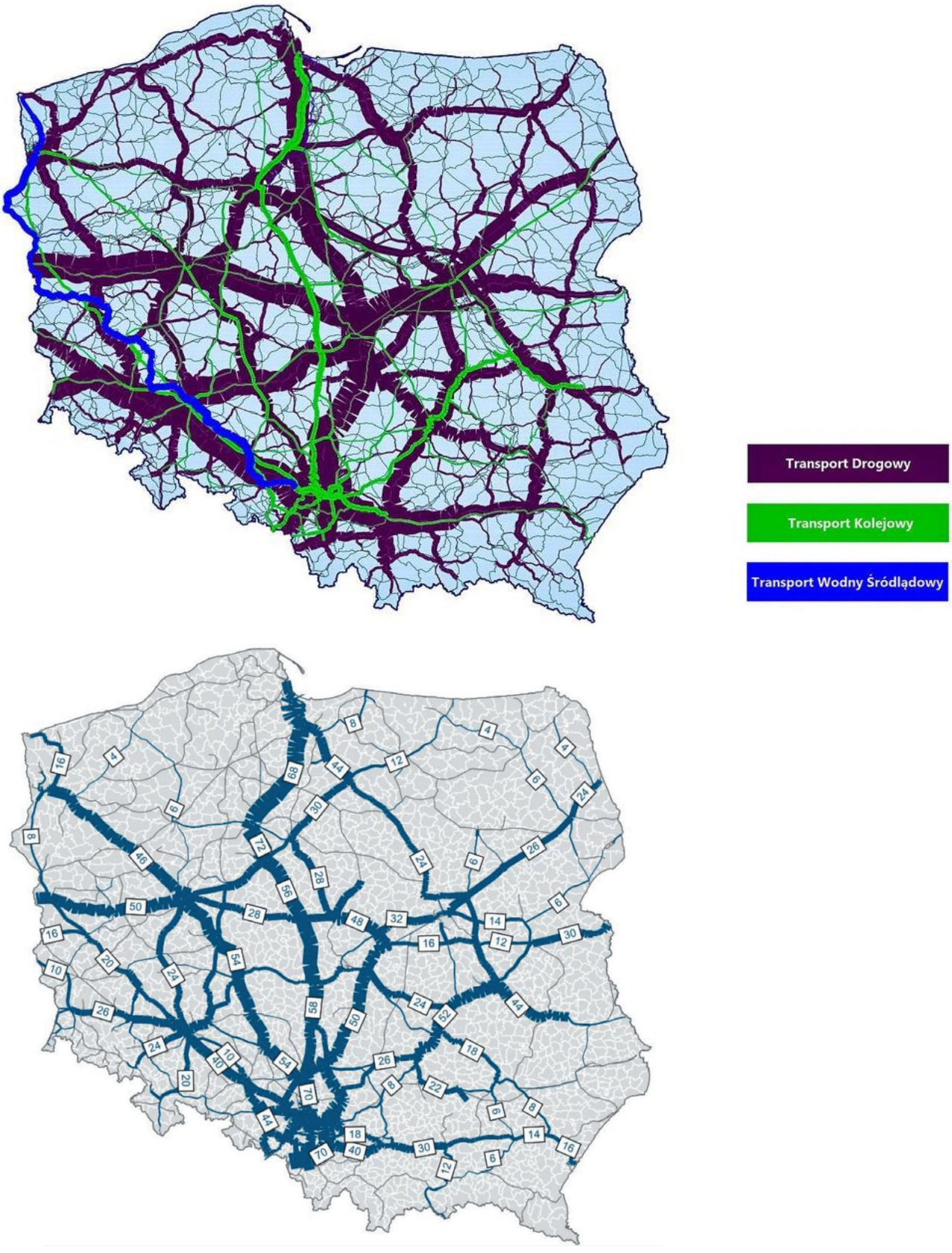
Location	Owner	Sector
Szczecin Port Centralny	Ostrów Grabowski	industrial
Szczecin Port Centralny	Zachodniopomorskie Centrum Logistyczne (ZCL)	industrial
Szczecin Port Centralny	Zakłady Chemiczne Szczecin	industrial
Szczecin Port Centralny	Przedsiębiorstwo Robót Cerpalnych i Podwodnych Sp. z o.o.	industrial
Szczecin Port Centralny	Górażdże Cement S.A.	industrial
Szczecin Port Centralny	PKN Orlen S.A., Baltchem Zakłady Chemiczne	industrial
Szczecin Port Centralny	Rolsped Sp. z o.o.	agricultural
Szczecin Port Centralny	Szczecińskie Zakłady Zbożowo-Młynarskie PZZ SA	agricultural
Szczecin Port Centralny	PCC Port Szczecin Sp z o.o. zespół nabrzeży	maritime
Szczecin Port Centralny	PP-U "Port Rybacki Gryf" Sp. z o.o.	maritime
Szczecin Port Centralny	Bulk Cargo Port Szczecin Sp. z o.o.	maritime
Szczecin Port Centralny	DB Port Szczecin Sp. z o.o.	maritime
Szczecin Port Centralny	CRONIMET PL Sp. z o.o.	maritime
Szczecin Port Centralny	ZMPSiŚ S.A. zespół nabrzeży	maritime
Szczecin Stołczyn	Kronospan Szczecinek Sp. z o.o.	industrial
Szczecin Stołczyn	FOSFAN S.A.	maritime
Szczecinek	Kronospan Szczecinek Sp. z o.o.	industrial
Świdwin	Bocznice Wojskowe: 830, 832, 849	military
Świnoujście	PKN Orlen S.A.	energy
Świnoujście	OT Port Świnoujście S.A.	maritime
Świnoujście	ZMPSiŚ S.A. zespół nabrzeży (Port Handlowy)	maritime
Świnoujście	EURO-TERMINAL Sp. z o.o.	maritime
Świnoujście	Bocznica Wojskowa 812	military
Trzebiatów	Bocznica Wojskowa 820	military
Trzebież Szczeciński	PERN S.A. - Baza Paliw nr 7	energy
Złocieniec	ABTRANS Sp. z o.o.	industrial
Złocieniec	Bocznice Wojskowe: 824, 839	military

Source: PKP PLK, Urząd Transportu Kolejowego

2.1.2. Flows of goods

The main generators of freight traffic (in terms of quantity) are the seaports, industrial plants and power plants located in Szczecin metropolitan area. The port terminals in Świnoujście and the KRONOSPAN production plant in Szczecinek are also important. Due to the transit location of the region and the location of the largest producers in the coastal area (conditioned by the proximity of port terminals), goods are moved mainly along the north-south axis using the E-65 / CE-65 corridor. The vast majority of cargo are bulk goods (coal and coke, iron ore and steel products, refined petroleum products, chemicals and grain). At present, intermodal transport accounts for a small percentage of the total cargo transported. The reasons for this phenomenon can be seen in the insufficient parameters of the shipping infrastructure: the permissible draft of 9.15 m in the area of the Szczecin - Świnoujście fairway and the lack of a deepwater terminal in Świnoujście.

Figure 3. Excerpt from Integrated Traffic Model (by Centrum Unijnych Projektów Transportowych) and PKP PLK traffic model (daily number of freight trains).



