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CYROS

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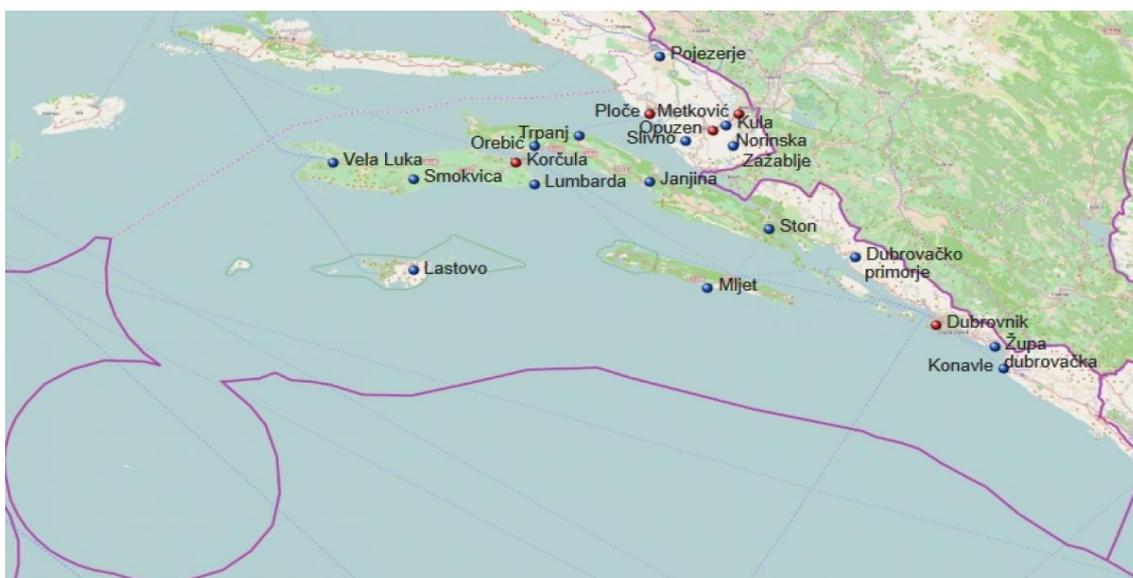




ACTION PLAN

FOR THE DEVELOPMENT OF CYCLE TOURISM

IN DUBROVNIK-NERETVA COUNTY



*Program INTERREG ITALY – CROATIA
Project “Implementation, in the Programme area, of the
EUSAIR flagship and crosspillar project idea Adriatic
Ionian CYcle ROute for Sustainable tourism”
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INTRODUCTION

Cycle tourism, as a form of an active and environmentally friendly tourism, is experiencing significant growth across Europe. Dubrovnik-Neretva County recognizes the potential of cycle tourism to extend the tourist season, to promote more balanced development of rural areas and to diversify the tourist offer, as a sustainable and environmentally friendly opportunity for further development of the region's tourism.

The Administrative Department for Entrepreneurship, Tourism and the Sea, in 2021, as part of the implementation of the project Maritime and Multimodal Sustainable Passenger Transport Solutions and Services – MIMOSA- Program INTERREG ITALY-CROATIA 2014-2020, coordinated the preparation of the Operational plan for the Development of the Cycle Tourism in Dubrovnik-Neretva County with standards. This document represents a strategic framework which establishes foundations and direction for the further development of cycle tourism in the county. The activities related to the development of cycle tourism in the county area are continued by the preparation of the Action Plan for the Development of Cycle Tourism in Dubrovnik-Neretva County, which will determine current situation on the ground, define priority short-term goals, provide guidelines for improving existing routes and will establish specific standards for cycling trails signage. The Action Plan approaches the topic through a territorial perspective, dividing it into four areas: Dubrovnik and its surroundings, Neretva, Pelješac, and the islands, which are treated as separate units for data processing.

The timeframe covered by the provisions of this Action Plan is the period from 2025 to 2027, with the possibility of extension until 2030 if the proposed guidelines are not implemented within the three-year period.

The Action Plan for the development of the Cycle Tourism in Dubrovnik-Neretva County is conducted within the project "Implementation, in the Programme area, of the EUSAIR flagship and crosspillar project idea Adriatic Ionian CYcle ROute for Sustainable tourism, acronym "CYROS" Programme INTERREG ITALY-CROATIA. CYROS has a goal to develop common cross border cyclic routes and their connection with intermodal transportation, resolve joint challenges related to maritime mobility via strategic connection and to focus on cross border cycling routes which will serve both local population and tourists, contributing to sustainable traffic, reducing emissions,





promoting healthy lifestyle and developing cycle tourism and its offer as one of key products of active tourism in the county.

The strategy for the development of the cycling infrastructure is based on existing county, national and European documents. A particular emphasis is being put on the trace of the Adriatic-Ionian Cycling Route connecting the coast of the Adriatic Sea in Italy and Croatia, including connections to the hinterland and linking these international corridors with local and regional routes.

Anticipated project outcomes:

- *Increased sustainability and quality of transportation services*
- *Appealing alternative multimodal solutions for decreasing reliance on private vehicles in both regional and cross-border transportation.*
- *Enhanced intermodal links at regional and cross-border levels (e.g. by bike and train, by bike and bus, by bike and boat)*

1. ANALYSIS OF EXISTING DOCUMENTATION

1.1 DEVELOPMENT FRAMEWORK FOR CYCLE TOURISM IN DUBROVNIK-NERETVA COUNTY

The development of cycle tourism at Dubrovnik-Neretva County area represents an important segment of the overall tourist offer which is based on the sustainable use of natural and cultural values of the region.

According to the available documentation, the development framework for cycle tourism in Dubrovnik-Neretva County is defined through several key documents, among which are the National Action Plan for the Development of Cycle Tourism in the Republic of Croatia and the Operational plan for the Development of Cycle Tourism in Dubrovnik-Neretva County. These documents represent the foundation for the systematic development of cycle tourism as an important segment of the county's tourism offer.

Action Plan for the Development of Cycle Tourism of the Republic of Croatia





Action plan for the Development of Cycle Tourism of the Republic of Croatia represents a framework document that defines the strategic guidelines for the development of cycle tourism at the national level.

This document recognizes cycle tourism as one of the key products of active tourism, with great potential for extending the tourist season and fostering the development of continental tourism. The Plan defines key measures and activities for improving cycle tourism infrastructure, standardizing quality and promoting cycle tourism products.

(Explanation of the terms from the above image:

*“Akcijski plan razvoja cikloturizma” = Action Plan for the Development of Cycle Tourism)
Operational Plan for the Development of Cycle Tourism of Dubrovnik-Neretva County*



The Operational Plan for the Development of Cycle Tourism of Dubrovnik-Neretva County represents fundamental document for the development of cycle tourism on the county level.

The Plan analyses the current state of cycle tourism in the county, identifies key challenges and opportunities and defines specific measures and activities for the enhancement of the cycle tourism offer.

Special emphasis is placed on the development of bicycle paths, the standardisation of signage and equipment, and the promotion of cycle tourism products.

(Explanation of the terms at the above image:

“Operativni plan razvoja cikloturizma Dubrovačko-neretvanske županije sa standardima” = Action Plan for the Development of Cycle Tourism of Dubrovnik-Neretva County, with standards)

Territorial Development Strategy of the islands of Dubrovnik-Neretva County and the Development Plan of Dubrovnik-Neretva County until 2027.





The Territorial Strategy is a strategic and operational document, serving as a supplement to the Dubrovnik-Neretva County Development Plan until 2027. It represents one of the main prerequisites for the implementation of the ITP program on the islands (strengthening the regional economy through industrial transition processes, investing in the development of smart and sustainable cities, and promoting the development of smart and sustainable islands).

Both documents also recognize the importance of cycle tourism for the county's overall development, especially for island areas that have immense potential for the development of this type of tourism.

The strategies emphasize the need for the development of sustainable forms of tourism which will contribute to the preservation of natural and cultural values and enable more balanced development of all parts of the county.

(Explanation of the terms at the above image:

(Teritorijalna strategija razvoja otoka Dubrovačko-neretvanske županije do 2027. godine" = Territorial Development Strategy of the islands of Dubrovnik-Neretva County until 2027)

(Plan razvoja Dubrovačko-neretvanske županije do 2027. godine" = Development Plan of the islands of Dubrovnik-Neretva County until 2027)

1.2. ANALYSIS OF EXISTING DOCUMENTATION AND CURRENT STATE

A detailed analysis has been conducted on all available plans and strategies on national, regional and local level related to the development of cycling infrastructure. It has been determined that there is a certain misalignment between the strategic documents, but also room for improving their implementation. Special attention has been given to compliance with European union legislation and guidelines, particularly in the context of sustainable mobility and the development of green tourism. By comparing the existing infrastructural solutions with EuroVelo standards, certain shortcomings have been identified, among which are: the lack of continuous routes, insufficient traffic safety on key sections, poor visibility of cycling directions, as well as the absence of intermodal connections with public transport, including inadequate



standardization of infrastructure, fragmented signage, and the need for better integration of cycling routes with the tourism offer.

1.2.1. Action Plan for the Development of Cycle Tourism in the Republic of Croatia

Main focus:

- *The integration of Croatia into the European cycling route network through EuroVelo 8 (Adriatic-Ionian route)*
- *Linking natural and cultural resources with cycling infrastructure*
- *The development of cycle tourism as a “green product” for reducing tourism seasonality.*
- **Key characteristics of Dubrovnik-Neretva County:**
- *EuroVelo as a core:*
 - *The route passes through key areas of the county: Ploče/Trpanj, Trstenik, Žuljana, Putnikovići, Ston (Pelješac), alternative section Split - Vela Luka, Blato, Brna, Smokvica, Čara, Pupnat, Korčula-Orebić, Potomje, Ston – Doli, Slano, Majkovi, Trsteno, Zaton, Dubrovnik, Zvekovica, Gruda, Vitaljina Border Crossing (BC).*
 - *It emphasizes the need for safe alternative routes away from busy main roads (e.g. avoiding D8 near Dubrovnik)*
- *Cultural-historical elements:*
 - *It suggests linking the route with local heritage (for example, with the salt pans in Ston, the Old Town in Dubrovnik, and the fortification in Konavle)*
 - *It recommends installing educational boards along the routes providing information on historical and natural attractions.*
- *Cooperation with the private sector:*
 - *It encourages the development of services along the routes (bicycle rental, cycling tents, service facilities)*

Shortcomings in the context of Dubrovnik-Neretva County:

- *Insufficiently defined standards for various categories of bicycles (for example, MTB vs. road bicycles, gravel bicycles)*
- *Lack of specific guidelines for addressing cross-border challenges (i.e. integration with Herzegovina region)*
- *Electrical bikes as a key component of modern mobility are not addressed.*



The Plan is ambitious, but often insufficiently aligned with local needs, and its implementation depends on the funding and capacities of local government units. The lack of detailed analysis for specific regions, such as for Dubrovnik-Neretva County, can lead to uneven development.

1.2.2. Operational Development Plan for the Development of Cycle Tourism in Dubrovnik-Neretva County

Main focus:

- *Identifying priority areas for the development of cycling routes:*
 - *Pelješac (coastal and inland wine routes).*
 - *Konavle (rural roads alongside traditional architecture)*
 - *Islands (Mljet, Lastovo, Korčula – environmentally friendly projects)*
 - *The Neretva valley (Baćina, Klek, Kula Norinska, Metković, Opuzen, Ploče, Slivno i Vid – „One Valley, one sport, many different experiences“, a unique mosaic of wetland, lagoons, lakes, beaches, river, mounds and mountains).*

Specific features:

- *Strategic goals:*
 - *Infrastructure works on the construction of cycling paths, trails, routes and supporting infrastructure.*
 - *Establishment of a system for encouraging and monitoring stakeholders in tourism to create year-round tourism and cycle-tourism offerings.*
 - *Improvement of the information system for cycle tourists and promotion of Dubrovnik-Neretva County as a cycle tourism destination.*
- *Priorities:*
 - *Infrastructure works on the construction of cycling paths, trails, routes and supporting infrastructure-expansion and interconnection of the cycling network across the entire county.*
 - *Integration with intermodal transport-ferries, public transport, bus lines-implementation of inter-town connections (the transport system largely does not support the arrival and stay of cycle tourists in Dubrovnik-Neretva County)*
 - *Cyclists' safety (especially on critical sections i.e. EuroVelo 8)*
 - *Standardization of signage (for example, unique signage for all trails in the county)*



- *Development of digital tools (mapping, GPX tracks, web presentation)*
- *Promotional elements:*
 - *Promotion of cycle tourism (events, collaboration with local tourist boards for promotion)*
 - *Creation of thematic maps (e.g. “Pelješac wine tour”, “Salt route on Mljet”)*

Disadvantages:

- *General approach:*
 - *Fails to recognize needs of various categories of cyclists (e.g. it treats MTB trails the same way as road routes)*
 - *Lack of plans for recreational, family-oriented trails*
- *Outstanding safety issues:*
 - *It fails to offer solutions for critical segments on EuroVelo 8 (e.g. Mali Zaton- Dubrovnik, Dubrovnik – Dubac – Mlini, Mlini – Zvekovica, Gruda – Đurinići).*
- *Budget constraints:*
 - *Insufficiently clearly defined funding sources for large projects*

Insufficient financial resources and the dependence on EU projects, uneven development between different areas of the county, slow implementation of infrastructure projects, and inadequate involvement of the private sector and local communities.

1.2.3. Development Plan of Dubrovnik-Neretva County until 2027**Main focus:**

- *Sustainable development and quality of life:*
 - *Achieving a high quality of life, and a stable and dynamic economy,*
 - *Preservation of the environment and cultural-historical heritage,*
 - *Sustainability and digitalization serving as key development directions,*
- *Tourism as a driver of development:*
 - *Leading economic sector, development of the new forms of tourism such as cycle tourism, as an important tool for diversifying the offer and extending tourist season.*
- *Connectivity and infrastructure:*
 - *Development of transport and tourism infrastructure, as well as cycling infrastructure, aiming at improving connectivity within the county and increasing accessibility to rural and less developed areas.*



Specific characteristics of cycle tourism:

- *Development of cycling infrastructure:*
 - *The Plan foresees the supplementation and upgrading of the existing cycling network at the county level, with a particular emphasis on connecting all parts of the county, including rural areas, islands and coastal zone.*
 - *Strengthening cycle tourism and, consequently, extending the tourist season and achieving greater added value for the sector.*
- *Collaboration and integration:*
 - *The importance of collaboration with local communities, the tourism sector and participation in European projects and funds,*
- *Promotion and digitalization:*
 - *Digitalization and promotion of cycling routes through web platforms and applications are planned, thereby increasing information accessibility for cycle tourists.*
 - *Cycle tourism is promoted as an environmentally friendly form of mobility.*

Disadvantages:

- *Lack of specificity:*
 - *The development plan is missing detailed measures, timelines and financial allocations exclusively for cycle tourism – most specific activities are left to separate operational and action plans.*
- *Infrastructural obstacles:*
 - *The existing cycling infrastructure is fragmented, with many sections either unconnected or insufficiently safe, which limits the full development of cycle tourism.*
- *Demographic challenges:*
 - *The decline in population and aging in rural areas may challenge the sustainability and development of the cycle tourism offer due to a shortage of local stakeholders and workforce.*

The Development Plan for Dubrovnik-Neretva County until 2027 establishes firm strategic foundations for the development of cycle tourism through sustainability, infrastructure and collaboration, however a stronger advancement requires detailed elaboration and operational implementation through additional action plans and investment.



1.2.4. Territorial development strategy of the islands of Dubrovnik-Neretva County

Main focus:

- *Islands' sustainable development:*
 - *Balanced and sustainable development of all the islands in Dubrovnik-Neretva County, with an emphasis on improving quality of life, accessibility of services, economic diversification, and tourism as a key economic sector.*
 - *Preservation of the environment and cultural-historical heritage*
 - *Sustainability and digitalization serving as key development directions.*
- *Preservation of the environment:*
 - *Sustainability and protection of natural resources as a fundamental principle, with the development of environmentally friendly forms of tourism, such as cycle tourism*
- *Connectivity and infrastructure:*
 - *Transport connectivity of the islands, development of public and business infrastructure and valorisation of natural and cultural heritage, which are prerequisites for the development of cycle tourism.*

Specific characteristics of cycle tourism:

- *Acknowledgment of cycle tourism:*
 - *As a part of sustainable tourism, it is recognized as a potential means to extend the tourist season, increase revenue, and reduce environmental pressure during the summer months.*
- *Infrastructure:*
 - *The need for developing and connecting cycling routes on the islands is emphasized, as well as linking them to the mainland part of the county and to international routes (e.g. EuroVelo 8).*
- *Standardization and safety*
 - *Plans include standardization of cycling infrastructure, signage, and safety measures, as well as digitalization and promotion of routes.*
- *Collaboration and integration:*
 - *The importance of collaboration with local communities, the tourism boards and private sector is emphasized as well as participation in European projects and funds for the development of cycle tourism.*

Disadvantages:

- *Lack of detailed planning for cycle tourism:*





- Although cycle tourism is mentioned as a potential, it is lacking detailed planning – there are no specific measures, timelines, or financial allocations exclusively for cycle tourism.
- Reliance on supplementary plans:
 - Key development steps for cycle tourism are left to the implementation of separate operational and action plans, which may slow down or obstruct the realization of specific projects on the ground.
- Demographic challenges:
 - Lack of connectivity and aging on the islands may challenge the sustainability and development of the cycle tourism offer due to a shortage of local stakeholders and workforce.

The Territorial Development Strategy of the islands of Dubrovnik-Neretva count until 2027 recognises cycle tourism as a part of sustainable tourism development but approaches it more at a framework level than operationally. For stronger development of cycle tourism, detailed planning, greater infrastructure investment, and better integration with other county development documents are necessary.

Summary of documents related to the development of cycle tourism in Dubrovnik-Neretva County

Document	Advantages	Disadvantages
Action Plan for the Development of Cycle Tourism in the Republic of Croatia	- Recognises cycle tourism as a sustainable form of tourism with great potential for a year-round tourism offer.	- Insufficiently aligned with local needs - lack of detailed analysis for specific regions, such as Dubrovnik-Neretva County, may lead to uneven development.
Operational Plan for the Development of Cycle Tourism in Dubrovnik-Neretva County	- Analyses situation and potentials of the county, with clear proposal for the development of infrastructure and services.	-Insufficient financial resources and dependence on EU projects. -Insufficient plan for the development of supporting infrastructure (accommodation, service, bicycle transport) across the entire county.



Document	Advantages	Disadvantages
<i>Territorial Strategy for the Development of the County's islands until 2027.</i>	<ul style="list-style-type: none"> - Recognises cycle tourism as a tool for the sustainable development of the islands and for extending tourist season. - Emphasizes the need to connect island and mainland cycling routes and to collaborate with local communities. 	<ul style="list-style-type: none"> - Cycle tourism is addressed in a general manner, without specific measures. - Demographic challenges make the sustainability of development more difficult.
<i>Development Plan of Dubrovnik-Neretva County until 2027</i>	<ul style="list-style-type: none"> - It sets strategic framework for the sustainable development of cycle tourism through investments in infrastructure. - It promotes the integration of cycle tourism into the broader tourism offer. 	<ul style="list-style-type: none"> - Lack of detailed measures and financial plans exclusively for cycle tourism. - The existing infrastructure is fragmented,

Recommendations for improving the documents

1. Action Plan of the Republic of Croatia:

- To define basic national network of cycling routes
- To address the specific characteristics of each county, including Dubrovnik-Neretva County
- To define standards for e-bike infrastructure

2. Operational Plan for Dubrovnik-Neretva County:

- The development plan for the supporting infrastructure (accommodation, service, bicycle transport) in the entire county.
- Introduce a classification of route planning and development according to types of bicycles (road bicycles, MTB, touring, gravel...)



- *Provide for the preparation of operational plans for dangerous sections and critical points (e.g. financing appropriate protective barriers, proposing alternative routes).*

3. Development Plan for Dubrovnik-Neretva County until 2027:

- *To define in detail the construction phases of key cycling infrastructure projects according to bicycle classification.*
- *Include development projects for rural areas*

The documents provide a solid framework for the development of cycle tourism in Dubrovnik-Neretva County but require more precise direction and concretisation. The analysis indicates significant potential for the development of the cycle tourism in Dubrovnik-Neretva County, but also numerous challenges that require a systematic approach and coordinated action by all relevant stakeholders.

The development framework defined through national, and county strategic documents provides a solid basis for further development, and project CYROS represents a crucial step in achieving the set objectives. Key challenges include the development of safe and connected cycling infrastructure, quality standardization and the promotion of cycling tourism products, with particular emphasis on addressing critical sections of the EuroVelo 8 route through the county: the objective is to transform Dubrovnik-Neretva County into a region where every cyclist, regardless of riding style, can safely enjoy nature and culture.



2. INVENTORY OF CYCLING ROUTES (TRAILS) IN DUBROVNIK-NERETVA COUNTY

The goal is to present a completed, categorized network of the existing and planned cycling routes in Dubrovnik-Neretva County.

In collaboration with local stakeholders and users, a field inspection of the network's condition was carried out. Data were collected on the length, type of surface, signage and the equipment of each route. The analysis also includes informally used routes that could be included in the official network with minimum investment.

The inventory of the cycling route network was based on a combination of data provided by local tourist boards, available planning and strategic documentation (county spatial plans, urban plans, tourist agency materials), digital spatial data (GIS) and information obtained through consultations with stakeholders on local and regional levels. Additionally, data from OpenStreetMap, EuroVelo data base and local government units were used.

The following activities were carried out:

1. **Consultations with local tourist boards:** *To identify the actual condition of the routes in the given area, as well as observed deficiencies and the current and future needs of users.*
2. **All existing trails were recorded:** *A questionnaire was prepared to record the actual and planned state of cycling routes, including all the necessary attributes, for the purpose of further analysis. The attributes for describing the routes are based on:*
 - *Length*
 - *Surface (asphalt, gravel, dirt and forest path)*
 - *Signs/signage (signs, physical and technical difficulty, type of surface, GPX track)*
 - *Facilities and equipment along the route (viewpoints, rest areas, service points, charging stations, pump track, others)*
 - *Category (recreational, city, sport, tourism, pump track)*
 - *Intended use by bicycle type (road, trekking, MTB, gravel)*
 - *Route status (in use, planned, partially in use)*
 - *Maintenance/development (maintained, for enhancement)*
 - *Characteristics/description (tourist docus, description, target groups, connection with other places in the county)*



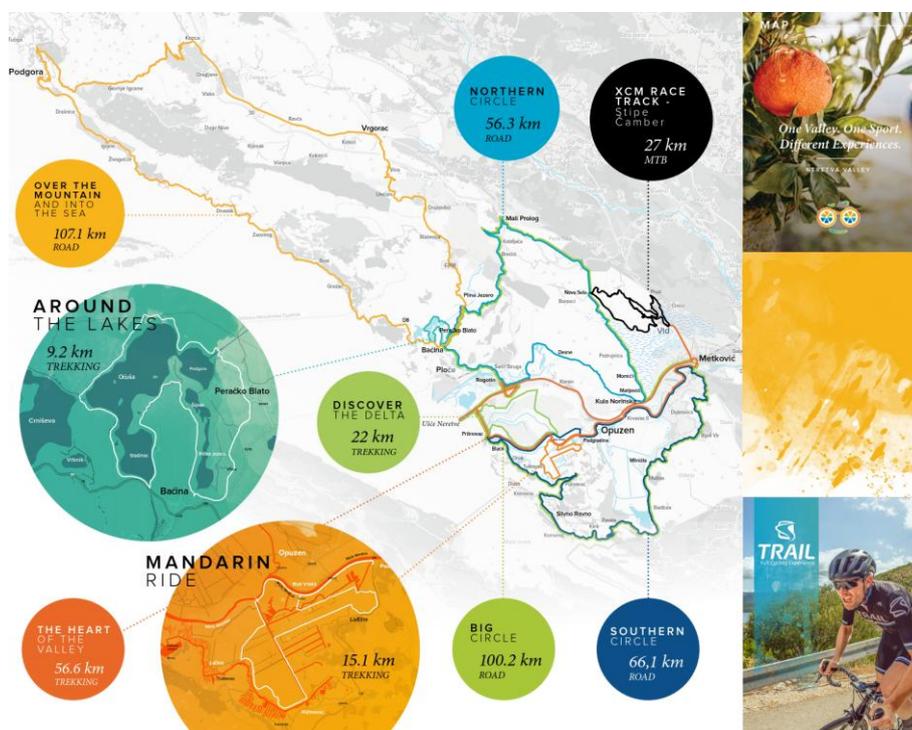


3. **GIS display:** created digital record (GPX) of routes in the aforementioned four areas (Neretva Valley (Ploče, Opuzen, Slivno, Zažablje, Kula Norinska, Metković), Pelješac (Orebić, Trpanj, Janjina, Ston), Islands (Mljet, Lastovo, Korčula – Vela Luka, Blato, Smokvica, Korčula), Dubrovnik and surroundings (Konavle, Župa dubrovačka, Dubrovnik, Dubrovačko Primorje) (surface, gradient, hazardous points).

2.1. NERETVA VALLEY (PLOČE, OPUZEN, SLIVNO, ZAŽABLJE, KULA NORINSKA, METKOVIĆ)

2.1.1. Inventory of the existing routes (trails)

Based on the data collected from local tourist boards and cycling clubs, it can be concluded that the current state of the cycling network is the result of initiatives by local tourist boards through the cycling tourism project named “One Valley. One Sport. Different Experiences”.



Promotional flyer “One Valley. One Sport. Different Experiences”, SPOT d.o.o. (Ltd)

The total length of the officially registered cycling routes is approximately 487 km, with the potential of the additional 50-100 km of informal unmarked sections that are used





for recreational purpose based on cycling tracks in sport apps. The network consists of:

- 386,3 km (79%) of the routes are paved, mostly in urban and suburban areas
- 46,3 km (10%) of the routes are mix of gravel and paved surfaces, mostly in suburban and rural areas
- 54,5 km (11%) of routes are mix of gravel, paved and dirt routes, mostly in rural areas



Routes in Neretva Valley

(Explanation of the above figure/image:

“Poljem do ušća Neretve”= Through the field towards Neretva estuary

“Mandarina rajd”=Mandarine ride

“Veliki krug dolinom Neretve” = Great Loop through the Neretva Valley





“Dolina Neretve sjeverni krug” = Neretva Valley Northern Loop

“Dolina Neretve južni krug” = Neretva Valley Southern Loop

“Srcem doline Neretve” = Through the heart of Neretva Valley

“Baćinska jezera” = Baćina Lakes

“Sjever Sjeverozapad” = North Northwest

“Polje Jezero- Staševica trekking” = Polje Jezero-Staševica trekking)

In a marketing and promotional context, the routes have been developed as targeted cycling destination with a specific offer for the Neretva Valley, accessible via web and printed promotional materials, with GPX tracks for most routes available through the “Ride with GPS” platform.

2.1.2. Assessment of the conditions of existing routes (trails)

Local tourist boards are the primary entities responsible for the development of cycling tourism infrastructure. According to the data provided, the routes are maintained and accessible.

From a technical, cycling perspective, the existing routes are categorized according to:

- technical difficulty of the route/track*
- cyclist’s physical condition and readiness*
- type of route surfaces*
- the type of bicycles for riding*

The routes on the ground lack:

- Marks/signage for cyclists’ safe riding*
- Orientational and directional marks/signage for cyclists*
- categorization according to the technical level of difficulty of the route/trail*
- categorization according to the physical difficulty of the route/trail*
- categorization according to the type of bicycle*
- facilities and equipment of the route/trail*
- informational overview boards for the surrounding area*

2.1.3. Proposal for the development of cycling routes/trails in the area of Neretva



The network of existing routes has been analysed and classified in the subject area based on three main criteria, with the following results:

- **Routes (trails) in function**
 - Based on the routes shown in the graphic representation of the promotional leaflet, it can be concluded that all routes are functional considering as they have been created along public, unclassified and local roads that are passable.
 - All routes have been graphically processed with main parameters, length, total elevation gain, with a longitudinal profile, type of riding surface, with estimated total cycling time, with technical difficulty of the route (trail), the required fitness level of the cyclist and the recommended type of bicycle for the ride.
 - It can be concluded that the technical difficulty of the route (trail) is based on the total ascent to be overcome, while the required physical fitness of the cyclist is assumed to be based on the total estimated riding time.
- **Routes requiring improvement**
 - All the existing routes except for the route „XCM race track Stipe Čamber“ require, in technical sense, revitalisation and modernisation on the field.

Routes expected to be implemented in the short term

 - Based on the analysis and assessment of the field conditions, routes are proposed for improvement:

Northern Loop, Southern Loop and through the Heart of the Valley

 - Revitalization and modernization would include signage in accordance with standardized guidelines for the entire county, along with the preparation of the necessary documentation for installing signage.
 - Other routes are maintained, while upgrades and improvements are proposed after the priority routes have been completed.

2.1.4. Proposal for the revitalization and modernization of cycling routes (trails)

All the existing routes except for the route „XCM racetrack Stipe Čamber“ do need revitalization and modernization of the minimum signage and the equipment.

