EuroVelo Route Development Status Report (2024)



KEY EUROVELO NUMBERS



TOP ROUTES AND COUNTRIES

1 In these calculations, the total lengths of EuroVelo routes have been used, duplicating the lengths of routes where they overlap. EuroVelo sections are counted multiple times if they belong to several EuroVelo routes.





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INTRODUCTION AND METHODOLOGY

EuroVelo is a network of long-distance cycle routes that cross and connect Europe. First published in 2021, the yearly EuroVelo Route Development Status Report outlines levels of development across the network and improvements over the years, providing key numbers, statistics and comparison tables per route and per country. Developing safe and continuous European cycle routes and completing the EuroVelo infrastructure and signposting is at the heart of the EuroVelo Strategy 2030. This Report is an important tool to track the progress made across Europe from year to year and encourage further developments.

The data analysed in this Report comes from the EuroVelo GIS Database to which <u>National EuroVelo Coordination Centres (NECCs)</u> contribute every year with updated data. In countries where no NECC is in place, national contact points may provide updated information. ECF also created a few tracks back in 2019, to complete the network in countries where information was missing (see table on page 9-11). Even if the quality of the data is heterogeneous from one country to the other, depending on the national organisation on GIS cycle route data, the EuroVelo GIS Database is the most complete and accurate source of information on EuroVelo developments and requires a lot of efforts from ECF and its partners to maintain and improve it on a daily basis.

The EuroVelo GIS Database is structured into daily sections (with an average length of 50 km and between 15 km and 90 km in special cases), categorised in one of

EUROVELO DATA SOURCES IN 2024

EuroVelo data from OpenStreetMap (OSM)

Data extracted from OSM: 73,000+ km	INCOMPLETE/PARTIAL	
Sources: OSM contributors using EuroVelo tagging	INFORMATION	

EuroVelo GIS database



the five EuroVelo categories reflecting its level of development: Certified EuroVelo route, Developed with EuroVelo signs, Developed (at national/regional level), Under development (but usable), At the planning stage (see descriptions below).

The route categories of the EuroVelo GIS Database can reflect heterogeneous cycling infrastructure types and qualities (i.e. route component, width, surface, gradient, etc.). To provide more precise information in this report and in communications tools, detailed EuroVelo GIS data would have to be collected in all 38 EuroVelo countries in a uniform manner.



ECF has also developed a thorough methodology using survey data collected in the field, including detailed information on the quality elements of route sections. This methodology, called the <u>European Certification Standard</u> (ECS), aims to assess the quality of cycle routes according to precise and well-defined criteria based on user needs and can be applied to long-distance cycle routes anywhere in Europe, focusing on infrastructure aspects as well as services and communications. Approximately 25,000 km of EuroVelo routes (around a quarter of the network) have been surveyed with the ECS methodology in the past 10 years.

OpenStreetMap (OSM) is another relevant source of information as a contributive platform widely used all around the world, where an open data license is used. This report includes, for the first time, an analysis of EuroVelo data extracted from OSM, providing relevant additional information on cycling infrastructure quality, but also stressing that EuroVelo data from OSM is still very much incomplete.

The development levels presented in this report are based on the EuroVelo categories:

- **Certified EuroVelo route:** section of at least 300 km that has successfully undergone the certification process in line with ECF's <u>European Certification</u> <u>Standard</u>. It is the highest quality level on the EuroVelo network.
- **Developed with EuroVelo signs:** developed route (see category below) with continuous signing along the route, incorporating EuroVelo route information panels.
- **Developed (at national/regional level):** route developed for cyclists and signed in line with the respective national standard (i.e. it is part of a local, regional or national cycle network). There must also be a website providing information to users. Developed route can be heterogeneous in terms of infrastructure: type of cycling infrastructure, surface, width, gradients, etc.
- **Under development (but usable):** route containing sections that require further development (e.g. stretches on public highways with high levels of traffic). Cyclists are advised to use public transportation to skip these non-developed stretches.
- At the planning stage: undeveloped route with no detailed information publicly available on the Internet. The itinerary communicated is a proposal for the best possible option currently available. It may also contain dangerous sections. Cyclists are advised to use public transportation to skip these non-developed stretches.

