

D.5.3.2 OPERATIONAL PLAN WITH STANDARDS FOR CYCLOTOURISM DEVELOPMENT IN DUBROVNIK-NERETVA COUNTY

Document Control Sheet

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1. INTRODUCTION

Dubrovnik-Neretva County is recognized as a region of exceptional natural features. Its economy is based on agriculture, especially production of citrus fruit, fishing, mariculture and tourism as a leading industry connecting the two aforementioned sectors.

For years, stakeholders in worldwide tourism, but also in Dubrovnik-Neretva County are aiming to follow trends and boost sustainable tourism.

Sustainable tourism covers environmental, economical and socio-cultural aspects including cyclotourism imposing as a new tourism product.

Cyclotourism is a fast-growing trend with over 60 million active cyclists in Europe. Despite the drastic decrease and even halt of tourist activities due to COVID-19 pandemic, travelling by bicycle as a main mean of transport and for the sole purpose of enjoying, is a growing activity.

For example, after the lockdown in France, 31% more cyclotourists used the EuroVelo routes compared to 2019, whereas in the Netherlands there is a 74% increase in downloads of cycling route maps.

The Administrative Department of Economy and Maritime Affairs of Dubrovnik-Neretva County recognized the possibility for development and integration of cyclotourism offer on the regional level.

Operational plan for cyclotourism development of the Dubrovnik-Neretva County is a strategic document providing an overview of resources, current tourism offer and direction of future development of cyclotourism.

Design of the Operational plan is funded through the project Maritime and Multimodal Sustainable Passenger Transport Solutions and Services – MIMOSA, implemented through the INTERREG ITALY – CROATIA 2014 – 2020 Program.

The objective of MIMOSA project is to improve the quality, safety and environmental sustainability of coastal transport services by promoting multimodality and combining different means of transport within the jurisdiction of the Program.

The emphasis of the project is on environmentally approved means of transport, especially bicycles and e-bikes.

Further below, key information on MIMOSA project are presented.

Maritime and Multimodal Sustainable Passenger Transport Solutions and Services – MIMOSA

19 project partners from Italy and Croatia

Objective of MIMOSA project is to improve the quality, safety and environmental sustainability of coastal transport services by promoting multimodality and combining different means of transport within the jurisdiction of the Program.

| | | | | |
|------------------------------------|--|---|--|---|
| Analysis of nautical tourism ports | Official website of Dubrovnik-Neretva County | Operational plan for cyclotourism development in Dubrovnik-Neretva County | Development of certain cyclotourism routes in Dubrovnik-Neretva County | Placing lifters on beaches for disabled persons |
|------------------------------------|--|---|--|---|

Nineteen project partners from Italy and Croatia form a part of MIMOSA project, aiming to implement following actions in Dubrovnik-Neretva region: analysis of nautical tourism ports, placing lifters on beaches for disabled persons, designing the Operational plan for cyclotourism development in Dubrovnik-Neretva County, website development and improvements of some cycling routes in the county.

2. METHODOLOGY FOR DEVELOPMENT OF THE OPERATIONAL PLAN

Design of the Operational plan for cyclotourism development was conducted in several phases. First phase referred to *desk* analysis of available information about cycling trails, tourism products and services related to cyclotourism development.

Furthermore, a contact has been established with all the stakeholders within the Dubrovnik-Neretva County who could influence, though their actions, on cyclotourism offer (please find list of stakeholders in the Appendix 1).

Information about accessible infrastructure in the area of their jurisdiction have been requested from all the cities, municipalities, tourist boards, bicycle clubs, public institutions (national park, nature park) and other stakeholders involved.

During plan designing, public was informed through the official website of the county and was invited to participate in its implementation through the workshop where the initial results of the State analysis were presented along with further steps in the Operational plan development.

The workshops were held three times in 2021: on February 23rd, March 16th and May 06th, 2021. Two of these were held online through Zoom application, in accordance with epidemiological restrictions caused by COVID-19, while one workshop took place within the premises of Dubrovnik-Neretva County with some participants still being involved online.

Figure 1. Screenshot of the workshop in progress (on the left);

Official website of Dubrovnik-Neretva County –screenshot post, workshop in progress (on the right)



Source: www.edubrovnik.org

All workshop participants were invited to submit their project proposals which would then be included in the Operational plan, and a selection of these would be funded through MIMOSA project. Upon completion, the Operational Plan will be adopted by the key stakeholders, e.g. representatives of local self-government units within Dubrovnik-Neretva County.

2.1. Set framework for development of the Operational plan

During the development of the Operational plan for the county, it was important to review high-level strategic documents and adjust direction of cyclotourism development accordingly, in consistency with the possibilities and specific features of a certain area.

Further below, an overview of the Action plan for cyclotourism development in the Republic of Croatia as a main sectoral reference document, as well as of the Strategy for Tourism Development in the Republic of Croatia until 2020, is being presented.

Guidelines of EuroVelo organization making key decisions in development of high-quality cycle routes in Europe are also reviewed, part of which passing over Croatian territory.

Since cyclotourism is related to cycling, e.g. cyclists' participation in traffic, a review of regulations set is presented further below.

ACTION PLAN FOR CYCLOTOURISM DEVELOPMENT IN THE REPUBLIC OF CROATIA

Recently, cyclotourism has become one of fast-growing tourism products. In order to adjust such a form of tourism supply with demand and provide diverse offer to end users, it was important to set up the Action Plan for cyclotourism development for period until 2020.

The Action plan served as a basis for development of planned and sustainable cyclotourism offer being in line with natural features of the area and residents' preferences.

During its preparation, SWOT analysis of cyclotourism offer as a specific tourism product and a motive to visit the Republic of Croatia, was carried out.

The leading vision in creating guidelines and goals was focus on creating an offer which would be appealing to cyclotourists all year long, while Croatia would become a great cycling destination. In order to accomplish the above mentioned, it is necessary to act according to five main set of guidelines and major projects referring to: infrastructure, legislation, human resources and technology, information system and marketing, as well as to destination management.

These guidelines served as a framework for development of the Operational plan for cyclotourism in Dubrovnik-Neretva County.

The planned projects are to be funded by three sources: financial incentives, different forms of partnership and ultimately financial resources from EU funds.

This document, covering the period until 2020, was used in analysis of the Action Plan for cyclotourism development in the Republic of Croatia.

TOURISM DEVELOPMENT STRATEGY OF THE REPUBLIC OF CROATIA UNTIL 2020

During development of the Strategy, a number of features have been identified: appealing and well-preserved natural resources, rich cultural and historical heritage, favourable climate and great number of less busy roads. When integrated together, these would represent a great basis for the development of cyclotourism.

A non-existence of the traffic infrastructure such as bicycle paths, bicycle lines and bicycle pathways and a lack of knowledge and differentiation of all aforementioned terms comparing to bicycle routes and other terminology used represent a number of obstacles for more significant cyclotourism development. Some of disadvantages are lack of suitable accommodation and catering offer as well as of supporting infrastructure. Although cyclotourism is a type of tourism where bicycle is a main mean of transport and activity, it is necessary to consider a wider range of demand when creating an offer. The development of the Strategy refers to cyclotourists to whom bicycle and cycle activities are major motive for visiting Croatia, as well as to other tourists having a bicycle ride as an additional activity. Also, while developing the Strategy, needs and preferences of local population using bicycles have been taken into consideration. Although there were many comparative advantages for the cyclotourism development, that particular product hasn't yet been sufficiently appreciated nor promoted.

By the Strategy, cyclotourism has been identified as the major tourism product with high level of attractiveness and competitiveness; however, it would be necessary to recognize its value and promote it. The consumers who are highly attracted by cyclotourism are young people, average age 18-24 and couples with no children and with the double income, age 25-34. By regions, cyclotourism is being recognized as the main tourism product in the area of Istria, Lika, Karlovac, central Croatia and Slavonia, while in the area of Kvarner and Dalmatia (region of Zadar, Split and Dubrovnik) it is being defined as the secondary product. The Strategy covers planning a number of activities for cyclotourism development in Croatia. The activities are: delivering Program for cyclotourism development, setting up necessary signalisation and services related, developing accommodation and catering facilities to bike & bed standards, integration of public transportation and cyclotourism, managing national cyclotourism association and organization of events and national and international cycling competitions. The current Strategy for tourism development for Republic of Croatia until 2020 has been used for developing the Operational plan.

EUROVELO

EuroVelo stands for a network of European cycle-association which coordinates the network development of high-quality cycle routes connecting entire Europe from 1995.

In order for cyclotourism to develop in accordance with main goals and objectives of the Action plan, as well as with objectives and mission of European cycle association, the Coordinating authority for cyclotourism development in Croatia has been founded.

The main activities of the Coordinating authority are:

1. Infrastructure
2. Legislation
3. Education
4. Cyclotourism offer and
5. Information providing and marketing¹

The infrastructure is the major condition for developing good-quality, safe and pleasant cycle-

routes for all the users, regardless of being tourists or residents. In regards to infrastructure, the main goal of the Coordinating authority is to define the national network of cycling directions based on the existing routes, along with the construction, maintenance and uniform labelling of national network of cycling routes and part of regional routes.

Furthermore, proper maintenance and adaption of river embankments, wagon trails and forest areas for the purpose of cycling, construction of cycle paths and lanes, construction of cycle roads in the major urban centres and construction and maintenance of the lay-bys and service-providing lookouts are just some of the infrastructural projects under the jurisdiction of the Coordinating authority. Its task is to establish the counter of the bicycle traffic on EuroVelo and major state routes, to identify the potential and to refurbish non-used railroads for the purpose of cycling (so called *greenways*), to convert and adjust the railway wagons for the cyclotourists' transport, to arrange *bike* parks etc.

The construction of the new cycle infrastructure and the arrangement of the existing one are being covered by the certain number of law regulations.

In addition, the law regulations comprise:

- rules governing routing of EuroVelo routes (EV6, EV8, EV9, EV13), main and state connecting routes as well as county and local routes,
- rules regulating road safety and rules of conduct in cycle-traffic,
- rules governing construction, arrangement and adaptation of the catering facilities in accordance with the "Bike" standard "for Cyclists",
- the adoption of necessary legislation in accordance with the practice of most of EU countries,
- The adoption of the necessary legislation regulating movement of cyclists in forest areas, river embankments, dams, mountain and horse trails hunting grounds etc.

<https://cikloturizam.hr/sto-radimo/>

The Coordinating authority is obliged to conduct education and campaigns related to safety in cyclists' traffic, to integrate cyclists into motorized traffic and to design educational material and brochures.

Education should involve all the stakeholders in cycling and tourism (tour and *bike* guides, entrepreneurs acting in cyclotourism segment, event managers etc) but also residents with the emphasis on programs for young cyclists (elementary school – how-to-ride-a-bike training program).

The development of the cyclotourism offer includes growth and education of entrepreneurs with regards to funding the supply for small and medium size enterprises in tourism, with the accent on creating specificity and competitiveness.

Furthermore, the development involves:

- organization of sport and recreational cycle events,
- development of accommodation and supporting facilities in accordance with “Bike” standard for cyclists,
- creation of new tourism products related to pre and posts season,
- the development of “Bike share” public system in cities and municipalities,
- Enriching the offer of continental tourism boards – catering and service facilities along the routes with emphasis on integrating regional supply of counties, cities or municipalities.

Within the field of informing and marketing, the Coordinating authority tasks are:

- Consolidation and marketing preparation of the national cyclotourism offer
- Keeping records of number of arrivals and overnights related to cyclotourists in Croatia (eVisitor)
- Reviewing statistics on national and regional level
- Organising national themed conferences on cyclotourism based on examples of good practice from neighbouring countries
- Organising fam trips for national and foreign press representatives and bloggers
- Participating in specialised foreign tourism fairs

The Coordinating authority is also responsible for organising projects to strengthen DMCs’ role (Destination management companies -DMCs) and their specialisation in cyclotourism and in joint promotion of package arrangements. Moreover, the Authority is in charge of branding of entire Croatia as a cyclotourism destination, designing info materials for cycle-tourists, especially high-quality maps (on national, regional, county and destination level). The focus is on strengthening information and communication activities (through intensive use of ICT technologies, social media, mobile applications, PR, special „Bike“standard, EuroVelo routes etc) and also on setting cyclotourism info points (especially along major EuroVelo and national routes).

Based on the above, Coordinating authority covers wide range of activities which, with the joint effort of all the stakeholders involved, could contribute to the meaningful and functional establishment of the larger number of cycle routes throughout Croatia and development of the additional cycling offer.

ORDINANCE OF THE MINISTRY OF MARITIME AFFAIRS, TRANSPORT AND INFRASTRUCTURE
 The basis for construction and development of cycling infrastructure can be found in the Ordinance of Identifying Cycle Route Network by Categories² as well as in the Ordinance of Cycling Infrastructure³.

Sources:

² https://narodne-novine.nn.hr/clanci/sluzbeni/2013_07_91_2057.html

³ https://narodne-novine.nn.hr/clanci/sluzbeni/2016_03_28_803.html

The above mentioned ordinances define cycling route as an optimal corridor leading cycle traffic, defined by the main points it connects.

Cycling route categories are:

- 1) Routes of significant importance for the state:
 - Main state routes (further in text: DG) and
 - State-connecting routes (further in text: DV).

In further text marked with the abbreviations DG and DV as well as numerically.

- 2) County-importance routes:
 - County routes (further in text: Z) and
 - Local routes (further in text: L).
 - In further text marked with the abbreviations Z and L as well as numerically.

In addition, the ordinances define terms to be distinguished while planning, constructing, and maintaining cycle infrastructure as well as basic cycle infrastructure classification.

The above stated is presented in the following table.

Table 1. Key terms related to cycle infrastructure

| Cycling infrastructure consists of: | |
|-------------------------------------|---|
| Cycle road infrastructure | “bicycle paths” separated from the roadway - built-up traffic area designed for bicycle traffic separated from the motor traffic and marked with longitudinal line and prescribed traffic sign |
| | “bicycle pathway “-built-up traffic area designed for bicycles without solid Ground configuration outside of road corridor marked with prescribed traffic |
| | “bicycle lane on the road” - part of the road designed for bicycle traffic stretching parallel with the road and marked with longitudinal line and prescribed traffic sign |
| | “bicycle path separated from the roadway”- built-up traffic area designed for bicycle traffic separated from the motor traffic and marked with longitudinal line and prescribed traffic sign |
| | “Bicycle-pedestrian road” - paved road or other form of solid Ground configuration designed for bicycle and pedestrian traffic stretching outside of road corridor marked with horizontal lines and prescribed traffic sign |
| | “Cycling route” - direction of the cycling traffic marked with the prescribed traffic sign. Cycling routes cover the above stated cycle road infrastructure and mixed traffic roads. |

| | | |
|--------------------------------------|--|--|
| Traffic signalisation and facilities | Traffic signalisation and facilities consist of: – traffic signalisation, particularly: – Warning signs – Regulatory signs – Information signs– Additional info board signs–Tourist and other informative signalisation, Road markings: – Longitudinal markings (edge lines/lane lines), – Transverse markings, – Other markings (arrows/symbols), – Traffic equipment: – pavement edge marking, – Safety barriers – cylinders/ramps/and other barricades, – Bike parking installations (racks, holders, stands), – Bicycle storage facilities (storage, bicycle stations). | |
| Bicycle parking and storage | Bicycle parking and facilities | Bicycle parking Ground configurations need to meet the following conditions: – to enable enough parking space to meet the requirements – to be located near interesting sites –easily accessible to cyclists and pedestrians, –safe location (frequently visited location/very good visibility/lightning). |
| | Bike storages | |
| Public “Bike share” systems | Public “Bike-share” system comprises of bicycles, parking and safety installations/user management system and other facilities. | |

Source: <https://narodne-novine.nn.hr/clanci/sluzbeni/full/dodatni/439893.pdf>

The expressions « road section » and « phase of a path » are often being used in the cycle terminology and they have the same meaning.

These expressions stand for minor segments of cycle routes or larger number of section-merging routes.

2.2. Analysis of the current state in Dubrovnik-Neretva County in regards to cyclotourism

This chapter covers the main profile of the county related to location, climate, relief and traffic system.

Moreover, each of the regions identified within Dubrovnik-Neretva County, along with the information available on the arrivals/overnights, traffic integration, cycle infrastructure and services will also be processed.

2.2.1. MAIN PROFILE OF THE COUNTY

2.2.1.1. POSITION AND GEOGRAPHIC FEATURES

Dubrovnik-Neretva County represents the most southern county of the Republic of Croatia, with Dubrovnik being the centre of the county. With regards to territory, the county is split in two parts because of border crossing with Bosnia and Herzegovina, near Neum. First one refers to narrow coastal area with the islands while the other one refers to the area of Neretva river valley. Administratively, Dubrovnik-Neretva County comprises of 5 cities (Dubrovnik, Korcula, Ploce, Metkovic and Opuzen) and 17 municipalities (Blato, Dubrovacko primorje, Janjina, Konavle, Kula Norinska, Lastovo, Lumbarda, Mljet, Orebic, Pojezerje, Slivno, Smokvica, Ston, Trpanj, Vela Luka, Zazablje I Zupa dubrovacka). The position of the County is shown below on the map.

Figure 2. Position of Dubrovnik-Neretva County on the map of the Republic of Croatia



Source: Author's work

Based on the Spatial Plan of Dubrovnik-Neretva County⁴, the county is divided in:

- mainland area
- mainland-island area
- island area
- peninsular area

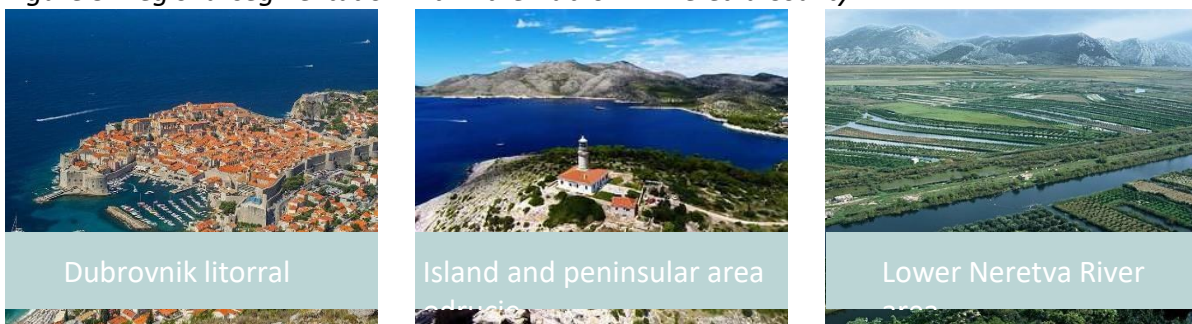
Source:

⁴http://www.edubrovnik.org/wp-content/uploads/2016/10/02_Odredbe_za_provodjenje_prociscene_18_7_16.pdf

The coastal parts of the county are distinguished by several tectonic units: pre-indigenous karst relief, high karst relief and Dalmatian islands. The coastline and islands are stretched in NW-SE direction. There are two types of relief within Lower Neretva River area: flattened and flooded land of the delta and hill-karst limestone relief. High cliffs with numerous caves dominate southern coastline of the islands, while the lower shore is typical for northern sides.

Because of its location, there are three different natural, cultural and economic areas to be distinguished in Dubrovnik-Neretva County. This regional segmentation will furthermore serve as a basis for observing and analysing cyclotourism offer in order to develop new tourism product adjusted to each of these regions.

Figure 3. Regional segmentation within the Dubrovnik-Neretva County



Source: Author's work

Dubrovnik littoral consists of Dubrovnik and municipality of Konavle, Zupa dubrovacka and Dubrovacko primorje.

Island and peninsular area consists of Korcula and municipalities Lastovo, Vela Luka, Blato, Smokvica, Lumbarda, Mljet, Orebic, Trpanj, Janjina and Ston. Lower Neretva River region consists of cities Metkovic, Ploce and Opuzen, as well as municipalities Pojezerje, Slivno, Kula Norinska and Zazablje.

The relief of the county is suitable for development of different forms of cyclotourism (highland and lowland areas), leaving numerous options for developing diverse offer.

2.2.1.2. CLIMATE

Dubrovnik-Neretva County has Mediterranean climate. The main features of Mediterranean climate are warm and dry summers while the mild temperatures and heavy precipitation are typical for other seasons.

The average annual temperature is 16, 5 °C. In summer, temperature raises up to 34 °C while in

winter it is rarely below zero. Climate is under the influence of significant climate variations caused by the highland barriers along the coastline, numerous islands and occasional mainland influence. There is also a significant influence of the sea. Maritime influence to the climate causes mild winter, more cooler spring than autumn with lower temperature amplitudes.

The average number of sunny days a year is between 106 and 111, while the number of cloudy days averages from 87 to 101. The most frequent wind is jugo (warm southern wind), followed by bura (cold northern or north-eastern wind) and maestral (west or northwestern wind).

In summary, climate is favourable for development of tourism and cyclotourism offer in Dubrovnik-Neretva County.

2.2.1.3. TRAFFIC SYSTEM AND ACCIDENTS

Dubrovnik-Neretva County is connected with the rest of the country and neighbouring countries by road, sea and air. Being separated by part of Bosnia and Herzegovina territory near Neum, significant efforts are taken into creating functional and unified region.

TRANSPORT BY ROAD

Highway A1 is the most significant route connecting Dubrovnik-Neretva County with the rest of the country, currently ending up in Ploce, expected to reach Dubrovnik in the future.

Furthermore, Adriatic main road as the main traffic corridor passes though Dubrovnik-Neretva County. Due to the intense traffic load especially in summer, Adriatic main road does not meet needs of local population and visitors. Traffic network of the county consists of 7 state roads, 33 county roads and 72 local roads. The construction of Peljesac Bridge currently being in progress provides significant contribution integrating island and peninsular area with the mainland, connecting the entire county.

TRANSPORT BY AIR

In 2019, the airport Dubrovnik has registered 2.896.227 passengers⁵ representing an increase of 14, 05 % compared to year before. In addition, in 2019, the airport has registered 25.962 arrivals and departures which has been an increase of 10, 03 % compared to 2018.

Source:

⁵ https://www.airport-dubrovnik.hr/storage/upload/plans/Godisnje_izvjesce_2019_17336.pdf

Based on the project Development of Dubrovnik Airport, a Terminal C building was constructed, a part of the manoeuvring area has been reconstructed while construction of multi-storey garage is planned in the future. With the above stated infrastructural works, Dubrovnik Airport meets all the safety standards and customers' requirements.

TRANSPORT BY SEA

Because of position, the coastal indentedness, and the islands, the transport by the sea is of crucial importance for the entire county. There are two international ports within Dubrovnik-Neretva County: international cargo port Ploce and international passengers port Gruz. It is important to note six county ports and 74 local ports significant for local population traffic. Transport of bicycles on local ferry lines of Jadrolinija is allowed exceptionally on lines 9811S Dubrovnik – Korcula – Hvar – Bol – Split i 9604S Split – Hvar, but only if they are foldable and in the appropriate bicycle transport bags. In that case, these are charged as additional luggage. Transport of bicycles on vehicles using ferry lines is allowed with mandatory registration of vehicle's width/height, if the bicycles are on bike carriers on top of a vehicle⁶.

TRANSPORT BY RAIL

There is the railway Ploce-Metkovic-Sarajevo-Osijek-Budapest within the international corridor Vc, passing through Dubrovnik-Neretva County. Passengers' transport on the mentioned line is not available. Within the Adriatic region, passengers' transport by rail operates until Split only. Bicycle and gear transport is available at the additional charge of 15 HRK as hand luggage (above or under the seat or at some other place intended for luggage storing) or in modern trains, having separate space for bicycle storage or separate wagon allowing up to 10 bicycles. Since cyclotourism is tourism product where main mean of transport is also a main motive for visiting certain region, following overview presents possibilities of arriving by bicycle and cycling through Dubrovnik-Neretva County.

Source:

⁶ <https://www.jadrolinija.hr/naj%C4%8De%C5%A1%C4%87a-pitanja/pitanja-i-odgovori---lokalne-linije>

⁷ <http://www.hzpp.hr/prijevoz-bicikala?p=334>

Table 2. Transport options for cyclists in Dubrovnik-Neretva County, according to different means of transport

| Mean of transport | Arrival to Dubrovnik-Neretva County | Transport within Dubrovnik-Neretva County |
|-------------------|---|---|
| Bus | <ul style="list-style-type: none"> • There are bus lines connecting most of county areas with the main urban centres, while many international bus lines are also available during main season. • Most of bus operators do not offer transporting bikes as a part of their standard service (with the exception of certain Flixbus lines) | <ul style="list-style-type: none"> • The service of transporting bicycles on bike racks or in a special section within the buses of public transportation network (for example, service provider Libertas) hasn't been developed or available yet. |
| Train | <ul style="list-style-type: none"> • railway service to Ploce is not available • „Bike on train” concept is not available for transporting cyclists | <ul style="list-style-type: none"> • Transport by rail is not developed within administrative boundaries of Dubrovnik-Neretva County |
| Ferry | <ul style="list-style-type: none"> • Transport of bicycles is available on Jadrolinija local ferry lines • Transport of bicycles is available on the international transport • Transport of bicycles is not possible on other catamaran lines • Exception is seasonal catamaran line by Krilo, up to 5 bicycles | <ul style="list-style-type: none"> • Transport of bicycles is available on ferry lines operated by Jadrolinija within Dubrovnik-Neretva County |
| Airplane | <ul style="list-style-type: none"> • Transport of bicycles is possible depending on the regulations of certain airlines. • Croatia Airlines regulates transport of bicycles as a transport of special and sport equipment | <ul style="list-style-type: none"> • Not applicable (furthermore stated as: N/A) |
| | <ul style="list-style-type: none"> • It is possible to arrive to Dubrovnik-Neretva County by taxi or to rent-a car, and transporting bicycles is charged additionally, depending on each service provider. | <ul style="list-style-type: none"> • Cyclists can use taxi service for transport from point to point within the route. This depends on the service provider and on transporting bicycles in larger vehicles (ie. vans) or in car trunks. |

Source: Author's work

STATISTICS ON TRAFFIC ACCIDENTS BY THE MINISTRY OF THE INTERIOR (MUP)

Cyclists in traffic are obliged to follow all traffic regulations valid for other vehicles as well. In accordance with the Ordinance for technical requirements for vehicles on roads and for safe participation in traffic, a bicycle needs to possess following gear:

- Brake secured for every wheel (hand brake should be placed up front on handlebars)
- one or two symmetrical lights (front lights in white, rear positioning lights in red)
- one or two symmetrically positioned rear retro-reflectors, non-triangular, in red
Retro-reflectors in amber colour on front side and rear side of each bike pedal
- bicycle wheel devices reflecting white or yellow light on lateral sides of wheels
- Audible device⁸

Cyclists are obliged to use bicycle lanes on the road or bicycle paths separated from roadway, and in the case, this is not possible, they should drive closest to the right edge of the roadway. Despite all the regulations and safety restrictions, accidents do happen. Table below represents total number of accidents taking place in five years period within Dubrovnik-Neretva County.

