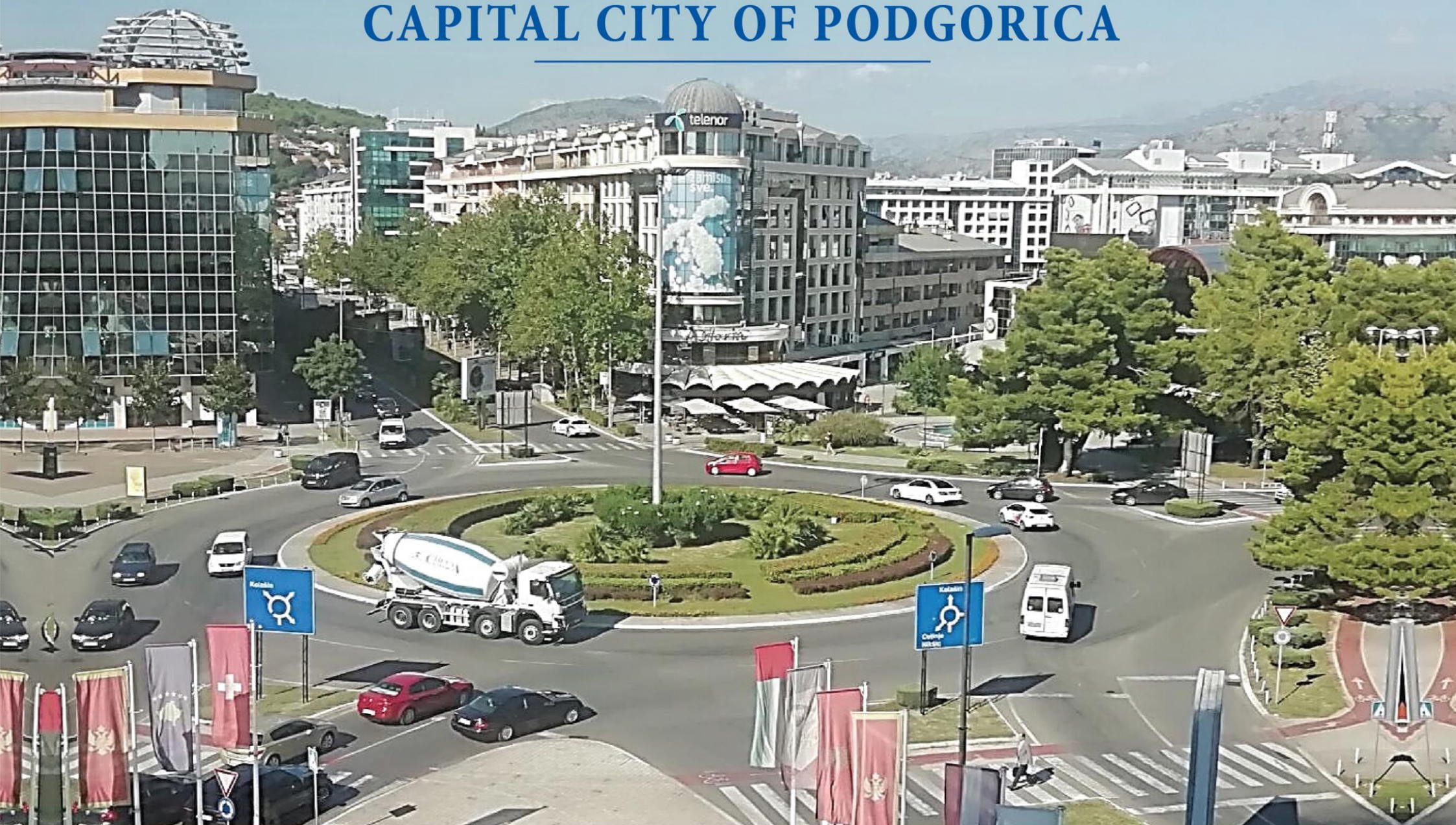


SUSTAINABLE URBAN MOBILITY PLAN FOR THE CAPITAL CITY OF PODGORICA



PODGORICA, JANUARY 2020

SUSTAINABLE URBAN MOBILITY PLAN FOR THE CAPITAL CITY OF PODGORICA

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Dear fellow citizens, dear guests of the Capital City of Podgorica,

It is my sincere wish that everyone who comes to Podgorica would like to visit it again, and that every one of its residents can feel an improvement in the quality of life day by day. The survey of the citizens of the Capital, which has shown their dissatisfaction with how the transport system currently works, has imposed a task and a challenge upon the city government that we have begun to address. The development of the Podgorica Sustainable Urban Mobility Plan is an important step in addressing this problem. In the process of preparing this comprehensive transport strategy, we paid special attention to the opinions and suggestions of citizens and various stakeholders, as we are convinced that we can jointly find the best solutions. I am sure we have found them and included them in this important strategic document for planning transport, with particular emphasis on the choice of a set of measures to promote sustainable mobility.

I'm a pedestrian, and I often ride a bike. Walking is the most basic form of movement, and for me certainly the most enjoyable and the healthiest one, especially in the landscaped green areas that are expanding in Podgorica from day to day. We will renovate the existing and build new pedestrian infrastructure, surrounded by greenery and associated amenities necessary for a comfortable walk for every resident of the Capital. We will also increase the share of cyclists and public transport users, and do our best to reduce the need for buying and using passenger cars. For car lovers, we will build the infrastructure for charging electric cars. We were proud to present the first electric taxis in the Capital City of Podgorica at the end of 2019. We are committed to finding the optimal model for modernizing mass transport of passengers.

It is well known that cooperation, respect and tolerance are the three key pillars underlying successful coexistence in a community, and you will agree that this applies to transport as well. The new transport strategy represents the fourth pillar. This document provides a solid basis for carrying out a series of activities to improve sustainable urban mobility. Aware that there is always room for progress, as a city administration we are committed to designing the city according to the needs of its residents.



In the past year, comprehensive and dynamic development of Podgorica has continued. Through the implementation of numerous multi-million euro projects, we are creating the necessary preconditions for a better future for our city and its residents.

We are proud of the outstanding results and performance of the city administration over the past year. The increasing support and trust we enjoy from the citizens of Podgorica additionally motivate us all to carry out the planned projects even more efficiently and to more vigorously implement policies defined at the city level for the overall development of Podgorica.

I hope that, after the consistent implementation of the Sustainable Urban Mobility Plan, Podgorica will become an even more enjoyable place to live in and an increasingly attractive destination for many tourists.

I would like to thank GIZ's Open Regional Fund for Southeast Europe – Energy Efficiency (GIZ ORF-EE) for making the development of this important document possible for the Capital, reiterating my firm position that the city administration will be strongly committed to its implementation. In this way, we will provide our citizens and visitors of a modern and attractive European city that Podgorica is today, with an efficient and safe transport system, affordable and accessible to all, socially just, and focused on environmental protection and active forms of mobility.

It is our obligation that we all work together towards improving the level of culture, health and satisfaction of every resident of our city.

Sincerely,

Dr. Ivan Vuković



The Mayor

We build a city for people, not cars!

1. SUMMARY OF THE SUSTAINABLE URBAN MOBILITY PLAN



1.1 INTRODUCTION

Podgorica, the capital of Montenegro, is an administrative, economic, cultural and academic centre of the country, inhabited by more than a third of the country's population. The past two decades have been marked by the migration of the population to Podgorica from almost all municipalities, and especially from the northern part of Montenegro, aiming to achieve a better life, which has contributed to the development of the Capital. The Capital has invested significant funds in the development of transport infrastructure, trying to enable the normal functioning of the transport system in the conditions of increased number of inhabitants and registered vehicles. Due to the expressed need for mobility of an increasing part of the Capital's population, the increase in the motorization rate, insufficiently attractive city transport, non-compliance with traffic regulations, under-used walking and cycling, i.e. non-motorized modes of transport, there is a constantly growing dissatisfaction of citizens with the functioning of the transport system, which threatens to be a factor limiting the future development of Podgorica.

The development of a Sustainable Urban Mobility Plan (SUMP) for the Capital City of Podgorica is being implemented with the support of GIZ's Open Regional Fund for Southeast Europe–Energy Efficiency (GIZ ORF-EE), which aims at supporting cities in South-East Europe in developing energy efficiency and sustainable mobility solutions. The project is funded by the German Federal Ministry for Economic Cooperation and Development and implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. The project is focused on capacity building and technical support to capital cities, as well as to the associations of municipalities in South-East Europe in applying a sustainable approach to urban transport planning, with special emphasis on the development of sustainable mobility plans in cities and municipalities.

The European Commission is also a strong advocate of the concept of the SUMP, which is best illustrated by the integration of the SUMP in a large number of Commission documents, so the project uses a similar methodology and guidelines, adapted to and applied in the local context. An important segment of the drafting process involves engaging the public from the start and throughout the process of drafting the Plan. Through appropriate involvement of citizens and stakeholders in the process of making decisions on specific measures in the transport sector, the Sustainable Urban Mobility Plan (hereinafter: SUMP) gains considerable **public legitimacy**.

The plan essentially builds on existing legislation, takes into account social, economic and political-institutional criteria, and its main features are a participatory approach, integrated approach, clear vision, purpose and measurable goals, evaluation of costs and benefits of the chosen concept, as well as the obligation of sustainability.

1. SUMMARY OF THE SUSTAINABLE URBAN MOBILITY PLAN



1.2 PURPOSE

The purpose of the Podgorica Sustainable Urban Mobility Plan is to enable the Capital to become a successful dynamic regional centre, in which the transport system will provide citizens with better mobility, accessibility and availability while reducing transportation costs, economic development and environmental protection, as well as a better and healthier urban environment for the life of all residents – users of the transport system, with an emphasis on the most vulnerable users (children, pedestrians, cyclists, persons with disabilities and persons with reduced mobility and the elderly). Better urban mobility includes all forms of sustainable mobility such as: non-motorized modes of travel (use of bicycles and walking), the use of public urban passenger transport, while reducing the use of own cars in urban travel. Reduced use of private cars in urban travel leads to a reduction in greenhouse gas emissions, noise and traffic jams, as well as traffic accidents. Stimulating the use of public urban transport, with its better availability and better service quality, and other non-motorized modes of transport, will result in better social inclusion of all groups of residents of the Capital.

1.3 METHODOLOGY

The SUMP development is carried out in several steps, i.e. phases. The first step is to define the vision and strategic goals of the SUMP. The second step is the status analysis of the SUMP, i.e. identification of the current status of the transport system. Based on the status analysis, indicators and specific objectives are selected. The next step in developing the SUMP is the selection and prioritization of measures, with the division of responsibilities for their implementation. Developing the plan involves developing scenarios, developing an action plan and drafting a document. The draft is in the next step made available to the public and subject to public consultation. In the further step, the received opinions, suggestions and comments are considered and the final version is made, which is adopted in the local parliament, i.e. the Assembly of the Capital City.

The SUMP is organized in such a way that it relies on five main strategic pillars:

PILLAR I – Comprehensive planning for sustainable urban mobility

PILLAR II – More rational use of passenger cars

PILLAR III – Modernization and popularization of public urban transport

PILLAR IV – Valorisation of cycling potential

PILLAR V – Return to walking as the healthiest mode of mobility

1.4 DOCUMENT STRUCTURE

The SUMP is presented in this document through eight chapters as follows:

- 1 SUMMARY
- 2 SUMP DEVELOPMENT PROCESS
- 3 STATUS ANALYSIS
- 4 VISION AND STRATEGIC GOALS
- 5 FIVE PILLARS OF SUSTAINABLE MOBILITY IN PODGORICA
- 6 ACTION PLAN
- 7 MONITORING AND EVALUATION
- 8 APPENDICES

1.5 KEY CHALLENGES

The following key challenges were identified during the development of the SUMP:

- *Lack of strategic commitment and planning for urban transport in line with modern postulates,*
- *Low level of compliance with traffic regulations or low level of traffic culture, and compromised safety of road users,*
- *Uneven distribution of modes of transport, dominated by the use of passenger cars, while use of public transport, walking and cycling is almost negligible,*
- *Unpopular, outdated, unavailable and inaccessible mass public transportation of passengers,*
- *Lack of adequate pedestrian infrastructure and a certain lack of popularity of walking,*
- *Lack of cycling infrastructure and a certain lack of popularity of cycling,*
- *Traffic jams, especially when leaving for and from work, as well as around kindergartens and primary schools,*

1. SUMMARY OF THE SUSTAINABLE URBAN MOBILITY PLAN



- Lack of awareness among citizens and decision-makers about the negative effects of traffic on the environment and health,
- Lack of trust of key stakeholders and citizens that the SUMP will be implemented.

1.6 CONCLUSIONS AND RECOMMENDATIONS

This modern way of traffic planning focuses on the people or residents of the City, unlike the previous planning method that was subordinated to cars and the intention to create as much infrastructure for cars as possible, often to the detriment of the quality of infrastructure and the safety of non-motorized road users. Particularly valuable was the contribution of citizens in providing numerous suggestions, remarks and comments that best justify the participatory approach that is insisted upon in the preparation of the SUMP. Everything that the citizens indicated in the surveys was valuable material for the Working Group, especially when selecting measures for the SUMP for the Capital City.

The experience of EU cities that have successfully completed the process of developing and implementing SUMP indicates that this results in an improved quality of life of all citizens. Based on these experiences, it is realistic to expect that the implementation of the SUMP will provide a better quality of life for the Capital's residents. Otherwise, there is a real danger that traffic will become a factor limiting the further development of Podgorica and a significant cause of discontent among the inhabitants of the City, so that a consensus of all stakeholders on this issue is expected.

2. SUMP DEVELOPMENT PROCESS



2.1 THE NEED FOR A SUMP

In spite of significant investments in the construction of transport infrastructure, the functioning of the transport system is not satisfactory and a number of problems have been identified, such as: a rapid growth of motorization rate, insufficiently attractive city transport, non-compliance with traffic regulations, insufficiently accepted forms of non-motorized transport and many others. The abovementioned problems generate growing dissatisfaction with the functioning of the transport system, which threatens to be a factor limiting Podgorica's future development.

The SUMP development is characterized by a strategic approach and integration of transport planning policies and policies in other sectors such as environmental protection, spatial planning, housing, social issues related to accessibility and mobility, as well as economic development policies. Also, not only transport engineers are involved in the SUMP development, as in the case of traditional transport planning, but rather multidisciplinary teams made up of experts from different fields and other stakeholders.