OVERALL LEVELS OF DEVELOPMENT ACROSS THE NETWORK

67% of the EuroVelo network is either certified, developed with signs or developed in 2024, with 61,778 km of EuroVelo routes ready to use for cyclists.

Over a third of the network (39%) is developed with EuroVelo signs, while a fourth (26%) is developed without EuroVelo signs but with national signage. Moreover, 2% of the network is certified according to the European Certification Standard, corresponding to EuroVelo 15 – Rhine Cycle Route³.

Let us note that the routes included in the "developed" category are heterogeneous in terms of the quality of their infrastructure, and can present various qualities of surface and local signage, include segregated cycle paths or routes shared with motorised traffic, have a network of services for cyclists or not, etc. The data currently available for the whole EuroVelo network does not allow to provide a higher level of detail. In general, most developed routes would require further developments to meet the ECS quality criteria.

The remaining 33% of the network (30,135 km) still needs to be developed. One fourth of the network (24%) remains under development while 9% is still at the planning stage. Those sections are where more efforts should be made in order to achieve the full development of EuroVelo by 2030. Ultimately, sections of the EuroVelo network may be removed if no sufficient developments are foreseen.

Here is the partition of route development levels, out of the total 91,913 km of EuroVelo routes⁴:

EuroVelo categories	At the planning stage	Under development	Developed	Developed with EuroVelo signs	Certified	
Number of kilometres	7,910	22,225	24,323	35,641	1,814	
Percentage of the EuroVelo network	9%	24%	26%	39%	2%	

4 In these calculations, the total lengths of EuroVelo routes have been used, duplicating the lengths of routes when they overlap. EuroVelo sections are counted multiple times if they belong to several EuroVelo routes.

³ This is the length of the continuous section of EuroVelo 15 – Rhine Cycle Route that received the Certification label for five years in 2020. This number is slightly different than the number included in previous years' EuroVelo Route Development Status Report, due to adjustments and corrections made to GPX tracks each year.

DEVELOPMENT STATUS DISTRIBUTION ON EUROVELO



Comparing this year's levels of development of EuroVelo to the EuroVelo Route Development Status Report 2023 shows which EuroVelo routes and European countries have undergone the biggest improvements in terms of route developments in the course of the past year, and what progress has been made overall.

From 2023 to 2024, developed EuroVelo sections have increased by 1%. In order to achieve a fully developed EuroVelo network by 2030, a faster development rate is needed. This year has seen a surge in the level of signposted routes, which have increased by 5% across the network, with almost 1,700 km of new sections with EuroVelo signs. Compared to the first edition of this report, developed sections of EuroVelo routes have increased by 10,000 km and huge progress has been made in the accuracy of the data used in the analysis, thanks to the constant efforts of ECF and its partners.

EuroVelo Route Development Status Reports have been published since 2021. In these three years, a lot of progress has been made in gathering more accurate data on EuroVelo routes and improving the knowledge of the network. This work has allowed to clarify where developments are most urgently needed and where data is lacking. Most importantly, the four EuroVelo Route Development Status Reports highlight the need for faster development and prioritisation of EuroVelo route guality in funding programmes. They also highlight the importance of good governance at national level, enabling National EuroVelo Coordination Centres to gather up-to-date data about the routes and to get timely updates from route operators, regional and local authorities.

Work continues in acquiring more accurate knowledge of real route conditions across EuroVelo, while the visibility of the network on the ground increases

More accuracy in available data

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Corrections were made on existing EuroVelo data for a few countries, especially the United Kingdom, where GPX tracks have been cleaned out, decreasing the total length of EuroVelo by 600 km. EuroVelo routes development statuses were also updated in Luxembourg and Sweden, correcting previous information. Moreover, France adjusted its data to the broad development categories of the EuroVelo GIS Database, whose level of details is lower than in the national database.

5% increase in EuroVelo signage across Europe

This corresponds to almost 1,700 km of new EuroVelo signs from 2023 to 2024, including the first ever 63 km signposted in Greece! This increase is very good news as signposting allows more visibility of EuroVelo on the ground. However, 13 countries out of 38 still don't have EuroVelo signs at all. Note that EuroVelo signage should respect the general principles detailed in the EuroVelo Transnational Signing Manual, which are based on the recommendations for the signing of EuroVelo routes produced in 2009 by the United Nations Economic Commission for Europe (UNECE) in cooperation with ECF.

