



European Union
European Regional
Development Fund



OPTITRANS

BASELINE STUDY

PUBLIC TRANSPORT CITY OF ZADAR

Version 2
Date: Jun 2018

The plan of work

| Task | Deadline |
|---|---------------|
| Draft baseline study template sent by LP to all PPs | 10 Jun 2017 |
| PPs send their comments to LP | 20 Jun 2017 |
| LP creates final template and sends to the partnership | 30 Jun 2017 |
| PPs prepare draft baseline study and submit to LP | 30 Sep 2017 |
| Discussion with stakeholders and partnership | Oct-Nov 2017 |
| PPs elaborate draft final baseline study and submit to LP | 31 Dec 2017 |
| Fine-tuning with stakeholders and feedback from partnership | Jan-Feb. 2018 |
| Final baseline study ready for publishing | 30 Mar 2018 |

Zadar County

Zadar County spreads across a total of 7.276,23 km², and is located in the center part of Croatian Adriatic sea coast. For the most part it spreads in Southern Croatia (Dalmatia) and some of it is located in upland Croatia.

By the year 2011. Zadar County had 170.017 inhabitants. Average age of the inhabitants was 41,9 years, according to population census from year 2011. A total of 53,15% of working age population had finished high school education, while 19,37% of them had elementary schooling, and 7,87% of working age population had finished elementary school from 4th to 7th grade. Furthermore, 3,98% of Zadar County population had finished special graduate studies and 8,97% of people had finished master degree, so a positive trend of tertiary education is noticeable.

Zadar County is ranked number eight by amount of GNP in Croatia. In 2013. GNP of Zadar County summed up to 1,402 millions of EUR, which is 3,22% of total GNP of Croatia, and 10% of Jadran Croatia region. Compared with GNP per capita in Croatia which amounts 77.465 kunas in year 2013., Zadar County ranks bellow average with index of 79,91.

Working contingent of Zadar County is made of 111.652 persons and, according to population census from 2011., 45,24% (64.548 people) was economically active, while 54,76% of the

population was inactive, which is the result of a large number of retired people in Zadar County (41.652).

In the period from 2010. to 2013. the unemployment rate reaches its peak. In the year 2013. the unemployment rate in the County of Zadar was 18.6% (CRO 20.2%), and in the 2014. the labor market began giving signs of recovery. With regard to that the number of unemployed persons in December 2014. unemployment rate was reduced by 20.81% compared to the same period of the previous year. By the end of December 2015., the number of unemployed persons was 8,895.

Data from 2011. show that out of 4.740 unemployed people a majority of 60% were persons with finished high school, followed by 16% of those with elementary school and 13% of the unemployed had finished college, masters, or doctorate.

Infrastructure

All state roads in the county area are asphalted and equipped. There is a need to build and arrange cycling trails in the traffic lanes. At county and local roads the situation is such that there are unpaved shares of so-called "macadamia" and 48,60 km of county and 181,97 km of local roads.

The newly constructed passenger port Gaženica with its infrastructure (internal roads and highway connection, terminal, bus station, and gully gates up to 15 meters) provided the conditions for simultaneous boarding and unloading of passengers and cars, for six ferries on local lines of length 50150 meters, three ships in the international navigation of 150-200 meters long, and three ships on 250-400 meter long cruises, as well as the possibility of accepting RO-RO ships at the same gates.

City of Zadar

The city of Zadar is located on the central part of the Croatian Adriatic coast. It is the central and most developed administrative-territorial unit within the Zadar County area. The land area of 194.02 km² belongs to the City of Zadar, and makes up 5.26% of the total area of the Zadar County.

The City of Zadar as a unit of local self-government consists of 15 districts with 75.062 inhabitants. The city itself has 71,471 inhabitants.

Favorable traffic geographic position, good traffic connection with state transport corridors, as well as continuous investment in road infrastructure and Zadar positioning on the national traffic map make Zadar one of the best transport-connected cities in Croatia. Regardless of the good traffic link between Zadar and the state transport corridors, the existing transport system within the urban area is not at a satisfactory level. No unified transport system has been achieved since separate traffic branches have developed separately, thus reducing the

efficiency of the transport as a whole. The basic street network of the city is characterized by insufficient permeable power at peak load times (especially in the season), as well as the absence of complete system coordination of traffic light devices.