The Proposal for revitalization and modernization includes the installation of the equipment and signage in accordance with the planned standardization for three routes: Northern Loop, Southern Loop, and through the Heart of the Valley. The activities would include:

- Minimal markings/signage for the safe cycling
- Information boards for orientation and navigation





- Preparation of technical studies for signage installation
- Facilities along the routes- bicycle service points, electric charging stations, viewpoints)

There are no plans for establishing new routes alongside the existing ones in the observed area, and the opinion of all stakeholders is that the already created routes meet all the future needs. Therefore, the planning focus is solely on equipping and arranging the existing routes over a longer planning period of 5 to 10 years, in terms of complete technical outfitting, which includes:

- Intermodal integration, especially in ports, docks, and public transport systems
- Full field signage of all routes (trails)
- Equipping the routes with the necessary minimum facilities (service equipment, viewpoints, rest areas, e-bike charging stations...)
- Bicycle Park in Opuzen (modular concrete elements)
- New content, developed through planned promotion, based on the routes at local level -linking villages, beaches, campsites, agrotourism facilities and cyclist service points, and including sporting events such as recreational race, for example "Time Trial Route Ploče-Metković (20 km of concrete)"

PRIJEDLOG REVITALIZACIJE I MODERNIZACIJE POSTOJEĆIH RUTA/TRASA DUBROVAČKO-NERTVANSKE ŽUPANIJE									
Područje obuhvata	Ruta	Info table					Signalizacija	Prometni	Servisne
	(staza)	I	II	III	IV	V	za orijentaciju i sigurnu vožnju	elaborat	točke
Dolina neretve	Dolina neretve sjeverni krug		Ploče				+	+	+
	Dolina neretve južni krug	Metković	Rizman	Mlinište			+	+	+
	Srcem doline neretve	Opuzen	Kula Norinska				+	+	+

(Explanation of the above figure/table:

"Prijedlog revitalizacije I modernizacije postojećih ruta/trasa Dubrovačko-neretvanske županije" = Proposal for revitalization and modernization of the existing routes/trails in Dubrovnik-Neretva County

"Ruta (staza)" = Route (trail)

"Info table" = Informational boards

"Signalizacija za orijentaciju I sigurnu vožnju" = Signage for orientation and safe riding

"Prometni elaborat" = Technical report

"Servisne točke" = Service points

"Područje obuhvaća" = The area covers

"Dolina Neretve" = Neretva Valley



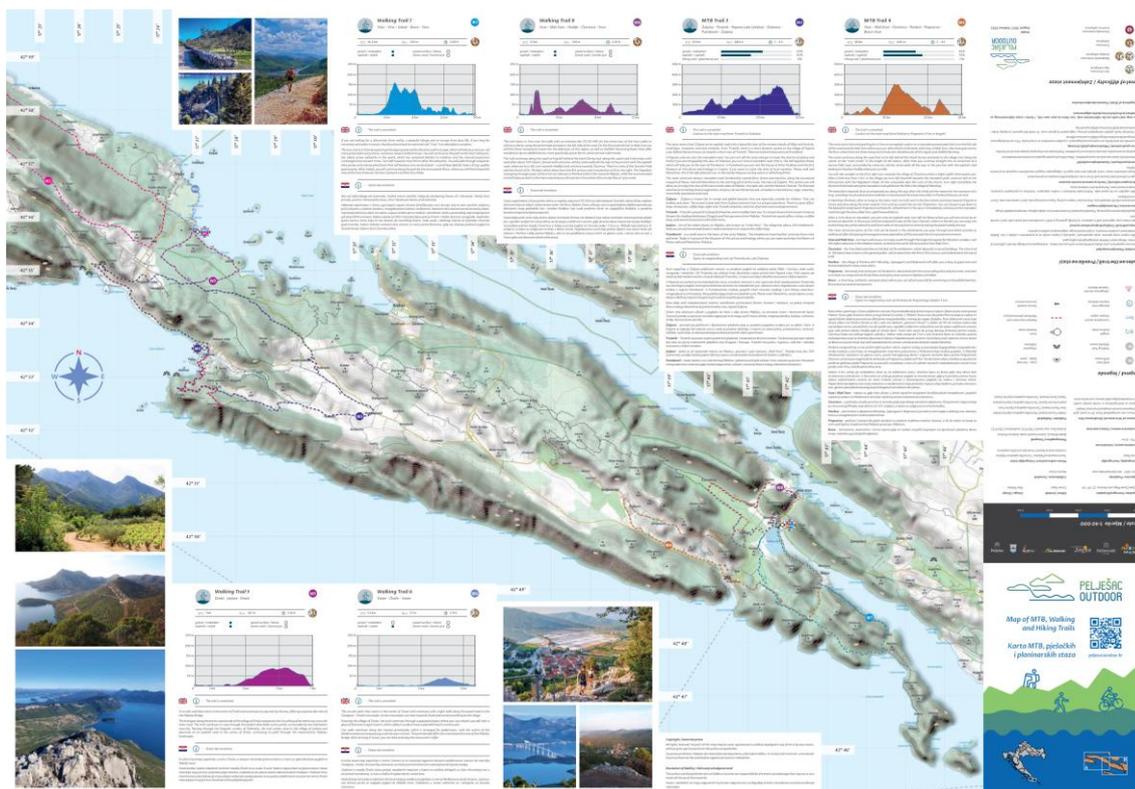


“Dolina Neretve sjeverni krug” = Neretva Valley Northern Loop
 “Dolina Neretve južni krug” = Neretva Valley Southern Loop
 “Srcem doline Neretve” = Through the Heart of the Neretva Valley)

2.2. PELJEŠAC (OREBIĆ, TRPANJ, JANJINA, STON)

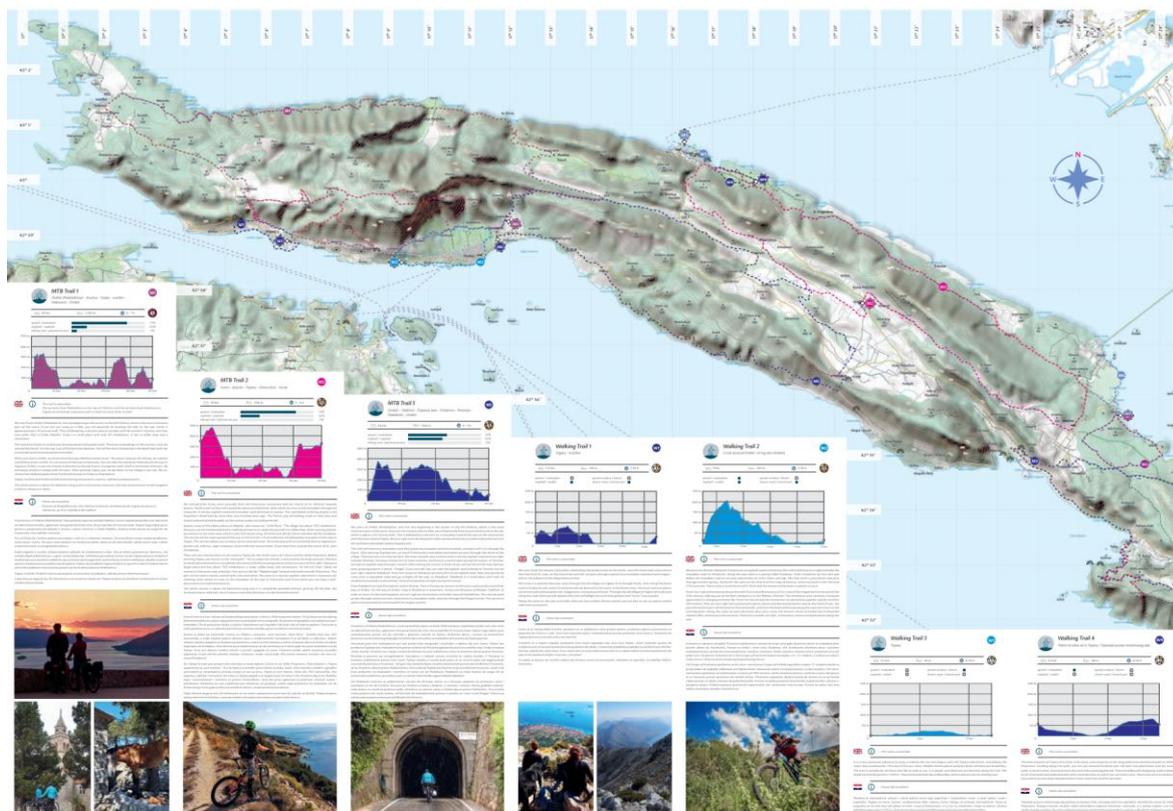
2.2.1. Inventory of the existing routes (trails)

Based on the data provided, the current state of development of the cycling routes (trails) is the result of activities by the local tourist boards of the Pelješac peninsula through project MTB, pedestrian and hiking trails under the designation “Pelješac outdoor”.



Promotional flyer “Pelješac outdoor”





Promo flyer "Pelješac outdoor"

The total length of the officially registered MTB cycling routes in function is approximately 183 km, with the potential of the additional 25-50 km of informal unmarked sections based on cycling tracks in sport apps used for recreational purposes.

The network consists of:

- 63,5 km (35%) of the routes are paved, mostly in urban and suburban areas
- 117,0 km (64%) of the gravel routes, mostly in urban and rural areas
- 2,5 km (1%) of routes are dirt routes, mostly in rural areas





Cycling routes on Pelješac peninsula

(Explanation of the above figure/image:

“Turistička kružna ruta”=Tourist loop route

“Lagani x c” = Easy – x c)

From a marketing and promotional perspective, the routes (trails) have been developed as targeted cycling, pedestrian, and hiking destinations with specific regional offerings, accessible via the web and printed promotional materials, without GPX tracks available online or on any accessible platform. The routes are partially marked, so users can only rely on the cartographic representation in the promotional materials.

2.2.2. Assessment of the condition of the existing routes (trails)



The development of the cycling tourism infrastructure is led by the local tourist boards. Based on the data provided, the routes are maintained and passable.

From a technical, cycling perspective, the current routes are:

- categorized according to the technical difficulty of the route (trail)*
- classified by route surface type*
- characterized for MTB bicycles according to the surface*

The routes on the ground lack:

- Marks/signage for cyclists' safe riding*
- Orientational and directional marks/signage for cyclists*
- facilities and equipment of the route/trail*
- categorization according to the level of difficulty of the route/trail*
- categorization according to the physical difficulty of the route/trail*
- categorization according to the type of bicycle*
- informational overview boards for the surrounding area*

2.2.3. Proposal for the development of cycling routes/trails in the area of Pelješac peninsula

The network of existing routes has been analysed and classified in the subject area based on three main criteria, with the following results:

- **Routes (trails) in function**

- Based on the data provided, four out of five routes are maintained and in function.*

Based on the routes shown in the graphical representation of the promotional leaflet, it can be concluded that all routes have been created along public, unclassified, and local roads.

- All routes have been graphically processed with main parameters, length, total elevation gain, with a longitudinal profile, type of riding surface, with estimated total cycling time, and with technical difficulty of the route (trail).*
- It can be concluded that the technical difficulty of the route (trail) is based on the total ascent of the trail, which is overcome regardless of the cyclist's physical fitness and the planned riding time.*

- **Routes requiring improvement**

- All the existing routes require revitalisation and modernisation on the field, in technical sense of minimum signage and equipment.*



Routes expected to be implemented in the short term

- Based on the analysis and assessment of the field conditions, routes that are proposed for improvement:

MTB Trail 1, MTB Trail 2, MTB Trail 3, MTB Trail 4, MTB Trail 5

- Revitalization and modernization would include signage in accordance with standardized guidelines for the entire county, along with the preparation of the necessary documentation for installing signage.

2.2.4. Proposal for the revitalization and modernization of cycling routes (trails)

All existing routes require revitalization and modernization of basic signage and equipment. The proposal for revitalization and modernization includes the installation of equipment and signage in accordance with planned standardization for five routes: MTB Trail 1, MTB Trail 2, MTB Trail 3, MTB Trail 4, MTB Trail 5. The activities would include:

- Minimum marks/signage for cyclists' safe riding*
- Orientational and directional information boards with marks/signage for cyclists*
- Preparation of technical studies for signage installation*
- Facilities along the routes-bicycle service points, electric charging stations, viewpoints*

There are no plans for establishing new routes alongside the existing ones in the observed area, and the opinion of all stakeholders involved is that the already created routes meet all the future needs. Therefore, the planning focus is solely on equipping and arranging the existing routes over a longer planning period of 5 to 10 years, in terms of complete technical outfitting, which includes:

- Intermodal integration, especially in ports, docks, and public transport systems*
- Full field signage of all routes (trails)*
- Equipping the routes with the necessary minimum facilities (service equipment, viewpoints, rest areas, e-bike charging stations...)*
- Bicycle Park around Pelješac peninsula*
- New content along the routes at the local level, through a well-designed promotion*



PRIJEDLOG REVITALIZACIJE I MODERNIZACIJE POSTOJEĆIH RUTA/TRASA DUBROVAČKO-NERTVANSKE ŽUPANIJE									
Područje obuhvata	Ruta	Info table					Signalizacija	Prometni	Servisne
	(staza)	I	II	III	IV	V	za orijentaciju i sigurnu vožnju	elaborat	točke
Mljet	MTB Trail 1 Orebic Duba Loviste Orebic	Lovište					+	+	+
	MTB Trail 2 Kuna Janjina Trpanj Kuna	Trpanj					+	+	
	MTB Trail 3 Zuljana Trstenik Popova luka Putnikovici Zuljana	Žuljana					+	+	+
	MTB Trail 4 Ston Mali Ston Cesvinica Ponikve Prapratno Broce Ston	Ston					+	+	
	MTB Trail 5 Orebic Vlastica Zupanje selo Prizdrina Potomje Podobuce Orebic	Orebić	Potomje				+	+	+

(Explanation of the above figure/table:

“Prijedlog revitalizacije i modernizacije postojećih ruta/trasa Dubrovačko-neretvanske županije”=Proposal for revitalization and modernization of the existing routes/trails in Dubrovnik-Neretva County

“Ruta (staza)” = Route (trail)

“Info table” = Informational boards

“Signalizacija za orijentaciju i sigurnu vožnju”=Signage for orientation and safe riding

“Prometni elaborat” = Technical report

“Servisne točke” = Service points

“Područje obuhvaća”=The area covers)

2.3. ISLANDS (MLJET, LASTOVO, KORČULA – VELA LUKA, BLATO, SMOKVICA, KORČULA, LUMBARDA)

2.3.1. Inventory of the current routes (trails)

According to the data collected, the existing state of development of cycling routes (trails) on the islands Lastovo, Korčula, Mljet varies. There are no officially established cycling routes on Lastovo island however the routes are defined, and the signage plan has been prepared. On Mljet and Korčula, they have been established according to plan and are operational under the supervision of the local tourist boards.

Mljet island

Prior to the implementation of the “Contract for the preparation of a proposal for the cycling route network on the island of Mljet” concluded in 2023 between Mljet Municipal Tourist Board as the Client and the Rural Tandem Citizens’ Association as the Contractor, cycling routes (trails) already existed on the island, established by the Mljet National Park Public Institution and three routes outside National Park, as listed in the





Mljet Tourist Board brochure. In the area of Mljet National Park Public Institution “trails F & G” are circular routes starting from Pomena and Polače, respectively, while “trail H” is a linear route from Blato to Vrbovica. All are MTB cycling routes (trails) on gravel roads combined with asphalt. On National Park Mljet routes, signs and information boards have been installed, providing general information and cycling rules, as well as comprehensive board of all routes within NO Mljet, from which trail map can be downloaded in digital form via QR code.

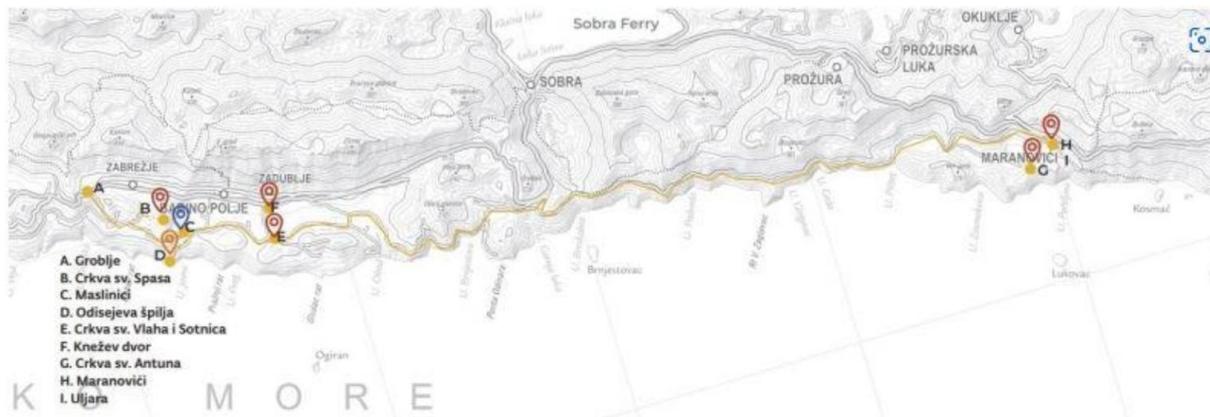


Cycling routes within National Park on Mljet Island

(Explanation of the above figure/table:
“Staza” = Track or trail)

According to available information, outside of NP Mljet there are the routes “Cycling through the Park” and “On Two Wheels to Blace” as well as linear route “Olive Route”. Signs and way markers on the routes outside NP Mljet are installed in brown -on tourist signage boards.





Route "Olive Route"

(Explanation of the above figure/table:

"Groblje"=Cemetery

"Crkva sv. Spasa" = St. Saviour Church

"Maslinici" = Olive groves

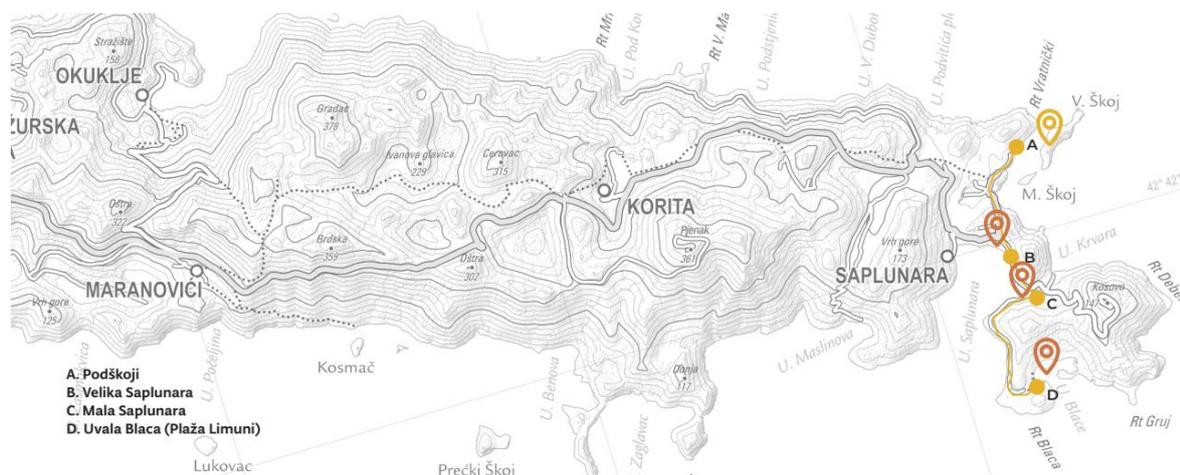
"Odisejeva špilja"=The Cave of Odysseus

"Crkva sv. Vlaha I Sotnica" = Church of St. Blaise and Sotnica

"Knežev dvor" = Rector's palace

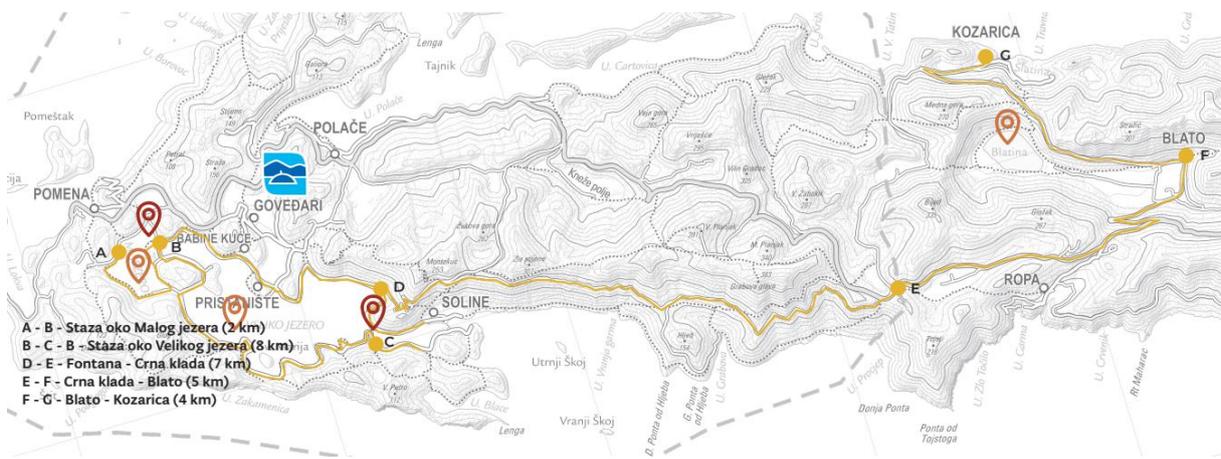
"Crkva sv. Antuna"=Church of st. Anthony

"Uljara"=Olive oil mill)



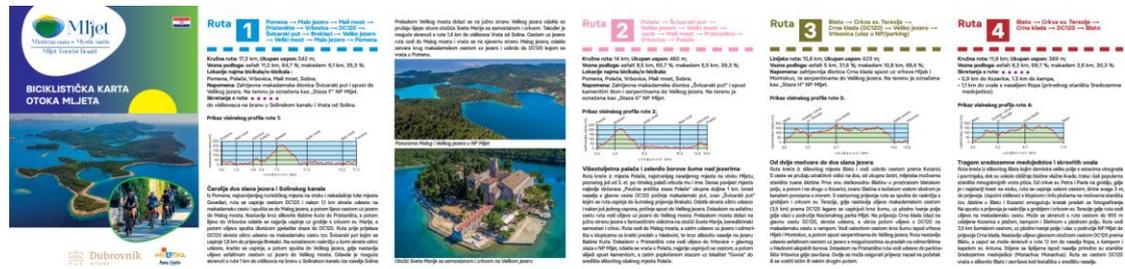
Route "On Two Wheels to Blace"

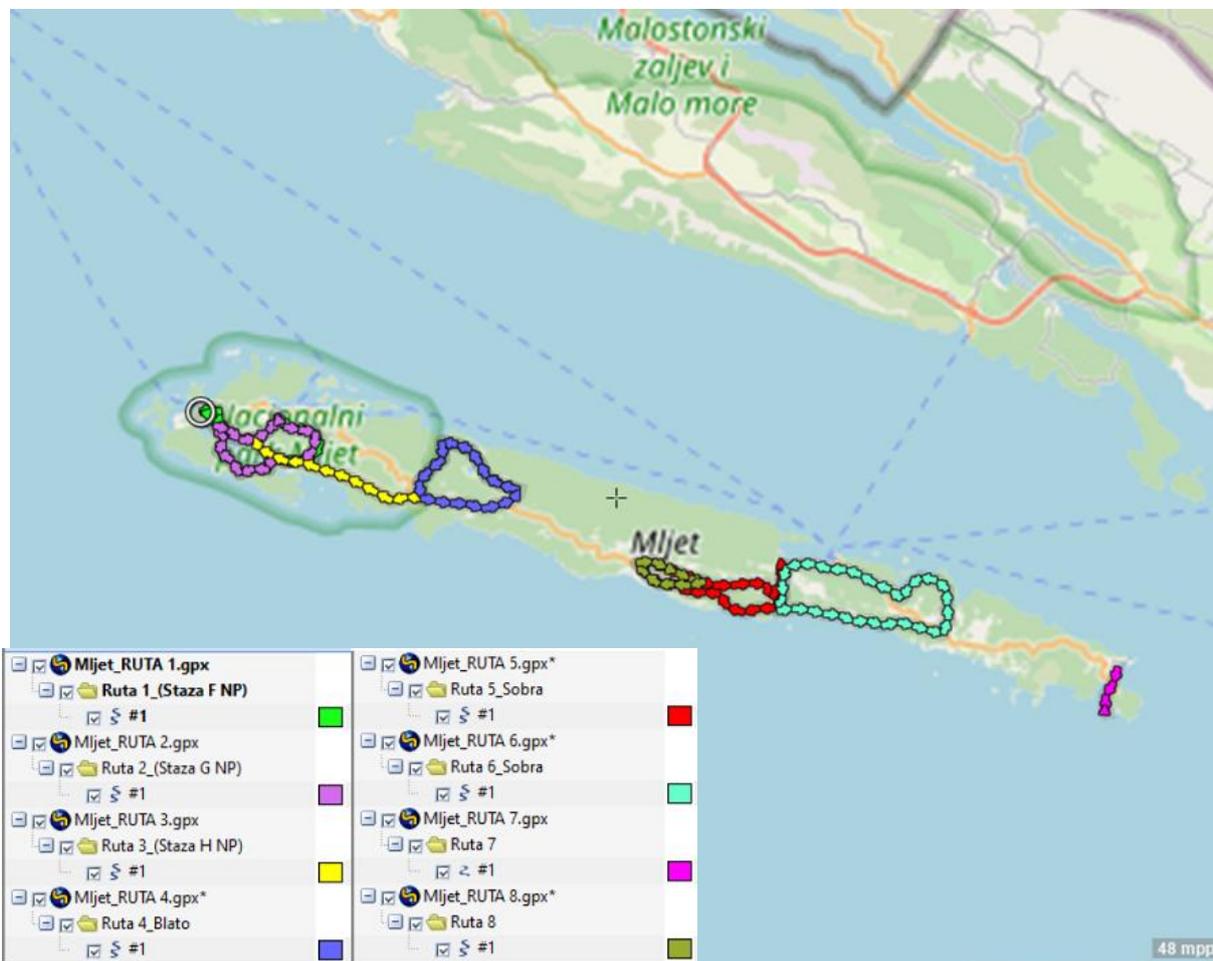




"Cycling through the Park" route
 (Explanation of the above figure/table:
 "Staza oko Malog jezera" =Trail around Small Lake
 "Staza oko Velikog jezera" =Trail around Great Lake)

Through the implementation of the above stated preliminary contract, a total of eight cycling routes have been established on the new map of Mljet island.





Cycling routes on the island of Mljet

(Explanation of the above figure/table:

“Ruta” =Route

“Staza” =trail)

Mljet island has recognized cycle tourism as a potential driver for economic (tourism) development by defining routes within the administrative boundaries of NP Mljet as well as in settlements outside the park. The cycling routes cover the entire island and enable the connection of Mljet as a desirable cycle tourism destination. They contribute to sustainable tourism development and significantly extend the tourist season.

Korčula Island – Vela Luka, Blato, Smokvica, Korčula, Lumbarda





Due to its preserved nature, cultural heritage and relatively low traffic density, Korčula Island represents a particularly attractive area for the development of cycle tourism.

Existing cycling routes on the islands are mostly simply marked routes that follow local roads and country paths. The potential for developing cycle tourism lies in the combination of natural beauty, cultural heritage and authentic island way of life. The current state of development of cycling routes (trails) is the result of the activities of local tourist boards.

Vela Luka

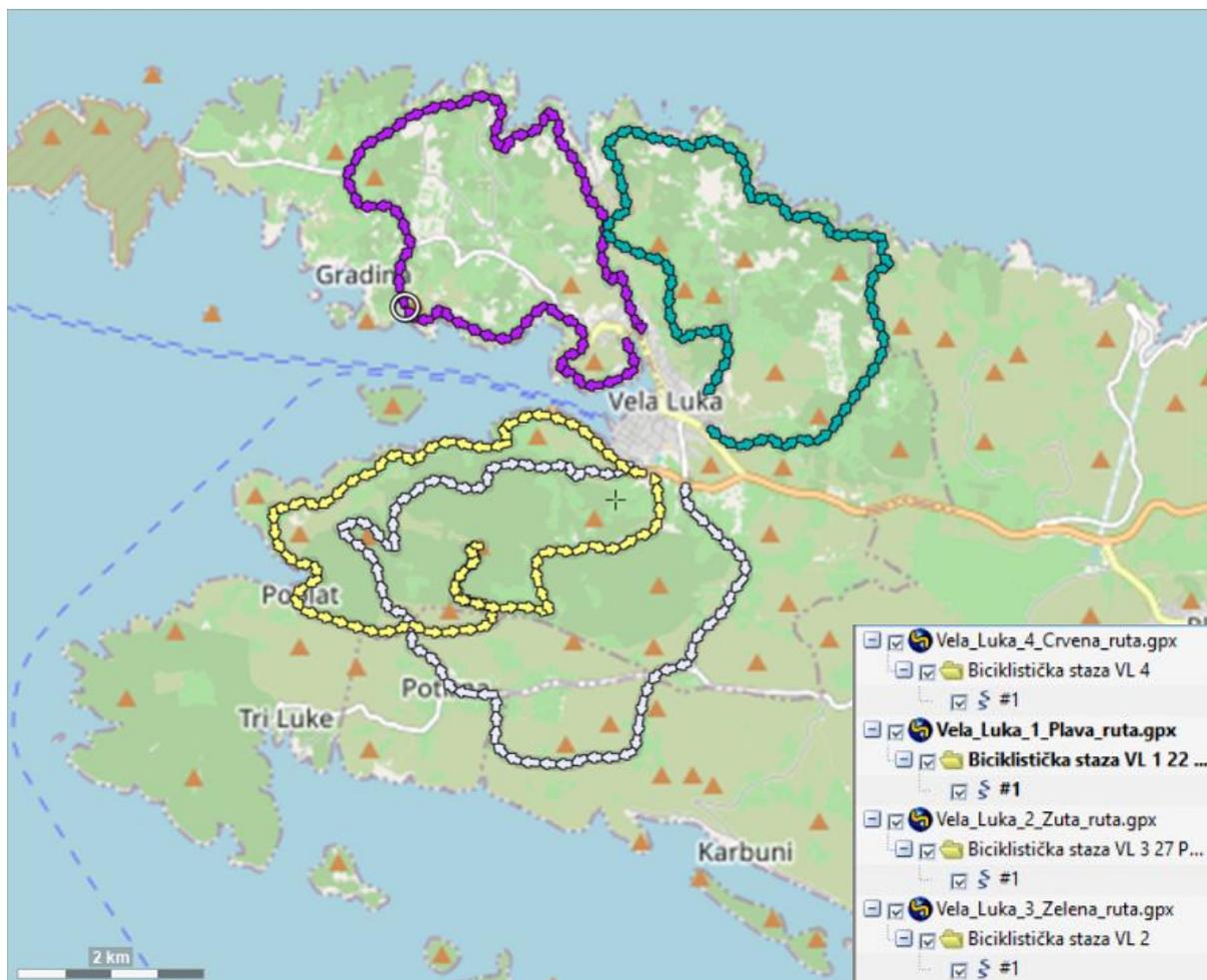
In the area of the settlement of Vela Luka, there are four existing routes that allow for a detailed exploration of the western side of Korčula island.

The routes are laid out along existing local and unclassified gravel and asphalt roads/paths. Routes have simple names, Route A – yellow, Route B – blue, Route C – green and Route D – red.



Brochure "Cycling routes – Vela Luka Tourist Board"





Cycling routes of the Vela Luka settlement

(Explanation of the above figure/table:

“Crvena ruta”=Red route

“Biciklistička staza” =Cycling trail

“Plava ruta” =Blue route

“Žuta ruta” = Yellow route

“Zelena ruta” =Green route)

The total length of the officially registered cycling routes is approximately 58,7 km, with the potential of the additional 10-15 km of informal unmarked sections used for recreational purpose, based on cycling tracks in sport apps.