EuroVelo 7 and EuroVelo 11 overall development increased by around 10%

10% increase in the development of FuroVelo 7 – Sun Route

This year, EuroVelo 7 is the top route in terms of guality increase across EuroVelo. Most developments on EuroVelo 7 happened in Italy, where over 500 new kilometres of route were developed, mostly between Lago Sirino and Reggio Calabria, corresponding to the Ciclovia dei Parchi (Calabria Parks Cycle Route). Additional sections were also marked as developed in Sweden, when belonging to the well-developed national routes Kattegattleden (between Gothenburg and Helsingborg) and Vänerleden (Vänersborg to Lake Vänern).

EuroVelo 11 – East Europe Route Most developments on EuroVelo 11 happened in Serbia, where the whole route (661 km) was developed and signed with EuroVelo signs. Let us note that local and regional roads are mostly used for EuroVelo 11 in Serbia, and more segregated cycle paths should be built in the future. With these new developments, EuroVelo 11, which used to be the least developed EuroVelo route, climbed to the 16th position. Let us hope that this trend continues!

9% increase in the development of

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Serbia, Spain and Italy increased the development of their national EuroVelo network by at least 10%

37% development increase in Serbia

The development and EuroVelo signage of the whole 661 km of EuroVelo 11 – East Europe Route in Serbia completed the EuroVelo network in this country. Cycling infrastructure was also improved along a section of EuroVelo 6 – Atlantic-Black Sea and EuroVelo 13 – Iron Curtain Trail, connecting Bela Crkva and Zatonje.

15% development increase in Spain The Spanish EuroVelo network improved a lot in the past year, with 622 km of newly developed routes, including 333 km of new EuroVelo signs. The main part of these developments happened along EuroVelo 8 – Mediterranean Route, which totalised over 500 km of newly developed routes thanks to huge improvements in the Andalucía and Valencia Autonomous Communities. EuroVelo 8 is now developed at 80% within Spain. Almost 100 new kilometres of EuroVelo 1 – Atlantic Coast Route were also developed in Navarra and Andalucía, bringing the total development share of the route inside the country to 97%.

10% development increase in Italy

EuroVelo route development progressed in Italy by over 500 km, corresponding to new sections of EuroVelo 5 – Via Romea (Francigena) and EuroVelo 7 – Sun Route south of Rome, in regions that had long remained without developments. The most important update is the redirection of EuroVelo 7 on Ciclovia dei Parchi in Calabria, a cycle route created and maintained by the regional government. This route replaces the coastline itinerary, which is without any plans of development.

It is important to note that these percentage figures depend on the total length of EuroVelo routes in the country and are not representative of the level of investments that have been made to develop the routes.

This report also includes a table of "European countries with significant progress in development levels" on page 12, showing detailed data on route development increases in relevant countries and a classification of countries based on the number of kilometres improved.

EUROVELO ROUTES PER LEVELS OF DEVELOPMENT

Which EuroVelo routes are the most developed, and which ones still need time and investments to be ready to cycle? Where are the most developed sections of EuroVelo located? The map below shows the sections of the network that are already certified, developed with EuroVelo signs or developed at national/regional level, and where the gaps remain. It clearly shows that while a good part of the network appears on the map, a lot of efforts are still needed, especially is the East and North of Europe, to complete the EuroVelo network.

DEVELOPED SECTIONS OF THE EUROVELO NETWORK IN 2024





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The following table presents a classification of EuroVelo routes according to their level of development (methodology explained below the table itself):