1.1. Infrastructure development, acceptance of public transport services by population, their impact on the attractiveness of the region and the economic development.

Please, fill in data for your target area in the table provided below¹.

| Indicators | 2010. | 2011. | 2012. | 2013. | 2014. | 2015. | 2016. |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Percentage of the public transport sector from GDP, % | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Percentage of workforce working in the public transport sector, % | 1.68 | 1.67 | 1.63 | 1.73 | 1.7 | 1.62 | 1.64 |
| Number of public transport companies (road) | 6 bus + 54 taxi | 6 bus + 54 taxi | 6 bus + 56 taxi | 6 bus + 56 taxi | 6 bus + 56 taxi | 6 bus + 57 taxi | 6 bus + 57 taxi |
| Number of public transport companies (rail) | - | - | - | - | - | - | - |
| Investments for national roads (very hard to elaborate in case) | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Investments for regional roads (EUR) | 104.245,3 1 | 354.691,2 9 | 482.523,01 | 591.200,9 9 | 1.865.598,8 8 | - | - |
| Investments for local roads | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Investments for railroads | - | - | - | - | - | - | - |

¹ Please, provide data for each year if possible. If not, please provide data for these years where available. If you can't find data for suggested indicators you can choose your own ones according to the National Statistics databases.

| | | | | | | | |
|--|-----------|-----------|-----------|-----------|-----------|-----------|--|
| Number of public transport lines (bus lines) | 70 | 70 | 69 | 69 | 69 | 69 | 70 |
| Public transport rides (road) (bus rides) | 175.556 | 175.556 | 178.151 | 178.151 | 178.151 | 178.151 | 179.351 |
| Public transport rides (rail) | - | - | - | - | - | - | - |
| Public transport kilometres (road) (Liburnija) | 5.840.000 | 5.840.000 | 5.840.000 | 5.840.000 | 6.000.000 | 6.000.000 | 6.000.000 |
| Public transport kilometres (rail) | - | - | - | - | - | - | - |
| Number of passengers (road) (refers to bus lines only) | 8.000.000 | 8.344.206 | 7.418.000 | 7.637.000 | 7.859.000 | 8.000.000 | 8.000.000 |
| Number of passengers (rail) | - | - | - | - | - | - | - |
| Modal Split of passenger transport (car driver / car passenger / PT / bike / pedestrian / other) | - | - | - | - | - | - | 21,2% 3% 45,5% (bus) 6,1 % 24,2% 0% |
| Rail Network in km (thereof electrified) | - | - | - | - | - | - | - |
| Road network in km | 1.868 | 1.880 | 1.792 | 1.786 | 1.786 | 1.787 | 1.787 |
| Car ownership (Zadar County) | 70.376 | 70.444 | 68.910 | 70.215 | 72.159 | 59.485 | |
| Accessibility of Supply Centers | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

2. Characteristics of public passenger transport of each region

Current state in Croatia

According to Traffic Development Strategy public transport in Croatia today is unintegrated. Intermodal terminals that allow switching from one type to another, common travel lines as well as common transport maps of different types of transport do not exist or are exceptionally rare. At the same time there are "parallel lines" of bus and rail carriers. Rail transport is in disadvantage due to the fact that the average age of the railway fleet is at the end of its lifespan, while the average age of the buses in road transport is around 15 years.

From a legal and administrative point of view almost all state administration bodies and administrative bodies of local and regional self-government units have a direct or indirect impact on public transport, but without a single financial, organizational and infrastructure strategy and policy. A thorough analysis is required to detect all primary and secondary legislation affecting conditions and development of public urban, suburban and regional mobility, including concluded international agreements, development strategies of local and regional administrations and traffic studies.

One of the ways to achieve that is the development of measures to increase the share of public transport and transport modes with zero emission rate of harmful gases such as P&R (Park and Ride) establishments, restrictions on individual transportation in city centers, giving preference to public transport by introducing intelligent transport systems etc.