The plan builds on existing legislation, taking into account social, economic, and political and institutional criteria, and its main features are a participatory approach, integrated approach, clear vision, purpose and measurable goals, evaluation of costs and benefits of the chosen concept, as well as the obligation of sustainability.

2.2 OVERVIEW OF THE DRAFTING PROCESS

2.2.1 SUMP – Timeline

The SUMP for Podgorica is the first strategic document of its kind and is planned for the period from 2020 to 2025. After 2-3 years, the SUMP will be revised, and a new SUMP is planned to be developed after 5 years.

The vision defined in the SUMP refers to the year 2035.

2.2.2 SUMP – Covered area

The area covered by the SUMP is the Capital region, whose geographical scope is adapted to administrative boundaries. Most attention is given to the functional urban area, which is defined by the main urban flows to the city centre. Until 1 September 2018, the Municipality of Tuzi, which had a population of 4,748

2. SUMP DEVELOPMENT PROCESS



according to the 2011 census, was a subdivision of the Capital City of Podgorica. The administrative border between the Capital City of Podgorica and the newly formed municipality of Tuzi has not yet been established.

2.2.3 Team and development process

The process of preparing the Sustainable Urban Mobility Plan of Podgorica was managed by the Secretariat for Transport of the Capital City of Podgorica. The staff of the Secretariat for Transport involved in the SUMP preparation carried out key organizational activities in the process of developing this document. The entire process of developing the SUMP was funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) and implemented by GIZ. On behalf of GIZ, GIZ ORF-EE Project Manager Jasna Sekulovic took an active role in all phases of the SUMP development. Dr. Aljaz Plevnik, as GIZ international expert in charge of methodology, gave the greatest support to the SUMP development with his valuable experience in this field. GIZ local technical expert was Prof. Dr. Radoje Vujadinovic from the Faculty of Mechanical Engineering, University of Montenegro. A precious contribution to the process of developing the SUMP was given by Ajsa Hadzibegovic, a GIZ expert for public participation and communication.

For better efficiency in developing the SUMP, a Working Group of five members was formed, consisting of experts employed in local administration and representatives of the non-governmental sector. Each member of the Working Group was responsible for one of the strategic pillars of the SUMP:

PILLAR I – Comprehensive planning for sustainable urban mobility (Radmila Maljevic)

PILLAR II – More rational use of passenger cars (Alija Hamzic, MSc)

PILLAR III – Modernization and popularization of public urban transport (Fahret Maljevic)

PILLAR IV – Valorisation of cycling potential (Blazo Crvenica-NGO Biciklo.me)

PILLAR V – Return to walking as the healthiest mode of mobility (Teodora Kusovac)

2. SUMP DEVELOPMENT PROCESS



Figure 1: Process of Podgorica SUMP development

The process of developing the SUMP began in April 2019. The time schedule for producing all SUMP phases was very close to the projected one, so that the first working version of the SUMP was completed by the end of 2019. All participants gave full contribution to complying with the planned time schedule.

Other stakeholders in this process, primarily citizens, as well as representatives of companies founded by the City, representatives of the Ministry of Transport and Maritime Affairs, representatives of NGOs, Faculty of Mechanical Engineering of the University of Montenegro, and representatives of carriers performing public urban transport, mentioned in the following Chapter, participated actively through several phases of the SUMP development.

2. SUMP DEVELOPMENT PROCESS



2.3 STAKEHOLDER PARTICIPATION

During the SUMP preparation, several workshops were organized, attended by over 45 key stakeholders, representatives of parties interested in urban mobility planning issues in the Capital City from the following organizations and companies:

- Secretariat for Transport of the Capital City,
- Secretariat for Spatial Planning and Sustainable Development of the Capital City,
- Secretariat for Public Utility Services of the Capital City,
- Secretariat for Culture and Sports of the Capital City,
- Secretariat for Local Government of the Capital City,
- Department for planning, coordination and monitoring of the Government policy implementation of the Capital City,
- Office of the Mayor of the Capital City,
- Podgorica Construction and Development Agency,
- Municipality of Golubovci, within the Capital City,
- Ministry of the Interior,
- Ministry of Transport and Maritime Affairs,
- Transport Directorate,
- Municipal Inspection Authority,
- Chamber of Economy of Montenegro,
- Statistical Office – MONSTAT,
- Union of Municipalities of Montenegro,
- Faculty of Mechanical Engineering, University of Montenegro,
- Faculty of Architecture, University of Montenegro,
- Roads Company,
- Bemax d.o.o.,
- Parking servis Podgorica d.o.o. (Parking Service Company),
- Tourism Organization of the Capital City,
- Montenegrin Railway Transport Company,
- Airports of Montenegro,
- Media representatives,
- Gradski saobraćaj Podgorica d.o.o. (City Transport Company of Podgorica),
- BLT d.o.o.,
- Members of the Capital City Assembly,
- Association of Driving Schools,
- Union of Employers of Montenegro,
- NGO Biciklo.me,
- Association of Paraplegics of Montenegro,
- Association of Youth with Disabilities,
- Federation of Driving Schools of Montenegro,
- Federation of Paraplegics Associations of Montenegro.

2. SUMP DEVELOPMENT PROCESS



In addition to workshops organized with the aim of developing a vision, presenting the results of status analysis, selecting indicators and selecting measures, workshops with different focus groups were also organized.

During the SUMP development process, a survey was conducted of parents who bring their children to kindergartens, and primary and secondary school students; the citizens were interviewed through an online questionnaire on the Capital City website, while Biciklo.me NGO also organized a survey entitled "Conditions for Cycling in Podgorica" for the purposes of this document. In this way, about 5,000 citizens of Podgorica contributed to the development of the SUMP.

Table 1: Number of Podgorica residents who participated in the process of developing the SUMP for Podgorica

Survey	No. of participants
Parents of children in kindergartens	179
Primary school pupils	2,389
Secondary school students	1,577
Residents of the Capital (online)	309
Biciklo.me (online)	503
Focus groups	41
TOTAL	4,998

3.1 INSTITUTIONAL AND REGULATORY FRAMEWORK

3.1.1 Strategic framework

The topic of transport is covered by individual chapters of the following strategic documents:

- *Montenegro Transport Development Strategy 2019-2035*
- *Spatial and Urban Plan (SUP) of the Capital of Podgorica*
- *Local Action Plan for Sustainable Development (Mont. LAPOR) of the Capital of Podgorica*
- *Sustainable Energy Action Plan of the Capital of Podgorica*
- *Podgorica Climate Change Adaptation Strategy*
- *Long-term Public Urban and Suburban Transport Development Study for Podgorica*

3.1.2 Regulatory framework

The laws and bylaws governing road transport are set out below:

- *Law on Road Transport*
- *Law on Contracts for Carriage by Road*
- *Road Safety Law*
- *Law on Spatial Planning and Building Construction*
- *Law on Roads*
- *Decision on regular urban and suburban passenger transport within the Capital City territory*
- *Decision on traffic regulation in the territory of the Capital City of Podgorica*
- *Decision on public parking lots in the territory of the Capital City of Podgorica*

3.2 FINANCIAL FRAMEWORK

Every year, the City budget allocates significant funds for the area of transport, primarily for the maintenance of the existing and construction of the missing transport infrastructure.

Table 2. Investment in transport infrastructure in the Capital City, 2013-2018

	2013	2014	2015	2016	2017	2018	TOTAL
Funding [€] for transport infrastructure	6,304,900.95	8,121,157.48	7,362,267.84	8,594,365.58	9,188,267.77	10,765,079.69	57,583,543.36

3.3 SPATIAL PLANNING FRAMEWORK

3.3.1 Planning and territorial division of the Capital City

The planning area, comprising the urban area of Podgorica, is divided into 10 planning zones, which represent rounded functional and urban planning zones. The other planning areas of the Capital City are divided into 13 planning zones that have specific natural and developmental characteristics, and represent the hinterland catchment area of secondary municipal and significant local centres.

3. STATUS ANALYSIS

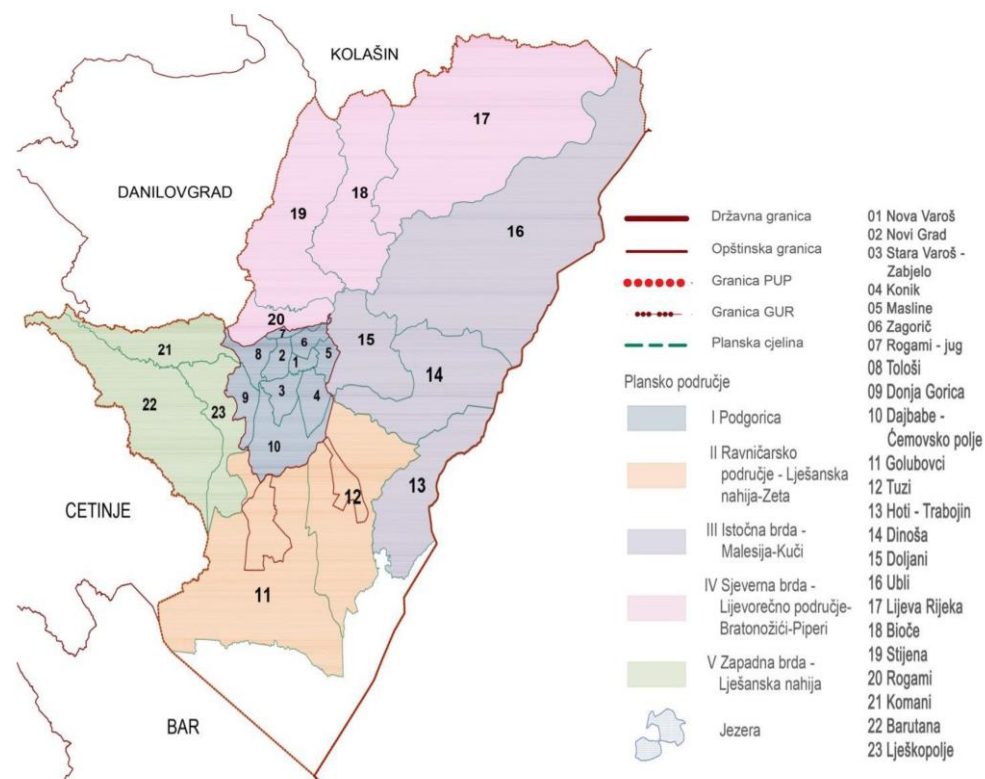


Figure 2: Planning territorial zones of the Capital City of Podgorica¹

The foreseen territorial division of the Capital into planning areas (5 in total) and planning zones (23 in total), which are further divided, in terms of spatial development, into planning units/sub-units, enables a more detailed definition of spatial planning guidelines (e.g. for characteristic natural or cultural landscapes) and inputs for the preparation of local planning documents, as well as the implementation of effective monitoring and implementation of planning solutions.

¹ Spatial and Urban Plan of Podgorica (Podgorica SUP)

3.3.2 Strategic goals, underlying principles of spatial development and guidance from higher-level planning documents and other plans

The basis for the long-term organization and spatial planning of Montenegro is set by the most important planning document that defines the national goals and spatial development measures, namely the Montenegro Spatial Plan until 2020. The Montenegro Spatial Plan incorporates the objectives of the National Sustainable Development Strategy (adopted in 2007). The concept of urban system development in the country is based on the strengthening of a polycentric system of centres, aiming to achieve harmonious development of a network of centres of different hierarchical ranks.

3.4 MOBILITY AND TRANSPORT

3.4.1 Transport infrastructure and the provision of transport services

General transport position of Podgorica

All major traffic flows, except for maritime navigation, are passing through Podgorica: Podgorica Airport, railways: Bar-Belgrade, Podgorica-Shkoder, Podgorica-Niksic, major roads: Bar-Belgrade, Shkoder-Podgorica-Niksic-Sarajevo, Podgorica-Cetinje-Budva, regional road: Bioce-Verusa-Matesevo, and routes of future Adriatic-Ionian and Bar-Boljare-Belgrade highways. Considerable sections of the future highways have been set up in the territory of Podgorica, which will, upon completion of the construction, increase the traffic frequency in this area. Already now, there is a visible conflict between the major traffic flows and the built urban and other structures in Podgorica.

The Podgorica-Cetinje major road (M-2.3) is 31 km long. Cetinje is a transit zone for traffic flows from Podgorica to the coast. Due to the extremely high traffic flows, it was estimated that the capacity of this major road does not meet the basic criteria in terms of road traffic quality and safety, which was somewhat mitigated by the reconstruction of the boulevard through Donja Gorica in the first half of 2019 and the addition of third lanes on that road.

The Podgorica-Niksic major road (M-18) is 56.5 km long. The average travel speed for all vehicles on this section is 65.22 km/h. Travel time on this route is 51 minutes on average. With 75,000 inhabitants, Niksic is the largest economic centre with significant industrial complexes, such as the Steel Plant and Bauxite Mines. Given its geographical location, large flows from Bosnia and Herzegovina move towards Niksic and the city is a transit point for flows from B&H to Podgorica and the coast. Since this route is characterized by high traffic flows, it is estimated that the capacity of the M-18 major road does not meet the basic criteria regarding the road traffic quality and safety, so that this road is under the initial stage of reconstruction.

3. STATUS ANALYSIS



The Podgorica-Bar major road (M-2) is 49 km long. The average travel speed on this road section is 49.9 km/h. Travel time averages about 60 minutes. It is part of the Adriatic motorway and the international road E65 and E80 respectively. It has two lanes and asphalt pavement. It is the shortest and fastest connection between Podgorica and the coast. The road and the railway line run in parallel on the section from Podgorica to Virpazar.

The Sozina tunnel is located between Bar and Tanki Cape and is 4.2 km long. It was opened to traffic in mid-2005, and significantly reduced the driving time for road vehicles (by 25 minutes) and increased road safety. The newly constructed section of the road on which the Sozina tunnel is located is approximately 11.8 km long and has a category of road reserved for motor vehicle traffic.

The Podgorica-Bijelo Polje road is part of the major road (M-2) and is 119.93 km long. It connects the northern part with the central and southern part of Montenegro. The average speed for all vehicles on this route ranges from 53.80 km/h, on the Podgorica-Bioce section, to 45.40 km/h, on the Mojkovac-Bijelo Polje section. The total minimum travel time between Podgorica and Bijelo Polje is 2 hours and 39 minutes.

The condition of the road network in the closer and broader area around the Capital City of Podgorica is unsatisfactory, and in spite of a series of activities launched in recent years, rehabilitation of the existing network remains a priority in the coming period.