Source: Centrum Unijnych Projektów Transportowych, PKP PLK

The relatively convenient location of the ports in Szczecin and Świnoujście means that some of the traffic is international (with main recipients being Czech and Slovak companies operating in the steel industry). Shipments to Germany are also carried out (mainly to industrial plants located in Brandenburg and Saxony). Logistics services for entities located in north-eastern Germany show, according to the authors of this study, enormous development potential for Westpomeranian ports. If the shipping infrastructure is adjusted to the deepwater standard, Szczecin and Świnoujście ports will be able to compete more strongly with Gdańsk, Gdynia, Rostock, Lübeck or even Hamburg. Bearing in mind land freight, the port of Szczecin is the closest to Berlin. By providing lower port fees and favorable forwarding conditions, entities operating in Westpomeranian ports are a real alternative to the above-mentioned competition. Carrying out shipments by road may take place with the use of the existing railway infrastructure. The problem is, however, insufficient operational parameters on the Polish side - the line No. 409 is not electrified, it is characterized by the C3 class, allowing for trains with an axle load of no more than 196 kN and a maximum length of 600 m. On a larger scale, the problem also concerns the lines 432 (Szczecin Wstowo - Szczecin Turzyn), 433 (Szczecin Główny - Szczecin Gumieńce) and 851 (Szczecin Wstowo - Szczecin Gumieńce). It is worth mentioning that the railway line No. 409 is a part of the TEN-T core network. On the German side, extensive modernization works have started on the Angermünde - Passow - Tantow section. As a result, in 2026, a double-track, fully electrified main line is planned to be opened, enabling the movement of freight trains at a maximum speed of 120 km/h. In this context, the modernization of line 409 and the above-mentioned complementary lines should be regarded as an extremely high priority. Only the full adjustment of the Szczecin-Berlin communication route to the highest standards will enable both the increase of the role of the ports in Szczecin and Świnoujście in the logistics service of north-west Germany, and the transfer of some of the shipments carried out so far from road to rail.

2.2. Existing railway infrastructure

The Westpomeranian Voivodeship is characterized by a relatively dense railway network (5.2 km / 100 km2). The "backbone" of the railway infrastructure consists of: for the north-south axis, the E-65 corridor (lines 351 and 401) with the CE-65 branch (line 273), for the east-west axis, line 202 (Gdańsk Główny - Stargard) and, to a smaller extent, line 210 (Chojnice - Runowo Pomorskie). In the context of freight transport, the remaining lines are complementary to the abovementioned ones.

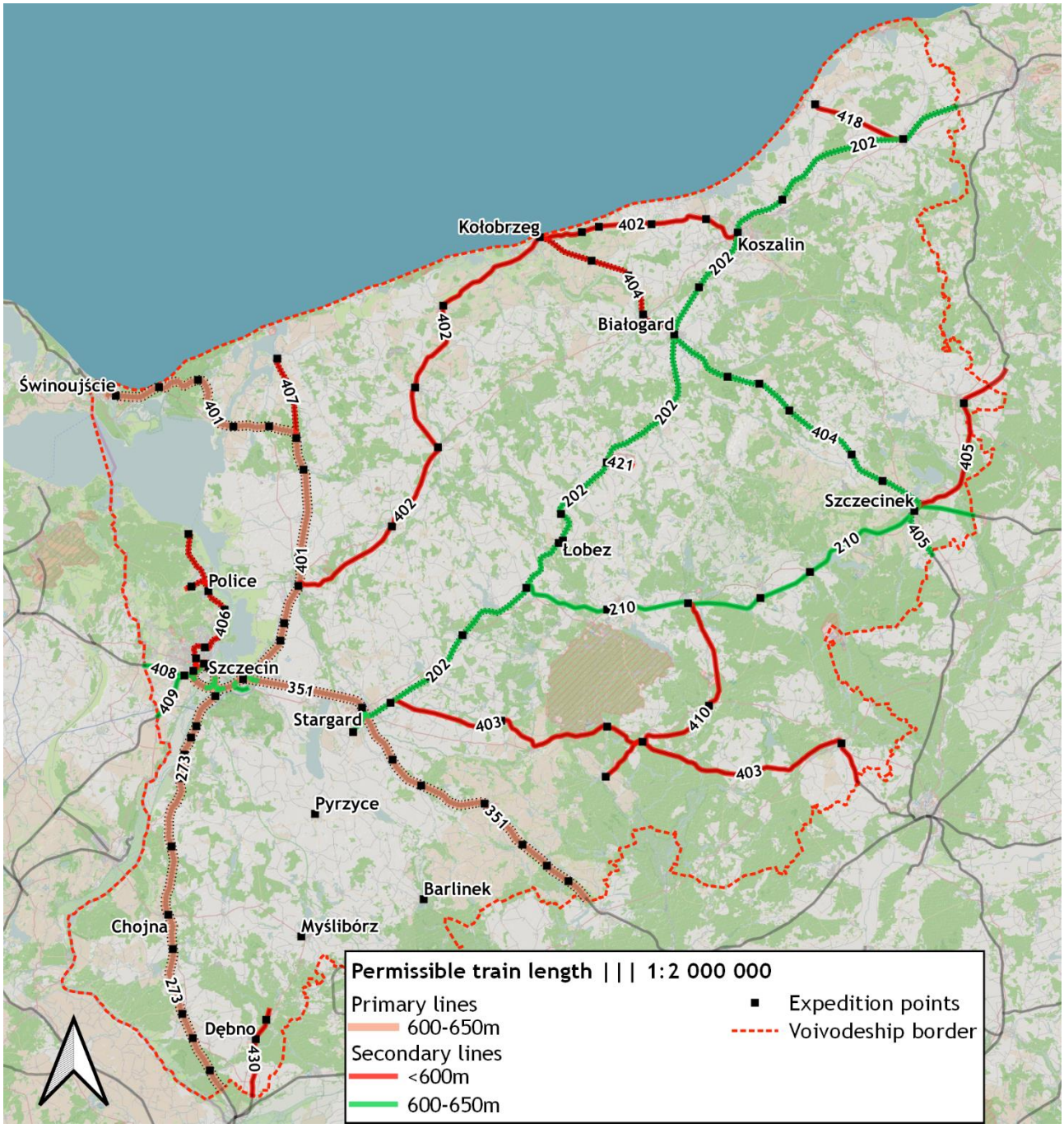
The key element determining the competitiveness of rail transport in relation to alternative means is the availability and quality of infrastructure. When formulating the transport offer, railway carriers and shippers take into account, first of all, the permissible train parameters (maximum length and axle load). Operating speed and line capacity are also important, as they affect the real commercial speed of trains. Finally, for entities without a siding and who want to send or receive loads using rail transport, a sufficiently dense arrangement of Service Infrastructure Facilities (OIU) - "loading tracks" enabling convenient reloading of goods from wagons to cars, as well as their temporary storage, is of key importance. Below is a list of the above-mentioned conditions for the railway infrastructure in the West Pomeranian Voivodeship.

Table 2. Current and expected lines' parameters

Parameter	Current	Expected
Permissible train length	Primary lines: 600-650m Secondary lines: 400-650m	Primary lines: 740m Secondary lines: 600m
Permissible axle load	Primary lines: 221 kN Secondary lines: 196-221 kN	Primary lines: 221 kN Secondary lines: 221 kN
Maximum speed – freight trains	Primary lines: 50-100 km/h Secondary lines: 20–80 km/h	Primary lines: 100-120 km/h Secondary lines: 80–100 km/h
Practical capacity	Bottlenecks: Szczecin Dąbie station, Line No. 406	Undisrupted
Electrification	Non-electrified lines: 402, 210, 408, 409	Full electrification on lines of at least secondary importance
Availability of loading tracks & ramps	Loading points on 37 stations	Loading points on 65 stations