The network consists of:

- 35,54 km (61%) of the routes are paved, mostly in urban and suburban areas



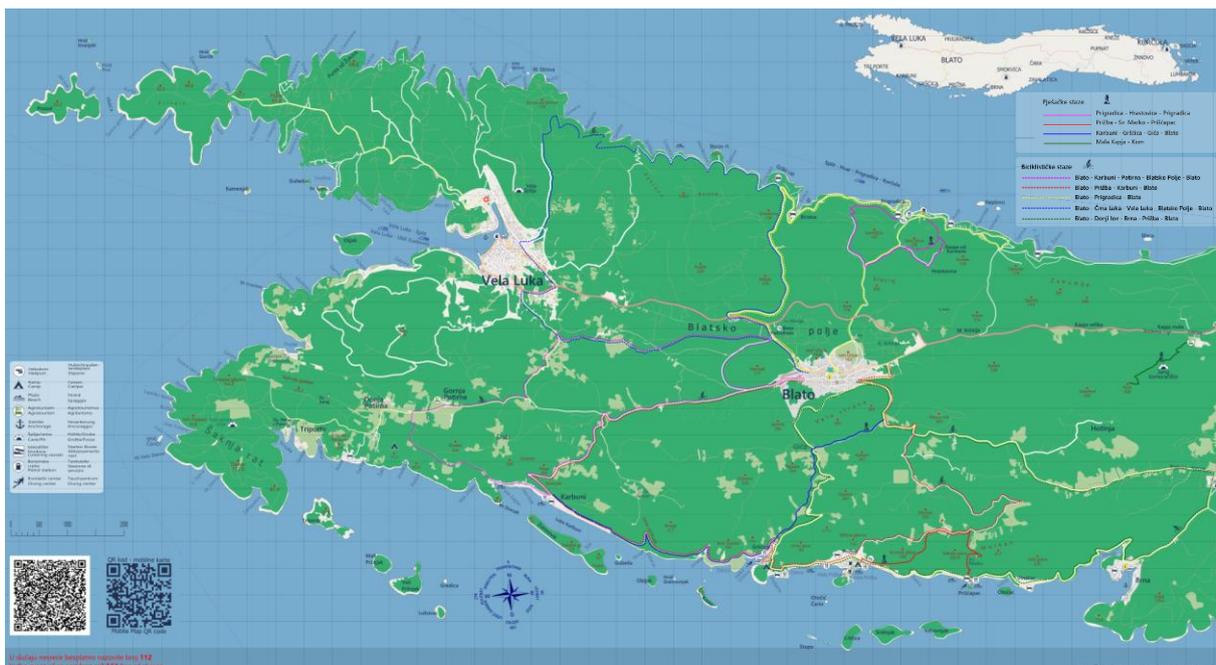
- 23,16 km (39%) of routes are gravel and dirt routes, mostly in rural areas

Blato

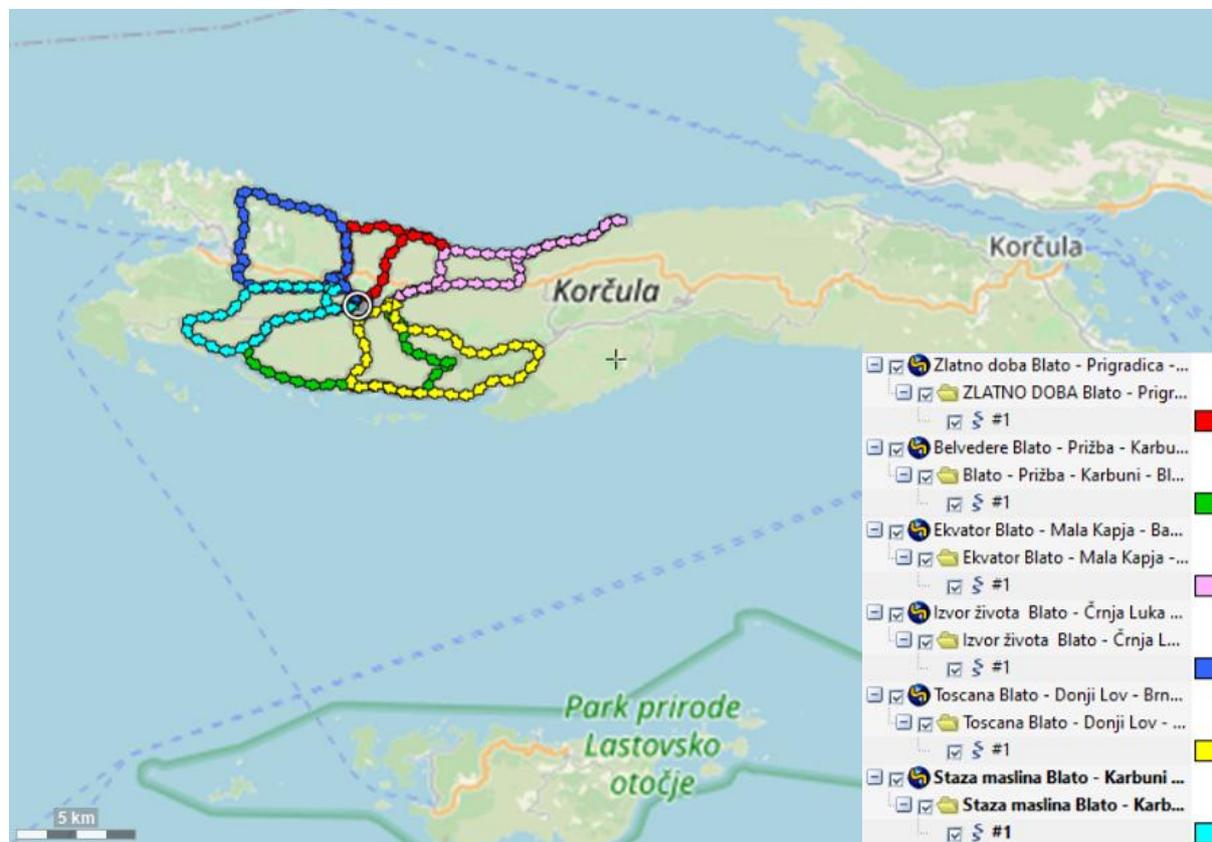
In the area of Blato settlement there are six officially registered cycling routes that allow for a detailed exploration of the northern and southern parts of the island, as well as the central area around the settlement of Blato.

The routes are laid out along existing local and unclassified gravel and asphalt roads/paths. Routes have simple names, Route “Golden Age”, Route “Equator”, Route “Source of Life”, Route “Olive Route”, Route “Toscana” and Route “Belvedere”.

These cycling routes, which are also simply marked on the ground, overlap with other cycling trails in different towns and settlements on Korčula island.



Brochure “Cycling routes – Blato Tourist Board”



Cycling routes of Blato settlement

(Explanation of the above figure/table:

“Zlatno doba” =Golden age

“Izvor života” =Source of life

“Staza Maslina” =The Olive Path

“Ekvator”=Equador)

The total length of the officially registered cycling routes is approximately 140,6 km, with the potential of the additional 5-15 km of informal unmarked sections used for recreational purpose, based on cycling tracks in sport apps.

The network consists of:

- 111,67 km (80%) of the routes are paved, mostly in urban and suburban areas
- 28,43 km (20%) of routes are gravel and dirt routes, mostly in rural areas

Smokvica



In the area of Smokvica settlement there are two officially registered cycling routes that allow for a detailed exploration of the southern part of the island.

The routes are laid out along existing local and unclassified gravel and asphalt roads/paths. Routes have simple names, “Brna” Route, “Prižba” Route.

These cycling routes overlap with other cycling trails in other towns and settlements on Korčula island, also marked on the ground.



Cycling routes of Smokvica settlement

The total length of the officially registered cycling routes is approximately 46,85 km, with the potential of the additional 5-10 km of informal unmarked sections used for recreational purpose, based on cycling tracks in sport apps.

The network consists of:

- 37,32 km (80%) of the routes are paved, mostly in urban and suburban areas*
- 9,53 km (20%) of routes are gravel and dirt routes, mostly in rural areas*

Town of Korčula

On the Korčula Tourist Board websites, four existing routes are promoted, allowing for detailed exploration of the eastern, central and western parts of Korčula Island.

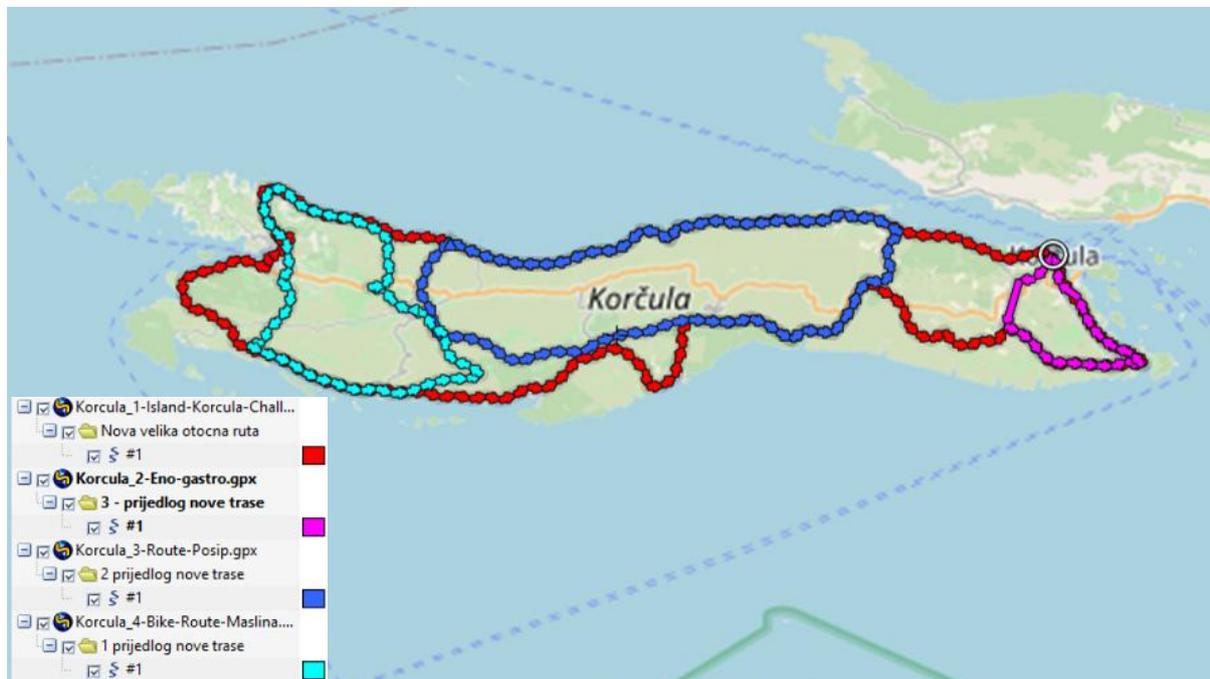


Italy – Croatia



The routes are laid out along existing local and unclassified gravel and asphalt roads/paths. Routes have simple names, Route “The Great Island Challenge Korčula”, “Eno Gastro” Route, “Olive” Route, “Pošip” Route. Additionally, the Korčula Tourist Board website displays all the other routes across the entire island of Korčula.

Brochure “Cycling routes of the Town of Korčula – Tourist Board of the Town of Korčula”



“Cycling routes of the Town of Korčula”

(Explanation of the above figure/table:

“Nova velika otocna ruta”=New Major Island Route

“Prijedlog nove trase”=Proposed new route)

The total length of the officially registered cycling routes by the Korčula Town Tourist Board is approximately 262,60 km, with the potential of the additional 20-35 km of informal unmarked sections used for recreational purpose, based on cycling tracks in sport apps.

The network consists of:

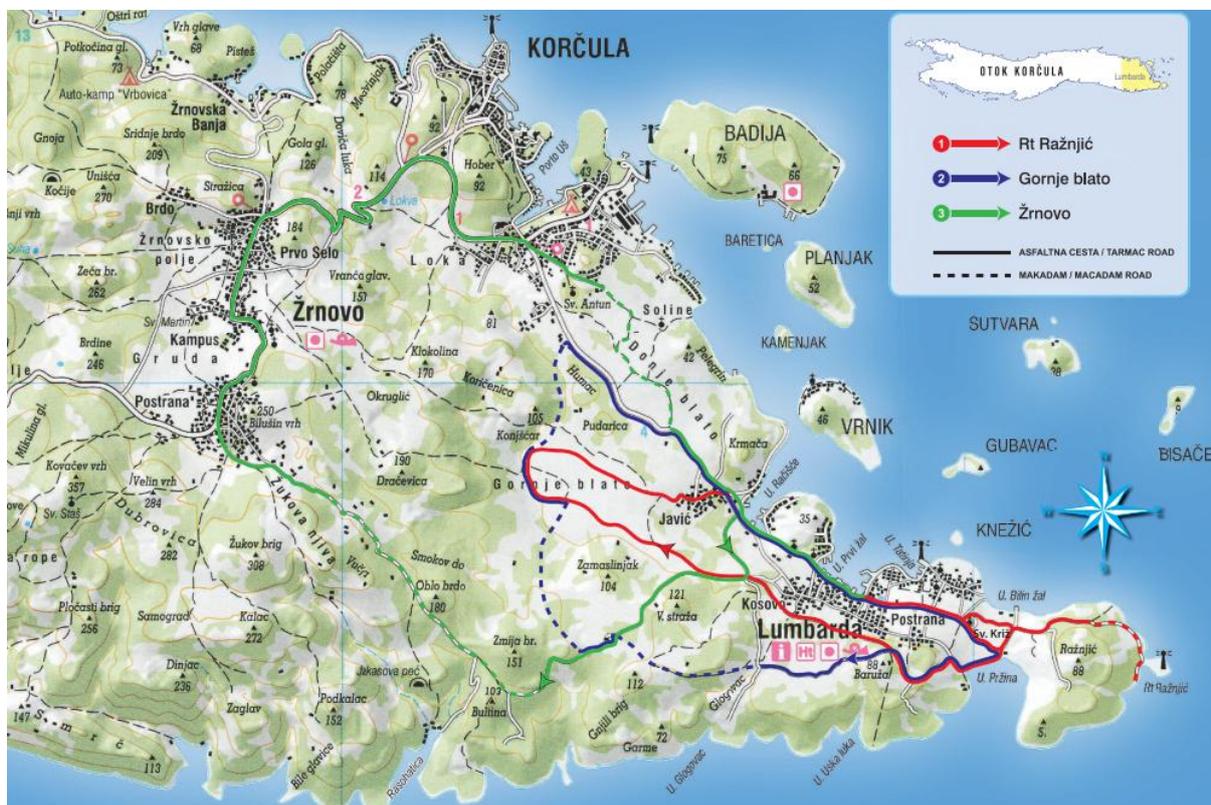
- 192,80 km (73%) of the routes are paved, mostly in urban and suburban areas
- 69,80 km (27%) of routes are gravel and dirt routes, mostly in rural areas

Lumbarda

On the Lumbarda Tourist Board websites, three existing routes are promoted, allowing for detailed exploration of the southeastern part of Korčula Island.

The routes are laid out along existing local and unclassified gravel and asphalt roads/paths. Routes have simple names, “Rt Ražnjić” Route, “Gornje Blato” Route, “Žrnovo” Route.





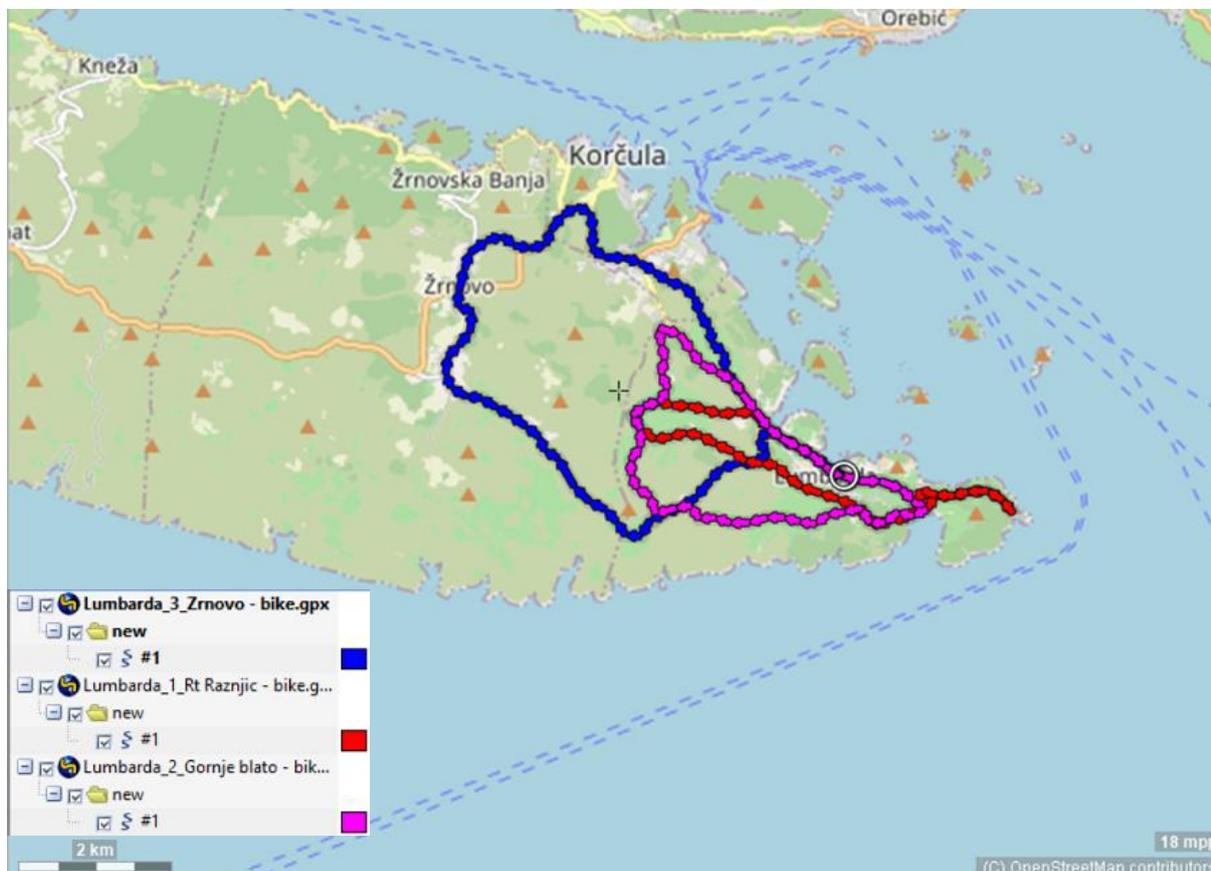
Brochure "Cycling routes of Lumbarda – Lumbarda Tourist Board"

(Explanation of the above figure/table:

"Otok Korčula"=Korčula island

"Rt Ražnjić"=Cape Ražnjić)





Cycling Routes of Lumbarda

The total length of the officially registered cycling routes by the Lumbarda Tourist Board is approximately 42,38 km, with the potential of the additional 20-35 km of informal unmarked sections used for recreational purpose, based on cycling tracks in sport apps.

The network consists of:

- 29,37 km (69%) of the routes are paved, mostly in urban and suburban areas
- 13,01 km (31%) of routes are gravel and dirt routes, mostly in rural areas

Korčula island offers a mix of cycling routes along the coast, hills, and historical and cultural sites, perfect for MTB and gravel bikes, as well as scenic tours. In general, for all routes on Korčula island, from a marketing and promotional perspective, the routes (trails) are designed as targeted-cycle-tourism, hiking, and trekking destinations with specific regional offerings. They are accessible via the web and printed promotional materials, with GPX tracks of the routes available online. The routes are partially simply



marked, so users can rely only on cartographic representation in the promotional materials.

Lastovo island

There are no officially registered cycling routes (trails) on Lastovo island. On the island, there is the Lastovo Islands Nature Park, which, combined with its coastal bays and former military fortifications, represent a challenging cycle tourism destination.

On the website <https://visitdubrovnik.hr/hr/aktivnosti/biciklizam/#biciklizam-po-lastovu> cycling routes on Lastovo island are promoted without any graphic representations.

Routes are presented with basic parameters:

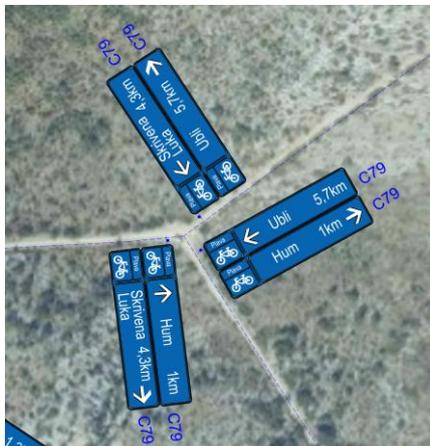
- UBLI – LASTOVO; asphalt; 9,45 km, route difficulty 3/5*
- LASTOVO-PORTORUS asphalt; 7,25 km, route difficulty 3/5*
- PASADUR – UBLI-PASADUR; asphalt/gravel; 9,7 km, route difficulty 2/5*
- PASADUR – UBLI; asphalt; 2,81 km, route difficulty 2/5*
- UBLI-HOM; a asphalt /gravel; 5,5 km, route difficulty 5/5*
- LASTOVO-ZACE; asphalt/gravel; 5,05 km, route difficulty 2/5*
- LASTOVO-BARJE; asphalt, 4,9 km, route difficulty 2/5*
- LASTOVO-LASTOVO; asphalt/gravel, 12,8 km, route difficulty 4/5*
- ZAKLOPATICA -LASTOVO; asphalt; 2,19 km, route difficulty 4/5*
- LASTOVO-LUČICA; asphalt; 0,71 km; route difficulty 5/5*

These routes are outdated, with no markings on the ground and no information indicating that they are maintained or further promoted.

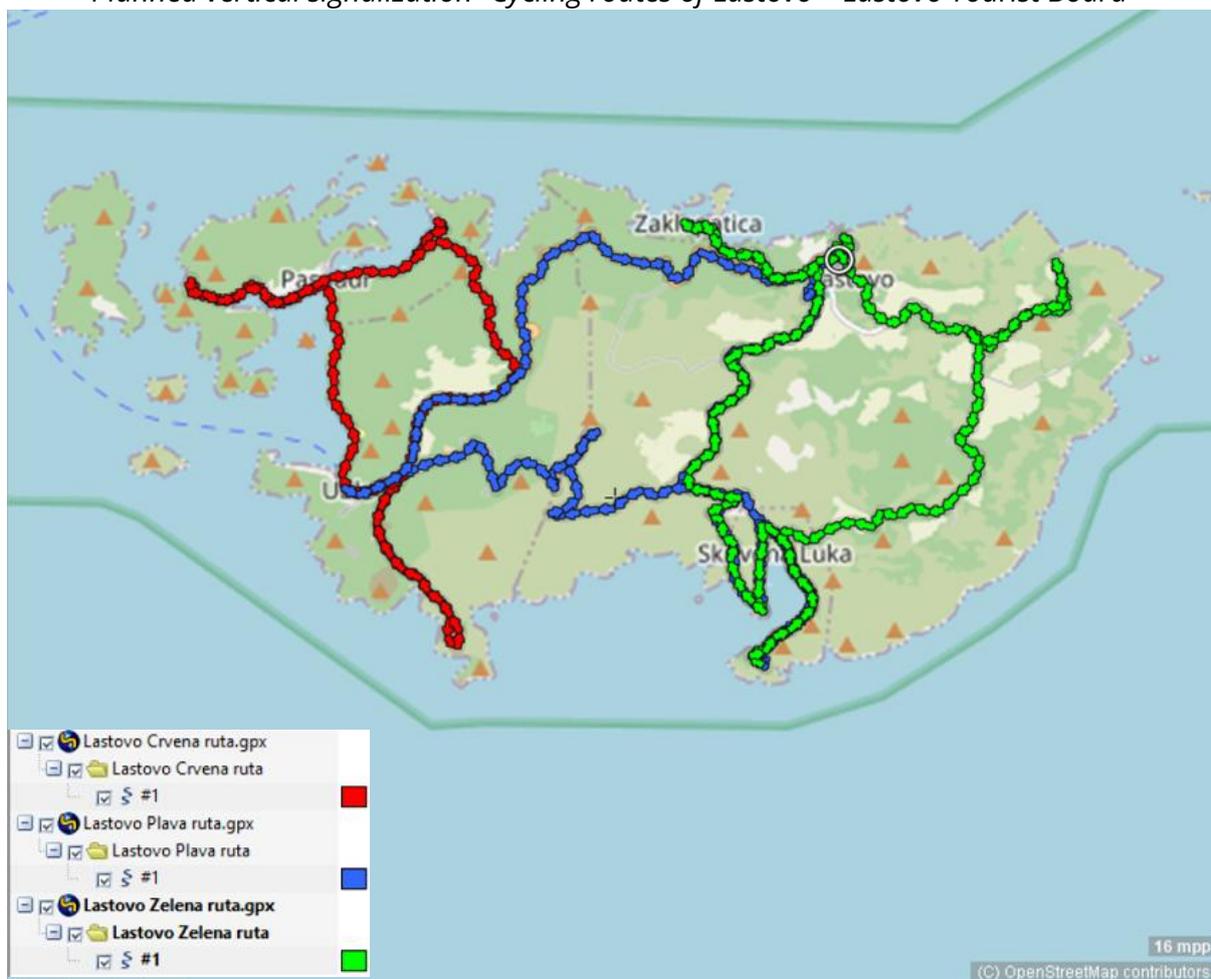
The Public institution “Lastovo Islands Nature Park”, in collaboration with Lastovo Tourist Board, has launched a project to establish three cycling routes that would cover entire island.

The routes are laid out along existing local and unclassified gravel and asphalt roads/paths. Routes have simple names, Red Route, Blue Route, Green Route.





Planned vertical signalization “Cycling routes of Lastovo – Lastovo Tourist Board”



Planned “Cycling routes of Lastovo – Public institution “Lastovo Islands Nature Park”/Lastovo Tourist Board

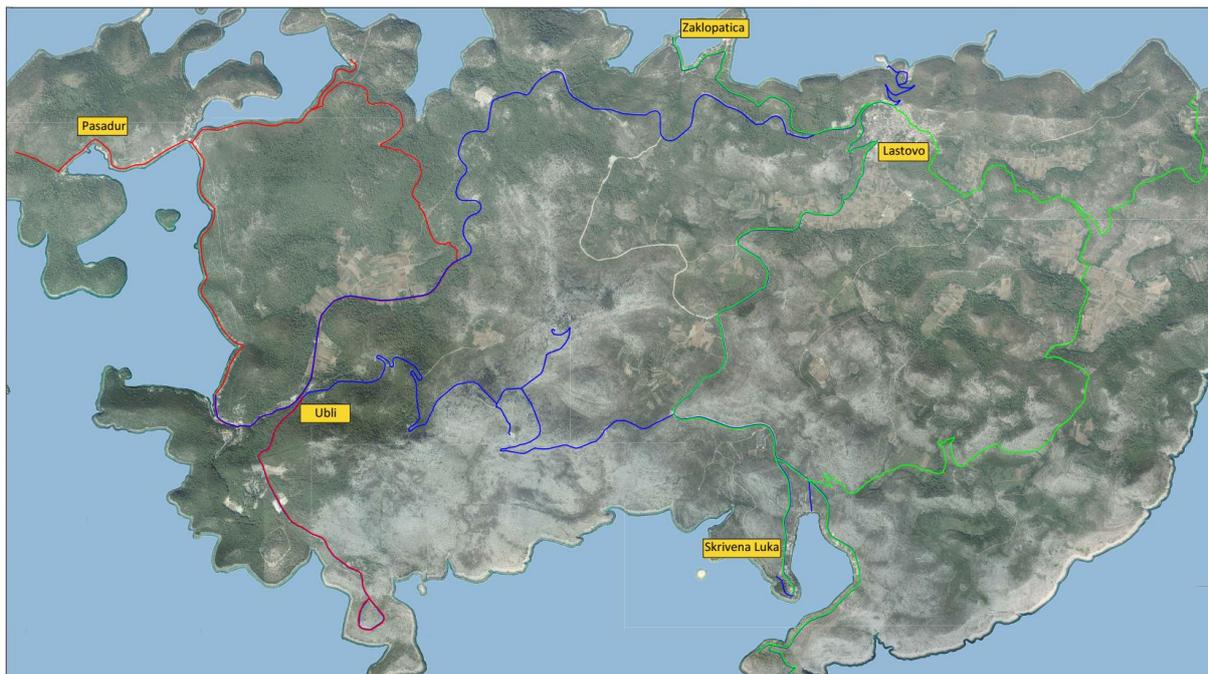
(Explanation of the above figure/table:



“Crvena ruta”=Red route

“Plava ruta”=Blue route

“Zelena ruta” – Green route)



Planned “Cycling routes of Lastovo – Public institution “Lastovo Islands Nature Park”/Lastovo Tourist Board

The total length of the officially registered cycling routes by the Lastovo Tourist Board is approximately 94,29 km, with the potential of the additional 5-10 km of informal unmarked sections which can be linked to the existing routes and that are used for recreational purpose, based on cycling tracks in sport apps.

The network consists of:

- 59,55 km (63%) of the routes are paved, mostly in rural areas
- 34,77 km (37%) of routes are gravel and dirt routes, mostly in rural areas

2.3.2. Assessment of the condition of the existing routes (trails)

The entities responsible for the development of cycle tourism infrastructure are the local tourist boards. On Lastovo, it is Public Institution “Lastovo islands Nature Park” in collaboration with the Lastovo Tourist Board, and on Mljet, it is Public Institution NP Mljet in cooperation with local tourist board.

According to the data provided, the routes are maintained and accessible.



From a technical, cycling perspective, the existing routes are:

- *categorized according to technical difficulty of the route/track*
- *categorized according to the type of route surfaces*
- *are categorized for MTB bikes according to the terrain, without consideration for gravel bicycles*

The routes in the ground lack:

- *Marks/signage for cyclists' safe riding*
- *Oriental and directional marks/signage for cyclists*
- *categorization according to the technical level of difficulty of the route/trail*
- *categorization according to the physical difficulty of the route/trail*
- *categorization according to the type of bicycle*
- *facilities and equipment of the route/trail*
- *informational overview boards for the surrounding area*

2.3.3. Proposal for the development of cycling routes (trails) in the area of the islands of Korčula, Lastovo and Mljet

The network of existing routes has been analysed and classified in the subject area based on three main criteria, with the following results:

- ***Routes (trails) in function (Mljet, Vela Luka, Blato, Smokvica, Grad Korčula, Lumbarda)***
 - *According to the data provided, all the existing routes are maintained and in use. Based on the routes shown in the graphic representation, all routes have been created along public, unclassified and local roads.*
 - *All routes have been graphically processed with main parameters, length, type of riding surface, with estimated total cycling time, total elevation gain, with a longitudinal profile, with technical difficulty of the route (trail) in the unified graphical presentation of the Korčula Town Tourist Board, which is not the case on the websites of other tourist boards.*
 - *It can be concluded that the technical difficulty of the route (trail) is based on the total ascent to be overcome, while the required physical fitness of the cyclist is assumed to be based on the total estimated riding time.*
- ***Routes requiring improvement***



- All e existing routes do require, in technical sense, revitalisation and modernisation on the ground, with minimal signage and equipment currently in place.
- **Routes expected to be implemented in the short term (Lastovo)**
 - Based on the analysis and assessment of the field conditions, routes are proposed for improvement:

Red Route, Blue Route and Green Route on the island of Lastovo

Since the “Traffic Study” prepared by the Public Institution Nature Park Lastovo Archipelago in cooperation with the Lastovo Municipality Tourist Board proposes vertical signage at a basic informational level – containing the route number or name and the direction of movement to the location indicated on the sign – it is recommended that the document be revised, as the technical solution does not correspond with any of the route marking systems in Dubrovnik-Neretva County.
- **Routes expected to be implemented in the short term (Korčula Island)**
 - Based on the analysis and assessment of the field conditions of the existing cycling routes in Vela Luka, Blato, Smokvica, Town of Korčula and Lumbarda, the following routes are proposed for improvement:

“The Great Island Challenge” Route, “Eno Gastro” Route, “Olive” Route and “Pošip” Route as they integrate a significant part of the existing routes and complete the cycling tourism offer on the island of Korčula.
 - Revitalization and modernization would include signage in accordance with standardized guidelines for the entire county, along with the preparation of the necessary documentation for installing signage.
 - Other routes are maintained, while upgrades and improvements are proposed after the priority routes have been completed.
- **Routes expected to be implemented in the short term (Mljet)**
- - Based on the analysis and assessment of the field conditions of the existing cycling routes on Mljet, the following routes are proposed for improvement:

Trail F Pomena – Malo Jezero (Little Lake) – Mali most (Little Bridge) – Pristanište (The Dock) – Vrbovica – DC120 – Švicarski put (Swiss Route)– Brekalci – Veliko Jezero (Great Lake) – Veliki most (Great Bridge) – Malo Jezero (Little Lake) – Pomena, Trail H Blato – Church of st. Theresa – Crna Klada (Black Log) – Veliko Jezero (Great Lake) – Vrbovica, Sobra – Babino polje – Sobra i Sobra – Maranovići – Okuklje – Prožurska luka - Sobra



- Revitalization and modernization would include signage in accordance with standardized guidelines for the entire county, along with the preparation of the necessary documentation for installing signage.
- Other routes are maintained, while upgrades and improvements are proposed after the standards for the priority routes have been met.
- It is recommended to establish a marketing name for all routes for better promotion.

2.3.4. Proposal for the revitalization and modernization of cycling routes (trails)

The existing routes (trails) on islands Korčula and Mljet are partially and basically marked (directions). The proposal for revitalization and modernization includes the installation of equipment and signage in accordance with planned standardization for fifteen routes. The activities would include:

- Marks/signage for cyclists' safe riding
- Orientational and directional marks/signage for cyclists
- Preparation of technical studies for signage installation
- Facilities along the routes-bicycle service points, electric charging stations, viewpoints

For planned routes of the Public Institution Nature Park Lastovo Archipelago and Lastovo Municipality Tourist Board, it is required:

- To revise technical solution of vertical cycling signage in accordance with proposed standard signage of this project.
- To revise technical solution for the implementation of the equipment along the routes – bicycle services, e-charging stations, viewpoints...