Existing transport situation in Podgorica

Air transport

Air transport infrastructure has significantly higher capacity, space and installations than the current level of use. The state airline company meets Podgorica's current needs. In 2007, Montenegro ratified the multilateral European Common Aviation Area (ECAA) Agreement. This has liberalized the market for air services in Montenegro, as evidenced by the large number of airlines, including the so-called low cost companies. The airport on the Cemovsko Field is also used for the sport flying of planes and gliders.

Water transport

Water, i.e. lake transport is carried out in the form of tourist tours on the Skadar Lake, as well as with fishing vessels and boats of the Skadar Lake National Park, as well as border police vessels. A greater degree of use of the lake as a navigable waterway is certainly part of the conception of development of this type of transport in the Capital.

Rail transport

Belgrade-Bar is the most important railway segment for Montenegro. Its travel function meets a part of the existing needs on the Bar-Belgrade route. However, the condition of this railway entity does not correspond to the existing and, in particular, developmental needs of the corridor it covers (insufficient frequency, slow driving). Cargo transport on the route from Port of Bar to Belgrade is proportionate to the current volume of goods oriented to railway transport. The Podgorica-Niksic railway was reconstructed and put into operation on 1 October 2012. Efficient passenger transport can be organised on this route. The Montenegro Spatial Plan until 2020 envisages the displacement of the Podgorica-Niksic railway leg crossing the ancient Doclea site. The Podgorica-Shkoder railway only provides cargo transport, which is not rational for either Podgorica or Shkoder, i.e. Montenegro or Albania.

3.4.2 Mobility situation

Modal split

For the purpose of developing a Sustainable Urban Mobility Plan for Podgorica, the traffic was manually counted on 12 June 2019. The count was performed in the morning peak interval (6:30-9:30) and afternoon peak interval (14:30-17:30). In addition to the traffic count on the five bridges over the Moraca River (Vezirov Bridge, Millennium Bridge, Blazo Jovanovic Bridge, Union Bridge, Krivi Bridge) intended for motor vehicle traffic, the count was also performed on two pedestrian bridges (Moskovski and Gazela), which are located between the Millennium Bridge and the Blazo Jovanovic Bridge, in the same time intervals. The information obtained on pedestrian bridges was combined with the data obtained on bridges for motor vehicle traffic and integrated data on citizens' habits with respect to mobility.

The traffic count results have been processed and are a valuable source of data from which numerous analyses can be made and significant conclusions can be drawn. The results are presented in the table below.

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Table 3. Results of motor vehicle count performed on 12 June 2019 at 5 sites for 6 hours²

VEHICLES	Passenger cars	Taxi cars	Vans	Motorcycles	Buses	Light trucks	Heavy trucks	Tractors	TOTAL
Vezirov Bridge	5,858	797	45	48	40	285	40	1	7.114
Millennium Bridge	9,184	1,104	125	71	136	169	26	1	10.816
Blazo Jovanovic Bridge	11,168	1,532	112	132	215	251	4	4	13.418
Union Bridge	10,455	1,355	148	85	36	244	21	2	12.346
Krivi Bridge	8,541	1,053	215	72	153	387	26	0	10.447
TOTAL:	45,205	5,842	645	408	580	1,336	117	8	54.141

The analysis of the traffic count results shows that the highest traffic intensity is over the Blazo Jovanovic Bridge. A slightly higher number of vehicles was recorded on the Millennium Bridge than on the Union Bridge. The passenger vehicle category was dominant with about 83.5%, followed by taxi cars with 10.8%, while all other categories were represented in a negligible smaller percentage.

² Traffic count on 12 June 2019, Secretariat for Transport of the Capital City of Podgorica

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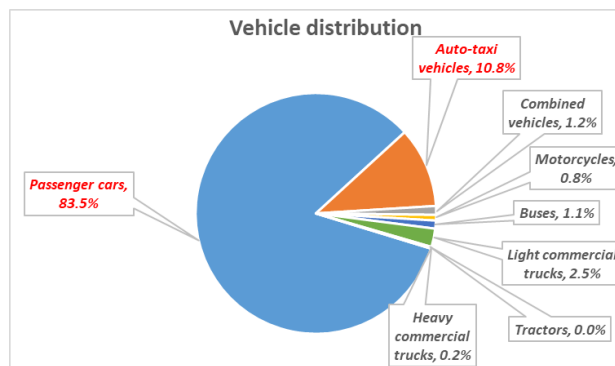


Figure 3: Distribution of vehicles by categories³

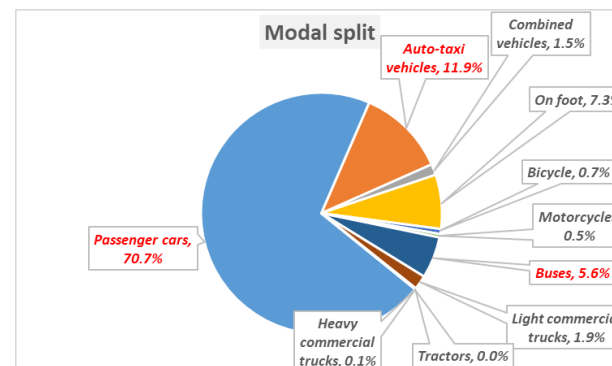


Figure 4: Percentage of passengers using particular transport modes obtained as a result of traffic count⁴

Table 4. Results of passenger count performed at 7 sites for 6 hours

PASSENGERS	Passenger cars	Taxi cars	Vans	Walking	Bicycles	Motorcycles	Buses	Light trucks	Heavy trucks	Tractors	TOTAL
Vezirov Bridge	8,527	1433	78	379	70	48	385	428	40	1	11,389
Millennium Bridge	13,393	1912	249	630	39	71	1380	170	26	1	17,871
Blazo Jovanovic Bridge	15,359	2955	240	1482	199	132	1785	386	4	4	22,546
Union Bridge	14,366	2523	318	888	154	85	255	332	21	2	18,944
Krivi Bridge	11,553	1785	428	684	99	72	1170	387	26	0	16,204
Moscow Bridge	-	-	-	894	43	-	-	-	-	-	937
Gazela Bridge	-	-	-	1531	6	-	-	-	-	-	1,537
	63,198	10,608	1,313	6,488	610	408	4,975	1,703	117	8	89,375

³ Traffic count on 12 June 2019, Secretariat for Transport of the Capital City of Podgorica

⁴ Traffic count on 12 June 2019, Secretariat for Transport of the Capital City of Podgorica

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Based on the counted number of passenger cars and the number of passengers in them, a very important indicator of occupancy rate, i.e. occupancy of passenger cars, was obtained and it amounted to 1.45.

Population satisfaction

An online survey was made available to citizens on the official website of the Capital in July 2019 in order to obtain information on population satisfaction with the transport supply (309 citizens participated). The data obtained are shown below.

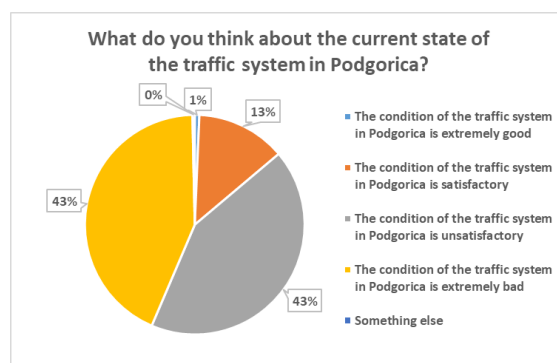


Figure 5: Distribution of citizens' answers regarding satisfaction with current transport situation in the Capital⁵

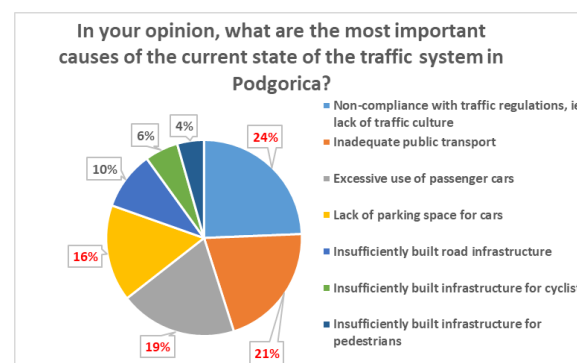


Figure 6: Distribution of citizens' answers regarding causes of current transport situation in the Capital⁶

The analysis of the survey results presented in Figure 5 shows that only 1% of the Capital's population rated the current situation as exceptionally good and 13% as satisfactory. On the other hand, about 43% of the population thinks that the current traffic situation is unsatisfactory, and as many (43%) citizens think that the situation is extremely bad, which best indicates the need to develop a SUMP.

The analysis of the survey results presented in Figure 6 shows that citizens believe that the main cause of the poor traffic situation is non-compliance with traffic regulations, which was stated by 220 out of 309 citizens surveyed, then inadequate urban transport (187 citizens), followed by excessive use of passenger cars (175), lack of parking space (144), etc.

⁵ Secretariat for Transport of the Capital City of Podgorica – Survey, July 2019

⁶ Secretariat for Transport of the Capital City of Podgorica – Survey, July 2019

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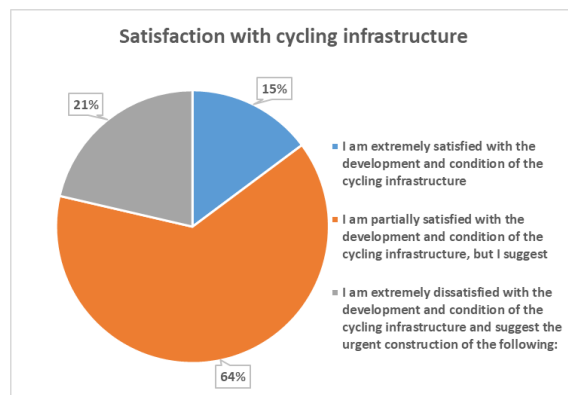


Figure 7: Distribution of citizens' answers regarding satisfaction with cycling infrastructure in the Capital⁷

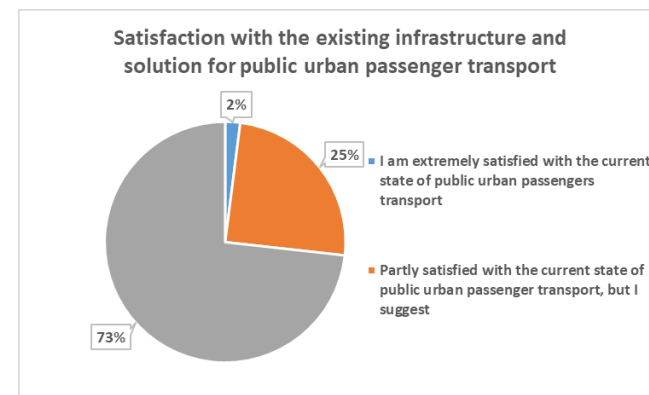


Figure 8: Distribution of citizens' answers regarding satisfaction with existing public urban transport arrangements⁸

Figure 7 presents the results of the citizen satisfaction survey regarding existing cycling infrastructure, which shows that about 15% are extremely satisfied with the cycling infrastructure in the capital, 21% are extremely dissatisfied, and about 64% are partially satisfied.

Concerning satisfaction with the existing public urban transport arrangements, about 73% of the surveyed citizens say they are extremely dissatisfied and feel that the Capital should put this issue at the top of its priority list, about 25% are partially satisfied and only about 2% are extremely satisfied with the existing situation.

In order to evaluate the relevance of the survey results in terms of spatial distribution of respondents, i.e. the representation of almost all parts of Podgorica, the respondents were asked to fill out information regarding the part of the city in which they live. Analysis of the answers to this question led to the conclusion that they were coming from almost all parts of the Capital, so that the survey results can be considered relevant.

⁷ Secretariat for Transport of the Capital City of Podgorica – Survey, July 2019

⁸ Secretariat for Transport of the Capital City of Podgorica – Survey, July 2019

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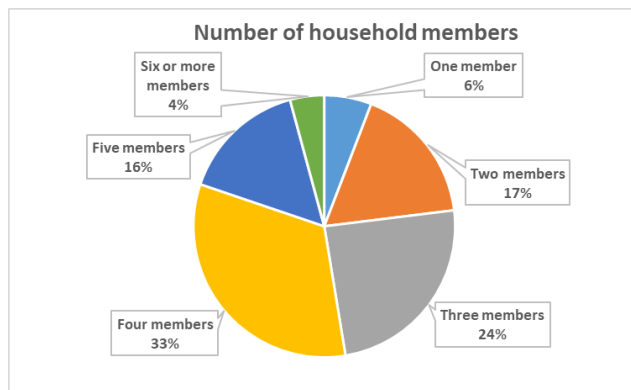


Figure 9. Distribution of citizens' answers regarding the number of household members⁹

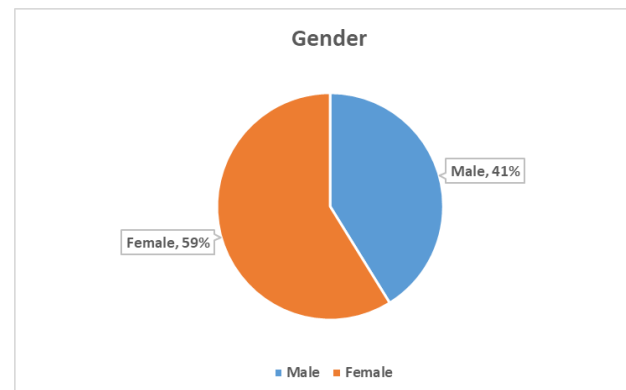


Figure 10. Distribution of respondents by gender¹⁰

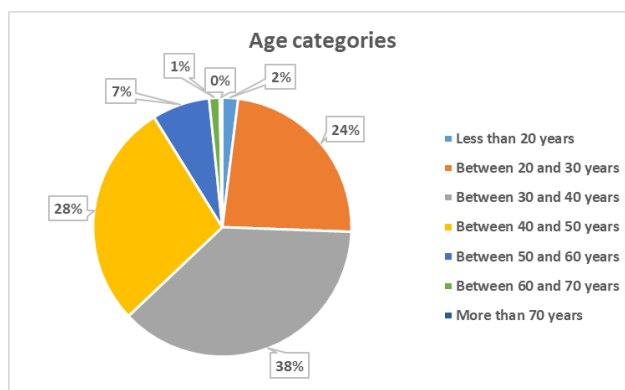


Figure 11. Distribution of respondents by age categories¹¹

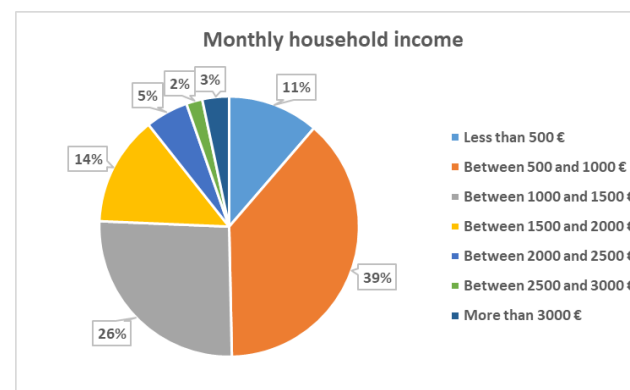


Figure 12. Distribution of respondents by monthly household income¹²

⁹ Secretariat for Transport of the Capital City of Podgorica – Survey, July 2019

¹⁰ Secretariat for Transport of the Capital City of Podgorica – Survey, July 2019

¹¹ Secretariat for Transport of the Capital City of Podgorica – Survey, July 2019

¹² Secretariat for Transport of the Capital City of Podgorica – Survey, July 2019

Analysing the survey results shown in Figures 9 to 12, we can conclude that the survey was taken by citizens from families with different numbers of household members, of different age structures, and different categories of monthly household income, so we can treat the results as relevant. Regarding the gender participation in the survey in Figure 10, it is noted that women were more represented in the survey with 59% compared to men with 41%.