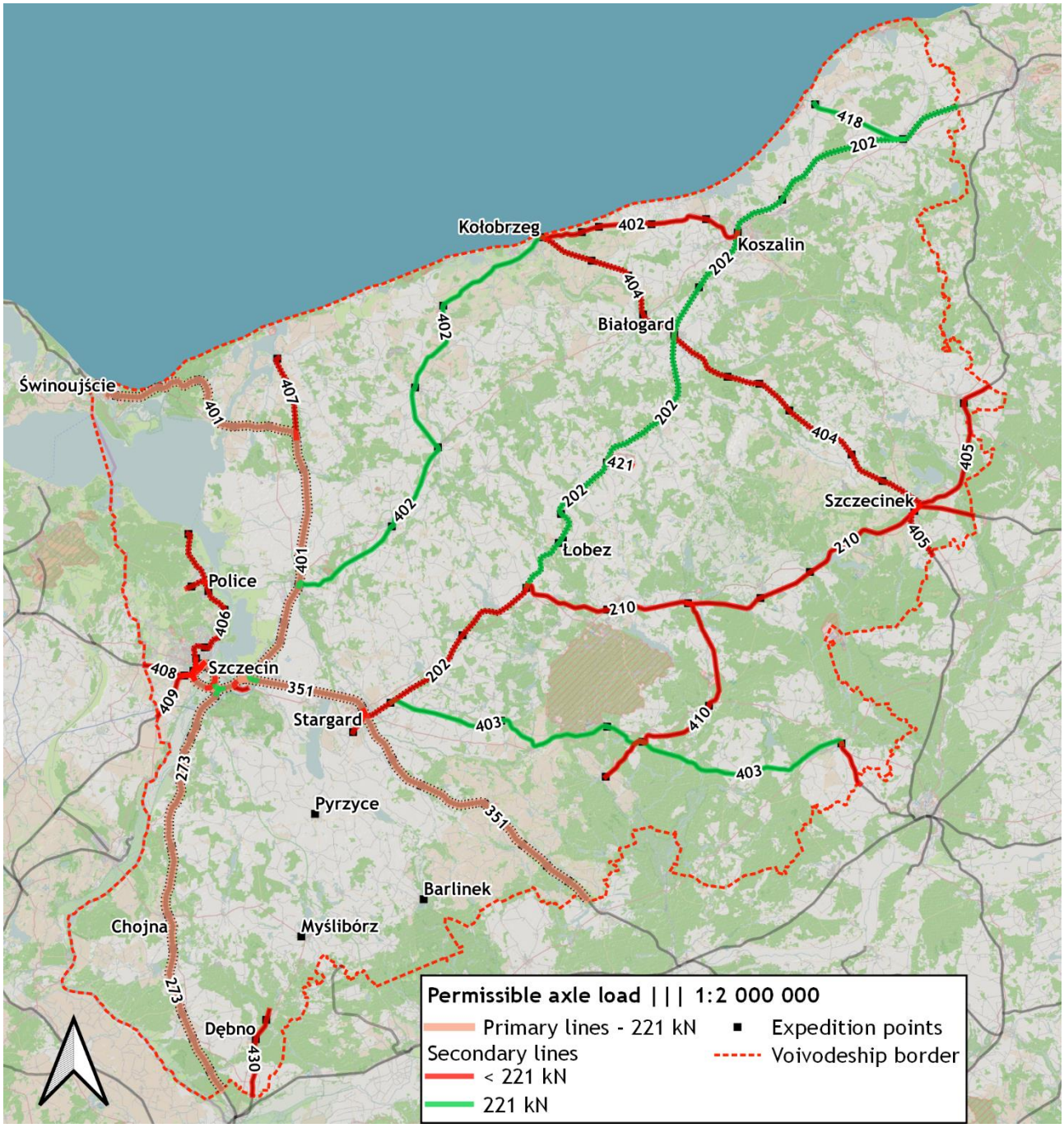
Source: ZDG TOR analysis

Figure 4. Permissible train length



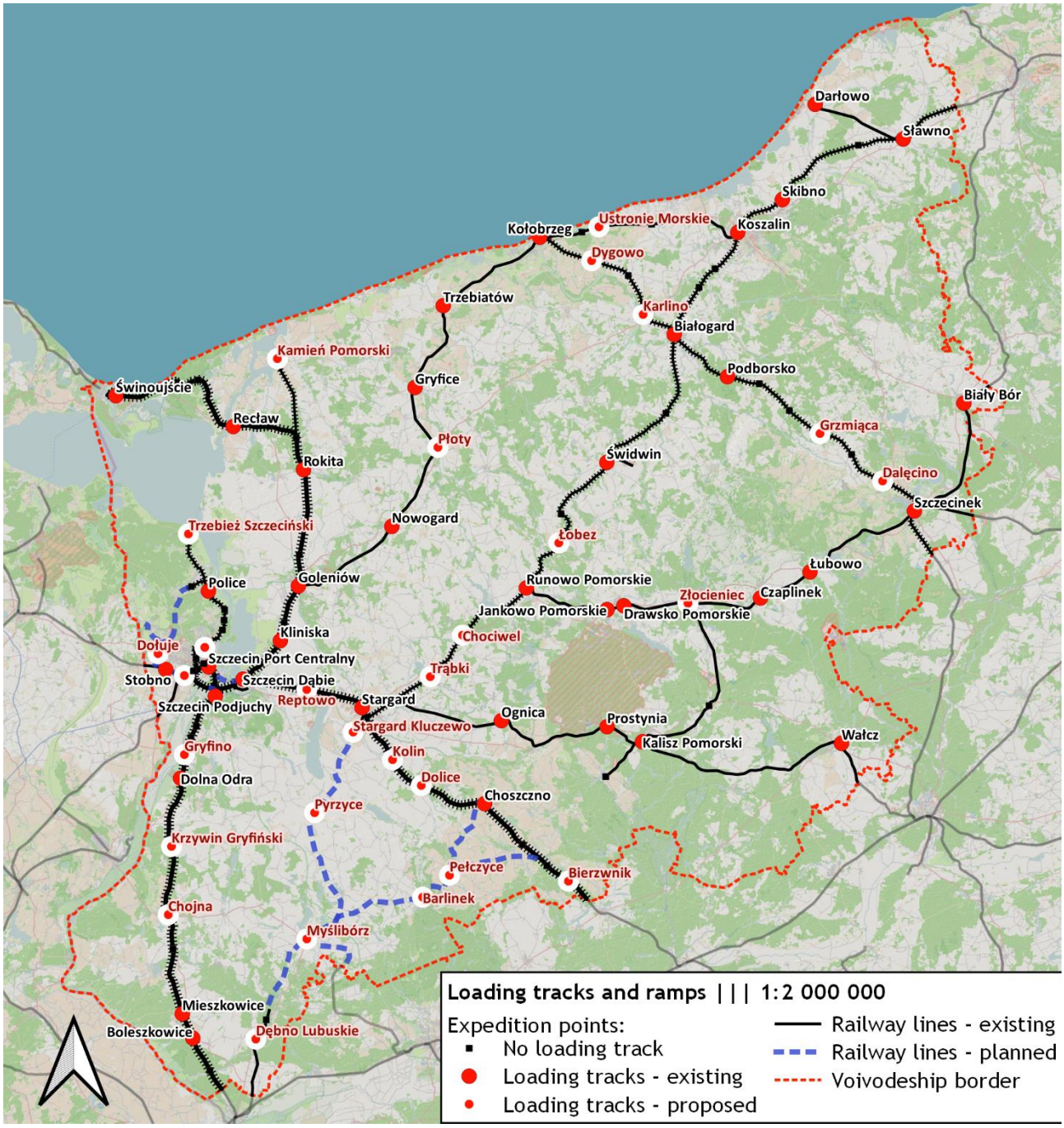
Source: ZDG TOR analysis

Figure 5. Permissible axle load of freight trains



Source: ZDG TOR analysis

Figure 6. Loading tracks and ramps



Source: ZDG TOR analysis

2.3. Szczecin and Świnoujście seaports and their development conditions

The ports of Szczecin and Świnoujście form one of the largest port complexes in the Baltic Sea region. They are situated on the shortest route connecting Scandinavia with central and southern Europe. They are also located on the shortest sea route connecting Finland, Russia, Lithuania, Latvia and Estonia with Germany and Western Europe through the Baltic Sea. The port in Świnoujście is located directly by the sea, while the port in Szczecin is located 68 km inland. The crossing of the fairway from the road in Świnoujście to Szczecin takes 4 hours. The location of the ports in Szczecin and Świnoujście in relation to

each other makes them complementary. Thanks to its location by the sea, Świnoujście can provide high-efficiency ferry connections and offer accessibility to larger ships - with a draft of up to 13.5 m. In turn, the port of Szczecin, 68 km from the sea and accessible to smaller ships - with a draft of 9.15 m - gives you the chance to get inland by the cheapest sea route, so much closer to the recipients and senders of the cargo handled there.

