Interreg Europe

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CycleRight

PODKARPACKIE
przestrzeń otwarta

TERRITORIAL ANALYSIS

PP08 PODKARPACKIE REGION

The CycleRight project is implemented as part of the INTERREG Europe programme, co-financed by the European Regional Development Fund (ERDF).

1. Characteristics of the document

The document was prepared for the project entitled **"Improving cycling policies with a focus on climate resiliency, accessibility and safety"** (acronym: **CycleRight**).

The CycleRight project focuses on three thematic areas:

1. Climate resilience: how cycling infrastructure and related public transport can be resilient, how to fit them into grey, green and blue urban infrastructure.
2. Social inclusion and accessibility: access of different target groups with special needs to cycling infrastructure.
3. Safety: identification and implementation of good practices to improve cycling safety.

The project aims to improve the efficiency of policy instruments addressed by interregional learning and regional action planning. In this way, it will contribute to a better quality of cycling projects, to increase the cycling modal share in the target regions which will translate into an increased decarbonisation of transport.

The project consists of collecting good practices related to cycling, the project partners will participate in study visits and will be able to use the knowledge gained in their target policy instruments and in the daily activities of their organisation.

The territorial analysis is the basis for the knowledge exchange process and its main aim is to provide a regional background and the current state of cycling, including a SWOT analysis. Following this analysis, good practices will be presented and shared during study visits and in a Cycling Planning Guide to be developed by the European Cyclists' Federation.

2 Regional background

I. General information

Podkarpackie Voivodeship is the southeasternmost voivodeship in Poland. It is bordered to the east by Ukraine, to the south by Slovakia, and on the Polish side it is bordered by three provinces: Małopolskie, Świętokrzyskie and Lubelskie. After Poland's accession to the European Union, Poland's eastern border became the longest stretch of the EU's external land border at 1163 km, of which more than 1/5 (235 km) is also the eastern border of the Podkarpackie Voivodeship.

Map 1. Podkarpackie voivodship on the map of Poland

Source: https://basiw.mz.gov.pl/mapa/mapy/woj-podkarpackie/

The voivodship covers an area of 17,846 km^2 , comprising 160 municipalities, including 16 urban, 35 urban-rural and 109 rural. The municipalities are concentrated in 25 counties (4 urban counties and 21 rural counties)[1] . The voivodeship is inhabited (as of 2021) by 2.1 million people. The capital and the main administrative and economic centre is the city of Rzeszów. The city has an airport located in Jasionka, which is a permanent border crossing.

Podkarpackie voivodship is a region with a rich history, full of magnificent monuments and one of the most attractive regions in Poland in terms of its natural environment. The voivodship's tourist attractiveness is determined, inter alia, by its rich and varied cultural heritage, diverse natural assets (including the occurrence of many protected species of fauna and flora), geological structure, relief, various forms of landscape, numerous river networks with picturesque gorges, mineral waters or large water reservoirs and climate. All these qualities create favourable conditions for year-round practice of various forms of tourism, recreation and leisure[2] .

[1] Voivodship development strategy - Podkarpackie 2030
[2] Podkarpackie Spatial Planning Office in Rzeszów, Study of tourism and recreation development in Podkarpackie Voivodeship, Rzeszów 2018.

Podkarpackie region is ranked 4th in the country in terms of the share of legally protected areas in the total area of the voivodeship. The most valuable natural areas have been protected at the national, European and global level. The Bieszczadzki National Park, Ciśniańsko-Wetliński Landscape Park and the San River Valley Landscape Park are part of the UNESCO East Carpathian International Biosphere Reserve. The reserve includes protected areas also Slovakia and Ukraine.
Podkarpackie nature is accessible to tourists. Hiking trails, nature-didactic paths (over 160), bicycle trails and cross-country skiing routes have been marked out in national parks, landscape parks and reserves. Nature museums, arboreta, nature education centres and eco-museums are in operation.

The most important roads connecting the Podkarpackie voivodeship with the rest of the country and European road networks are: the international road E40 (A4 motorway), national road No. 19 (in the near future the role of the DK19 road is to be taken over by the S19 expressway, which is part of the international route "Via Carpatia". The network of the most important roads is complemented with sections of national roads No. 9, 28, 73, 77, 84, 94 and 97. Internal communication of the voivodship is provided by a network of voivodship, poviat and communal roads. The majority of external cycling tourists reach the voivodship by road, a small number use also the railway and air transport.

II. Infrastructure facilities

The analysis of the background of cycling infrastructure of the Podkarpackie voivodship used data, which were prepared on the basis of the "Cycling Infrastructure Search Engine of the European Cyclists' Federation (ECF)" tool. Thanks to that methodology (source: "Quantifying Europe's Cycling Infrastructure using OSM (QECIO 2.1): Our Methodology") the main indicators characterising the state of cycling infrstrutcture facilities in the Podkarpackie voivodship were calculated and compared to the values of indicators calculated at the national level and to indicators from other European countries. There is a great need for data on cycling infrastructure, but currently no official source provides this kind of information on a European scale. The ECF tool addresses this need by extracting cycling infrastructure data from the OpenStreetMap (OSM), quantifies the different types of cycling infrastructure in European countries and regions. It also compares the lengths of cycling infrastructure with the lengths of the corresponding public road networks to estimate the level of completeness of the cycling network. It also presents statistics on the types of cycle path surfaces and the share of one-way streets with cycling traffic allowed in the direction of as and in the opposite direction. The data covers 467 732 km of cycling infrastructure in 37 NUTS countries and comes from 1502 regions classified at NUTS 3 level. The Podkarpackie voivodship includes the following NUTS 3 regions: Rzeszowski, Tarnobrzeski, Krośnieński, Przemyski.

Ratio of separated length of total cycling infrastructure (cycle paths, cycle lanes, pedestrian and cycle routes, cycle streets, bus and cycle lanes) to main roads

Definition:
The ratio of separated cycling infrastructure to main roads is an indicator of the coverage of roads with cycling infrastructure. The ***segregated infrastructure*** *under consideration* ***includes****: cycle paths, footpaths and cycle lanes.* ***Main roads include****:*

motorway, trunk road, main road, secondary road, tertiary road, motorway link, trunk link, main link, secondary link and tertiary link from the OSM classification.
This factor is an estimation of the completeness of the cycling network. On main roads it is usually dangerous to mix cyclists and motorised vehicles in the same space, so we need approximately as much separate infrastructure as there are main roads.

$$\text{Indicator } \% = \frac{\text{total length of extracted cycling infrastructure (km)}}{\text{total length of main roads}} \; x \; 100$$

$$Indicator \; \% = \frac{675{,}5 \text{ km}}{8\,836{,}8 \text{ km}} \; x \; 100100 = \; \mathbf{7{,}63}\%$$