The contribution made by residents of the Capital in providing numerous suggestions, remarks and comments that best justify the participatory approach that was insisted upon in the SUMP development has been extremely valuable. Everything the citizens mentioned in the survey was useful material to the Working Group when selecting measures for the Podgorica SUMP.

3.5 ACTIVE MOBILITY

Network analysis

The existing road network of the Capital and its regional and broader connections are the starting point for planning more rational development solutions. The routes of the future Adriatic-Ionian and Bar-Belgrade highways, when completed, will largely affect Podgorica traffic. Major roads Bar-Belgrade, Tuzi-Podgorica-Niksic and Podgorica-Cetinje pass through or intersect with the main city centre. The eastern bypass from Doljani (Kom Stadium), via the Old Airport and the Zabjelo roundabout to the Cijevna River, only partially relaxed the inner city, continues to pass through densely built urban areas to Zabjelo, where it joins the Adriatic motorway, which has been reconstructed, along the bypass around Golubovci, into four lanes with built pedestrian surfaces – sidewalks on either side and a 2.5 km long cycle path starting from the point of diversion from the major road to the local road towards the Golubovci Airport to the point of diversion towards the bypass around the Golubovci settlement.

The Bioce-Verusa-Matesevo regional road was built 80 years ago and, with its non-standard elements (horizontal curve radius, serpentines, roadway width), it cannot meet the present and future requirements for the ranking attributed to it because of its importance.

The city's main network is the starting point that enables the connection of the city core to future highways, major roads and regional routes. George Washington Boulevard, 13 July Street, 4 July Street and Brotherhood and Unity Street are all part of the thoroughfare. The main traffic arteries are: St. Peter Cetinjski Boulevard, Boulevard of the Revolution, Sava Kovacevic Boulevard, Ivan Milutinovic Street, Jovan Tomasevic Street, Serdar Jole Piletic Street, Stanko Dragojevic Street, Vako

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Djurovic Street, Moscow Street, Montenegrin Serdars Street, King Nikola Street, 27 March Street, Marko Miljanov Street, October Revolution Street and Mitar Bakic Street.

The pavement structures are maintained over a length of 258 km, but the precise surface area can be determined only after the production of an updated road cadastre.

Traffic in the territory of Podgorica is characterized by a large number of bridges (106). In the inner city, the bridges important for vehicle traffic are: the Millennium Bridge (four lanes), the Vezirov Bridge (three lanes), the Blazo Jovanovic Bridge (four lanes), Union Bridge (four lanes), the Brace Zlaticanin Bridge (four lanes), the Krivi Bridge (two lanes), a bridge on Vojislavljevic Street at the intersection of Cetinje and Niksic roads (two lanes).

A number of major city streets do not have sufficient throughput to the point of connection with major, regional and local roads.

Local roads in the Zeta plain have poor horizontal elements (horizontal curve radii, roadway width), but due to the flat terrain, they can be re-designed and reconstructed. Local roads on the hilly and mountainous terrain, due to their very unfavourable elements (high uphill and downhill slopes, counter-slopes, serpentine), represent a development constraint.

Most of the settlements in the hilly and mountainous area of the Capital are very poorly supported by road infrastructure. Namely, almost all roads are significantly below the basic existential requirements, and especially below the requirements for activating developmental potential of local resources. High uphill and downhill slopes, small roadway widths, serpentine, small horizontal curve radii, etc. generate a long and uncertain ride to the Podgorica city centre. Driving distances to individual settlements can go up to 100 minutes, and in snowy condition some routes are often inaccessible or make the connection extremely difficult.

3.6 AVAILABILITY AND ACCESSIBILITY

The accessibility of the transportation system in the Capital is an issue with much room for improvement. This is confirmed by the fact that accessibility is the second strategic objective of the Transport Development Strategy of Montenegro 2019-2035. The Spatial and Urban Plan of Podgorica, which covers the period from 2014 to 2025, defines as one of its specific objectives the improvement of the road network, i.e. the provision of accessibility from Podgorica to the villages in the hilly and mountainous area around the city in a 30-minute interval.

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The availability of vehicles and their accessibility to persons with disabilities is generally unsatisfactory. Significant improvement measures in the area of public transport and pedestrian infrastructure need to be implemented to improve their accessibility.

3.7 TRAFFIC SAFETY

Traffic safety is certainly one of the most important aspects when it comes to the functioning of the transport system. Considering its role and importance, this segment has been given a lot of attention. One of the priorities is to increase the level of traffic safety, reduce the number of deaths, the number of injuries and, in general, reduce the number of traffic accidents. Unfortunately, in spite of visible efforts, statistics show an upward trend. Traffic safety data for the territory covered by the Podgorica Security Centre have been processed and are given in the following tables:

Table 5. Traffic accidents in the territory of the Capital City¹³

3.1. TRAFFIC ACCIDENTS	2016	2017	2018
TOTAL	1.912	2.238	2.177
1. WITH MATERIAL DAMAGE	1.278	1.533	1.458
• <i>On the streets</i>	947	1.042	1.122
2. WITH FATALITIES	4	9	2
• <i>On the streets</i>	2	2	2
3. WITH FATALITIES AND INJURED	12	10	8
• <i>On the streets</i>	7	6	3
4. WITH INJURED	618	686	709
• <i>On the streets</i>	402	510	527

¹³ Police Directorate

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Table 6. Number of fatalities in traffic accidents in the territory of the Capital City¹⁴

3.2. FATALITIES IN TRAFFIC ACCIDENTS	2016	2017	2018
TOTAL	18	24	12
1. DRIVERS (EXCEPT BICYCLE, MOPED,	6	9	9
• <i>On the streets</i>	1	3	4
2. COMPANIONS	5	4	2
• <i>On the streets</i>	1	0	1
3. BICYCLE DRIVERS	1	1	0
• <i>On the streets</i>	1	0	0
4.	1	7	1
• <i>On the streets</i>	1	4	1
5. PEDESTRIANS	5	3	0
• <i>On the streets</i>	5	1	0

Table 7. Number of injured persons in traffic accidents in the territory of the Capital City¹⁵

3.3. INJURED IN TRAFFIC ACCIDENTS	2016	2017	2018
TOTAL	850	1007	978
A. SLIGHTLY INJURED	730	875	842
1. DRIVERS (EXCEPT BICYCLE, MOPED,	319	438	441
• <i>On the streets</i>	219	303	310
2. COMPANIONS	218	272	234
• <i>On the streets</i>	148	172	146
3. BICYCLE DRIVERS	19	27	27
• <i>On the streets</i>	15	21	26
4.	47	35	27
• <i>On the streets</i>	35	21	19
5. PEDESTRIANS	127	103	113
• <i>On the streets</i>	119	96	102

¹⁴ Police Directorate

¹⁵ Police Directorate

Table 8. Number of severely injured in traffic accidents in the territory of the Capital City¹⁶

B. SEVERELY INJURED	120	132	136
1. DRIVERS (EXCEPT BICYCLE, MOPED,	41	32	32
• <i>On the streets</i>	15	14	11
2. COMPANIONS	31	33	37
• <i>On the streets</i>	14	15	10
3. BICYCLE DRIVERS	10	4	12
• <i>On the streets</i>	6	4	11
4.	15	22	18
• <i>On the streets</i>	11	19	12
5. PEDESTRIANS	23	41	37
• <i>On the streets</i>	21	37	33

The analysis of the obtained data reveals a trend of increase of almost all observed indicators from year to year, which indicates that traffic safety in the capital requires particular attention. The foregoing was also observed during the development of the transport vision, which confirms its correctness.

3.8 URBAN TRANSPORT OF GOODS

The transport of goods takes place mainly on bypass roads in order not to slow down urban mobility in the City. Large logistics and distribution centres are located in industrial zones and are predominantly owned by retail chains. From logistics and distribution centres, goods are distributed by delivery vehicles to retail outlets in urban areas of the City. The process of distribution to retail outlets is carried out without a time limit, very often without compliance with the legal regulations on stopping and parking, while unloading of goods is carried out just before the entrance to the retail outlets, which slows down the normal traffic flow and causes traffic congestion. It can be concluded that the realization of flows of goods has negative effects on the environment and traffic safety and impairs the quality of life. With increasing population and economic development of the Capital, the problems related to realization of logistics flows are growing. In order to reduce the negative impacts and increase the efficiency of the logistics system, it is necessary to define different measures, initiatives and concepts of city logistics. Tackling complex logistics systems requires extensive research, comprehensive analysis and integrated planning, while first insisting on legal compliance.

¹⁶ Police Directorate

3.9 SOCIAL ASPECTS OF MOBILITY

3.9.1 Gender and mobility

According to the 2011 census, the gender structure of Podgorica's population slightly changed compared to the previous 2003 census. Thus, in 2011, 90,614 men and 95,323 women (48.73% and 51.27% of the population, respectively) lived in Podgorica, while in 2003, women accounted for 48.99% and men for 51.00% of the total population of Podgorica. Male persons are more numerous in the age range from 0 to 24, while women prevail in all age categories above 25 years. This difference is most pronounced in the category of oldest residents over the age of 65¹⁷.

Women's access to passenger cars in Montenegro is significantly lower than that of men. The total number of driver's licenses issued in the country is 272,390 or 60% of the adult population (2017 data), of which only 34% are women. In addition, cars are mostly registered to men (about 73%). For these reasons, women depend heavily on the quality of public transport to meet their mobility needs. The effects of the SUMP implementation on improving public transport are expected to result in improved mobility conditions for women. In addition, it is expected that the characteristics of an improved public urban transport system will be determined by a user-centred approach, taking into account the needs of different social groups, and in particular those who rely more on public urban transport. In terms of employment, women are significantly less represented in the transport sector in Montenegro, with only 27% of the total jobs covered by that sector. New employment opportunities are expected to be offered in the future, especially with regard to the expansion and modernization of public transport systems and the introduction of electric cars, and electric and hybrid buses. Capacity-building activities will be developed in all these sectors by various key actors, with particular emphasis on women, to promote their access to new jobs.

3.9.2 Other groups with specific mobility needs

According to the available data for Podgorica¹⁸, about 10% of the population is hindered in performing daily activities due to long-term illness, disability or old age. Opinion polls¹⁹ have shown that 60% of people with disabilities believe the facilities in public use are not adapted to them, or that they are insufficiently adapted. Problems in overcoming architectural barriers in Podgorica's public space are experienced by people with baby strollers, and people carrying or hauling heavy luggage or load. The concept of accessibility is still misunderstood as accessibility for persons with reduced mobility, rather than as an opportunity for

¹⁷ http://podgorica.me/db_files/Urbanizam/PUP/pup.pdf

¹⁸ 2011 census

¹⁹ [Action plan for the implementation of the Strategy for the Protection of Persons with Disabilities from Discrimination and the Promotion of Equality 2017-2020](#)

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independent and equal use of public space and facilities in public use for all. Such an understanding means, in practice, the implementation of special solutions for people with disabilities instead of universal design for all (so-called design for all)²⁰. The obligation to construct facilities in public use in a way that enables persons with reduced mobility and persons with disabilities to have unhindered access, movement, stay and work was enacted²¹ in 2008, but it has not been consistently implemented in practice. The analysis of facilities in public use owned by the Capital was made part of an Action Plan for adapting them to the access and movement of persons with reduced mobility and persons with disabilities in 2014.

As stated in the Analysis²² of the Report on the realization of the Action Plan for the Implementation of the Strategy for the Protection of Persons with Disabilities from Discrimination and Promotion of Equality for the period 2017-2021²³ for 2017 and 2018, the Law is not implemented adequately, since there are no reports for its violation, i.e. there are no allegations of discriminatory treatment in violation of regulations concerning accessibility elements and standards in planning and construction, although the omissions are visible. The omissions are visible especially when it comes to previously constructed buildings. Although disability associations warn that regulations are not being followed, there are no records of sanctions even when new facilities are being built. Accessibility monitoring is not regularly carried out either.

An example of good practice in the combined use of traffic infrastructure could be the construction of cycle lanes which make it easier for persons with disabilities to navigate the city boulevards thanks to the lowered curbs along the primary network of cycling corridors.

3.9.3 Transport and poverty

Data on household expenditures in Montenegro, including those that burden the household budget due to mobility, were obtained through the Household Budget Survey, conducted on the basis of the Law on Official Statistics and Official Statistical System (*Official Gazette of Montenegro* 18/12). The survey collects data on household income, expenditure and consumption, as well as some important indicators of living standards (housing conditions, household supply of consumables, etc.), and basic data on demographic, economic and sociological characteristics of households.

According to data available to MONSTAT, based on the Household Budget Survey in 2017 (No. 98, dated 28 May 2018), in the structure of household personal consumption in 2017, the share of transportation costs for Podgorica is **10.9%** of the total costs per household²⁴.