	EuroVelo Route ¹	Length (in km)	At the planning stage	Under development	Developed	Developed with EuroVelo signs	Certified ²	(combined)	+/- change from 2023 ³
1	EuroVelo 15 Rhine Cycle Route	2,389 ⁴	0%	3%	6%	15%	76%	97%	+0%
2	19 EuroVelo 19 Meuse Cycle Route	1,144	0%	0%	0%	100%	0%	100%	+0%
3	EuroVelo 17 Rhone Cycle Route	1,171	0%	5%	0%	95%	0%	95%	-5%
4	EuroVelo 14 Waters of Central Europe	1,159	0%	4%	9%	87%	0%	96%	+0%
5	EuroVelo 1 Atlantic Coast Route	10,674	2%	0%	37%	61%	0%	98%	+1%
6	EuroVelo 12 North Sea Cycle Route	6,723	4%	0%	57%	39%	0%	96%	-1%
7	EuroVelo 3 Pilgrims Route	5,604	12%	4%	34%	50%	0%	84%	-4%
8	6 EuroVelo 6 Atlantic-Black Sea	6,178	0%	28%	6%	66%	0%	72%	+2%
9	EuroVelo 4 Central Europe Route	5,080	22%	1%	37%	40%	0%	77%	+0%
10	EuroVelo 5 Via Romea (Francigena)	3,223	15%	24%	21%	40%	0%	61%	+1%
11	EuroVelo 13 Iron Curtain Trail	10,573	0%	47%	11%	42%	0%	53%	+3%



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12	EuroVelo 10 Baltic Sea Cycle Route	9,040	0%	46%	24%	30%	0%	54%	+1%
13	8 EuroVelo 8 Mediterranean Route	7,422	4%	44%	26%	26%	0%	52%	+1%
14	EuroVelo 9 Baltic-Adriatic	2,156	9%	46%	9%	36%	0%	45%	+0%
15	Sun Route	7,694	15%	30%	44%	11%	0%	55%	+10%
16	EuroVelo 11 East Europe Route	6,794	21%	44%	6%	29%	0%	35%	+9%
17	2 EuroVelo 2 Capitals Route	4,889	42%	12%	45%	1%	0%	47%	-2%

1 The classification of EuroVelo routes according to their levels of development was done according to the following logic:

- Highest weighted percentages of routes with certified routes counted 100%, routes developed with signs counted 50% and developed routes counted 25%
- Highest percentages of routes under development
- Highest percentages of routes at the planning stage

When levels of development were the same for two routes, then the longest route was put first.

A weighted sum was used because it reflects better the overall level of development of the EuroVelo routes. This method of classification gives more weight to routes that are signed with EuroVelo signs than to routes that are signed only according to national standards. It gives even more weight to routes that have been certified, because the ECS label ensures that the quality of the routes has been assessed and confirmed according to an agreed process.

Conversely, using a weighted sum of percentages ensures that all developed sections of the routes are taken into account in the classification, and not only certified routes or routes signed with EuroVelo signs. A route with good and safe cycling infrastructure is indeed the most important for cyclists, and routes with many developed kilometers should not be pushed automatically to the bottom of the list, even if few EuroVelo signs have been installed so far, or if there was no occasion yet for certifying the route.

2 A EuroVelo Route, or a section of min. 300 km of a EuroVelo Route, can be certified if it has been surveyed and fulfils the relevant criteria according to the <u>European Certification Standard (ECS)</u> methodology, developed by ECF. The certification label ensures a high-quality level for the route, as well as good public transport connections and availability of information both online and in paper format.

3 The percentage change indicated corresponds to the difference when adding up the percentages of developed, developed with signs and certified sections for each route, between 2023 and 2024. As a result, the percentage change can be +0% even if there have been improvements made to the routes, for instance if some developed sections got signed. When percentages are negative, it can mean that the route data has been updated, including more detailed information about the route and resulting in a lower development percentage, or that the itinerary has been modified.

4 For routes going on both sides of a river, the length given is the total length, taking into account both left and right banks.





EUROPEAN COUNTRIES PER LEVELS OF DEVELOPMENT

Which countries are the more advanced in terms of EuroVelo development? Where are more EuroVelo signs in place?

The two maps on this page show the development of EuroVelo and EuroVelo signage levels per country. They clearly demonstrate that EuroVelo routes tend to have better levels of development in countries where a National EuroVelo Coordination Centre (NECC) is in place, which is the case in 24 countries out of 38 in 2024. These maps compare the development level percentage per country and do not take into account the differences in total number of kilometers of EuroVelo routes from one country to another.





In the next table, countries are classified according to the national levels of development of EuroVelo. The total number of kilometres of EuroVelo in each country have also been included, as it requires more work to fully develop a wider national network. The lengths included in the table correspond to the total number of EuroVelo kilometres in the country, including duplicate routes, since different routes need to be signed and promoted independently. The methodology used to produce the classification is described below the table itself.