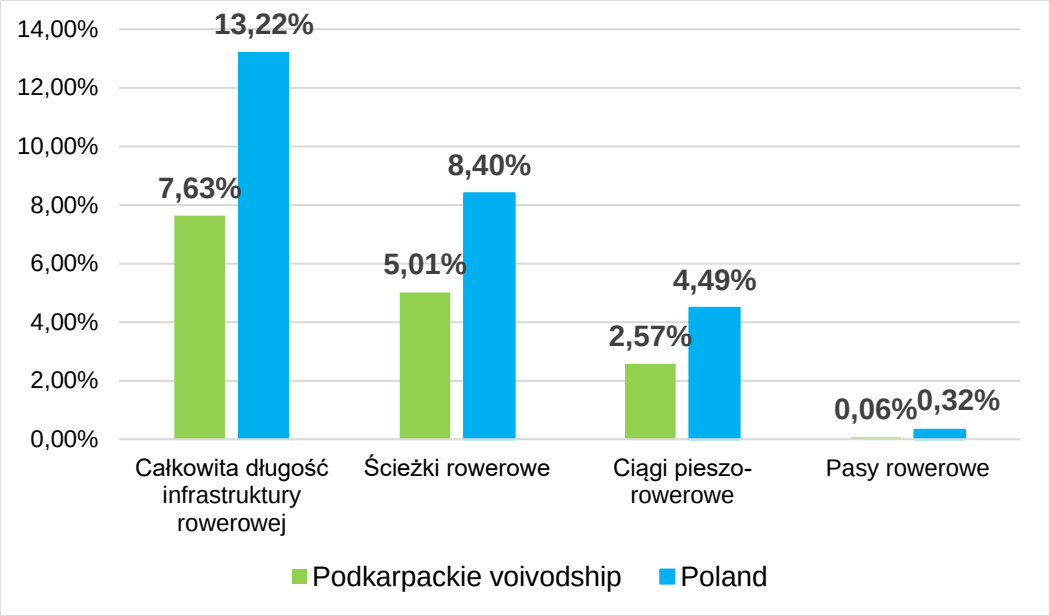
Data used to calculate the indicator:

Table 1. Indicator of separated cycling infrastructure for main roads

Length in km	**Total length of cycling infrastructure**	Cycle paths	Walking and cycling routes	Cycle lanes	Length of main roads
Podkarpackie voivodship	**675,50**	443,10	227,20	5,20	8 848,30
Poland	**20 411,40**	12 970,80	6 939,30	501,30	**154 435,80**

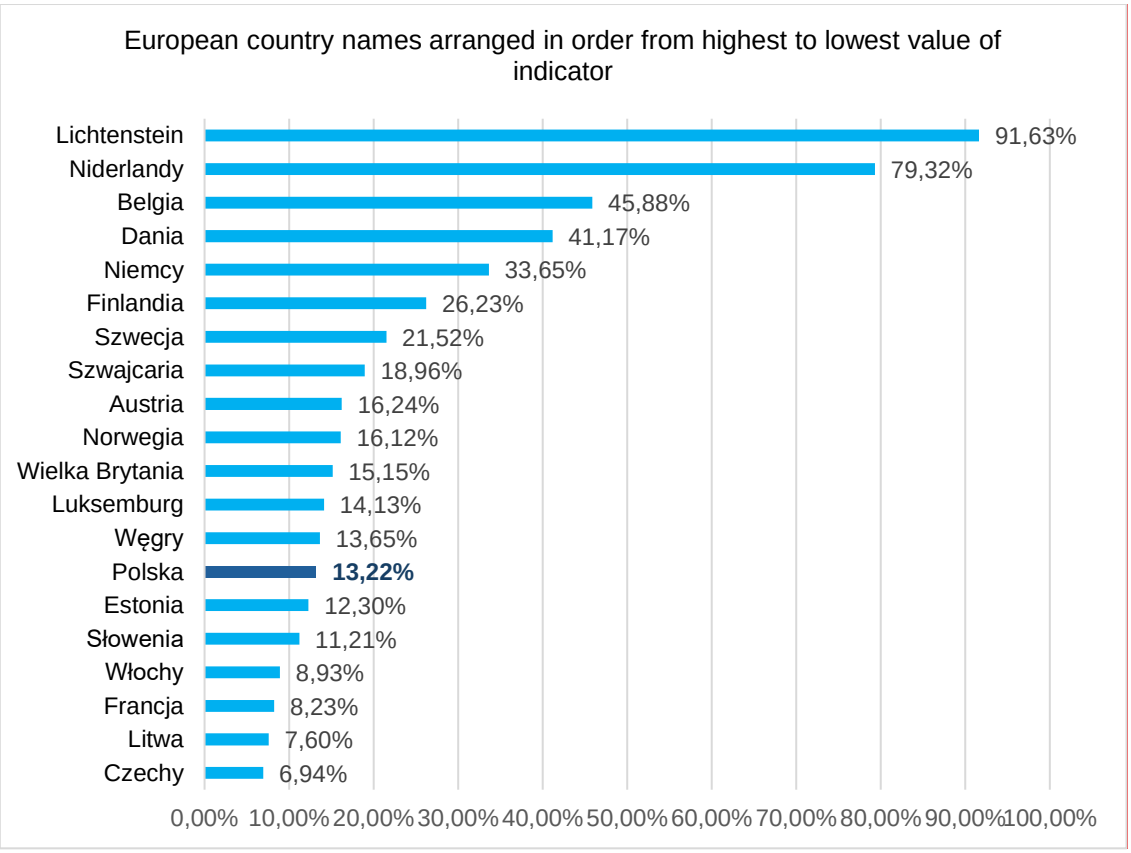
Source: own elaboration based on https://ecf.com/ecf-cycling-infrastructure-tracker

Graph 1: Ratio of separated cycling infrastructure to main roads. Podkarpackie voivodship in comparison to Poland



Source: own elaboration based on https://ecf.com/ecf-cycling-infrastructure-tracker

Figure 2: Ratio of separated cycling infrastructure to main roads. Poland compared to other European countries



Source: own elaboration based on https://ecf.com/ecf-cycling-infrastructure-tracker

Indicator of extended cycling infrastructure to public roads

Definition:
The indicator of extended cycling infrastructure to public roads is an indicator of the coverage of roads with cycling infrastructure. ***Extended cycling infrastructure used in the numerator includes****: cycle paths, pedestrian and cycle routes, cycle lanes, limited access roads, bus lanes and cycle streets.* ***The length of the road network used in the denominator was calculated by adding main and local roads.*** *Local roads were selected using the following tags: street with residential development, street with heavy traffic, unclassified.*
The indicator is an alternative estimate of the completeness of the cycling network. In this case, we take into account not only segregation on main roads, but also whether local roads are designed according to cycle-friendly standards.

$$Indicator\ \% = \frac{\text{total length of extracted cycling infrastructure (km)}}{\text{total length of public roads}}\ x\ 100$$

$$Indicator\ \% = \frac{1\ 138{,}9\ \text{km}}{8\ 836{,}8 + 13\ 416\ \text{km}}\ x\ 100 = \mathbf{5{,}12\%}$$