Table 3. Number of traffic accidents in a period 2016-2020

| Year | 2016. | 2017. | 2018. | 2019. | 2020. |
|-----------------------------------|-------|-------|-------|-------|-------|
| Total number of traffic accidents | 907 | 863 | 803 | 767 | 473 |
| Out of which bicycle accidents | 26 | 19 | 28 | 23 | 23 |

Source: Dubrovnik-Neretva police headquarter

Accidents often occur due to lack of roads adjusted to cyclists, regardless it is because of Ground configuration quality, traffic overload by other vehicles or inadequate speed limit on some roads. Human error, which is often a result of the insufficient education about regulations for cyclists in traffic, should also be taken into the consideration. Out of 119 total cyclists-involved accidents that are registered, the largest number is registered in Metkovic (29), then Dubrovnik (16), Korcula (15) and 10 in municipalities of Konavle and Mljet each. In five-year period observed, there were 51 registered deaths out of which 4 included cyclists.

According to guidelines for EuroVelo routes, there is a specific road not recommended for use for cyclists and it refers to Dubrovnik south exit in direction toward Cavtat. Also, there is no alternative entrance to or exit from Dubrovnik by bicycle other than the Adriatic main road, which is an issue because of large traffic overload, especially during summer.

Source:

⁸ <https://gov.hr/moja-uprava/promet-i-vozila/sigurnost-na-cesti/biciklisti-u-prometu/316>

All the routes whose infrastructural conditions do not meet security standards (ie. width of the road, number of traffic lines), should have warning signs “Cyclists on the road” introduced (A39). All the brochures and websites should also include information about the danger on these routes and recommending them for experienced cyclists only.

The existing traffic system in Dubrovnik-Neretva County mainly does not support cyclotourists’ arrival and stay. Transport of cyclists and gear by air, bus, sea and taxi lines depend on service providers and pre-booking arrangements. In addition, it would be necessary to educate local population about rules of conduct of cyclists in traffic. In the case that safety standards on some locations could not be met by performing infrastructural upgrades, in that case it would be necessary to set up appropriate signalisation in order to increase traffic safety in that area.

2.2.1.4. QUALITY ASSESMENT OF INFORMATION AVAILABLE ONLINE TO CYCLISTS IN DUBROVNIK-NERETVA COUNTY

Analysis of trends on Google for the period 2017-2020 for the Republic of Croatia has shown significant increase of interest for the search of term “biking” for the region of Dubrovnik-Neretva County. The trend change has happened in 2019 when Dubrovnik-Neretva County has become most popular on Google search engine for the aforementioned term, in comparison with 2017 and 2018 when Split Dalmatia County and Istra County were leading.

The discrepancy in this increase searching for “biking” on Google has been appearing periodically in July, August and September, indicating the change in guests’ structure, more and more looking for the leisure activities in addition to the accommodation.

Figure 4. Increase of interest for cycling in Dubrovnik-Neretva County



Source: Google trends

Interpretation of the symbols on figure 4:

Interes po regijama/Interest by regions

Podregija/sub-region

Dubrovačko-neretvanska županija – Dubrovnik-Neretva County

Splitsko-dalmatinska županija – Split-Dalmatia County

Istarska županija – Istra County

Grad Zagreb – City of Zagreb

The increase of interest for cyclotourism should be followed by the adequate offer available online, developed by the local and county tourist boards.

The current online offer is rather modest and mostly in .pdf form which makes it hard for use during bike riding unless it is printed and posted on the visible spot, as shown in the following figure.

Figure 5. Use of a printed map while riding a bike



Source: www.mljettravel.com

Mostly searched data about cycling within Dubrovnik-Neretva County was provided by associations Bikemap from Austria and Komoot from Germany.

Figure 6. Screenshot of websites most frequently used by cyclists during their stay in Dubrovnik-Neretva County

| | URL | DA | PA | CF | TF | Links | FB | LPS | EV |
|----|---|----|----|----|----|-------|-----|-----|------|
| 1 | komoot.com/guide/2... | 55 | 34 | 7 | 2 | 1 | N/A | 26 | 3 |
| 2 | bikingcroatia.com/ex... | 14 | 14 | 17 | 6 | 0 | N/A | 18 | 1 |
| 3 | bikingcroatia.com/ | 14 | 18 | 18 | 6 | 1 | N/A | 20 | < 10 |
| 4 | bikemap.net/en/l/... | 66 | 32 | 7 | 0 | 0 | N/A | 27 | < 10 |
| 5 | adventuredalmatia.co... | 39 | 19 | 19 | 7 | 0 | N/A | 26 | < 10 |
| 6 | visitdubrovnik.hr/hr/a... | 49 | 22 | 22 | 28 | 0 | N/A | 41 | < 10 |
| 7 | fiore-tours.com/tours... | 6 | 7 | 7 | 0 | 0 | N/A | 7 | < 10 |
| 8 | viator.com/Dubrovnik... | 82 | 36 | 9 | 5 | 0 | N/A | 35 | < 10 |
| 9 | viator.com/Dubrovnik... | 82 | 36 | 20 | 11 | 0 | N/A | 43 | < 10 |
| 10 | epiccroatia.com/tour... | 13 | 12 | 9 | 0 | 0 | N/A | 11 | < 10 |

Source: www.mangools.com

When users and potential cyclotourists search for term “bicycle paths in Dubrovnik-Neretva County” online, and if this info is not available within BikeMap data, there are other sources where they could get the information from:

- PDF brochures

By searching the term „bike trails of Dubrovnik Neretva County „online, there are only few information found in .pdf format, mainly on tourist boards ‘websites.

Cyclotourists make a research online by using their smart phones, making this information hard to use. Moreover, this format is not multilingual (most of .pdf documents are available in Croatian and English only)

- Foreign bloggers’ reviews

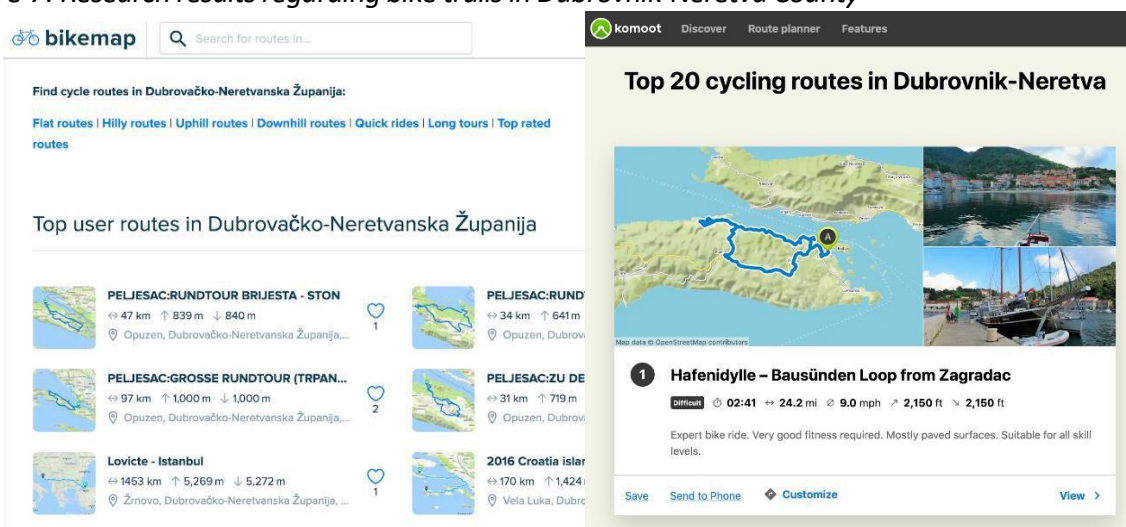
There is not enough information available about cycling trails in Dubrovnik-Neretva County. Bloggers mostly deal with this topic on their websites.

Five most popular cycling related websites in the county refer to agencies or applications for cycle routes planning.

When searching for “bike trail” and “location” (for example, bike trail Opuzen, bike trail Metkovic, bike trail Dubrovnik) you are mostly directed to websites <https://www.bikemap.net/> and www.komoot.com offering choice of various cycling trails.

Visit Dubrovnik website is ranked sixth by popularity.

Figure 7. Research results regarding bike trails in Dubrovnik-Neretva County



Source: www.bikemap.net/; www.komoot.com

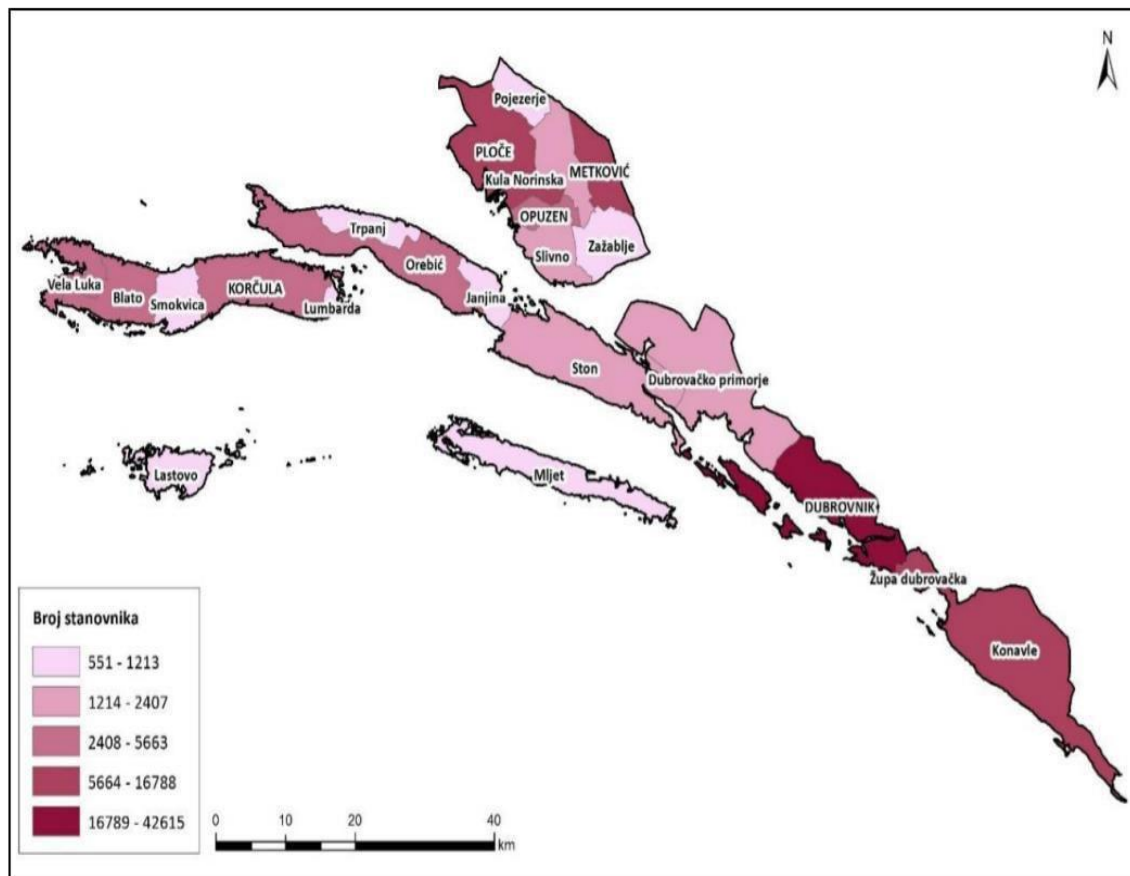
The above stated websites offer detailed instructions for getting around the cycling route, photographs, estimated duration of route, and it is also possible to download the entire route on smartphones and GPS. There are several county tourist boards currently working on cyclotourism development and presentation of their regional offer. It is worth mentioning the initiative for promoting cyclotourism in Neretva River valley through the website Cycling Neretva www.cycling-neretva.com presenting and describing all the existing routes in details (length of trail, Ground configuration, technical requirements, duration of the route and recommendation for appropriate type of a bike) including link to website Ride With GPS as a tool for route planning, QR code and other interesting information. Joined tourist boards of Peljesac peninsula have initiated development of interactive maps for the entire peninsula. Some of the tourist boards such as Korcula tourist board have already designed interactive maps for visitors, but in order for Dubrovnik-Neretva County to entirely become cyclotourism destination, it is necessary to unify the supply and to present it on the official website of the county.

It is necessary to promote online information and materials by creating original multilingual options providing answers to visitors' most frequently asked questions. Developing an interactive map with detailed instructions, created upon model of other Croatian websites <http://www.istria-bike.com/hr/staze/interaktivni-popis-staza> is also of significant importance. Maps should present all consolidated cycle routes of Dubrovnik-Neretva County in order for cyclotourists to access the information easily and with no time wasted.

2.2.2. OVERVIEW OF CYCLOTOURISM SUPPLY AND DEMAND

As stated previously, Dubrovnik-Neretva County is being observed through three distinguished regions, each being specific due to its natural, social and economic features. A figure below showing location of the cities and municipalities within the county, along with the number of inhabitants, is being added for easier illustration of each region and its uniqueness.

Figure 8. Location of cities and municipalities within the county, with number of



Source: Environmental impact study analysis of the Development Strategy for Dubrovnik-Neretva County until 2020

Each region is reviewed based on the main natural features, main roads, transport options to destination, arrivals and departures as well as the accessible cycle trails.

Four state cycle routes, crossing through the county, partially overlap with sections of the international routes.

Their direction is represented in the table below:

Table 4. State cycle routes crossing Dubrovnik-Neretva County

| Route code | Direction | Section of the international route |
|------------|--|--|
| D3 | Border crossing with Slovenia (Jurovski Brod) – Ozalj – Karlovac – Slunj – Plitvicka jezera – Knin – Sinj – Imotski – Vrgorac – Metkovic – border crossing with Bosnia and Herzegovina | |
| D4 | Border crossing with Slovenia (Plovanija) – Umag – Pula – Rijeka – Gospic – Sveti Rok – Zadar – Sibenik – Trogir – Split – Ploce (ferry) – Trpanj – Dubrovnik – border crossing with Montenegro (Vitaljina) | EuroVelo 8 – Mediterranean route EuroVelo 9 – Amber route (border crossing with Slovenia – Pula) |
| D9 | Border crossing with Hungary (Dubosevica) – Osijek – Dakovo – Slavonski Samac – border crossing with Bosnia and Herzegovina – (Doboj – Sarajevo – Mostar – Capljina) – border crossing with Bosnia and Herzegovina – | EuroVelo 6 – Dunav route (Border crossing with Hungary – Osijek) |
| D10 | Kraljevica – Omisalj – Valbiska (ferry) – Lopar – Rab (boat line) – Lun – Pag – Zadar (ferry) – Preko – Tkon (ferry) – Biograd – Sibenik – Split (ferry) – Vela Luka – Korcula (ferry) – Orebic – Ston | Island route |

Source: <https://cikloturizam.hr/rute/>

2.2.2.1. Lower Neretva River region

Situated on the lower Neretva river reaches, this region consists of cities Metkovic, Ploce and Opuzen along with municipalities Pojezerje, Slivno, Kula Norinska and Zazablje.

Based on the residents' census data from 2011, there were 35.672 residents in total, out of which 16.788 in Metkovic, 3254 in Opuzen, 10.135 in Ploce, 174 in Kula Norinska, 991 in Pojezerje, 1999

in Slivno and 757 in Zazablje.

Although belonging to Adriatic, this region is specific in comparison to the rest of the area due to its natural and geographic features.

Water abundance, fertile soil, Mediterranean climate and protected parts of nature are just some of the specific features of this region.

State and municipal roadways serve as a connection of this area under the jurisdiction of self-administration units, with the rest of Dubrovnik--Neretva County, Split- Dalmatia county and neighbouring Bosnia and Herzegovina.

Further below, main roadways within this area are listed:

- State road D8 G. P. Pasjak (border crossing with Slovenia) – Sapjane – Rijeka – Zadar – Split – Ploce (State road D413) –Cevaljusa intersection (State road D425 –Opuzen intersection (State road D9) – border crossing Klek (border crossing with Bosnia and Herzegovina) – border crossing Zaton Doli (border crossing with Bosnia and Herzegovina) – Dubrovnik – border crossing Karasovici (border crossing with Montenegro)
- State road D9 border crossing Doljani BIH/Metkovic – Opuzen – Opuzen intersection (State road D8)
- State road D62 Sestanovac (State road D39) – Zagvozd – Vrgorac – Kula Norinska – Metkovic (State road D9)
- State road D413 Ploce (State road D8) – Luka Ploce
- County road ZC6208 Vrgorac (State road D62) – Drazevitici – Plina Jezero (County road Z6276)
- County road ZC6211 Vina (County road Z6208) – Dusina – Otric-Seoci (County road Z6276)
- County road ZC6216 Bacina (State road D8) – Ploce (State road D413)
- County road ZC6217 Rogotin (State road D8) – Kula Norinska (State road D62)
- County road ZC6218 Prud (border crossing Prud (border - Croatia with Bosnia and Herzegovina)) – Metkovic (State road D62)
- County road ZC6219 Buk-Vlaka (Local road L69010) – Opuzen (State road D9)
- County road ZC6220 Metkovic (State road D9) – Bijeli Vir – Badzula (border crossing Vukov Klanac (border – Croatia with Bosnia and Herzegovina))
- County road ZC6276 Mali Prolog (State road D62) – Plina Jezero – Bacina (State road D8)
- County road ZC6279 Klek (State road D8) – Badzula County road (Z6220)

Agriculture, especially growing citrus fruit, which is regional trademark, is primary economy of the area. Unspoilt nature, boat ride through water channels or through citrus fruit fields attract tourists searching for relaxation, enjoying nature and meeting local lifestyle and traditions.

Table below represents total number of arrivals and overnights according to the available data provided by tourist boards of Metkovic, Opuzen and Ploce and the municipality of Slivno belonging

to the Lower Neretva river region:

Table 5. Number of arrivals and overnights by tourist boards Lower Neretva region in a period 2016-2020

| Year | Category | Metkovic | Opuzen | Ploce | Slivno |
|-------|------------|----------|----------------|--------|---------|
| 2016. | Arrivals | 5.970 | 642 | 3.514 | 23.213 |
| | Overnights | 11.139 | 4.750 | 20.601 | 206.680 |
| 2017. | Arrivals | 6.325 | 664 | 4.607 | 27.197 |
| | Overnights | 14.335 | 6.180 | 25.312 | 214.276 |
| 2018. | Arrivals | 5.947 | 545 | 6.098 | 28.330 |
| | Overnights | 12.613 | 2.977 | 32.255 | 226.775 |
| 2019. | Arrivals | 6.566 | Not applicable | 7.584 | 28.586 |
| | Overnights | 13.196 | Not applicable | 38.647 | 224.531 |
| 2020. | Arrivals | 3.316 | Not applicable | 3.620 | 13.987 |
| | Overnights | 8.203 | Not applicable | 22.267 | 134.468 |

Source: eVisitor system, based on the information provided by tourist boards

The data above shows an increase in arrivals and overnights in mentioned area, and joining efforts in creating cyclotourism product on county level will surely contribute to development.

Lower Neretva region with its unique scenery intercepted with river channels and citrus fruit fields, mild climate, rich cultural heritage and authentic gastronomy serves as a great resource basis for development of specific forms of tourism, especially cyclotourism.

Cycle routes within Lower Neretva region are shown on a list below:

Table 6. List of routes in Lower Neretva region

| Route | Total length (in km) | Ground configuration | Difficulty level |
|--|----------------------|----------------------|------------------|
| Prud – Dragovija – Vid | 27 km | macadam | 3/5 |
| Bacinska jezera/Bacina lakes | 9,2 km | macadam | 1/5 |
| Mandarina ride | 15,1 km | asphalt/macadam | 1/5 |
| Through the field up to mouth of Neretva | 22 km | asphalt/macadam | 1/5 |
| Grand circle through Neretva valley | 100,2 km | asphalt | 3/5 |
| Neretva valley – northern circle | 56,3 km | asphalt | 2/5 |
| Neretva valley – southern circle | 66 km | asphalt | 3/5 |

| | | | |
|------------------------------------|----------|-----------------|-----|
| Through heartland of Neretva river | 56,6 km | asphalt | 3/5 |
| Ploče – Vrgorac – Podgora | 107,1 km | asphalt | 4/5 |
| Makarska – Ploče/Trpanj | 56 km | asphalt/macadam | N/A |

Source: Data analysis based on the info provided by tourist boards <https://www.eurovelo8.hr/>

Signalisation for cycle route Prud-Dragovija-Vid was funded through project Development of cyclotourism in Metkovic in 2016. The Invitation for public tender nominating support program of tourist boards in underdeveloped areas preceded this project. This MTB route, 27 km long, is used for XCP Stipe Camber traditional race within XC Dalmatian winter league.

Figure 9. Cycle route Prud-Dragovija-Vid and participants of XCP Stipe Camber race



Source: Metkovic Tourist Board

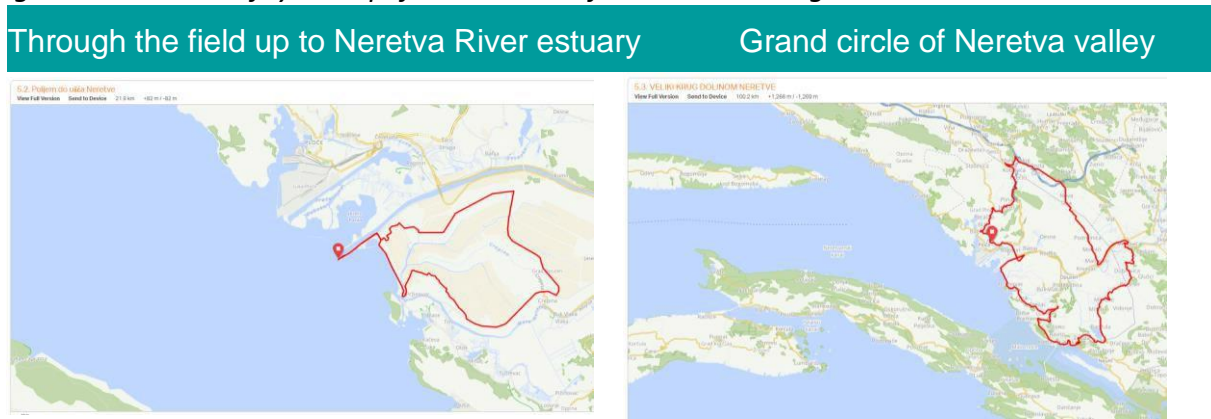
Bacina Lakes cycle route connect five out of seven lakes and it is approximately 15 km long. Bacina Lakes (Ocusa, Crnisevo, Sladinac, Podgora, Vrbnik, Sipak and Plitko jezero) are home to a large number of protected plant and animal species. The bottom of these lakes sits below the sea level, which makes them crypt-depressions and despite being close to the Adriatic Sea on karst terrain, these are fresh water lakes. Along the cycle route there are benches and a fresh water spring nearby for refreshing and relaxation. This route is for cyclists and hikers.

Remaining six routes are designed as a part of Development of cyclotourism in Neretva river valley document. The initiators of this document, city of Metkovic and municipalities Kula Norinska, Slivno and Zazablje have joined efforts in consolidating all the potential and resources of the area in creating unified cyclotourism destination. The initiative was followed by the city of Ploče subsequently, while the city of Opuzen has not joined yet, although one of the cycle routes passes

through Opuzen.

Besides for the aforementioned local cycle routes in Lower Neretva region it is also necessary to emphasize the stage of EuroVelo 8 of the Mediterranean route. The seventeenth phase starts in the centre of Makarska, all the way through southern parts of Makarska Riviera, leading up to Ploce ferry port from where there are ferry lines to Trpanj on Peljesac peninsula where the next route phase continues. It would be possible to stop by at Bacina for the sightseeing of seven Bacina Lakes – a natural phenomenon.

Figure 10. Selection of cycle maps from websites of Lower Neretva region



Source: Metkovic Tourist Board

There is bicycle-pedestrian road 1 km long in the centre of Metkovic, enabling locals and visitors pleasant drive.

Figure 11. Cycle trail in Metkovic along Setaliste 116. Brigade promenade



Source: Metkovic Tourist Board

Cycle road that passes alongside Bacina lakes is connected to Ploce and maintained by the Municipal utility of Ploce. In addition, Ploce Tourist Board is engaged into designing a project for the development of cyclotourism destination of Ploce and Vrgorac field named *Polje Jezero*. Project *Polje Jezero* will integrate the city of Vrgorac (Split-Dalmatia County) with the city of Ploce (Dubrovnik-Neretva County) by thematic trails. By joint effort, *Polje Jezero* as a preserved and authentic location, will become destination suitable for development of travel agency cyclotourism from nearby areas (e.g. from Makarska Riviera).

Advantage of Lower Neretva region is predominantly lowland area by the river flow, and its tributaries. Neretva valley is famous for many stands alongside main traffic routes where homemade products are been offered, especially during autumn when mandarins are harvested. Following figure shows stands with homemade products alongside of one of the traffic sections.

Figure 12. Stands alongside main road within Lower Neretva region



Source: www.likeMetkovic.hr

Major traffic directions are mainly following river flows. This advantage can be used in further development of tourism and in connecting the entire area. As shown above, there are wide sideways by the road, available for drivers stopping to purchase homemade products from stands. There are promenades alongside river flow partially maintained, additionally requiring mowing or alignment at certain parts. All of the above mentioned represents potential for establishment of cycle trails or routes, with the minimal environmental impact.