There are no plans for establishing new routes alongside the existing ones in the observed area, and the opinion of all stakeholders involved is that the already created routes meet all the future needs. Therefore, the planning focus is solely on equipping and arranging the existing routes over a longer planning period of 5 to 10 years, in terms of complete technical outfitting, which includes:

- Intermodal integration, especially in ports, docks, and public transport systems
- Full field signage of all routes (trails)
- Equipping the routes with the necessary minimum facilities (service equipment, viewpoints, rest areas, e-bike charging stations...)
- New content along the routes at the local level, through a well-designed promotion



PRIJEDLOG REVITALIZACIJE I MODERNIZACIJE POSTOJEĆIH RUTA/TRASA DUBROVAČKO-NERTVANSKE ŽUPANIJE										
Područje obuhvata	Ruta	Dužina	Info table					Signalizacija	Prometni	Servisne
	(staza)	km	I	II	III	IV	V	za orijentaciju i sigurnu vožnju	elaborat	točke
Korčula	Veliki otočni izazov Korčula	131,00		Korčula	Vela Luka	Pupnat		+	+	+
	Eno gastro ruta	22,40		Lumbarda				+	+	
	Ruta maslina	48,10						+	+	
	Pošip ruta	61,10	262,60		Blato	Smokvica	Čara	+	+	+
Mljet	Staza F: Pomena- Malo jezero- Mali most- Pristanište- Vrbovica- DC120- Švicarski put- Brekalci- Veliko jezero- Veliki most- Malo jezero- Pomena	17,3				Pomona	Polače	+	+	+
	Staza H: Blato- Crkva sv. Terezije- Crna Klada (DC120)- Veliko jezero- Vrbovica (ulaz u NP/parking)	15,8						+	+	+
	Sobra- Babino Polje- Sobra	18,5			Babino Polje			+	+	
	Sobra- Maranovići- Okuklje- Prožurska Luka- Sobra	21,00	72,60	Sobra	Prožurska Luka			+	+	+
Lastovo	Crvena ruta	21,73		Uble	Pasadur			+		+
	Plava ruta	36,97		Lastovo				+		
	Zelena ruta	35,59	94,29			Skrivena luka		+		+

(Explanation of the above figure/table:

“Prijedlog revitalizacije i modernizacije postojećih ruta/trasa Dubrovačko-neretvanske županije”=Proposal for revitalization and modernization of the existing routes/trails in Dubrovnik-Neretva County

“Dužina”=Length

“Ruta (staza)” = Route (trail)

“Info table” = Informational board

“Signalizacija za orijentaciju i sigurnu vožnju”=Signage for orientation and safe riding

“Prometni elaborat” = Technical report

“Servisne točke” = Service points

“Područje obuhvaća”=The area covers

“Veliki otočni izazov Korčula”=Korčula Great Island Challenge route

“Eno gastro ruta” = En- gastro route

“Ruta maslina” = The Olive Trail

“Pošip ruta” = Pošip route

“Staza F: Pomena-Malo jezero-Mali most-Pristanište-Vrbovica-DC120-Švicarski put-Brekalci-Veliko jezero_Veliki put-Malo jezero-Pomona”= Trail F: Pomona – Small Lake-Little bridge-Pristanište (Boat Dock) – Vrbovica-DC120-Swiss Trail (Švicarski put) – Brekalci-Great Lake – Great trail – Small Lake-Pomona

“Staza H: Blato-Crkva sv. Terezije-Crna Klada (DC120)-Veliko jezero-Vrbovica (ulaz u NP/parking)” = Trail F: Blato-Church of st. Therese-Crna Klada (DC120-Great Lake-Vrbovica (entrance to National Park/parking)

“Crvena ruta”=Red route

“Plava ruta”=Blue route

“Zelena ruta” – Green route)



2.4. DUBROVNIK AND ITS SURROUNDINGS (KONAVLE, ŽUPA DUBROVAČKA, DUBROVNIK, DUBROVAČKO PRIMORJE)

2.4.1. Inventory of the existing routes (trails)

Based on the data collected from local tourist boards and cycling clubs, the current state of development of cycling routes in Dubrovnik and its surroundings (Konavle, Župa Dubrovačka, Dubrovačko Primorje) is such that, except for Konavle and Dubrovačko Primorje, there are still no officially established cycling routes in the area of Dubrovnik City and Župa dubrovačka.

Konavle

On the websites <https://visitkonavle.croatia.hr/hr-hr/pjesacke-staze-i-biciklizam> and <https://visitdubrovnik.hr/hr/aktivnosti/biciklizam/#biciklizam-u-konavlima> Konavle Tourist Board promotes the following cycling routes:

- as part of Ćiro Walking and Cycling Routes (trails) project

The routes are marked along a section of the former railway line, from the crossing of the railway with the state road D526 through the settlement Pločice to the border with Bosnia and Herzegovina near the settlement of Glavska.

Routes hold names Zvekovica-Vojski do and Zvekovica-Gruda. The mentioned routes are not maintained, neither in terms of vertical signage (which is largely destroyed and vandalized) nor regarding the accessibility of the routes themselves and have been left to the effects of time.

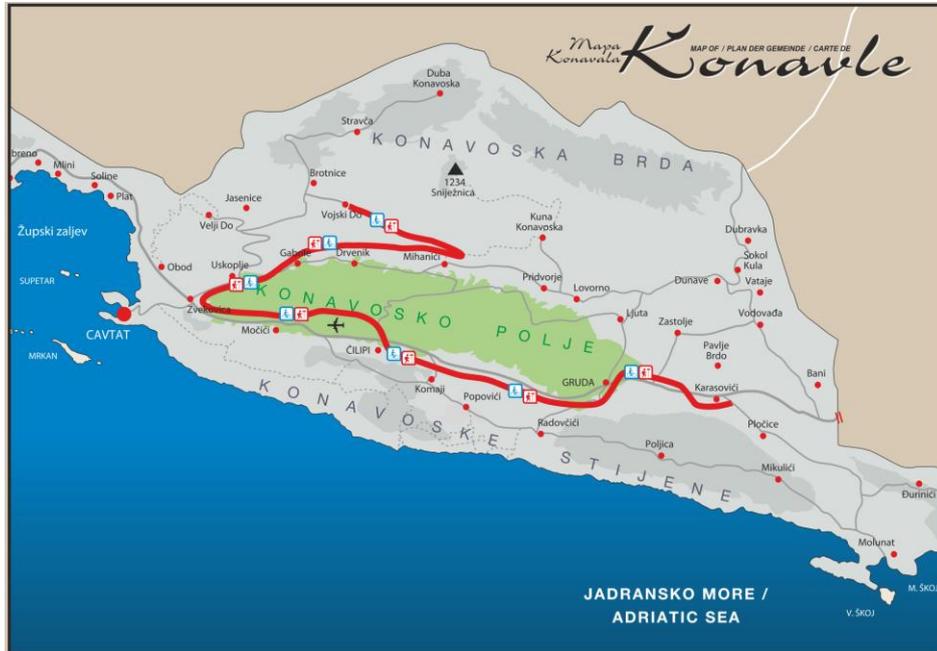
The 2007 project by the Konavle Tourist Board promoted cycling routes.

Route 1: Čilipi-Gruda-Ljuta-Pridvorje, Route 2: Cavtat-Močići-Čilipi, Route 3: Cavtat-Zvekovica-Miljasi. The previously stated routes haven't been maintained nor marked.

The accessibility of the mentioned routes is questionable in sections where they follow the existing former railway line, as these parts have been left to the effects of time.

In 2012, the Agrotourism Association of Konavle marked 4 routes: Čilipi – Molunat, Zvekovica – D. Ljuta – Gruda, Zvekovica – G. Ljuta – Debeli Brijeg, Zvekovica – Duba konavoska. These routes have been marked with basic marks and info boards, without promo materials, without GPX files, and with no promotion. Some of the signs exist, while others have been vandalized and destroyed, and have been left to the effects of time.



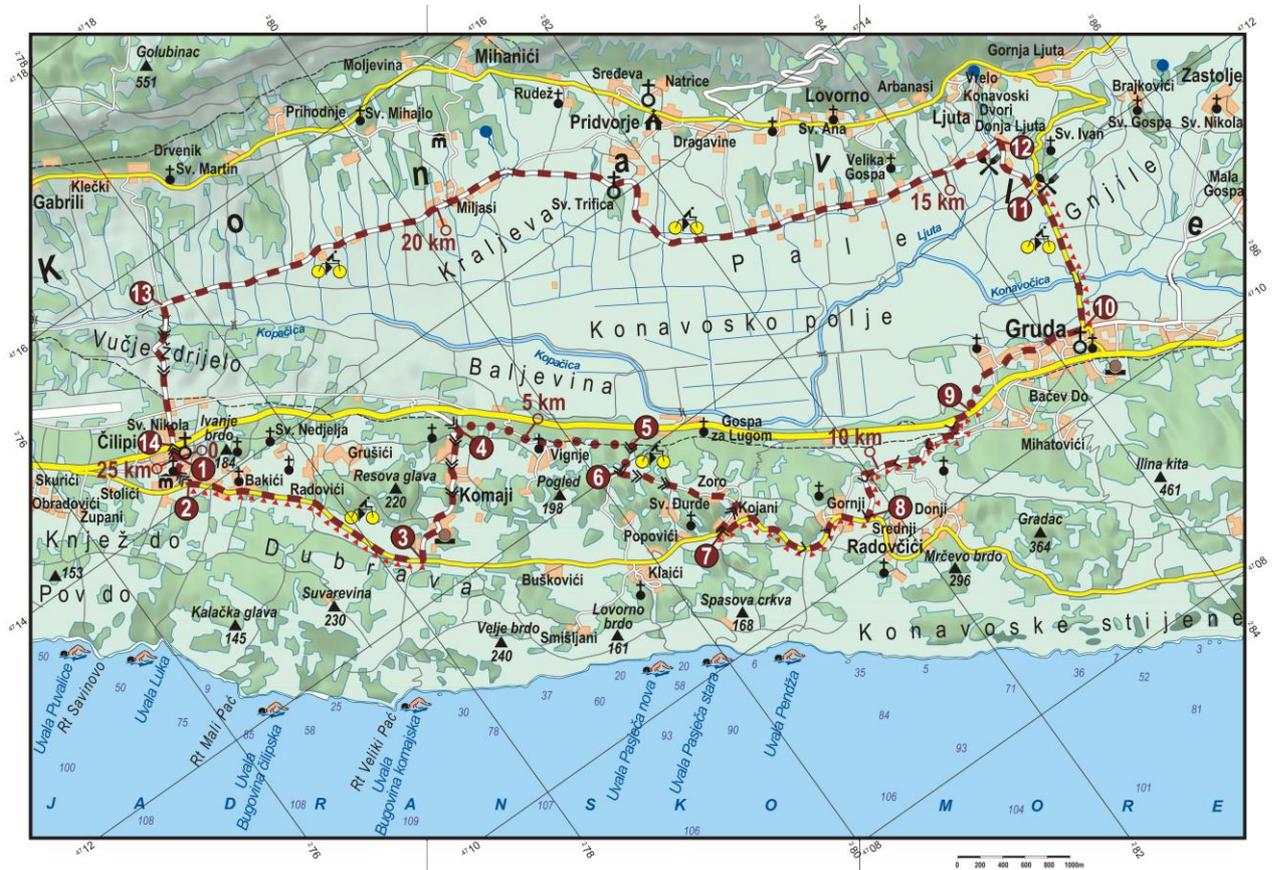


Cycling routes Ćiro – walking-cycling routes



Vertical signalization "Cycling routes Ćiro – Walking-cycling trails"





Brochure "Cycling route Čilipi-Gruda-Ljuta-Pridvorje" – Konavle Tourist Board

Italy – Croatia



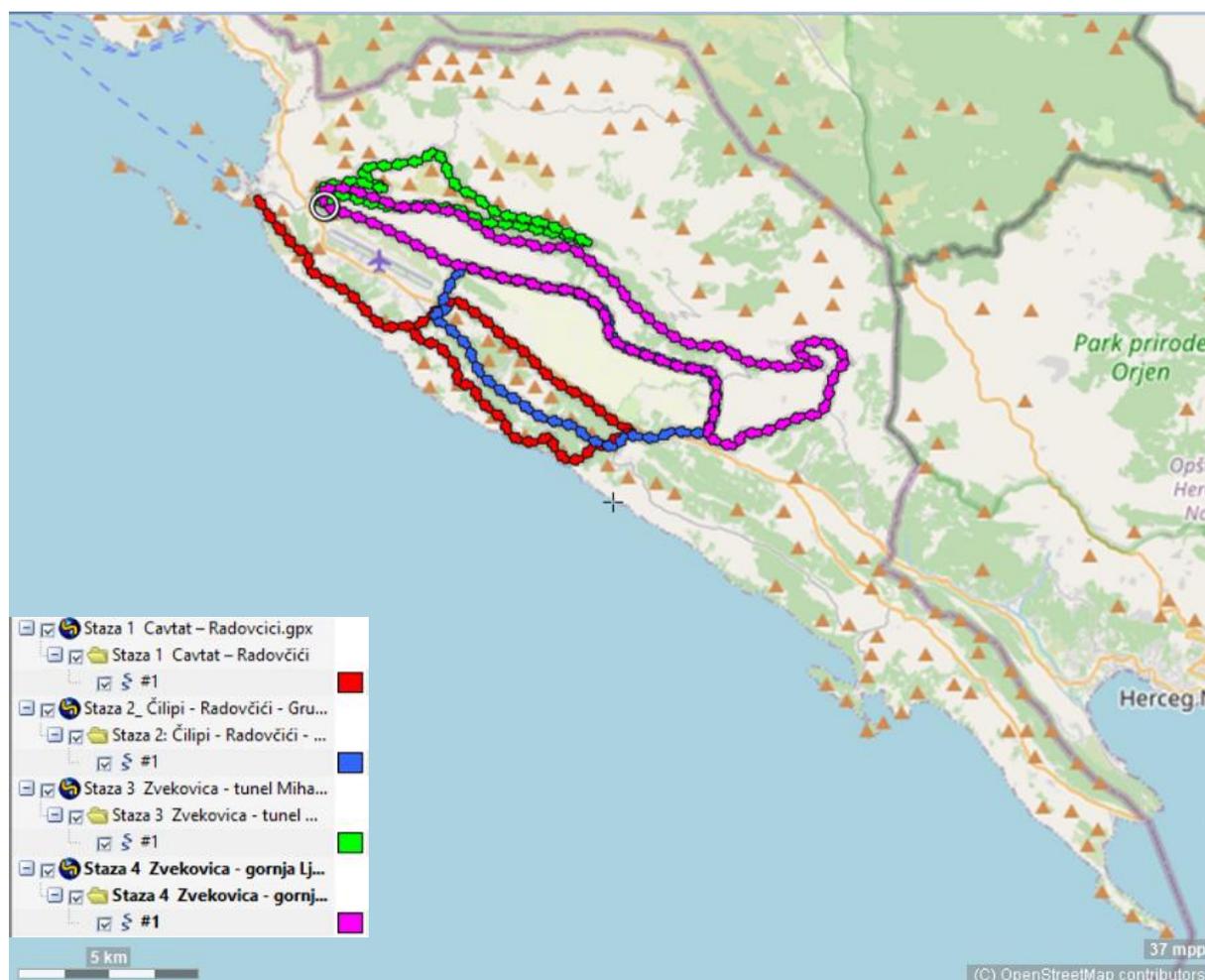
Trail 1 Cavtat – Radovčići, (planned to clear of a section of approx. 550 m and refurbishment of the former ex railway track bed)

Trail 2 Čilipi - Radovčići - Gruda - Ljuta - Vučje ždrijlo - Čilipi

Trail 3 Zvekovica - tunel Mihanići (Mihanići tunnel), Vojski do – Zvekovica,

Trail 4: Zvekovica - Gornja Ljuta - Sokol grad (Sokol town) - Zastolje - Gruda - Zvekovica.

The main goal of this project is to bring order to the current state of cycling routes in the Konavle area, in terms of signage, promotion, maintenance, and the safety of cyclists.



Cycling routes – project Konavle Tourist Board

(Explanation of the above figures/image:





“Staza”=Trail

“Tunel”=tunnel

“Gornja” =upper)

The total length of the cycling routes planned by the Konavle Tourist Board is approximately 113,71 km, with the potential of the additional 88 km of partially marked sections which can be linked to the existing routes and that are used for recreational purpose, based on cycling tracks in sport apps.

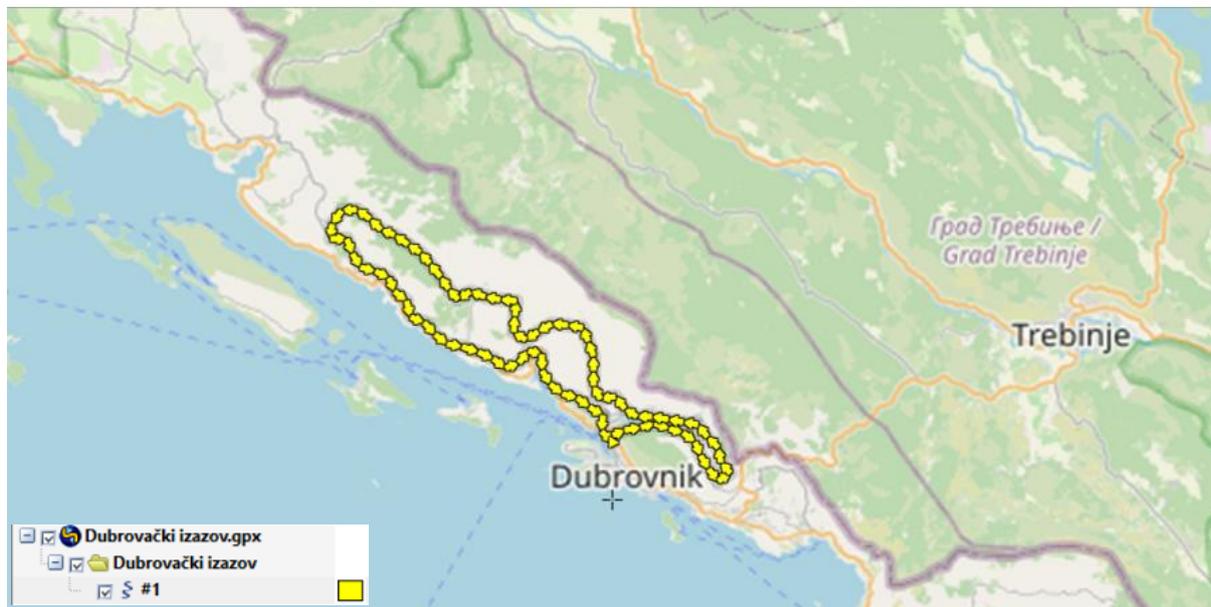
The network consists of:

- 77,19 km (68%) of the routes are paved, mostly in urban and rural areas
- 36,52 km (32%) of routes are gravel and dirt routes, mostly in rural areas

City of Dubrovnik

The Dubrovnik Tourist Board has launched and is currently implementing the project “CYCLING AND WALKING TRAILS IN THE AREA OF THE CITY OF DUBROVNIK AND THE ELAPHITE ISLANDS”. For the purpose of this project, technical documentation has been prepared, including “the “Study on the Development and Marking of Cycling and Walking Trails in the Area of the City of Dubrovnik and Route Mapping on the Elaphite islands”, the “Traffic Study on the Marking of Cycling and Walking Trails on the State Road D8”, as well as the “Study of Micro locations and Installation of Signage for Cycling and Walking Trails”, along with a cost estimate for all necessary works, all prepared by Studio Plan Ltd.





“Cycling and walking trails” – Project of Dubrovnik Tourist Board

(Explanation of the terms in the above image:
“Dubrovački izazov”=Dubrovnik Challenge)

The total length of the cycling/walking route planned by the Dubrovnik Tourist Board is approximately 79,00 km, with the additional 10-15 km of sections which can be linked to the planned routes and that are used for recreational purpose, based on cycling tracks in sport apps.

The network consists of:

- 53,72 km (68%) of the routes are paved, mostly in urban and rural areas
- 25,28 km (32%) of routes are gravel and dirt routes, mostly in rural areas

Župa dubrovačka

In the area of the Municipality of Župa dubrovačka, that is, within Župa dubrovačka Tourist Board there are no officially registered (marked and maintained) cycling routes. According to information provided by BK Konavle, around Župa dubrovačka, based on cycling tracks in sport apps, cyclists of all categories are present, riding on existing gravel and local unclassified roads. Also, according to current knowledge, Župa dubrovačka Tourist Board is not developing a project aimed at establishing cycling routes. There is a potential for the development of cycling routes which can be observed



Italy – Croatia



from the current situation on the ground, according to cycling tracks recorded in sport apps.

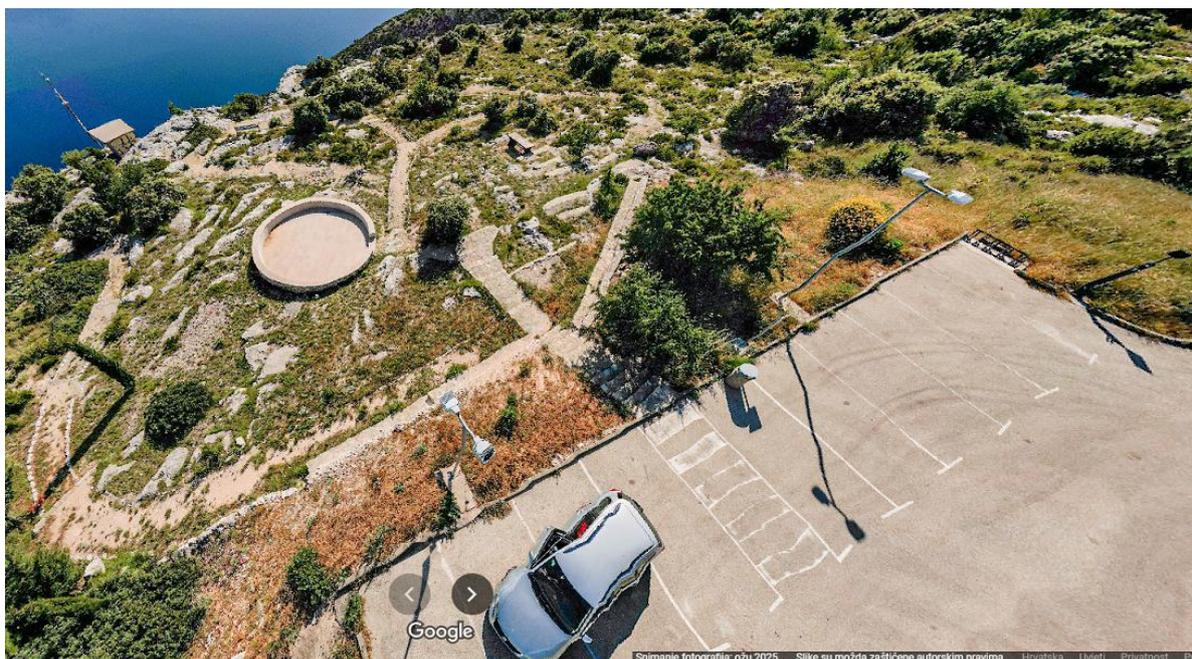


“Personal cycling tracks on the author from the “Strava app” – Župa dubrovačka

Dubrovačko primorje

In the area of the Municipality of Dubrovačko primorje there is an officially marked network of cycling sections (marked and maintained). In this area, there are no strategically planned and promoted cycling routes (trails).

The network of walking and cycling paths Banići-Slano-Banići is graphically presented on the website <https://www.visit-slano.com/> with basic graphical design – of the route. Route Franciscana on the same website is presented in descriptive way, along with the location of vertical signage at intersections. The thematic cycling route “Stećci (medieval tombstones) of the Dubrovnik Hinterland” is graphically presented in a promotional leaflet with a basic graphical representation – showing the route and tips for safe riding. At the location of viewpoint Elaphiti – Gajina-Majkovi-Dubravica bicycle service equipment has been installed.



“Viewpoint Elaphiti – Gajina-Majkovi-Dubravica” – Google

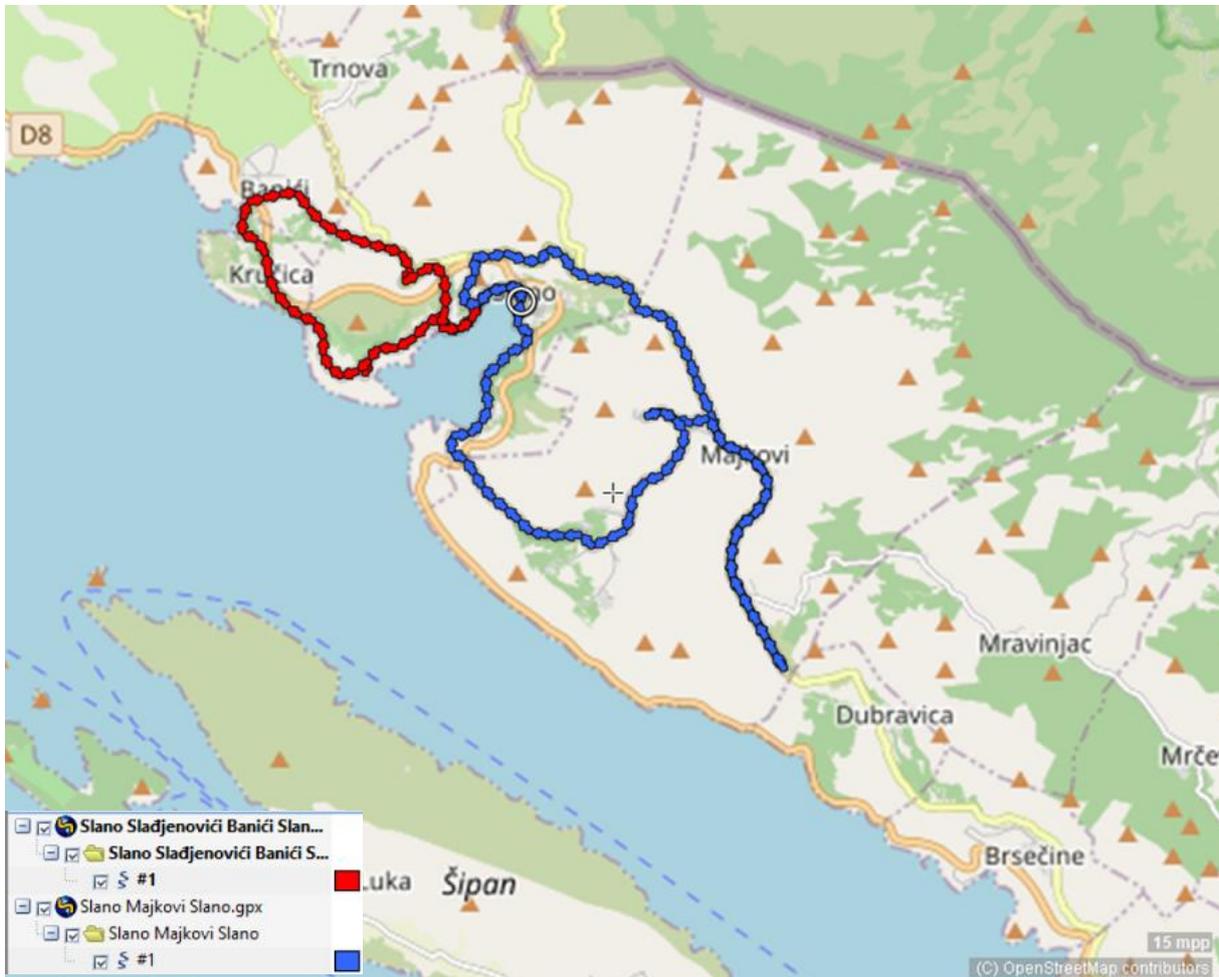


“Vertical signage, Majkovi-Gajina direction and Slano direction” – Dubrovačko primorje Tourist Board

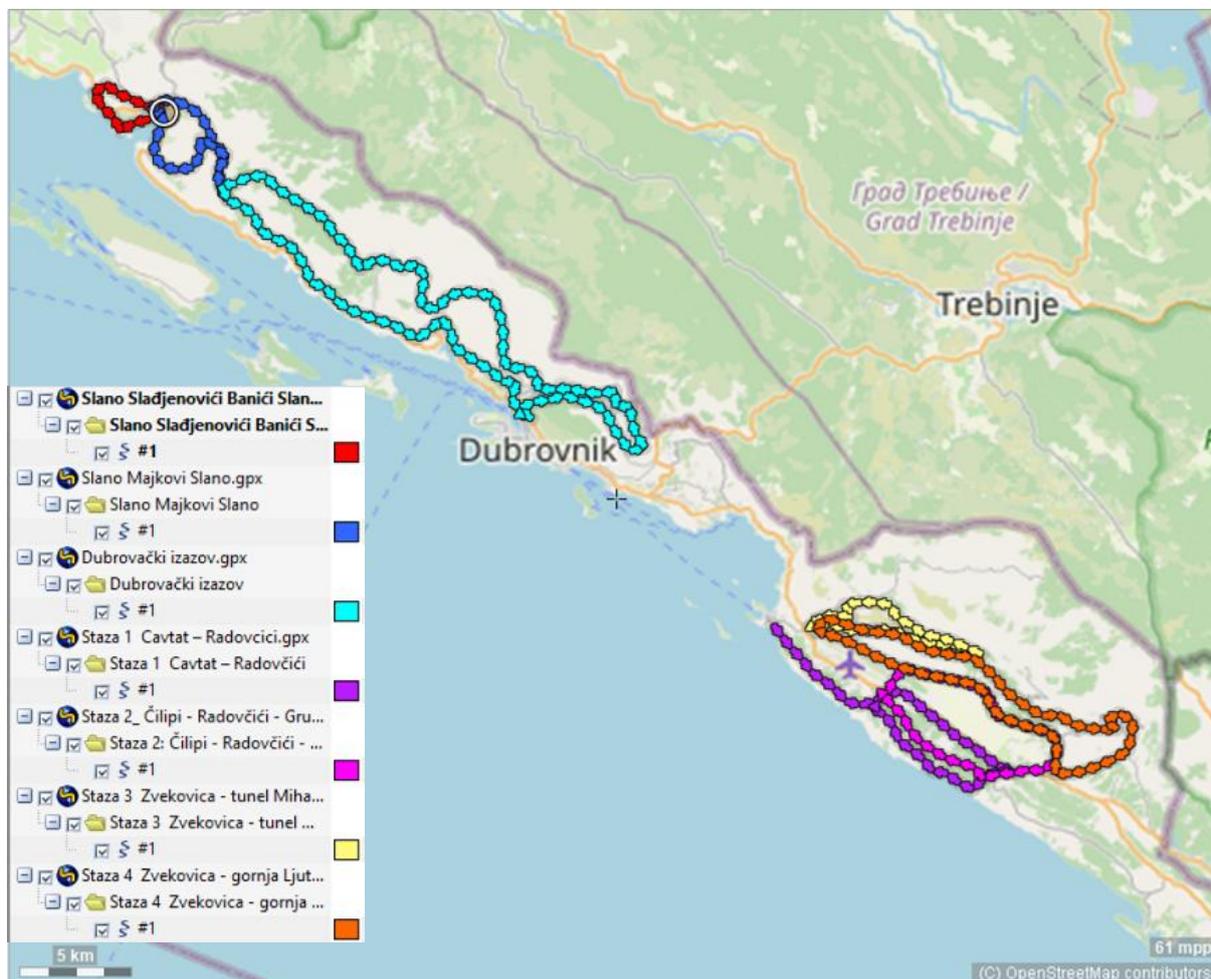
In the area of the municipality, a total of 47,07 km of individual cycling sections have been marked. Dubrovačko primorje Tourist Board intends to purposefully develop two cycling routes (trails) Slano-Slađenovići-Banići-Slano and Slano-Majkovi-Slano, in the approximate length of 33,43 km and with the additional 10-20 km of marked sections which can be linked to the planned routes, and that are used for recreational purpose, based on cycling tracks in sport apps.

The network of two planned routes consists of:

- 33,43 km (100%) of the routes are paved, mostly in urban and rural areas*
- 0 km (0%) of routes are gravel and dirt routes, mostly in rural areas*



"Planned cycling routes" – Dubrovačko primorje Tourist Board



“Cycling routes” – Konavle, Dubrovnik, Dubrovačko primorje ≈215 km

(Explanation of the terms in the above image:

“Dubrovački izazov”=Dubrovnik Challenge

“Staza”=Route

“tunel”=Tunnel

“Gornja”=Upper)

In the observed area of Dubrovnik and its surroundings, cycle tourism is recognized as a potential driver for economic (tourism) development. The cycling routes cover well the northwestern part of the area, enabling mutual connectivity into a desirable cycle tourism destination, contribute to sustainable tourism development as well as significantly extend the tourist season. The southwestern part of the area, due to lack of the route development in the part of the Župa dubrovačka, does not contribute to the connectivity and development of cycling tourism destinations. From a marketing



and promotional perspective, all planned routes (trails) in the area are designed as targeted cycling and hiking destinations with a specific regional offer.