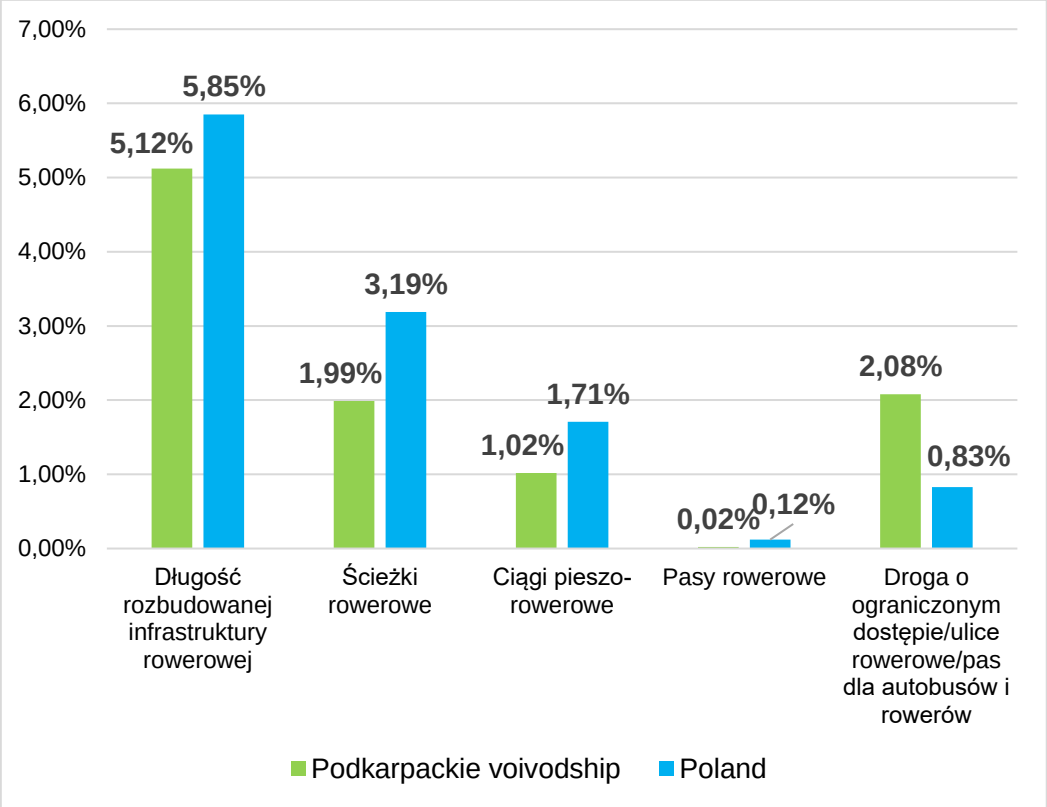
Data used to calculate the indicator:

Table 2. rate of developed roe infrastructure to public roads

Length in km	**Total length of cycling infrastructure**	Cycle paths	Walking and cycling routes	Cycle lanes	Restricted access road/cycle lanes/bus lane and bicycles	Length of main roads and local
Podkarpackie voivodship	**1 138,90**	443,10	227,20	5,20	463,40	22 252,80
Poland	**23 793,30**	12 970,80	6 939,30	501,30	3 381,90	**406 488,60**

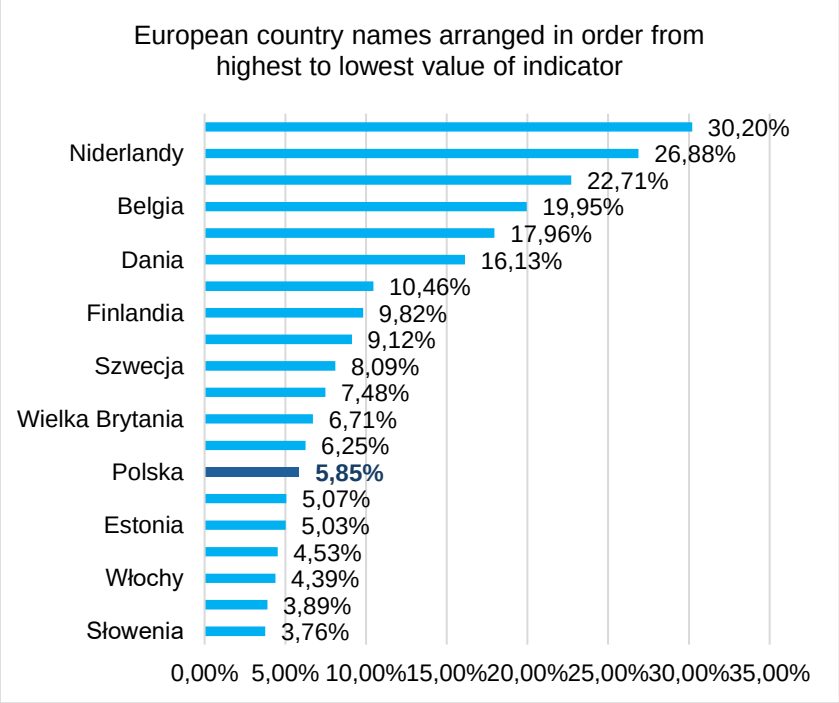
Source: own elaboration based on https://ecf.com/ecf-cycling-infrastructure-tracker

Graph 3. The ratio of developed cycling infrastructure to public roads. Podkarpackie voivodship in comparison to Poland



Source: Own elaboration based on https://ecf.com/ecf-cycling-infrastructure-tracker

Graph 4: Ratio of developed cycling infrastructure to public roads. Poland in comparison with other European countries



Source: own elaboration based on https://ecf.com/ecf-cycling-infrastructure-tracker

Indicator of the types of cycle path surfaces used (in general or by specific types)