The ports in Szczecin and Świnoujście are the closest seaports for the area of western and south-western Poland, gathering the most important industrial areas of the country, such as Upper Silesia, the area of Wrocław and Poznań. Another important factor is the proximity of eastern Germany, especially the Berlin area (located only 140 km from Szczecin), Brandenburg and Saxony. Moreover, for many years both ports have been the most important sea transit ports for the Czech Republic and Slovakia. The ports of Szczecin and Świnoujście have a well-developed system of connections with the hinterland transport. They are connected with the European motorway system via the A11 and A20 motorways, and via the national road No. 3 (E-65) with the south of Poland, the Czech Republic and Slovakia, and further to the south of Europe. Both ports also have convenient rail connections - they connect to the industrial centers of western and southern Europe through the Oder main line (No. 273).

The undeniable advantage is their accessibility - as the only Polish sea ports - for inland navigation, recognized by the European Union as the most environmentally friendly. Such accessibility to the system of waterways in Western Europe is of particular importance for servicing the German market. The barge transit goes directly to many significant economic centers in the Berlin and Brandenburg region.

2.4. Sea ports' investment plans and their impact on railway traffic

Within the seaports of Szczecin and Świnoujście, two large-scale investments are being carried out, which will have a significant impact on supply chains, and thus on the use of railway and road infrastructure complementary to sea routes. When formulating an action plan to improve the accessibility and quality of railway infrastructure, particular attention should be paid to the wide impact of these investments, also on freight train traffic.

The deepwater container terminal in Świnoujście is one of the most important economic investments in Poland. It is in line with the national development strategy, and will certainly also contribute to a wider use of the core network corridors running through the West Pomeranian Voivodeship.

The importance of the Baltic Sea for the world economy is growing every year. Currently, the largest global container carriers: Maersk Line, Mediterranean Shipping Lines or CMA CGM, operating as part of global shipping loops, mainly use Hamburg container terminals and, recently, the Gdańsk DCT terminal. Looking at the map, you can see that the space between the two transshipment hubs is large and fully justifies the creation of a deepwater terminal in Świnoujście. Until recently, the Baltic Sea was treated as a typical inland sea, with goods exchanged between local ports. Passenger and ro-ro transport dominated, especially in the eastern part of the basin. The transport of containers or bulk cargo was carried out by small units (feeders) with a load capacity of several thousand tonnes. The main reloading hub for containers directed to the South Baltic market was Hamburg, cargo was then carried further through the

Danish Straits with small container ships. The market was dominated mainly by small but numerous German and Dutch shipowners.

While the Baltic markets - passenger, ro-ro or mass - have basically not changed in the last two decades, the creation of the Gdansk DCT container terminal and the expansion of the FCT (First Container Terminal) in St. Petersburg have completely changed the image of the container transport market. It turned out that the southern Baltic has a huge potential for attracting goods from all over the world, and Gdańsk itself has become an important transshipment hub. It is also worth adding that the FTC, which was launched in 1998 and serves the Russian market and the markets of the eastern Baltic countries, was dethroned as the largest container terminal in the Baltic Sea by DCT, which was established in 2007. The data for Q1 2021 clearly illustrates this: 515,042 TEU handled by Gdańsk, compared with 499,640 TEU handled by Saint Petersburg. Considering the general increase in freight mass directly reaching the Baltic Sea and the potential of Świnoujście, with its own transport corridor to the Southern Europe (the modernized Odra Waterway, the S3 road or the E-65 / CE-65 rail corridor), it should be considered that the construction of another terminal there is an undertaking that will generate a significant increase in transport performance on these communication routes.

The deepening of the Szczecin - Świnoujście fairway to 12.5 meters will constitute another major development impulse for the ports in the analyzed region. a modernization of the stretch, which is currently being carried out, together with huge investments in progress in the port itself and adjusting the port infrastructure to new capacity, will increase the permissible parameters of ships calling at Szczecin or Police.

In case of standard handysize bulk carriers (up to 40,000 DWT) and panamax (60,000-80,000 DWT), this change will be fundamental, because the practice so far (with the current vessel draft requirements) has forced shipowners to clear part of the cargo in Świnoujście or to make journeys without using the full capacity. After deepening the fairway to 12.5 m, in case of handysize vessels, their maximum capacity will increase by about 25%. Moreover, under new conditions, these ships will be able to be fully loaded and thus use their full transport potential. An even bigger difference will be in the case of panamax bulk carriers. Currently, they can call in Szczecin, loaded with up to approx. 30 thousand. tonnes, while in the new conditions the load capacity may be increased to 50 thousand. A significantly increased possibility of transporting cargo will, of course, translate into greater profits for shipowners and the attractiveness of the port itself, which is more often chosen by them.

The anticipated reloading capacity of the new container terminal in Świnoujście is approximately 2 million TEU per year. The deepening of the Szczecin - Świnoujście fairway may increase the cargo turnover in the port of Szczecin by about 6-7 million tons per year. According to the authors of this study, the combined effect of both investments will lead to an **increase in the number of freight trains running from / to the ports of Szczecin and Świnoujście by 15-25 a day**. In view of such a significant increase in transport performance, the existing railway infrastructure may turn out to be insufficient. The existing bottlenecks, which so far did not constitute a significant problem and influenced the disruption of traffic only in a marginal way, will inevitably become visible with the increase in transshipment in ports. A similar situation occurs in the case of Tri-City ports - insufficient number of main additional and holding tracks at

the Gdańsk Northern Port station, insufficient infrastructure at siding operators, as well as limited capacity of the railway line No. 226 (Pruszcz Gdański – Gdańsk Port Północny) caused a massive bottleneck. Currently, freight trains wait many hours to enter the Gdańsk Northern Port station, and delays sometimes exceed 24 hours. In the case of Szczecin, an additional challenge is also the absolute necessity to segregate passenger and freight traffic in connection with the continuous development of PKP Intercity's transport offer and the implemented project of the Szczecin Metropolitan Railway. Taking into account the above conditions and challenges, the authors propose the implementation of the following investment priorities, located on the maps below:

1. Construction of the second track on line 273, section Szczecin Podjuchy - Szczecin Port Centralny SPA, including the widening of the bridge over Regalica River.

2. Construction of the second track on line 428, section Szczecin Podjuchy - Szczecin Zdroje.

3. Construction of the Szczecin Podjuchy Most - Dziewoklicz link.

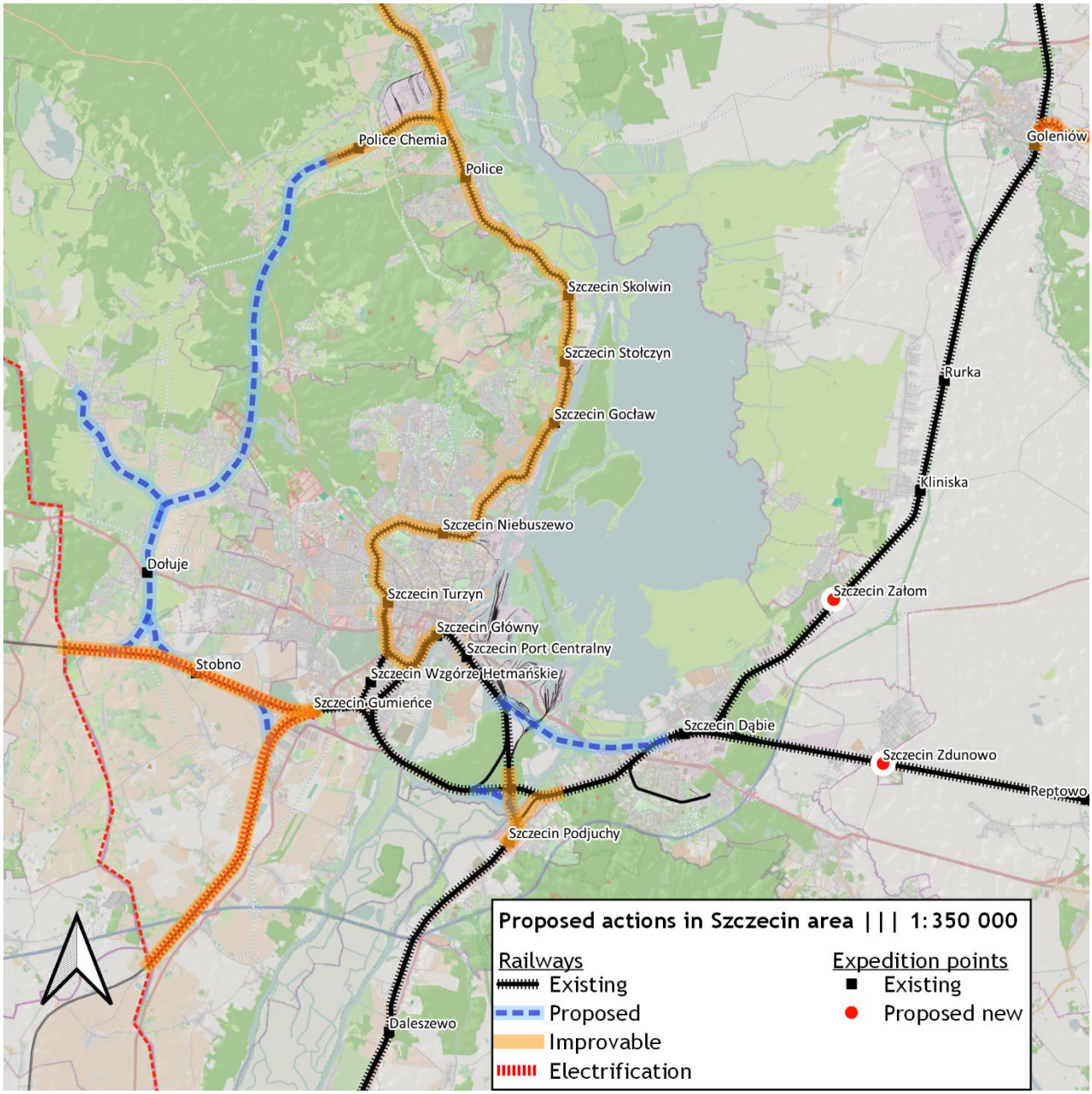
4. Construction of the second track on line 406, Szczecin Turzyn - Police section.