²⁰ [Strategy for Integration of Persons with Disabilities in Montenegro 2016-2020.](#)

²¹ [Law on Spatial Planning and Construction of Facilities](#), article 73

²² <http://umhcg.com/novosti-me/pristupacnost-u-praksi-ni-priblizno-ne-prati-standard-iz-zakona/>

²³ <http://www.gov.me/ResourceManager/FileDownload.aspx?rid=260554&rType=2>

²⁴ https://www.monstat.org/userfiles/file/apd/2017/saopstenje%202017_APD%20ispravka.pdf

3.10 ENVIRONMENT

3.10.1 Air pollution and GHG emission data and analysis

One of the most important segments of environmental action are the activities aimed at preserving air quality, which is especially important for urban areas.

Air quality control is carried out in order to determine the level of air pollution and assess the impact of polluted air on human health, environment and climate. The “Rulebook on the Manner and Conditions of Air Quality Monitoring” (OGM 21/11) prescribes the criteria for achieving data quality for air quality assessment, minimum data availability, time coverage and measurement methods. The Capital has continuously monitored air quality at selected locations since 2014.

The monitoring program for the Capital specifies the measurement points: near the Delta City Shopping Centre; near the Buducnost Stadium (intersection of Ivan Crnojevic Boulevard and 19 December Street); at the intersection of King Nikola Street and Montenegrin Serdars Street; in the centre of the Golubovci Municipality which is a subdivision of the Capital City; and in Zagoric neighbourhood between Piperska Street and Moraca Hill.

According to the established structure of the metering point network, the program refers to the measurement of pollution originating from urban traffic and the monitoring of air quality at locations outside the direct influence of traffic, in order to look at the impact of the use of firewood in households on a given segment of the environment.

Concentration of the following parameters is measured: sulphur dioxide (SO₂), nitrogen monoxide (NO), nitrogen dioxide (NO₂), total nitrogen oxides (NO_x), carbon monoxide (CO), methane (CH₄), non-methane hydrocarbons (NMHC), total hydrocarbons (THC), PM₁₀ particles, ground-level ozone (O₃), benzene, toluene, ethylbenzene, o-m-p-xylene (BTX). Meteorological parameters: air temperature, wind speed and direction, and relative humidity are continuously monitored.

The obtained results indicated that the concentrations of monitored pollutants were below the limit values at all measuring points, which leads to the conclusion that the air in the Capital is of good quality. For this assessment, it is necessary to consider the value of sulphur dioxide as a global indicator. However, according to some analysis of the results over the four-year period, this segment of the environment was heavily laden with the presence of particulate matter (PM₁₀), especially in the winter months. Particularly high concentrations were observed near busy traffic arteries in the wider city centre, or at major city intersections. At these locations, certain exceedances of permitted concentrations of nitrogen dioxide were recorded. These results indicate that air quality is affected by traffic.

The recorded concentrations cannot be marked as exceedances, since they are the result of short-term measurements, and therefore cannot be compared with the standardized annual mean.

The Capital is implementing a number of activities in the field of improving air quality, which are defined by the Air Quality Plan and the Climate Change Adaptation Strategy.

Carbon dioxide data and analysis

Since the calculation of GHG emissions in the Capital City has not been done since 2012, it is necessary to obtain updated data, given the increase in the number of registered vehicles in the previous period.

By signing the Covenant of Mayors in 2010, Podgorica committed to developing a Sustainable Energy Action Plan (SEAP). The SEAP is a basic document that, on the basis of the data collected on the current state of affairs, identified and provided precise guidelines for the implementation of energy efficiency measures and the use of renewable energy sources, which would result in a reduction of CO₂ emissions by more than 20% by 2020. Transport was one of the sectors covered by this document.

According to this document, analysis of fuel consumption in the transport sector of Podgorica in 2008 revealed that by far the largest share in consumption refers to the private and commercial vehicles subsector. Accordingly, the proposed measures to reduce GHG emissions from the transport sector related to the achievement of the set target of increasing the share of public urban transport, but also to the education on and promotion of alternative transport modes. The total energy consumption of the transport sector of Podgorica in 2008 was 4,026.17 TJ. Based on the data collected for SEAP purposes, a baseline inventory of CO₂ emissions of the Capital was also made.

Pursuant to the obligation arising from the Law on Energy (OGM 28/10, 40/11, 42/11, 06/13, 10/15), the Capital City prepared a Local Energy Plan for the period 2015-2025. The mentioned document covers the matters of traffic in the territory of the Capital City substantially and concludes that according to official information of the competent Ministry, and based on the data on technical inspections of vehicles performed, the number of registered motor vehicles and trailers for 2012 was 67,094, or 2.9 % less than in 2008, when that number was 69,114. The analysis of the entire 10-year period from 2003 to 2012 shows that the upward or downward trends regarding the number of vehicles did not go in one direction steadily. As one of the most significant reasons for the decrease, i.e. less dynamic growth in the number of cars in the territory of Podgorica, one can recognize the unfavourable financial environment with respect to reduced purchasing power

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of citizens. However, the dynamics of daily car use can be assessed as pronounced, which is manifested in particular through the evident traffic congestion, jams, parking problems, and consequently the increased level of environmental pollution. According to this document, the results obtained indicate that the total fuel consumption at the city level was 86,437,076 litres in 2012, which is a decrease of 23% compared to 2008.

On the basis of the collected data, a baseline inventory of emissions for the sector of transport was made, stating that the total CO₂ emission in the sector of transport of the Capital City of Podgorica in 2012 was 239,414.04 t. The largest share in the emission referred to the private and commercial vehicles subsector (91.7%), followed by public urban transport (7.5%), while the remainder related to vehicles owned by the City (0.8%). The largest cause of CO₂ emission from the transport sector was diesel fuel (79.4%) and gasoline (13.3%).

The Capital became a member of the United Nations Global Convention on Climate Change and Energy in 2015. Within the reporting under this Convention, emissions from the transport sector for 2014, 2015 and 2017 were monitored.

Given the need to link adaptation and mitigation measures to climate change, and to innovate these documents, the Capital will begin drafting a Sustainable Energy and Climate Action Plan (SECAP) in the coming period.

3.10.2 Noise

The Noise Protection Action Plan for the territory of the Capital City and Golubovci Municipality within the Capital City was adopted in July 2019. It should be noted that the adoption of this document was preceded by the adoption of the Decision on the determination of acoustic zones in the Capital City in 2013, and the updated Decision in 2015, as well as the Strategic Noise Map (2018). The content of the Action Plan is laid down in Article 17 of the Law on Protection against Environmental Noise (OGM 28/11, 01/14 and 02/18).

The Action Plan is designed to manage environmental noise that is generated from sources identified in the strategic noise map and associated adverse effects on human health. The document defines activities and measures for noise management, the measure implementation agencies, priorities and deadlines for the measure implementation, elements of evaluation of the Action Plan for road and rail transport, as well as industrial plants and facilities in the Capital in order to reduce the total exposure of the population to noise sources.

The Action Plan was developed for priority areas where the Strategic Noise Map identifies exposure of the population to elevated noise levels from road and rail transport.

3. STATUS ANALYSIS



The area covered by the Action Plan includes the urban part of the Capital City and the Municipality of Golubovci, with a total area of 10,390.2 ha (GUD Podgorica 8,584.9 ha and GUD Golubovci 1,805.3 ha).

The strategic noise map for the agglomeration of the Capital City of Podgorica has shown that the highest exposure of the population to noise originates from road and rail transport.

The total length of the modelled roads in the area covered by the strategic noise map is 398 km. Also, 81.6 km of normally maintained railway tracks, 943 m long tracks on bridges and 500 m of tracks on overpasses and underpasses were used for modelling.

According to the analysed data relevant for the impact of road traffic, it can be concluded that there is no exposure to the highest noise levels and that the majority of the population is exposed to noise levels from 55 dB to 65 dB during the day, or 50 dB to 60 dB at night.

As for the rail traffic, it can be stated from the data that the impact of noise from rail traffic on the population is extremely small and that less than 10% of the population is in the zone of any noise overrun. The document estimates that the role of noise was somewhat neglected when planning and constructing facilities.

4. VISION AND GOALS



4.1 VISION

“Podgorica is a modern city, focused on people and quality of life of all citizens. The transport system is efficient and secure, available and accessible to all, socially just, environmentally friendly and oriented to active forms of mobility. Everyone works hard together to improve the level of culture, health and satisfaction of each resident.”

The vision was defined at a workshop held on 12 June 2019 and attended by over 45 stakeholders. The defined vision refers to the period until 2035.

The vision of all present was to make Podgorica a model city with modern and successfully organized urban mobility. Everyone has embraced the new paradigm of traffic planning that puts people rather than cars in focus, as has been the case so far, so that the quality of life of the Capital's residents has become a central point of the vision.

Workshop participants felt that the vision should reflect the commitment to make the transport system functional and efficient, without road clogging, bottlenecks and traffic jams. Emphasis was placed on traffic safety, underlining the need to reduce the number of traffic accidents involving injured and fatalities, especially road accidents involving vulnerable categories (children, cyclists, pedestrians, persons with disabilities...). Also, the focus has been placed on public passenger transport, which is currently at a low level of organization. The vision aims to make public transport available and accessible to all regardless of social status. It has been recognized and underlined as an extremely important segment of environmental protection, which is most endangered in urban areas precisely because of the consequences of traffic. Considering the significant use of individual cars, the importance of promotion of active forms of mobility, in particular walking and cycling, was emphasized.

The problem of low levels of traffic culture and non-compliance with traffic regulations was very strongly emphasized. The need for joint action at all levels has been identified, from pre-school education to driving test training, through education via the media, through NGO projects, to repressive measures by the competent inspection bodies and bodies responsible for the implementation of the Road Traffic Safety Act. Preserving the health of citizens is a great motive for city authorities to develop a SUMP, and at the same time a great motive for all stakeholders to implement it. The proper functioning of the transport system in the City contributes significantly to citizen satisfaction, and the umbrella goal of "a satisfied citizen" has been integrated into the vision of the Podgorica SUMP.

4. VISION AND GOALS

4.2 STRATEGIC GOALS AND INDICATORS

Strategic goals are defined on the basis of the adopted vision.

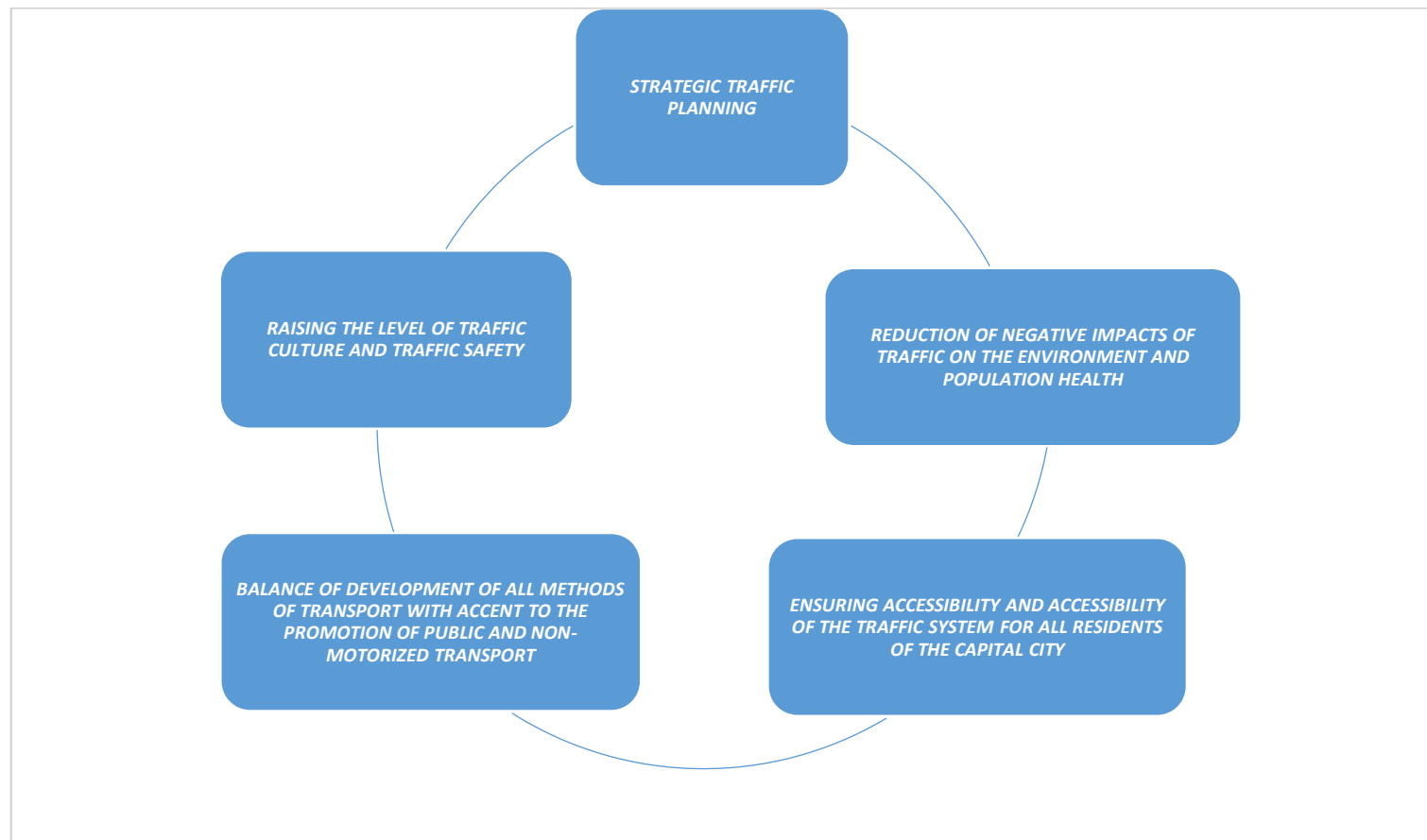


Figure 13. Strategic goals of the Podgorica SUMP

4. VISION AND GOALS

Indicators and specific targets are presented in the form of a table.