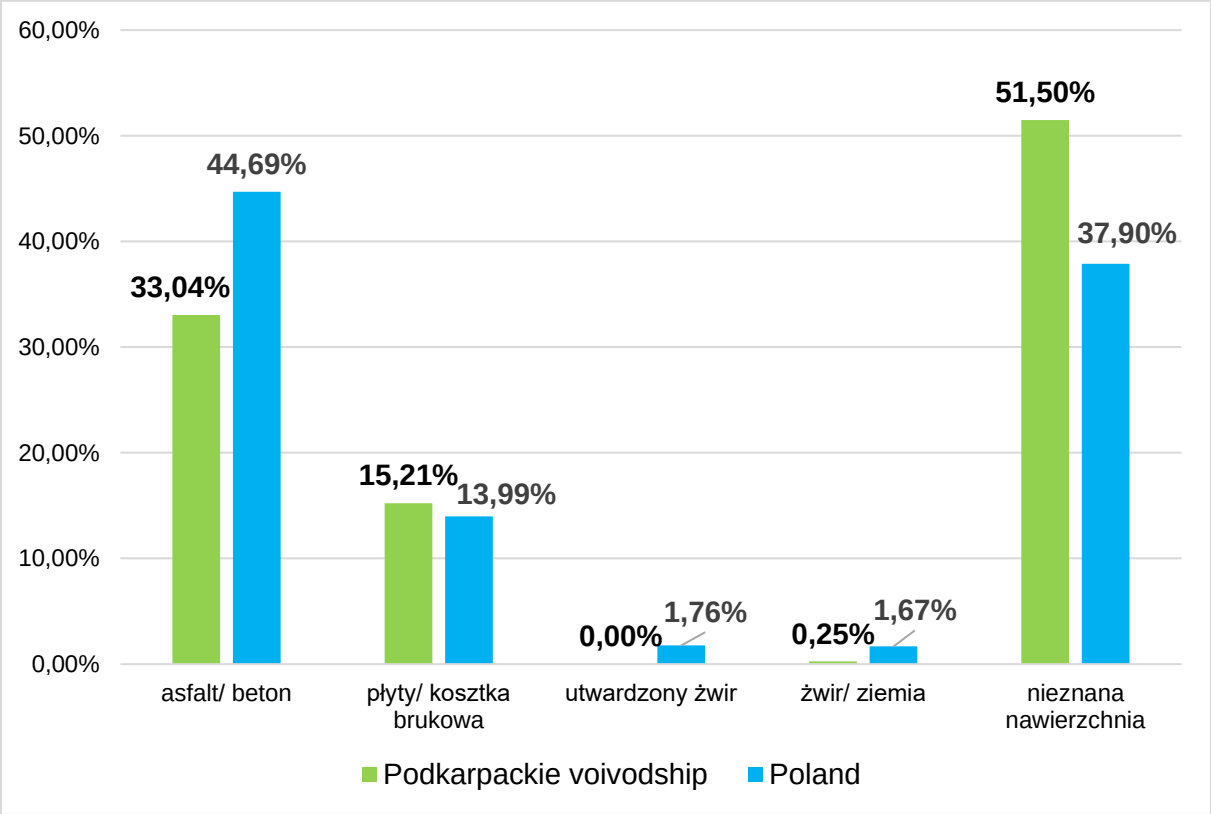
Definition:
The ratio of cycle paths to main roads is an indicator of the coverage of roads with cycle infrastructure. Only the length of cycle paths has been used in the numerator. The length of the road network used in the denominator was calculated by adding the main roads. The different pavement types have been grouped according to the criteria of the European Certification Standard (ECS).

Table 3. Indicator of the type of surface used for cycle paths

Type of surface	asphalt/concrete	slabs/paving stones	hardened gravel	gravel/soil	unknown surface	Total length of cycle paths
Podkarpackie voivodship	146,40	67,40	0,00	1,10	228,20	443,10
Poland	5 796,20	1 814,50	228,00	216,70	4 915,40	12 970,80

Source: own elaboration based on https://european-cyclists-federation.github.io/CycleRight/CycleRight_map_B.html

Graph 5. Index of the type of surface used for construction of bicycle paths. Podkarpackie voivodship in comparison to Poland



Source: own elaboration based on https://european-cyclists-federation.github.io/CycleRight/CycleRight_map_B.html

Indicator of one-way streets with allowed cycling traffic in the opposite direction, so-called "contraflow cycling"

Definition:
The indicator of cycling in the opposite direction is the indicator of local one-way streets with permitted cycling in the opposite direction to the total length of local one-way streets.
Cycling in the opposite direction is a low cost measure to promote cycling and increase safety. It enables more direct cycling journeys and allows cyclists to avoid dangerous main roads and junctions. The rate of cycling in the opposite direction can be considered as a measure of the cyclist friendliness of traffic management in an area.

$$Wskaźnik\ \% = \frac{\text{całkowita długość lokalnych ulic jednokierunkowych z dozwolonym ruchem rowerowym w przeciwnym kierunku (km)}}{\text{całkowita długość lokalnych dróg jednokierunkowych (km)}}\ x\ 100$$

$$Wskaźnik\ \% = \frac{0{,}5\ \text{km}}{181\ \text{km}}\ x\ 100 = \mathbf{0{,}28\%}$$

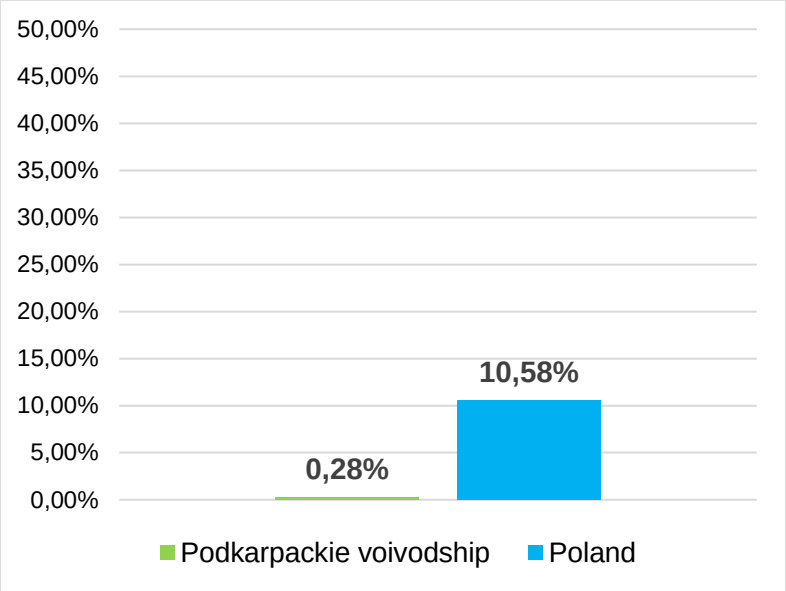
Data used to calculate the indicator:

Table 4. Indicator of one-way streets with permitted cycling traffic in the opposite direction

Length in km	Length of local one-way streets with permitted cycling in the opposite direction	Total length of local one-way roads
Podkarpackie voivodship	**0,50**	181,00
Poland	**509,70**	**4 819,30**