Furthermore, the 2nd, 3rd and 4th hypotheses on public transport from the Traffic Development Strategy speak about the characteristics relevant to the analysis and can be related to Zadar County area:

- There is great potential for the development of public transport of local and regional functions in the vicinity of major agglomerations.
- The local or regional bus transport system is particularly important for less populated areas, job density, existing road network, but also for tourist areas.
- Better connectivity between different modes of transport will enable the optimization of the efficiency and the impact on the environment and the climate of the transport system.

In Zadar County area, bus public transport is carried out by the concessionaires, the most significant being Liburnija d.o.o. with a total of 87 buses. In addition to Liburnija d.o.o. other major carriers in the county area are Čazmatrans traffic with 3 buses (in Zadar County), Antonio Tours which operates 16 buses, Stari Velim d.o.o. with 6 buses and 2 vans, and Bili with 3 busses.

Public transport in Zadar County

According to Strategy of Zadar County, public transport in the city of Zadar is made up of bus and taxi transfers, as well as famous traditional city carriers or Zadar *barkarjoli*. Zadar *barkarjoli* cannot be considered as part of a regular, public transport network, but because of its cultural and traditional value, they have a great value for Zadar.

Bus service

Bus service takes place through city, suburban and island transport. Public transport is characterized by the modernization process of the bus fleet, with new investments incoming. The process of adapting the entire traffic system for non-disturbances to use by people with mobility problems is still ongoing.

Bus service in Zadar is managed by the municipal company Liburnija d.o.o., which is majority owned by the City of Zadar. The number of buses in year 2017. was 87, which is an increase compared to 2003. by 11 buses. The average age of buses decreases year-on-year, and in 2017. it is 9.7 years for city buses, and 16 years for suburban busses. The number of passengers carried also grows year after year with less oscillation, and in year 2012. it is 7,418, 000 an increase of 37.4% since 2003. Total number of passengers in 2017. is approximately 10.000.000 people, according to the information gotten from Liburnija d.o.o. Total number of bus lines is 50, 10 inside of the city, and 40 in suburban/rural area. Liburnija is the only bus company operating within city of Zadar.

Furthermore, an investment of 25 eco-busses is planned in near future for Liburnija d.o.o. They will effectively replace almost a third of bus fleet.

Regarding the public transport inside the city, Liburnija faces the problem of road infrastructure that's typical for a coastal town. It means roads were placed along the coast with parts of town were built without a long-term infrastructure plan, so bus transportation is done by improvising the routes, not by any long-term planning. In those conditions, Liburnija has organized ten roundabout routes that touch two main points: local bus terminal and "Mala Pošta", an intersection near city centre. Overall, town transportation is well covered considering the infrastructural circumstances, with room to develop in regards to e-ticketing, low-carbon efficiency and smaller bus station infrastructure.

Liburnija works as an agency under regional and local authority jurisdiction. Among other things it means that bus lines with fewer passengers and the non-profitable ones are subsidized by those authorities. This is a necessity to keep the public transport available in the rural area for the most part.

A number of private sector bus services providers fill up the gap of delivering bus services in rural area of Zadar County. Those bus providers (5 of them total) mostly provide rides for pupils that come from rural area to city schools, or take up the bus lines in rural areas that do not fit in the regular schedule of Liburnija system. Because of population decline, issues regarding the sustainability of those bus lines are mentioned mostly regarding the pupil lines, as well as the rural ones. Bus lines that rely on tourist season work well, but face the issue of

seasonality of work. Antonio tours has the largest jump in lines in tourist season (from 3 to 8) due to providing services of transport to popular tourist destination Novalja.