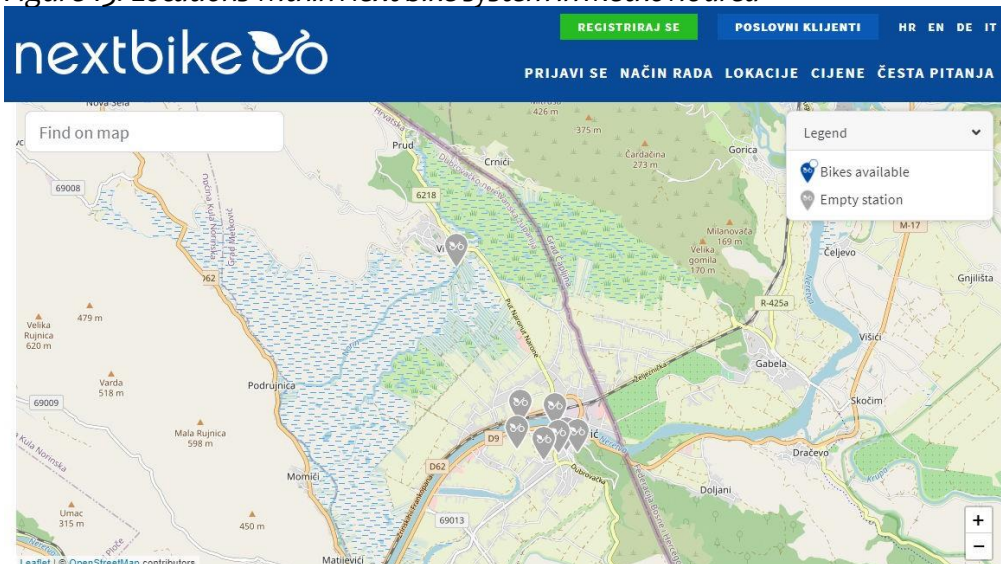
There are two active bicycle clubs within Lower Neretva region: BK Metkovic and BK Relaks.

Those clubs are actively engaged into organizing sport and recreational events and they promote the development of cyclotourism within their region. Their active engagement encourages locals to get involved into cycling, setting up a welcoming atmosphere for cyclotourists appreciating locals' knowledge and experience about cycling possibilities in the area. Besides cycling, these clubs promote healthy lifestyle, hiking, jogging and walking, developing Neretva valley as destination.

In order to assist cyclotourists with the additional services, there are several service providers in the region offering service assistance, transport of cyclists and cycling gear, renting bikes and cycling gear as well as arranging and guiding cycle tours. As a good example of creating offer for cyclotourists, it is worth mentioning smaller-size enterprise *Narona bike* that provides cyclists with renting bikes, transporting passengers and bicycles and assisting with services. *Neretva rent a bike* company also assists with renting bikes, and *Life and Ventures*, aside from cycling, offers many other sport and adventure activities for visitors while staying within Neretva valley.

In order to encourage residents and visitors to use bicycles as a main mean of transport, the city of Metkovic has established public bike-share system named *Next bike*. As a part of this system, there are 14 bicycles provided for use on two main city locations: at the City park and upfront Narona archaeological museum in Vid. Besides these, additional ones have been set in order to make the bicycles easily accessible: upfront City hall, nearby green market on eastern side, near Mihovil Pavlinovic elementary school, upfront Border police station and in "Sportska ulica" street.

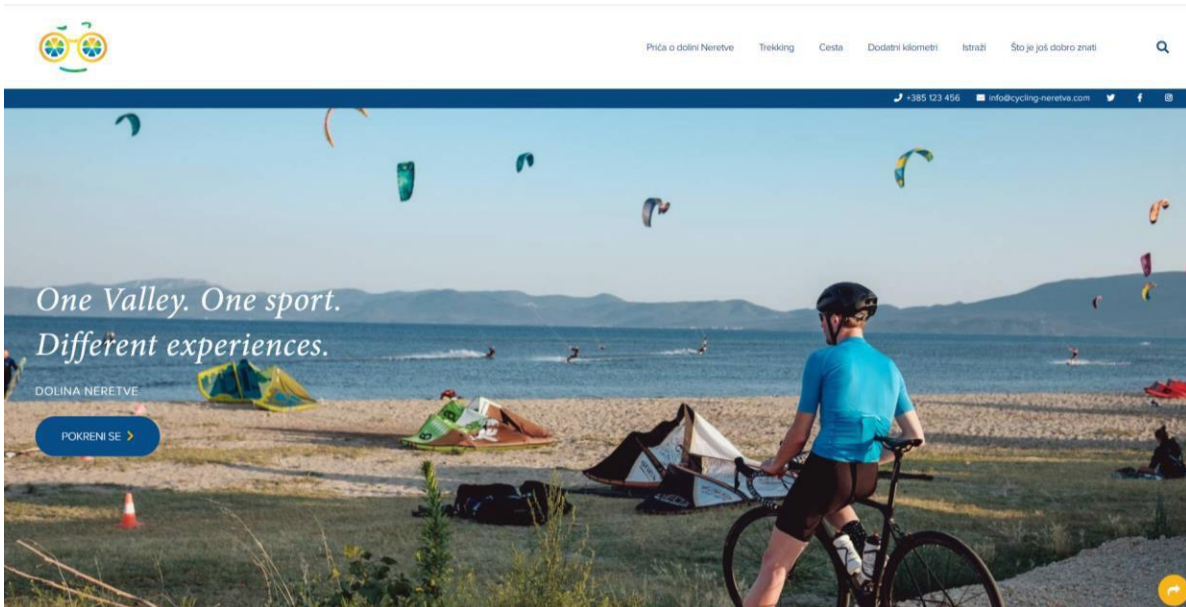
Figure 13. Locations within Next bike system in Metkovic area



Source: www.nextbike.hr

By reviewing existing tourist board websites of Lower Neretva region it is noted that cycling as an activity has been promoted, however there is a lack of detailed information about cycle routes and related services. The offer of all available routes and related services, following *Development of cyclotourism in Neretva valley* document, is presented on website www.cycling-neretva.com. Promoting the above-mentioned website and other available facilities will contribute in positioning of the region and the entire county as a cyclotourism destination. For successful promotion of the offer, it would be important to design an attractive slogan and a logo representing the area. Through *Development of Cyclotourism in Neretva Valley* project a new destination brand was designed, promoted as *1valley*, using the slogan *One valley, One sport, Many different experiences*, all shown in next figure:

Figure 14. Screenshot of the website, logo and slogan for promoting Neretva valley



Source: www.cycling-neretva.com

The logo and the slogan have been used in creating photo inventory, promotional videos and brochures presented to targeted markets in promoting Lower Neretva region as a new cyclotourism destination.

The project *Development of cyclotourism in Neretva valley* unfortunately does not include the entire territory (the city of Opuzen has not been included), covered by the Operational plan, which is drawback for the entire region. Cycle routes integrity and combining more areas are some of the main characteristics of cyclotourism that should be included in designing development projects and in creating an offer. In addition and based on the good cooperation of all parties involved, it would be necessary to encourage creation of new events and keep in

progress the existing local ones upgrading them accordingly.

Sport events taking place in Neretva valley are:

- Neretva Tour (Neretvanski dir) combines two MTB cycle races. In between the races, all the participants are welcome to join the tour by traditional Neretva boat and a bike tour that would provide an insight into popular tourist attractions of Metkovic. This unique event in southern Dalmatia is a combination of recreational and competitive cycling whose purpose is to promote Metkovic and Neretva valley as an ideal cycle-destination;
- One thousand kilometres long, the Memorial Marathon Prevlaka-Vukovar symbolically connects the two most distant points of Croatia, Prevlaka and Ilok, through six phases. This Marathon is organized in honour of twelve Croatian police officers killed in Borovo Selo on May 02nd, 1991;
- XCP Stipe Camber cycle race held every February, comprises of three races: competitive, recreational and for kids. The organizer of this event is cycle club Metkovic.
- Kids outdoor;
- Father Gabric cycle race is held within the sport event The Days of Father Ante Gabric in February;
- Zabica is a competitive cycle race for kids, held once a year, in autumn;
- Primavera-full day cycling event for ladies, organized by cycle club Relaks and supported by the city of Metkovic and Metkovic Tourist Board, promoting cycling and natural beauty of Neretva valley. Primavera was also presented on the 1st thematic cyclotourism conference in Metkovic, as a part of Days of cyclotourism;
- Ivica Prusac Juma cycle race is held every May in honour of Croatian defender in Homeland war - Ivica Prusac Juma. In his honour, members of cycle clubs Relaks and Metkovic visit his memorial place and cycle from Metkovic, to Bagalovic (through Komin-Banje) and back to Metkovic;
- Igor Penava cycle race is organized by bike club Relaks every October. It runs through Metkovic streets and more experienced cyclists proceed furthermore to Klek and Opuzen, through Neretva valley back to Metkovic.

In addition to these events, 1st thematic conference dedicated to cyclotourism, a special form of tourism with a great potential for the business and development purpose, was organized in Metkovic in 2019. Trail-Fully Cycling Experience organized Days of cyclotourism, supported by Ministry of Tourism and Sport and Ministry of the Sea, Traffic and Infrastructure, city of Metkovic, municipality of Kula Norinska, Slivno, Zazablje and Metkovic Tourist Board. The conference gathered representatives of all significant entities interested in development of cyclotourism: Ministry, Croatian Tourist Board, local self-government units, travel agencies, and service providers.

Events are acknowledged through successful promotion as well as accompanying facilities such as entertainment for visitors, accommodation options, gastronomic offer and many other factors. Great number of facilities in Neretva valley expressed their willingness to meet the

cyclotourists' requirements, which is a significant step forward in creating a long-stay destination. In order to achieve that, it is necessary to establish the Quality Standards applicable the entire county. For that the stakeholders would be granted corresponding quality labels promoting their products and services and of the entire region as *bike friendly*.

Areas of intervention and potential for cyclotourism development in Neretva region:

- Climate suitable for cyclotourism all year round
- The opportunity for development of gastronomy-oriented thematic routes
- Diversified terrain suitable for recreationalists and professionals
- Proximity of major tourism regions –Makarska Riviera and Dubrovnik littoral
- Launched initiative of joint development of cyclotourism in Neretva valley, requiring further development within Dubrovnik-Neretva County and Split-Dalmatia County and connect it with stakeholders of neighbouring self-government units
- To integrate growing local brands with regional initiatives of Dubrovnik-Neretva County in order to form joint cyclotourism offer.
- To define stakeholders' interest in creating an offer (bicycle clubs ,service providers etc)
- To update significant number of events with the additional offer and to present them to public
- There is *Bike share* system established in Metkovic area
- Undeveloped *E-bike* system
- Designed website integrating cycle routes in Neretva valley
- Due to lack of accommodation and catering facilities adjusted to cyclotourists, Neretva valley has a potential as one-night stay and excursion destination.
- Development of the accompanying services and facilities suitable for cyclotourists (*Bike friendly* catering and accommodation facilities etc)

2.2.2.2. ISLAND AND PENINSULAR AREA

Island and peninsular area of Dubrovnik-Neretva County consists of city of Korcula and municipalities Lastovo, Vela Luka, Blato, Smokvica, Lumbarda, Mljet, Orebic, Trpanj, Janjina and Ston.

In regards to position, the above mentioned self-government units are placed on Peljesac peninsula (Ston, Janjina, Trpanj, Orebic), Island of Korcula (Korcula, Lumbarda, Vela, Luka, Blato, Smokvica), island of Lastovo (Lastovo) and on island of Mljet (Mljet).

Based on the population census data from 2011, there are 25.203 inhabitants in this area, with the average population density rate of 34, 67 inhabitants per km².

Figure 15. Cyclists' disembarkment from a ferry



Source: www.visit-goodplace.com

KORCULA

Island of Korcula is one of the largest Croatian islands with the surface of 276,03 km². According to the population census data from 2011, there are 15.522 inhabitants registered on the island. Administratively, island of Korcula is divided into city of Korcula and municipalities Blato, Lumbarda, Smokvica and Vela Luka.

Ferry and catamaran lines connect Korcula to the mainland several times a day through two ports – Vela Luka and Korcula as follows:

- Dubrovnik – Korcula – Hvar – Bol – Split
- Orebic – Korcula
- Split – Vela Luka – Lastovo
- Split – Hvar – Vela Luka – Lastovo
- Split – Milna – Hvar – Korcula – Pomena – Dubrovnik (operating seasonally only)
- Split – Hvar – Prigradica – Korcula
- Dubrovnik – Luka Sipanska – Sobra – Polace – Korcula – Ubli (operating seasonally only)

There is only one state road, tri county roads and several local roads on the island of Korcula. The below listing represents main traffic routes which, besides for the purpose of transport and connecting between the settlements, are also partially used for cycling:

- State road D-118 towards Domince/Korcula ferry port – Smokvica – Blato – Vela Luka
- County road ZC-6221 Vela Luka (Plitvine) (Local road L69060) – State road D118
- County road ZC-6222 State road D118 – Blato – State road D118
- County road ZC-6223 Blato (County road Z6222) – Prizba – Brna – Smokvica (County road Z6268)
- County road ZC-6224 Racisce – Korcula (State road D118)
- County road ZC-6225 State road D118 – Lumbarda
- County road ZC-6244 Korcula: State road D118 – Luka

- County road ZC-6255 Prigradica (Local road L69018) – Blato (County road Z6222)
- County road ZC-6268 Kapja (State road D118) – Smokvica – Cara – Dubovo (State road D118)⁹

Relief of Korcula is greatly distinguished in certain parts so northern coastline is fairly lowered, accessible and with few minor inlets, bays and islets. City of Korcula is situated on the north side of the island, with a group of islands located in its north eastern bay (Badija, Planjak, Vrnik, Gubavac, Knezic etc). Southern coastline is steeper and less accessible, while Vela Luka, the best protected inlet, is situated on the western part of the island.

The island of Korcula attracts many visitors because of many beaches and inlets, mild climate, fresh air and clean sea. In addition to natural beauty, this island is also famous for rich cultural, architectural and archaeological heritage reflecting history of the island. Within cyclotourism development, all aforementioned serves as a great basis for creating thematic cycle routes and getting familiar with the island from completely different, two-wheel perspective.

Tourism is the main economy on the island, with the emphasis on accommodation and catering. The island of Korcula is being quite popular among tourists. Following table shows summary of arrivals and overnights within each tourist board of the island over five-year period observed:

Table 7. Number of arrivals and overnights on the island of Korcula, by tourist boards, in a period 2016-2020

| Year | Category | Korcula | Vela Luka | Blato | Lumbarda | Smokvica |
|-------|------------|---------|-----------|---------|----------|----------|
| 2016. | Arrivals | 73.261 | 30.065 | 17.816 | 16.532 | 7.948 |
| | Overnights | 363.157 | 180.663 | 174.280 | 129.722 | 52.175 |
| 2017. | Arrivals | 84.782 | 30.371 | 19.677 | 18.487 | 8.291 |
| | Overnights | 416.733 | 187.370 | 191.026 | 135.820 | 55.523 |
| 2018. | Arrivals | 96.522 | 30.939 | 20.559 | 19.087 | 7.996 |
| | Overnights | 440.706 | 190.032 | 198.759 | 138.794 | 51.854 |
| 2019. | Arrivals | 99.576 | 33.919 | 20.904 | 18.716 | 8.497 |
| | Overnights | 434.788 | 208.905 | 202.362 | 135.257 | 54.148 |
| 2020. | Arrivals | 31.990 | 14.176 | 13.957 | 8.796 | 2.143 |
| | Overnights | 209.569 | 111.684 | 151.384 | 81.096 | 22.676 |

Source: author's work according to data provided by tourist boards

⁹ <https://zuc-dubrovnik.hr/portfolio-item/ceste/>

The above presented arrivals-overnights data shows an increase in both categories within all the self-government units in a period 2016-2020. In 2020 there's been a drop in these numbers due to COVID-19 which imposed restrictions on movement of people on a global level.

Based on the previously mentioned administrative division there are five tourist boards established working on developing cyclotourism offer along with other tourism activities.

So far, each local self-government unit has been developing cyclotourism separately through their activities. Since Korcula as an island represents a single unity, there was a need for integration of individual initiatives and for developing recognizable cyclotourism offer for the entire island. Strategy for tourism development of the city of Korcula encouraged Action plan for cycle tourism development. In 2020, Korcula tourist boards signed the Project Merging Agreement initiating number of common activities planned to be presented through the Action plan for cycle and walking tourism development in Korcula, expected to be finished by spring 2021.

By this Agreement, following activities will be coordinated:

- Organisation and promotion of the existing and new active tourism sport events
- Education of guides specialized in active tourism and education of locals in promoting active way of life
- Equipping cycle and walking routes of Korcula, including EuroVelo8 (with traffic assessment report, introduction of standardizing labels, information boards, route maintenance)
- Projects for assigning special standard labels to accommodation and other facilities
- Projects for installing e-bike charging units and service stations

The list below represents cycle routes by local self-government units on the island of Korcula:

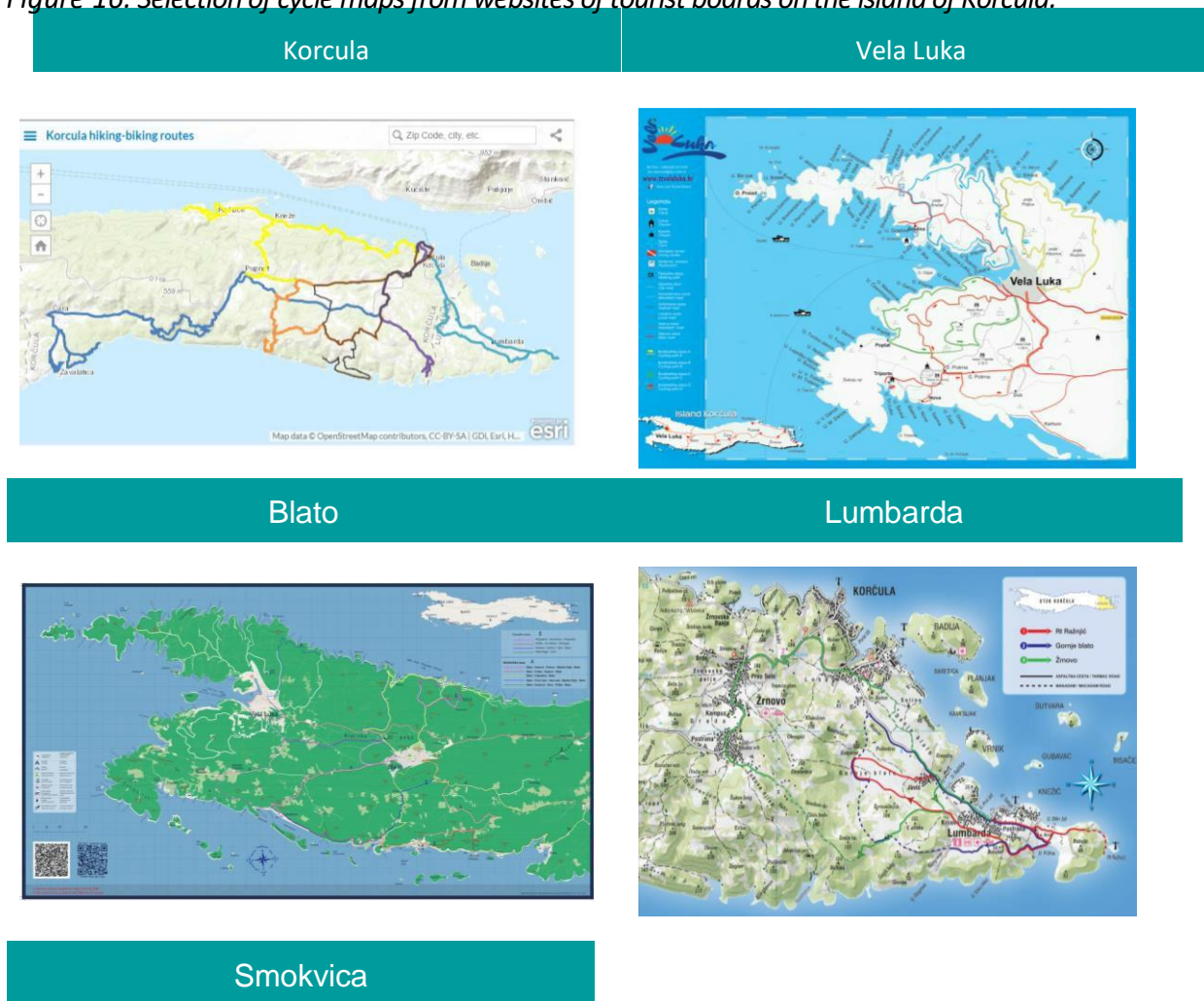
Table 8. List of cycle routes on the island of Korcula

| Settlements that routes are passing through | Total length of the route (in km) | Ground configuration | Difficulty level |
|---|-----------------------------------|---------------------------------------|----------------------------------|
| City of Korcula | | | |
| Pupnat – Zrnovo – Pupnatska luka – Cara – Zavalatica | 53 km | asphalt | Not applicable (n/a furthermore) |
| Korcula – Lumbarda – Korcula | 20,3 km | asphalt | N/A |
| Korcula – Zrnovo – Pupnat – Racisce | 31,3 km | asphalt | N/A |
| Korcula – uvala Bacva – Korcula | 28,7 km | asphalt | N/A |
| Korcula – Orlandusa – Korcula | 31 km | asphalt | N/A |
| Korcula – Zrnovo – Rasohatica | 12,30 km | asphalt | N/A |
| Municipality of Vela Luka | | | |
| Vela Luka – Sptisca – Privor – Vela spila – Vela Luka – ZUTA STAZA | 13,9 km | asphalt, macadam | 1/3 |
| Vela Luka – Tudorovica – Tecar – Prapatna – Vela Luka – PLAVA STAZA | 14,7 km | asphalt, macadam | 1/3 |
| Vela Luka – Poplat – Hum – Vela Luka – ZELENA STAZA | 15,9 km | asphalt, macadam | 2/3 |
| Vela Luka – Dub – Potirna – Vela Luka – CRVENA STAZA | 14,2 km | macadam, asphalt, <i>single track</i> | 1/3 |
| Municipality of Blato | | | |
| Blato – Prigradica – Blato | 14,5 km | asphalt | N/A |
| Blato – Mala Kapja – Babina – Blato | 30 km | N/A | N/A |
| Blato – Crnja Luka – Vela Luka – Blatsko Polje – Blato | 24,5 km | asphalt, macadam | N/A |
| Blato – Karbuni – Potirna – Blatsko Polje – Blato | 20,5 km | asphalt | N/A |
| Blato – Donji Lov – Brna – Prizba – Blato | 30 km | asphalt | N/A |
| Municipality of Lumbarda | | | |
| Lumbarda – Sv. Kriz – Rt Raznjic – Uvala Przina – Kosovo – Gornje Blato – Javic | 10 km | asphalt, macadam | easy/moderate |
| Javic – Kosovo – Gornje Blato – Zrnovo – Lokva – Donje Blato – Lumbarda | 15,5 km | asphalt, macadam | easy/moderate |
| Lumbarda – Uvala Przina – Baruza – Glogovac – Vidikovac – Gornje Blato – Humac – Lumbarda | 12 km | asphalt | easy |
| Municipality of Smokvica | | | |
| Smokvica – Brna – Stavoine – Smokvica | 17 km | N/A | N/A |
| Smokvica – Minca Bor – Gornji Lov – Smokvica | 8 km | N/A | N/A |
| Smokvica – Zavalatica – Cara – Smokvica | 17 km | N/A | N/A |
| Smokvica – Bilostrma – Babina – Smokvica | 29 km | N/A | N/A |

Source: Data analysis based on the information provided by tourist boards

Previously, each local self-government unit has been developing their own routes but, by implementing the Action plan and finalizing the Operational plan, the distinctive tourism product is expected to be formed. The main goal is to create a distinguished cyclotourism destination by integrating cycle routes, creating commonly shared points and thematic routes on the entire Korcula, connecting them with the neighbouring islands. Following figure shows available cycle maps from websites of tourist boards on the island of Korcula:

Figure 16. Selection of cycle maps from websites of tourist boards on the island of Korcula:





Source: Official websites of Korcula tourist boards

Over the year, the island of Korcula is a host to several cycle events through Marco Polo Challenge – mid long marathon organized by Korcula Tourist Board, City of Korcula, and Triathlon club Split. In 2020 the manifestation surpasses local level and becomes event of the entire island, by joint organization of Vela Luka Tourist Board, Municipality of Vela Luka, Smokvica Tourist Board, Municipality of Smokvica, while Municipality of Blato is expected to join them in 2021. In 2020, there was an attempt to organize a cycle race within the area of Lumbarda Tourist Board, but due to COVID-19, this has been postponed. “Luska Strka” – MTB and trail race to welcome summer, is organized by joint efforts of Vela Luka Tourist Board, Municipality of Vela Luka and volunteers and associations of Vela Luka region.

Moreover, a significant number of business entities of Korcula Island have recognized potential of cyclotourism market. Many of these businesses are involved in transporting cyclists and the gear, cycle equipment rental, and organization and guiding of cycle tours. It is also possible to rent e-bike or use services of licensed bike guides within this offer. As good example, it is worth mentioning accommodation facility *Korcula Hill* offering additional services for cyclists, as well as *Kaleta* travel agency offering not only standard but also e-bike rental, and many others integrating offer of the island of Korcula. There are neither bike-friendly accommodation units nor catering facilities. Also there has been lack in offer of bicycle and gear service facilities.

Figure 17. Cycle routes on Korcula Island



Source: www.korcula-outdoor.com

In 2021, Blato Tourist Board is planning of assessing and updating existing cycle and walking trails within the area of Blato municipality. In accordance to this, following activities will be conducted: tour of the existing cycle routes and walking trails, area research, adjusting and designing new interesting routes, taking photos of natural beauties, historical details and plant species related to specific routes, as well as making suggestions for new locations for setting up direction signs in accordance with the current state. The goal is to promote and develop cyclotourism offer in municipality of Blato, as well as to get involved into the planned joint activities of cluster – Korcula island tourist boards on developing cyclotourism/walking routes on Korcula Island, following the Project Merging Agreement (December 2020).

The Agreement has an impact on wide range of joint projects and activities. Cyclotourism-related projects and activities are just a part of the package, and in accordance to the Agreement, all the documentation required for *labelling – bike friendly, hikers friendly* etc for the island of Korcula has been issued.

Following the Action plan, a public tender for the certificate issue is being planned, while routing-related activities and drafting assessment studies for the full-circle island route have already started.