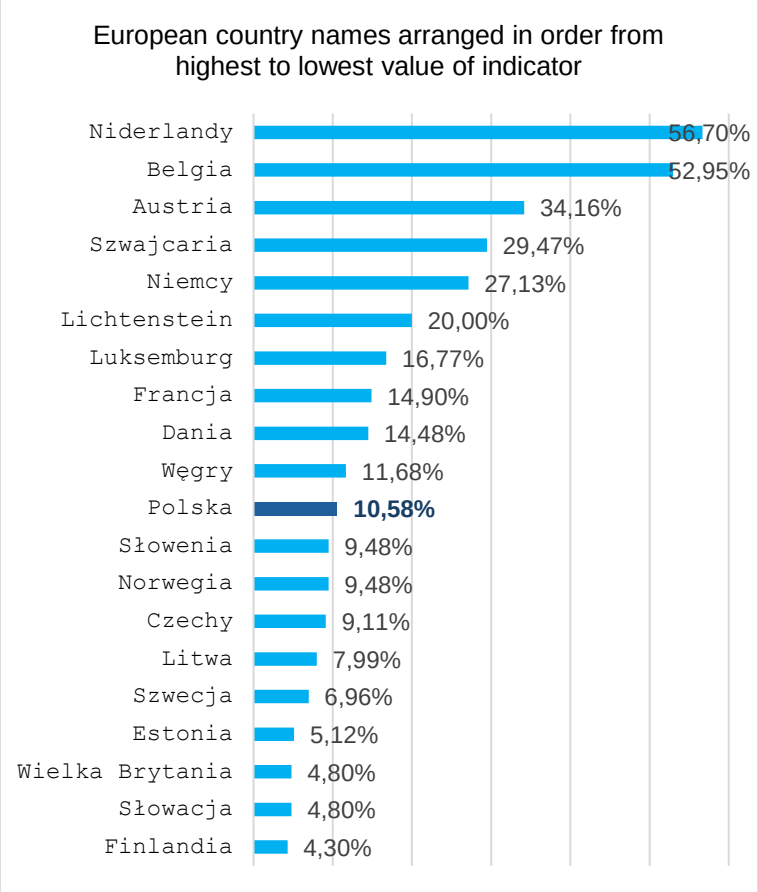
Source: own elaboration based on https://ecf.com/ecf-cycling-infrastructure-tracker

Graph 6. Indicator of one-way streets with permitted cycling in the opposite direction. Podkarpackie voivodship in comparison to Poland



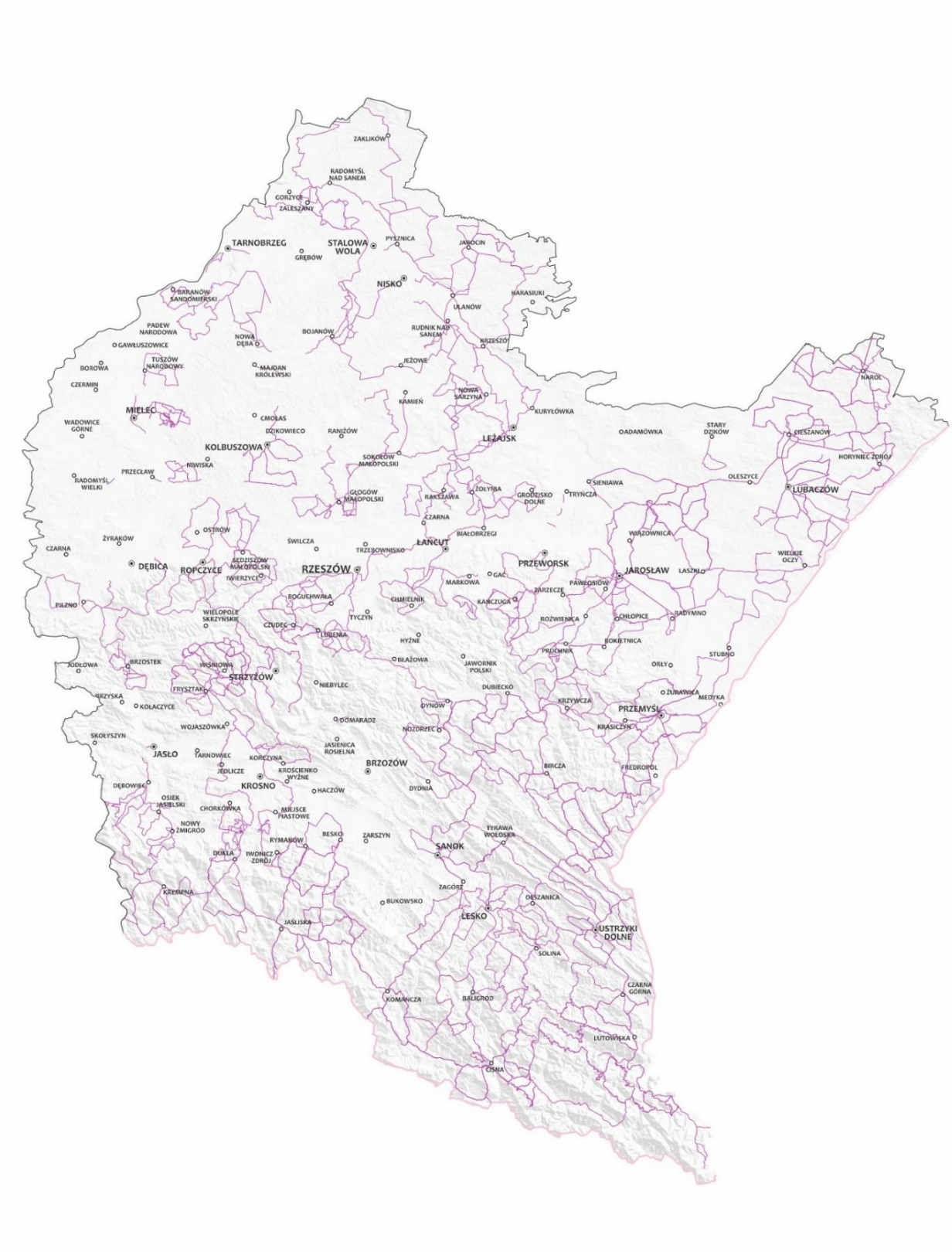
Source: own elaboration based on https://ecf.com/ecf-cycling-infrastructure-tracker

Graph 7. Indicator of one-way streets with permitted cycling traffic in the opposite direction. Poland in comparison with other European countries.



Source: own elaboration based on https://ecf.com/ecf-cycling-infrastructure-tracker

Map 2. Density of cycling routes in the Podkarpackie Voivodeship (compiled on the basis of an inventory carried out in 2022 by the Podkarpackie Marshal's Office)



Source: Appendix No. 2 to the Regional Cycling Policy of the Podkarpackie Voivodeship - Concept of a network of cycling route corridors on the territory of the Podkarpackie Voivodeship.

III. The regional network and its interconnections

Existing cycling routes and trails

According to an analysis based on the *2018 Study of Tourism and Recreation Development in the Podkarpackie Voivodeship* and desk research in the form of an Internet data query in 2020, there are 210 marked trails in the Podkarpackie Voivodeship with a total length of approximately 7189.5 km:

- 6 international routes with a total length of approximately 730.1 km;
- 10 trans-regional trails with a total length of 799.3 km;
- 19 regional trails with a total length of 1281.2 km;
- 175 local trails with a total length of 4378.9 km[3] .