5. Construction of the Western Bypass of Szczecin, section Stobno Szczecińskie - Dołuje - Police Chemia with the construction of new links Dołuje - Kościno (429/408) and Stobno Szczecińskie - Warzymice (408/409) along with their electrification.

6. Construction of new stations on lines 351 and 401 enabling the crossing and overtaking of trains (at least two additional main tracks): Szczecin Zdunowo, Szczecin Załom, Łoźnica, Mokrzyca.

7. Feasibility study for the expansion of the Szczecin Railway Junction.

Figure 7. Proposed actions in Szczecin area



Source: ZDG TOR analysis

3. Main challenges for the implementation of roadmap

3.1. Financing

In case of most of investments covered by this study, the entity implementing, supervising and responsible for obtaining financing will be the national infrastructure manager - PKP PLK S.A. Due to the fact that the infrastructure of the Baltic Sea-Adriatic Sea Corridor is part of the TEN-T core network, the financing of projects along the main communication routes will be significantly facilitated. For other projects on lines outside the TEN-T network and of secondary importance, it will be necessary to use alternative sources of financing. The uncertainty regarding the detailed allocation of aid funds under the EU financial perspective for 2021-2027 is also a big challenge. In terms of covering the costs of PKP PLK's investments by external sources in the new EU financial perspective, the authors of the study envisage the following options:

1. **European Funds for Infrastructure, Climate and Environment (Fundusze Europejskie na Infrastrukturę, Klimat i Środowisko - FEnIKS)** – The fund is to be similar in structure and arrangement of priorities to POIiŚ 2014-2020. Initial plans for the allocation of funds for railways and intermodal transport amount to approximately EUR 5.5 billion.
2. **National Reconstruction Program (Krajowy Program Odbudowy - KPO) -** part of the European Recovery and Resilience Facility (RRF), a package of financial instruments with a total value of around EUR 750 billion. Almost half of the funds will be made available in the form of grants and the rest in the form of preferential loans. According to the plans of the central government, a significant part of the funds allocated to Poland (ie at least EUR 4 billion) will go to investment projects in the rail transport sector.
3. **European Regional Development Fund (ERDF)** – ca. 45% of the Fund will be allocated to transport, including railway investments.
4. **Connecting Europe Facility (CEF2)** – the total pool of funds under this program for the entire EU will amount to approx. EUR 25 billion, with the allocation key according to the structure: 70% for the cohesion envelope, 30% to be distributed under the competition procedure. Taking into account the allocation of funds in the previous CEF program, the potential use of funds by Poland is estimated at EUR 3 billion. In addition, around EUR 1.6 billion will be specifically earmarked for financing missing major cross-border rail links between Cohesion regions.
5. **Program of Supplementing Local and Regional Railway Infrastructure (Program Uzupełniania Lokalnej i Regionalnej Infrastruktury Kolejowej - „Kolej+")**– the program is aimed at financing the development of a network of rail connections to smaller towns and other excluded regions. The initiator of investment plans is to be an appropriate local government unit, investment tasks can be financed in 85% from the program funds and in 15% from local government funds. Westpomeranian authorities have submitted four applications for funding under the program so far. As at the date of submitting this study, the implementation of investment projects covered by "Kolej +" is questionable due to the risk of not obtaining 15% of own contribution for their implementation.

In the scope of the above-mentioned programs, private entities may also apply for co-financing of projects, primarily in the field of intermodal transport under the CEF2 and FEnIKS instruments. The main priorities of these programs will be infrastructure dedicated to intermodal transport, rolling stock and specialized equipment, as well as telematics and satellite systems.

3.2. Cross-sector collaboration

In order to maximize the benefits of proposed investment plans, cross-sector cooperation and coordination within the infrastructure for entire supply chains is essential. Increasing the role of rail transport in the existing system is a complex challenge: thinking about it must go beyond mere modernization or construction of rail infrastructure.

Each construction or reconstruction of wharfs and other reloading infrastructure in ports must be matched by the adequate development of railway terminals along with their convenient location. Currently, it is not uncommon that the transhipment infrastructure in ports is constructed in a way that promotes the use of road transport. The context of the adequate infrastructure development within various modes of transport also applies to Special Economic Zones - the organizers of these zones should, following the example of Germany or the Netherlands, ensure that the railway network is connected directly to industrial parks in order to promote the use of railways in the import and export of goods. This problem is general and systemic - due to the dynamic development of the road transport offer, the highest priority in the location of industrial parks is currently the availability of road communication routes. In the context of local infrastructure, it is also worth paying attention to the actions of local governments in the field of limiting access to railway terminals - it is not uncommon that local road managers place tonnage restrictions in the vicinity of these points, thus preventing or significantly hindering the possibility of carrying out the "last mile" to and from these terminals.

A significant challenge is also the cooperation of the main stakeholders with projects' manager and executor, i.e. PKP PLK S.A. Feasibility studies and construction projects carried out for the needs of the national railway network manager often give absolute priority to passenger transport, ignoring the current and potential flows of goods. An example of such activities is the railway line No. 9 (Warsaw - Gdańsk), which, despite extensive modernization, has insufficient infrastructure dedicated to freight transport (additional main, parking and cargo tracks). A systemic problem is also the shutdown traffic organization during the execution of works. Often, long-term limitation, complete cut-off or redirection of cargo flows to detour routes causes the senders, discouraged by the increased costs and transit time, to permanently abandon rail transport in favor of alternatives.

3.3. Cooperation with private entities

The main beneficiaries of the projects proposed under this study will be private entities - industrial plants, operators of port and railway terminals, freight forwarders and railway carriers. Without their will and cooperation, the investment works may not bring about positive effects in terms of shifting the modal split. In order for the cooperation between the infrastructure manager - local government - private entities to be as fruitful as possible, attention should be paid to the following aspects:

1. Ease of construction and connection of the new siding to the national railway network, the need to obtain the necessary certification and the status of service infrastructure.
2. Adjusting the operational parameters of private sidings to the permissible conditions on adjacent railway lines. It is not uncommon that despite a completed modernization of a line, which guarantees the possibility of running trains with a length of 740 meters and an axle load of 221 kN, the permissible parameters of the trains do not change on the sidings located along this line. At present, this task is entirely the responsibility of siding owners.
3. Adaptation of renovated or newly built stations to traffic flows on existing and potential sidings. An example of omitting this type of action is the Pruszków station, which, due to the insufficient number of additional main and parking tracks, is not able to smoothly handle increased traffic at the container terminal.
4. Convenient and non-discriminatory access to OIU loading tracks, both from the rail (track) and road side (yard or loading ramp), equalizing the operational parameters of the OIU (including axle load) with the parameters of adjacent lines.
5. Maintaining the operation of marshalling yards at the main junction stations in order to promote the transport of groups of wagons and individual wagons.
6. Overall enhancement of commercial speeds and the predictability of rail freight transport.