LASTOVO

Lastovo is an island on the Adriatic Sea located south of Korcula Island and southwest of Peljesac peninsula and the island of Mljet. Based on population census data from 2011, there are 792 inhabitants in Lastovo, within five settlements (Lastovo, Pasadur, Skrivena Luka, Uble, Zaklopatica).

Lastovo is connected with the mainland by ferry and catamaran lines:

- Lastovo – Vela Luka – Hvar– Split (catamaran)

- Lastovo – Vela Luka – Split (ferry)
- Lastovo – Korcula – Dubrovnik (catamaran)

It takes approximately 3 hours to reach Split from Lastovo by catamaran, while with ferry it takes approximately 5 hours. There is additional catamaran line Dubrovnik – Sipan – Mljet – Korcula – Lastovo during summer season, operating twice a week.

One state road, one county road and several local roads serve as a connection between settlements of the island:

- State road D119 Ubli – Lastovo
- ☐ County road ZC6230 Pasadur (local road LC 69063) – Ubli (state road D119)
- Local road LC 69034 Zaklopatica – Lastovo (state road D119),
- Local road LC 69035 Lastovo (state road D 119) – Skrivena Luka,
- Local road LC 69062 Prehodisce – Pasadur (county road ZC 6230),
- Local road LC 69063 Jurjeva Luka – Pasadur (county road ZC 6230),
- Local road LC 69065 Lastovo (local road LC 69035) – Barje,
- Local road LC 69080 state road D119 – Skrivena Luka (local road LC 69035)

There is also a heliport on Lastovo, located south of Ubli port. Helicopters are most often used for medical emergency, taxi-service etc. Lastovo is famous for well-indented west and northwestern coast encompassed with 46 islets and rocky cliffs, and it was declared Nature Park in 2006. Along with the island of Mljet, Lastovo is the most forested island having more than 70% of its territory covered in woods. Great number of elevations out of which the highest one is Veliki Hum (417 m), as well as group of forty fields of up to 100 m altitude mostly dominate its relief. Many little churches witness that Lastovo has been inhabited for several thousands of years already and archaeological remains from roman period have been discovered in Ubli bay.

Because of significant distance from the mainland and for not being exposed to commercial lights congestion, Lastovo is well known for the clear sky, and is often called the Island of crystal stars. Table below shows arrivals and overnights on Lastovo Island over five years period:

Table 9. Arrivals and overnights on Lastovo island in a period 2016-2020

| Year | Category | Lastovo |
|-------|------------|---------|
| 2016. | Arrivals | 6.863 |
| | Overnights | 50.340 |
| 2017. | Arrivals | 7.853 |
| | Overnights | 58.126 |
| 2018. | Arrivals | 8.855 |
| | Overnights | 64.131 |
| 2019. | Arrivals | 9.900 |
| | Overnights | 69.650 |
| 2020. | Arrivals | 6.250 |
| | Overnights | 46.886 |

Source: eVisitor system, based on the data provided by Lastovo Tourist Board

The above data shows that Lastovo Island has been registering a constant increase in numbers of Arrivals and Overnights, with the exception of 2020 due to the epidemic of COVID-19.

List of bicycle trails on the island of Lastovo is presented in the next table.

Table 10. List of cycle routes on Lastovo island

| Settlements that routes are passing through | Total length of the route (in km) | Ground configuration | Difficulty level |
|---|-----------------------------------|----------------------|------------------|
| Ubli – Lastovo | 9,45 km | asphalt | 3/5 |
| Lastovo – Portorus (Skrivena Luka) | 7,25 km | asphalt | 3/5 |
| Pasadur – Ubli – Pasadur | 9,7 km | asphalt/macadam | 2/5 |
| Pasadur – Ubli | 2,81 km | asphalt | 2/5 |
| Ubli – Hom | 5,5 km | asphalt/macadam | 5/5 |
| Lastovo – Zace | 5,05 km | asphalt/macadam | 2/5 |
| Lastovo – Barje | 4,9 km | asphalt | 2/5 |
| Lastovo – Lastovo | 12,8 km | asphalt/macadam | 4/5 |
| Zaklopatica – Lastovo | 2,19 km | asphalt | 4/5 |
| Lastovo – Lucica | 0,71 km | asphalt | 5/5 |
| Ubli – Velje more | 2,5 km | asphalt/macadam | Not applicable |
| Prgovo – Dovin do | 3 km | macadam | Not applicable |
| Prgovo – Duboke | 0,8 km | asphalt/macadam | Not applicable |
| Prgovo – Barje | 1,8 km | asphalt | Not applicable |
| Przina – Pasjeka | 0,9 km | macadam | Not applicable |
| Zdrelo – Pojice | 6 km | macadam | Not applicable |
| Zdrelo – Sv. Antun | 0,6 km | asphalt | Not applicable |
| Kruseva njiva – Podi – Velja Lokva – Dosibje do | 2,1 km | macadam | Not applicable |
| Dovin do – Dosibje do – Studenac | 1,5 km | macadam | Not applicable |
| Skrivena Luka – Markov dolac | 2,2 km | macadam | Not applicable |
| Vino polje – Prehodisca | 2,5 km | macadam | Not applicable |
| Ubli – Hum – Spivnik (Skrivena Luka) | 6,5 km | asphalt/macadam | Not applicable |
| Lastovo (Komunalac) – Davjenica | 0,5 km | macadam | Not applicable |
| Hrastove – Zle polje | 1,1 km | macadam | Not applicable |
| Voji dolac – Hrastove | 2,7 km | macadam | Not applicable |
| Voji dolac – Zle polje – Zegovo | 2,85 km | macadam | Not applicable |
| Gornja Luka – Dohnja Luka | 0,15 km | concrete | Not applicable |
| Zaklopatica – Korita (promenade) | 0,8 km | macadam | Not applicable |
| Pasadur – Borova (promende) | 0,65 km | macadam | Not applicable |

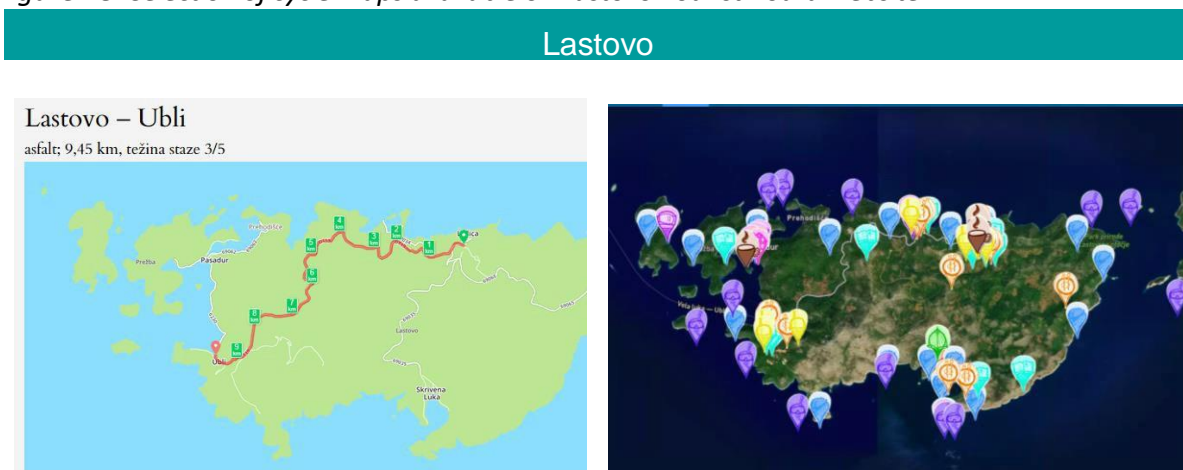
Source: data analysis of information provided by tourist boards

First ten cycle routes from the above table are thoroughly described on Lastovo Tourist Board website. Routes are marked on maps, arranged by the difficulty level, and the details about their

surfaces are provided as well. This information can be of help and guidance to potential cyclists in making the right decision. Other listed routes do require updating, proper marking and promoting via Tourist Board website in order for cyclotourists to stay informed about the offer and cycling options. The existing information is currently lacking details about lookouts, lay-bys and water refill stations.

Figures below illustrate one of the cycle routes on Lastovo Island (on the left) and an interactive map with sport, recreational and catering services offered on the island (on the right). Despite being available and shown on the online interactive map, the cycling maps are not routed yet which needs to be done in the future.

Figure 18. Selection of cycle maps available on Lastovo Tourist Board website



Source: Official websites of tourist boards of Lastovo

Several business entities offering services of cyclists' and cycle gear transport, as well as bicycle and gear rental, are registered on the island. There are lookouts at the entrance of Skrivena Luka village, Zaklopatica village, and on one part of county road ZC Ubli-Pasadur as well as at the entrance of Lastovo town. It is necessary to additionally update and supply all previously mentioned lookouts with the cycle facilities such as covered shelters in the case of bad weather, water supply, bins, and service points with basic repair tool etc.

MLJET

Mljet is the far southern Dalmatian island belonging to Dubrovnik islands archipelago. Based on the population census data from 2011, there are 1088 inhabitants registered within 14 settlements of the municipality of Mljet. More than 70% of the island territory is covered with woods, while this coverage within National Park of Mljet rises to 90% due to which Mljet is considered to be most forested island in Adriatic. Mljet National Park is declared Area of Special

Natural Interest for densely developed forest cover, exceptional cultural-historical heritage and location, unique geological and oceanographic phenomenon in karst relief – Veliko and Malo Jezero – a system of two salt-water lakes, numerous rocks, cliffs and islets, all making this island unique.

The island is connected with the mainland by following ferry and catamaran lines:

- Sobra (Mljet) – Prapatno (Peljesac)
- Dubrovnik – Sipan (Sipanska Luka) – Mljet (Sobra)
- Dubrovnik – Sipan (Sipanska Luka) – Mljet (Sobra) – Mljet (Polace) – Korcula – Lastovo (Ubli)
- Split – Brac (Milna) – Hvar – Korcula – Mljet (Pomena) – Dubrovnik
- Split – Brac (Bol) – Makarska – Korcula – Mljet (Sobra) – Dubrovnik

There is a traffic network of roads established in between the island settlements, consisting of number of unclassified roads, five local roads and two state roads:

- State road D120 Pomena – Sapljunara with roundabout of Sobra and Babino Polje
- State road D123 Connector road State road D120 – Zaglavac ferry port.

Next table shows number of Arrivals and Overnights on Mljet Island within five-year period.

Table 11. Total number of Arrivals and Overnights on Mljet in a period of 2016-2020

| Year | Category | Mljet |
|-------|------------|---------|
| 2016. | Arrivals | 26.283 |
| | Overnights | 125.088 |
| 2017. | Arrivals | 31.513 |
| | Overnights | 144.533 |
| 2018. | Arrivals | 33.860 |
| | Overnights | 156.584 |
| 2019. | Arrivals | 34.722 |
| | Overnights | 159.168 |
| 2020. | Arrivals | 16.321 |
| | Overnights | 95.432 |

Source: eVisitor system, based on the data provided by Mljet Tourist Board

Following table shows a list of cycle routes on the island of Mljet.

Table 12. List of cycle routes on the island of Mljet

| Settlements that routes are passing through | Total length of the route (in km) | Ground configuration | Difficulty level |
|---|-----------------------------------|----------------------|------------------|
| 131 Blato – Pomena | 67,5 km | NA | 3/5 |
| 132 Prozurska Luka – Saprunara | 52,1 km | NA | 2/5 |
| 133 Pomena – Montokuc | 14,9 km | NA | 4/5 |
| 134 Sobra – Babino Polje | 34,8 km | NA | 2/5 |
| 136 Polace – Goveđari | 20,1 km | NA | 1/5 |
| 138 Sobra – Prozura | 16,5 km | NA | 2/5 |

Source: data analysis of information provided by tourist boards

On Mljet Tourist Board website under the *activities/cycling* section there is a link to www.takeadventure.com where interested parties can get the information regarding Mljet cycle routes as well as take an insight into the interactive maps illustrated below (on the right). In the description of cycling trails there is no information about cycling surface. Figure on the left shows interactive map of the island available on Mljet Tourist Board website. This map shows one route only and therefore for visitors to have easier access to information on one single map they are directed to www.takeadventure.com. It would be also necessary to complement the offer with lay-bys, lookouts service facilities and water supply stations.

Figure 19. Selection of cycle maps from Mljet Tourist Board websites



Source: Official websites of Tourist Boards

Travel agencies on the island of Mljet offer various services such as cyclists’ and cycle gear transport, bicycles’ and cycle gear rental and creating and guiding cycle tours. There are no cycle maintenance services available on Mljet as well as there is neither bike-friendly accommodation nor catering facilities registered on the island.

PELJESAC

Peninsula of Peljesac is situated on the south of Croatia, in Dubrovnik-Neretva County. Administratively, it is divided into four municipalities: Ston, Janjina, Trpanj and Orebic. Based on the population census data from 2011, there is 7801 inhabitant registered on Peljesac.

Two state roads and one county road connect the island with the rest of Croatia, as presented further below:

- State Road D414 Orebic ferry port – Ston – Zaton Doli (state road D8)
- State road D415 Trpanj ferry port – D. Banda (state road D414)
- County road ZC6215 Loviste – Viganj – Orebic (state road D414)

Moreover, three ferry lines connect peninsula of Peljesac with the mainland and the neighbouring islands:

- Ploce – Trpanj
- Orebic – Korcula
- Prapatno – Mljet

Besides for the previously mentioned ferry lines, there is a passenger boat transport occasionally established in the summer season.

The construction of Peljesac Bridge will provide a significant contribution in connecting the peninsula and other islands with the rest of the country. By Peljesac Bridge, the Bay of Mali Ston will be by-passed from Komarna (municipality of Slivno) to Brijesta (municipality of Ston) and crossing border between Croatia and Bosnia and Herzegovina will no longer be needed in order to reach the far south and Dubrovnik - the county centre.

The following table shows arrivals and overnights in five-year period observed.

Table 13: Number of arrivals and overnights based on the information provided by tourist boards of Peljesac peninsula in a period of 2016-2020

| Year | Category | Orebic | Janjina | Trpanj | Ston |
|-------|------------|---------|---------|---------|---------|
| 2016. | Arrivals | 105.882 | 10.736 | 18.032 | 29.191 |
| | Overnights | 842.927 | 90.176 | 142.440 | 151.966 |
| 2017. | Arrivals | 119.889 | 11.903 | 19.789 | 33.704 |
| | Overnights | 951.026 | 100.390 | 155.089 | 180.835 |
| 2018. | Arrivals | 121.465 | 12.711 | 20.231 | 34.679 |
| | Overnights | 949.119 | 101.841 | 157.442 | 179.540 |
| 2019. | Arrivals | 115.708 | 12.483 | 19.675 | 36.656 |
| | Overnights | 905.962 | 98.901 | 152.148 | 188.604 |
| 2020. | Arrivals | 58.687 | 5.663 | 6.673 | 14.698 |
| | Overnights | 533.587 | 59.518 | 71.943 | 107.599 |

Source: eVisitor system, based on the data provided by the Tourist Board

Same as with other tourist boards, Peljesac has also been registering a constant increase in number of arrivals and overnights, with the exception of 2020 due to the epidemic of COVID-19 that had a negative impact on travelling.

There are several cycle trails registered on the peninsula, whose details are being listed in the table below.

Table 14. List of cycle routes on the peninsula of Peljesac

| Settlements that routes are passing through | Total length of the route (in km) | Ground configuration | Difficulty level |
|--|-----------------------------------|------------------------------|------------------|
| Ston, Mali Ston – Napoleonov put – Broce – Ston | 28 km | asphalt/macadam | NA |
| Zuljana – Trstenik – Popova Luka – Dubrava – Putnikovic – Zuljana | 31 km | asphalt/macadam | 3/5 |
| Ston – Ponikve | 9 km | macadam | NA |
| Ston – Cesvinica – Vino – Prapratno | 18 km | asphalt/macadam | NA |
| Ston – Kobas – Marculeti | 8 km | asphalt | NA |
| Ston – Konstar – Zaton Doli – Slano | 9 km | asphalt | NA |
| Janjna – Osobjava – Trpanj – Potomje – Kuna – Janjina | 40 km | asphalt/macadam | challenging |
| Popova Luka – Dubrava – Zuljana – Popova Luka | 20 km | asphalt/macadam | challenging |
| Kuna – Janjina – Trpanj – Oskorusno – Kuna | 39 km | asphalt/macadam | 4/5 |
| Orebic – Vlastica – Zupanje selo – Prizdrina – Potomje – Podobuce – Orebic | 36 km | asphalt/macadam | 4/5 |
| Orebic (Podvlastica) – Vrucica – Duba – Loviste – Nakovanj – Viganj – Kuciste – Orebic | 50 km | asphalt/macadam/hiking trail | 5/5 |
| Trpanj – Gornja Vrucica – Donja Vrucica – Duba | 60 km | asphalt/macadam | NA |

Source: data analysis of information provided by tourist boards

There is no information about the difficulty level for some routes on Peljesac. This information is extremely important for potential cyclists in organising and deciding which trail to use. For example, recreationalists or families with kids usually choose shorter, safer and round routes and will certainly avoid macadam roads, longer ascent or trails alongside main roadways.

The actions conducted by Peljesac tourist boards in developing Outdoor Peljesac project will surely contribute to designing a complete offer. The main project goal is marking and integrating

cycling, walking and hiking trails in the entire peninsula. A digital interactive online map for cyclists and walkers is created in order to have all the information available at the same place, which is going to be updated with accommodation and wineries' offer. This way, Peljesac will consolidate the offer for many tourism products based on which it will focus its promotion. Many wineries and gastronomic offer based on fresh fish, seafood, and other seafood specialties are main attraction for those interested in high-quality homemade products, and fresh ingredients prepared in traditional way.

The current focus is on creating GPS routes and field trips, taking photos and selection of the attractive locations for lay-bys, lookouts, putting info boards with route details etc. The interactive map has five routes included already, and more routes are to be added in the future. These are round routes passing through many local self-government units. Interactive map is adapted for use on mobile devices, containing details about routes, altitude differences, options for GPS route download, safety, and photos of certain routes. Interactive map is available on all websites of the local tourist boards. Certain websites offer maps in .pdf format that can be printed and used during cycling. However, tourists are encouraged to use digital maps, due to nature preserving (brochures printing, waste etc) and for the information accuracy.

Below is an overview of maps available, showing cycle routes.

Figure 20. Selection of cycle maps on websites of the local tourist boards on Peljesac



Source: official website of the local tourist boards

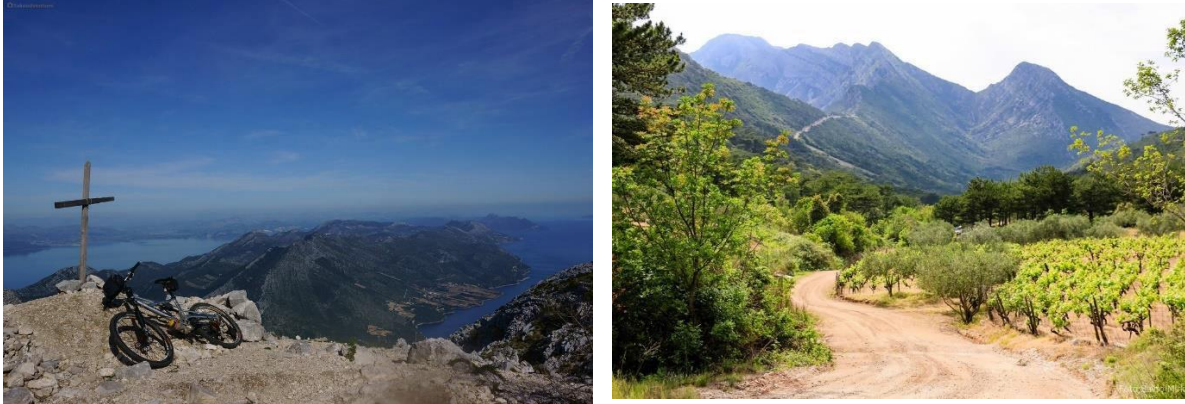
Looking at the offer and information available on websites of Peljesac tourist boards, it can be concluded that there is a potential for further development of cyclotourism.

The existing trails on .pdf maps are just partially marked, however, the introduction of interactive map, supplemented with the new added routes and necessary information, is a significant step forward.

With natural beauties, vineyards and forest trails, Peljesac has a potential for development of thematic routes, offering enjoying the nature and other products and services.

¹⁰ During preparation of the Operational Plan, the map of the Outdoor offer of Peljesac peninsula was in development phase

Figure 21. Cycle routes on the island of Peljesac



Source: www.takeadventure.com

There are several business entities on Peljesac offering cyclists' and gear transport services, bicycle and gear rental, as well as the cycle tours organization and guiding. There is also one catering facility adjusting the offer to meet cyclists' requirements.

Although islands and peninsula of Peljesac are partially cut off from the rest of Dubrovnik-Neretva County in terms of traffic, by integrating cycle routes they would offer diversity that should encourage visitors to stay longer. Table below shows potential for cyclotourism development and areas of intervention within Dubrovnik-Neretva County.

Areas of intervention and potential for development of cyclotourism on island and peninsular part of the Dubrovnik-Neretva County:

- Climate suitable for cyclotourism development all year round
- The existing offer of tourism products and services being seasonal only
- Traffic restrictions related to ferry and catamaran timetables
- Potential for establishing year-round and every-day catamaran lines (e.g. Lastovo-Korcula- Dubrovnik)
- Because of round routes offer and traffic isolation, the islands are potential as multi-day cyclotourism destination
- Potential for developing thematic routes based on gastronomic and cultural offer
- Diversified terrain suitable for recreationalists and professionals
- To integrate the ongoing initiative of local tourist boards for cyclotourism development of Korcula and Peljesac with the regional ones within the county.
- To update number of events with the additional offer and to present it to the public
- The lack of bicycle service facilities
- *Bike* share system not developed
- *E-bike* system not developed (except on Korcula, by a private travel agency)
- Accommodation and catering facilities not being adjusted to cyclotourists' requirements
- Information available on the official websites of local tourist boards is incomplete, but with the joint effort of Peljesac local tourist boards, an interactive map is made, to be regularly updated with new information.

2.2.2.3. DUBROVNIK LITTORAL

Dubrovnik littoral is the third territorial area analysed within this study. It consists of the city of Dubrovnik and municipalities Dubrovacko primorje, Zupa dubrovacka and Konavle. It is the most densely populated part of Dubrovnik-Neretva County with the average population density rate of 113, 17 inhabitants per kilometre¹¹.

In order to have a better understanding of the resource basis for tourism development in this area, it is important to mention large number of valuable cultural monuments, among which the city of Dubrovnik stands out with the Old town centre being under the UNESCO protection for over 30 years.

Following cycle routes pass over this area known as Dubrovnik littoral:

- Route D4 known as Adriatic route (Jadranska ruta) stretching along Adriatic coastline, ending at far south of the Republic of Croatia, in Dubrovnik-Neretva County
- And route D10 known as Adriatic islands (Jadranski otoci) interconnecting island area, ending in Dubrovnik-Neretva County, in the municipality of Dubrovacko primorje.

In addition, EuroVelo8 cycle routes network also passes through this area – Mediterranean route in two phases:

- Phase 19 Ston – Dubrovnik, starting in Ston, ending in Dubrovnik, and
- Phase 20 Dubrovnik – Vitaljina, where Croatian part of the route ends, following through Montenegro territory

Along with the aforementioned routes, there are also additional ones available. These are developed based on initiatives from individual local self-government units, complementing the main cycle routes network.

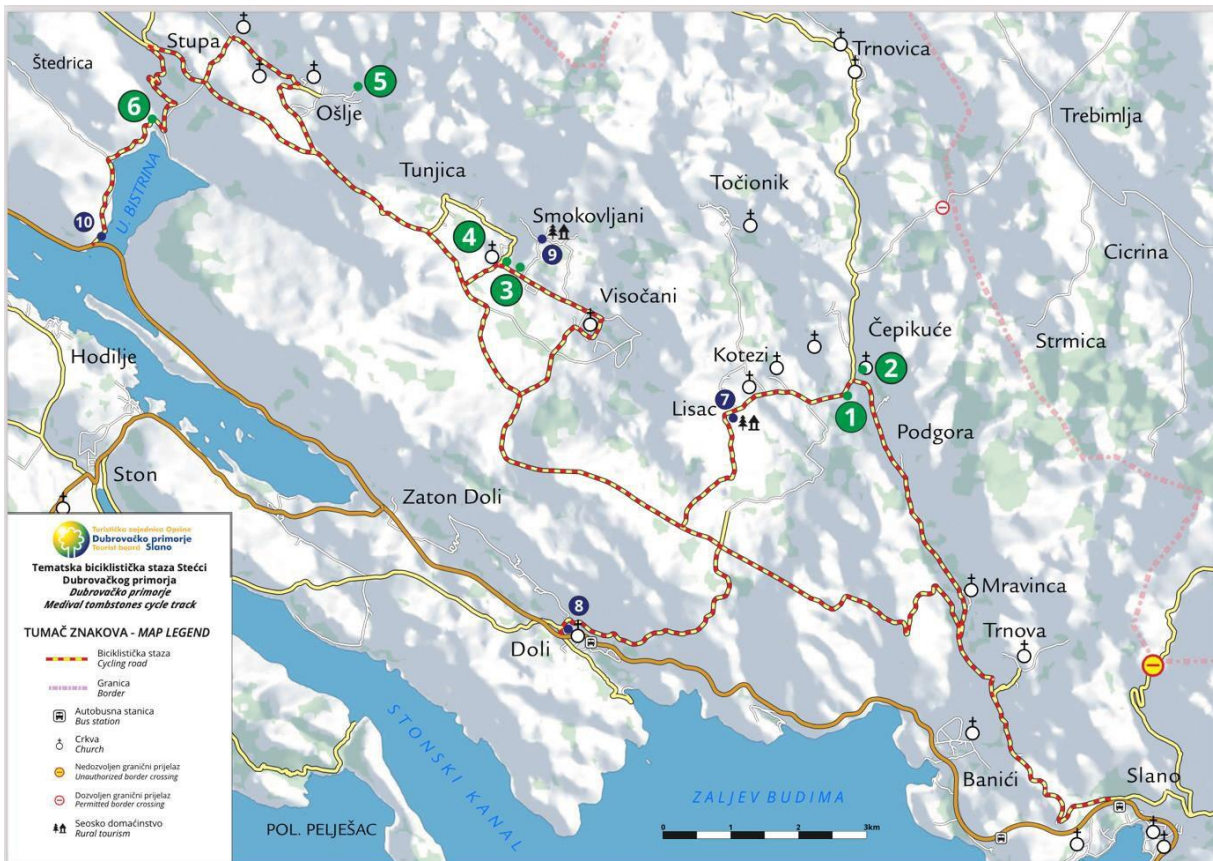
- The existing traffic infrastructure, especially road infrastructure having dense traffic not suitable for cyclists, public transportation network not being suitable for cyclists' transport, insufficient signalisation etc. This is more evident in summer when there is an increased number of vehicles on roads, without offering alternative way of transport for cyclists (no buses with cycle stands, insufficient boat lines etc);
- Configuration of the terrain especially in sections passing through villages above Dubrovacko primorje municipality, or routes after Dubac, etc;
- Emphasis on tourism offer based on cultural resources and less attention paid to selection of active and *Outdoor* tourism, including cyclotourism

11 <http://www.edubrovnik.org/polozaj-i-znacaj/>

MUNICIPALITY OF DUBROVACKO PRIMORJE

In Dubrovacko primorje municipality, cyclists can primarily use state road D8, so called Jadranska magistrala (Adriatic main road) as well as alternative directions over upper area of the municipality where an interesting thematic cycle trail is being developed, known as - *Stecci Dubrovackog primorja*.