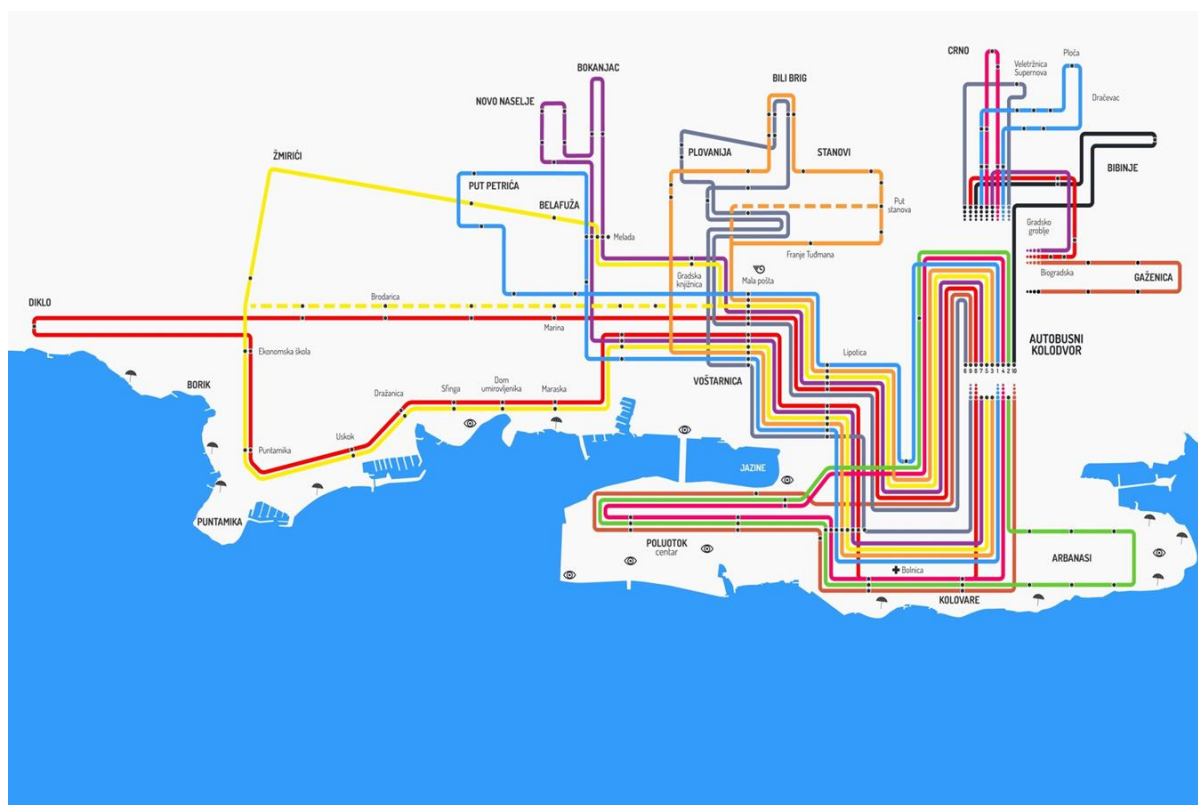


Figure 1.: Zadar Urban area Bus network

Taxi

The number of taxi drivers in Zadar has increased significantly in recent years (the city has issued 110 permits in 2012., 115 by 2018.), as well as the number of passengers transported by taxi, primarily due to a large number of modernly equipped taxi services and favorable services, and partly because of its initial popularity. Particularly useful is the night drive because no public transport is available in the night. Although the popularity of taxis is on the rise, the taxi transport still does not participate in a significant measure in total public transport and is mostly used for specific needs. As recent studies have shown, taxi services take up to 4% of total public transportation share.

Recently, there has been a slowdown in the trend due to the increase in the number of taxi operators and the lack of service quality at the initial price level.

Problems regarding the number of taxi service providers companies and their collective effort are due to legislative issues. Although number of taxi service providers is 66, *de facto* they are organized in two larger collectives (Jadera and 023), two larger companies (Taxi Denis and

Taxi Lulić) with some level of individual taxi providers that work on their own. Taxi drivers nowadays face the issues of sustainability and response to new competition in Uber has not been very effective. Taxi driver services are heavily reliant on touristic season, so seasonality of taxi driver's workload is an important factor of their public transport influence.