2.4.2. Assessment of the condition of the existing routes (trails)

The development of cycling tourism infrastructure is led by the local tourist boards. Existing cycling routes are outdated, insufficiently maintained and inconsistent. Maintaining the passibility of existing routes, which are created along public, unclassified and local roads, falls under the responsibility of the road owners (local government units, state roads, county roads).

The maintenance of vertical signage on routes under the jurisdiction of local tourist boards requires reconstruction.

From technical, cycling perspective, the existing routes are:

- Outdated, poorly maintained and insufficiently promoted*
- Partially displayed graphically in brochures and on websites with the route location*
- Three routes in Konavle are graphically presented according to the type of the route surface and are not categorized by the technical difficulty of the route.*

The routes on the ground lack:

- Marks/signage for cyclists' safe riding*
- Orientational and directional marks/signage for cyclists*
- categorization according to the technical level of difficulty of the route/trail*
- categorization according to the physical difficulty of the route/trail*
- categorization according to the type of bicycle*
- facilities and equipment of the route/trail*
- informational overview boards for the surrounding area*

For the planned cycling and hiking route, the Dubrovnik Tourist Board needs to create a webpage within the existing website.

2.4.3. Proposal for the development of cycling routes (trails) in the area of Dubrovnik



The network of existing routes has been analysed and classified in the subject area based on three main criteria, with the following results:

- **Routes (trails) in function**

- **Konavle**

- It is necessary to redefine and establish new cycling routes (trails) in Konavle region
 - According to data provided, a small portion of the routes are maintained at the initiative of BK Konavle (projects that were previously developed) and should be incorporated into the newly established routes,
 - Promoted routes on websites need to be removed and the content replaced with the proposed routes, and the existing vertical signage and information boards should be removed (except for the signs installed through the Ćiro 2 project).

- **Dubrovačko primorje**

- According to the data provided, it is necessary to review which vertical signage should be retained due to the implementation of previous projects and to keep the components of the hiking paths.
 - Unnecessary signs and signage should be removed to avoid confusion in the area and harmonize it with the information displayed on the websites
 - All the existing routes in Dubrovačko primorje region require revitalisation and modernization on the ground, in technical sense.
 - The entire network of the cycling sections is along public, unclassified and local roads which by its means are maintained and passable.

- **Routes expected to be implemented in the short term (Dubrovnik)**

The Dubrovnik Tourist Board is implementing a project for establishing a cycling -pedestrian route in the western part of the city, from Sustjepan to Dubravica. The project is in its first implementation phase and the procedure of obtaining the necessary permits for the installation of vertical signage has already begun.

In the next phase, the implementation and installation of the appropriate equipment along the route are expected (service pillars, stands, viewpoints...).

- **Routes expected to be implemented in the short term (Konavle)**

*The Konavle Tourist Board has designed four routes that require, in technical sense, revitalization and modernization on the ground: **Route 1 Cavtat** –*



Radovčići; Route 2 Čilipi - Radovčići - Gruda - Ljuta - Vučje ždrijlo – Čilipi; Route 3 Zvekovica - tunnel Mihanići, Vojski do – Zvekovica; Route 4: Zvekovica – Upper Ljuta - Sokol grad - Zastolje - Gruda – Zvekovica
-Revitalization and modernization would include marking, in accordance with

the

standardization for the entire county, along with the preparation of the necessary

studies for the installation of signage.

- ***Routes expected to be implemented in the short term (Dubrovačko primorje)***

The Dubrovačko primorje Tourist Board is planning the revitalization and modernization of two new routes within the already existing network of marked sections, specifically: Slano – Slađenovići – Banići – Slano i Slano – Majkovi - Slano

the

standardization for the entire county, along with the preparation of the necessary

studies for the installation of signage.

2.4.4. Proposal for the revitalization and modernization of cycling routes (trails)

All existing routes require revitalization and modernization of basic signage and equipment. The proposal for revitalization and modernization includes the installation of equipment and signage in accordance with planned standardization for four routes in Konavle: Route 1 Cavtat – Radovčići; Route 2 Čilipi - Radovčići - Gruda - Ljuta - Vučje ždrijlo – Čilipi; Route 3 Zvekovica - tunnel Mihanići, Vojski do – Zvekovica; Route 4: Zvekovica - Upper Ljuta - Sokol grad - Zastolje - Gruda – Zvekovica and the two routes in Dubrovačko primorje: Slano - Slađenovići - Banići - Slano; Slano - Majkovi – Slano.

The activities would include:

- *Minimal marks/signage for cyclists' safe riding*
- *Orientalational and directional marks*
- *Preparation of technical studies for signage installation*
- *Facilities along the routes-bicycle service points, electric charging stations, viewpoints*

There are no plans for establishing new routes alongside the existing ones in the observed area, and the opinion of all stakeholders involved is that the already created



routes meet all the future needs. Therefore, the planning focus is solely on equipping and arranging the existing routes over a longer planning period of 5 to 10 years, in terms of complete technical outfitting, which includes:

- Intermodal integration, especially in ports, docks, and public transport systems
- Full field signage of all routes (trails)
- Equipping the routes with the necessary minimum facilities (service equipment, viewpoints, rest areas, e-bike charging stations...)
- New content along the routes at the local level, through a well-designed promotion

PRIJEDLOG REVITALIZACIJE I MODERNIZACIJE POSTOJEĆIH RUTA/TRASA DUBROVAČKO-NERTVANSKE ŽUPANIJE										
Područje obuhvata	Ruta	Dužina	Info table					Signalizacija	Prometni	Servisne
	(staza)	km	I	II	III	IV	V	za orijentaciju i sigurnu vožnju	elaborat	točke
Konavle	Staza 1 Cavtat – Radovčići	25,32						+	+	+
	Staza 2 Čilipi - Radovčići - Gruda - Ljuta - Vučje ždrijlo - Čilipi	22,78	Čilipi	Ljuta				+	+	
	Staza 3 Zvekovica - tunel Mihanići - Vojski do - Zvekovica	21,36	Zvekovica					+	+	+
	Staza 4: Zvekovica - Gornja Ljuta - Sokol grad - Zastolje - Gruda - Zvekovica	44,25	113,71	Gruda	Pridvorje			+	+	
Dubrovnik	Dubrovački izazov	79,00								+
		79,00	Orsula							+
Dubrovačko primorje	Slano - Slađenišći - Banići - Slano	12,61	Slano					+	+	+
	Slano - Majkovi - Slano	20,82	Majkovi					+	+	

(Explanation of the above figure/table:

“Prijedlog revitalizacije I modernizacije postojećih ruta/trasa Dubrovačko-neretvanske županije”=Proposal for revitalization and modernization of the existing routes/trails in Dubrovnik-Neretva County

“Dužina”=Length

“Ruta (staza)” = Route (trail)

“Info table” = Informational board

“Signalizacija za orijentaciju I sigurnu vožnju”=Signage for orientation and safe riding

“Prometni elaborat” = Technical report

“Servisne točke” = Service points

“Područje obuhvaća”=The area covers

“Staza”=Trail

“tunel “= tunnel

“Dubrovački izazov” = Dubrovnik Challenge



2.5. OVERVIEW OF CYCLE ROUTES FOR FURTHER DEVELOPMENT AND ENHANCEMENT IN DUBROVNIK-NERETVA COUNTY

Based on the conducted analysis and the assessment of the current situation across the entire Dubrovnik-Neretva County, as well as consultations with all stakeholders involved, the following existing cycling routes (trails) are proposed for further development and enhancement.

Based on communications, analysis and assessment of the situation, the below table also presents an overview of the basic infrastructure that needs to be installed for the trails to meet the minimum standards.

PRIJEDLOG REVITALIZACIJE I MODERNIZACIJE POSTOJEĆIH RUTA/TRASA DUBROVAČKO-NERTVANSKE ŽUPANIJE										
Područje obuhvata	Ruta	Dužina	Info table					Signalizacija	Prometni	Servisne
	(staza)	km	I	II	III	IV	V	za orijentaciju i sigurnu vožnju	elaborat	točke
Konavle	Staza 1 Cavtat – Radovčići	25,32								
	Staza 2 Čilipi - Radovčići - Gruda - Ljuta - Vučje ždrijlo - Čilipi	22,78	Cavtat						+	+
	Staza 3 Zvekovica - tunel Mihanići - Vojski do - Zvekovica	21,36	Čilipi	Ljuta					+	+
	Staza 4: Zvekovica - Gornja Ljuta - Sokol grad - Zastolje - Gruda - Zvekovica	44,25	Zvekovica						+	+
Dubrovnik	Dubrovački izazov	79,00	Gruda	Pridvorje					+	+
		79,00	Orsula							+
Dubrovačko primorje	Slano - Sladenovići - Banići - Slano	12,61	Slano						+	+
	Slano - Majkovi - Slano	20,82	Majkovi						+	+
Makarska	MTB Trail 1 Orebic Duba Loviste Orebic	50,00							+	+
	MTB Trail 2 Kuna Janjina Trpanj Kuna	39,00	Lovište						+	+
	MTB Trail 3 Žuljana Trstenik Popova luka Putnikovići Žuljana	30,00	Trpanj						+	+
	MTB Trail 4 Ston Mali Ston Cesvinica Ponikve Prapratno Broce Ston	28,00	Žuljana						+	+
	MTB Trail 5 Orebic Vlastica Županje selo Prizdrina Potomje Podobuce Orebic	36,00	Ston						+	+
		183,00	Orebić	Potomje					+	+
Korčula	Veliki otočni izazov Korčula	131,00							+	+
	Eno gastro ruta	22,40	Korčula	Vela Luka	Pupnat				+	+
	Ruta maslina	48,10	Lumbarda						+	+
	Pošip ruta	61,10		Blato	Smokvica	Čara			+	+
Mljet	Staza E Pomena- Malo jezero- Mali most- Pristanište- Vrbovica- DC120- Švicarski put- Brekalci- Veliko jezero- Veliki most- Malo jezero- Pomena	17,3				Pomena	Polače		+	+
	Staza H Blato- Crkva sv. Terezije- Crna Klada (DC120)- Veliko jezero- Vrbovica (ulaz u NP/parking)	15,8							+	+
	Sobra- Babino Polje- Sobra	18,5			Babino Polje				+	+
	Sobra- Maranovići- Okuklje- Prožurska Luka- Sobra	21,00	Sobra	Prožurska Luka					+	+
Lastovo	Crvena ruta	21,73	Uble		Pasadur				+	+
	Plava ruta	36,97		Lastovo					+	+
	Zelena ruta	35,59			Skrivena luka				+	+
Ukupno	26	94,29			37			25	22	18

Proposal for the revitalization and modernization of the existing routes (trails)

(Explanation of the above figure/table:



“Prijedlog revitalizacije I modernizacije postojećih ruta/trasa Dubrovačko-neretvanske županije”=Proposal for revitalization and modernization of the existing routes/trails in Dubrovnik-Neretva County

“Dužina”=Length

“Ruta (staza)” = Route (trail)

“Info table” = Informational board

“Signalizacija za orijentaciju I sigurnu vožnju”=Signage for orientation and safe riding

“Prometni elaborat” = Technical report

“Servisne točke” = Service points

“Područje obuhvaća”=The area covers

“Staza”=Trail

“tunel ”= tunnel

“Dubrovački izazov” = Dubrovnik Challenge

“Veliki otočni izazov Korčula”=Korčula Great Island Challenge route

“Eno gastro ruta ”= Eno- gastro route

“Ruta maslina” = The Olive Trail

“Pošip ruta” = Pošip route

“Staza F: Pomena-Malo jezero-Mali most-Pristanište-Vrbovica-DC120-Švicarski put-Brekalci-Veliko jezero_Veliki put-Malo jezero-Pomena”= Trail F: Pomena – Small Lake-Little bridge-Pristanište (Boat Dock) – Vrbovica-DC120-Swiss Trail (Švicarski put) – Brekalci-Great Lake – Great trail – Small Lake-Pomena

“Staza H: Blato-Crkva sv. Terezije-Crna Klada (DC120)-Veliko jezero-Vrbovica (ulaz u NP/parking)” = Trail F: Blato-Church of st. Therese-Crna Klada (DC120-Great Lake-Vrbovica (entrance to National Park/parking)

“Crvena ruta”=Red route

“Plava ruta”=Blue route

“Zelena ruta” – Green route)

The following table presents a list of all existing cycling routes (trails) around Dubrovnik-Neretva County, including the total inventory and trail features. This data was used for the preparation of this document and can also serve as a database for other implementation documents, as well as a basis for applications for competitions and public proposal calls.

The inventory shows that the cycling route network in Dubrovnik-Neretva County is fragmented and unevenly developed but has a significant potential for expansion through a strategic approach.



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The proposed activities for the enhancement of the existing routes aim to establish a functional and safe network based on actual traffic needs, tourist potential and intermodal activities.

Through further development, the goal is to create an infrastructure that serves all cyclists – from recreational riders to professional athletes – and promotes economic development of the county through green tourism.



2.6. OVERVIEW OF INSTALLED EQUIPMENT LOCATIONS – SERVICE STATIONS IN DUBROVNIK-NERETVA COUNTY

OVERVIEW OF THE INSTALLED SERVICE PILLARS IN THE AREA OF DUBROVNIK-NERETVA COUNTY		
AREA	NUMBER OF SERVICE PILLARS	LOCATION (castradal plot)
Konavle	3 pcs	cad. plot 1391 k.o. Ljuta , 1473 C.M. Popovići, 987 C.M. Pridvorje
Dubrovačko primorje	1 pc	cad.plot. 1081/2 C.M. Majkovi
Pelješac	4 pcs	cad. plot 3421/1 C.M. Trpanj, 1236/5 C.M. Orebić, 515/1 C.M. Janjina , 2098 C.M.Ston
Korčula	5 pcs	cad.plot 3813/1 C.M..Lumbarda , 31381/2 C.M. Blato , 31757 C.M.. Vela Luka, 3676/2 C.M. Pupnatska luka , 3676/2 C.M. Babina
Lastovo	1 pc	cad.plot 6793 C.M. Lastovo
Mljet	2 pcs	cad. Plot 348/110 C.M. Govedari, 2065/9 C.M. Babino polje

2.7. OVERVIEW OF CYCLING EVENTS IN DUBROVNIK-NERETVA COUNTY

This table gives insight into the most important and recognizable cycling-related sport events in Dubrovnik-Neretva County from 2013 to 2025. For more detailed information about the content of each event, information can be obtained from the organizers BK Metković, BK Konavle, Vela Luka Tourist Board, Korčula Tourist Board.

OVERVIEW OF CYCLING EVENTS ON DUBROVNIK-NERETVA COUNTY AREA						
Area covered	Event	Organiser	Location	Event period	No of events held (till 2025)	Cycling event description
	Event					
Neretva Valley	BIKE FEST METKOVIĆ XCC METKOVIĆ, XCO PREDOLAC, XCP STIPE ČAMBER,	CC Metković	Metković	2017 – 2025 (yearly)	8	Sports cycling event - race
	HELP THEM FLY	CC Metković	Metković			Sports event for children with development disabilities and disabled people
	Cycling event "Primavera"	CC "Relaks"	Metković	2020 – 2024 (yearly)	4	Promoting Neretva as cyclo-tourism destination focussing on female population
	Zabica, Cycling marathon "Ivica prusac Juma", cycling tour "Igor Penava", cycling tour in honour of Father Ante Gabrića, cycling tour "Ho Ho Ho", outdoor recreational sports day	CC "Relaks"	Metković	yearly		Sport cycling events - races and cycling tours
Konavle	Konavle 100 km, Granfondo Konavle, Adriatic Luxury Hotels Granfondo Konavle		Konavle	2013 – 2025 (yearly)	12	International road cycling race
	KOBIL-a Konavle Cycling League	CC Konavle	Konavle	2015 – 2019, 2022 – 2025 (yearly)	9	Konavle cycling race league , yearly multi-stage race, for different cyclist categories
Korčula Island	Marko Polo challenge – Korčula triathlon		Kočula	2011 – 2025 (yearly)	15	Triathlon
	Vela Luka Outdoors – MTB marathon		Vela Luka	2015 – 2025 (yearly)	10	MTB marathon 28–31 km

2.7.1. Organization of cycling events and promotion



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A timeline of activities for the development of cycling events in Dubrovnik-Neretva County is provided, which includes the following procedures:

The expected development of further activities related to the organization of cycling events in the upcoming period:

- 1. Sport events:*
 - Pelješac Hill Climb (road cycling competition).*
 - Adriatic Konavle Challenge (MTB extreme race on Sniježnica).*
- 2. Recreational activities:*
 - Family rides along the Neretva valley.*
 - Navigation workshops for tourists (use of GPX maps)*
- 3. Educational activity:*
 - Workshops on safe cycling for children at training courses and pump track parks*

Procedure:

- 1. Calendar planning:*
 - Coordination with tourist boards (for example, avoiding peak season for sporting events),*
- 2. Logistics:*
 - Obtaining necessary permits, medical support, and traffic approvals,*
- 3. Promotion:*
 - Cooperation with DMCs (Destination Management Companies) on the sale of package arrangements*

Stakeholders:

- Organizer: Tourist boards of the county and municipalities*
- Partners: Sport manifestations, media*
- Timeline: Annual cycle (each event requires at least 6 months of preparation).*

3. STANDARDIZATION OF CYCLE TOURISM INFRASTRUCTURE

The standardization of cycling infrastructure represents a key prerequisite for the sustainable and coordinated development of the cycling network in Dubrovnik-Neretva County. The goal is to establish technical, functional and visual standards which ensure safety, consistency intermodal connectivity and recognizability of cycling routes across the county.



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For the development of cycle tourism in general, the existence of infrastructure – fundamental cycling routes that are well-design, diverse, clearly marked, and safe to use – is essential.

The fundamental guidelines to be defined by the established standards of cycling infrastructure include the categorization of cycling routes, unified signage for navigation and safe ride, as well as standardized information boards/panels with useful tips for cycling.

The Regulation on Cycling Infrastructure (National Gazette 28/16) prescribes signage and direction signs for cycling traffic corridors (cycling routes), so called “blue signage” intended primarily for road cycling traffic and cycle tourists on tourist journeys.

Many cycling routes (trails) and facilities are planned as circular routes around a specific location or attraction; therefore, this type of signage is not applicable in such cases. Besides this, the surfaces along these routes vary - from asphalt to gravel roads, trails, paths and as such - requiring specific type of signage. This requires a specific approach to signage, both vertical and, where applicable, horizontal, especially for pre-defined circular routes (trails) aimed at tourism, recreation and leisure (and especially for sporting competitions). Such routes (trails) often extend beyond main roads – along local roads, gravel paths, forest and field trails – which further emphasizes the need for a dedicated marking system. This is particularly important in the forested or protected areas, where it is crucial to avoid visual and ecological pollution of the environment. Signage on these routes should be in smaller in size and practical for installation in natural environment that “the signs do not dominate the route”.

Based on the aforesaid, it is necessary to establish a unified standard for cycling infrastructure signage at the county level. This standard would be designed in accordance with the visual identity of cycle tourism and tourism in general in the area of interest, ensuring that signage on cycling trails is recognizable and consistent with other tourist facilities and existing signs in use. Proposals for visual identity and signage for cycling routes in other counties- Istria, Split-Dalmatia, and Šibenik-Knin – can serve as a foundation for such a standard.

The signage document should define the dimensions of the boards (most used sizes are 20 x 15 cm, 22.5 x 15 cm and 30 x 20 cm), the method of installation (height, location), the content (route designation/number, additional information) and other types of (informational) boards. The appearance of the boards should be aligned with the identity of the county’s cycle tourism, ensuring that the content is clear, not overcrowded with text or information, and that key data is large, visible and has good contrast. Currently, around Dubrovnik-Neretva County there is a significant unevenness – around twenty different styles and visual identities of cycling signage are



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being used. Such diversity reduces recognizability and value of the county cycling route network, compared to practices in developed cycle tourism destinations.

This situation happened because local government units, while waiting for the national or regional standard, independently created and installed signage according to their own solutions, following the “better something than nothing” approach. To establish order and ensure consistency, the proposed standards will be defined at the county level, while their implementation will be carried out locally, building upon existing solutions in collaboration and coordination with county authorities.

By standardizing cycling infrastructure, cyclists can better prepare and plan their rides, asses their abilities in relation to a route, compare various routes within the region, increase safety, and reduce the number of accidents while riding.

Subject of standardization

A) Route (trail) categorization

Categorization by physical difficulty (route challenge level) (five levels)

Categorization by technical difficulty (route challenge level) (five levels)

B) Marking of cycle tourism routes

3.1. STANDARD FOR THE CATEGORIZATION OF CYCLING ROUTES

3.1.1. Cycling routes (trails)

Today in the context of cycling routes, several types of cycling routes can be distinguished.

In terms of tourist destinations in cycle tourism, the following types of cycle tourism routes are typically defined:

- 1. Mountain biking routes (MTB)**
- 2. Road routes (Road bike)**
- 3. Family and trekking routes (Family & Trekking)**

3.1.1.1. Mountain biking routes (MTB routes)

Mountain biking routes (MTB routes) are off road trails for riding mountain bikes ((MBT bikes), both with and without suspension. These pass through natural terrain, forests, hills, meadows, pedestrian paths, rural areas, and, to a minor extent, urban environments.

They are characterized by the riding surface, from gravel, rocky terrain, roots terrain, forest paths, and mud, as well as profiles of the trails, including descents, climbs,



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ascents, technically demanding sections, and singletracks. They are categorized according to physical difficulty (5 levels) and technical difficulty (5 levels) and they are marked in **red**.



(Explanation of the text on image above:

“Brdsko-biciklističke rute”-Mountain-bike routes

“Označava se crvenom bojom”= Marked in red)

3.1.1.2. Family and Trekking cycling routes (Family & Trekking)

They are defined as recreational trails adapted to wide range of users, including families with children, senior citizens and the general population of recreational cyclists. Their primary purpose is to ensure an easy and enjoyable ride with a high level of safety, with an emphasis on enjoying the scenery and accessibility. The routes are generally aligned away from main roads, using local roads with low traffic or specially designed cycling trails through natural and suburban areas, with appropriate signage installed to ensure cyclist safety. They combine existing MTB and road cycling routes. All trails with technical difficulty 1 for MTB and physical difficulty 1 for road cycling are suitable for trekking and are classified as trekking trails. Family cycling routes – are intended for families looking for activities to entertain children during their vacation. Considering that this group is not physically or technically advanced, the routes need to be adapted to this type of cycle tourists.

Trekking cycling routes are intended for cycle tourists that want to stay active during their vacation but do not aim to ride physically and technically demanding routes. The



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required ability level is suitable for individuals who ride a bicycle occasionally and possess a minimal technical riding skills. The goal is to explore destination by cycling. Family and trekking cycling routes are categorized by physical difficulty (five levels) and technical difficulty (5 levels) and they are marked in **green**.



(Explanation of the text on image above:
“Obiteljske i trekking rute”-Family & trekking routes
“Označava se zelenom bojom”= Marked in green)

3.1.1.3. Road routes (Road bike)

The routes are laid out along local and regional paved roads, avoiding main roads wherever possible. The surface consists primarily of asphalt, with cobblestones used only as an exception on shorter sections. They are characterized by being safe for traffic, free of gravel sections, featuring long distances and significant total elevation gain, and are designed for a fully challenging and enjoyable experience for recreational road cyclists with good physical fitness. They are categorized according to physical difficulty (5 levels) and technical difficulty (5 levels) and they are marked in **blue**.





(Explanation of the text on image above:

“Cestovne rute”-Road routes

“Označava se plavom bojom”= Marked in blue)

3.1.2. Standardization of technical and physical categorization of cycling routes

Summary of common practices and criteria for categorization by physical and technical difficulty

- Physical difficulty and technical difficulty are assessed separately.
- Criteria for physical difficulty: distance, total ascent, descent, and ride duration.
- Criteria for technical difficulty: type of surface, obstacles, trail width and configuration (curviness) of the trail, risk of falls, all of which require a certain technical level of riding skill.
- Marking is most conducted in five levels: easy (beginner), easy-medium (moderately advanced), medium-hard (advanced), hard (expert) and very hard (extreme) – for both physical and technical difficulty.
- For road and trekking routes, the emphasis is more on physical difficulty (distance, profile).
- For MTB routes the emphasis is on the technical difficulty of the surface, its obstacles, ascent.





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This kind of practice allows cyclists of all experience levels to more easily choose a route that matches their abilities and preferences.





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Overview and comparison of the main existing technical difficulty systems worldwide



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ITRS	Beginner	Moderately advanced	Advanced	Expert	Extreme
	STS single track scale	S0	S1	S2	S3
Trailforks Europa	Zelena	Plava	Crvena	Crna	Prolin
United Kingdom Forestry Commission (until 2022)	Lako	Umjereno	Teško / iskususan	Teško / Stručnjaci	
IMBA North America (USA)	Najlakše	Lako	Teže	Very difficult	Ekstremno teško
New Zealand Government	Najlakše	Lako	Srednji	Stručnjak	Ekstremno
Tirol (Austria)	Vrlo Easy (S0)	Easi (S - 2)	Umjereno do Teško (S2-3)	Diteško (iznad S3)	
Finale Outdoor Region (Italy)	Lako	Mediu M	Tvrdo	Vrlo teško	
DIMB (Germany)	Zelena	Plava	Crvena	Bijelkasta	
VTOPO (France)	V1	V2	V3	V4	V5
BFU (Bike Park CH)	Lako (početnici s biciklističkim parkom)	Mješum (iskustvo u parku)	Teško (vrlo iskusnan park bikera)		
Danmark (trail)	Vrlo Lako	Lako	Srednji	Teško	Ekstremno / Park
Norway (Stibbyg)	Lako	Umjereno	Teško	Vrlo teško	Ekstremno
Netherlands (NTFU)	Lako	Srednji	Teško	Vrlo Diffkult	
IMBA Spain (Spain)	Lako	Teško	Vrlo teško		
SchweizMobil (CH routes)	E jedan				
Supertrail maps	Yellow		Orange	Red	Purple
Single-track maps	Blue		Red	Black	Purple
Trailcenter Thusis	Green	Blue	Red	Black	Purple
Auscycling (Australia)	Lako	Lako s srednjim odjeljcima	Inte-mediate	Srednji s teškim odjeljcima	Teško

Comparison of route technical difficulty marking systems in practice



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The following table presents required riding skill level and examples of typical MTB routes based on the previous comparison.

BEGINNER	MODERATELY ADVANCED	ADVANCED	EXPERT	EXTREME
Required skills, techniques and cycling levels				
No technical skills are required, except the ability to ride a bicycle safely.	Maintaining an upright body position on the bicycle adjusting it to the trail when necessary, as well as master braking techniques on unpaved surfaces.	Automatic ability to continuously adjust your body position and confident control of braking on steeper terrain, as well as adapting to changes in the riding surface.	Fully automatic, precise and instinctive rapid adjustment of body position and braking force is mandatory; excellent balance is assumed.	Professional skills in downhill, freeride, slopestyle and/or bike trial are absolutely essential.
	Basic turning skills, good cycling line choice and visual focus (being aware of where to focus while riding and keeping your eyes ahead)	Turns may become so narrow that accurate line selection and keen visual focus are required.	Turns can be so tight that pivoting around front wheel becomes necessary.	
		It is necessary to possess advanced and confident skills for jumps and descents	Jumps and descents can be significantly larger and higher, therefore expert skills and a very high level of confidence are	
		Lifting the front and/or rear wheel can help overcome obstacles	Obstacles can be so high, that confident "bunny hop" skills and descending techniques can help.	
Typical route examples				
Flat, smooth and easy route through terrain	Easy and smooth trail with a gentle slope (not steep), moderate berms or turns, and small jumps that can be ridden without jumping.	A steeper hiking trail with tight turns and occasional roots or bumps. or A bike park trail with medium jumps that require jumping.	A bike park with larger gaps and descents up to 100 cm, or Steep hiking trail with large steps, loose rocks and very tight switchbacks.	Some World cup downhill tracks, Red Bull Hard-Line, Rampage.

Examples of typical MTB routes for each difficulty level

OVERVIEW OF THE STANDARD FOR CATEGORIZING CYCLING ROUTES BY PHYSICAL AND TECHNICAL DIFFICULTY





	Mountain bike routes (MTB)		Road bike routes (Road bike)		Family & trekking routes (Family & trekking)	
	PHYSICAL DIFFICULTY	TECHNICAL DIFFICULTY	PHYSICAL DIFFICULTY	TECHNICAL DIFFICULTY	PHYSICAL DIFFICULTY	TECHNICAL DIFFICULTY
Level 1	<p>EASY</p> <p>Level 1 = route intended for persons The expected duration to complete this route is up to 1 hour, with an elevation gain of approx. 200 meters.</p>	<p>BEGINNER</p> <p>Level 1 = No descents on single tracks, no sudden short drops and no steep climbs longer than about 30 m. The surface is free of large rocks and roots.</p>	<p>EASY</p> <p>Level 1 = Intended for all cyclists on road bikes who may find inspiration to ride at any moment. The route is mostly flat, with the total ascent of up to 500 meters. The expected time to complete the route is up to 1 hour.</p>	<p>BEGINNER</p> <p>Level 1 = A mostly flat route with a good-quality surface, without technically challenging parts or steep descents and climbs.</p>	<p>EASY</p> <p>Level 1 Easy, flat routes that are not physically demanding, with a length of up to about 10 km.</p>	<p>BEGINNER</p> <p>Level 1 = Technically undemanding and flat routes, on sections with a uniform surface, without ascents.</p>
Level 2	<p>EASY-MODERATE</p> <p>Level 2 = suitable for occasional cyclists w with moderate fitness or some cycling experience. The route can be completed in up to 1 hour and 30 minutes, with an elevation gain of around 400m.</p>	<p>MODERATELY ADVANCED</p> <p>Level 2 = Suitable for riders tackling simple single-track descents without sharp turns or jumps, featuring moderately sloped drops that are easy to navigate. Climbs steeper than 10% are no longer than 200 m. On the challenging sections, rocks up to fist-sized may be present.</p>	<p>EASY-MODERATE</p> <p>Level 2 = Route intended for persons who cycle irregularly but have some sporting experience or used to cycle regularly. The route is characterised by mild and short climbs that take 10 min to overcome. The total elevation gain is about 500 meters, and the expected duration to complete the route is up to 2 hours and 15 minutes,</p>	<p>MODERATELY ADVANCED</p> <p>Level 2 = Suitable for all asphalt surfaces, provided there are no granite cobblestones with gaps wider than 2 cm or height differences over 1 cm. Cobblestones must also have sufficient texture to provide grip in wet conditions. Routes avoid long steep descents (over 2 km) and sharp bends after straights where speeds can exceed 70 km/h.</p>	<p>EEASY-MODERATE</p> <p>Level 2 = physically undemanding routes on gently rolling sections, with a total length of up to approximately 20 km.</p>	<p>MODERATELY ADVANCED</p> <p>Level 2 = Technically undemanding routes on gently undulating terrain with a relatively small maximum gradient – up to approximately 5% - and a well-compacted surface.</p>
Level 3	<p>MODERATE DIFFICULT</p> <p>Level 3 = route intended for persons who cycle 2-3 times a week and possess an intermediate level of technical skill on a bicycle. The expected duration to complete the route is up to 2 hours and 30 minutes, with an elevation gain of approx. 900 meters. Climbing the ascents requires about 15 minutes.</p>	<p>ADVANCED</p> <p>Level 3 = Sections of climbs may exceed a 20% gradient but are no longer than 300 m. The route may include technically demanding single-track sections with drops or jumps.</p>	<p>MODERATE DIFFICULT</p> <p>Level 3 = route intended for persons who cycle regularly 2-3 times per week. The route lasts up to 3,5 hours with a maximum elevation gain of around 1500 meters. Continuous climbs do not exceed 25 minutes of riding or 400 m of elevation gain in one stretch.</p>	<p>ADVANCED</p> <p>Level 3 = All asphalt, concrete or granite surfaces are acceptable. Climbs & descents can be steeper than 7% if they are longer than 4 km.</p>	<p>MODERATE DIFFICULT</p> <p>Level 3 = Slightly demanding routes on gently rolling terrain, with a total length of up to approximately 30 km and a total ascent of up to around 300 m.</p>	<p>ADVANCED</p> <p>Level 3 = Technically slightly demanding routes on gently undulating terrain with a small maximum gradient – up to approximately 8%. The surface may vary but must remain suitable for cycling.</p>
Level 4	<p>DEMANDING- DIFFICULT</p> <p>Level 4 = route intended for persons who cycle regularly, 4-5 times a week, with high technical cycling skills. The expected duration to complete the route is from 3 hours and 30 minutes to 4 hours, with an elevation gain of up to 2200 meters.</p>	<p>EXPERTS</p> <p>Level 4 = No restrictions on the technical difficulty of descents or climbs. Descents may include simple jumps shorter than 4 m, with a landing area free of obstacles or with a turn immediately after the landing. Jump locations must have an alternative route that bypasses the jumps. All trail widths and surface roughness levels are considered.</p>	<p>DEMANDING- DIFFICULT</p> <p>Level 4 = route intended for persons who cycle regularly 3-4 times per week. Routes have climbs duration of up to 4,5 hours and a total elevation gain of up to 2500 m. continuous climb reach up to 1000 m of elevation gain in one stretch, with an average gradient not steeper than 7%.</p>	<p>EXPERTS</p> <p>Level 4 = All asphalt, concrete or granite surfaces are acceptable Descents can have any gradient and high technical difficulty. Two-way roads must be at least 5 m wide on descents, while one-way roads can be up to 2.5 m wide.</p>	<p>DEMANDING- DIFFICULT</p> <p>Level 4 = Challenging routes on gently rolling sections, with a total length of approx. 40 km and a total ascent of up to around 400 m</p>	<p>EXPERTS</p> <p>Level 4 = Technically more challenging routes on gently undulating sections with a maximum gradient of up to approximately 10%. The surface may vary but must remain suitable for cycling.</p>
Level 5	<p>EXTREMELY DIFFICULT</p> <p>Level 5 = route intended for persons in great physical condition with very high technical skills. The expected duration to complete the route is from 3,5 hours onward, with elevation gain exceeding 2200 meters.</p>	<p>EXTREME</p> <p>Level 5 = Any degree of surface roughness may be included, as well as both artificial and natural jumps of all lengths and types of landings.</p>	<p>EXTREMELY DIFFICULT</p> <p>Level 5 = route intended for persons who cycle regularly 4-7 times per week. The max. route duration is up to 4,5 hours, with a max. elevation gain of. 2500 meters.</p>	<p>EXTREME</p> <p>Level 5 = All asphalt, concrete or gravel surfaces are possible. There are no limitations regarding the length or gradient of climbs. All road widths are considered.</p>	<p>EXTREMELY DIFFICULT</p> <p>Level 5 = physically demanding routes on rolling or longer sections. The route length is up to approximately 50 km, with a total ascent of up to around 500 m.</p>	<p>EXTREME</p> <p>Level 5 = Technically challenging routes on rolling or longer sections with higher maximum gradients that can reach up to approximately 15%, but only on goo-quality< surfaces. The surface may vary along the route but must remain suitable for cycling.</p>

3.2. STANDARD FOR CYCLING ROUTE SIGNAGE

An integrated approach to a standardized cycle tourism signage system has already been implemented in some Croatian counties. Among examples of the introduction of standardized cycling signs, the counties of Istria, Split-Dalmatia, Šibenik-Knin, and Virovitica-Podravina stand out.