Figure 22. Thematic trail *Stecci Dubrovackog primorja* (Stone monuments of Dubrovacko primorje)



Source: <http://www.visit-slano.com/images/biketrail2015.pdf>

These alternative route sections, especially at starting points passing through karst mountain area, are demanding and therefore more suitable for the experienced cyclists rather than recreationalists, families etc. However, they can choose to take e-bikes or divide cycling section into several segments, combining ride with the overnight in one of the accommodation units available within the municipality.

Thematic route *Stecci Dubrovackog primorja* passes through the authentic and picturesque villages such as Smokovljani, Cepikuće and several other unique locations with stone monuments *stecci*. For example, *Novakovo groblje* site (*Novak family tombs*) – in Cepikuće, located within this

route section is considered to be one of the best-preserved sites of stone monuments in Dubrovnik area (marked 1 on the previous figure).

Many lookouts toward Elaphiti archipelago and the island of Mljet contribute to beauty of the scenery and rich experience on this thematic route. The authenticity of the area can also be experienced through gastronomic offer in local taverns or family farms such as *Seoski turizam Katicic*¹². However, restaurants en route, with their gastronomic offer and other facilities, are hardly oriented to cyclists, as special and specific segment of guests, preferring light but energy rich meals, safe space for storing bicycles etc.

It is also similar with the accommodation capacities within the area, not offering specialized services and facilities meeting cyclists' preferences.

According to currently available data for the route stretching through Adriatic main road, and alternative routes through the hills of Dubrovacko Primorje, cyclist are unable to hire electric bicycles there (for example, bicycle hire is available in ACI Marina in Slano, however – there is no info about possibility of hiring electrical bicycles), there are no electrical bicycle charging stations, service and repair facilities, parking places, lays-by and other specialised accompanying facilities.

¹² <https://agro-katicic.weebly.com/>

CITY OF DUBROVNIK

Cycling in Dubrovnik can be observed through three integrated, yet unique segments: (i) Western access to the city (extension to road section stretching through Dubrovacko Primorje municipality); (ii) urban area of the city of Dubrovnik and (iii) south-east exit from the city (beginning of road section toward Konavle and Montenegro border).

Western access to the city is by Adriatic main road D8, containing two points very risky for cyclists. According to the Activity plan for development of Croatia route for period from 2018 until 2030, made within EU-a MedCycleTour¹³ project, the crossing in Zaton village is estimated as very dangerous point for cyclists, due to poor visibility and dense traffic, as well as road section from Zaton toward entrance to Dubrovnik due to very dense traffic, especially in summer.

In western part of Dubrovnik area, some 20 kilometres from Dubrovnik centre, cyclists can enjoy Arboretum Trsteno, the oldest example of garden architecture in Croatia.

¹³ <https://cikloturizam.hr/wp-content/uploads/2020/01/AP-Medcycletour-HR-compress-1.pdf>, pg. 19.

Urban area of Dubrovnik is not particularly suitable for cyclists. In The Old Town, protected cultural heritage, cycling is not allowed and public bicycle system is not available. In greater Dubrovnik area, cycling paths and accompanying facilities are also not developed and that represents great potential not just in developing additional tourist offer, but also in improving public service for local population. In fact, city of Dubrovnik, that has 40000 inhabitants (according to 2021 population census) with development of cycling infrastructure and additional facilities, can promote cycling in everyday life, directly decreasing number of vehicles and traffic jams around Old Town. That way, it promotes eco-friendly way of transport and encourages population to physical activity. Recognising the potential of this mean of transport for Dubrovnik, lately there have been several small initiatives taken towards cycling development, such as supply of public e- bikes for the island of Lopud (administratively belonging to the city of Dubrovnik), purchase of e-bikes for municipal services etc¹⁴.

For cyclists, as special group of tourists in Dubrovnik, offer is therefore oriented to locations outside Dubrovnik, regardless these are round routes and trips (like visit to Arboretum Trsteno, or cycling through Konavle valley), or following journey to the islands, Split, Bosnia and Herzegovina or Montenegro, after Dubrovnik visit.

¹⁴ Workshop result analysis of the initial data collection, MedCycleTour, pg. 27.

Cycling tours southeast of Dubrovnik continue toward municipalities of Zupa dubrovacka and Konavle. In that direction, exit from the city is possible using Adriatic main road or alternative roads to Dubac. From Dubac, alternative routes are not recommended due to ascents, cliffs, inaccessible parts of the industrial zone etc. Having in mind that section of the Adriatic main road is extremely busy, another option for cyclists (especially smaller family groups and inexperienced recreational cyclists) is transfer by boat or coach to Cavtat and then continuing journey by bicycle. At the moment, public transport on that route is not developed enough. According to the data presented in report Workshop result analysis of initial data collection (made within EU-a MedCycle Tour project), embarkation to the boat is not possible at the moment (not by cycling, nor by pushing the bicycles). At the same time, local coach companies transport bicycles in coach luggage compartments, which often means carrying maximum of two bicycles, or even not accepting them if fully booked. Additional ways to transfer the clients towards south are car rental or taxi service.

Besides main cycling infrastructure within the city of Dubrovnik, additional facilities aiming this particular segment of visitors are also not developed enough. Catering and accommodation facilities lack special cycling offer, as well as specialised stores, repair services etc.

Cycling tours are available through package arrangements, designed by local DMC companies, offering tours visiting Dubrovnik Riviera and mainland, including guide, bicycles and gear.

ZUPA DUBROVACKA

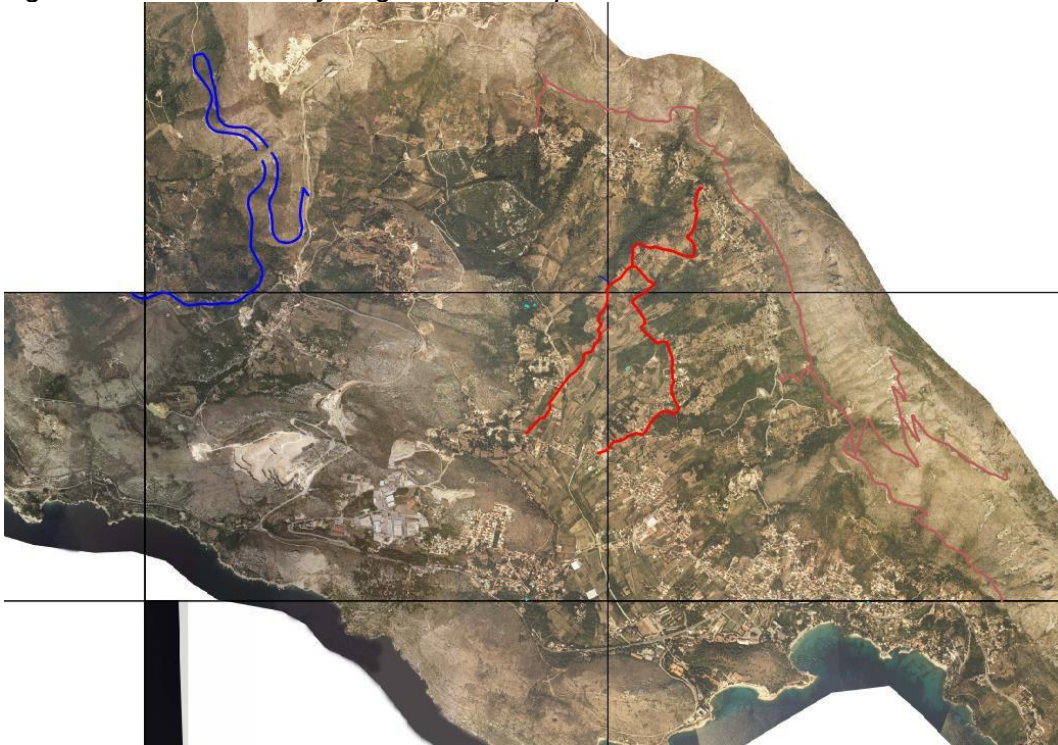
Travelling from Dubrovnik toward south last section of EV8 route begins, passing through Zupa dubrovacka municipality. From Dubrovnik bound on the west to Konavle municipality on the south, main Adriatic road D8 section passes through Zupa Dubrovacka municipality. Extremely busy, especially during summer, that section is not suitable for inexperienced cyclists, families with children etc, so is often avoided. Cyclists are therefore using alternative ways of transport (transfer to Konavle as next destination) taxis, car rentals etc.

Zupa Dubrovacka area has following cycling routes:

- Route 1 – Blue route
 - Beginning of the route is former railway station in Gornji Brgat (just near new border crossing), route follows former railway towards Dubrovnik (Sumet), and is completely passable. It is partially macadam, partially paved, and is also suitable for children age 10 and older.
- Route 2 – Red route
 - The route starts from St Vicenco monastery in Celopeci (local road 69050, paved), passing through concrete path through Lazine village, all the way to county road 6243 in Makose village. This part of the route is more demanding, due to big ascent towards county road. Alternative route is from Vardari area (junction) to the church in Mandaljena village (local road 69050)
- Route 3 – Dark red route
 - Fire lane, starting in Buici village (Gajine, county road 6243), and the road branches off into three directions. The first one is towards Grbavac village (county road 6243), the second is ascent towards Malastica, and the third goes all the way above Mlini village (Zavrelje). The

surface is macadam, eastern and western parts are more demanding, while the ascent towards Malastica, due to its high altitude, is extremely demanding.

Figure 23. Overview of cycling routes in Zupa Dubrovacka area



Source: Zupa Dubrovacka municipality

Cycling routes map is not available on websites of Tourist Board of Zupa dubrovacka municipality, making arrival and route planning in this area very hard for cyclotourists. In addition, cycling as an activity is not advertised on websites at all. In order to establish brand new product at entire county level, it is necessary to make step forward in development of cycling facilities in Zupa dubrovacka. Although roads with its safety standards are not suitable for less experienced cyclists, it is also necessary to adjust alternative and macadam routes, meeting an increased number of cyclotourists' requirements.

KONAVLE

Among all local self-government units of Dubrovnik littoral entity, Konavle municipality has the most developed cycling infrastructure. It was developed based on initiative and cooperation between civil society associations, such as Cycling club Konavle, Agro tourism Konavle etc. From Dubrovnik and Zupa Dubrovačka, the route EV8 passes through Konavle towards Vitaljina-Kobila border crossing with Montenegro, where Croatian part of EV8 route ends.

In Konavle municipality, the following routes are available to cyclists¹⁵:

- Cavtat – Mocici – Cilipi:
 - One-way route totalling 25 km starts from main bus station in Cavtat centre, finishing in Cilipi village, passing through authentic rural area. Some parts of the route are paved, some are macadam, suitable for trekking and mountain bicycles.
- Cavtat – Zvekovica – Milljasi:
 - Round route, partially paved, partially macadam, totalling 26 km. It starts from Cavtat, cycling through slopes of Gornja Banda, continuing through Konavle valley and returning to Cavtat. The route passes not only through interesting and authentic landscapes, but also through traffic challenging parts, making it suitable for more experienced cyclists.
- Cilipi – Gruda – Ljuta – Pridvorje:
 - Round route, partially paved, partially macadam, starts from main Cilipi square, passing through Donja Banda and Konavle valley. It is 25 km long, and is suitable for trekking and mountain bikes
 - Besides above-mentioned routes in Konavle municipality, there is also short route only 10 km long. It goes from Cavtat to Cilipi through rural part of the municipality, in one part passing through dirt road¹⁶.
- Cycle track Ciro:

15 <https://visitdubrovnik.hr/hr/aktivnosti/biciklizam/#biciklizam-u-konavlima>

16 <http://dubrovnikdigest.com/rekreacija/biciklizam>

- Track passes through renewed route of narrow-gauge railway, popularly called *Ciro*, where train used to connect Sarajevo and Zelenika, passing through Konavle municipality on 33 km long track. With remains of the railway, the track passes through forests, vineyards and olive orchards of rich and fertile Konavle valley.

According to processed data and testimonies of stakeholders contacted during development of this document, above-mentioned routes have good signalisation, as well as accompanying maps in digital formats. However, the maps are not consolidated nor linked with other destinations in the area (e.g., official web site for *Ciro* track does not include any info of any other route in Konavle). Therefore, development of the informative content is one of the biggest priorities of this local self-government unit, having partially developed tourist product, to be brought adequately to potential clients.

Infrastructure or investment in upgrading existing routes (e.g. acquisition of equipment for improving infrastructure, construction of accompanying facilities etc.) has the biggest priority. Considering state of the existing routes and availability of resources, stakeholders also suggest upgrading cycle route Cavtat – Prevlaka, meeting medium-term development of cyclotourism in Konavle. It is path already built requiring updating, signalisation and construction of accompanying facilities.

Cycling offer would be greatly improved by construction of bike park in the municipality area, targeting not only professional cyclists, but also young people, families with children and recreationists – offering facilities like pump-track, cycling school, washing and repairing stations, info points etc.

Figure 24. Example of Hafjell bike park in Norway and Soelden bike park in Austria



Source: <https://www.hafjell.no/en/sommer/pumptrac>; <https://bikerepublic.soelden.com/home/bike-park- for-children-and-families.html>

Although the municipality is characterised by developed cycling infrastructure, the offer of accompanying facilities unfortunately is not developed enough, as it is the case in other municipalities and cities in observed areas. All these points out the need of informing and educating stakeholders in public and private sector about possibilities of cyclotourism and creating tourist products for targeted clientele.


Areas of intervention and potential for development of cyclotourism in Dubrovnik littoral:

- Climate suitable for cyclotourism development all year round
- Necessary update of sections dangerous for cycling, especially those without alternative routes
- Possibility for development of theme routes oriented to gastronomic offer and cultural facilities
- In regards to configuration and safety conditions - ground more suitable for professionals
- Lack of bicycle repair facilities
- Bike share system undeveloped
- E-bike system undeveloped
- Travel agency packages combining cycling tours with accommodation represent significant growth potential
- It is essential to establish system of public transport for cyclists and bicycles on routes that are less safe for cycling
- Cycling as tourist product is recognised by Konavle tourist board only, including it on the official website

2.2.3. COMPARISON OF CROATIAN CYCLOTOURIST OFFER WITH NEIGHBOURING REGIONS AND COUNTRIES

Istria County is the most developed county in Croatia with regards to cyclotourism. With joined activities of all stakeholders in tourism, it is heading to be high quality tourism region. All stakeholders involved, joined actions in single website named “Istria bikes & tour”. The website presents detailed information about available cycling routes, information about specialised accommodation, service and transport providers, and licensed cycling guides. All necessary information about service providers, contact details and links to websites are listed by categories. It is also important to note that special standards have been established for accommodation units, which have to be fulfilled to meet cyclotourist requirements in order to get one of labels “Istria Bike & Bed”, “Boutique Bike hotels” and “Bike hotels”.

Figure 25. Information about available cycling trails on Istria bike website



The screenshot shows the website interface for cycling trails. At the top, there is a navigation bar with the logo and menu items: Istra, O nama, Kontakt, HR, EN, DE, IT, and CUBE Istria outdoor. Below the navigation bar is a search bar with filters for Region, Difficulty, Surface type, and Type, and a search button labeled 'Traži'. The main content area displays a grid of trail cards, each with a title, location, distance, elevation, duration, and a GPS icon.

| Trail ID | Location | Description | Distance (km) | Elevation (m) | Duration (h) | GPS |
|----------|----------|---|---------------|---------------|--------------|-----|
| 01 | Umag | ARHEOLOŠKI LOKALITETI I VINSKE CESTE UMAGA, SAVUDRIJE I OKOLICE | 34 | 200 | 2:30 - 3:00 | Yes |
| 02 | Umag | JUŽNA STRANA UMAGA I VOŽNJA UZ MORE | 31 | 120 | 2:30-3:00 | Yes |
| 03 | Buje | SREDNJOVJEKOVNI GRADIČI I VINSKE CESTE MOMJANŠTINE | 38.8 | 460 | 4:00 - 4:30 | Yes |
| 04 | Buje | OPRTALJ I IZVORNI OKUSI ISTARSKOG SELA | 39.3 | 420 | 4:00 - 4:30 | Yes |
| 05 | Buje | NETAKNUTA PRIRODA DOLINE MIRNE I GRADA VINA - BRTONIGLA | 31.3 | 420 | 3:00 - 3:30 | Yes |
| 06 | Novigrad | OD NEAPOLISA DO NOVIGRADA | 31.7 | 150 | 2:30 - 3:00 | Yes |
| 07 | Novigrad | STAZA SV. PELAGIJA | 34.1 | 240 | 3:00 - 3:30 | Yes |
| 08 | Novigrad | NOVIGRAD - OD MORA DO VINOGRADA I MASLINIKA | 19 | 100 | 1:30 | Yes |

Source: www.istria-bike.com

Explanation of terms of the figure above:

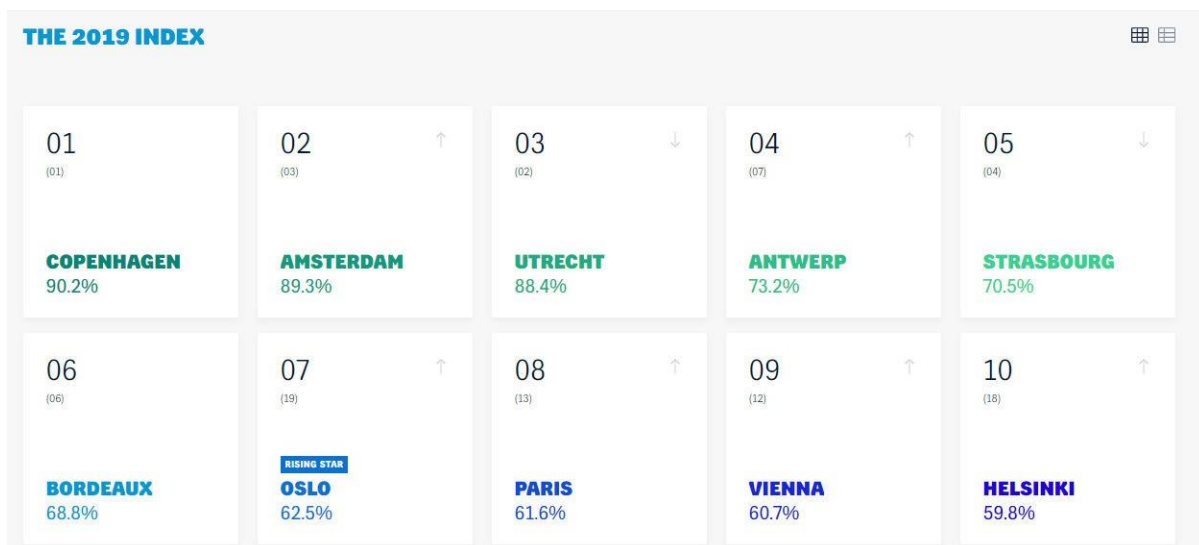
- Filter - Region – difficulty – surface type – Type – Search
- 1 – Archaeological sites and wine road of Umag and area
- 2 – Southern Umag and ride along the coast

- 3 – Medieval towns and wine road of Momjan
- 4 – Oprtalj and the authentic flavour of rural Istria
- 8 – Novigrad – from the sea and the vineyards and olive groves
- 5 – Intact nature or the Mirna river valley and the wine town of Brtonigla
- 6 – From Neapolis to Novigrad
- 7 – The trail of St Pelagius

Besides detailed descriptions of cycling routes and online maps, “Istra bike” website offers large number of brochures with necessary information tailor made for all targeted markets, regions and customer types (i.e. families, recreationalists, road maps, MTB cycling maps). It is important to note all positive sides of presentation of entire offer on a single platform containing all the necessary information about cycling and stay in certain destination, implementing that to Dubrovnik-Neretva County.

Copenhagen index evaluates cities according to the quality of cycling offer on international level. In years, top places are reserved for Copenhagen, Amsterdam, Utrecht etc., but unfortunately, none of Croatian cities is on that list.

Figure 26. List of ten best cities in 2019 according to Copenhagen index



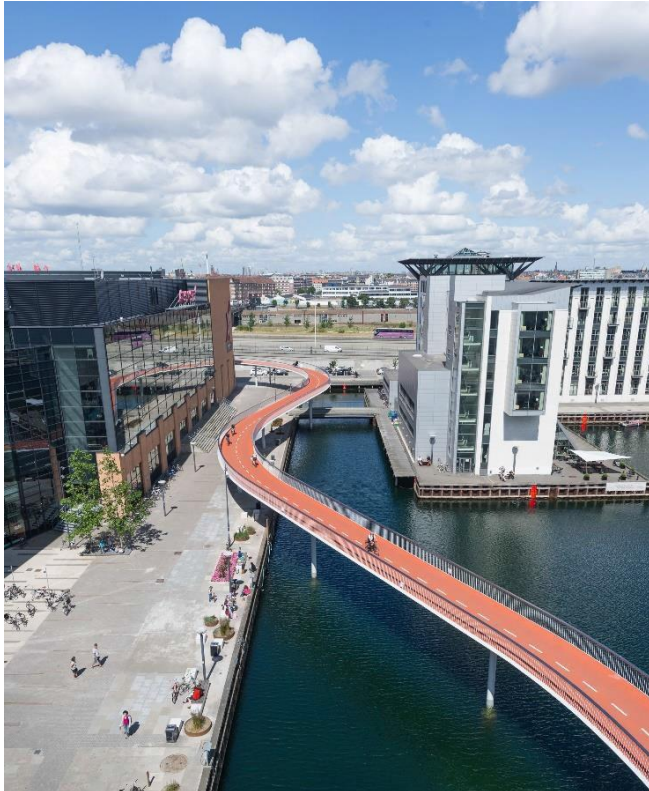
Source: <https://copenhagenizeindex.eu/>

In Croatia, cycling is mostly related to geographical location of a certain region. Therefore, bicycles as means of transport are used significantly less in Adriatic part of Croatia, comparing to

continental part. However, there are many countries and cities in world where bicycles became main way of transport and way of life for both locals and tourists.

For example, in Denmark more than 50% of population employed goes to work by bicycle. In capital of Copenhagen there are more than 400 km of cycling paths, and most famous one is called “cycling snake” (cykelslangen) ascending along city harbour.

Figure 27. Cycling path above Copenhagen city harbour, called cycling snake (cykelslangen)



Source: <http://kristen-archii.blogspot.com/2014/08/cykelslangen-copenhagen.html>

Amsterdam is famous cycling city, having more bicycles than inhabitants. In Amsterdam, cyclists have priority over pedestrians in traffic, and there are more than 25 public garages made for bicycles. The most famous parking place for bicycles is located on main bus and railway station, where more than 8000 bicycles are parked on a daily basis.

Figure 28. Public garage for bicycles in Utrecht (Netherlands)



Source: www.velopa.de

There are numerous other examples of infrastructure and additional facilities available for cyclists, such as:

- “Pop-up” parking for bicycles (temporary parking on mobile platforms that can be easily moved from one location to another on a daily basis). Main concept of parking platforms is that they can be installed at a single car parking space and therefore can accommodate larger number of bicycles;
- Cycling speed detection system, in order to increase safety on roads
- There is a museum in Amsterdam where bicycles are allowed for attended visits inside
- France is developing highways for bicycles leading to nearby cities and their districts
- In Sweden, there is special bicycle ferry line connecting Malmö and Copenhagen
- Certain cities are introducing traffic bans for cars, or limiting their driving speed on main bridges and roads, opening them for pedestrians, cyclists and public transport only

Besides the above-mentioned cities living the cycling philosophy and being adjusted to cyclotourists’ needs, there are also countries where cyclotourism is one of main tourist products.

Austria has more than 5000 km of cycling routes suitable for different target groups. Every Austrian region is unique, so those with mountains are oriented toward offering MTB cycling options for enthusiastic cyclists, while regions with lakes are more suitable for families and recreationalists. For

example, cyclists can experience ganger's trolley ride on one part of a cycling path situated on former railroad. Ganger's trolley, bicycle forerunner, was two-wheel vehicle, operated by legs. Ganger's trolley has few seating places, and two persons need to pedal in order for trolley to move.

Image 29. Ganger's trolley ride on former railroads, nowadays used to develop cycling offer



Source: <https://www.facebook.com/sonnenland.draisinentour/>

There are many paths leading through vineyards, offering to experience nature and culture of each region. Austrian cycling trail maintenance system is excellent. In that system, public sector is in charge of maintaining paved roads, while mountain trails are taken care of by owners of the properties where trails are passing through, and they are being compensated and financially stimulated for that.

Because of diverse offer, Austria is a good example how to take advantage of all the possibilities provided by a certain area, and can serve as a perfect guidance for tourism development in Dubrovnik-Neretva County, which has a potential to become "little Austria" with all its natural features and beauties.