LEVEL OF EUROVELO SIGNAGE PER COUNTRY IN 2024



	Country ¹	Length (in km)	At the planning stage	Under development	Developed	Developed with EuroVelo signs	Certified ²	(combined)	+/- change from 2023 ³
1	• Switzerland	1,307	0%	0%	0%	72%	28%	100%	+0%
2	Estonia	2,735	0%	0%	0%	100%	0%	100%	+0%
3	Belgium	1,020	0%	0%	0%	100%	0%	100%	+0%
4	Serbia	2,056	0%	0%	1%	99%	0%	100%	+37%
5	Republic of Ireland	2,559	3%	1%	4%	92%	0%	96%	+0%
6	Hungary	2,197	1%	2%	9%	88%	0%	97%	+0%
7	France	8,725	1%	8%	2%	87%	2%	91% ⁴	-8%
8	The Netherlands	2,003	0%	0%	31%	62%	7%	100%	+0%
9	Austria	2,646	0%	0%	21%	79%	0%	100%	+0%
10	Czechia	2,044	1%	0%	21%	78%	0%	99%	+0%
11	Denmark	2,186	0%	0%	35%	65%	0%	100%	+0%
12	C Türkiye	621	0%	20%	0%	80%	0%	80%	+0%
13	Luxembourg	106	0%	0%	42%	58%	0%	100%	+41%5
14	Spain	4,325	7%	4%	29%	61%	0%	90%	+15%
15	Slovakia	452	14%	0%	29%	57%	0%	86%	+0%



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16		Germany	9,854	0%	10%	63%	16%	11%	90%	+0%
17		United Kingdom	5,155	0%	0%	66%	34%	0%	100%	+0%
18	*	Croatia	1,706	0%	0%	77%	23%	0%	100%	+0%
19		Norway	5,504	14%	0%	63%	23%	0%	86%	+0%
20	o	Portugal	1,191	0%	0%	93%	7%	0%	100%	+0%
21		Latvia	1,899	0%	63%	11%	26%	0%	37%	+0%
22	•	Slovenia	399	0%	69%	0%	31%	0%	31%	+0%
23	+	Finland	5,144	2%	73%	14%	11%	0%	25%	+0%
24		Italy	5,247	24%	40%	36%	0%	0%	36%	+10%
25		Poland	4,706	44%	38%	6%	12%	0%	18%	+3%
26		Lithuania	672	74%	0%	26%	0%	0%	26%	+0%
27	-	Sweden	5,835	8%	70%	22%	0%	0%	22%	+6%5
28	-	Greece	1,483	0%	96%	0%	4%	0%	4%	-2%
29		Romania	1,501	0%	100%	0%	0%	0%	0%	+0%
30		Bulgaria	1,268	0%	100%	0%	0%	0%	0%	+0%
31		Cyprus	661	0%	100%	0%	0%	0%	0%	+0%
32	*	Albania⁰	488	0%	100%	0%	0%	0%	0%	+0%



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33	Montenegro	215	0%	100%	0%	0%	0%	0%	+0%
34	Republic of North Macedonia	408	63%	37%	0%	0%	0%	0%	+0%
35	Belarus	856	84%	16%	0%	0%	0%	0%	+0%
36	Russia	1,917	100%	0%	0%	0%	0%	0%	+0%
37	Ukraine	797	100%	0%	0%	0%	0%	0%	+0%
38	* Malta ⁶	113	100%	0%	0%	0%	0%	0%	+0%

1 The classification of countries according to the levels of development of EuroVelo routes was done according to the following logic:

- Highest weighted percentages of routes with certified routes counted 100%, routes developed with signs counted 50% and developed routes counted 25%
- Highest percentages of routes under development
- Highest percentages of routes at the planning stage

When levels of development were the same for two countries, then the country with more EuroVelo routes to develop and promote was put first.

A weighted sum was used because it reflects better the overall level of development of the EuroVelo network in each country. This method of classification gives more weight to countries with routes that are signed with EuroVelo signs than to countries that have signed their routes only according to national standards. It gives even more weight to countries with routes that have been certified, because the ECS label ensures that the quality of the routes has been assessed and confirmed according to an agreed process.