In counties that haven't yet adopted unique signage system, improvised solutions still prevail. Cycling routes in these areas are often marked with unofficial, locally made directional signs. Sometimes such improvised signs are partially supplemented with elements of the standard "blue" traffic signage, but often there are no official cycling signs on the ground at all.

Experiences in other counties vary. Split-Dalmatia County and Šibenik-Knin county, as a concept, use division into clusters within the county for route signage (route numbers). A cluster is a consistent and logical territorial unit of settlements with cycling routes within a county. Every cluster has its own range of numbers, which are assigned to each local tourist board according to location.

This concept requires that the existing routes, already marked with either a number or a name, to be re-marked with new signs.

The basic sign features the cycle tourism visual identity with a bicycle icon at the bottom and the route designation on the top. The sign may include the route's distance marker in km and an arrow indicating direction of the route.



Examples of signage from other coastal counties

(Explanation of terms in the above image:

"Istarska"=Istrian (County)



Italy – Croatia



“Splitsko-dalmatinska”=Split-Dalmatia (County)

“Šibensko-kninska”=Šibenik-Knin(County)

“Brežuljkaste staze do 700 m uspona”=rolling trails with up to 700 m of ascent

This kind of marking system provides basic information about the route number/name, directions of travel, and distance to a location, while the colour on the logo indicates the route’s difficulty (three levels).

On the other hand, such a concept does not provide enough information for the safe ride on the route.

Information on technical and physical difficulty is not available, and the three-level difficulty categorization does not provide enough information about the route itself – whether it is an MTB route, family and trekking route, or road route.

According to the stated, the following solution concept will be applied:

INFO SIGN TYPE I, dimensions 15x20 cm

This is either an existing route sign with a name already in the field or a new one that contains the route name, a unique graphic design and visual chosen by the local tourist board, along with their logo and website address. The sign is designed by the local tourist board.

BASIC SIGN TYPE II, dimensions 20x20 cm,

The standardized sign contains:

- signs for movement and navigation in the area (directional arrows, destination names, distance to destinations)
- sign for route name (number, letter, name)
- QR code of the local tourist board
- signs indicating the type of route, surface along the route section, recommended type of bicycle (MTB, trekking/gravel, road bike)
- technical and physical difficulty of route, route number (for graphic display),



SUPPLEMENTARY SIGN TYPE III dimensions**15x20 cm**

The standardized sign contains additional information about the facilities along the section, as follows: - location of a service station, availability of water, presence of wildlife, detours on the route, connection to another route, specific obstacles or hazards on the route ...

The proposed solution allows local tourist boards to incorporate their “DNA” into TYPE 1 signs, while providing all cycle tourists with standardized information through TYPE 2 signs for safe navigation and movement along a route suitable for their skill level and the type of bicycle they ride, and through TYPE 3 signs that provide additional information about route facilities.

Care will be taken to ensure that the content on the boards is clear and legible, and that they are not overloaded with unnecessary text or symbols. Key information (such as the route number or direction) will be highlighted with larger fonts and in contrasting colours to make it easily noticeable from a greater distance.

3.2.1. Standardized cycling route signage



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SIGN TYPE I	SIGN TYPE II	SIGN TYPE III
For routes that already have a directional or name sign, it will be retained	pictograms for navigation, directional arrows, direction of travel to the destination	location of a service station, availability of water,
for routes without a sign, the local tourist board designs a new sign, which includes the route name, a graphic design chosen by the local tourist boards, along with their logo and website address.	destination name a distance to destination (km) sign for route name (number, letter, name) QR code at the local tourist board	detour on the route,
	type of route (MTB-red, road-blue, family & trekking route-green) type of surface – gravel, trails/single track, asphalt, cobblestone, concrete,	connection with another route,
	proposed type of bicycle (MTB, trekking/gravel, road bike) pictogram	specific obstacle or other on the route, presence of wildlife
	technical difficulty of the route pictogram (1 – 5)	
	physical difficulty of the route pictogram (1 – 5)	

In accordance with the proposed standard, cycling infrastructure needs to be marked in both directions of travel.

Minimal cycling route signage

The minimum standard sign for MTB, family & trekking routes, as well as road routes should contain following:

SIGN TYPE I

- Route name, graphic design chosen by the local tourist board

SIGN TYPE II

- pictograms for navigation – directional arrows, direction of movement to destination*
- name of destination*
- distance to destination (km)*



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- sign for route name (number, letter, name)
- type of route (MTB-red, road-blue, family & trekking route-green)
- technical difficulty of the route -pictogram (1 - 5)
- physical difficulty of the route -pictogram (1 - 5)

SIGN TYPE III

- location of the service station,
- availability of water,

3.2.2. Standard equipment for a cycling route

Standard equipment of MTB, family & trekking routes, and road routes should contain:



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Infrastructure equipment	Proposed standard	Note
signage	Signs TYPE1, TYPE II, TYPE III	Navigation and safety, light visibility; min 200 m at night, retroreflective,
service stations	every 20–30 km	tire removal tool (3 x tyre levers), allen key set 2, 2.5, 3, 4, 5, 6 and 8 mm, open-end wrench set 13, 14, 15 i 16 mm, screwdriver set, pump with a pressure gauge, capable of inflating up to 9 bar for all existing valve types Presta, Schrader and Dunlop
Charging stations	Every 30 km	USB-C / Schuko sockets, compatibility with e-bike batteries, weather protection (IP54)
Bicycle parking areas	At all main points of interest, at the entry points of routes, or at the expected entry to a route	possibility to lock the frame and wheels
Info boards/info panels	At the entry point of routes or at the expected entry to a route	topographic map of the trail (1:25 000), -emergency contacts (GPS coordinates), - QR code for digital information
Viewpoints, rest areas	Minimum one on the route or on every 30 km	sanitary facility (toilet with a septic tank), gazebo (min. 8 m ²), benches with backrests, waste bins(separate for recycling)

Detailed specification of the tool set at the service station:

- *tire removal tool (3 x tyre levers)*
- *Allen key set 2, 2.5, 3, 4, 5, 6 and 8mm*
- *open-end wrench set 13, 14, 15 and 16mm*
- *screwdriver set*
- *pump with a pressure gauge, capable of inflating up to 9 bars for all existing valve types Presta, Schrader and Dunlop.*

Minimal equipment of a cycling route

Minimal standard equipment of MTB, family & trekking routes, and road routes should contain:

- *signage*
- *service station on a route*



- info boards/informational panels at the entry point

3.2.3. Standard for graphic design of cycling route signage

CYCLING ROUTE CATEGORISATION – GRAPHICAL REPRESENTATION

Signs

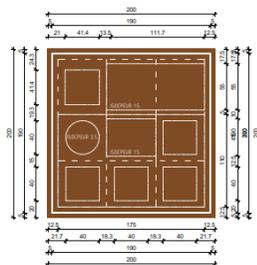
Mountain-cycling route (MTB route) Surface gravel		RGB 204, 6, 5 CMYK 0, 97, 98, 2 HEX #CC0605 RAL 3020	Family & trekking cycling route Surface asphalt		RGB 46, 191, 20 CMYK 76, 0, 90, 25 HEX #2EBF14 RAL 6038	Road cycling route (Road bike) Surface asphalt		RGB 0,120,200 CMYK 0, 100, 100, 0 HEX #FF0000 RAL 3026
Mountain-cycling route (MTB route) Surface asphalt			Family & trekking cycling route Surface cobblestones / concrete			Road cycling route (Road bike) Surface cobblestones		
Mountain-cycling route (MTB route) Surface trails, single track			Family & trekking cycling route Surface gravel			Road cycling route (Road bike) Surface concrete		
		RGB 255, 255, 255 CMYK 0, 0, 0, 0 HEX #FFFFFF RAL 9010			RGB 255, 255, 255 CMYK 0, 0, 0, 0 HEX #FFFFFF RAL 9010			RGB 255, 255, 255 CMYK 0, 0, 0, 0 HEX #FFFFFF RAL 9010
		RGB 0, 0, 0 CMYK 0, 0, 0, 100 HEX #000000 RAL 9005			RGB 0, 0, 0 CMYK 0, 0, 0, 100 HEX #000000 RAL 9005			RGB 0, 0, 0 CMYK 0, 0, 0, 100 HEX #000000 RAL 9005
Route name / sign	01	RGB 204, 6, 5 CMYK 0, 97, 98, 20 HEX #CC0605 RAL 3020	Route name / sign	07	RGB 46, 191, 20 CMYK 76, 0, 90, 25 HEX #2EBF14 RAL 6038	Route name / sign	16	RGB 0,120,200 CMYK 0, 100, 100, 0 HEX #FF0000 RAL 3026
	Mountain cycling route name (MTB route) -Name -Number -Letter	RGB 255, 255, 255 CMYK 0, 0, 0, 0 HEX #FFFFFF RAL 9010		Family & trekking route name -Name -Number -Letter	RGB 255, 255, 255 CMYK 0, 0, 0, 0 HEX #FFFFFF RAL 9010		Road route name -Name -Number -Letter	RGB 255, 255, 255 CMYK 0, 0, 0, 0 HEX #FFFFFF RAL 9010

MAIN SIGN
TYPE II, dim 20x20 cm



RGB 126, 75, 36
CMYK 0, 40, 71, 51
HEX #7E4B24
RAL 8003

RGB 255, 255, 255
CMYK 0, 0, 0, 0
HEX #FFFFFF
RAL 9010

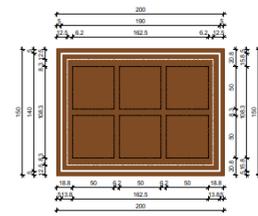


ADDITIONAL SIGN
TYPE III, dim 15x20 cm



RGB 126, 75, 36
CMYK 0, 40, 71, 51
HEX #7E4B24
RAL 8003

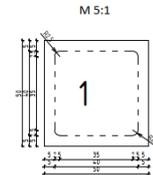
RGB 255, 255, 255
CMYK 0, 0, 0, 0
HEX #FFFFFF
RAL 9010



RGB 255, 255, 255
CMYK 0, 0, 0, 0
HEX #FFFFFF
RAL 9010

RGB 255, 255, 0
CMYK 0, 0, 100, 0
HEX #FFFF00
RAL 1026

RGB 0, 0, 0
CMYK 0, 0, 0, 100
HEX #000000
RAL 9005



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Map - Route name / sign



Mountain cycling route name (MTB route)
-Name
-Number
-Letter

RGB 204, 6, 5
CMYK 0, 97, 98, 20
HEX #CC0605
RAL 3020

RGB 255, 255, 255
CMYK 0, 0, 0, 0
HEX #FFFFFF
RAL 9010



Family & trekking route name
-Name
-Number
-Letter

RGB 46, 191, 20
CMYK 76, 0, 90, 25
HEX #2EBF14
RAL 6038

RGB 255, 255, 255
CMYK 0, 0, 0, 0
HEX #FFFFFF
RAL 9010



Road route name
-Name
-Number
-Letter

RGB 0,120,200
CMYK 0, 100, 100, 0
HEX #FF0000
RAL 3026

RGB 255, 255, 255
CMYK 0, 0, 0, 0
HEX #FFFFFF
RAL 9010

Map - Route surface type

Bez oznake na oznaci tehničke
No technical difficulty markings on the map

- MTS route - asphalt
- Family & trekking route - asphalt
- Road route - asphalt

Technical difficulty markings on the map

- MTS route - gravel
- Family & trekking route - cobblestones / concrete
- Road route - cobblestones

Technical difficulty markings on the map

- MTS route - trails, single track
- Family & trekking route - gravel
- Road route - concrete

CYCLING ROUTE TECHNICAL DIFFICULTY CATEGORISATION – GRAPHICAL REPRESENTATION

Signs



Polaznik
Beginner
1/5



Umjeren napredni
Moderately advanced
2/5



Napredni
Advanced
3/5



Eksperti
Experts
4/5



Ekstremni
Extreme
5/5

Map

RGB 0, 255, 0
CMYK 100, 0, 100, 0
HEX #00FF00
RAL 6038

RGB 255, 255, 255
CMYK 0, 0, 0, 0
HEX #FFFFFF
RAL 9010

RGB 0, 0, 255
CMYK 100, 100, 0, 0
HEX #0000FF
RAL 5015

RGB 255, 255, 255
CMYK 0, 0, 0, 0
HEX #FFFFFF
RAL 9010

RGB 255, 0, 0
CMYK 0, 100, 100, 0
HEX #FF0000
RAL 3026

RGB 255, 255, 255
CMYK 0, 0, 0, 0
HEX #FFFFFF
RAL 9010

RGB 0, 0, 0
CMYK 0, 0, 0, 100
HEX #000000
RAL 9005

RGB 255, 255, 255
CMYK 0, 0, 0, 0
HEX #FFFFFF
RAL 9010

RGB 255, 191, 0
CMYK 0, 25, 100, 0
HEX #FFBF00
RAL 1023

RGB 255, 255, 255
CMYK 0, 0, 0, 0
HEX #FFFFFF
RAL 9010

Signs



Lagan
Easy
1/5



Lagana teško
Slightly difficult
2/5



Umjeren teško
Moderately difficult
3/5



Zahtjevan teško
Technically difficult
4/5



Intenzivno teško
Extremely difficult
5/5

Map

RGB 255, 255, 255
CMYK 0, 0, 0, 0
HEX #FFFFFF
RAL 9010

RGB 0, 0, 255
CMYK 100, 100, 0, 0
HEX #0000FF
RAL 5015

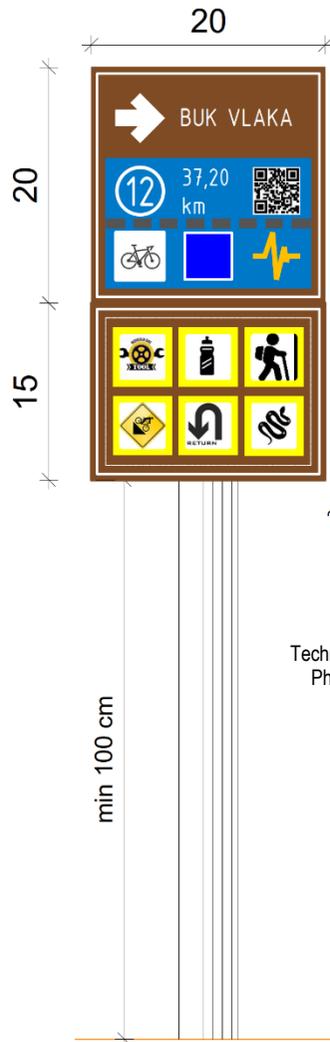
RGB 255, 0, 0
CMYK 0, 100, 100, 0
HEX #FF0000
RAL 3026

RGB 0, 0, 0
CMYK 0, 0, 0, 100
HEX #000000
RAL 9005

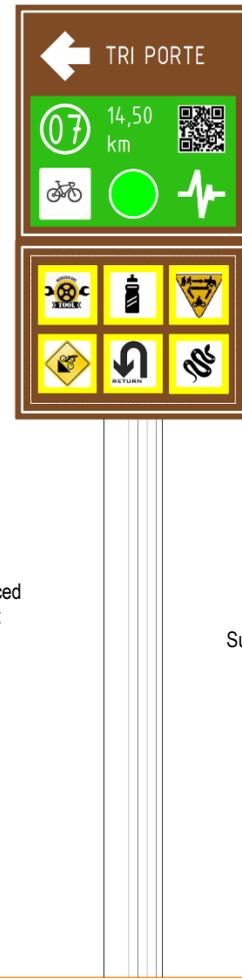
RGB 255, 191, 0
CMYK 0, 25, 100, 0
HEX #FFBF00
RAL 1023



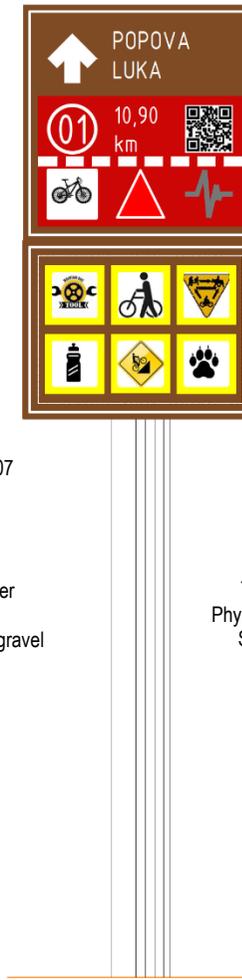
Italy – Croatia



Concrete surface
Left turn to BUK VLAKA
Total distance 37,20 km
Technical difficulty – Moderately advanced
Physical difficulty – extremely difficult
Suggested bicycle – Road
Barcode - TZ



Asphalt surface
Left turn to TRI FORTE
Total distance 14,50 km
Technical difficulty – Beginner
Physical difficulty – Easy
Suggested bicycle – Trekking / gravel
Barcode - TZ



Asphalt surface
Straight to POPOVA LUKA
Total distance 10,90 km
Technical difficulty – Advanced
Physical difficulty – Technically difficult
Suggested bicycle – MTB / +FS
Barcode - TZ



Italy – Croatia



3.2.4. Standard for the graphic design of cycling route information boards/panels

The spatial positioning of information boards should include their locations as key points along the cycling route (starting point, points of overlapping with other routes, cyclist rest areas) or in front of tourist board offices, cyclist accommodation facilities etc.

The applied graphic and content solutions of the information boards vary, but they follow a basic concept that includes:

- route name alongside the local destination logo*
- overview map*
- technical details of the cycling route*
- elevation profile of the route*
- route description*
- legend for route and signage display*
- instructions for safe riding*
- emergency contacts*
- QR codes for other cycling routes*

The following photos show examples from counties Split-Dalmatia, Šibenik-Knin, Zagreb County.





Examples for Split-Dalmatia County

BICIKLISTIČKA STAZA / CYCLING PATH

101
PUTEVIMA KAMENE ČIPKE

103
10 SELA

INFO	101	103
DUŽINA STAZE DISTANCE	16,5 km	21,1 km
UKUPNO USPONA TOTAL CLIMB	245 m	336 m
NAJVIŠA TOČKA HIGHEST POINT	230 m	249 m
NAJNIŽA TOČKA LOWEST POINT	22 m	18 m
FIZIČKA ZAHTEJVNOST PHYSICAL DIFFICULTY	3 / 5	2 / 5
TEHNIČKA ZAHTEJVNOST TECHNICAL DIFFICULTY	2 / 5	1 / 5
PREPORUČENI BIKIKL RECOMMENDED BIKE	Brdski bicikl Mountain bike	Cestovni bicikl Road bike

SAVJETI ZA SIGURNOST I VEŠTAČENJE PRI VOŽENJU (PRAVO ZA VOŽENJE NA BIKIKLU):

- pri vožnji se držite na desnoj strani ceste i službi gladine
- oprezno se držite na raskrižjima te eventualno izmislite alternativu
- nosite kacigu
- uvijek imajte sa sobom dokumentaciju, u slučaju nesreće
- uvijek nosite sa sobom prvu pomoć i sredstva za prvu pomoć
- imajte sa sobom sredstva za komuniciranje
- signalizirajte i ostalim vozačima svoje prisutstvo na putu
- pokušajte uvijek odgovoriti na poziv, pogotovo noću i u zimi
- pokušajte uvijek nositi
- u slučaju nesreće zovite 112

SAVJETI ZA SIGURNOST I VEŠTAČENJE PRI VOŽENJU (PRAVO ZA VOŽENJE NA BIKIKLU):

- do not wear loose clothes or fabric that can flap
- do not talk on mobile phone (use headset)
- wear a helmet
- on the road keep right
- look ahead that makes emergency lane
- stop when necessary
- always have a first aid kit with you
- always open a mobile and answer calls in time
- try to purchase enough fuel
- in case of emergency call 112

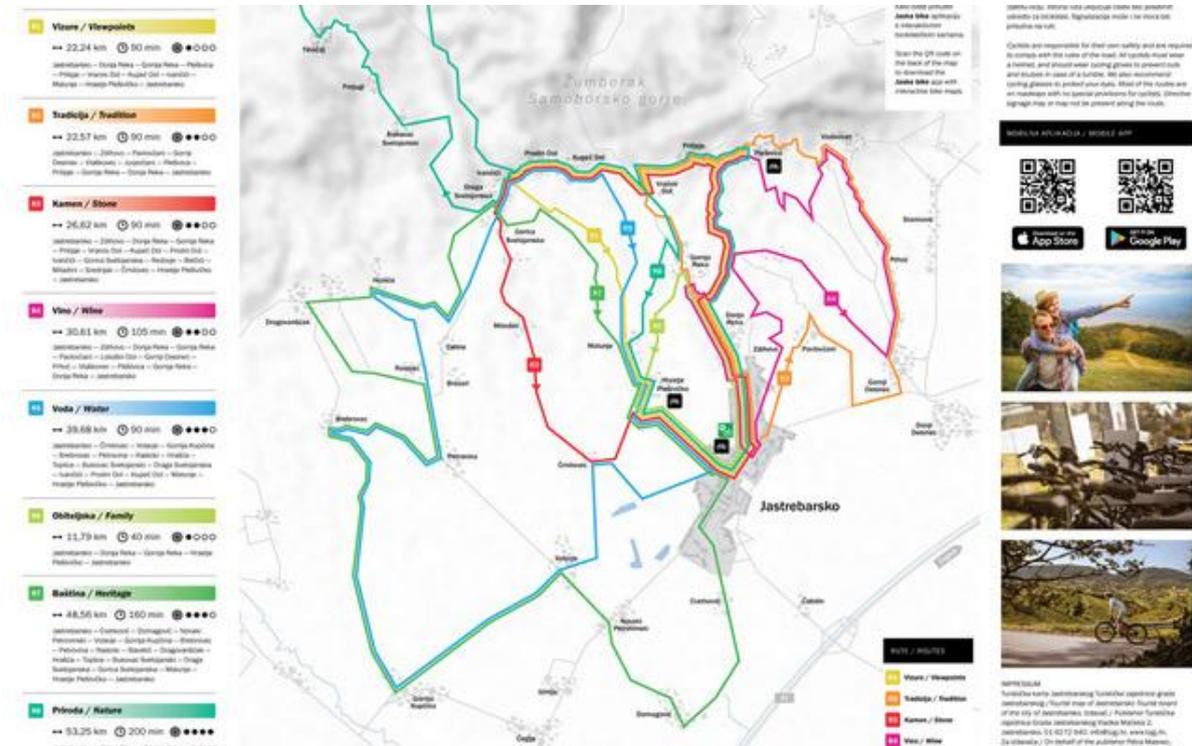
Tourist Board of Šibenik-Knin County

(Explanation of terms from the above image:

“Putevima kamene čipke”=Following the trails of stone lace

“10 sela”=10 villages)





„Jaska Bike“ of Tourist Board of the City of Jastrebarsko

By reviewing several implemented solutions in other counties, we can determine the content that must be included on information boards:

- name of the cycle tourism destination, a unique graphic design and visual chosen by the local tourist board along with their website address, identification code of cycling routes in Dubrovnik-Neretva County or
- route name, graphic design chosen by the local tourist board with their logo and website address. This sign is designed by the local tourist board, identification code of cycling routes in Dubrovnik-Neretva County
- map covering the entire area of the route(s), with a recommended scale of around 1:25000 and 1: 50000 so that the map can include all the necessary details for cyclists
- marked contour lines and peaks (with elevations), especially on more demanding routes with significant ascents (complex profiles)
- locations of the service stations
- length of each individual route displayed
- total ascent (in metres of elevation), mandatory for more demanding routes with significant ascents
- assessment of the physical and technical difficulty of each route

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- *graphically displayed altimetry (route profile) with clear elevation differences (in metres for all routes)*
- *on the altimetry and map, the type of surface must be clearly indicated: gravel and asphalt, cobblestone, concrete (usually solid lines for paved roads, dotted or dashed lines for gravel, dirt and other types of routes)*
- *cycling route description (one or two)*
- *basic rules of conduct for safe cycling on the routes*
- *legend for map symbols and route signage*
- *QR code for the remaining routes on the map*
- *Emergency service phone numbers 112, 192, 193, 194, and telephone number of the local tourist board*
- *tourist board website address, QR code or QR code linking to the website of Dubrovnik-Neretva County*
- *initial signage for entering the cycling route (left, right or straight ahead)*

Additional content:

- *designated certified accommodation facilities for cyclists*
- *marking additional content on display (e.g. eno-gastronomic offerings, viewpoints, cultural-historical sites, beekeepers, olive oil producers, wineries etc.).*

Conceptual distribution and organization of content, which must be bilingual (Croatian/English) is shown in the following diagram.