Bicycle system

Public bicycles are complementary to public transport and help reduce road traffic, solve parking problems in a narrow urban center, contribute to the protection of the environment, enrich the tourist offer, position the city as a desirable cyclo-touristic destination and generally affect the quality of life in the city. The City of Zadar enabled the implementation of the NEXTBIKE public bicycle system. The public bicycle system allows users a fast, easy, inexpensive and ecological way of transport with the slogan: "Sit and go!".

Furthermore, the City of Zadar was a partner on the PRO-E-BIKE project, which promotes the use of electric bicycles and scooters as an environmentally acceptable alternative to fossil fueled vehicles for the purpose of delivering goods and cargo and for transporting passengers to European cities. To this end, an Action Plan for the promotion of electric bicycles and scooters for the delivery of goods and transport of passengers has been made.

Wider Zadar area has many attractive cycling paths categorized to match all users from hobbyist to professionals. Favorable geospatial propositions allow arrangement of new cycling routes but momentarily narrower city area either completely lacks cycling infrastructure or inadequately implemented. So far just a single digit number of bicycle lanes are organized and functioning, with a lot of room for upgrade. Although the usage of bicycle is forbidden in the city centre (it's restricted to pedestrians only) outer areas of the town have a lot of potential to develop bicycle system.

Railway

Railway in Zadar County is nonexistent, which is a huge issue yet to be dealt with. Rail has connected Zadar with town of Knin up to year 2014. but due to its slowness and unprofitability it was shut down for good. A number of key problems regarding the railway infrastructure, like de-populatization of Knin and general ineffectiveness of Croatian Railways, resulted in the current state of affair. In that regard, railway system has enormous potential to be upgraded since its current state is non-existent, with a number of key transport nodal points (Port Gaženica, Airport, city of Zadar) in need of a railway system. In public transportation system, some initiatives regarding the organized train services in rural area to fill up the time gaps of bus system have been mentioned, but have yet to come in planning, let alone fruition.

Energy usage

Energy analysis of public transport was carried out as a part of the Action plan for the development of sustainable growth and it included the number of kilometers traveled and diesel

fuel consumption by Liburnija d.o.o. whose majority owner is the City of Zadar and whose main activity is the transportation of passengers in urban and suburban traffic. The analysis included only the consumption of city buses on lines in the administrative area of the City of Zadar and the suburban lines for which the analysis was carried out in the part of the spending related to the administrative area of the City of Zadar.

City of Zadar currently has issued 115 taxi licenses.

Public transport by bus lines as fuel is used exclusively by diesel, while taxi drivers use diesel and gas. According to the data submitted, the average age of buses is 15.2 years and the average fuel consumption per 100 km is 37 liters of diesel. With the car tax the fuel consumption varies from 6 to 9.5 l / 100km.

Major factors defining PT in Zadar and Zadar County are primarily dictated by daily inhabitant migrations – return journeys for work, schooling and other administrative and medical needs from both intra city and surrounding areas. Within City of Zadar PT connectivity is based on good practice of interconnecting all city districts, vital institutions (i.e. administrative, medical, schools) and Port of Zadar as important connectivity hub for outlying island population. Major PT hub between intra city and external PT lines represents main bus station (used to actually only real multimodal hub before cancellation of rail line).

Deficiency of PT system is noticeable during tourist season when there is lack of adequate lines connecting western parts of Zadar surroundings especially during unfavorable weather conditions when most tourists tend to simultaneously visit Zadar worsening road traffic conditions.

3. Main stakeholders of PPT of each region

Ministry of Maritime Affairs, Transport and Infrastructure

Abovementioned Ministry is the main responsible body in Croatia for any sort of action regarding maritime affairs, transport and infrastructure. They are listed as relevant stakeholder due to that fact, and we look forward to their support of this initiative.

14 other local public authorities addressed by the transport strategy (City of Nin, Municipality of Bibinje, Municipality of Galovac, Municipality of Kali, Municipality of Kukljica, Municipality of Novigrad, Municipality of Poličnik, Municipality of Posedarje, Municipality of Preko, Municipality of Ražanac, Municipality of Sukošan, Municipality of Škabrnja, Municipality of Vrsi, Municipality of Zamunik Donji)

Abovementioned local public authorities represent the interests of 14 other municipalities in Zadar County. They will all be affected by the project and share common interest in addressing the topics related to the project. They also have the administrative ability to implement any sort of strategies and plans, so their cooperation is necessity for successful implementation of the project.