Some of the above-mentioned challenges are systemic in nature and go beyond the scope of this study. From the perspective of PKP PLK's investments, the key is to adapt the modernized infrastructure to both existing and future cargo flows coming to/from terminals and sidings.

4. Identification of the actions

Action/Measure	Effect	Priority (L/M/H)	Time horizon	Estimated costs (EUR, gross)	Indicators	Entities involved
A. TRANSPORT INFRASTRUCTURE						
A.1. Construction of railway link Szczecin Podjuchy Most - Dziewoklicz	▪ Improvement of capacity in Szczecin area ▪ Shortening of transit time between line no. 273 and Police, as well as Tantow / Grambow border crossings ▪ Relieving Szczecin Dąbie station	H	2027	12-15 mln	New link opened for traffic	PKP PLK
A.2 Reconstruction of railway line no. 411 (Stargard – Pyrzyce)	▪ Enabling rail shipments to be carried out by nearby plants (including Bridgestone, Kluczewo Sugar Factory, Backer OBR) ▪ Enabling handling of goods at Stargard Kluczewo, Pyrzyce stations ▪ Creation of a new transport corridor Kostrzyn - Myślibórz - Stargard	H	2027	80-90 mln	Line 411 opened for traffic	PKP PLK, WOJEWÓDZTWO ZACHODNIOPOMORSKIE
A.3 Reconstruction of railway line no. 422 (Pyrzyce – Głazów) and 410 (Barnówko - Myślibórz – Głazów)	▪ Enabling rail shipments to be carried out by nearby plants (incl. Maldrobud, Backer OBR) ▪ Enabling handling of goods at Stargard Kluczewo, Pyrzyce stations ▪ Creation of a new transport corridor Kostrzyn - Myślibórz - Stargard	H	2027	100-110 mln	Lines 422, 410 opened for traffic	PKP PLK, WOJEWÓDZTWO ZACHODNIOPOMORSKIE
A.4 Reconstruction of railway line no. 410 (Głazów – Barlinek - Pełczyce – Choszczno), alternatively Głazów - Barlinek – Pełczyce - Krzęcin – Rębusz	▪ Enabling rail shipments to be carried out by nearby plants (incl. Barlinek, Agro-Pełcz, BORNE FURNITURE) ▪ Creating a rail link to Special Economic Zones (SSE) Myślibórz, Pełczyce ▪ Enabling handling of goods at Barlinek, Pełczyce stations ▪	H	2027	180 - 220 mln	Line 410 open for traffic	PKP PLK, WOJEWÓDZTWO ZACHODNIOPOMORSKIE

A.5 Construction of the western rail bypass of Szczecin, section Stobno Szczecińskie - Dołuje - Police Chemia with the construction of new linkages Dołuje - Kościno (429/408) and Stobno Szczecińskie - Warzymice (408/409). Full electrification.	▪ Better traffic segregation in the context of the Szczecin Metropolitan Railway, as well as ZCh Police's expansion plans ▪ Improvement of rail shipments to Zakłady Chemiczne Police (capacity, line parameters and travel time) ▪ Improvement of shipments from the area of Zakłady Chemiczne Police to the west and south (Grambow, Tantow crossing, to lines 273 and 351)	M	2030	250-300 mln	New lines opened for traffic	PKP PLK, Zakłady Chemiczne Police
A.6 Construction of the second track on line 273, section Szczecin Podjuchy - Szczecin Port Centralny SPA, including the widening of the bridge over the Regalica River	▪ Improving the capacity for entry and exit from line 273 to the port of Szczecin ▪ Facilitating the segregation of traffic in the Szczecin Junction	H	2027	35-50 mln	New track opened for traffic	PKP PLK, Wody Polskie, Zespół Portów Morskich Szczecin i Świnoujście
A.7 Construction of second track on line 428 (Szczecin Podjuchy - Szczecin Zdroje)	▪ Improving the capacity for entry and exit from line 273 to Świnoujście area ▪ Facilitating the segregation of traffic in the Szczecin Junction	H	2027	10-15 mln	New track opened for traffic	PKP PLK
A.8 Construction of the second track on line 406, section Szczecin Turzyn - Police (investment in progress)	▪ Improving the capacity in transport to / from entities located along the line 406 ▪ Facilitating the segregation of traffic in the Szczecin Junction	H	2027	160 - 180 mln	New track opened for traffic	PKP PLK
A.9 Electrification of line 408 on section Szczecin Gumieńce - PL/DE border and line 409 on section Szczecin Gumieńce - PL/DE border	▪ Improving the competitiveness of rail transport on cross-border routes ▪ Reduction of greenhouse gas emissions	H	2027	15 - 20 mln	New electrified track opened for traffic	PKP PLK
A.10 Electrification of railway lines 210 (Runowo Pomorskie - Szczecinek - (Chojnice) and 402 (Goleniów - Kołobrzeg)	▪ Improving the competitiveness of rail transport, in particular for shipments from / to Szczecinek (KRONOSPAN) ▪ Reducing greenhouse gas emissions	M	2030	80 - 100 mln	New electrified track opened for traffic	PKP PLK

A.11 Improvement of operational parameters to the D3 standard (221 kN, min.600m) on lines: 202, 210, 402, 403, 404, 405, 406, 407, 408, 409, 418, 430, 431	▪ Improving overall competitiveness of rail transport ▪ Abolishing bottlenecks in the context of permissible train parameters	M	2030	200 - 250 mln	The length of the lines made available with improved operational parameters (a total of 662 km)	PKP PLK
B, ROLLING STOCK / MACHINERY						
C.LEGISLATION/ADMINISTRATIO						
C.1 Program for the elimination of local speed limits on lines managed by PKP PLK	▪ Improving overall capacity and traffic flow	M	2030	10-15 mln	Number of abolished speed limits	PKP PLK
D.SERVICES/ OPERATIONS						
D.1 Construction or reconstruction of loading tracks (OIU) within the following stations: Łobez, Chociwel, Trąbki, Stargard Kluczewo, Złocieniec, Chojna, Krzywin Gryfiński, Gryfino, Bierzwnik, Dolice, Kolin, Reptowo, Ustronie Morskie, Płoty, Dalęcino, Grzmiąca, Karlino, Dygowo, Szczecin Niebuszewo, Trzebież Szczeciński, Kamień Pomorski, Szczecin Gumieńce, Dębno Lubuskie, Dołuje, Pyrzyce, Myslibórz, Barlinek, Pełczyce	▪ Improving the accessibility of rail freight for nearby plants ▪ Increasing the competitiveness of rail transport in the supply of bulk materials (wood, grain, aggregate, coal, scrap, etc.) by reducing the last mile	M	2030	30 - 40 mln	Number of new loading tracks made accessible	PKP PLK
D.2 Improvement of the operational parameters of the remaining OIU "Loading tracks" in accordance with the class of adjacent lines (D3 - 221 kN)	▪ Improving overall competitiveness of rail transport	M	2030	15 - 20 mln	Number of loading tracks with improved parameters	PKP PLK

D.3 Construction of new stations on lines 351 and 401 enabling the crossing and overtaking of trains (at least two additional main tracks): Szczecin Zdunowo, Szczecin Załom, Łoźnica, Mokrzyca	▪ Improving the capacity for access to the ports of Szczecin and Świnoujście ▪ Reducing travel time to the above-mentioned ports	L	2030	180 - 220 mln	Number of newly opened stations	PKP PLK
D.4. Feasibility study for the extension of the Szczecin Railway Junction	▪ Detailed identification of existing bottlenecks and the needs of shippers and carriers ▪ Specific recommendations for the reconstruction of infrastructure, including traffic analysis	M	2030	0,5-0,8 mln	Completion of feasibility study	PKP PLK, WOJEWÓDZTWO ZACHODNIOPOMROSKIE