Italy – Croatia



Conceptual diagram

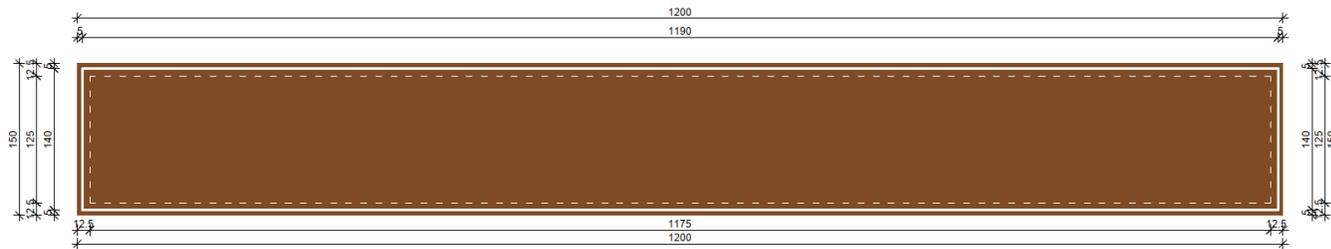




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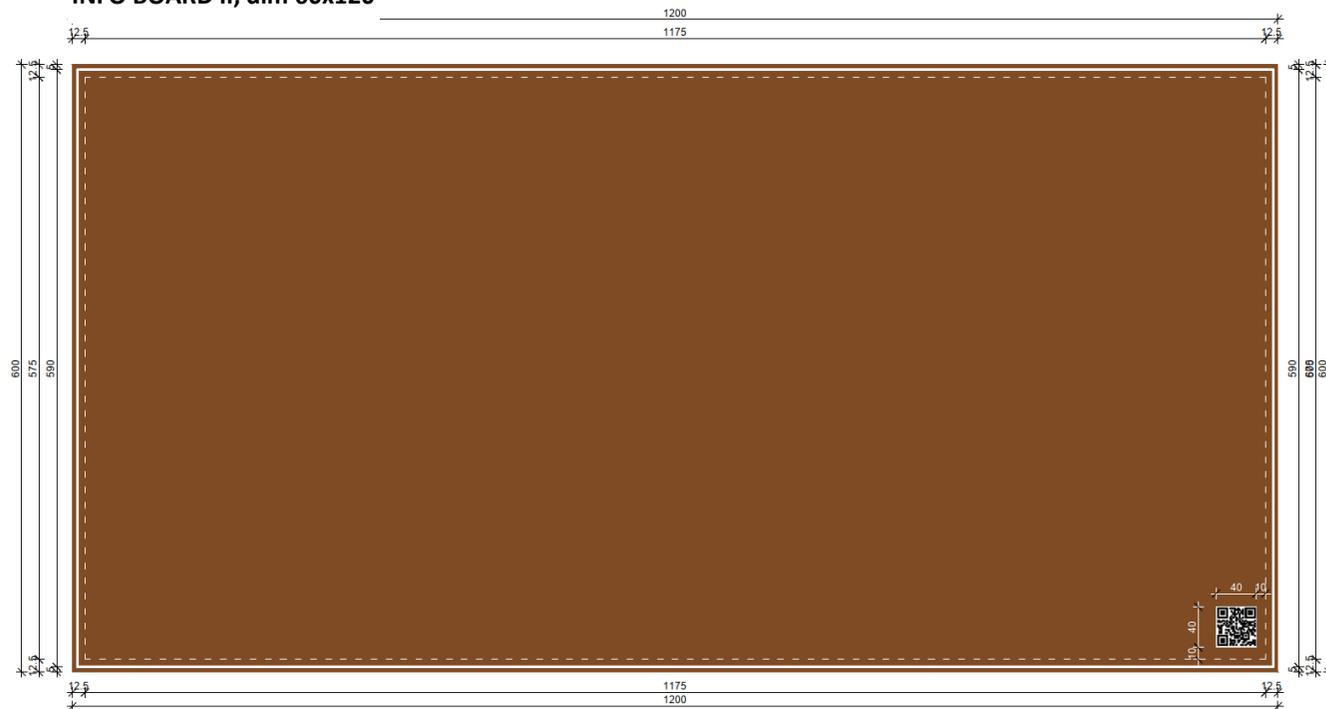
INFO BOARD I, dim 15x120



RGB 126, 75, 36
CMYK 0, 40, 71, 51
HEX #7E4B24
RAL 8003

RGB 255, 255, 255
CMYK 0, 0, 0, 0
HEX #FFFFFF
RAL 9010

INFO BOARD II, dim 60x120

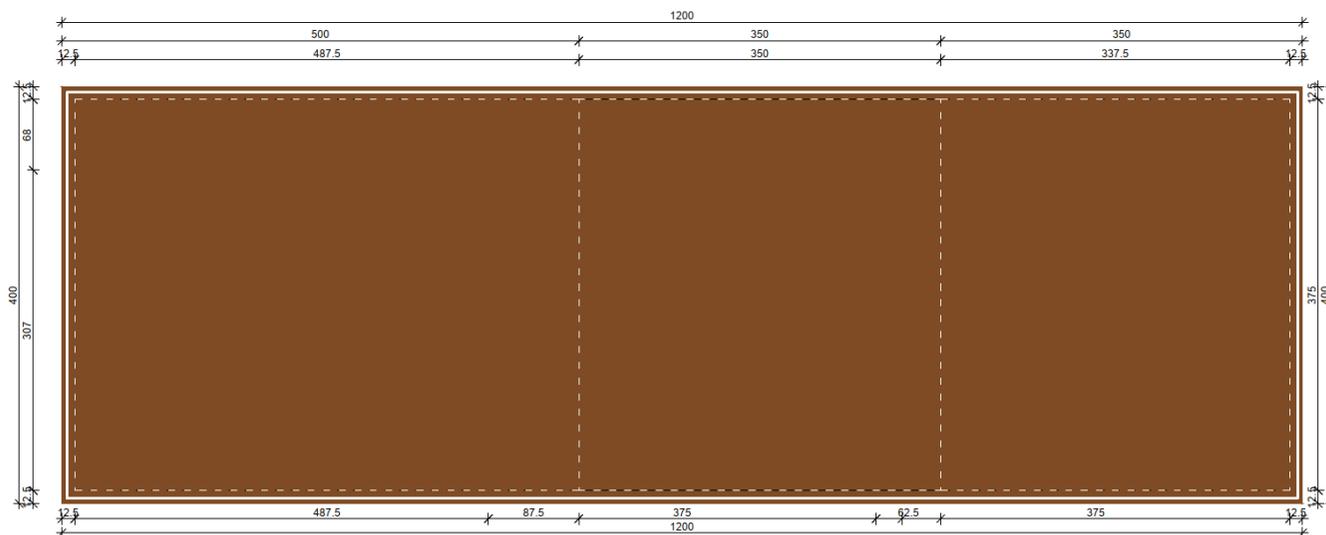


RGB 126, 75, 36
CMYK 0, 40, 71, 51
HEX #7E4B24
RAL 8003

RGB 255, 255, 255
CMYK 0, 0, 0, 0
HEX #FFFFFF
RAL 9010



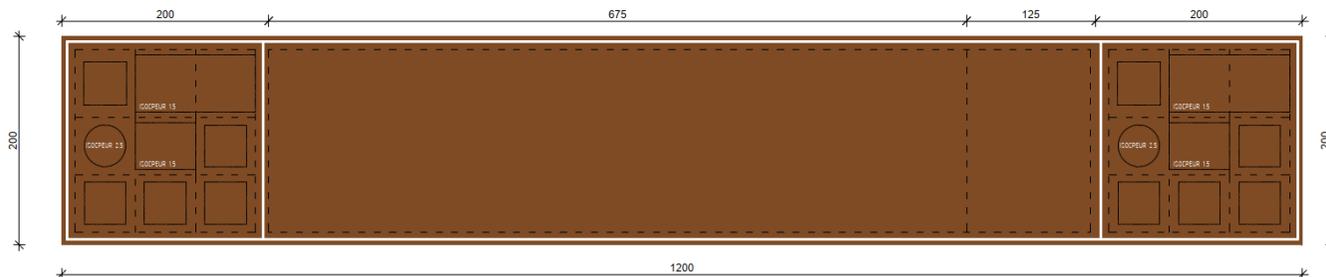
INFO BOARD III, dim 40x120



RGB 126, 75, 36
CMYK 0, 40, 71, 51
HEX #7E4B24
RAL 8003

RGB 255, 255, 255
CMYK 0, 0, 0, 0
HEX #FFFFFF
RAL 9010

INFO TABLA IV, dim 20x120 cm
INFO BOARD IV, dim 20x120

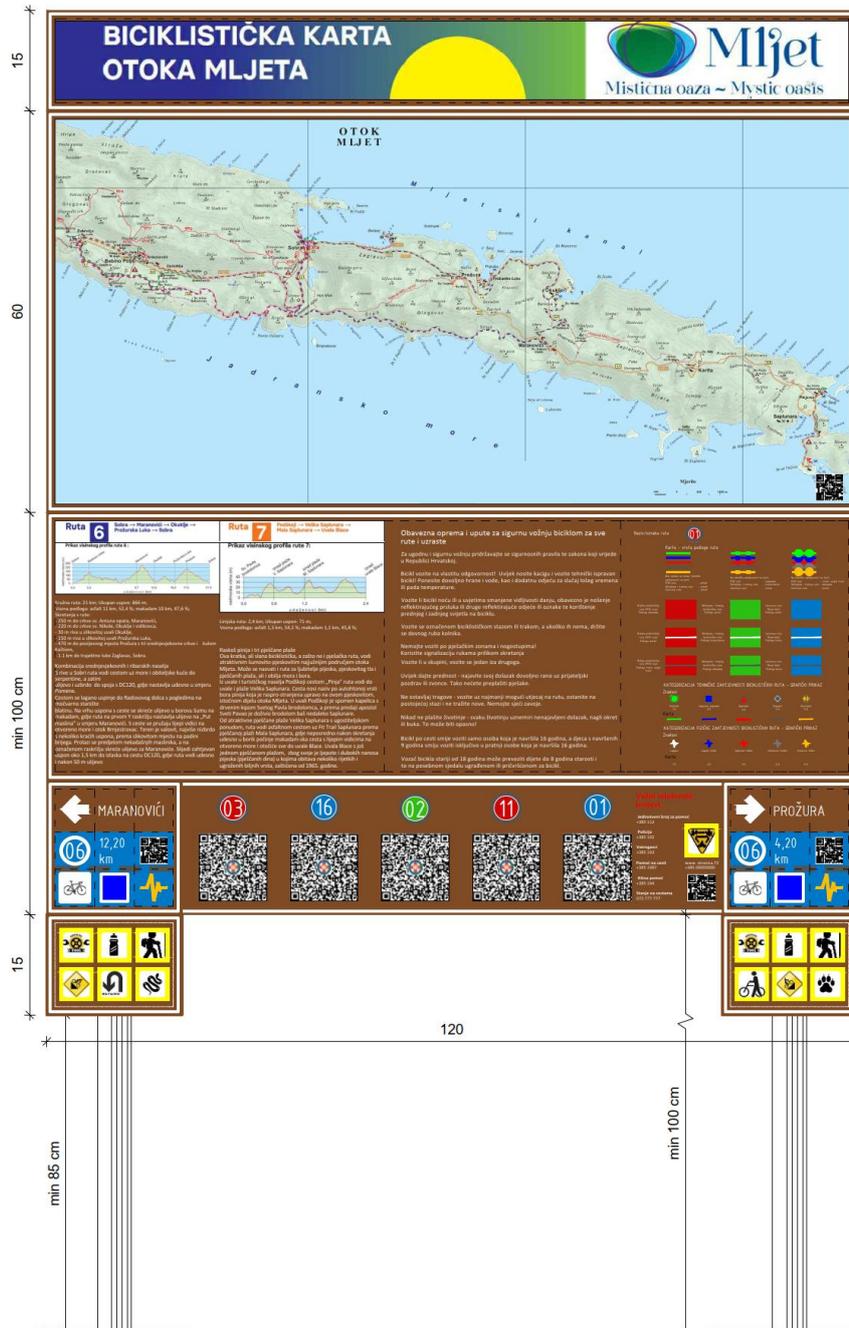


RGB 126, 75, 36
CMYK 0, 40, 71, 51
HEX #7E4B24
RAL 8003

RGB 255, 255, 255
CMYK 0, 0, 0, 0
HEX #FFFFFF
RAL 9010



3.2.5. Graphic design of cycling route signage – EXAMPLE



(Explanation of terms from above image:
 "Biciklistička karta otoka Mljeta"="Bicycle map of the island of Mljet)



3.3. STANDARD FOR DIGITAL INTEROPERABILITY

In the era of digital transformation, cycling infrastructure requires a unified standard interoperability. The goal is to connect physical trails, users, intermodal points and digital platforms into a seamless digital ecosystem that will serve as a reference for safe and advanced cycling. Intermodal points are becoming green transfer hubs – places where the cyclist is no longer an isolated road user. Hypothetical example: a tourist from Munich steps off the train in Rijeka, transfers his bike to a charging station, downloads GPX track to Opatija via a mobile app, and continues the journey without losing time.

Primary goals:

- Reducing the share of cars in accessing routes, increasing the use of public transportation among cyclists*
- Eliminating the “last mile” barrier in accessing rural trails (the critical gap between main transport hub (ferry, train/bus) and the starting point of the route)*

Digital interoperability rests on three pillars:

1. Unified GPX route database

The foundation of the standard is a centralized GPX track database that integrates all routes- from MTB, road, family & trekking to extreme downhill routes. Each trail is mapped with critical attributes:

- Technical parameters: type of surface (asphalt, gravel, cobblestone, concrete, single track), average gradient (in %), physical and technical difficulty,*

2. Integration with digital platforms (both existing and newly developed)

Integration enables automatic synchronization with global services:

- Strava/Komoot: users share GPX tracks with difficulty attributes, which facilitates planning of cross-border routes (i.e. Alpe-Adria).*
- RidewithGPS: Support for group exploration – riders can see the positions of other users on a shared map.*
- Garmin Connect: Support for group exploration – riders can see positions, receive alerts for hazardous sections and traffic, with audio and vibration notifications warning of steep climbs or technical obstacles. Smart rerouting in the case the trail is closed (e.g. due to maintenance), and display of available e-bike charger stations.*



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3. Intermodal points

Bicycle transport hubs:

- *Transport solutions: Ramps for loading bicycles onto ferries, trains, external racks on busses, with no additional fees.*

Digital connectivity

- *Application synergy: real-time data on train, ferry departures visible within the cycle application*
- *GPX integration: Trails in the database are marked with train/bus/ferry icon if they start at an intermodal hub*

Marketing and promotion

- *Website (route with description, gpx trail and QR code)*
- *Publication of all routes in the database of digital cycling platforms*
- *Printed materials (flyers and maps on information points)*

*Digital interoperability is not a luxury – it is a necessity for a modern cycling experience. Through a unified GPX database, digital platforms and intermodal global connectivity, cyclists gain a tool which turns challenges into adventure. This standard becomes the foundation for a future where every trail, regardless of the difficulty level, becomes accessible, predictable and safe. One realistic option is to enhance the official **Explore Croatia** app of the Croatian Tourist Board with cycle tourism routes.*

4. SAFETY ON EUROVELO 8 AND ALTERNATIVE ROUTES IN DUBROVNIK-NERETVA COUNTY

EuroVelo is a European network of 17 cycling routes that connect the entire European continent. The routes stretch across more than 40 countries and are designed for cyclists of all profiles – from cycle tourists to local population riding shorter relations. The idea is to promote sustainable travel, connect regions and make cycling easier across Europe.

EuroVelo project was launched in 1995 at the European level and is coordinated by the European Cyclists' Federation (ECF). In Croatia EuroVelo routes have been introduced gradually, and currently four official routes pass through the country: EuroVelo 6 (the Danube Route), EuroVelo



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8 (the Mediterranean Route), EuroVelo 9 (the Baltic-Adriatic Route), and EuroVelo13 (the Iron Curtain Route).

The first significant development and recognition of these routes in Croatia occurred in 2010s, alongside with the growth of cycle tourism and infrastructural investment. Croatia has been officially integrated into the network through the efforts of local tourist boards, national and county institutions and participation in EU projects for route promotion and development (MedCycleTour).

The EuroVelo 8 (EV 8) cycling route, which passes through Dubrovnik-Neretva County, offers exceptional natural and cultural attractions.

The EuroVelo 8 (EV 8) stage in Dubrovnik-Neretva County is part of the southern EV8 section, stretching from Makarska to Ploče. In Dubrovnik. Neretva County, it passes through the main sections:

1) Ploče/Trpanj - Ston

Ploče/Trpanj – Trstenik (24 km) – Žuljana (30 km) – Putnikovići (37 km) – Ston (56 km)

2) Ston - Dubrovnik

Ston – Doli (8 km) – Slano (22 km) – Majkovi (27 km) – Trsteno (37 km) – Zaton (44 km) – Dubrovnik (56 km)

3) Dubrovnik - Vitaljina

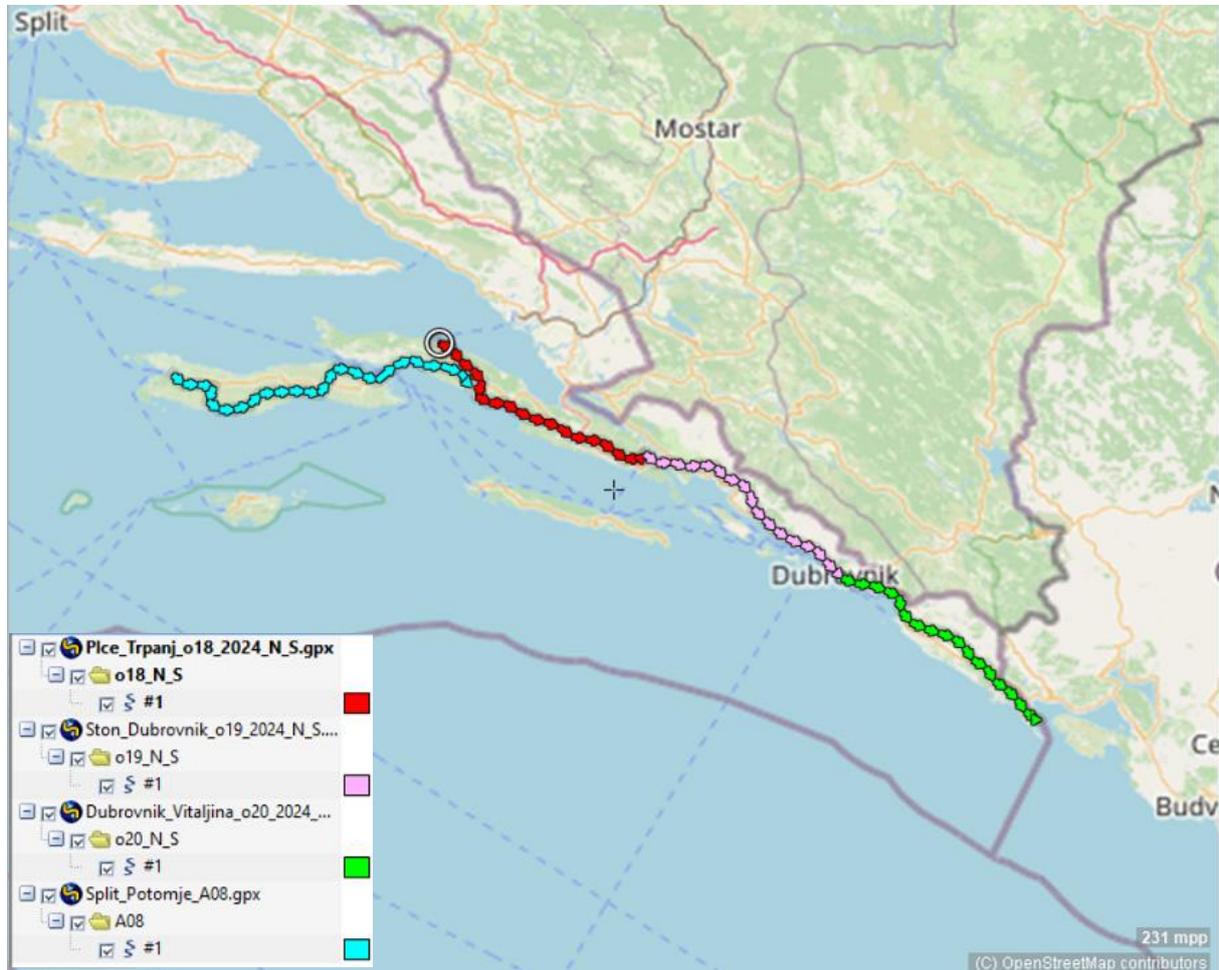
Dubrovnik – Zvekovica (18 km) – Gruda (33 km) – Vitaljina (46 km) – Border crossing (GP) Montenegro (50 km)

An alternative approach to EV8 in Dubrovnik Neretva County is the section:

1) A8 Split (ferry) – Potomje

Split / Vela Luka /ferry/ - Blato (8 km) - Brna (25 km) - Smokvica (29 km) - Čara (33 km) - Pupnat (44 km) - Korčula/Orebić /ferry/ (62 km) - Potomje (80 km)





EV8 section south – Dubrovnik Neretva County

4.1. ROUTE ANALYSIS STARTING POINTS IN DUBROVNIK-NERETVA COUNTY

An analysis of the route’s safety will be conducted to identify shortcomings, propose measures and solutions to ensure safe passage for cyclists, with particular attention to alternative routes that avoid hazardous roads around Dubrovnik, marked as highly dangerous and unsafe. For the initial and comparative analysis, the following documents were used: “Systematization and Recommendations for EV8 in Croatia (2018)”, “Route Assessment Report for Croatia, EuroVelo 8- the Mediterranean Route (2018)”, Project MEDCYCLETOUR.



Italy – Croatia



The proposed measures include implementation of horizontal and vertical signage, as well as educational campaigns targeting motor vehicle drivers and cyclists.

Overview of the average daily summer traffic per year, 2016-2023/2024

Nr.	Section HR	Road	location	length	Traffic average	Traffic summer	Speed (km/h)	limit
29	18	D414	Dubrava Ston	20 km	1800	3700	14 km	90
30	19	D8	Zaton – Dubrovnik bridge	8 km	8500	15000	40-60, 500m	90
31	20	D8	Dubac	1 km	14000	22000		
32	20	D8	Kupari Zvekovica	8 km	14000	22000	50-60 shortly	90

Source of data: Annual traffic counts on Croatian roads, 2016, „Route Evaluation Report“ Croatia, EuroVelo 8 – the Mediterranean Route, MEDCYCLETOUR Project

Nr.	Section HR	Road	location	length	Traffic average	Traffic summer	Speed (km/h)	limit
29	18	D414	Dubrava Ston	20 km	1722 **	4513 *	14 km	90
30	19	D8	Zaton – Dubrovnik bridge	8 km	10677 **	17261 **	40-60, 500m	90
31	20	D8	Dubac	1 km	19385 **	26525 **		
32	20	D8	Kupari Zvekovica	8 km	18461 **	26782 **	50-60 shortly	90

Source of data: Annual traffic counts on Croatian roads 2023, 2024

** Data for 2024

* Data for 2023

Comparison of the data leads to the conclusion of multiple increase in average daily summer traffic, which represents the main safety risk for cyclists' safe passage. By comparing the route evaluations in Dubrovnik-Neretva County from the initial analysis, it was determined under "Route components" section that on all sections, the road category shifts from High traffic to Very high traffic. This makes the identification of alternative routes on these sections a primary objective.



Italy – Croatia



Maximum share of length of different traffic categories on a daily section to fulfil Essential, Important and Additional criteria:

	traffic-free, cycle paths etc.	Traffic				
		very low	low	moderate	high	very high
Essential	no limit	no limit	no limit	no limit	max 50% on a daily section	not allowed
Important	no limit	no limit	no limit	max 50% on a daily section	not allowed	not allowed
Additional	no limit	no limit	max 50% on a daily section	not allowed	not allowed	not allowed

When cycling in mixed traffic (on a public road, bicycle street, agricultural/forest/water management road), the following table is used to determine the traffic category:

Cycling in mixed traffic	30 km/h or lower	31 to 50 km/h	51 to 79 km/h	80 km/h or over
1-500 units/day	very low	very low	very low	low
501-2.000 units/day	very low	low	low	moderate
2.001-4.000 units/day	low	moderate	moderate	high
4.001-10.000 units/day	moderate	high	high	very high
> 10.000 units/day	moderate	very high	very high	very high

For cycle lanes painted on the carriageway or asphalted shoulders, the following table is used:

Cycling on cycle lanes	30 km/h or lower	31 to 50 km/h	51 to 79 km/h	80 km/h or over
Minimum width / direction	1.5 m	1.5 m	2.0 m	2.0 m
1-500 units/day	very low	very low	very low	low
501-2.000 units/day	very low	very low	low	low
2.001-4.000 units/day	very low	very low	low	moderate
4.001-10.000 units/day	very low	low	moderate	high
> 10.000 units/day	low	moderate	high	very high

If the cycle lane width is lower than the specified minimum, the lane does not guarantee a safe distance from overtaking cars and therefore the table for mixed traffic is used instead.



Italy – Croatia



Traffic category

The type of infrastructure, traffic volume, and traffic speed are combined to determine the traffic category of a specific segment. In case of coloured bicycle lanes, their width is considered.

Criteria		54		Comments
Continuity	Discontinuity/not rideable	0	0%	
	multiple steps	0	0%	
	Chicane/obstacles/dismount	0	0%	
Route components	Traffic free	0	0%	
	V.low traffic	0	0%	
	Low traffic	38	70%	
	Moderate traffic	15	28%	Quite long on the main peninsula road D414 with <2000 units/day but often speed limit on 90 km/h
	High traffic	1	2%	One short sectionn close to Potomije with >2000 units/day and 90 km/h
	V.high traffic	0	0%	
Crossings	Dangerous	3	6%	Several junctions on the main peninsula road Tunnel with limited quality of light
	V.dangerous	0	0%	
Surface	Perfectly rideable	46	85%	
	Well rideable	8	15%	
	Moderately rideable	0	0%	
	Badly rideable	0	0%	
Gradients	Cumulative elevation gain [m]		630	Section structure to be reconsidered
	Cumulative elevation loss [m]		630	
	Highest (gain+loss)/km [m]		80	
Attractiveness	Attractions	10	19%	Trpanj Kuna Pelješka terraced vineyards wine-cellars Ston
	Highly attractive area	22	41%	

EuroVelo 8 – Route Evaluation Report for Croatia EV8-114 (HR 18) Trpanj – Ston



Italy – Croatia



Criteria		56		Comments
Continuity	Discontinuity/not rideable	0	0%	
	multiple steps	0	0%	
	Chicane/obstacles/dismount	0	0%	
Route components	Traffic free	0	0%	
	V.low traffic	10	18%	
	Low traffic	35	63%	
	Moderate traffic	2	4%	Entrance in Dubrovnik
	High traffic	9	16%	from Zaton to Dubrovnik
	V.high traffic	0	0%	
Crossings	Dangerous	3	5%	
	V.dangerous	1	2%	junction to D8 road in Zaton - high traffic and bad visibility
Surface	Perfectly rideable	41	73%	
	Well rideable	13	23%	
	Moderately rideable	1	2%	
	Badly rideable	1	2%	
Gradients	Cumulative elevation gain [m]		1000	Will be split in two sections to adapt to new ECS
	Cumulative elevation loss [m]		1000	
	Highest (gain+loss)/km [m]		50	
Attractiveness	Attractions	6	11%	Doli Trnovo Majkovi Trsteno – aboretum Rijeka Dubrovačka (significant landscape) Dubrovnik
	Highly attractive area	23	41%	

EuroVelo 8 – Route evaluation Report for Croatia EV8-115 (HR 19) Ston - Dubrovnik



Italy – Croatia



Criteria		52		Comments
Continuity	Discontinuity/not rideable	0	0%	
	multiple steps	0	0%	
	Chicane/obstacles/dismount	1	2%	Junction to D8 in Dubac
Route components	Traffic free	0	0%	
	V.low traffic	4	8%	
	Low traffic	20	38%	
	Moderate traffic	18	35%	
	High traffic	1	2%	Short part in Zvekovica
	V.high traffic	9	17%	D8 from Slano to Zvekovica, 15000 units per day
Crossings	Dangerous	5	10%	
	V.dangerous	0	0%	
Surface	Perfectly rideable	47	90%	
	Well rideable	3	6%	
	Moderately rideable	2	4%	
	Badly rideable	0	0%	
Gradients	Cumulative elevation gain [m]		640	To be adjusted to new ECS
	Cumulative elevation loss [m]		540	
	Highest (gain+loss)/km [m]		55	
Attractiveness	Attractions	4	8%	Cavtat Old railroad „ćiro“ Pridvorje (churches) Ljuta (old mills)
	Highly attractive area	17	33%	

EuroVelo 8 – Route Evaluation Report for Croatia EV8-116 (HR 20) Dubrovnik – border with Montenegro



Italy – Croatia



4.2. ASSESSMENT OF CRITICAL SECTIONS

The entire EV8 cycling network section through Dubrovnik-Neretva County has been analysed, including alternative routes. Based on the field observations, the most critical sections of the route have been identified, and priority list of interventions been prepared, including:

- Horizontal and vertical signage – including “cyclists on the road” (A39), “share the road” signs, EuroVelo section markings,
- Introduction of cycling signage along roads in urban areas
- An educational campaign aimed at motor vehicle drivers and cyclists



4.2.1. Section 1: Ploče/Trpanj - Ston (D414)

- **Shortcomings:**
 - Roadway lacking protective barrier for cyclists.
 - Traffic is heavy only during the tourist season.
 - Insufficient rest areas.
 - Inadequate horizontal and vertical signage for cyclists on the road
 - Tunnel without lightning
- **Priority:**
 - Horizontal and vertical signage for cyclists on the road
 - An educational campaign aimed at motor vehicle drivers and cyclists
- **Positive:** Traffic density has decreased with the opening of the Pelješac Bridge.





„Dingač“tunnel

4.2.2. Section 2: Ston–Dubrovnik (D8)

- **Shortcomings:**
 - Extremely dangerous section of the route on the „Mali Zaton –Dubrovnik“part
 - Inadequate horizontal and vertical signage
 - Heavy traffic during the tourist season
- **Priority:**
 - Redirecting cyclists to an alternative route
 - Horizontal and vertical signage for cyclists on the road
 - An educational campaign aimed at motor vehicle drivers and cyclists
- **Positive:** Construction of the first section of the highway to Dubrovnik is currently in progress.



Mali Zaton - Bulet/Mohovo





Dubrovnik - Dr. Franjo Tuđman Bridge



Dubrovnik - above the city (Iznad Grada)

4.2.3. Section 3: Dubrovnik–Vitaljina (D8/D514)

- **Shortcomings:**
 - Extremely dangerous section of the route „Dubrovnik – Čibača“,“ part „Srebreno – Zvekovica“ part and “Karasovići – Đurinići” part
 - Insufficient horizontal and vertical signage
 - Heavy traffic during the tourist season
 - Insufficient rest areas
- **Priority**
 - Redirecting cyclists to an alternative route
 - Horizontal and vertical signage for cyclists on the road
 - An educational campaign aimed at motor vehicle drivers and cyclists
- **Positive:** The reconstruction of the DC 516 road section “Karasovići-GP (border crossing) Konfin” by “Hrvatske Ceste d.o.o. (Ltd)” is currently underway.



Duboka Ljuta – Obod



Pločice – Đurinići



Italy – Croatia



4.2.4. Section 4: alternative section A8 Split – Potomje, (Vela luka – Blato – Prižba- Brna – Smokvica – Pupnatska Luka – Pupnat- Kneža – Žrnovska Banja – Korčula – Dominče“

- **Shortcomings:**
 - Extremely dangerous section of the route „Blato – Gršćica – Prižba – Brna – Smokvica“part
 - Insufficient horizontal and vertical signage
 - Heavy traffic during the tourist season
 - Insufficient rest areas
- **Priority:**
 - Redirecting cyclists to an alternative route
 - Horizontal and vertical signage for cyclists on the road
 - An educational campaign aimed at motor vehicle drivers and cyclists
- **Positive:** Traffic is low-density during off-season



Gršćica - Prižba



Brna – Smokvica

4.3. ALTERNATIVE ROUTES ALONG THE SECTIONS

For the proposal of alternative routes in the sections, cycling tracks from the author and other cyclists in a sport app were used. All proposed routes were ridden personally and verified.

4.3.1. Alternatives in the „ 1) Ploče/Trpanj – Ston“ section

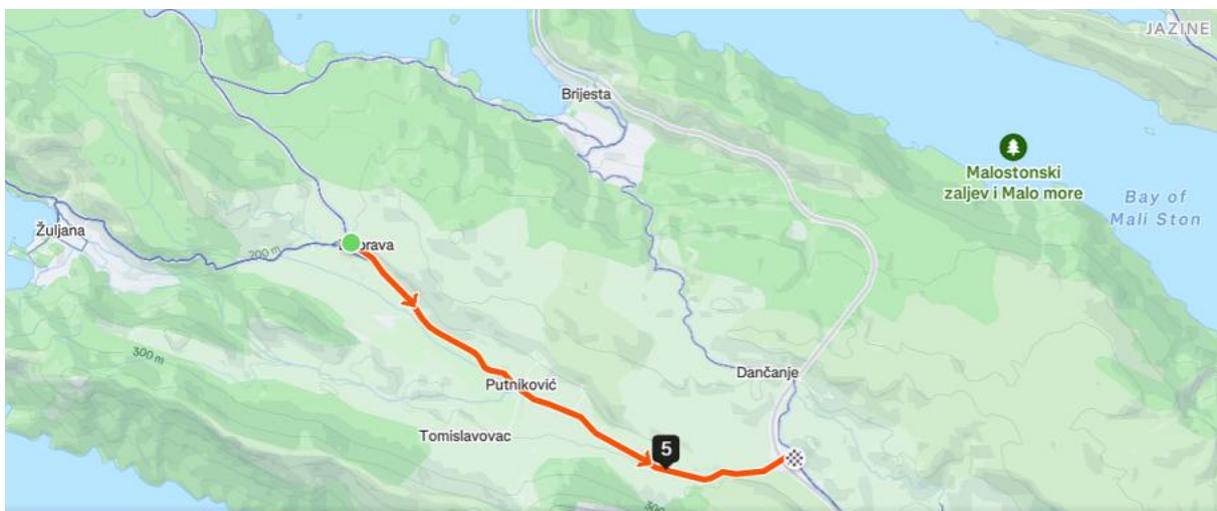
- **Current route:** Dubrava – Zaradež
- **Route:** Dubrava – Brijesta – Zaradež.
 - Surface: Asphalt 15,12 km (100%)
 - Technical parameters:
 - Length 15,12 km, total ascent 388 mm.
 - Estimated riding time approx. 40 min.