VISION	STRATEGIC GOALS	INDICATORS	SPECIFIC TARGETS taking 2018 as baseline
	STRATEGIC TRANSPORT PLANNING	<ul style="list-style-type: none"> • Regular revision of SUMP • Number of strategies for individual modes of transport 	<ul style="list-style-type: none"> • Revision of SUMP every 2-3 years • In 5 years, 4 strategies (urban transport, cycling, parking, walking) that involve inclusive aspect have been developed
<p>Podgorica is a modern city, focused on people and quality of life of all citizens. The transport system is efficient and secure, available and accessible to all, socially just, environmentally friendly and oriented to active forms of mobility. Everyone works hard together to improve the level of culture, health and satisfaction of each resident.</p>	RAISING THE TRAFFIC CULTURE AND TRAFFIC SAFETY LEVELS	<ul style="list-style-type: none"> • Number of educational activities and projects to raise the level of traffic culture and traffic safety • Number of traffic violations registered • Rate of collection of parking tickets • Number of speeding tickets • Number of pedestrian jay-walking tickets • Number of traffic accidents involving injured persons in the streets • Number of traffic accidents involving pedestrians • Number of traffic accidents involving cyclists • Number of traffic accidents involving children 	<ul style="list-style-type: none"> • Increasing the collection rate of parking tickets to 100% by 2025 25.11% (2018)>>100% • Reducing the number of traffic accidents involving injured persons in the streets by 1/3 by 2025 527>>369
	BALANCED DEVELOPMENT OF ALL TRANSPORT MODES FOCUSING ON PUBLIC URBAN AND NON- MOTORIZED TRANSPORT	<ul style="list-style-type: none"> • Modal split • Motorization rate • Vehicle occupancy rate • Number of kilometres of cycle paths • Number of kilometres of footpaths • Number of electric buses • Frequency of buses on the busiest lines • Number of stolen bicycles per year • Percentage of bicycles found and returned to owners 	<ul style="list-style-type: none"> • Performing more than 30% of all daily commuting with sustainable modes of transport: public transport, bicycle and on foot by 2025 13.5%>>30% • In 2025, growth of motorization rate must be below 3% 6.6%>>3.0%
	PROVIDING A TRANSPORT SYSTEM AVAILABLE AND ACCESSIBLE TO ALL CITY RESIDENTS	<ul style="list-style-type: none"> • Price of public transport • Number of free subscription tickets • Public urban transport supply (innovating lines and higher frequency) • Degree of citizen satisfaction with the functioning of the transport system • Degree of satisfaction with public urban transport • Degree of satisfaction with pedestrian infrastructure • Degree of satisfaction with cycling infrastructure • Degree of satisfaction with quality of life 	<ul style="list-style-type: none"> • Increasing the public transport supply by 100% by 2025 City lines 30 min>>15 min Suburban lines 60 min>>30 min 120 min>>60 min while innovating existing lines • Increasing the percentage of satisfied citizens by more than 50% by 2025 13%>>20%
	REDUCING NEGATIVE IMPACT OF TRAFFIC ON THE ENVIRONMENT AND PUBLIC HEALTH	<ul style="list-style-type: none"> • Average age of vehicles • Percentage of children coming to kindergartens, primary and secondary schools by car • Number of electric vehicles • CO₂ emissions • Pollutant emissions (CO, PM, NO_x...) • Measured noise level 	<ul style="list-style-type: none"> • Reducing the average age of vehicles by 2 years by 2025 16>>14 • Reducing the percentage of children coming to kindergartens, primary and secondary schools by car by 50% by 2025 (kindergarten 76%>>38%, primary 27%>>13%, secondary 20%>>10%)

4.3 SCENARIOS CONSIDERED

Three scenarios were considered during the development of the Podgorica SUMP:

1. Scenario of primary investment in the pillar of public mass transportation of passengers,
 2. Scenario of primary investment in the pillars related to non-motorized transport,
 3. Scenario of balanced investment in all strategic pillars of the SUMP.
-
1. The scenario of investment in the public mass passenger transportation pillar was the first scenario considered. Beside violation of the traffic regulations, public urban transport has been identified as the main cause of the unsatisfactory functioning of the transport system in Podgorica. Currently, public transport is provided by three private companies, but the existing model does not provide quality transport service to the citizens of Podgorica.
 2. The scenario of primary investment in the pillars relating to non-motorized transport was the second scenario considered. This scenario would imply the largest investment in the measures proposed for non-motorized transport.
 3. The third scenario that involves balanced investment in all strategic pillars of the SUMP is proposed as the best one since this is the first SUMP developed for the Capital City of Podgorica.

The third scenario that will enable balanced investment in all pillars of sustainable urban mobility has been selected. Each SUMP pillar requires some investment at this stage, so it would be irrational to rely only on one or two SUMP pillars, rather than having to invest in all pillars in a balanced way in order to get as much effect as possible from the SUMP implementation.

5. FIVE PILLARS OF SUSTAINABLE MOBILITY OF PODGORICA



Considering all of the above, as well as the scenario chosen, the Podgorica SUMP will rely on five main strategic pillars:

PILLAR I – Comprehensive planning for sustainable urban mobility

PILLAR II – More rational use of passenger cars

PILLAR III – Modernization and popularization of public urban transport

PILLAR IV – Valorisation of cycling potential

PILLAR V – Return to walking as the healthiest mode of mobility

5.1 PILLAR I – COMPREHENSIVE PLANNING FOR SUSTAINABLE URBAN MOBILITY

Establishing systemic, financial and administrative conditions is crucial for the implementation of the SUMP. This includes the reorganization of the administration, the professional and numerical strengthening of the team, balanced funding for mobility, increased transparency in decision making by involving stakeholders and the general public, the integration of transport with other sectors, and the introduction of new methods and procedures such as monitoring and evaluation, integrated transport assessments projects and mobility management.

[Absence of comprehensive and integrated transport planning](#)

In Podgorica, as the Capital City, as in most Montenegrin municipalities, there has been no experience with comprehensive and integrated urban mobility planning so far. Although other strategic documents (spatial planning, environment, energy or development) agree on having the achievement of sustainable transport as their output, this output simply gets lost at hierarchically lower levels of documents and measures, as well as in everyday operational practice.

Previous transport and spatial planning practices in the City have been largely subordinated to the increase in the number of passenger cars. That is why investments and other spatial interventions have adapted to the cars in terms of space solutions, structure and transport infrastructure.

5. FIVE PILLARS OF SUSTAINABLE MOBILITY OF PODGORICA



In the absence of an appropriate strategic document in the field of transport so far, the Capital did not have adequate mechanisms in place to identify priorities in the field of transport and to evaluate measures related to these priorities. With the exception of the very centre of the city, transport planning still focuses on increasing the capacity of transport infrastructure. The result is a significant investment in the budget for the construction of road infrastructure, which does not improve the situation, as Podgorica residents travel longer, spend more money on mobility and, due to traffic jams, lose more time compared to the past.

Need for integration of spatial and transport planning

The planning practices in Podgorica, as well as the intensive development of motorization, are mainly subordinated to the spatial requirements of motorized road traffic and adapt the spatial structure and interventions in the space to accessibility by car. This affects adversely the quality of stay in the city and requires subsequent rehabilitation. The aim is to overcome such practices and to promote spatial and transport development based on alternatives to motorized road transport.

Spatial planning at the Capital City level, which also included transport planning, was carried out through the adoption of the *Spatial and Urban Plan* (SUP) of Podgorica in 2014 with a validity period up to 2025. This plan offers the most important transport solutions at the Capital City level.

The development of the Podgorica SUP was preceded by the preparation of several Baseline Studies, including the Transport Studies. Most of the Capital is covered by detailed urban plans, of which about 70 relate to the period after the adoption of Podgorica SUP²⁵, which to some extent follow modern transport planning practices. With more recent plans, accessibility standards, parking standards, etc. are introduced and monitored to meet today's transport needs. However, it can be stated that the implementation of the planned solutions is not at a satisfactory level.

Public involvement

Through the legislation prescribed by the Law on Spatial Planning and Building Construction (OGM 064/17 and 044/18), the public is involved in all segments of planning, including transport planning, which is the basis for the preparation of the General Designs for transport infrastructure facilities.

The provisions of Article 3 of the mentioned Law set forth the principles on which planning and construction are based, defining, inter alia, "the public" by specifying that *"the public has the right to participate in the procedures of drafting and passing planning documents"* and to be informed, and promoting public participation in the planning and construction activities.

²⁵ <http://www.sekretarijat-za-plurzs.podgorica.me>

5. FIVE PILLARS OF SUSTAINABLE MOBILITY OF PODGORICA



Based on the above, it can be concluded, looking at the legislation from the formal point of view, that the influence of the public on the process of spatial planning, and therefore transport planning, can be large. However, practice in the previous period has shown that the influence of the public on transport planning was very small, since the citizens have not taken advantage of the offered opportunities.

With this in mind, the participatory approach offered by the SUMP development and applied and encouraged throughout the process has been invaluable.

Contemporary planning practices

The planning standards in general, including transport planning (standard for parking, for dimensioning the traffic network, etc.) are given in the *Rulebook on the detailed contents and format of planning documents, land use categories and criteria, elements of urban regulation, standardized graphical symbols and other contents of state and local planning documents* of 2010²⁶.

Mobility management, parking policies and strategies for individual modes of transport, and other contemporary planning practices have not been implemented to a greater extent in Podgorica, except partly through the Capital City Development Strategy for a period of five years (2012-2017 and 2020-2025), which includes transport as well.

Staffing capacities of the Capital City

The Secretariat for Transport of the Capital was formed in December 2018 as an independent Secretariat. The Secretariat for Spatial Planning and Sustainable Development of the Capital has one job position relating to transport foreseen in its job classification scheme. At the Capital City level, there are companies founded by the Capital that are engaged, inter alia, in operational duties related to transport (Roads Company, Parking Service Company, and Agency for Construction and Development of Podgorica). The existing staffing capacities of the local administration are not sufficient and should be taken into account in future changes to job classification. Existing employees with transportation degrees should be continuously educated with special emphasis on strategic transport planning.

²⁶ www.mrt.gov.me

5. FIVE PILLARS OF SUSTAINABLE MOBILITY OF PODGORICA



OBJECTIVES OF THE COMPREHENSIVE URBAN MOBILITY PLANNING STRATEGY FOR PODGORICA

Podgorica will implement the modern paradigm of integrated transport planning. The use of modern approaches and solutions in the area of sustainable mobility will be a good example of a medium-sized capital city that is rapidly changing. The traffic planning practices and management will be upgraded with modern procedures and methods and combined with other sectors and neighbouring municipalities. Spatial planning will follow the objectives of sustainable mobility. Intensive links will be introduced at regional, national and European levels to achieve the targets and to overcome the constraints. Transparent decision-making and regular public involvement will be a daily practice. The effects and improved achievements will be regularly measured and evaluated. Establishment of systemic and financial conditions will be followed by staffing the city administration. The city budget resources will be balanced across all transport subsystems, and the mobility areas will be cross-funded – the revenues from charging the use of individual elements of the offer will go directly to the development of the entire transport system.

SPECIFIC OBJECTIVES AND RELEVANT TARGETS FOR PODGORICA SUMP PILLAR I

1. Revision of the SUMP in the third year of implementation,
2. Development of a new SUMP after five years of implementation, based on the evaluation of achievements,
3. Development of three strategies (cycling, parking, walking) that involve the inclusive aspect by 2025; Preparation and launching of the public notice/invitation for delegating scheduled urban and suburban passenger transport (under a competition) under the Public Procurement Law,
4. Development of the Plan for regular monitoring and evaluation of the mobility situation in 2020,
5. Development of the SUMP and Sustainable Mobility Achievement Promotion Plan in 2020,
6. Provision of funds from the Capital City Budget for 2021 to invest in all modes of travel in accordance with the SUMP Action Plan,
7. Adoption of the City Administration Capacity Strengthening Plan in the field of sustainable mobility by 2021.

PACKAGES OF MEASURES FOR SUMP PILLAR I

ASSURANCE OF THE SUMP IMPLEMENTATION

With the preparation of the first SUMP, Podgorica has embarked on a long-term sustainable urban mobility planning process involving all relevant sectors. It is characterized by the fact that, in addition to planning comprehensive and well-considered transport arrangements, it also includes monitoring and evaluating the

5. FIVE PILLARS OF SUSTAINABLE MOBILITY OF PODGORICA



implementation of the strategy, updating it regularly (every two to three years) and renewing it (every five years), and regularly and actively involving the general public and key stakeholders.

The process of sustainable urban mobility planning will also be supported by the financial sector, as the implementation level envisages a gradual restructuring of the budget, which will ultimately provide balanced shares for investment in all transport modes and increase the share of funds earmarked for the implementation of soft measures.

MONITORING AND EVALUATION OF SUMP

In order to effectively manage and monitor the implementation and application of the SUMP, regular monitoring and evaluation of the overall SUMP and the actions under its Action Plan will be introduced. These tools are also important for real-time learning from lessons learned, which will allow thoughtful action in the local context and thus achieve optimal results in the future. For successful implementation of monitoring and evaluation, a system of regular data collection and monitoring and evaluation of selected mobility indicators in the City will be established. Preferably, the methods used will be simple, repeatable and not too expensive. Such an approach will also ensure transparency of transport planning.

The mentioned activities are defined by the SUMP Monitoring and Evaluation Plan, which has emerged as an integral part of the strategy preparation process. The plan identifies key mobility indicators and the methods and frequency of obtaining data to monitor them.

The implementation of the SUMP actions foreseen on an annual basis and two basic outcome indicators will be monitored:

- travel habits in Podgorica, using the cordon counting method on bridges over the Moraca River,
- travel habits of primary school pupils, using classroom surveys.

Following the SUMP update (after the first two years), the following indicators will be monitored:

- Satisfaction of residents with traffic management – online survey,
- Travel habits of children in kindergartens – surveys for parents,
- Travel habits of secondary school students – classroom surveys,
- Travel habits of employees – online survey,
- The number of traffic accidents involving pedestrians, cyclists, children and minors – an analysis of data from the Ministry of the Interior.

5. FIVE PILLARS OF SUSTAINABLE MOBILITY OF PODGORICA



When the SUMP is renewed (after five years), all data collection will be repeated, as was done in the context of the status analysis for this document.

Measures:

- Regular monitoring and evaluation of the SUMP and Action plan/Financial plan.
- Establishment of system of regular data collection and monitoring and evaluation of selected mobility indicators in the City.

STRENGTHENING AND INTEGRATION OF THE PLANNING SECTORS AND MANAGEMENT LEVELS

In order to successfully implement the SUMP and provide a comprehensive overview of all related activities, the City will employ/appoint a special expert who will be responsible for monitoring the implementation of the SUMP. The City's regular application for and participation in European projects in the field of sustainable mobility will also be ensured, as well as the preparation of training programs on new sustainable mobility practices. In this way, the City will gain new human resources, as a source of experience and a constant flow of new knowledge.