5. Detail description of priority actions/measures

Number and name of intervention: A.1 Construction of railway link Szczecin Podjuchy Most - Dziewoklicz	
Priority area	A. TRANSPORT INFRASTRUCTURE
Description of action/measure	The construction of the link will improve railway traffic in the area of the Szczecin Railway Junction by: relieving the Szczecin Dąbie station, introducing additional traffic segregation and emergency routing of trains, as well as by accelerating transit time from line 273 towards the Polish-German border.
Description of the main steps for its implementation	• Development of the Feasibility Study - determination of the technical, organizational and legal conditions of the project, traffic forecasts, environmental analyzes, economic and financial analysis, investment financing options, • Development of a Functional and Utility Program (PFU) - description of the existing state, parameters determining the size of facilities and the scope of works, description of construction works by industry, functional and utility properties, • Development of design documentation (construction design, detailed design, traffic organization design, schematic plans) and obtaining the required opinions, approvals, conditions, decisions and permits, • Implementation of construction works - earth and drainage works, track, engineering and bridge structures, traction network, power engineering, environmental protection, other industries as needed, • Development of comprehensive as-built documentation and obtaining a subsystem compliance assessment, • Technical acceptance and putting the investment into operation.
Stakeholders involved	Investor – PKP PLK Land owner – Lasy Państwowe Beneficiaries – railway carriers
Timeline	2023-2027
Investment cost	12-15 mln EUR gross
Sources of financing[1]	PKP PLK's funds, Connecting Europe Facility, **European Funds for Infrastructure, Climate and Environment** (FENiKS), **National Reconstruction Program** (KPO)
Impact of the initiative	Increasing the competitiveness of rail compared to road transport

	by improving the capacity of the Szczecin Railway Node will reduce negative externalities of transport (noise, accidents, emissions of toxic exhaust gas components). The local environmental impact of the investment will be examined at the pre-design stage.
Compliance with the overall objectives of REIF project	• Increasing the competitiveness of rail transport resulting in the shift of modal split, • Removal of bottlenecks within the existing railway infrastructure, • Ensuring optimal infrastructure for multimodal transport chains, including intermodal transport.
Compliance with guidelines of national and regional planning instruments	**At the national level:** compliance with the Strategy for Responsible Development until 2020 (with a perspective until 2030), the Strategy for Sustainable Development of Transport until 2030. The Strategy for Sustainable Transport Development until 2030 defines rail transport as one of the most important factors determining economic development. A well-developed transport infrastructure strengthens social, economic and spatial cohesion and contributes to strengthening the competitiveness of the economy. The analysis of development directions carried out in 2000-2017 indicates that in Poland there is a need to improve and develop a coherent and efficiently functioning transport system, integrated with the European and global network. The strategy also emphasizes the need to strengthen the role of rail transport in the integrated transport system of the country. To this end, it will be necessary to continue activities that will positively affect the competitiveness of railways in relation to other types of transport, measured by travel time and cost, travel comfort and safety level. This task is carried out through investments and technological and organizational changes. The development of rail transport will allow the gradual increase in the degree of interoperability of the Polish system within the EU transport system. The Strategy for Responsible Development until 2020 indicates, on the other hand, that rail freight transport has the potential for growth, thanks to the modernization of line infrastructure and the development of intermodality in transport. The limited use of railway lines for the transport of goods results, inter alia, from from the high costs of providing infrastructure and its technical condition. **At the regional level:** compliance with the Development Strategy of the West Pomeranian Voivodeship until 2030 and the Transport Policy of the West Pomeranian Voivodeship until 2030. The Development Strategy for the West Pomeranian Voivodeship until 2030 indicates that efficiently operating transport directly affects the development of the economy. It also indicates a weak intraregional and interregional transport accessibility, caused by the peripheral location in relation to the capital of the country

	and other regions, emphasizing at the same time one of the best accessibility to major European growth centers in Poland.

Number and name of intervention: A.9 Electrification of line 408 on section Szczecin Gumieńce - PL/DE border and line 409 on section Szczecin Gumieńce - PL/DE border	
Priority area	A. TRANSPORT INFRASTRUCTURE
Description of action/measure	The electrification of the lines leading to the Szczecin Gumieńce - Tantow / Grambow border crossings in conjunction with the works carried out on the German side will improve the economic efficiency of rail freight transport through the use of electric traction rolling stock, including multi-system locomotives. In particular, the investment will improve the flow of goods from and to Zakłady Chemiczne Police. The investment is complementary to the works carried out on the German side (Angermünde - Passow, Passow - Tantow Grenze)
Description of the main steps for its implementation	• Development of the Feasibility Study - determination of the technical, organizational and legal conditions of the project, traffic forecasts, environmental analyzes, economic and financial analysis, investment financing options, • Development of design documentation (multi-disciplinary construction design, detailed design, supplementary documentation) and obtaining the required opinions, approvals, conditions, decisions and permits, • Implementation of construction works - earthworks, traction network, electric power engineering, environmental protection, other industries as needed, • Development of comprehensive as-built documentation and obtaining a subsystem compliance assessment, • Technical acceptance and putting the investment into operation.
Stakeholders involved	Investor – PKP PLK Energy supplier – PKP Energetyka Beneficiaries – railway carriers
Timeline	2023-2027
Investment cost	15-20 mln EUR gross
Sources of financing[1]	PKP PLK's funds, Connecting Europe Facility, **European Funds for Infrastructure, Climate and Environment** (FENiKS), **National Reconstruction Program** (KPO)

Impact of the initiative	Increasing the competitiveness of rail transport compared to road transport by electrifying key sections of the line enabling the use of multi-system locomotives. Mitigation of negative externalities related to the use of diesel traction. The local environmental impact of the investment will be examined at the pre-design stage.
Compliance with the overall objectives of REIF project	• Increasing the competitiveness of rail transport resulting in the shift of modal split, • Increasing the regional accessibility of corridors included in the TEN-T network, • Ensuring optimal infrastructure for multimodal transport chains, including intermodal transport.
Compliance with guidelines of national and regional planning instruments	**At the national level:** compliance with the Strategy for Responsible Development until 2020 (with a perspective until 2030), the Strategy for Sustainable Development of Transport until 2030. The Strategy for Sustainable Transport Development until 2030 defines rail transport as one of the most important factors determining economic development. A well-developed transport infrastructure strengthens social, economic and spatial cohesion and contributes to strengthening the competitiveness of the economy. The analysis of development directions carried out in 2000-2017 indicates that in Poland there is a need to improve and develop a coherent and efficiently functioning transport system, integrated with the European and global network. The strategy also emphasizes the need to strengthen the role of rail transport in the integrated transport system of the country. To this end, it will be necessary to continue activities that will positively affect the competitiveness of railways in relation to other types of transport, measured by travel time and cost, travel comfort and safety level. This task is carried out through investments and technological and organizational changes. The development of rail transport will allow the gradual increase in the degree of interoperability of the Polish system within the EU transport system. The Strategy for Responsible Development until 2020 indicates, on the other hand, that rail freight transport has the potential for growth, thanks to the modernization of line infrastructure and the development of intermodality in transport. The limited use of railway lines for the transport of goods results, inter alia, from the high costs of providing infrastructure and its technical condition. **At the regional level:** compliance with the Development Strategy of the West Pomeranian Voivodeship until 2030 and the Transport Policy of the West Pomeranian Voivodeship until 2030. The Development Strategy for the West Pomeranian Voivodeship until 2030 indicates that efficiently operating transport directly affects the development of the economy. It also indicates a weak

	intraregional and interregional transport accessibility, caused by the peripheral location in relation to the capital of the country and other regions, emphasizing at the same time one of the best accessibility to major European growth centers in Poland.