The most important cycling routes in the Podkarpackie Voivodeship include:

The Eastern Green Velo Cycle Route - is an over 2,000-kilometre-long specially designed route (main route 1,887.5 kilometres, liaison and side routes: a total of 192 kilometres), running through five voivodeships of eastern Poland (Warmińsko-Mazurskie, Podlaskie, Lubelskie, Podkarpackie and Świętokrzyskie). It runs mainly on asphalt public roads with low vehicle traffic. Almost 580 km (29% of the route's length) are sections leading through forest areas and 180 km (9% of the route's length) are located in river valleys. In the Podkarpacie Region, its length is 459 km. The route leads through the so-called "kingdoms", of which there are three in Podkarpacie: Roztocze, the Carpathian Foothills and the Sandomierska Land and the Lower San Valley"[4] .

The Kingdom of the Roztocze - encompassing the Lubelskie and Podkarpackie Voivodeships - runs through, among others, the Lubaczowska Land. This area has outstanding scenic qualities, is sparsely inhabited and very picturesque in terms of landscape. On its route, you will find, among others, Narol with its historic Łosiów palace and the Horyniec-Zdrój spa, located near the border with with Ukraine. The biggest attractions of the Subcarpathian part are the historic wooden Orthodox churches in Radruż and Chotyniec, which are on the UNESCO list"[5] .

Carpathian Foothills kingdom - runs mainly in the valley of the San River, only in the vicinity of Przemyśl and Dynow one has to overcome greater height differences. From the vicinity of Przemyśl, you can take mountain trails towards the Bieszczady and the Beskid Niski. There are three extremely interesting cities on the route, namely the borderland city of Przemyśl with the remains of a powerful Austrian fortress, Rzeszów - the capital of the Podkarpackie Voivodeship, and Łańcut boasting a powerful palace complex. Along the way, you can also visit the arboretum in Bolestraszyce, the Renaissance Krasicki Castle in Krasiczyn, the monastery complex in Kalwaria Pacławska and the famous Arłamów, as well as numerous Orthodox churches such as those in Piątkowa and Ulucze"[6] .

[3] Analysis of the Potential of Adventure Tourism in Podkarpackie Province [from]: https://greenvelo.pl.
[4] Analysis of the Potential of Adventure Tourism in Podkarpackie Province [from]: https://greenvelo.pl.
[5] Analysis of the Potential of Adventure Tourism in Podkarpackie Province [from]: https://greenvelo.pl/krolestwo/1428/roztocze.
[6] Analysis of the Potential of Adventure Tourism in the Podkarpackie Province [from]: https://greenvelo.pl/krolestwo/1143/pogorze-karpackie

Kingdom of the Sandomierz Region and Lower San Valley - lies on the border of two voivodeships: Świętokrzyskie and Podkarpackie. An extraordinarily rich and varied cultural heritage has been preserved here, associated among others with the Jews (Leżajsk), the Leszczyński family in Baranów Sandomierski, rafting traditions in Ulanów or weaving in Rudnik nad Sanem[7] .

Other noteworthy routes include:

The "Icon Trail (red)**" cultural heritage cycle route**, which follows in the footsteps of ancient Orthodox churches. It is approximately 144 km long in Poland and runs from the border crossing with Slovakia at the Radoszycka Pass to the border crossing in Krościenko on the Polish-Ukrainian border. It partly overlaps with with the "Route of Wooden Architecture". From Mrzygłód, Dobra, Ulucz through the Przemyskie Foothills to Horyniec Zdrój in the Roztocze region there is a blue trail, which was originally intended as a connecting trail, but over time it has become longer, connecting the most beautiful monuments of sacred architecture, mainly wooden, in the Bieszczady, the Przemyskie Foothills and the Roztocze region"[8] .

The "Traces of the Brave Warrior Swejk" trail - the main bicycle trail of Szwejk is about 180 km long on Polish territory and is marked with the international number R-63 on plates in green. For cyclists without passports or for foreigners without valid Ukrainian visas, a black link trail along the eastern border, about 70 km long, was led to the Przemyśl Fortress. It leads from Jureczkowa through Arłamów, Huwniki, Fredropol to Przemyśl. On the Polish side, the trail leads from the Pass over Radoszyce through the Radoszyce - Palota border crossing (Polish-Slovakian), Łupków, Komańcza, Szczawne, Zagórz, Sanok, Tyrawa Wołoska, Liskowate, Krościenko border crossing (Polish-Ukrainian). The trail is inspired by the adventures and wanderings of Wojak Szwejk - the hero of Jaroslav Hašek's novel"[9] .

Cycling Route of the Nadsańskie Fortifications - runs along the San River, from Bóbrka near Solina, through Lesko, Sanok, Dynów, Bachów to Krasiczyn. It presents Soviet and
and German monuments of fortification art of the Second World War, in the southern part of the so-called Przemysl Fortified Region called "Molotov Line" and German border fortifications of the so-called "Galicia" border position.
The facilities were built in 1940-41, along the border line created after the division of the
Second Republic by the Soviet and German armies"[10] .

The 182-km-long Carpathian **Cycle Route** is signposted in red with the route logo depicting a cyclist on stylised mountains and the caption "Carpathian Cycle Route". The beginning of the Podkarpackie section is located in the village of Rozstajne and

[7] Analysis of the Potential of Adventure Tourism in the Podkarpackie Province [from]: https://greenvelo.pl/krolestwo/1430/ziemia-sandomierska-i-dolina-dolnego-sanu
[8] Analysis of the Potential of Adventure Tourism in the Podkarpackie Province [from]: https://www.mojebieszczady.com/rowerowy-szlakikon/
[9] Analysis of the Potential of Adventure Tourism in the Podkarpackie Province [from]: https://gminasanok.pl/szlaki/szlak-dobrego-wojaka-szwejka/
[10] Analysis of the Potential of Adventure Tourism in the Podkarpackie Province [from]: https://gminasanok.pl/szlaki/szlak-nadsanskich-umocnien-liniamolotowa/

continues through Grab, Krempna, Polany, Mszana, Tylawa, Wisłok Wielki. The Bieszczady part of the trail starts in Komańcza and leads through Smolnik, Wola Michowa, Żubracze, Cisna, Dołżyca, Rajskie, Czarna, Ustrzyki Dolne up to the border crossing in Krościenko to Ukraine. The so-called border trail runs along the northern, Polish side of the Carpathian Arc. Ultimately, it is intended to create a "loop" connecting 6 countries: Poland, Romania, Hungary, Ukraine, Slovakia and the Czech Republic. The motif linking the individual regions is the legendary mountain robbers, famous on both sides of the Carpathian arc. An additional motif that binds the individual regions together is the Wallachian culture, which has significantly left its mark on the culture and history of the Carpathian peoples"[11] .

Green Bicycle, approximately 125 km in length, which covers the most interesting and at the same time most difficult sections of the Bieszczady" [12] .

Trail from Muczne to Tarnawa Niżna (16 km), from Nasiczne to Bereżek (7.5 km), from Uherzec Mineralne to Bóbrka (12.5 km), from Średnia Wieś to Baligród (21 km) - one of the most extreme trails requiring good physical preparation from tourists, as well as appropriate equipment[13] .