2.2.4. STAKEHOLDERS IN DEVELOPMENT PROCESS OF CYCLOTOURIST OFFER

Development of cyclotourism, as new tourism product, does not rely only on interests of stakeholders creating an individual offer, which can be the case with some other tourist products. Cyclotourism requires cooperation of larger number of stakeholders and joining efforts in their activities. The list below states main tourism stakeholders, their role and possibilities in cyclotourism development:

- Ministries
- Public entities and agencies
- Cycling associations
- Tourist boards and travel agencies
- Other stakeholders

Few ministries can act towards development of cyclotourism in Croatia. Ministry of Tourism and Sport of Republic of Croatia is a coordinating authority, in charge of Action plan for cyclotourism development. Ministry of the Sea, Transport and Infrastructure is in charge for construction of national cycling route network, and adoption of legal framework for cyclotourism development. Hrvatske ceste is a company in charge for constructing national cycling route network, while Hrvatske vode, in accordance with the Water resources law, has the authority to approve potential planning and/or construction of cycling trails, which partially or fully pass through public water resources or facilities under its authority. Hrvatske šume is a company in charge for routes passing through forest roads within the territory under its jurisdiction. Furthermore, on a county level, the Dubrovnik-Neretva County is a main initiator of MIMOSA project for funding the Operational plan development, but it is also in charge for other development projects. Among the most important stakeholders are local self-government units in Dubrovnik-Neretva County. They hold financial resources that can potentially be used for constructing and maintaining cyclotourism infrastructure. Based on mutual cooperation, tourist boards, local self-government units and private sector are joining efforts in developing cyclotourism activities, promoting tourism and cyclotourism, as well as developing new tourist product. Ministry of Regional Development and EU Funds is in charge of financing potential projects through EU funds, while The Regional Development Agency of Dubrovnik-Neretva County (DUNEA) is in charge for that on local level. Cycling associations in Dubrovnik-Neretva County area plan and create cycling routes, support development of cycling trails and participate in organisation of cyclotourism events. There are three public institutions participating in developing of cyclotourism in Dubrovnik-Neretva County, in accordance with the options possible within the area, and without violating natural features: The Public Institution for the Management of Protected Areas of Dubrovnik-Neretva County, The Public Institution “National Park Mljet” and The Public Institution “Lastovsko Otocje Nature Park”. Other stakeholders in

cyclotourism development sector are service providers, accommodation suppliers, catering service providers etc.

Upon establishing the Operational plan, all stakeholders with potential for cyclotourism offer development have been informed of the project start through the official website of Dubrovnik-Neretva County. Furthermore, they have been asked for active involvement in drafting of the Operational plan, by providing information about available cycling infrastructure and submitting project proposals for their area. All stakeholders had been invited to the meeting, where data analysis of the initial state was presented and future steps were identified in development of the Operational plan. Due to epidemiological measures, the meeting took place online with 30 participants – representatives of the County, tourist boards, cycling associations, public institutions etc. In order to act directly toward main issues, in accordance with development potential of Dubrovnik-Neretva County, a team of professionals was formed, consisting of members of Dubrovnik-Neretva County, Metkovic Tourist Board, Orebic Tourist Board, Korcula Tourist Board, Cycling Club Metkovic, Cycling Club Konavle and The Regional Development Agency DUNEA. All stakeholders involved in the Operational plan development are listed in the Appendix of this document.

2.2.5. TOURIST PROFILE IN DUBROVNIK-NERETVA COUNTY COMPARED WITH THE ONE ON NATIONAL LEVEL

Demand for a certain tourist product or service is created upon certain area offer, regardless of whether it is about natural or cultural heritage or some other new attractions or facilities. Several tourist products have been recognised in Dubrovnik-Neretva County. The sun and the sea, nautical, cultural and corporate tourism have imposed as primary tourist products. Most of mentioned tourist products are related to summer season and pleasant weather, providing space for improvement and development of other tourist products attractive in off-season as well. Dubrovnik-Neretva County, with previously explained geographical division, attracts many visitors with all these attractions. Looking at location and geographical diversity, Dubrovnik-Neretva County surely stands out from the rest of Adriatic region, where it belongs. Neretva river valley, lowland area with rich agricultural production of citrus, indented coast with many islands, islets and cliffs, and Dubrovacko primorje, all situated in relatively small area, differ in offer, culture and way of life, creating opportunity for attracting different segments of visitors. Cyclotourism in south Adriatic area is recognised as moderately competitive and attractive product, which is surely an advantage, but there is also large space for improvement in positioning cyclotourism as recognised product of Dubrovnik-Neretva County. Although research info on profile of cyclists arriving to Dubrovnik-Neretva County is not available, it is necessary to look at general profile of visitors arriving to the area, trying to adjust the offer according to their needs. Primary tourist segment of

customers arriving to Dubrovnik-Neretva County consists of young people 18-24 years old, and couples without children and with dual income (DINKs), 25-34 years old. Customer group of younger people is very diverse due to different cultural and social background. They are ready to travel from few days to few months very adventurous, willing to meet local cultures, and prefer more affordable accommodation and transport. Unlike younger people, couples with dual income are not price sensitive, but are time limited. They prefer shorter holidays and incentives. Secondary segment is made of “empty nesters” 50-65 years old. This group of people is made of working population whose children left home and live independently. They travel all year round, combining work and holiday, and are not price sensitive.

When creating cyclotourist profile and developing offer for Dubrovnik-Neretva County, it is important to review different tourist categories based upon several indicators that appear during research. We can put them in categories according to the distance they travel, demographic indicators, travel frequency and motivation or even locations they visit. Table below shows two main categories of cyclotourists: recreational and enthusiastic cyclists.

Table 15. Overview of characteristics and tourist profile of cyclists

| Target market | Recreational cyclists | Enthusiastic cyclists |
|---------------------------|---|---|
| Target market description | <ul style="list-style-type: none"> • Represent higher customer segment • Preferring less demanding routes • Journey planned well in advance • Request comfortable accommodation • Mostly aged 35-60 years • Rarely arriving with own bicycle • Use <i>bike sharing</i> system • Travelling in groups or entire families | <ul style="list-style-type: none"> • Journey plan usually not defined in advance • Looking for simple affordable accommodation • Request tailor made offer for the accompanying facilities • Mostly younger, 20-30 years old • Looking for challenging and more demanding routes • Often arriving with their own bicycles |

| | | |
|-------------------------|---|---|
| <p>Tourist products</p> | <ul style="list-style-type: none"> • Less demanding routes (so called Round routes) • Guided routes • <i>Bike sharing system</i> , electrical bicycles • Cultural and natural attractions • Thematic routes and events | <ul style="list-style-type: none"> • Longer, more demanding routes (so called one way routes) • Cultural and natural attractions • National and international cycling competitions • Besides accommodation and food, request additional facilities for storing, maintenance and care of cycling gear (parking, storage, servicing etc.) |
|-------------------------|---|---|

Source: Author's work

Recreational cyclists represent wider customer segment, and usually have journey planned well in advance. Demographically, those are mostly younger people, families with children, and adults. They prefer shorter and round cycling trails, e.g. daily routes returning to starting point. On a journey, they want to have fun, exercise, socialise with the family and friends and visit protected areas. They either arrive with their own bike or use bike-sharing system.

Enthusiastic cyclists prefer longer and more demanding trails, so-called one-way routes, cycling through more destinations, and do not have journey planned in advance. They are looking for simple and affordable accommodation and possibility for one-night stay. Usually these are younger people or adults with children, arriving in groups or individually. They prefer weekly or monthly tours, arriving with their own bikes. They want to have fun, experience new trails and participate in competitions.

Another above-mentioned classification is defining target markets according to difficulty level of the trail. For example, families with children are cycling on paved and safer routes, with less traffic, while experienced cyclists use macadam or mountain trails, or alongside larger traffic roads. Next table shows classification according to trail difficulty level, and is very important for routing cycling trails.

Table 16. Cycling trails according to difficulty level, route length and ground configuration

| Difficulty level | Route length | Ground configuration |
|----------------------------|-------------------|---|
| 0 – mild route | 15 – 35 km daily | <ul style="list-style-type: none"> • mostly flat ground • mild slopes |
| 1 – easy route | 25 – 40 km daily | <ul style="list-style-type: none"> • mild ground • mild slopes |
| 2 – moderate route | 35 – 65 km daily | <ul style="list-style-type: none"> • for recreationalists exercising regularly • demanding ascents |
| 3 – higher intensity route | 40 – 80 km daily | <ul style="list-style-type: none"> • active cyclists • longer distances • demanding ascents |
| 4 – challenging route | 65 – 120 km daily | <ul style="list-style-type: none"> • Experienced cyclists • Challenging trails • Challenging ascents |
| 5 – extreme route | 90 – 160 km daily | <ul style="list-style-type: none"> • Enthusiastic cyclists • High fitness level • Long, challenging and demanding trails |

Source: <https://www.skedaddle.com/uk/cycling/grades.asp>

Analysis of previously described routes in the county shows that categorisation of routes by the difficulty level is not uniformed and that there are different difficulty levels (e.g. 1-5 or 1-3). In addition, for certain trails the difficulty level and surface type (i.e. asphalt, macadam) are not defined, making it difficult to select the right trail. Due to their geographical attributes, road conditions and other positive or negative factors, all three recognised areas of Dubrovnik-Neretva County have potential for developing different types of cycling and attracting different profiles of cyclotourists. The next table shows different types of bicycles: MTB bikes (mountain bikes, constructed for demanding terrains and the most difficult driving conditions), trekking (suitable for cycling on roads and in nature, e.g. rough ground), road bicycles (made for faster driving on quality grounds), and e-bike suitable for driving long distances. Table also shows cyclotourist profiles, e.g. recreational or enthusiastic cyclists.

Table 17. Potential and development level of different cycling categories:

| Category/region | Lower Neretva river area | Island and peninsula area | Dubrovacko primorje |
|-----------------------|---|---------------------------|---|
| MTB | ✓ | ✓ | ✓ |
| Trekking | ✓ | ✓ | ✓ |
| Road | ✓ | ✓ | ✗ |
| e-bike | ✗ | ● | ● |
| Recreationalists | | | |
| Enthusiastic cyclists | | | |
| Legend | <ul style="list-style-type: none"> ✓ Exceptional growth potential ✗ Low growth potential ● Moderate growth potential | | <ul style="list-style-type: none"> - high attractiveness level - low attractiveness level |

Source: Author's work

Analysing potentials of Dubrovnik-Neretva County and cyclotourist profiles from the above table, a conclusion can be made that Dubrovacko primorje is more suitable for enthusiastic and more experienced cyclists, as well as for MTB and trekking cycling. By analysing previously noted features of targeted markets, preconditions to determine acting priorities have been made. The next table is showing priority breakdown which will direct major stakeholders from tourism and cycling development sector towards developing further project proposals.

Table 18. Priorities for further activities towards targeted markets

| Targeted market | Acting priorities |
|-----------------------|--|
| Recreational cyclists | <ul style="list-style-type: none"> • Systematic and coordinated trail categorization • Trained guides and tourist packages (products) • <i>Bike sharing</i> network system • Charging stations and <i>e-bike</i> support |
| Mutual features | <ul style="list-style-type: none"> • Setting up offer standards (brand identity) • Marked and updated (digital) maps • Presentation and availability of facilities through mobile applications and digital technologies • Setting up measurement system (counters etc.) • Education of stakeholders important for offer development • Systematic support for infrastructure maintenance • Improvement of public transport services • Improvement and development of cycling trails and accompanying infrastructure like lay-bys, lookouts • Predict offer and priorities by new strategic documents |
| Enthusiastic cyclists | <ul style="list-style-type: none"> • Accompanying infrastructure • Additional facilities (i.e. accommodation, higher quality bikes) • Combining so-called one way routes and creating joint routes (within Dubrovnik-Neretva and nearby counties) |

Source: Author's work

In developing cyclotourism as a new tourist product in Dubrovnik-Neretva County, it is important to note that cycling is a main motive for this type of tourists when arriving in certain area. In order to meet needs of that customer group, it is necessary to improve infrastructural conditions, especially quality and safety conditions on roads, but also updating accompanying facilities such as lookouts, lay-bys, service points and e-bike charging stations. Due to geographical position and large number of islands, use of the available public transport for cyclists is very limited in the entire county. In addition, there are many additional problems in development of cycling trails, related to maintaining the existing trails and infrastructure. That requires additional financial investments, and appointing persons that will be in charge of maintenance of the available infrastructure. In order to track the number of cyclotourists arriving in Dubrovnik-Neretva County, their stay and use of certain trails, it is necessary to establish measurement system (counters) which will greatly help with further offer development and customer profiling according to their needs. During the development phase of the plan on the county level, there were several initiatives noted on the local level. Individual initiatives are very welcome when developing a certain offer. However, cyclotourism requires cooperation between stakeholders and integration of the offer and cycling routes in larger terms. Due to geographical position and traffic isolation of certain areas of Dubrovnik-Neretva County, it is extremely challenging to connect certain cycling trails and great additional effort is needed in creating balanced offer. Creating new integrated

routes within the county, which will represent the entire Dubrovnik-Neretva County – its natural beauties, culture, heritage and inhabitants - would contribute in making a unique brand. Although there are individual initiatives like cyclotourism development on the island of Korcula and lower Neretva river area, which formed a great number of routes, activities as well recognisable brand, it is essential to combine them on the entire county level and wider. Cyclotourism is type of recreation where cyclists want to enjoy the nature without needing to pay attention to administration divisions like municipalities, cities, counties and regions. The best example for that are EuroVelo routes, combining European-cycling routes.

2.3. SWOT analysis

Table 19. SWOT analysis of cyclotourism development in Dubrovnik-Neretva County

| STRENGTHS | WEAKNESSES |
|--|--|
| <ul style="list-style-type: none"> - Possibility of arriving in Dubrovnik-Neretva County by road, air and sea - Large number of existing cycling routes - Large number of natural and cultural attractions - Preserved nature and environment - Diverse area and natural environment - Climate suitable for cyclotourism development all year round - Rich gastronomic and wine tasting offer - Availability of EuroVelo routes on part of Dubrovnik-Neretva County - Certain road sections (especially on islands) have less traffic - Possibility of using existing embankments / roads by Neretva river valley and abandoned railroads for construction of new infrastructure - There are several providers offering cyclist transport, route maintaining and repair services in the county - Several important events needing additional promotion and development - Cycling associations and unions on local (Dubrovnik-Neretva County) and national level (Republic of Croatia) | <ul style="list-style-type: none"> - Public transport does not support arrival nor stay of cyclotourists in Dubrovnik-Neretva County - Road sections in larger centres have traffic overloads, especially during summer months - Safety conditions are extremely dangerous on some sections - Service shops and lay-bys and other accompanying services are not systematically allocated - Signalisation for cyclists is inconsistent and is placed mostly according to local initiatives - Catering and accommodation establishments are not categorized nor suitable for servicing cyclists - <i>Bike sharing</i> system not developed - Accompanying e-bike infrastructure not developed - Available maps are mostly made in .pdf format and are not available online - Dubrovnik-Neretva County is not recognized nor presented as cyclotourism destination |
| OPPORTUNITIES | THREATS |
| <ul style="list-style-type: none"> - Apart from Dubrovnik, other areas of the county are not overloaded with tourist arrivals - Different areas (three regions) are opportunity for diverse offer | <ul style="list-style-type: none"> - Great number of other counties in Croatia and neighbouring countries offering quality and complete offer, which is not the case with Dubrovnik-Neretva County |

| | |
|---|--|
| <ul style="list-style-type: none"> - Protected natural areas (national park, nature park) - Market trends caused by COVID- 19 go in favour of cyclotourism development - Opportunity to combine existing gourmet tastings with cycling routes - Connecting Peljesac peninsula with the mainland in order to avoid border crossing with Bosnia and Herzegovina - Completing construction of highway A1 to Dubrovnik to take pressure off local roads - Stimulating hospitality in cyclotourism segment by incentives or creating quality standards - Possibility of using EU funds for development of infrastructure and additional facilities - Designing a website that consolidates offer on the county level - Using new technologies in cyclotourism | <ul style="list-style-type: none"> - Dubrovnik, as main destination in Dubrovnik-Neretva county is not suitable for cyclotourists arrival due being overcrowded during summer months - Cancellation of many transport lines due to Covid-19 situation - Many traffic accidents and other cycling accidents - Cycling routes often pass through private lands causing problems due to slow property and legal issues - Lack of interest for cyclotourism development from all stakeholders in Dubrovnik-Neretva county - Required border crossing with Bosnia and Herzegovina - Lack of cooperation from all stakeholders in Dubrovnik-Neretva County area towards cyclotourism development - Lack of expert personnel knowing cyclotourists' needs - Lack of ecological awareness of inhabitants about importance of using bicycles as a mean of transport - Insufficient connection between existing tourist offer and cyclotourism |
|---|--|

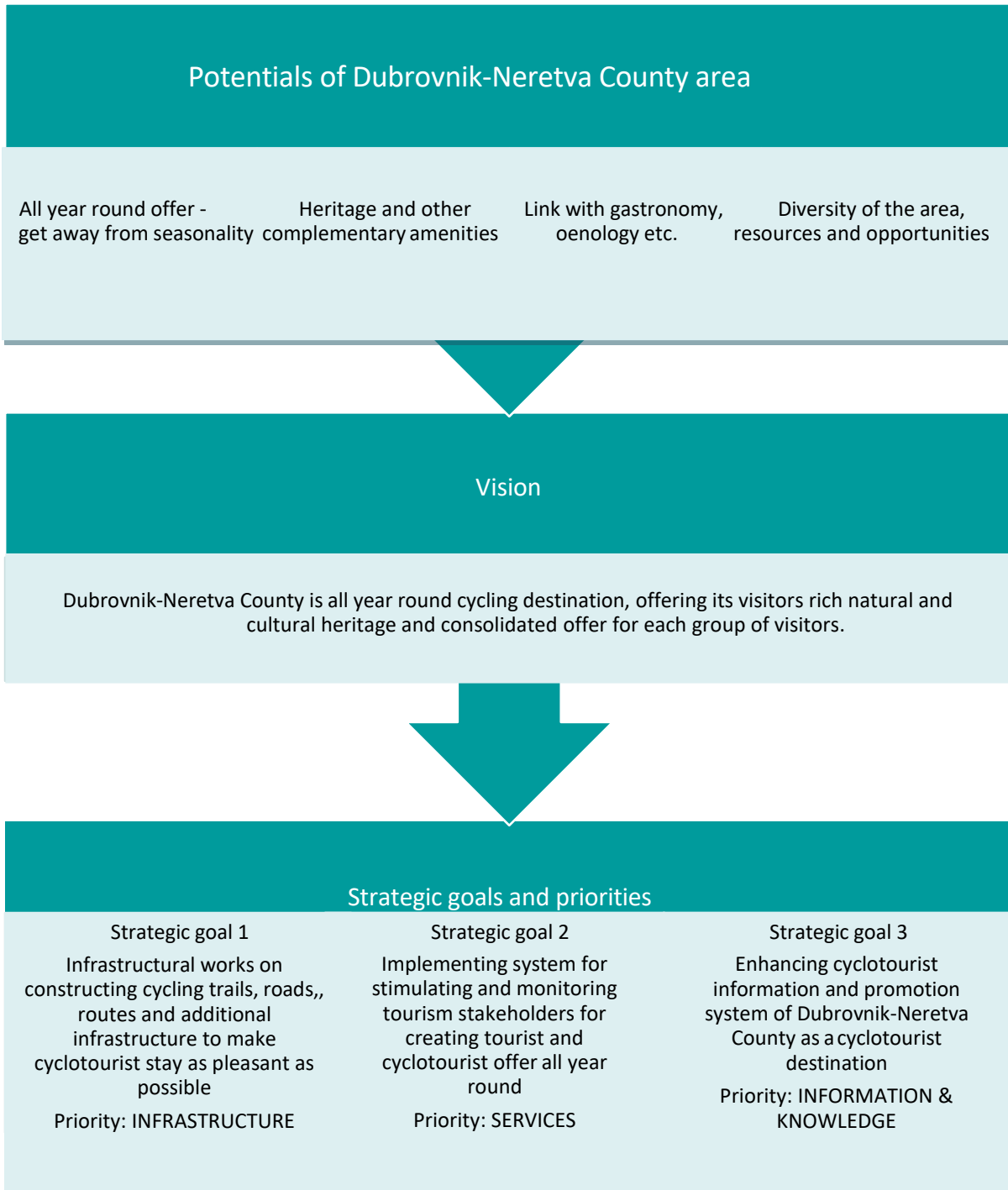
3. STRATEGIC DETERMINANTS

3.1. Visions and development objectives until 2027

After determining resource base upon state analysis and presenting conclusions based on SWOT analysis, it is essential to set the vision to direct future development of cyclotourism until 2027. Vision for further development arises from possibilities and competitive advantages, but at the same time, it has role in eliminating recognised disadvantages in order to develop new tourist product in Dubrovnik-Neretva County.

Determinants, i.e. potential of the area upon which cyclotourism development in Dubrovnik-Neretva County is based, can be divided in four groups shown in figure 30. Tourism trends in Dubrovnik-Neretva County area are mostly noted during summer months, especially on the islands basing their offer on “the sun and the sea”. Area of Dubrovnik littoral and Lower Neretva river region presents its offer also in preseason, starting from Easter holidays, as well as in offseason until the end of October. By developing cyclotourism, for which there are already excellent preconditions provided in the entire county, a possibility arises to shift away from tourism in high season and typical “the sun and the sea” offer that, depending on cluster, is being implemented with the additional activities (e.g. mandarin harvesting in Opuzen or grape harvesting on Peljesac). Natural and cultural heritage represent additional potential whose opportunities can be used, while taking care of permanent preservation of their goods. Cyclotourism, as a main activity, complemented with enjoying numerous natural beauties or getting to know cultural landmarks, should represent a main product, ensuring sustainability and protection of the entire area. Furthermore, besides for natural and cultural attractions, the county offer can be complemented with gastronomic and oenological story on interesting routes through mandarin fields, vineyards or shellfish harvesting and tasting in Mali Ston bay. Diverse offer and relief of the county, represent opportunities for attracting different types of visitors. Lowland parts by Neretva river, indented coast with many islands and bays, mountain and macadam roads offer possibilities for active holidays for different age groups and cyclotourist types. The following figure, besides for the potential of the area, represents the vision of development of Dubrovnik-Neretva County as a cyclotourism region, as well as strategic goals that will lead to accompanying project proposals.

Figure 30. Presentation of vision and strategic goals for cyclotourism development in Dubrovnik-Neretva County area until 2027



Source: Author's work

Resources of the area provide basis for developing joint vision and strategic goals and working-upon priorities. Each strategic goal includes one or more thematic areas, covered by the Action plan for cyclotourism development from 2015.

Thematic areas are:

- Infrastructural projects (strategic goal 1)
- Projects related to law regulations (strategic goals 1 and 3)
- Projects related to education (strategic goal 3)
- Projects referring to improvement of cyclotourism offer (strategic goal 2)
- Project referring to cyclotourism information system and marketing (strategic goal 3)

Suggested development projects relate to period until 2027, and are covering five thematic areas identified in the Action plan for development of cyclotourism in Republic of Croatia dating from 2015.

Thematic areas are:

- Infrastructural projects
- Projects related to law regulations
- Projects related to education
- Projects referring to improvement of cyclotourism offer
- Project referring to cyclotourism information system and marketing

In order to achieve above-mentioned vision of cyclotourism development, the following goals are set forward:

Strategic goal 1: Infrastructural works on constructing cycling trails, roads, routes and additional facilities to make cyclotourist stay as pleasant as possible (lay-bys, lookouts, service stations etc.). By conducting State analysis and getting in touch with the stakeholders working on developing cycle routes and trails, a conclusion can be made that great number of activities depend on the initiatives of local enthusiasts often investing (private) funds into trails maintenance.

In addition, self-governing units often fund construction of certain cycling trails, however, problems with further maintaining, unsolved proprietary-legal issues etc. appear afterwards.

There are also problems with safety conditions on certain road sections within Dubrovnik-Neretva County, due to dense traffic.

Afore-said goal related projects have to refer to installing traffic signs, in cooperation with the Ministry of the Interior, and redirect the traffic to secondary roads wherever possible.

Number and diversity of the existing cycling routes are adequate for current needs. However, it is important to supplement the offer with information points, service stations, e-bike charging stations, lookouts and other facilities for pleasant drive. Next table shows project proposals related to the achievement of strategic goal 1.

Table 20. List of project proposals related to the achievement of strategic goal 1

| Project name | Indicator | Importance level |
|--|---|------------------|
| Maintaining existing and new trails and routes | No of kilometres maintained No of traffic signs put | high |
| Putting and maintaining cycling signalisations | No of signal signs put | High |
| Maintaining and supplying lay-bys and lookouts | No of maintained lookouts / lay-bys | Medium |
| Construction and equipment of <i>bike parks</i> | No of <i>bike parks</i> constructed | Low |
| Charging stations and e-bike system | No of charging stations No of e-bikes | Low |
| Public bike system (<i>bike share</i>) | No of bikes in system No of bike pick up / drop off points | Medium |
| Setting up self-service points | No of self-service points set up | High |
| Setting up route maintenance model (by authority) | Maintenance Agreement on the county level-designed | Medium |
| Cycling traffic counters | No of counters put | High |
| Elimination of obstructions and points of risk | No of risk points eliminated No of alternative routes | High |
| Public parking maintenance | No of parking places for bicycles | Medium |
| Setting up / regulation / development of public transport for accepting bicycles | No on lines for transport of bicycles and gear | High |
| Safety improvements | No of radars and cameras set | High |
| Building/maintaining cycling information points | Building/maintaining three cycling information points | High |
| Construction of new cycling areas | No of kilometres constructed | High |
| Developing routing plans | Routing plans for all existing routes made | High |
| Railroad maintenance | No of railroad kilometres maintained | Low |

Source: Author's work

Proposal referring to maintaining **existing and new trails and routes** includes infrastructural works such as maintaining cycling ground (e.g. macadam alignment, maintaining forest roads).