Italy – Croatia



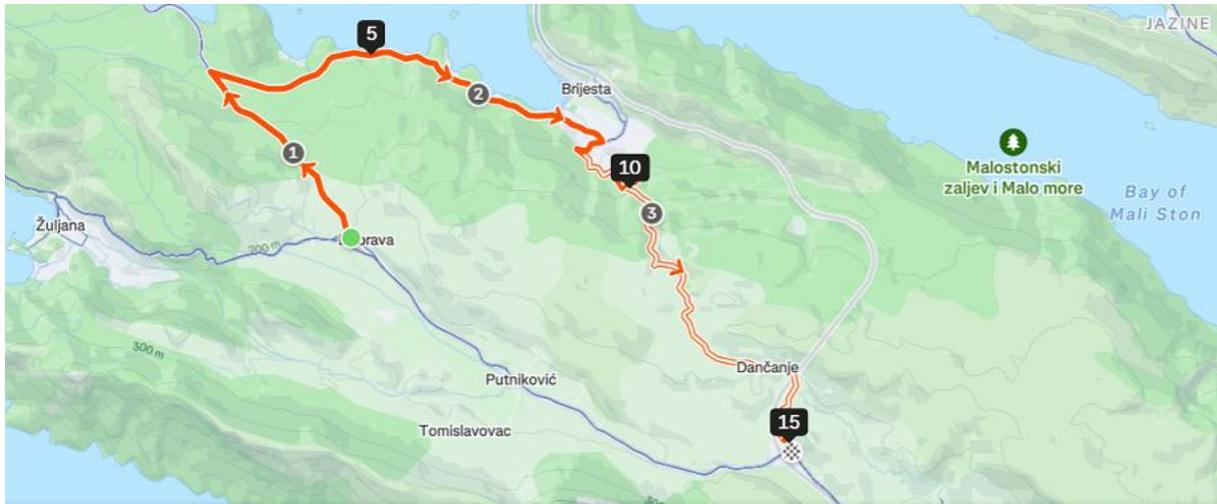
- *Feasibility: In terms of technical characteristics, this alternative route is less favourable than the existing Dubrava-Zaradež section. Current Dubrava-Zaradež section is 6.71 km long (100% asphalt) with total of 65 m of total ascent. The only positive characteristic of this section is low traffic intensity compared to its length and vertical ascent.*
- *Conclusion: this alternative section is not recommended for inclusion in the alternative routes.*



Distance	Elevation Gain	Elevation Loss	Est. Moving Time	Surface Type
6.71 km	65 m	36 m	17:01	<div style="display: flex; align-items: center;"> <div style="width: 100%; height: 10px; background-color: orange; margin-right: 5px;"></div> 100% PAVED <div style="width: 10px; height: 10px; background-color: orange; margin: 0 5px; border: 1px solid black;"></div> 0% DIRT <div style="width: 10px; height: 10px; background-color: white; margin: 0 5px; border: 1px solid black;"></div> 0% NOT SPECIFIED </div>

EV8 southern sections – Dubrava - Zaradež





Distance	Elevation Gain	Elevation Loss	Est. Moving Time	Surface Type
15.12 km	389 m	359 m	38:19	<div style="display: flex; justify-content: space-between; width: 100px;"> 53% PAVED 0% DIRT 47% NOT SPECIFIED </div>

Alternative: EV8 southern sections – Dubrava – Brijesta - Zaradež

Alternatives in the „2) Ston - Dubrovnik“section

- **Current route: Majkovi – Brsečine -Trsteno - Orašac (Čerjan) – Mali Zaton - Vrbica - Dubrovnik**
- **Route 1: Majkovi – Gornja sela (Mravinjac, Mrčevo, Gromača, Ljubač) – Osojnik - Petrovo Selo -Gornje Obuljeno (Mokošica)– Komolac (Dubrovnik).**
 - Surface: Asphalt 28,35 km (88,7%), gravel 1,8 km (5,6%), concrete-paved road 1,8 km (5,6%).
 - Technical parameters:
 - Length 31,95 km, total ascent 566 m.
 - Estimated riding time approx. 1 h 20 min.
 - Feasibility: this alternative section is technically somewhat less favourable than the current Majkovi – Brsečine -Trsteno - Orašac (Čerjan) – Mali Zaton - Vrbica - Dubrovnik section. The current section is 25,47 km (23,75 asphalt, 9,2%, 1,9 km of gravel 8%) long with a total ascent of 308 m, asphalt surface and an estimated riding time of 1h 10 min.

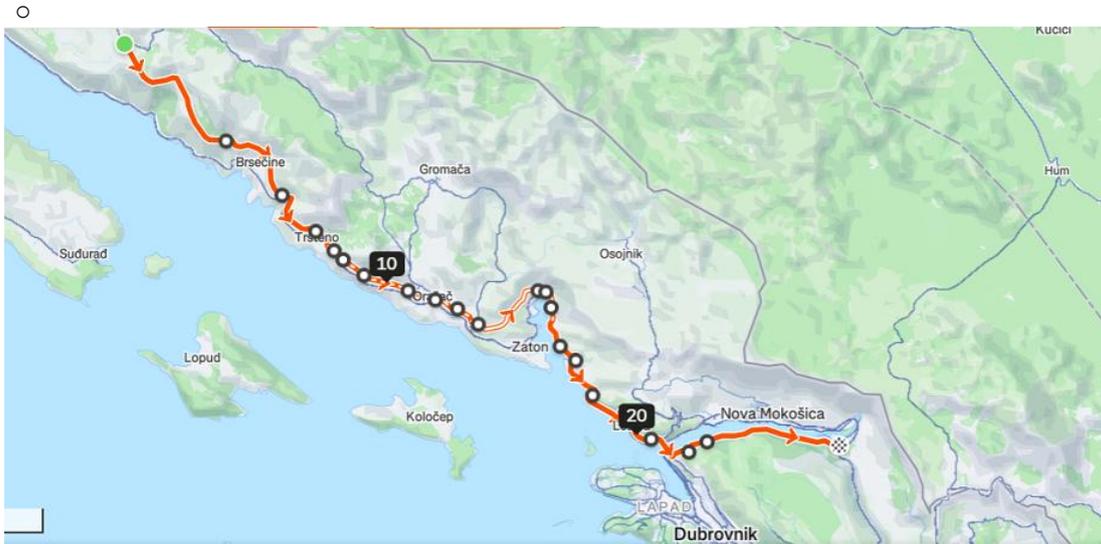
The proposed alternative has a significant comparative advantage because traffic on this section is very low, especially on the Majkovi – Gornje Obuljeno (Mokošica) part



Italy – Croatia

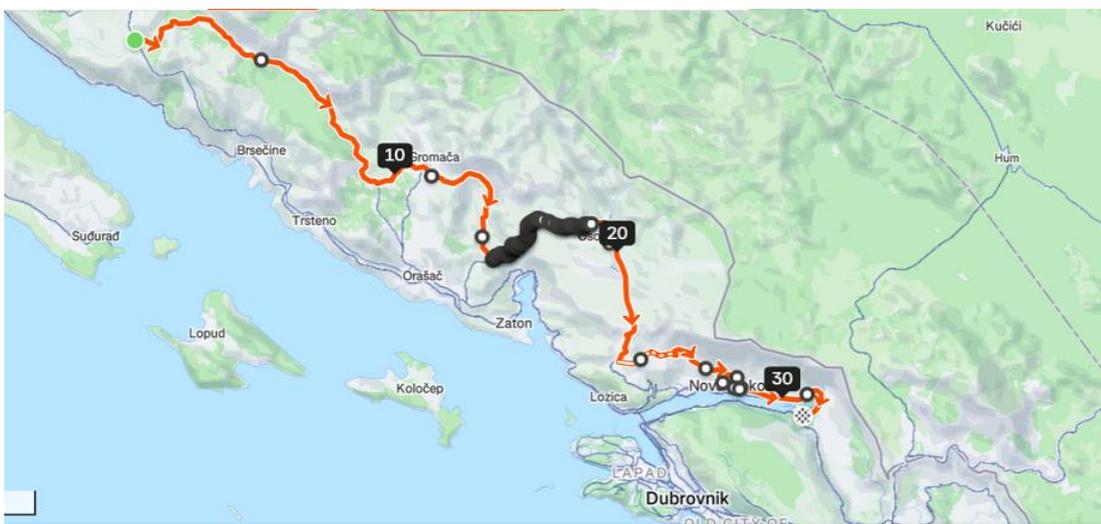


- Conclusion: This alternative section is recommended for inclusion in the alternative routes.



Distance	Elevation Gain	Elevation Loss	Est. Moving Time	Surface Type
25.47 km	308 m	689 m	1:04:32	■ 48% PAVED ■ 31% DIRT ■ 21% NOT SPECIFIED

EV8 southern sections – Majkovi – Komolac (Dubrovnik)



Distance	Elevation Gain	Elevation Loss	Est. Moving Time	Surface Type
31.95 km	566 m	973 m	1:20:58	■ 10% PAVED ■ 1% DIRT ■ 2% NOT SPECIFIED

Alternative: Route 1: EV8 southern sections – Majkovi – Komolac (Dubrovnik)



Italy – Croatia

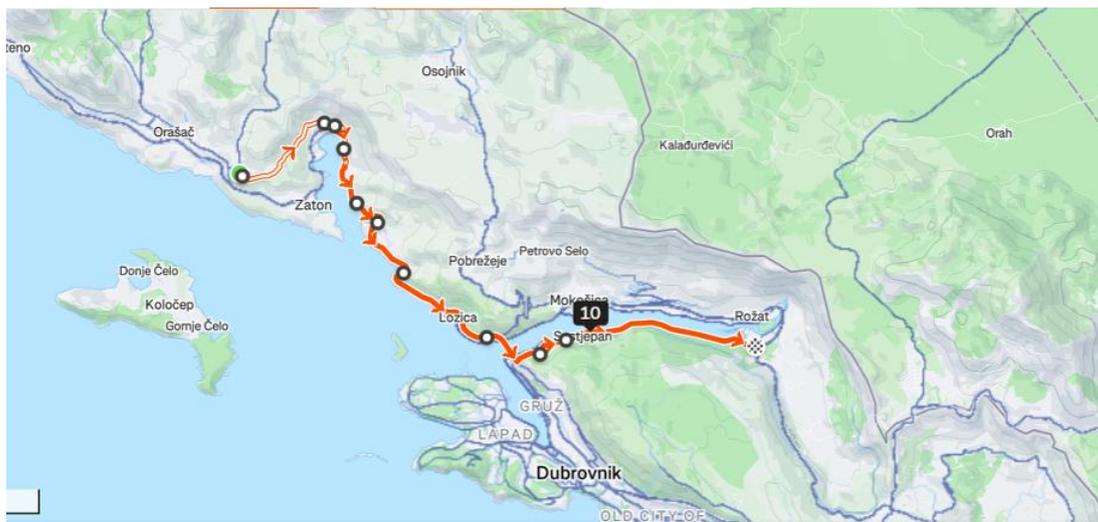


4.3.2. Alternatives in the „2) Ston - Dubrovnik“ section

- **Current route: Orašac (Čerjan) – Mali Zaton - Vrbica -Dubrovnik**
- **Route 2: Orašac (Čerjan) – Osojnik - Petrovo Selo -Gornje Obuljeno (Mokošica)-Dubrovnik (Komolac).**
 - *Surface: Asphalt 14,86 km (80,4%), gravel 1,8 km (9,8%), concrete paved road 1,8 km (9,8%).*
 - *Technical parameters:*
 - *Length 18,46 km, total ascent 363 m.*
 - *Estimated riding time approx. 50 min.*
 - *Feasibility: This alternative route is technically somewhat less favourable than the existing Orašac (Čerjan) – Mali Zaton - Vrbica -Dubrovnik section. The current section is 12,89 km (asphalt, 100%) long with total ascent of 233 m and estimated riding time of 35 min.*

The proposed alternative has a significant comparative advantage because traffic on this section is very low, especially on Orašac (Čerjan) – Gornje Obuljeno (Mokošica) part

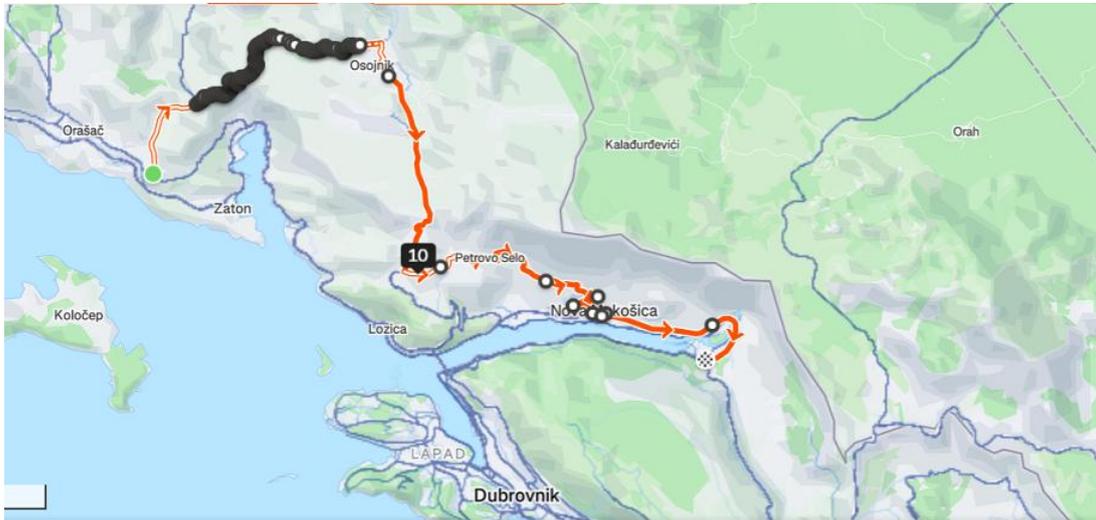
- *Conclusion: This alternative section is recommended for inclusion in the alternative routes.*



Distance	Elevation Gain	Elevation Loss	Est. Moving Time	Surface Type
12.89 km	118 m	233 m	32:41	<div style="display: flex; align-items: center;"> <div style="width: 20px; height: 10px; background-color: #e67e22; margin-right: 5px;"></div> 61% PAVED <div style="width: 20px; height: 10px; background-color: #d3d3d3; margin-left: 10px; margin-right: 5px;"></div> 11% DIRT <div style="width: 20px; height: 10px; background-color: #f39c12; margin-left: 10px; margin-right: 5px;"></div> 28% NOT SPECIFIED </div>

EV8 southern sections – Orašac (Čerjan) – Komolac (Dubrovnik)





Distance	Elevation Gain	Elevation Loss	Est. Moving Time	Surface Type
18.46 km	363 m	504 m	46:47	<div style="display: flex; align-items: center;"> <div style="width: 100%; height: 10px; background: linear-gradient(to right, orange 7%, #ccc 7% 11%, #ccc 11% 15%, #ccc 15% 100%);"></div> <div style="margin-left: 5px; font-size: 8px;"> ■ 7% PAVED ■ 1% DIRT ■ 3% NOT SPECIFIED </div> </div>

Alternative: Route 2: EV8 southern sections – Orašac (Čerjan) – Komolac (Dubrovnik)

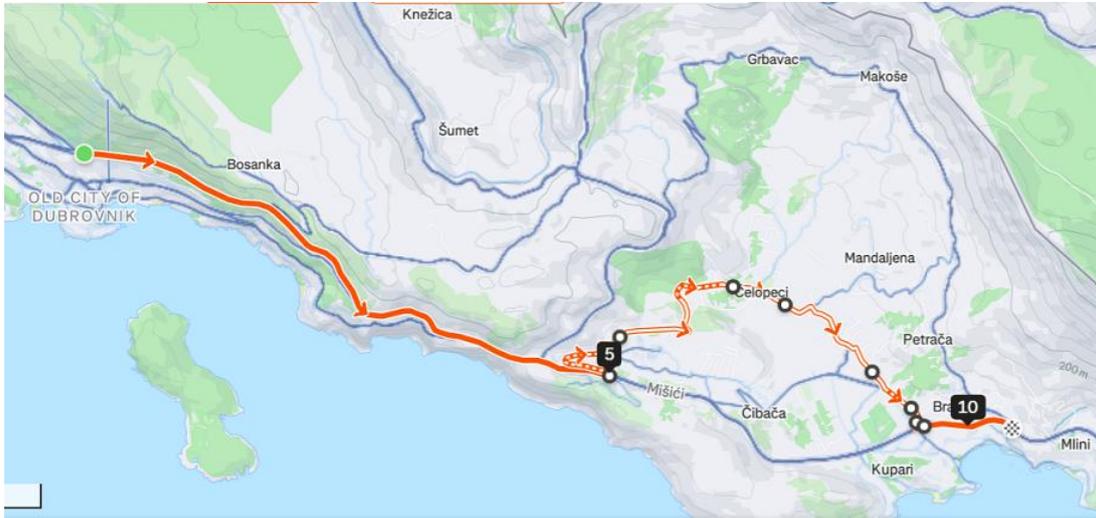
4.3.3. Alternative in the „3) Dubrovnik–Vitaljina“section

- **Current route: Dubrovnik – Čibača –Čelopeci - Mandaljena – Srebrno**
- **Route 1: Dubrovnik (Komolac) –Gornji Brgat–Donji Brgat–Martinovići – Buići – Petrača - Srebreno.**

- *Surface: Asphalt 13,55 km (100%)*
 - *Technical parameters:*
 - *Length 13,55 km, total ascent 305 m*
 - *Estimated riding time approx. 40 min.*
 - *Feasibility: This alternative route is technically somewhat less favourable than the existing Dubrovnik – Čibača –Čelopeci - Mandaljena – Srebrno section. The current section is 10,10 km (asphalt, 100%) long with total ascent of 208 m and estimated riding time of 30 min.*
- The proposed alternative has a significant comparative advantage because traffic on this section is very low, especially on Donji Brgat–Martinovići – Buići – Petrača – Srebreno part.*
- *Conclusion: This alternative section is recommended for inclusion in the alternative routes.*

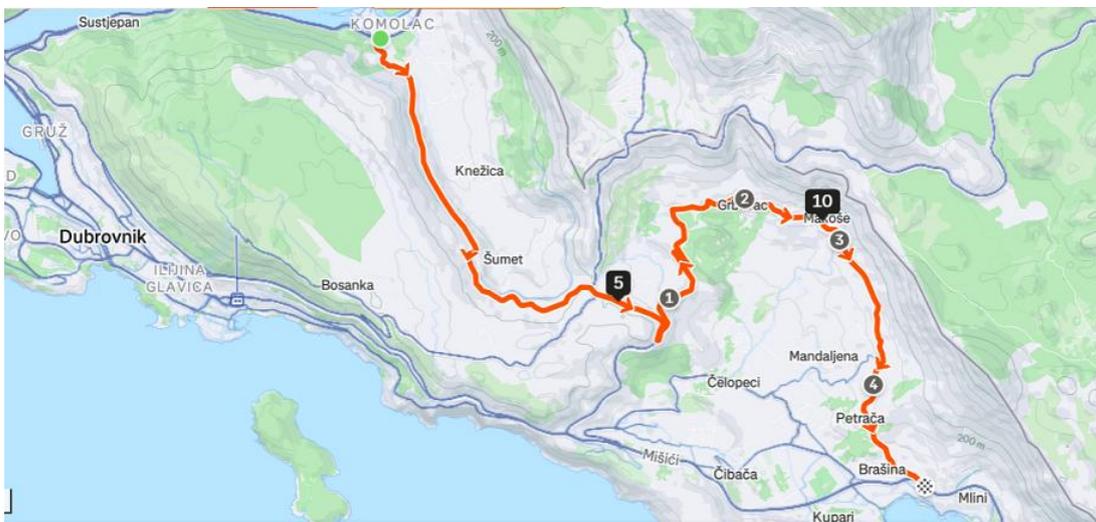


Italy – Croatia



Distance	Elevation Gain	Elevation Loss	Est. Moving Time	Surface Type
10.4 km	136 m	208 m	26:21	■ 39% PAVED ■ 7% DIRT ■ 54% NOT SPECIFIED

EV8 southern sections – Dubrovnik – Čibača – Čelopeci – Mandaljena – Srebreno



Distance	Elevation Gain	Elevation Loss	Est. Moving Time	Surface Type
13.55 km	340 m	305 m	34:20	■ 100% PAVED ■ 0% DIRT ■ 0% NOT SPECIFIED

Alternative: Route: EV8 southern sections – Dubrovnik (Komolac) –Gornji Brgat–Donji Brgat–Martinovići – Buići – Petrača - Srebreno

- Current route: Gruda – Karasovići -Pločice - Đurinići
- Route 2: Gruda –Radovčići–Poljice–Martinovići – Mikulići – Đurinići.



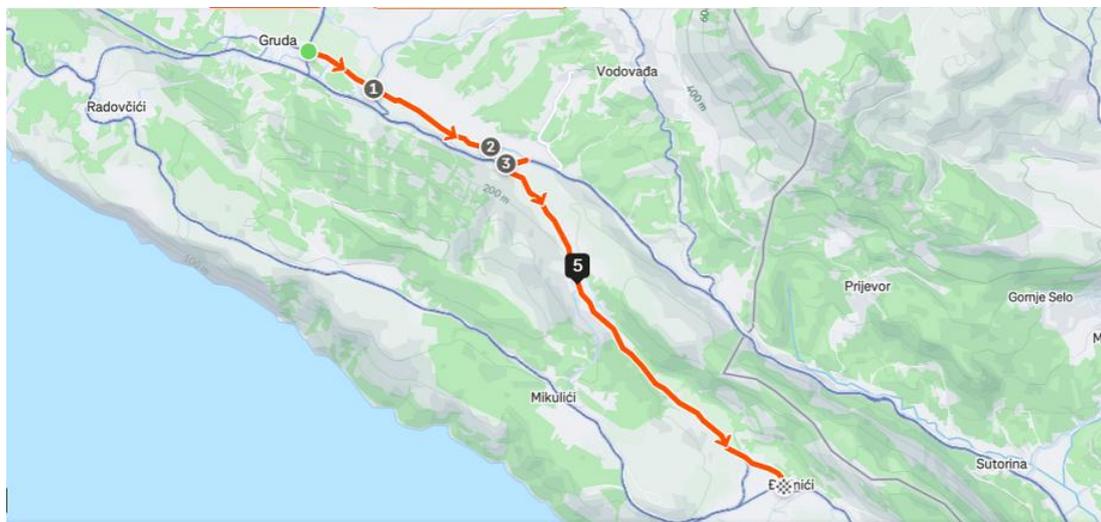
Italy – Croatia



- *Surface: Asphalt 13,78 km (100%)*
- *Technical parameters:*
 - *Length 13,78 km, total ascent 359 m*
 - *Estimated riding time approx. 40 min.*
- *Feasibility: This alternative route is technically somewhat less favourable than the existing Gruda – Karasovići -Pločice - Đurinići section. The current section is 8,49 km (6,87 asphalt, 81%, 1,62 km gravel 19%) long with total ascent of 188 m and estimated riding time of 25 min.*

The proposed alternative has a significant comparative advantage because traffic on this section is very low. A slightly higher total ascent of 171 m and a length of 5.29 km make this route more challenging. However, safety priority, low traffic, and a 100% asphalt surface outweigh these factors, supporting the inclusion of this route in the proposal.

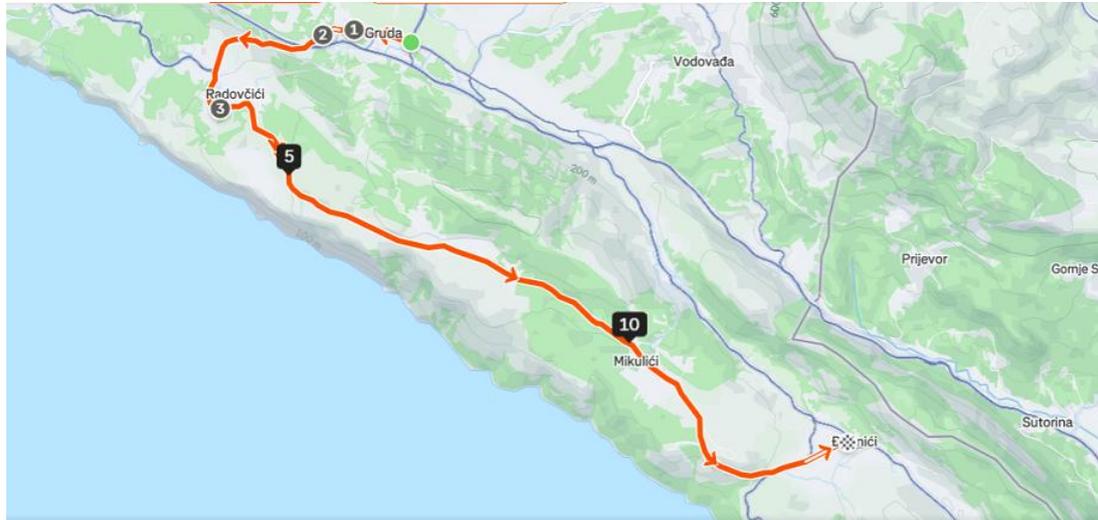
Conclusion: This alternative section is recommended for inclusion in the alternative routes.



Distance	Elevation Gain	Elevation Loss	Est. Moving Time	Surface Type
8.49 km	188 m	66 m	21:31	■ 49% PAVED ■ 0% DIRT ■ 51% NOT SPECIFIED

EV8 southern sections – Dubrovnik – Čibača -Čelopeci - Mandaljena – Srebrno





Distance	Elevation Gain	Elevation Loss	Est. Moving Time	Surface Type
13.78 km	359 m	238 m	34:55	■ 71% PAVED ■ 0% DIRT ■ 29% NOT SPECIFIED

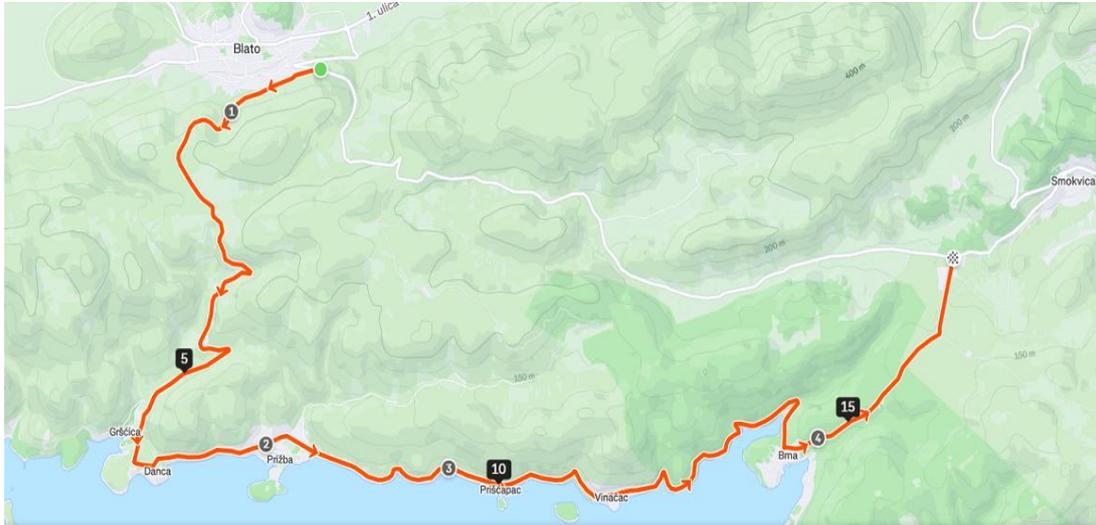
Alternative: Route: EV8 southern sections – Gruda –Radovčiči–Poljice–Martinovići – Mikulići – Đurinići

4.3.4. Alternative in the „4) Alternative A8 Split – Potomje section

- **Current route: „Blato – Gršćica – Prižba – Brna - Smokvica“**
 - **Route: Blato - Smokvica.**
 - *Surface: Asphalt 8,10 km (100,0%).*
 - *Technical parameters:*
 - *Length 8,10 km, total ascent 137 m in one section.*
 - *Estimated riding time approx. 30 min.*
 - *Feasibility: This alternative route is technically more favourable than the existing „Blato – Gršćica – Prižba – Brna - Smokvica “section. The current section is 16,93 km (asphalt, 100%) long with total ascent of 232 m on two sections and estimated riding time of 50 min.*
- The proposed alternative has a great comparative advantage because traffic on this section is very low, considering the characteristics of the road, which does not allow two-way traffic.*
- *Conclusion: This alternative section is recommended for inclusion in the alternative route directions.*

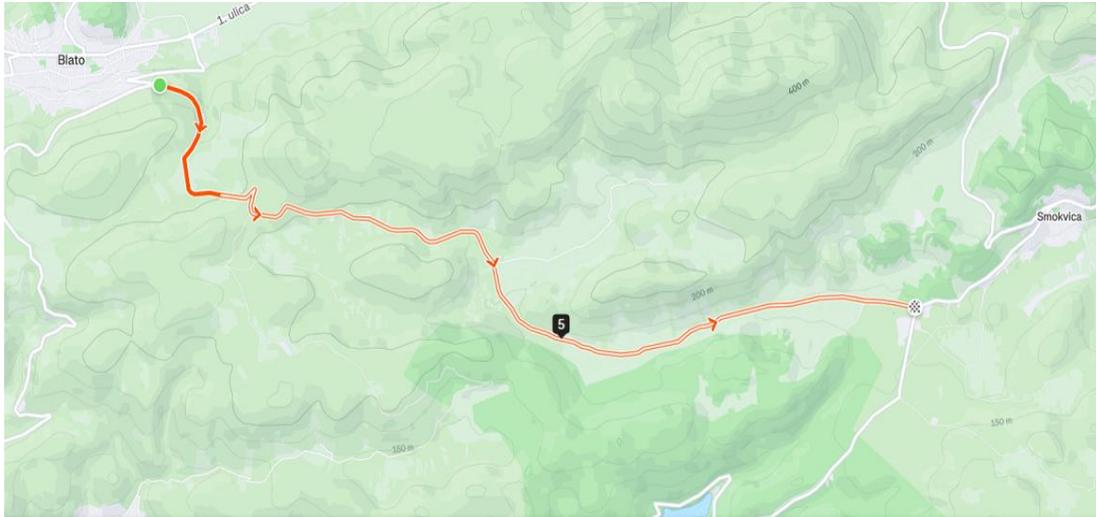


Italy – Croatia



Distance	Elevation Gain	Elevation Loss	Est. Moving Time	Surface Type
16.93 km	232 m	282 m	43:46	■ 100% PAVED ■ 0% DIRT ■ 0% NOT SPECIFIED

Alternative A8 Split – Potomje, (Vela luka – Blato – Prižba- Brna – Smokvica – Pupnatska Luka – Pupnat-Kneža – Žrnovska Banja – Korčula – Dominče” section



Distance	Elevation Gain	Elevation Loss	Est. Moving Time	Surface Type
8.1 km	137 m	185 m	20:56	■ 17% PAVED ■ 0% DIRT ■ 83% NOT SPECIFIED

Alternative:(Route: EV8 A8, Split – Potomje) Blato - Smokvica



Italy – Croatia



4.4. MEASURES TO INCREASE SAFETY

4.4.1. Short-term interventions (2025.–2026.):

- *Traffic and infrastructure measures:*

Responsible entities: local tourist boards, the Ministry of Internal affairs – relevant traffic police department, competent municipal and city offices for traffic.

Vertical signage – EV8 route markings



*Horizontal and vertical signage:
- “cyclists on the road” signage (A39),*



Horizontal marking of the bicycle corridor on roads in urban areas and on roads with high traffic intensity.





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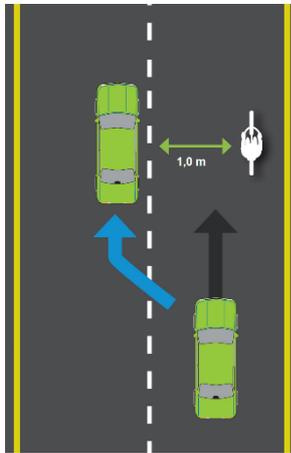


4.4.2. Long-term interventions (2025.–2030.god.):

- *An educational campaign aimed at motor vehicle drivers and cyclists*

Responsible entities: local tourist boards, the Ministry of Internal affairs – relevant traffic police department, competent municipal and city offices for traffic.

Through the installations of “Share the road” signage



By installation of educational “Share the Road” billboards prior to the beginning of the tourist season



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<https://bikeportland.org/2008/09/02/new-share-the-road-billboards-spring-up-8559>



5. GRAPHIC ATTACHMENTS

1. PRIMARY SIGNAGE TYPE II, SECONDARY SIGNAGE TYPE III	M 1:50
2. GRAPHICAL REPRESENTATION ON SIGNS TYPE II, TIP III, GRAPHICAL REPRESENTATION ON THE MAP	M 1:50
3. EXAMPLE PRIMARY SIGNAGE TYPE II, SECONDARY SIGNAGE TYPE III	M 1:40
4. EXAMPLE PRIMARY SIGNAGE TYPE II	M 1:1
5. EXAMPLE PRIMARY SIGNAGE TYPE III	M 1:1
6. INFORMATIONAL BOARD I, INFORMATIONAL BOARD II	M 1:50
7. INFORMATIONAL BOARD III, INFORMATIONAL BOARD IV	M 1:50
8. EXAMPLE INFORMATIONAL BOARD I, INFORMATIONAL BOARD II, INFORMATIONAL BOARD III, INFORMATIONAL BOARD IV	M 1:8