Bus operators

Bus operators included are Liburnija d.o.o., which is a public service, and other private transport services which can be affected by the project. Cooperation with the bus operators is necessary to ensure efficient intermodal traffic planning and, due to the fact they are still the largest public transport system, have the largest volume to positively affect their own carbon emissions.

HŽ Putnički prijevoz (Croatian Rail)

Railroads in Croatia are heavily underdeveloped, so beside the fact they are a relevant stakeholder thematically, hopefully they will benefit from the project due to the potential they hold. Efficient railroad system is necessary to increase low-carbon transport modes.

Maritime operators

Jadrolinija Rijeka is the largest maritime operator in Croatia. Cooperation with them is necessary to ensure maximal efficiency regarding the transport of passengers and cargo that arrives at Gaženica port, especially cruisers that leave a large and harmful impact on the environment. As such, Jadrolinija is an important stakeholder to foster intermodal transport services and has the potential to implement various low-carbon emission transport into their system. Other smaller maritime operators will also be contacted.

Zadar Airport

Zadar Airport is an important nodal point for air traffic, and as such has the potential to be implemented different intermodal transport possibilities as part of their offer.

Savez za Željeznicu (SZZ; Pro Rail Alliance Croatia)

The Alliance for the Railways is a non-profit umbrella association of all interested stakeholders for the improvement of rail traffic in Croatia, which promotes the advantages of environmentally friendly, energy efficient, safe, modern and economical rail transport and as such are a relevant stakeholder that can help the project implementation.

4. Regional and national policy: drawbacks and initiatives for sustainable public transport

City of Zadar Strategy

Strategic Goal 1. Preservation and sustainable development of space and improvement of the city's infrastructure system

Priority 1.3. Development of the city's traffic network

Measure 1.3.4. Development of maritime infrastructure and services, and support to the port of Gaženica port as a port of international significance

Measure 1.3.5. Improving the public transport system and creating preconditions for the development of intermodal transport

Measure 1.3.6. Development of bicycle traffic

Priority 1.4. Sustainable energy management and increased share of renewable energy sources

Measure 1.4.1. Encouraging the use of renewable energy sources

Urban Development Strategy of Zadar

Objective 3. Sustainable management of spatial resources with improved quality of urban environment

Priority 3.1 Improving transport connectivity and sustainable urban mobility

Measure 3.1.2. Improving public and suburban transportation systems

Measure 3.1.7. Improvement of intermodal infrastructure and traffic in the dormancy of ITS UP

Measure 3.1.8. Development of pedestrian and bicycle traffic

Zadar County Strategy

Priority 2.4. Improved transport network and increased

Measure 2.4.2. Improving the public transport system and creating preconditions for the development of intermodal transport

Measure 2.4.5. Promotion and development of bicycle traffic

Traffic Development Strategy

General Purposes:

CO1 - Change the distribution of passenger traffic in support of public transport and modes of transport with zero emission of harmful gases. This includes public transport in agglomerations and the local regional context (trams, local bus lines, etc.), rail transport, public transport by sea, regional and remote bus services as well as pedestrians and cyclists.

CO7 - Increase the interoperability of the transport system (public transport, rail, road, maritime and air traffic and inland waterway traffic).

Specific objectives for public transport and forms of transport with zero emission of harmful gases:

SC4 - Increase efficiency and reduce the economic impact of public transport management and organization.

SC5 - Increasing the attractiveness of the public transport by improving the fleet management and modernization concepts

General measures

G.4 Increasing intermodality in passenger traffic and the development of intermodal passenger nodes

G.12 Decrease of negative impacts of aprometry on the environment

Specific measures

City, suburban and regional traffic

U.5 Increasing intermodality

Energy development strategy of the republic of Croatia

To reduce energy consumption in traffic, the Government of the Republic of Croatia will adopt a package of energy efficiency measures that will include:

Stricter standards for new vehicles; The Republic of Croatia will monitor and adopt the accepted technical standards for vehicles in the European Union, thus ensuring that only the most efficient products enter the Croatian market.