Bieszczadzka Wielka Woda, a trail near the Solina Reservoir[14] .

In addition, it is also worth noting the trails[15] :

- **The "Molotov Line" trail** (Solina - Lesko - Sanok - Dynów - Przemyśl - Jarosław - Sieniawa - Cieszanów - Wola Wielka);
- **Greenway Eastern Carpathians** - **Green Bike** (Roztoki Górne (border crossing with Slovakia) - Cisna - Solina - Myczkowce - Lesko - Olszanica - Brzegi Dolne - Krościenko (border crossing with Ukraine);
- **Cross-border "Beskidzkie Museums" cycle route** (Krosno - Odrzykoń - Żarnowiec - Kopytowa - Bóbrka - Dukla - Olchowiec - Zyndranowa - Barwinek - Świdnik - Stropkov - Medzilaborce - border crossing Jaśliska - Czeremcha - Rymanów - Miejsce Piastowe - Krościenko Wyżne - Krosno).

IV. Urban networks

Sustainable Urban Mobility Plans (SUMPs) are gradually being introduced in the Podkarpackie Voivodeship. Although not all cities in the region already have such plans in place, efforts to develop and implement them are evident. Here is the key information concerning SUMPs in the Podkarpackie voivodship, with particular emphasis on cycling:

- Implementing SUMPs: some cities in the Podkarpackie Voivodeship have already developed or are in the process of developing SUMPs. An example is the Dębicko-Ropczycki Functional Area, which has such a plan[16];

[11] Analysis of the Potential of Adventure Tourism in the Podkarpackie Province [from]: http://lubimyrowery.pl/trasy/podkarpackie/karpacki-szlak-rowerowy-odcinek-podkarpacki/
[12] Analysis of the Potential of Adventure Tourism in the Podkarpackie Province.
[13] Ibid.
[14] Ibid.
[15] Analysis of Cycling Tourism Supply in Poland 2021.
[16] https://debica.pl/dokumenty-strategiczne/plan-zrownowazonej-mobilnosci-miejskiej-dla-drof-2/

- Public consultations: Some cities and municipalities, such as e.g. the City of Sanok Municipality, Zagórz Municipality, Lesko Municipality or Komańcza Municipality conducted public consultations on the SUMP[17] , which indicates the involvement of local communities in the planning process. In June this year, municipalities belonging to the Rzeszów Functional Area signed an agreement to develop a Sustainable Urban Mobility Plan for the ROF[18];
- Promotion of sustainable development: SUMPs in the Podkarpackie Voivodeship aim to promote sustainable mobility development, which includes the development of cycling;
- Multimodality: the plans aim to promote sustainable multimodal urban mobility, which means integrating different forms of transport, including cycling;
- Transformation towards a zero carbon economy: SUMPs are seen as part of the transformation towards a zero-carbon economy, which encourages the development of cycling;
- Funding: European funds are available to support the preparation and updating of SUMPs, which can accelerate their implementation in the region;
- Mobility as a Service (MaaS): SUMPs incorporate the concept of MaaS, which may include the integration of cycling with other forms of mobility;
- Improving safety: One of the objectives of the SUMP is to improve the safety of all road users, including cyclists;
- Infrastructure development: Plans call for investment in cycling infrastructure such as cycle paths, racks or urban cycling systems.

It is worth noting that the implementation of SUMPs in the Podkarpackie Voivodeship is an ongoing process, and cities and municipalities are at different stages of their development
and implementation. These plans are of key importance for the development of sustainable mobility, including cycling, and are a condition for accessing EU funding for urban mobility projects.

V. Multimodality characteristics

In accordance with the European Parliament Resolution of 16 February 2023 on the development of an EU cycling strategy (2022/2909(RSP)), the European Union, with a view to promoting multimodality, encourages the creation of synergies between cycling and other modes of transport.

There are 4 intermodal terminals located in the Podkarpackie Voivodeship:
- T1 Żurawica terminal (rail container terminal);
- T2 Medyka terminal (rail container);
- Verkhrat Transshipment Terminal;
- PCC INTERMODAL - Kolbuszowa Terminal.

There is a transhipment station in Wola Baranowska on the LHS railway line, which is planned to be developed as an intermodal terminal integrated with line 25 (to Mielec and Dębica) and road transport. In the future, it will connect the broad-gauge line

[17] https://zagorz.pl/art/875/konsultacje-planu-zrwnowazonej-mobilnosci-miejskiej-2030
[18] https://www.podkarpackie.pl/index.php/sam-terytorialny/aktualnosci/razem-na-rzecz-zrownowazonej-mobilnosci-miejskiej

systems of Ukraine and the Far East to the normal-gauge rail network in Poland and to the European transport system.

With regard to passenger transport, an investment aimed at integrating rail and bus transport is the construction of the Rzeszów Transport Centre, which is under way and will link the different modes of transport - buses, cars, taxis and bicycles.

The Podkarpackie voivodeship within the framework of the Podkarpacka Agglomeration Railway (hereinafter: PKA) projects and the Provincial Railway Fund has implemented and is implementing an infrastructure allowing to leave bicycles in the vicinity of train stops, stations and to use train connections. Within the framework of the PKA 281 bicycle parking spaces, 16 stops were planned. In the case of the "Provincial Railway Fund" project, during the 7 years of its operation a total of 21 investments were realised, which significantly improved passenger access to railway stops/stations[19] .

Studies of accessibility by multimodal transport (bus + rail + air), indicate a higher value for the accessibility index over a larger area of the province. The lowest levels are still recorded at the southern, south-eastern and north-eastern edges of the province. Poor links
with the rest of the country is mainly in the southern and south-eastern part of the voivodeship, which benefited significantly less from the construction of the A4 motorway and the modernisation of the E-30 railway line. This has an important dimension for the economic development and the development of the tourist function in the most attractive areas for tourists - Bieszczady and Beskid Niski[20] .

By Resolution No. 570/12169/24 of 23 February 2024, the Board of the Podkarpackie **Voivodeship** adopted **the Strategic Programme of Transport Development of the Podkarpackie Voivodeship until 2030.** Within the *Programme*, four variants of transport system development **were** indicated, of which **variant 4 was selected. *Equal multimodal development***, which will allow balancing the maximisation of effects both in terms of improved accessibility (internal and external) and in terms of the environmental and climate nuisance of transport, taking into account the real demographic, economic and institutional situation**.** The variant assumes basing the development of the transport network on the growth poles determined in the *Voivodeship Development Strategy - Podkarpackie 2030*. These are, apart from Rzeszów, medium-sized cities, for which maintaining their functions and population is crucial to provide the voivodeship with a basic network of public services. Both road and rail investments will primarily aim to connect these cities with each other in external systems (especially with Warsaw, Cracow, Kielce and Lublin). This will mean the construction or modernisation of voivodeship road sequences supplementing the national network and connecting the centres to the TEN-T network. In the case of the railway network, it will be particularly important to modernise lines and build missing links to shorten inter-city journeys. In less densely populated areas, public transport will be provided by buses (with zero or low-emission rolling stock). In the most peripheral areas with scattered settlements, alternative forms of transport (such as bus-on-demand, *car-sharing, car-pooling, etc.*) will be an option. Preference will also be given to the creation of cycle paths along rural roads.