Conversely, using a weighted sum of percentages ensures that all developed EuroVelo routes of a country are taken into account in the classification, and not only certified routes or routes signed with EuroVelo signs. A route with good and safe cycling infrastructure is indeed the most important for cyclists, and countries with many kilometres of developed EuroVelo routes should not be pushed automatically to the bottom of the list, even if few EuroVelo signs have been installed so far, or if there was no occasion yet for certifying the route.

2 A EuroVelo section can be certified if it has been surveyed and satisfies the relevant criteria according to the <u>European Certification Standard (ECS)</u> methodology, developed by ECF. The certification label ensures a high-quality level for the route, as well as good public transport connections and availability of information both online and in paper format.

3 The percentage change indicated corresponds to the difference when adding up the percentages of developed, developed with signs and certified sections of EuroVelo routes in each country, between 2023 and 2024. As a result, the percentage change can be +0% even if there have been improvements made to the routes, for instance if some developed sections got signed. When percentages are negative, it can also mean that the route data has been updated, including more detailed information about a given country's routes and resulting in a lower development percentage, or that the itineraries have been modified.

4 There is a difference between the French NECC Vélo & Territoires' data (96% of the EuroVelo network in France is implemented) and EuroVelo data (91% of the network is developed and signed). That is because Vélo & Territoires monitors the realised rate, whereas EuroVelo focuses on the continuity, following a structure of 50-km long sections. For sections where the quality level was not uniform, the "worst" quality level was selected.

5 Luxembourg and Sweden were not included in the countries that underwent a level of development increase between 2023 and 2024, because these increases are related to corrections of previously wrong development status categories (for sections of EuroVelo 5 – Via Romea (Francigena) in Luxembourg, and for sections belonging to the well-developed national routes Kattegattleden and Vänerleden in Sweden).

6 Tracks of EuroVelo routes in these countries were fully or partially created by ECF because of missing national contacts. Itineraries were based on the best routes available according to online research.



EUROPEAN COUNTRIES WITH SIGNIFICANT PROGRESS IN DEVELOPMENT LEVELS

Some countries have reported significant progress in development levels since 2023. In the table below, countries with development increases are classified according to the number of kilometres improved with details about the type of improvement (development and/or signage).

	Country	Global development increases in percentage of the whole EuroVelo km ¹	Global development increases in km ²	New kilometres developed ³	New kilometres developed with EuroVelo signs ⁴
1	Serbia	+37%	724	0	724
2	Spain	+15%	622	289	333
3	Italy	+10%	525	525	0
4	Poland	+3%	72	0	72
5	Norway	<1%	59	59	0

1 Luxembourg and Sweden, which displayed positive percentages of change compared to 2023 in the table on pp. 9-11, were not included in this table as these increases are related to corrections of previously wrong development status categories.

2 The numbers in this column correspond to the sum of new kilometres developed and new kilometres signed. They indicate how many kilometres of EuroVelo routes were improved in the country, globally.

3 Amounts in this column correspond to the differences in number of kilometres developed in each country between 2023 and 2024. They represent sections of routes previously under development, whose developments were finalised during the year, but not signed with EuroVelo signs.

4 Amounts in this column correspond to the differences in number of kilometres developed with EuroVelo signs in each country between 2023 and 2024. They represent sections of routes previously developed or under development, on which EuroVelo signs were installed during the year.





WHAT CAN WE LEARN ON EUROVELO FROM OPENSTREETMAP DATA?

In the last years, ECF has started to explore the potential of OpenStreetMap (OSM) to collect more detailed data on cycling infrastructure. This work is accessible in <u>ECF's Cycling Infrastructure Tracker</u>. The analysis has been extended to EuroVelo routes and should be soon accessible on ECF's website. OSM is a free, open geographic database updated and maintained by a community of volunteers via open collaboration. It focuses mainly on existing infrastructure, rather than planned cycle routes, and relies on the strength of OSM communities in each geographical area. Despite not reflecting necessarily the official data, OSM gives access to a unique and uniform source of information on cycling infrastructure and EuroVelo. ECF has initiated discussions with the OSM community in 2023 to improve how EuroVelo routes are tagged and further develop EuroVelo data within the main open geographic database in the world. This chapter explores what can be learnt on EuroVelo from OpenStreetMap data, even though it does not enable strict comparison with the EuroVelo GIS database and does not yet represent the full network.