Implementation of information campaigns on energy-efficient traffic behavior; Promotional campaigns will promote effective driving patterns, but also alternative modes of transport (city traffic, bicycles, more people in the car, etc.).

Planning and setting up of more efficient transport systems; The Government of the Republic of Croatia will, in cooperation with local and regional self-government will improve urban traffic planning, including infrastructure for alternative modes of transport, improvement of public transport infrastructure, introduction of efficient vehicles and alternative fuels in public transport (vehicle labeling), prescribe energy reviews of public transport companies and obligations of cost-effective energy efficiency measures, implementation of comparative analysis of Croatian carriers with European companies, introduce the fees for traffic jams in cities etc.

Encouraging projects to cleaner traffic and buying energy-efficient vehicles; Various measures will encourage the use of vehicles with emissions below 120 g CO₂ / km, electric vehicles, hybrid vehicles - for legal and natural persons through investment subsidies, but also by providing free parking places, right to use yellow lines etc. It is also necessary to introduce measures to divert the exceedance of the prescribed emission limits.

Liburnija d.o.o. made arrangements to renew its bus fleet with 25 eco-busses during 2018. They will be financed through European structural and investment fund and Operative programme competitiveness and cohesion. 85% of the investment worth 5 million is financed through those funds, while the rest is financed by the Ministry of Maritime Affairs, Transport and Infrastructure.

5. SWOT analysis (short version)

| STRENGTHS | WEAKNESSES |
|---|---|
| Internal | |
| <ul style="list-style-type: none"> Favorable prerequisites for adopting of multimodal system - spatial, daily migrations | <ul style="list-style-type: none"> No multimodal systems implemented (i.e. Park&Ride) No ITS systems implemented (no PT priority) No carpooling/sharing infrastructure |
| External | |
| <ul style="list-style-type: none"> Favorable prerequisites for adopting of multimodal system - existing PT lines | <ul style="list-style-type: none"> High seasonal road traffic demand increase (congestions) No carpooling/sharing infrastructure Poor rail infrastructure |

| OPPORTUNITIES | THREATS |
|--|---|
| Internal | |
| <ul style="list-style-type: none"> • Implementation of multimodal systems especially P&R • Implementation of ITS system(s) providing PT priority • Adopting legislation defining maximum allowed PT vehicles exhaust emissions including implementation of e-busses • Implementation of carpooling/sharing system – local authority initiative | <ul style="list-style-type: none"> • Inability to implement multimodal systems (i.e. P&R) due to insufficient political engagement • Inability to implement ITS system(s) providing PT priority • Insufficient political engagement to define/implement environmental friendly legislation • Implementation of carpooling/sharing system – defiance of local authority initiative |
| External | |
| <ul style="list-style-type: none"> • Implementation of carpooling/sharing system – (semi)private initiative(s) | <ul style="list-style-type: none"> • Inability to implement multimodal systems (i.e. P&R) due to spatial restrictions (ownership, inadequate geospatial characteristics) • Further road traffic demand increase (both seasonal and domestic) |

6. Analysis and identification of main regional experiences and lessons learnt/ Good practice assessment

- MASTER PLAN OF THE FUNCTIONAL REGION OF NORTHERN DALMATIA AND STRATEGIC ENVIRONMENTAL IMPACT ASSESSMENTS - MASTER PLAN OF SUSTAINABLE MOBILITY OF THE ZADAR REGION (City of Zadar)

The purpose of Master Plan of Sustainable Mobility of the Zadar Region is to enable sustainable development of the region in line with European and national strategies and plans. The plan will particularly emphasize support for public transport and alternative modes of transport, especially in pedestrian and cycling. Through the planning of hiking trails, pedestrian zones, public transport infrastructure as well as infrastructure for electric cars, the sustainability of the transport system of the region will be realized.