Indicators for mentioned projects are:

- Length of maintained routes in kilometres
- Number of road signage set up and/or length of trails and routes with signalisation set up

This project proposal, according to the degree of importance, is categorised as initiative of great importance because it represents main precondition for further cyclotourism offer development. For its accurate defining and designing on the entire county level, it is ideal to obtain information about needs and possibilities of all self-government units within the county. However, in initial phases of the offer development, maintenance of the existing and new trails and routes refers to:

- Route in Konavle region Zelenje-Vidikovac (Sivi soko)-Velji do-Jasenice-Zelenje totalling 12 km, with the surface consisting of 50% macadam, 50% asphalt
- Route Zvekovica passing through Ciro trail all the way to Cilipi, on macadam road through Konavle valley near Cadmos to former airport and further over Ljuta river and Gruda until Palje Brdo, totalling 15 km of macadam road
- Macadam route Gruda – Gnjile (Slaven football club field) – Brajkovici – Dubravka – Soko kula – St Barbara – Dubravka (St Mihovil) – below Bjelotina towards Bani – Vodovada – Palje brdo- Gruda totalling 25 km and road Zvekovica – Obod – by aqueduct to Duboka Ljuta – alongside power line to Mlini – Postranje – Gornji Brgat totalling 18 km.
- Maintaining routes in Ploce area and Pojezerje municipality, which would connect Neretva river valley with city of Vrgorac, through “*Polje Jezero*” project.
- Maintaining grounds on numerous routes on islands, like ones in Korcula city
- Reconstruction of Korcula-Racisce road

Also, on all routes it is necessary to eliminate **all obstructions** (e.g. stairs) and **points of risk** (e.g. dangerous road bends) by making alternative routes or by infrastructural works to enable safer passing of cyclotourists and other traffic participants (e.g. road-widening). It would be ideal to make a detailed study analysing action priorities, suggesting safety aspects, and conceptual solutions, cost estimate reports and other technical – technological aspects. Some of road sections that need to be considered are:

- Adriatic highway D8 road section in Zaton all the way to Dubrovnik, marked as of extremely poor visibility and dangerous, especially during summer months
- Access to Dubrovnik port, which is not available for cyclists at the moment,
- Adriatic highway road section at eastern Dubrovnik exit towards Zupa Dubrovacka

Indicators for these project proposals are:

- Number of obstructions eliminated and risk points sorted
- Number of routes in kilometres maintained
- Number of obstructions and risk points identified within Dubrovnik-Neretva County that require intervention

Same as previously elaborated infrastructural projects, this group of projects is also extremely important, since they represent main precondition for safer cycling in the area and participating in traffic.

Cycling-related signalisation on roads provides sense of the additional security to cyclotourists. When placed on adequate distance, it reduces the need for using cell phones and maps as well as stopping by during ride. There is horizontal and vertical signalisation, such as speed limit, safety signs, driving directions, distance from other routes, as well as tourist “brown” signalisation, informing cyclotourists about tourist attractions, accommodation etc. Since there are no locations currently identified for setting up cycling-related signalisation, in the following period it would be priority to define existing unmarked routes in Dubrovnik-Neretva County, especially in areas with high concentration of tourists, such as islands etc. Following construction of new routes and trails, a proper signalisation would have to be set up. For example, it is necessary to improve road section from Zaton until Dr. Franjo Tudman Bridge (adjusting speed limit to 50 km/h, setting up A39 signs “cyclists on road”).

Indicators for this group of project proposals, classified as high priority intervention, are:

- Number of kilometres of the existing routes with installed signalisation
- Number of kilometres of new cycling routes with installed signalisation

Maintaining and equipping lookouts and lay-bys is recommended on every 15-20 kilometres on each route. There are a large number of lay-bys in the area of Dubrovnik-Neretva County, but only few are suitable for cyclotourists. Therefore, recommendation is to adapt current infrastructure to meet cycling requirements and preferences in a way that each lay-by / lookout gets a seating area (e.g. benches), sets up area maps, bins and preferably drinking water supply. It is also recommended to install shelters in case of bad weather and set up **self-service points** including bike racks, repairing tool and other equipment for fast and simple bike repairs. In addition, each route should have at least one self-service point set up.

Indicators for this group of project proposals, classified as medium priority intervention, are:

- Number of existing lookouts / lay-bys adopted to cycling requirements
- Number of new lookouts / lay-bys adopted to cycling requirements
- Number of set self-service points in Dubrovnik-Neretva County

In order to improve cycling infrastructure in Dubrovnik-Neretva County, the suggestion is to construct **bike parks**. These are projects for construction and equipping of the areas specialised for cycling including cycling trails, pump track grounds, bike ramps and similar facilities. According to stakeholders’ proposals, three bike park locations have been proposed within the county: in Konavle, Korcula Island and Metkovic, currently recognized as frequent locations attracting larger number of cyclotourists. With their amenities, bike parks will be important attraction for enthusiastic cyclists, and will be a base for organising new cycling events. It is also recommended

to adjust bike parks to meet requirements of targeted cyclotourist groups. For example, in Konavle area bike parks can be adjusted meeting requirements of professional cyclists, while facilities on the islands can be adjusted to the needs of younger cyclists. In Neretva valley area, locals greatly use bicycle as mean of transport, so therefore it is necessary to adjust *bike parks* to recreation of local population of all age groups. In context of the offer development, it would be ideal to integrate bike parks by diversifying and adjusting their offer to the area uniqueness in order to achieve variety and avoid overlapping. In addition, to enable cyclists to visit more location by purchasing single card, as well as to synchronize calendar of events in order to manage cyclists' travel around county etc.

This group of project proposals can be classified as a medium priority, and their development can be measured by:

- Number of constructed *bike parks* in the area of Dubrovnik-Neretva County
- Number of *bike park* visitors / increase in visitors' number over certain period observed

Charging stations and e-bike system are important primarily because of the configuration of terrain of the county, whose certain parts are harder to cope with due to the big ascents or road length. It is also important to establish e-bike system and integrate it to *bike share* system on the entire county level. Although some *bike share* initiatives do exist (Metković area), it is important to offer to cyclists continuous use of bicycles and accompanying facilities, especially on so-called one way routes, where cyclists do not finish the ride at the starting point, but continue their journey.

For example, cyclists can be offered *bike share* service within the above-stated city of Metković, with the possibility of continuing journey to Pelješac, where road bicycle will be replaced by e-bike due to hilly areas.

That system can also be used for developing intermodal transport and overcoming mentioned traffic limitations on certain transport-restricted road sections, e.g. bicycles on coaches, ferries and other means of transport across the county.

Public bike and e-bike system availability needs to be set in accordance with supply and demand of a certain period of the year and with local population interests. In summer months, it is suggested to increase the number of bicycles for use in order to meet requirements of both local population and tourists, whereas during winter months – there can be fewer bikes and fewer locations offered. **Traffic counters** used for easier monitoring of the quantity of cycling traffic will surely help in decision-making process.

Since this project proposal affects needs and preferences of both local population and tourists using public bicycle system in everyday life, it is being classified as of high priority. After identifying bicycle-point micro destinations of priority for set up, the implementation can be measured by:

- Number of bicycle points set in Dubrovnik-Neretva County
- Number of bicycles within bicycle points in Dubrovnik-Neretva County

- Number of customers / increase in visitors' number over certain period observed

In order to maintain the existing routes, it is necessary to establish **maintenance model** in accordance with jurisdiction. That project is linked with the strategic goal 2 relating to law regulations. Projects linked with law regulations refer to possibilities of adjusting existing legal frameworks regarding safety aspects of cyclists in traffic, and arrangements and possible agreements with specific stakeholders (Ministry of the Interior, Hrvatske vode, Hrvatske sume). In context of safety and monitoring cyclotourist traffic, it is necessary to set up a system of monitoring and measuring devices such as:

- **Cycling traffic counters**
- **Radars** monitoring traffic offences
- **Cameras** recording specific locations in order to spot offenders and to plan putting additional warning signs on certain road sections

Legislation and law adapting are not under the jurisdiction of the county and of cyclotourism stakeholders; however, by knowing local requirements, their role is important since they can suggest right acting direction to legislative authorities, preparation and adjustment of the laws and other acts that regulate these issues.

This group of project proposals is therefore qualified as of high priority, with the following indicators:

- Number of counters / radars / cameras set in Dubrovnik-Neretva County
- Reduction rate of traffic accidents involving cyclists over a certain period of time

In order for cyclists to park their bicycles at safe places, it is necessary to arrange as many **parking places** as possible on busy locations such as bus terminals, ports etc. It is also important to ensure possibility for parking bicycles upfront public institutions, museums and other attractions.

In order to stimulate commercial entities in Dubrovnik-Neretva County area to provide parking places for bicycles upfront their facilities, it is necessary to act according to strategic goal 2, referring to **subsidies** for entrepreneurs to develop cyclotourist facilities with parking spaces included.

Providing parking zones is classified as a high priority project. Their implementation during certain period can be monitored by following indicators:

- Number of bicycle parking places / bicycle parking stands on public places in Dubrovnik-Neretva County
- Number of bicycle parking places / bicycle parking stands at commercial entities in Dubrovnik-Neretva County / number of subsidy beneficiaries (strategic goal 2)

In Dubrovnik-Neretva County, **transport of bicycles and gear** is difficult since public transport is not adjusted to cyclotourist requirements and there are no bus lines with bike racks, catamaran transport is also difficult etc. Therefore, it is extremely important to ensure **transport conditions especially** on routes where cycling is neither possible nor safe enough. This project proposal supports initiatives such as:

- Providing trailers and / or racks for bicycle transport, especially on high-risk road sections such as section between Dubrovnik and Konavle, transport to the islands etc.
- Designing subsidy system for entrepreneurs to supply bike racks and trailers, acquire mini vans, introduce transfer services etc.

This group of project activities can be qualified as very important requiring immediate action. During certain period, progress can be monitored using following indicators:

- Number of public transport companies offering bicycle transport (by transport type)
- Number of private transport companies offering bicycle transport (by transport type)
- Number of bicycle transport tickets sold / average rate of change over certain interval

Extremely important project is construction of cycling information centre on three locations in Dubrovnik-Neretva County area. It is about an innovative concept for promotion of cycling among visitors and local population. Cycling information centres, set up on busy and easily accessible locations, would provide all the necessary information. In addition, they would provide additional facilities such as bicycles and gear rental, basic repair service, short refreshment services etc. Cycling information centre would also provide cyclotourists with bike pick up / drop off service, servicing tools, first aid kits, water filling facilities, free WIFI, brochures, maps and other information required for pleasant stay in Dubrovnik-Neretva County. One of locations for placement of the information centre is planned to be in Konavle area. On the chosen location, an area within existing facility would be arranged and adjusted to meet cyclotourist requirements with its facilities. Information centre would hire a person trained for providing all cyclotourist related information (routes, distances, accommodation units etc). The centre would also provide information about current Dubrovnik-Neretva County offer (events, museums, sightseeing locations etc.). Two additional locations for information centres would be chosen within areas of Lower Neretva River and the islands (most probably Korcula, considering already existing initiatives targeting cycling offer and number of visitors).

This innovative concept can be classified as high priority group of project proposals, whose progress can be monitored using following performance indicators:

- Number of established cycling information centres
- Number of visitors / percentage increase in visitors' number over certain period

Important infrastructural works include **construction of new cycling areas**. For that purpose, it is necessary to build much more cycling trails in all city centres in Dubrovnik-Neretva County area, enabling safe drive for all traffic participants. That way, local population will be encouraged to familiarize with traffic rules, as well as to use bicycle as main mean of transport. In addition, it is necessary to design attractive cycling areas on certain locations, appealing to different cyclotourist types. For example, within *Ciro* cycling route in Konavle (where narrow-gauge railway with steam locomotive used to operate in the past) a section can be converted to meet requirements of families with children. Previous section describes example from Austria, where former railroad section has been converted to meet cyclotourist requirements, riding ganger's trolleys on it. All cycling routes require developing routing plans in order to make a common map of the entire county ultimately presented as new tourist product. Therefore, project proposal on routing plan development is of extreme importance.

Strategic goal 2: Setting up the system for stimulation and monitoring of the stakeholders in tourism, to organise tourist and cyclotourist offer all year round.

Apart from infrastructure and equipped trails, it is important to offer visitors possibility of using other products and services, and enable them spending on the county level. State analysis showed that small number of stakeholders in tourism had recognised cyclists' requirements during their stay. In order to act towards strategic goal 2, below please find project proposals for the entire area of Dubrovnik-Neretva County.

Table 21. List of project proposals related to implementation of strategic goal 2

| Project | Indicator | Importance level |
|---|--|------------------|
| Quality standard development | Quality standards set No of stakeholders with standards granted | high |
| Subsidies for development of <i>bike friendly</i> accommodation units | No of subsidies granted Value of subsidies granted | High |
| Subsidies for development of <i>bike friendly</i> catering offer | No of subsidies granted Value of subsidies granted | High |
| Subsidies for development travel agency cyclotourist offer | No of subsidies granted Value of subsidies granted | High |
| Subsidies for development of <i>bike friendly</i> transport and service facilities | No of subsidies granted Value of subsidies granted | High |
| Subsidies for development of <i>bike friendly</i> offer of associations and other organisations | No of subsidies granted Value of subsidies granted | High |
| Development of existing and designing new cyclotourist events | No of new events | Medium |
| Thematic routes development | No of thematic routes | Low |
| Wi-Fi spots | No of available Wi-Fi spots | Medium |

Source: Author's work

All stakeholders aiming to stand out with their offer and meet cyclotourist needs will have the opportunity to establish **quality standards** within their facilities. In order to get quality standard labels, they would need to meet certain requirements such as providing safe parking places for bicycles or enable bicycle transport through transfer providers, all of which described in next chapter. Project proposal closely linked to introduction of quality standards relates to subsidies to following sectors:

- Owners of accommodation units
- Owners of catering facilities
- Owners of travel agencies
- Owners of transport companies and service providers
- Associations and other civil society organisations

Using different subsidies, it is necessary to stimulate stakeholders in constructing cyclist parking places and bike racks, educating cyclotourist guides and designing diverse cyclotourist offer. Subsidies for commercial entities would be assigned on the county level and for those who decide to introduce some of new cycling facilities would be granted subsidies to purchase necessary equipment, construction works, education etc. Project proposals relating to implementing quality standards and subsidies for designing cyclotourist offer are of high priority and need to be created as soon as possible and need to encourage service providers to include cycling-adjusted facilities within their offering. Above mentioned is one of main preconditions for further development of Dubrovnik-Neretva County as a cyclotourist destination. In fact, if cyclotourists have interesting routes available, but lack of accommodation or suitable gastronomic menus at the same time, their stay will be shorter, lacking complete experience and their spending will be much lower. Implementation of project proposals related to subsidies can be monitored by following indicators:

- Number of subsidies granted
- Total value of subsidies granted

Subsidies need to be defined in accordance with specific targeted sector. Proposals for certain subsidies are shown below:

- Transport providers would be co-financed for purchasing bicycle racks or trails
- Accommodation and catering providers would be co-financed in developing parking places or storages for bicycles
- Service providers would be co-financed in purchasing bike repair tools
- Travel agencies would be co-financed in employees' education

The above subsidy examples can be complemented or combined in accordance with requirements of a certain area and interests of commercial entities.

On entire area of Dubrovnik-Neretva County, it is necessary to ensure larger number of free **WIFI spots**, providing tourists with the important information on their cycling routes (e.g. weather forecast, bus or boat line timetables).

The existing facilities need to be complemented with new events, while existing events should be brought to a higher level. It is possible to design cycling events linked with **thematic routes**, for example, in autumn it is possible to organise tasting points on routes passing through mandarin fields.

Strategic goal 3: Development of system for informing cyclotourists and promoting the Dubrovnik-Neretva County as cyclotourist destination.

So far, situation with cyclotourist informing and promotion of cyclotourism as the county product was individually based & depended on the involvement of each of specific local tourist boards. Available information and cycling route maps on websites are often incomplete and outdated. Although certain websites show improvement, visitors still need consolidated information on the entire county level. A list of project proposals acting towards achieving strategic goal 3 is presented further below.

Table 22. List of project proposals related to achievement of strategic goal 3

| Project | Indicator | Importance level |
|--|---|------------------|
| Development of visual identity of the Dubrovnik-Neretva County | Dubrovnik-Neretva County logo and slogan made | High |
| Development of mobile application | Mobile application designed | High |
| Designing new or updating existing website and social medias | New website designed | High |
| Development of specialised cycling maps | No of maps designed | High |
| Brochure design | No of brochures printed | Low |
| Printed maps design | No of maps printed | Low |
| Education of local population | No of trainings held for local population | Medium |
| Entrepreneurs education | No of trainings held for entrepreneurs | Medium |

Source: Author's work

Projects related to system for informing and marketing in cyclotourism refer to development of cyclotourist maps and other promotional materials and designing special websites intended for cyclotourists (including digital maps with GPS information).

By analysing state of cyclotourist information available on official websites of local tourist boards, it can be noted that available information about cycling trails and other facilities is mostly incomplete or outdated. In order for cyclotourists to easily get all the necessary information,

website needs to consolidate the entire offer on the county level in a simple, brief and uniformed way. Unified webpage, whether it is new county website or one of the updated existing ones, needs regularly updating which will lead to a better positioning of Dubrovnik-Neretva county as cyclotourist destination on Internet. Furthermore, a great number of maps have been made in .pdf format not suitable for this type of tourism, since it cannot be updated in real time (e.g. restaurants working hours or works on certain part of cycling trails). In addition, cyclotourist facilities in Dubrovnik-Neretva County are incorporated only within small number of global Internet platforms and web applications. If trails and current cyclotourist offer are not available on global websites, it is very unlikely that tourist will find searched information within large number of tourist boards in Dubrovnik-Neretva County. Designing visual identity made of slogan and logo, which at first glance will tell stories to tourists intriguing them to stay in Dubrovnik-Neretva County, will enhance promotion of the county as cyclotourist destination.

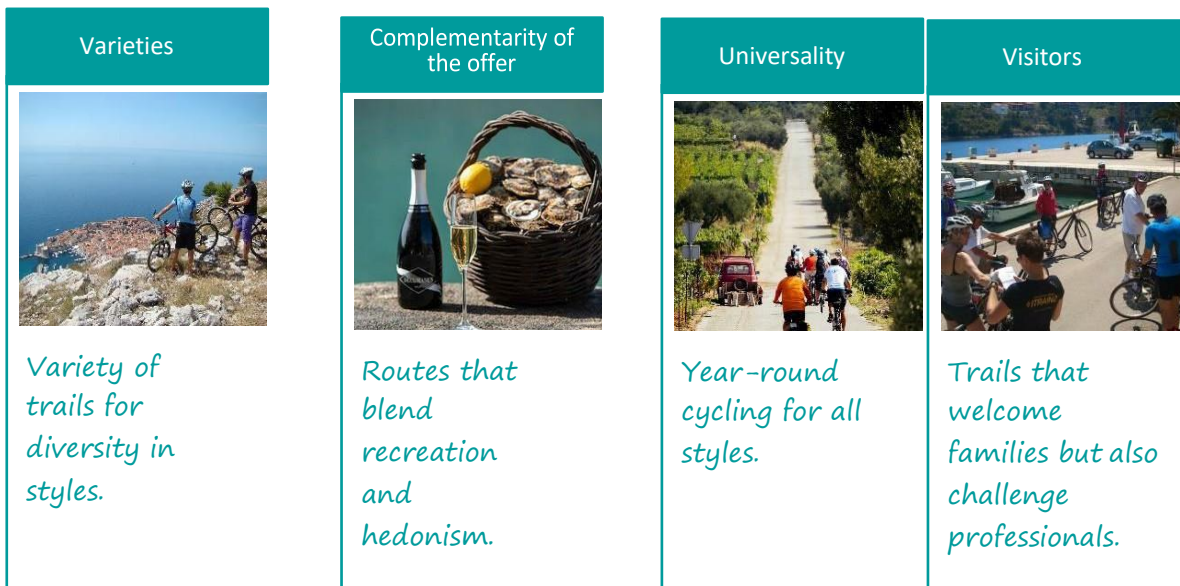
Besides new website design, it is also necessary for cyclotourists to, on routes, lookouts and information points, have online maps available to be uploaded using QR code or similar. It is very important that maps show correct information and that they are being updated regularly providing visitors with accurate information in real time. **Printing brochures and maps** should be kept to minimum due to ecology purposes, but nevertheless they should be available for tourists not preferring mobile applications or in case, there is no internet connection on certain locations.

Projects related to **education** represent an important element in further development of cyclotourism being new and unexplored product in Dubrovnik-Neretva County and partially in Croatia. In order for employees of tourist boards, associations and entrepreneurs in cyclotourism to target development of new tourist project in right direction, it is necessary to organise frequent **trainings** and study trips where they can be **educated** about possibilities of cyclotourism development in Dubrovnik-Neretva County, using examples from other tourist destinations. It is also important to educate local population about safety aspects in traffic enabling cyclotourists to feel welcome, but at the same time to stimulate locals to a frequent use of bicycles as main mean of transport.

3.2. Product description

Dubrovnik-Neretva County comprises of three regions that differ by natural, social and economic basis. Vision of further development of cyclotourism as new tourist product lies exactly in these diversities. Each of those areas has different offer depending on variety of cycling ground. Furthermore, all three areas are different by natural, cultural and historical heritage. There are also many different activities cyclists can do while in breaks from cycling. For example, in Neretva river valley they can be acquainted to harvesting mandarins or boat ride through river channels

and enjoy river photo safari. In Dubrovnik, they can use their free time for city walls sightseeing while on the islands, they can enjoy many bays, natural beauty, national parks or swimming. Also, within each of these areas cyclotourists can experience variety of gastronomic offer that needs to be customised in the future according to cyclotourist requirements. Every season of the year within far Croatian south is unique with its colours, sounds, and different experience for cyclotourists. Favourable weather conditions contribute to attracting cyclotourists all year round and it is up to the offer development initiators to offer cyclists something different in each season. The direction of future cyclotourist offer development in Dubrovnik-Neretva County is presented in below figure.



By year 2027 on entire area of Dubrovnik-Neretva County horizontal and vertical signalisation will be set contributing safety of all participants in traffic. Main guideline in designing cyclist offer is connecting entire Dubrovnik-Neretva County through cycling information centre and smaller mutual cycling points. Cycling points will connect entire Dubrovnik-Neretva County using digital technology. By MIMOSA project, it is planned to reconstruct one of existing facilities in Konavle area into first cycling information centre, which will serve as pilot-initiative for creating information centre network throughout the county. In cycling information centre cyclotourists will be provided with current information (through conversation with the staff or by using digital technologies) on the entire area and trails according to their preferences. Information centre staff will get proper training, knowledge and skills to be able to present cyclotourist offer of Dubrovnik-Neretva County in different foreign languages. Furthermore, the offer will be presented via digital technologies such as touch screen panels where cyclotourists would be able to browse through cycle-related county offer, locations of facilities with implemented cyclotourist standards etc. In addition, cycling information centre will have all necessary tools for bike servicing, facility for bike

& equipment wash. Cyclists will be able to refill their water on complimentary basis, charge their cell phones, connect to free WIFI and other amenities to make their stay as pleasant as possible. Within cycling information centre, cyclists will have possibility to store their bikes for few days and bike share (public bike share scheme) option would be available as well.

Bike share option will be available to cyclotourists throughout the year, but also to population of Dubrovnik-Neretva County at more affordable tariffs. That way, sustainable transport options would be encouraged and reduce car traffic congestion, especially during summer.

Due to ground configuration in Dubrovnik-Neretva County, it is necessary to provide larger number of e-bikes on certain route parts, enabling cyclists to overcome difficult ascents, while at lower parts of the county large number of e-bikes would not be required. Supplying several e-bike charging stations is also planned, that will be possible to use in cycling information centre and on few other locations within public, catering and accommodation facilities with implemented cyclotourist standards.

Existing tourist board offices of Dubrovnik-Neretva County will be considered as potential locations for setting up e-bike charging stations, bicycle services and tools.

It is important to ensure balanced infrastructural quality to the cyclists within the entire Dubrovnik-Neretva County area, no matter which part of it they are riding through, as well as availability of information and accompanying facilities. That way, Dubrovnik-Neretva County will be recognised as desirable cyclotourist region. In this regard, it is necessary that cycling trails, depending on their length, are supplied with water re-fill facilities, service points, lay-bys and lookouts on approximately similar distances, and integrate them with the existing infrastructure not related to cyclotourism. For example, if certain trail passes by public beach with showering and public toilette facilities, it is not necessary to put water refill stations on that particular trail, but only signs directing to those facilities. Also, if certain trail passes through less populated and macadam areas, it is necessary to provide more service points on that trails, as opposed to the trails passing through more populated areas requiring less service points. Lookouts and lay-bys needs to be clearly marked with available bins and benches, shelters in case of bad weather (wherever possible), all maintained on regular basis. It is also necessary to put area maps with marked routes and important contact numbers for orientation of visitors.

In development of infrastructure and accompanying facilities for cyclotourists, it is necessary to include other stakeholders from cyclotourist segment willing to design special cyclotourist offer. Besides infrastructure, cyclotourists need to be supplied with suitable accommodation, catering offer, events, excursions and other activities. First step in developing these facilities is education of all stakeholders in tourism about possibilities and potential of cyclotourist market. This step will surely contribute to involvement of more stakeholders and thereby diversification of the offer and

increase of service quality in the entire county area. Also, by year 2027 a number of educations for the local population will take place, in order to educate people about importance of using bicycles as mean of transport, traffic rules and similar subjects, because only educated population, understanding cyclotourist requirements, can welcome and provide pleasant stay for their guests preferring that kind of holiday.

Without quality promotion, all previously described infrastructure and facilities would not contribute in attracting cyclotourists to visit Dubrovnik-Neretva County. By implementing planned activities, the county will design quality website integrating offer from entire area. The website will be base for presenting facilities on other world-famous cycling websites networked with it. Unified routing of the trails on maps and their implementation with other cyclotourist facilities will greatly contribute to the quality of the website and presentation of cycling routes. Dubrovnik-Neretva County will also develop visual identity and slogan, recognised on the entire county level, which will be used in trade fair and Internet promotion, as well as in positioning of Dubrovnik-Neretva County as cyclotourist destination.

As previously stated, Dubrovnik-Neretva County is famous for its natural and cultural attractions and cyclotourist offer will contribute to its further establishment within world market. Dubrovnik-Neretva County will be destination taking care of visitors and local population health, destination taking care of the environmental preservation, destination encouraging sustainable means of transport as well as destination providing all year round offer tailor-made for all types of visitors. Dubrovnik-Neretva County will be destinations that bonds.

3.3. Standards for development of cyclotourist infrastructure and offer in the county

Quality standards can be divided into mandatory (“hard”) standards and optional standards. Mandatory standards are created based on national regulatory framework, while optional are based on industry and tourism activity level. As opposed to certification and categorisation, standardisation is oriented toward market and its requirements that have been recognised also on the county level.

By State Analysis, it is determined that there are individual initiatives from tourist boards or cycling clubs within Dubrovnik-Neretva County area, developing cyclotourist offer in their areas. Since cyclotourism is activity related to driving and connecting many destinations, it is important to establish balanced approach and offer on the entire county level.