Main learnings

- **1.** EuroVelo is well represented on OSM, but the network is incomplete and the level of detail of available information varies a lot.
- Infrastructure types of EuroVelo routes on OSM confirm the hypothesis that there is a need to improve the quality of cycling conditions on most of the network (51%), even though a general analysis of cycling conditions based on very general categories may reflect heterogenous realities.
- OSM data analysis per EuroVelo route confirms the good quality of certain routes (e.g. EuroVelo 15 – Rhine Cycle Route and EuroVelo 19 – Meuse Cycle Route) but also indicates good quality levels for some routes if not considered in their entirety and excluding long sections under development (e.g. EuroVelo 2 – Capitals Route).
- **4.** OSM data on EuroVelo route surface type and quality indicate that some sections of EuroVelo would need improved surfaces, but also that detailed information is generally missing, especially for surface quality.

EuroVelo is well represented on OSM, but the network is incomplete and the level of detail of available information varies a lot

When extracting EuroVelo data from OSM and analysing it by infrastructure category, surface type or surface quality, we notice that not all EuroVelo kilometers have been mapped on OSM (80,733 km of EuroVelo routes are included on OSM, while EuroVelo totalises 91,913 km). This gap is easily explained by the fact that OSM's mission is to map what is really out there in the world, and it does not aim to include potential, undeveloped routes.

But the total length of EuroVelo mapped on OSM (80,733 km) exceeds the total of developed EuroVelo routes from this report (61,778 km), meaning that it goes beyond what we consider to be 'ready to cycle' according to the route development categories of the EuroVelo GIS database.

This confirms that different information can be found on various sources, even though they may partially overlap:

- The EuroVelo GIS database offers a complete overview of the EuroVelo network, including the level of development of daily sections, provided by official EuroVelo partners where identified.
- OSM provides a partial overview of the EuroVelo network (but still representing over 87% of the complete network), not necessarily corresponding exactly to the official EuroVelo routes, but with detailed information on the infrastructure type and surface material when available, coming from individual and volunteers' contributions.

These differences prevent from making a strict comparison so we suggest to rather focus on what can be learnt from OpenStreetMap data in addition to what we know from the EuroVelo GIS Database.

Overview of data used for analysis from EuroVelo GIS database and OpenStreetMap

EuroVelo GIS database	Total EuroVelo (in km)* Incl. developed sections of EuroVelo routes (in km)*	91,913 km 61,778 km
OpenStreetMap data	Total EuroVelo (in km)*	80,733 km
	Total EuroVelo without duplicate sections (in km)**	73,617 km
	Incl. data on surface type (in km)**	55,246 km
	Incl. data on surface quality (in km)**	13,000 km

** The total lengths of EuroVelo routes have been used, not duplicating the lengths of routes when they overlap. EuroVelo sections are counted one time even if they belong to several EuroVelo routes, reducing the total lengths in kilometers of the EuroVelo network.

^{*} The total lengths of EuroVelo routes have been used, duplicating the lengths of routes when they overlap. EuroVelo sections are counted multiple times if they belong to several EuroVelo routes.

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ROUTE DEVELOPMENT STATUS REPORT

This table indicates that EuroVelo is already very well represented on OSM (although the accuracy of information could not be verified), even though the tags used to describe the route sections' parameters may differ from one country to the other, and from one contributor to the other. In general, ECF's Cycling Infrastructure Tracker extracted EuroVelo data from OSM following the tagging conventions described in the OSM Wiki's EuroVelo page.

When looking at EuroVelo routes' surface type and guality data from OSM, a lower number of km is available for analysis. This illustrates the fact that EuroVelo data from OSM often presents unequal levels of detail and should be further informed to provide a suitable basis for cycle route quality analysis. For the time being, the EuroVelo GIS database is the only source of information providing the same level of detail on the whole EuroVelo network.