[19] Strategic Programme of Transport Development of Podkarpackie Voivodeship until 2030
[20] Voivodship Development Strategy - Podkarpackie 2030

3 SWOT analysis

The SWOT analysis (analysis of strengths, weaknesses, opportunities and threats) provides a framework for identification and analysis of internal and external factors, which may influence the issues connected with the development of cycling in the podkarpackie voivodship, in terms of the main themes of the CycleRight project.

The purpose of the SWOT analysis is to identify and describe the strengths and weaknesses of the region and the opportunities and threats in the region's environment.

To this end, a meeting with CycleRight project stakeholders was organised on 4.09.2024 at the offices of the Marshal's Office in Rzeszów, during which the predefined main topics were discussed in a joint discussion:

- urban cycling,
- regional network,
- multimodality,

having in mind aspects such as climate change resilience, social inclusion/accessibility and security.

Based on the discussions during the meeting, a draft version of the SWOT analysis was prepared and subsequently updated based on the comments and suggestions of the project stakeholders.
Below are the results of the SWOT analysis, jointly developed at the Stakeholder meeting on 4.09.2024.

Results of the SWOT analysis in the area of Urban Cycling Transport

Urban Cycling describes the state of development of cycling in the biggest cities of the region, in particular focusing on solutions applied in more densely populated areas with higher exposure to climate impacts (heat waves, etc.).

URBAN CYCLING	
STRENGTHS	**WEAKNESSES**
▪ increasing number of cycling events/events ▪ systematic expansion of cycle paths ▪ increasing awareness of cyclists of the possibilities, safety and benefits of cycling ▪ Favourable terrain conditions for cycling	▪ lack of appointed municipal Cycling Officers - representatives for cycling with specific competences and decision making powers, which prevents efficient management of cycling policy ▪ limited integration of public transport with cycling ▪ insufficient number of bicycle shelters and secure storage facilities on housing estates restricts urban cycling mobility ▪ lack of a coherent urban system ▪ lack of application of regulations in the design/construction of cycling infrastructure

	▪ lack of appropriate signposting of cycling infrastructure ▪ inadequate education system
OPPORTUNITIES	**THREATS**
▪ massive increase in interest in cycling mobility ▪ an increase in the number of people cycling, i.e. a decrease in the number of cars and a decrease in CO2 emissions ▪ reduced efficiency (congestion) of the public transport system ▪ availability/use of European funds ▪ increasing use of electric bicycles ▪ reduction of heat and dust emissions as a result of introduction of legal restrictions and new technologies will create more favourable conditions for the development of cycling mobility ▪ increasing awareness and interest of public entities (municipalities) in the creation of cycling infrastructure	▪ the progressive ageing of the population, which requires e.g. the adaptation of cycling infrastructure to the needs of the elderly ▪ inadequate promotion of cycling infrastructure ▪ degradation, vandalism of cycling infrastructure ▪ increased car dependency due to urban sprawl ▪ low knowledge of cycling regulations

Results of the SWOT analysis in the area of the Regional Network

A regional network implies a more complex territorial aspect and covers a wider area of one or more centres (larger city) and surrounding settlements, and thus interconnections between these settlements, both in terms of commuting and tourism. Essentially it is a regional cycling network.

REGIONAL NETWORK	
STRENGTHS	**WEAKNESSES**
▪ development of regional cycling policy, which is monitored by the Department of Regional Development of the UMWP in co-operation with PZDW in Rzeszów ▪ established Department of Cycle Routes, a team of qualified specialists in the field of planning and implementation of cycling infrastructure in the Podkarpackie Voivodeship ▪ natural and cultural attractiveness natural and cultural attractiveness of the podkarpackie voivodship ▪ diversity of terrain and landscape ▪ activity of cycling organisations ▪ developed infrastructure design standards (Annex 1 to the RAP) ▪ numerous cycling events ▪ increase in the length of the network of cycling routes and paths ▪ the possibility of tourists from abroad reaching the region ▪ stipulations concerning cycling tourism in strategies and plans of voivodship development ▪ experience gained in the field of opportunities for cycling tourism development through participation in projects financed from EU funds ▪ Tourist infrastructure along cycling routes (POI)	▪ insufficient quality of data on the course of cycling routes collected in 2022 as a result of an inventory of cycling routes and paths (these data require further, systematic organising) ▪ lack of connections between routes and cycling routes created by local self-governments ▪ no monitoring system for cyclists ▪ small number of bicycle rental shops with good quality equipment and service points ▪ marginalisation of cyclists by other road users ▪ lack of feeling of security among cyclists and potential cyclists, being a reason for resignation from cycling transport in favour of other modes of transport
OPPORTUNITIES	**THREATS**
▪ variety of forms of cy cycling ▪ the growing public awareness and increase in pro-ecological attitudes will definitely influence the development of cycling mobility ▪ involvement of local communities in co-deciding about the development of cycling tourism ▪ the growing importance of healthy, sustainable lifestyles will induce more and more often the use of use of bicycle as a means of urban transport ▪ increasing popularity of physical recreation, ecotourism and active tourism	▪ lack of a national cycling tourism development strategy and national cycling policy ▪ low level of cooperation between local authorities in terms of linking routes and trails into a network ▪ limited availability of financial resources for the creation of cycling infrastructure

▪ using the experience gained and knowledge in the field of design, organisation, management, financing development of cycling tourism in the Podkarpackie region ▪ creation of Cycle Service Areas (MORs) ▪ co-financing of the construction of the regional road network from EU funds	

Results of the SWOT analysis in the area of Multimodality.

Multimodality refers to the integration of cycling with other modes of transport in the region, in particular with public transport services, such as the provision of adequate bicycle parking at railway stations or the carriage of bicycles on buses, trains etc.

MULTIMODALITY	
STRENGTHS	**WEAKNESSES**
▪ intermodal transport potential (Podkarpacka Kolej Aglomeracyjna, well-developed transport network, transport accessibility of the region, i.e. A4, S19, airport in Jasionka)	▪ lack or low standard of bicycle parking facilities at railway stations and stops ▪ Lack of Bike&Ride facilities ▪ insufficient number of places to carry bicycles on trains/buses
OPPORTUNITIES	**THREATS**
▪ public support for multimodality and innovative urban transport measures ▪ prioritising the development of public transport in regional policy over individual transport ▪ imitation of well functioning multimodal solutions from other cities/countries ▪ using existing carriers as potential operators ▪ discussions are under way on the possibility of introducing integrated tickets	▪ popularity of road transport ▪ reluctance of travellers to change ▪ financial constraints in creating new connections

4 Potential good practices identified

This point will be completed at a later stage of the project when good practices are identified.