In order to create unified offer and recognisable brand, it is necessary to establish standards for development of cyclotourist infrastructure and offer.

A list of areas where unified standards need to be established is stated below:

- Unified visual identity and recognisable slogan
- Available websites and brochures
- Infrastructure
- Cycling maps
- Bike & bed standards for accommodation units
- Catering standards
- Service features
- Travel agencies and licensed bike guides
- Cycling information centre

UNIFIED VISUAL IDENTITY AND RECOGNISABLE SLOGAN

In order for Dubrovnik-Neretva County to position on the market as new cyclotourist destination, it is necessary to design recognisable visual symbol and slogan. Visual standards need to be balanced with the offer be able to attract targeted visitor groups with their message.

By individual activities from Metkovic tourist board and municipalities of Kula Norinska, Slivno and Zazablje through document called "Development of Neretva river cyclotourist destination" a slogan and visual identity of the area has been designed.

Also, on Korcula Island a document presenting visual identity and slogan is being in process of development.

Although there are positive initiatives for development of individual areas, it is still necessary to design recognisable visual identity relating to the entire county by joint actions. By that, the entire area and its offer would be complemented, creating unified message to visitors. It is important to use designed visual identity in creating all future promotional materials, websites and in promotion on social media and specialised Internet portals.

Visual identity needs to include at least:

- Official unified colour palette
- Typography
- Logo
- Book of standards showing elements of use of visual identity

AVAILABLE WEBSITES AND BROCHURES

Nowadays, in search for information about certain destination, visitors mostly start by entering desired term into an Internet search engine. Because of that, is very important to properly

position the product and make it noticeable and easily accessible to targeted markets by using different marketing tools.

The key in mentioned process is designing high quality website that will unify entire destination information needed for pleasant stay. Required information primarily relate to description of the region, its attributes, natural and cultural resources, making it more appealing to cyclotourists and directing them to desired regions.

Furthermore, it is necessary for the website to include information about possibilities for arriving in the destination, public transport, available transport lines, possibility for ticket purchasing and their price as well as possibilities for cycling gear transport.

Cycling maps represent separate standard that will be analysed, but all available trails need to be described, routed, marked on with additional available facilities and infrastructure, and set on destination website.

In order to tourists to obtain all required information on one place, it is suggested for the website to include information about events, bike& bed accommodation units, catering facilities with special offer suitable for cyclists as well as information about bike servicing providers. Printed promotional material with all the information available on websites is important to those cyclists who want to use their mobile phones as less as possible while on holiday. In addition, some cycling areas do not have internet signal and therefore it is important to have printed materials as well.

In designing promotional materials, it is important to keep in mind that most cyclists are foreign tourists, so the contents need to be presented in English at least.

INFRASTRUCTURE

Available infrastructure is a base for cyclotourism and is divided into several subcategories such as cycling trails, accompanying signalisation and additional facilities making ride pleasant.

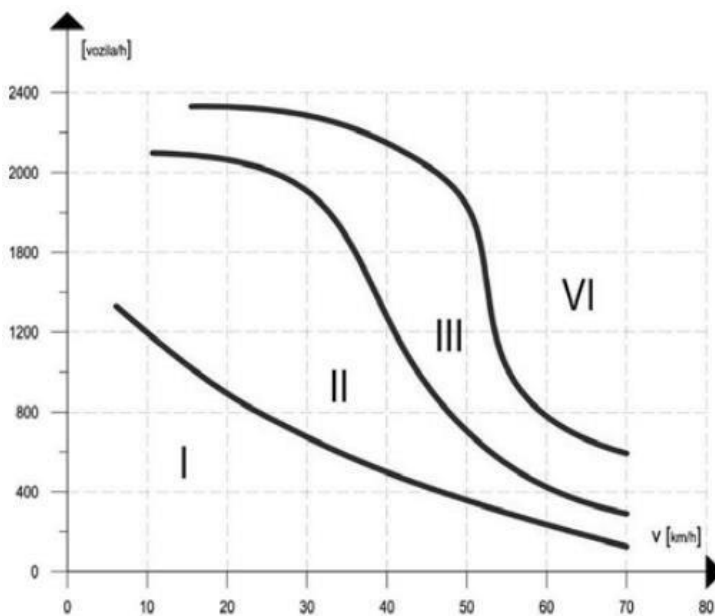
Cycling trails, regardless if they are road, trekking or MTB trails, need to meet basic standards of planning, constructing and maintaining of cycling infrastructure stipulated in Ordinance on Cycling Infrastructure (National Gazette 28/2016). The Ordinance stipulates the use of the following principles in the process of planning and projecting cycling infrastructure:

- Safeness
- Cost efficiency
- Integrity
- Directness
- Attractiveness

Safeness of cycling infrastructure is provided by planning, projecting and constructing following all safety requirements of engineering practise. Decisions made need to be justified and economically acceptable and the integrity of cycle network needs to be taken into account at any time. Integrity is manifested through connectivity of all cycling traffic area into unite network and their integrity with road network. Directness is provided by possibility of selecting optimal route from start to finish, while road attractiveness is achieved by directing the routes (wherever possible) towards attractive facilities in the area and ensuring clear view from cyclists to attractive points in the area.

Furthermore, the Ordinance stipulates that selection of cycling road be made according to maximum speed limit and peak hourly traffic of motor vehicles on analysed road section, showed in next figure (31). In addition, section length of a chosen cycling road is determined by road project according to traffic, geographical and urban features. If there is no any space restriction while projecting cycling infrastructure, on roads with speed limit over 50 km/h cycling traffic should be avoided on roadway together along with motor vehicles.

Figure 31: Criteria for selection of cycling roads



Legend:

- I - Cyclists on same road with motor vehicles
- II - Cycling section
- III - Cycling trail
- IV - Cycling road

Source: <https://narodne-novine.nn.hr/clanci/sluzbeni/dodatni/439893.pdf>

Road signs, signalisation and facilities on cycling areas are projected and made in accordance with current regulations stipulating type, colour, dimensions and instalment of traffic signs, signalisation and facilities on roads and in accordance to The Ordinance of Cycling Infrastructure. Traffic signalisation is installed in a way to be unambiguous, clear, with accurate information about warnings, prohibitions, restrictions, obligations and other information and notifications necessary for cyclists. With all the above said, all traffic participants are given safety and rules for participating in traffic.

Traffic signalisation and cycling area facilities are:

- Traffic signs (warning signs, prohibitory signs and information signs, additional info panel boards, tourist and other informative signalisation)
- Road markings: longitudinal markings (edge lines, lane lines), transverse markings, other markings (arrows, symbols etc)
- Traffic equipment: pavement edge markings, barriers, cylinders, ramps and other barricades, bike parking equipment (racks, holders, stands), bike storage facilities (storages, cycling stations)

Figure 32. Cycling traffic signalisation



Source: www.milankusnjacic.blogspot.com; www.zg-magazin.com.hr; www.signal.hr

Additional infrastructural facilities planned for construction and equipping in Dubrovnik-Neretva County are lay-bys and lookouts, service points, water refill points and other addition facilities contributing to journey quality.

Important part of the offer are also cycling information centres as main regional centre network, which would be established in one location within all three Dubrovnik-Neretva County regions, as well as additional satellite points on frequent parts of cycling routes. Cycling information centres would be placed within offices of local tourist boards, tourist information centres and similar

facilities. Their main function is to offer all necessary information and services to cyclotourists during their stay in Dubrovnik-Neretva County.

Within main Cycling Information Centre, visitors would be supplied with:

- Free drinking water
- Bike stand for safe parking of at least two bicycles at the same time
- Basic bike repair tools
- First aid kit
- WIFI access
- Charging facilities access (for cell phones, navigation devices, e-bikes)
- Printed materials and maps
- List of most important telephone numbers and services on route points
- QR codes for downloading digital materials and maps
- Qualified personnel for informing visitors in English, about available offer, trails, bike guides, shops, services and other information important to cyclotourists

CYCLING MAPS

Development of strong cycling destination manifests in integrating large number of cycling routes, not only locally (municipality, city, islands and mainland) but also integration within larger number of counties, regions and even countries. Best examples are EuroVelo cycling routes and accompanying cycling maps integrating thematically similar areas.

It is important that cycling maps are updated and contain all necessary information about route including info on:

- Cycling ground surface
- Route length
- Altitude differences
- Estimated driving time
- Enroute attractions that can be visited and experienced

In addition, maps need to be updated with information about available bike & bed accommodation, catering facilities and service points, all free of charge, available in GPX format.

BIKE&BED STANDARDS

Cyclotourists have slightly different requirements during their holiday, compared with typical tourists. That primarily refers to possibility for storing bicycles and gear in closed storage facilities

during their stay in accommodation unit. Furthermore, it is necessary to offer them additional services such as laundry and gear wash, use of bike repair tools, e-bike charging facility etc. Preferably, hosts should be well informed about cycling trails and other possibilities for cyclotourists in their area. In order to develop cyclotourist favourable destination, it is important that accommodation units also offer one-night stays for cyclotourists.

Establishing standards in accommodation facilities is long-term process needing stimulation on the county level. All facilities that decide to develop cyclotourist offer need to get special labels that would position and make them stand out on market and guarantee quality service to cyclotourists. Ordinances for categorisation of tourist facilities on country level do not hold regulations related to bike & bed quality standards. Initiators of tourist offer in Dubrovnik-Neretva County need to decide about setting up standards and their control locally.

Following main criteria is suggested to be included in setting up system of standards for accommodation facilities:

- Availability of separate and safe space for bike storing / parking
- Availability of bike service tools
- Availability of laundry service
- Availability of bike wash service
- E-bike charging possibility during stay
- Possibility of one-night stays
- Availability of energy-rich food for breakfast and dinner within facility
- Availability of information about cycling offer in the area (printed materials, QR codes etc)
- Qualified personnel educated about offer in the area

CATERING STANDARDS

Catering facilities need to adjust their offer to meet cyclotourists requirements, particularly menus with emphasis on fruit and vegetables, whole grains, low fat dairy, low fat meat dishes, offering variety of food including poultry, fish, legumes, eggs and nuts. Cyclists' diet needs to include enough carbohydrate to maintain energy as well as protein rich food for muscle regeneration. Catering facilities standards should include presence of:

- Space for safe bike parking and gear storage
- "To-go food package" facility (e.g. lunch package) , enabling cyclists to take their meals with them
- Additional basic service and repair tools
- Possibility for charging devices (smart phones, GPS etc) and bicycles during stay

- Information services for cyclotourists within facility (maps, leaflets, brochures, QR codes etc)
- Bike friendly label

Facility personnel need to be educated about cyclotourist offer in the area in order to suggest accommodation, routes, attractions visits etc. Also, cyclist should be able to enter and stay in facility wearing cyclist outfit.

SERVICE FACILITIES

Service facilities for cyclotourist requirements need to be brought to a higher level. That can be achieved by educating local service providers occasionally offering their services to local population and explain them further possibilities of cyclotourism development. Bicycles used by cyclotourists arriving in destination are often more expensive requiring more expert and skilled service providers. Besides private repair and service shops, service facilities should also be available through service points offering basic repair tools. This will ensure additional safety of cyclotourist and other traffic participants.

TRAVEL AGENCIES AND LICENSED *BIKE* GUIDES

On the county level it is important to stimulate guided tours organised by travel agencies and licensed *bike* guides. The importance of experienced and trained staff primarily manifests in care for safety measures, driving experience on all terrains, knowing the area and driving opportunities, but also in willingness to educate visitors about nature, culture and destination they are passing through. Bike guide licences are issued by Croatian Cycling Association and are valid for drive on entire territory of the Republic of Croatia. Licences are extended on yearly basis and it is necessary to cover expenses related to membership fee and education. In this segment, it is recommended to include tourist boards, which would co-finance and organise courses. That way, larger number of participants would be interested in educations to become *bike* guide among other experienced guides, doctors, nutritionists and people involved in sports. During bike guide educations, attendees are also being educated how to repair a bicycle, lead groups, organise cycling excursions, orientate in nature, use maps and GPS technology.

The above text describes areas requiring uniformed quality standards and action guidelines for development of each area. It is important to address that these standards do not apply to the categories defined by the law (e.g. traffic infrastructure, which is defined by the law). Examples of quality standard forms are listed below.

| Cyclotourist standards | | | |
|------------------------|--------------------------|--|------|
| Date: | | | |
| Subject | | | |
| Category | Status | Criteria | Note |
| Visual identity | <input type="checkbox"/> | Standardised colour palette | |
| | <input type="checkbox"/> | Standardised typography | |
| | <input type="checkbox"/> | Logo | |
| | <input type="checkbox"/> | Slogan | |
| | <input type="checkbox"/> | Book of standards | |
| | <input type="checkbox"/> | Examples and action guidelines | |
| Websites | <input type="checkbox"/> | Implementing visual identity | |
| | <input type="checkbox"/> | Multilingual | |
| | <input type="checkbox"/> | Suitable for mobile devices | |
| | <input type="checkbox"/> | Section about cycling routes | |
| | <input type="checkbox"/> | Section about accompanying facilities (accommodation, catering, transport etc) | |
| | <input type="checkbox"/> | Important contact information | |
| | <input type="checkbox"/> | Possibility for downloading maps, brochures etc. | |
| | <input type="checkbox"/> | Content updating | |
| | <input type="checkbox"/> | Clearly displayed quality standard label | |

| (if applicable) | |
|--|--|
| Infrastructure - lookout | <input type="checkbox"/> Location on every 15-20 km on route |
| | ----- |
| | <input type="checkbox"/> Benches |
| | ----- |
| | <input type="checkbox"/> Bike stands suitable for safe parking of at Least two bicycles |
| | ----- |
| | <input type="checkbox"/> Drinking water supply |
| | ----- |
| | <input type="checkbox"/> Visible area map with important information |
| ----- | |
| <input type="checkbox"/> Important contact information | |
| ----- | |
| <input type="checkbox"/> QR code for downloading maps and important info | |
| ----- | |
| <input type="checkbox"/> Bins | |
| ----- | |
| <input type="checkbox"/> Shelters in case of bad weather | |
| ----- | |
| <input type="checkbox"/> Self service | |
| Infrastructure - cycling information centre | <input type="checkbox"/> Located (minimum one) in each micro region Of Dubrovnik-Neretva County |
| | ----- |
| | <input type="checkbox"/> Bike stands suitable for safe parking of at Least two bicycles |
| | ----- |
| | <input type="checkbox"/> Drinking water supply |
| ----- | |
| <input type="checkbox"/> Visible area map with important information | |
| ----- | |
| <input type="checkbox"/> First aid kit | |
| ----- | |

| | |
|--|---|
| | <input type="checkbox"/> WIFI <hr/> <input type="checkbox"/> Charging facilities (cell phones, GPS devices, e-bikes) <hr/> <input type="checkbox"/> Availability of printing materials and maps <hr/> <input type="checkbox"/> List of important telephone numbers and Service on route points <hr/> <input type="checkbox"/> QR code for downloading maps and important information <hr/> <input type="checkbox"/> Qualified personnel <hr/> <input type="checkbox"/> Self-service |
| Infrastructure - cycling parking zones | <input type="checkbox"/> Bike stands suitable for safe parking of at Least two bicycles <hr/> <input type="checkbox"/> Visible area map with important information <hr/> <input type="checkbox"/> Charging facilities (cell phones, GPS devices, e-bikes) <hr/> <input type="checkbox"/> QR code for downloading maps and important information <hr/> <input type="checkbox"/> Lockers for storing personal belongings <hr/> <input type="checkbox"/> Easy bicycle access <hr/> <input type="checkbox"/> Self-service |

| | | |
|--|--------------------------|---|
| | <input type="checkbox"/> | Location on min every 20-30 km on route |
| | <input type="checkbox"/> | Visible area map with important information |
| | <input type="checkbox"/> | QR code for downloading maps and important info |
| | <input type="checkbox"/> | Charging facilities (cell phones, GPS devices, e-bikes) |
| Infrastructure - self-service stations | <input type="checkbox"/> | Basic bike repair tools |
| | <input type="checkbox"/> | Repair stands / holders |
| | <input type="checkbox"/> | Illumination enabling works at night |
| | <input type="checkbox"/> | Drinking water supply |
| Cycling maps | <input type="checkbox"/> | Specified terrain surface |
| | <input type="checkbox"/> | Information about route length |
| | <input type="checkbox"/> | Information about altitude differences |
| | <input type="checkbox"/> | Estimated drive duration |
| | <input type="checkbox"/> | Marked attractions |
| | <input type="checkbox"/> | Marked accommodation and other facilities |
| | <input type="checkbox"/> | Possibility for downloading in GPX format |

| | |
|---|--|
| | <input type="checkbox"/> Complimentary |
| | ----- |
| | <input type="checkbox"/> Other information (advices, suggestions) |
| Accommodation facilities | <input type="checkbox"/> Available separate and safe space for bike and gear storage / parking |
| | ----- |
| | <input type="checkbox"/> Available basic tools for bike & gear service (e.g. glue etc.) |
| | ----- |
| | <input type="checkbox"/> Laundry service |
| | ----- |
| | <input type="checkbox"/> Bicycle wash space & facilities |
| | ----- |
| | <input type="checkbox"/> E-bike charging facilities |
| | ----- |
| | <input type="checkbox"/> Possibility for shorter stays (one overnight) |
| | ----- |
| | <input type="checkbox"/> Availability of energy-rich food for breakfast and dinner within facility |
| ----- | |
| <input type="checkbox"/> Luggage transport facilities | |
| ----- | |
| <input type="checkbox"/> Available printed materials about cycling offer in the area (brochures, maps etc.) | |
| ----- | |
| <input type="checkbox"/> Available digital materials about cycling offer in the area (QR code, websites etc.) | |
| ----- | |
| <input type="checkbox"/> Qualified personnel | |
| ----- | |
| <input type="checkbox"/> Quality standard label clearly displayed in visible place within facility | |
| ----- | |
| <input type="checkbox"/> Quality standard label clearly displayed on | |

| | |
|---------------------|--|
| | <p>website (if available)</p> <p>-----</p> <p><input type="checkbox"/> Implementation of visual standards in printed promotional materials within facility</p> <p>-----</p> <p><input type="checkbox"/> Implementation of visual standards in digital promotional materials within facility</p> <p>-----</p> <p><input type="checkbox"/> Implementation of other standards on website (if available)</p> |
| Catering facilities | <p><input type="checkbox"/> Available separate and safe space for bike and gear storage / parking</p> <p>-----</p> <p><input type="checkbox"/> "Food and drinks package facility" enabling cyclists to take their meals with them</p> <p>-----</p> <p><input type="checkbox"/> Available tools for bike & gear service</p> <p>-----</p> <p><input type="checkbox"/> Availability of Charging facilities (cell phones, GPS devices, e-bikes)</p> <p>-----</p> <p><input type="checkbox"/> Availability of energy-rich food and drinks within facility</p> <p>-----</p> <p><input type="checkbox"/> Cyclists are allowed to wear cycling outfit Within facility</p> <p>-----</p> <p><input type="checkbox"/> Available printed materials about cycling offer in the area (brochures, maps etc.)</p> <p>-----</p> <p><input type="checkbox"/> Available digital materials about cycling offer in the area (QR code, websites etc.)</p> <p>-----</p> |

| | | |
|--------------------|--------------------------|--|
| | <input type="checkbox"/> | Qualified personnel |
| | ----- | |
| | <input type="checkbox"/> | Quality standard label clearly displayed in visible place within facility |
| | <input type="checkbox"/> | Quality standard label clearly displayed on website (if available) |
| | ----- | |
| | <input type="checkbox"/> | Implementation of visual standards in printed promotional materials within facility |
| | ----- | |
| | <input type="checkbox"/> | Implementation of visual standards in digital promotional materials within facility |
| | ----- | |
| | <input type="checkbox"/> | Implementation of other standards on website (if available) |
| | ----- | |
| | <input type="checkbox"/> | Bike and gear storage / parking space |
| | ----- | |
| | <input type="checkbox"/> | Urgent intervention facilities |
| | ----- | |
| | <input type="checkbox"/> | Basic tools for bike service available for rent |
| | ----- | |
| | <input type="checkbox"/> | Available printed materials about cycling offer in the area (brochures, maps etc.) |
| | ----- | |
| | <input type="checkbox"/> | Available digital materials about cycling offer in the area (QR code, websites etc.) |
| | ----- | |
| Service facilities | <input type="checkbox"/> | Qualified personnel |
| | ----- | |
| | <input type="checkbox"/> | Quality standard label clearly displayed in visible place within facility |

Available digital materials about cycling offer in the area (QR code, websites etc.)

Qualified personnel

Quality standard label clearly displayed in visible place within facility

Quality standard label clearly displayed on website (if available)

Implementation of visual standards in printed promotional materials within facility

Implementation of visual standards in digital promotional materials within facility

Implementation of other standards on website (if available)

Bike and gear storage / parking space

Available packages with cycling routes

Available licensed and educated guides for guiding cycling routes in foreign languages

Possibility for making online bookings and enquiries about packages and services

Possibility of luggage transport

| | | |
|----------------------------|--------------------------|--|
| Travel agencies and guides | <input type="checkbox"/> | Available printed materials about cycling offer in the area (brochures, maps etc.) |
| | <input type="checkbox"/> | Available digital materials about cycling offer in the area (QR code, websites etc.) |
| | <input type="checkbox"/> | Available digital materials about cycling offer in the area (QR code, websites etc.) |
| | <input type="checkbox"/> | Qualified personnel (in office etc.) |
| | <input type="checkbox"/> | Quality standard label clearly displayed in visible place within facility |
| | <input type="checkbox"/> | Quality standard label clearly displayed on website (if available) |
| | <input type="checkbox"/> | Implementation of visual standards in printed promotional materials within facility |
| | <input type="checkbox"/> | Implementation of visual standards in digital promotional materials within facility |
| | <input type="checkbox"/> | Implementation of other standards on website (if available) |

Implementing quality standards tourist product or destination is very complex process with many positive effects:

- Raising product and services quality
- Destination positioning and branding
- Raising innovation level
- Educations of tourism personnel and all other subject involved

In order to manage standards and quality in right way, it is necessary to appoint coordinating body, which will define quality policy as well as goals and responsibilities for adopting cycling standards within Dubrovnik-Neretva County. All economic operators from tourism sector need to be familiarised with quality standards and educated about advantages, implementation and control of quality standards. Furthermore, an auditor needs to be appointed to determine initial quality situation, scores and method of evaluation of all parties involved. It is also necessary to define regulations for labelling facilities and using quality labels on facilities. In compliance with planned activity workflow, an official auditor should position control, follow-up quality and suggest renewal or repealing of the standards for specific facilities after certain period. In order for all operators to have same conditions for granting quality standards, it is necessary to develop labelling process and application forms in entire system for awarding quality standards.

APPENDIX 1

Table 23: List of stakeholders involved in Operation plan development

| No | Stakeholder |
|----|--|
| 1 | City of Dubrovnik |
| 2 | City of Korcula |
| 3 | City of Ploce |
| 4 | City of Metkovic |
| 5 | City of Opuzen |
| 6 | Blato municipality |
| 7 | Dubrovačko primorje municipality |
| 8 | Janjina municipality |
| 9 | Kula Norinska municipality |
| 10 | Konavle municipality |
| 11 | Lastovo municipality |
| 12 | Lumbarda municipality |
| 13 | Mljet municipality |
| 14 | Orebić municipality |
| 15 | Pojezerje municipality |
| 16 | Slivno municipality |
| 17 | Smokvica municipality |
| 18 | Ston municipality |
| 19 | Trpanj municipality |
| 20 | Vela Luka municipality |
| 21 | Zazablje municipality |
| 22 | Zupa dubrovačka municipality |
| 23 | Dubrovnik-Neretva Tourist board |
| 24 | City of Dubrovnik Tourist board |
| 25 | Konavle municipality Tourist board |
| 26 | Zupa dubrovačka municipality Tourist board |
| 27 | Ston municipality Tourist board |
| 28 | Mljet municipality Tourist board |
| 29 | Orebić municipality Tourist board |
| 30 | Trpanj municipality Tourist board |

| | |
|----|--|
| 31 | City of Korcula Tourist board |
| 32 | Lumbarda municipality Tourist board |
| 33 | Blato municipality Tourist board |
| 34 | Vela Luka municipality Tourist board |
| 35 | Smokvica municipality Tourist board |
| 36 | Lastovo municipality Tourist board |
| No | Stakeholder |
| 37 | City of Metkovic municipality Tourist board |
| 38 | Slivno municipality Tourist board |
| 39 | City of Ploce Tourist board |
| 40 | Janjina municipality Tourist board |
| 41 | Dubrovačko primorje municipality Tourist board |
| 42 | City of Opuzen Tourist board |
| 43 | Public institution National park Mljet |
| 44 | Public institution Nature park Lastovo islands |
| 45 | LAG5 (Local action group 5) |
| 46 | LAG Konavle (Local action group Konavle) |
| 47 | Cycling club Konavle |
| 48 | Cycling club Metkovic |
| 49 | Cycling club Relaks |
| 40 | Cycling club Pedala |
| 41 | Croatian Cycling Federation |
| 42 | “Cyclists Union” Association |
| 43 | Coordinating body for development of cyclotourism in Croatia |
| 44 | Institute for Physical Planning of Dubrovnik-Neretva County |
| 45 | Regional Development Agency of Dubrovnik-Neretva County |
| 46 | Dubrovnik-Neretva County Police Department |
| 47 | Hrvatske vode |
| 48 | Hrvatske Sume Ltd Zagreb Office |
| 49 | County Road Office of Dubrovnik-Neretva County |
| 50 | Adrian Bokarica |
| 51 | Ivan Botica and Lea Komac – HTP Korcula JSC |

LIST OF ACRONYMS

| | |
|--|--------|
| Republic of Croatia | RH |
| Bosnia and Herzegovina | BIH |
| Dubrovnik-Neretva County | DNZ |
| Units of Local Government | JLS |
| EuroVelo | EV |
| Ministry of the Sea, Transport and Infrastructure | MPPI |
| Tourist Board | TZ |
| State main routes | DG |
| State side routes | DV |
| County routes (numerical) | Z |
| Local routes (numerical) | L |
| Not applicable | NP |
| State road (numerical) | D |
| County road (numerical) | Z |
| United Nations Educational, Scientific and Cultural Organisation | UNESCO |
| Cycling Information Centre | BIC |

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