ANALYSIS OF EUROVELO ROUTES DATA FROM OSM USING ECF'S CYCLING INFRASTRUCTURE TRACKER



The colour gradient indicates the ratio per country (in %) of advocated cycle infrastructure (i.e. cycle and pedestrian tracks, cycle lanes, other cycle infrastructure and local roads) to the total EuroVelo network. The size of the grey discs indicates the total length of extended cycle infrastructure and local roads per country.

Indicated infrastructure types of EuroVelo routes on OSM confirm the hypothesis that there is a need to improve the quality of cycling conditions on most of the network (51%)

Cycling conditions on EuroVelo routes would be judged sufficient if either quality cycling infrastructure is provided, or if mixed traffic conditions are available with low motorised traffic volumes and/or slow or medium traffic speed limits⁵. Infrastructure types of EuroVelo routes on OSM have been analysed by grouping them into six general categories. In the analysis, we consider that four categories would enable satisfactory cycling conditions (cycle and pedestrian tracks, cycle lanes, other cycle infrastructure and local roads), and that two categories would induce poor cycling conditions (main roads – where volumes of motorised traffic and/or speed limits are expected to be high⁶ – and other, including obstacles and legal discontinuities). 50,97% of the EuroVelo kilometers on OSM are categorised as 'main roads or other' and would theoretically require improved infrastructure for cyclists. This analysis is based on available data and categories and may reflect different conditions on the ground.

Let us note that the EuroVelo Development Status Report does not allow to produce the same kind of analysis for the developed sections of EuroVelo (i.e. routes certified, developed with EuroVelo signs and developed) because we have not yet collected information on infrastructure types for the entire EuroVelo network in the EuroVelo GIS database. Further analysis could focus on OSM's infrastructure categories for developed EuroVelo sections only, to see if the share is different.

> PERCENTAGE OF TOTAL EUROVELO KM BY INFRASTRUCTURE CATEGORY EUROVELO ROUTES ON OSM WITHOUT DUPLICATES







OSM data per EuroVelo route confirms the high quality of certain routes

We also analysed OSM data for individual EuroVelo routes with the same method as described above, grouping infrastructure types in six different categories and considering that four of them would offer satisfactory cycling conditions (cycle and pedestrian tracks, cycle lanes, other cycle infrastructure and local roads) and that two categories would induce poor cycling conditions (main roads – where volumes of motorised traffic and/or speed limits are expected to be high – and other, including obstacles and legal discontinuities).

The conclusion of this analysis is that most routes with the highest development levels according to the EuroVelo GIS database also offer satisfactory cycling conditions according to OSM data: EuroVelo 15 – Rhine Cycle Route (82%), EuroVelo 17 – Rhone Cycle Route (77%) and EuroVelo 19 – Meuse Cycle Route (62%).

But we also noticed that certain less developed EuroVelo routes according to the EuroVelo GIS database demonstrate a good proportion of 'satisfactory cycling conditions' as they are not mapped in their entirety in OSM. For example, 48% of EuroVelo 2 – Capitals Route is mapped on OSM (corresponding to the western part of the route, from Ireland to Germany) and indicates 78% of satisfactory cycling conditions.

Looking at surface type and quality, we notice that only a part of EuroVelo routes mapped on OSM contain tags corresponding to these parameters, so it is not possible to make a full analysis. More specifically, 55,000+ km (without duplicates) of EuroVelo routes on OSM contain information on surface type (that is 76% of all EuroVelo routes mapped on OSM), and 13,000 km (without duplicates) contain information on surface quality (that is 18% of all EuroVelo routes mapped on

OSM). 83% of EuroVelo kilometers with known surface type goes on asphalt or concrete roads according to OSM data. This is probably connected to the fact that 66% of EuroVelo kilometers use public roads (local or main roads). Consequently, when the surface quality is available, it is up to 76% perfectly rideable and 17% moderately rideable. Still 887 km is qualified as badly or not rideable and would need surface improvements.



EUROVELO DATA HUB

The <u>EuroVelo Data Hub</u> contains updated key figures and useful resources to monitor the growth of the European cycle route network. Below you can find data gathered on EuroVelo network usage, route development and digital statistics. Guidance on how to start monitoring cycle routes, cycling tourism and evaluating its economic impacts can also be found on <u>EuroVelo.com</u>.



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