In urban areas, logistics will be planned without CO2 emissions. In the field of research, three distinct areas, a coastal part with tourist attractions, areas away from the sea and the isolated area of the island as a place of residence and tourist attractions, stand out. Through the project, a plan will be developed to improve the transport services in coastal liner shipping and the accessibility of the port by public transport.

- URBAN service Ljubljana (SLO)

Public transportation service which enables users to get a trip on demand in an electric car on city bus routes. The Urban service is provided by the Ljubljana public transportation company LPP. The service is similar to taking a bus, with the passengers getting on and off on regular bus lines and stops, with the only difference being that they have to order their ride.



Figure 2.: Urban service Ljubljana

7. Conclusions

For the most part, baseline study showed that Zadar region lacks in eco-friendly transportation means. Although some arrangements have been made via Liburnija, implementation of eco-friendly vehicles on field is yet to be seen. Some taxi drivers use gas as fueling method, but no designated eco-friendly services are implemented. Bicycle public transport, as one way of eco-friendly mode of transport, is yet to become a possibility, with setbacks in infrastructure planning and lack of the general interest of the public. Railway system is nonexistent, with yet undefined position of it being unnecessary or just not explored enough as efficient transport mode.

One other aspect of public transport in Zadar region is the lack of “new” user-oriented services that rise the likeability of public system. Mobile applications, names on the bus stations, intermodal planners are some of the easily-implemented solutions that could improve existing infrastructure and resources. Furthermore, new modes of transport and good practices also need to be explored.

That being said, city of Zadar in itself is connected efficiently via public bus system, but that can not be said in full scale regarding the rest of the region. At this point, questions of sustainability arise, especially with depopulation processes that take trend nowadays. Depopulation process harm the regions in a twofold way; beside the problem of having less and less population, costs for transport system become even larger, and inefficient transport system just fosters the depopulation process. It might be necessary to revise transport routes in the region soon, especially ones that include daily migrations to work/school from rural areas. Although the city itself was not planned in a way that enables efficient transport system, spacial planning is something that needs to be addressed in future plans to make transport system and city itself more efficient and pleasant place to live. Issues of sustainability arise here, with encouraging news of railway transport providers taking an interest in rural public passenger transport.

One noticeable thing is also lack of intermodal connectivity in the region. Communication among relevant stakeholders and transport services providers should be supported, and it should be emphasized that efficient and eco-friendly transport system requires that different modes of public transport do not overlap, but support each other and fill in the distance gaps of the other.

To conclude, action plan should take a holistic approach to define its measures. Finding the best way to synthesize urban planning with different modes of transport, taking in count distance among locations for the best low-carbon transport modes, with innovations to make the public transport system more approachable should be taken into consideration while making the Action plan. Innovations such as e-ticketing and intermodal planner would ease the transport planning. To do so, public transport system should become more integrated, with common goal in line for all of the stakeholders. Action plan should make a number of activities should support each other and enable the next ones, to make the transport system fully connected with the region and to fully connect the region with public transport.

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- <http://www.grad-zadar.hr/repos/doc/Strategija%20razvoja%20urbanog%20podrucja%20Zadra%202014.%20-%202020..pdf>

Liburnija – Financijska izvješća i Izvješća o radu (Liburnija - Annual financial reports and Business reports)

- http://www.liburnija-zadar.hr/pristup_informacijama.php?lang=hr

Državni zavod za statistiku – Statistički podaci o zaposlenima i godišnji ljetopis (Bureau of Statistics – Annual statistics about employed population and annual yearbooks)

- <https://www.dzs.hr/>

9. List of stakeholders interviewed

- Bus operators (Liburnija d.o.o., Čazmatrans d.o.o., Lišane trans d.o.o., Antonio Tours Pag, Bili d.o.o., Stari Velim d.o.o.)
- CityBus Zadar- Mr. Stipe Stagličić
- Taxi services providers (Taxi Lulić, Taxi Jadera, Taxi Denis, Taxi 023 and a number of other taxi services providers)
- City of Zadar
- Zadar County



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