Number and name of intervention: D.1 Construction or reconstruction of loading tracks (OIU) within the following stations: Łobez, Chociwel, Trąbki, Stargard Kluczewo, Złocieniec, Chojna, Krzywin Gryfiński, Gryfino, Bierzwnik, Dolice, Kolin, Reptowo, Ustronie Morskie, Płoty, Dalęcino, Grzmiąca, Karlino, Dygowo, Szczecin Niebuszewo, Trzebież Szczeciński, Kamień Pomorski, Szczecin Gumieńce, Dębno Lubuskie, Dołuje, Pyrzyce, Myslibórz, Barlinek, Pełczyce	
Priority area	C.LEGISLATION/ADMINISTRATION
Description of action/measure	The densification of the network of generally accessible loading tracks will contribute by improving the economic efficiency of rail freight transport by shortening the so-called last mile.
Description of the main steps for its implementation	• Development of a Functional and Utility Program (PFU) - description of the existing state, parameters determining the size of facilities and the scope of works, description of construction works by industry, functional and utility properties, • Development of project documentation (construction design, energy industry project) and obtaining the required opinions, agreements, approvals, conditions, decisions and permits, • Works implementation - track industry, construction and road industry (loading yards, ramps and access roads), • Development of comprehensive as-built documentation and obtaining a subsystem compliance assessment, • Technical acceptance and putting the investment into operation.
Stakeholders involved	Investor – PKP PLK Beneficiaries – railway carriers
Timeline	2023-2030
Investment cost	30-40 mln EUR gross
Sources of financing[1]	PKP PLK's investment budget
Impact of the initiative	Increasing the attractiveness and accessibility of rail transport by building or reconstructing reloading points. Mitigation of negative externalities related to the activity of car transport on a regional scale. Local increase in external effects (noise) in the immediate vicinity of the investment.
Compliance with the overall objectives of REIF	• Increasing the competitiveness of rail transport resulting in the shift of modal split,

project	• Increasing the regional accessibility of corridors included in the TEN-T network by eliminating local restrictions, • Ensuring optimal infrastructure for multimodal transport chains, including intermodal transport. • Activation of new directions and connections for rail transport within the so-called feeder lines.
Compliance with guidelines of national and regional planning instruments	**At the national level:** compliance with the Strategy for Responsible Development until 2020 (with a perspective until 2030), the Strategy for Sustainable Development of Transport until 2030. The Strategy for Sustainable Transport Development until 2030 defines rail transport as one of the most important factors determining economic development. A well-developed transport infrastructure strengthens social, economic and spatial cohesion and contributes to strengthening the competitiveness of the economy. The analysis of development directions carried out in 2000-2017 indicates that in Poland there is a need to improve and develop a coherent and efficiently functioning transport system, integrated with the European and global network. The strategy also emphasizes the need to strengthen the role of rail transport in the integrated transport system of the country. To this end, it will be necessary to continue activities that will positively affect the competitiveness of railways in relation to other types of transport, measured by travel time and cost, travel comfort and safety level. This task is carried out through investments and technological and organizational changes. The development of rail transport will allow the gradual increase in the degree of interoperability of the Polish system within the EU transport system. The Strategy for Responsible Development until 2020 indicates, on the other hand, that rail freight transport has the potential for growth, thanks to the modernization of line infrastructure and the development of intermodality in transport. The limited use of railway lines for the transport of goods results, inter alia, from from the high costs of providing infrastructure and its technical condition. **At the regional level:** compliance with the Development Strategy of the West Pomeranian Voivodeship until 2030 and the Transport Policy of the West Pomeranian Voivodeship until 2030. The Development Strategy for the West Pomeranian Voivodeship until 2030 indicates that efficiently operating transport directly affects the development of the economy. It also indicates a weak intraregional and interregional transport accessibility, caused by the peripheral location in relation to the capital of the country and other regions, emphasizing at the same time one of the best accessibility to major European growth centers in Poland.

Number and name of intervention: D.4. Feasibility study for the extension of the Szczecin Railway Junction	
Priority area	D.SERVICES/ OPERATIONS
Description of action/measure	Additional studies in the field will make it possible to examine the impact of a potential increase in transshipment turnover in the ports of Szczecin and Świnoujście on the distribution of traffic on the railway network and to identify and plan the necessary investment activities at a high level of detail.
Description of the main steps for its implementation	• Analysis of the demand for transport services in the junction area (the existing state and forecasts), • Identification of bottlenecks, • Identification of sub-projects and definition of variants, • Cross-sectional analyzes for the proposed variants, • Technical and operational analyzes for individual projects.
Stakeholders involved	Investor – PKP PLK (possible share of the Voiodeship) Beneficiaries – railway carriers, terminal operators
Timeline	2023-2030
Investment cost	0,5-0,8 mln EUR gross
Sources of financing[1]	PKP PLK's budget, Region budget, **European Funds for Infrastructure, Climate and Environment** (FENiKS)
Impact of the initiative	Improving the export, import and transit of goods within the infrastructure of the Szczecin Railway Node will affect the shift of modal split in favor of rail transport. This will contribute to the improvement of transport accessibility of multimodal terminals and industrial plants located in the region of Szczecin and the agglomeration, which in turn will stimulate the economic development of the region. Moreover, increasing the role of rail transport will reduce the impact of negative externalities related to road transport.
Compliance with the overall objectives of REIF project	• Increasing the competitiveness of rail transport resulting in the shift of the modal split, • Increasing the regional accessibility of corridors included in the TEN-T network by eliminating local restrictions, • Ensuring optimal infrastructure for multimodal transport chains, including intermodal transport. • Activation of new directions and connections for rail transport as part of the so-called feeder lines.

Compliance with guidelines of national and regional planning instruments	**At the national level:** compliance with the Strategy for Responsible Development until 2020 (with a perspective until 2030), the Strategy for Sustainable Development of Transport until 2030. The Strategy for Sustainable Transport Development until 2030 defines rail transport as one of the most important factors determining economic development. A well-developed transport infrastructure strengthens social, economic and spatial cohesion and contributes to strengthening the competitiveness of the economy. The analysis of development directions carried out in 2000-2017 indicates that in Poland there is a need to improve and develop a coherent and efficiently functioning transport system, integrated with the European and global network. The strategy also emphasizes the need to strengthen the role of rail transport in the integrated transport system of the country. To this end, it will be necessary to continue activities that will positively affect the competitiveness of railways in relation to other types of transport, measured by travel time and cost, travel comfort and safety level. This task is carried out through investments and technological and organizational changes. The development of rail transport will allow the gradual increase in the degree of interoperability of the Polish system within the EU transport system. The Strategy for Responsible Development until 2020 indicates, on the other hand, that rail freight transport has the potential for growth, thanks to the modernization of line infrastructure and the development of intermodality in transport. The limited use of railway lines for the transport of goods results, inter alia, from from the high costs of providing infrastructure and its technical condition. **At the regional level:** compliance with the Development Strategy of the West Pomeranian Voivodeship until 2030 and the Transport Policy of the West Pomeranian Voivodeship until 2030. The Development Strategy for the West Pomeranian Voivodeship until 2030 indicates that efficiently operating transport directly affects the development of the economy. It also indicates a weak intraregional and interregional transport accessibility, caused by the peripheral location in relation to the capital of the country and other regions, emphasizing at the same time one of the best accessibility to major European growth centers in Poland.

6. Conclusion

The investment plans presented above, together with measures implemented in the neighbouring regions, will significantly contribute to the enhancement of rail traffic within the two corridors of the TEN-T core network and will attract new senders and recipients of cargo. Apart from the economic effect in the form of increasing the region's competitiveness and attracting new investors, the activities will also have positive externalities related to the increased role of rail transport.

The presented action plan is comprehensive - from the construction of new and modernization of existing railway lines, through the reconstruction of neglected infrastructure, increasing the availability of reloading points, to feasibility studies determining the shape of further development activities. The goal is to achieve sufficiently high standards of infrastructure, both in terms of its operational parameters and accessibility for all entities interested in the implementation of rail shipments. A well-developed and generally accessible railway infrastructure in the region will certainly influence the individual decisions of economic entities in the field of shaping their supply chains.

The nature of this study is general and comprehensive - in order to define the needs for individual projects and subsequent good design of the railway infrastructure for them, further detailed studies are necessary.

7. List of figures