In addition to joint training of city staff, integrated planning for spatial development and transport, as well as strengthening of cooperation between sectors will be ensured. An important part of this type of approach will be the establishment of a system of assessment of sustainable urban mobility planning criteria with a focus on new construction and reconstruction of existing facilities. To this end, and to assist designers, car and bicycle parking guidelines for new buildings will also be developed, as well as other technical instructions for areas where no appropriate national guidance is available, in accordance with relevant authorities.

Measures:

- Recruitment/appointment of a competent person who will be responsible for monitoring the SUMP implementation,
- Regular participation in EU sustainable mobility projects,
- Regular education of those responsible for transport and related sectors in the City on new approaches and good practices in the field of sustainable transport,
- Integration of sustainable mobility planning principles into the planning of other sectors and enhancement of cooperation between sectors, with special focus on the spatial planning of compact urban structures of short distances,

5. FIVE PILLARS OF SUSTAINABLE MOBILITY OF PODGORICA



- Establishment of a transport impact assessment system for new mobility generators (shopping malls, schools, hospitals...) in accordance with SUMP criteria,
- Preparation of technical guidelines for traffic areas where practice does not provide good solutions,
- Preparation of car parking guidelines for new buildings according to new urban plans,
- Preparation of bicycle parking guidelines for new buildings.

IMPLEMENTATION OF INTEGRATED MEASURES IN THE FIELD OF MOBILITY

The overarching feature of integrated measures is that they simultaneously address the situation of several areas of transport, which makes them one of the most effective mobility measures. These include the so-called “superblocks”, mobility plans and promotional, awareness-raising and educational campaigns.

The implementation of integrated measures in the City will begin with the development of a design of “superblocks” or safe traffic areas that will cover the entire area of Podgorica and larger settlements, including a renewed road network hierarchy. This will further help to “calm” and optimize road traffic. The basic principle of “superblocks” is to slow down the speed of travel within a larger closed spatial unit, usually in the neighbourhood or in the hinterland of an important destination. Low speeds (max. 30 km/h) and safety are ensured by various spatial elements, which inform drivers that they are entering an area where other activities are taking place, while at the same time physically preventing them from traveling faster. In converted areas, pedestrians and cyclists are given priority over motorized traffic. “Superblocks” are also designed to help improve the quality of life and the attractiveness of the converted areas, encouraging residents and other users to walk and cycle more often. “Superblocks” contribute to the achievement of the sustainable urban mobility planning for all the SUMP's pillars. The design of friendly traffic areas will be followed by the establishment of a pilot area in Podgorica and the creation of at least five other areas in the City over the next five years.

Another type of integrated actions are mobility plans for key traffic generators (e.g. big companies, institutions, hospitals, schools, universities, shopping centres etc.). These plans contain information on current accessibility and travel habits, as well as a number of actions aimed at improving the access to the site through sustainable travel modes, promoting the latter and changing travel habits of employees and users into more sustainable ones. Quality mobility plans can therefore most effectively influence users' travel habits and make them more sustainable at the location in question. In the coming years, the City will develop at least four mobility plans for key traffic generators in Podgorica.

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Measures:

- Annual organization of meetings, public debates, workshops,
- Annual organization of promotional, educational and awareness-raising campaigns on sustainable mobility,
- Organization of trainings on traffic planning and safety (this includes all traffic participants: pedestrian, cyclist, driver, vehicle),
- Establishment of a system of monitoring citizens' initiatives and proposals,
- Introduction of the so-called participatory budget, which would be used to consider and support citizens' initiatives in the field of sustainable mobility,
- Annual organization of the European Mobility Week.

5.2 PILLAR II – MORE RATIONAL USE OF PASSENGER CARS

In the past two decades, Podgorica has seen a significant increase in population and an even more significant increase in the number of registered vehicles. One of the most important indicators monitored in the transport sector is the **motorization rate**, which represents the number of registered passenger cars per thousand inhabitants. Table 9 below shows data on registered vehicles.

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Table 9. Data on registered vehicles in Podgorica²⁷

Podgorica	2014	2015	2016	2017	2018	Increase 2014
Number of passenger cars	59,978	61,448	65,214	68,759	73,983	23.4%
Total registered vehicles in Podgorica	66,805	68,951	73,438	77,573	83,841	25.5%
Number of inhabitants	192,225	194,022	195,718	197,589	199,715	3,9%
Motorization rate	312	317	333	347	370	18,6%
Total registered vehicles in Montenegro	196,059	198,772	209,098	219,378	235,385	20.0%
No. of first-time registered passenger cars in PG	4,815	5,339	6,145	7,518	8,486	76.2%
Total first-time registered vehicles in PG	5,530	6,411	7,366	8,767	9,895	78.9%

Based on the previous table, we can see that the number of registered passenger cars increased by 14,005 in the period 2014-2018, while the total number of registered vehicles increased by 17,036. The transport infrastructure built during the observed period was not able to develop at the speed that would be in line with the increase in the number of registered vehicles. It is not rational to expect from either the transport infrastructure or the ecosystem to be able to face the development that would be needed to allow all citizens who want it to drive and park their private cars without hassle, problems and constraints. A rational solution is a persistent and systematic effort to reduce the use of cars, and therefore their numbers.

²⁷ MONSTAT

5. FIVE PILLARS OF SUSTAINABLE MOBILITY OF PODGORICA

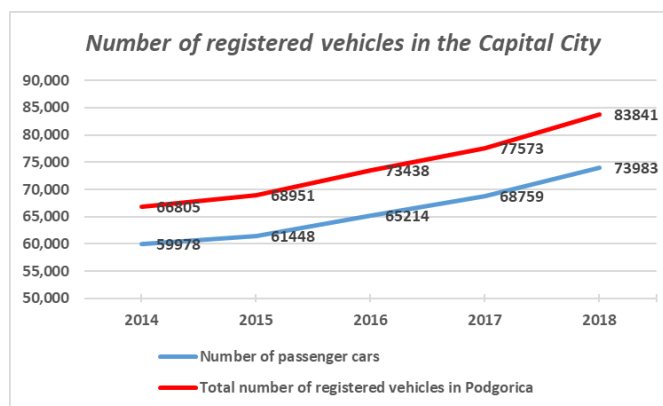


Figure 14. Number of registered vehicles in the Capital City²⁸

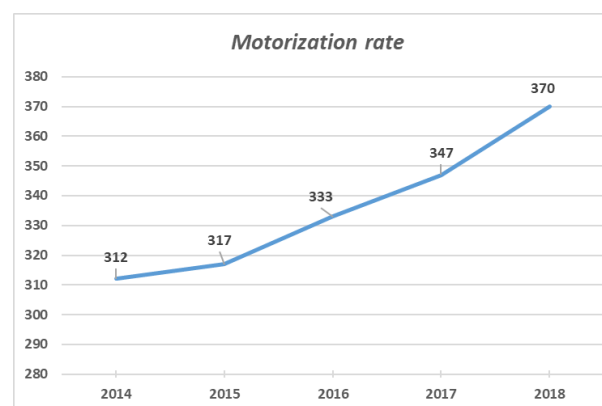


Figure 15. Motorization rate in the Capital City²⁹

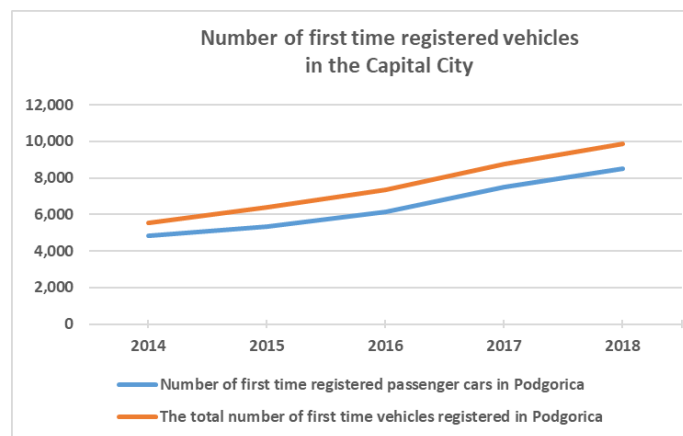


Figure 16. Number of first-time registered vehicles in the Capital City³⁰

²⁸ MONSTAT

²⁹ MONSTAT

³⁰ MONSTAT

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Parking

According to the records of parking areas in the territory of Podgorica in 2007, there were 14,361 parking spaces in total, while parking was charged at 1,244 parking spaces at that time³¹. Currently, parking in Podgorica is paid for 5,019 parking spaces operated by city parking company (Parking Servis Podgorica d.o.o.) founded by the Capital of Podgorica. The city parking company has five garages with a total of 697 parking spaces, 12 special parking lots with a total of 1,237 parking spaces and 3,085 parking spaces in parking zones.

Table 10: Number of parking spaces in garages³²

GARAGES	# PARKING SPACES
Novak Milosev Street	97
Karadjordje Street	109
Arch. Milan Popovic Street	203
Blazo Jovanovic Street (Bazar Mall)	235
Moscow Street (Maxim Building)	53
TOTAL	697

³¹ Records of existing transport infrastructure with traffic regulation on the territory of the Capital City of Podgorica, Secretariat for Public Utilities and Transport, 2007

³² Parking servis Podgorica d.o.o.

5. FIVE PILLARS OF SUSTAINABLE MOBILITY OF PODGORICA

Table 11: Number of parking spaces at special parking lots³³

SPECIAL PARKING LOTS	# PARKING SPACES
Miljan Vukov Street	74
behind Raznatovic department store	
Balsic Street	24
behind Raznatovic department store	
Vako Djurovic Street	84
in front of City Stadium	
Karadjordje Street	16
behind Post Office and Central Bank	
Ivan Milutinovic Street	195
near Moraca Sports Centre	
Stanko Dragojevic Boulevard	220
Moraca former military barracks	
Svetlana Kana Radevic Street	60
near Hotel Podgorica	
John Jackson Street	170
near KBC hospital	
behind City Stadium East Tribune	120
Boulevard of the Revolution	34
Krusevac Business Centre	
Cetinjski Road	190
near the Rectorate building	
Serdar Jole Piletic Street	50
behind Police Directorate building - "Limenka"	
TOTAL	1.237

³³ Parking servis Podgorica d.o.o.

5. FIVE PILLARS OF SUSTAINABLE MOBILITY OF PODGORICA



Table 12: Number of parking spaces in parking zones³⁴

PARKING ZONES	# PARKING SPACES
ZONE I (max. 60 minutes)	277
ZONE II (max. 120 minutes)	576
ZONE III (max. 180 minutes)	2,232
TOTAL	3,085

In order to ensure more efficient use of the existing parking spaces, in 2011, a parking charge was introduced in parking zones, with limited stay time and the possibility to pay for parking by sending a text message. Parking zones are organized in three different zones, namely the first (red) zone with a maximum stay up to 60 minutes, the second (yellow) zone for up to 120 minutes and the third (green) zone with a maximum stay up to 180 minutes. After the maximum stay time expires, the driver is obliged to remove the vehicle from the parking space. The parking charge per hour started for Zone I is 0.60 euros, for Zone II 0.50 euros, and for Zone III 0.40 euros. Parking can be paid by sending a text message using the mobile phone application, by purchasing a parking card at newsstands or by using a parking slot machine. The penalty for not paying parking charge or exceeding the limited parking time is 20 euros, for illegal parking 50 euros, and for parking on green and other wrong public areas 100 euros.

Residents whose housing units belong to the respective zones have the option of purchasing a monthly permit without parking restrictions, at a price of 10 euros for the first zone, 8 euros for the second zone and 7 euros for the third zone. Also, legal entities and entrepreneurs based in the area belonging to the respective parking zone can purchase a monthly permit for the price of 30 euros for the first zone, 25 euros for the second zone and 20 euros for the third zone. Employees working within a zone do not have the option to purchase a monthly permit for parking zones, but can purchase a monthly card for garages and special parking lots.

³⁴ Parking servis Podgorica d.o.o.

5. FIVE PILLARS OF SUSTAINABLE MOBILITY OF PODGORICA



Figure 17: Map of Podgorica with marked garages, special parking lots and parking zones³⁵

It is important to note that out of the 12 special parking lots operated by the city parking company, only two parking lots have the status of permanent parking: parking near the Moraca Sports Centre and parking near the City Stadium. All other parking lots are temporary and serve until the land is brought to its intended purpose. The cost of parking per hour started in the garages is 0.50 euros, and in special parking lots 0.30 and 0.40 euros, depending on the location of the parking lot. Residents and employees have the option of purchasing a monthly permit for garages and special parking lots at a cost of 20 to 60 euros, depending on the time of use. The annual revenue from parking charges in 2018 was 1,306,546.00 euros, and these funds are used to maintain the parking lots and invest in the modernization of equipment and software³⁶.

Shopping centres that own parking lots or garages also charge for parking, but with the option of free parking for the first hour or the first two hours for all users of their services. This payment regime covers 2,467 parking spaces.

³⁵ Parking servis Podgorica d.o.o.

³⁶ 2018 Activity Report of Parking servis Podgorica d.o.o.

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Table 13: Number of parking spaces in shopping centres in Podgorica³⁷

SHOPPING CENTRE	# PARKING SPACES
DELTA CITY	928
CITY MALL	144
CAPITAL PLAZA	800
TC BAZAR	115
MALL OF MONTENEGRO	400
TC FORUM	80
TOTAL	2,467

Insufficient number of parking spaces is most pronounced in the central part of the city due to the high concentration of vehicles on weekdays between 10:00 and 14:00h. The lack of parking spaces is also evident near the Clinical Hospital Centre, as well as in the part of the city where the Basic Court, the Minor Offenses Court, and the Faculties of Economics and Law are located. Beside the fact that the construction of new parking spaces could not keep up with the trend of an increasing number of registered vehicles, an additional problem is the habit of drivers to look for a parking space directly in front of the facility visited. This is best illustrated by the fact that almost every moment there are free parking spaces in the parking lot at the Moraca Sports Centre and in the parking lot located in the former Moraca Military Barracks, which are 5 to 15 minutes' walk from the locations where the parking problem is most pronounced.

Population satisfaction

As part of an online survey conducted by the Secretariat for Transport in July 2019, one of the questions was satisfaction with the existing parking infrastructure. Only 4% of citizens surveyed said they were extremely satisfied with the current condition of the parking infrastructure, about 36% were partially satisfied, and about 60% were extremely dissatisfied with the existing infrastructure. Citizens made numerous suggestions in the survey, such as: construction of underground garages, construction of multi-storey car parks, requiring developers to provide an appropriate number of parking spaces near the building or in an underground garage, proposals related to pricing policy, criminal policy for illegal parking on green surfaces, sidewalks, cycle paths, etc.

³⁷ Parking servis Podgorica d.o.o.

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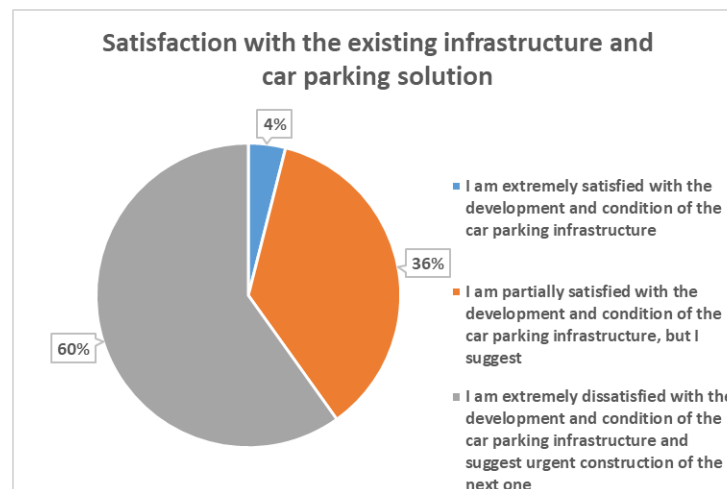


Figure 18. Population satisfaction with existing parking infrastructure in Podgorica³⁸

OBJECTIVES OF CAR AND PARKING STRATEGY POLICIES FOR PODGORICA

Parking is a key tool for managing how people travel and for managing public space.

Applying the ParkPAD methodology, developed as part of a specific project funded through EU funds, it is recommended by the ParkPAD experts that the new SUMP for Podgorica will include in its Action Plan a parking management strategy with an analysis of the current situation including major challenges for the future development of parking policy in the city and the actions necessary to reach the goals.

The new parking strategy will be based on two main principles:

1. **There is no need to provide a parking space for everyone who wants one at the time and place that they want it:** the problem of not being able to find a parking space is not a problem that absolutely needs to be solved by the city at every time and in every location.

³⁸ Secretariat for Transport – Survey, July 2019

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2. **Parking should not be the dominant use of public space:** it is necessary and reasonable to manage parking to free public space for other users.

Accordingly, the vision formulated for public space and parking is a:

“Systematic management of street space in the city to provide well-maintained and efficiently used parking spaces whilst freeing up more street space for other users, in particular so as to provide safe high quality infrastructure for pedestrians and cyclists, and more public space to support the social life of the city.”

SPECIFIC OBJECTIVES AND RELEVANT TARGETS FOR PODGORICA SUMP PILLAR II

1. Reduce the number of traffic accidents with injured persons on the streets by 2025 by 1/3 compared to 2018,
2. Reduce the motorization rate up to 3% in 2025,
3. Reduce the share of car travel below 60% by 2025,
4. Reduce the percentage of children who come to kindergarten, primary and secondary school by car by 30% by 2025 compared to 2018,
5. Establish a parking management system in the territory of the Capital City by 2025,
6. Increase the collection rate of penalties for illegal parking to 100% by 2025.

PACKAGES OF MEASURES FOR SUMP PILLAR II

This section of the document sets out possible measures to be taken to manage passenger car traffic and parking. It takes into account the results of the consensus regarding the implementation of the ParkPAD. The measures for managing passenger car traffic are also included.

According to the ParkPAD findings, the City's mobility system is currently planned in a way that gives priority to the car. But for sustainability, better quality of life (congestion reduction) and better economic opportunities, this situation needs to change. ParkPAD introduces measures for managing car use, and above all car parking, but also access control and possible establishment of low emission zones.

Measures have been proposed to help achieve the parking and general SUMP objectives.

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INCREASING THE EFFICIENCY OF THE PARKING SYSTEM

Enforcement of parking restrictions is low currently but of high priority for improvement. Collection of fees in paid parking areas is currently undertaken by the city parking company but enforcement of all other parking violations outside the paid parking zones is done by the city (communal) inspectors who have a number of duties, not just parking enforcement, and this means that there is a high chance that those parking in violation of regulations outside the paid parking zones will not receive a fine. In addition, it was noted that the regulations that do exist are not always well displayed so it is difficult for drivers to know whether or not they are parking in violation of a restriction.

Measures:

- Initiating changes to the relevant law to decriminalize illegal parking, so that parking offences can be enforced city-wide by the city parking company, the communal police and the communal inspection authority,
- Providing adequate signage for all existing restrictions and free parking spaces, so that they are visible wherever they are,
- Reviewing existing parking problems, prioritizing those on main bus routes, main cycle routes and areas where there are major problems with footway parking,
- Introducing new restrictions on motor vehicles and other measures to improve conditions for buses, cyclists and pedestrians,
- Using bollards and similar self-enforcing measures to stop parking on footways and cycleways,
- Reducing speed especially at high-frequency traffic areas in accordance with identified black spots for cyclists and pedestrians,
- Ensuring consistent application of regulations in this area in cooperation and coordination with all relevant actors,
- Streamlining the city parking company,
- Tariffing parking fees by zones (most expensive in the centre and at critical points).

INFRASTRUCTURE INTERVENTIONS

It is recommended that as part of its parking strategy, Podgorica reviews those streets and areas of city-owned land currently occupied by paid or free parking and prioritises them for change to other uses such as green space, wider walking areas, bike routes, space for cafes and restaurants, and playspace. The priority for reviews of parking for conversion to other uses should be as follows:

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- City centre and inner city streets with high pedestrian flows,
- Main roads outside schools,
- Main bus routes,
- Roads with main cycle routes,
- Local shopping areas with high pedestrian flows,
- Residential streets in densely built-up areas.

It is important that any public consultation on this involves a true cross-section of people according to age (including children), gender, and income. It is essential that public participation is not dominated by car users. Apart from workshops, it may be useful to do a questionnaire with a random sample of people (not an online survey) to find out their views on how parking space could be converted to other uses.

Measures:

- Pilot project – Construction of a parking garage at one entrance to the city to encourage parking of private motor vehicles and use of public urban transport, cycling and walking,
- Development of a plan for construction of underground public garages.

STRATEGIC PLANNING

A parking management strategy should be developed as a sub-document of the SUMP, to elaborate in more details the conditions and ways of implementing the identified measures. It would also be necessary to make the Cadastre of Parking Spaces in the territory of Podgorica as an integral part of the strategy, with the possible addition of the possibility of building infrastructure for charging electric cars.

Paid parking zone extensions

The existing paid parking zones (PPZ) are well managed but cover only a small area of the city. It is clear from brief observations that demand for parking in areas outside the PPZs is high, making it difficult for people to find spaces and causing conflict between commuter and residential parking. Proposals should therefore be developed to extend the PPZs. It is recommended that areas where occupancy of the existing parking spaces exceeds 90% for at least 3 hours per day are

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prioritized. The works associated with the PPZs should be carried out at the same time as conversion of parking space to public space, so that people can see the benefits of both at the same time.

Parking guidance and information

Better guidance for drivers is needed to find the existing off-street parking, both online and on signs on the street, to reduce parking search traffic, increase awareness of under-used parking areas, and reduce on-street parking. It is also important that there is more and better information about the City's parking policy and parking measures, particularly on the City's website. If it is clear to people why the city has the parking policy that it does, and how the money raised is spent, then in general they will be more accepting of the policy.

Public participation

Applying the ParkPAD methodology, it was concluded that there is relatively little public involvement in developing parking policy except in the area of the development of new spatial planning documents. In order to help build acceptance of new parking measures, it is important to get wider public participation in developing the policy and measures but it is important that this public participation involves a broad spectrum of citizens.

Use of parking income

The “push and pull” mechanism should be introduced, where a set percentage of the surplus income from parking would be dedicated each year to implementing SUMP measures, as it is a practice in EU cities. This helps to build acceptance of parking management because it is clear to people how much money is raised and where it is spent, and that the money delivers improvements to the quality of life in the City.

Access controls to support more pedestrianisation

A very limited part of Podgorica city centre is currently pedestrianised, including streets that are pedestrianised only part of the time. The example of EU cities shows that in a capital city more pedestrianisation can help to stimulate more economic activity and deliver an improved environment that citizens, including those resident in the area, value – and that a majority of those residents who own cars accept the inconvenience of walking longer distances to their parked car in return for the improved local environment.

It is therefore recommended to increase pedestrianisation in the Podgorica city centre, and to deliver it by using access control systems.

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Low emission zone

Many EU cities, particularly in Germany and Italy, have introduced low emission zones in those parts of the city where air quality does not meet EU targets for oxides of nitrogen (NO_x) and particulates (soot, PM₁₀ and PM_{2.5}). These zones prohibit access for vehicles that do not meet certain emissions standards. There may be some exemptions, for example for emergency vehicles, and also sometimes there is the possibility for non-complying vehicles to pay for a limited number of entries to the zone each year. These low emission zones have helped to clean the air and have benefits outside the zone itself because they have encouraged people to replace their oldest vehicles, improving the average environmental and safety performance of vehicles on the whole road network. Depending on the main causes of air pollution in Podgorica (since air pollution is also caused by stationary sources such as heating boilers), low emission zones should be investigated and possibly introduced.

Measure:

- Development of a parking strategy that will cover the following sections: Paid parking zones; Parking information for drivers; Public participation; Use of parking income; Access controls to support more pedestrianisation; Low emission zones.

PROMOTION

Measure:

- Promotion of alternative motor vehicle drives that do not affect human health and the environment.

5.3 PILLAR III – MODERNIZATION AND POPULARIZATION OF PUBLIC URBAN TRANSPORT

The experience of cities with well-organized, modern and affordable regular public urban transport, accessible anywhere, at any time, shows that the use of a passenger car is significantly less interesting to citizens. Regular public transport is a mode of transport that can transport more passengers quickly, at a lower cost, in a safe way and without heavy environmental burdens. It is also one of the most democratic modes of travel, providing quality accessibility in cities to all population groups, regardless of social or health status. When well-organized, it reduces problems with the functioning of the transport system and improves the overall image of the city.

5. FIVE PILLARS OF SUSTAINABLE MOBILITY OF PODGORICA



Although there is public urban transport in Podgorica, it has not been adequately addressed, and its attractiveness and use is diminishing year by year. The drop in the quality of the offer, that is, the poor quality of services in regular public transport, leads to a decrease in the number of passengers using this mode of travel. Surveys on satisfaction with the existing state of regular public transport indicate a great dissatisfaction of the population, which justifies the fall in demand for public urban and suburban transport services. According to the results of the surveys, the main reasons for not using public transport of passengers are high average age and condition of buses used for transport, high ticket price, insufficient bus frequency, ticket sales by drivers, which leads to delays in the timetable, lack of air conditioning on buses, inadequate routes, poor connectivity and time incompatibility with other modes of travel, poor promotion and the belief that only professionally unsuccessful persons use public transport. All of these reasons have led to the fact that the majority of Podgorica's residents do not consider public scheduled urban and suburban transportation as a possible transport option, but rather turn to taxi car and own-car transportation. Modifying the existing state of public transport is one of the SUMP's biggest challenges.

Organizing attractive public transportation services means investing in establishing a quality offer based on new, comfortable, efficient and environmentally friendly buses tailored to all users; reorganizing the network of lines; increasing the frequency of departures; as well as providing IT support to the system and raising public awareness.

Network analysis

The public mass transit system of Podgorica consists of 30 urban and suburban bus lines (13 urban and 17 suburban). The analysis of the network of lines showed that the average spatial accessibility of individual locations on the lines and of some significant points in space (jobs, schools, hospitals, services, etc.) is 60% in suburban area and 80% in urban area. The analysis also showed that the temporal accessibility of the lines did not correspond to the spatial one. In the city centre, the service frequency averages about 30 min, but in the wider area the vehicle tracking intervals are much longer and range from 60 to 120 min.

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Table 14. Overview of urban bus lines ³⁹

1 Masline – Zabjelo, length of line 20 km
4 Konik – Tolosi, length of line 19 km
5 Konik – Gornja Gorica, length of line 19 km
6 Train station – Zagoric – Zlatica, length of line 16.5 km
7 Stari Aerodrom – Blok VI – Blok IX, length of line 22 km
8 Stari Aerodrom – Donja Gorica, length of line 19 km
9 Zabjelo – KBC – Zagoric, length of line 18 km
10 Zabjelo – Masline – Burum, length of line 10 km
2-3 Train station – Tolosi – Mareza, length of line 29 km
10A Masline (Doljani) – Zabjelo, length of line 9.40 km
6A Train station – Zagoric – Stara Zlatica, length of line 16 km
5A Konik – KBC – Delta City, length of line 15 km
1B Kakaricka Gora – Masline – Zabjelo, length of line 19 km

³⁹ Capital City of Podgorica

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Table 15. Overview of suburban bus lines⁴⁰

12 Podgorica – Bioce – Duga – Radunovici, length of line 28 km
13 Podgorica – Lijeva Rijeka – Verusa, length of line 100 km
22 Podgorica – Mataguzi, length of line 42 km
25 Podgorica – Vranjina, length of line 80 km
27 Podgorica – Gostilje, length of line 60 km
28 Podgorica – Golubovci – Ponari, length of line 37.80 km
38 Podgorica – Pricelje, length of line 30.80 km
44 Podgorica – Tuzi – Helmica, length of line 55 km
45 Podgorica – Dinosaur – Miljes – Tuzi, length of line 38 km
51 Podgorica – Kamenica – Progonovici, length of line 50 km
52 Podgorica – Krusi – Buronje, length of line 30 km
62 Podgorica – Orahovo, length of line 54 km
23-24 Podgorica – Berislavci – Bijelo Polje, length of line 38 km
41-42 Podgorica – Tuzi – Vranj – Vladne, length of line 33.60 km
54-55 Podgorica – Donji Kokoti – Grbavci, length of line 28 km
54B Podgorica – Donja Gorica, length of line 15.20 km

⁴⁰ Capital City of Podgorica

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Offer of public urban transport services

The services are operated by three private bus operators with an average bus age of about 18 years. Vehicle tracking intervals on most lines in the urban area are approximately 30 minutes. At most stops, bus stop shelters have been erected, of which 73 are of a more modern type, but mostly without markings regarding timetables, etc.

The existing system of payment for transportation is in the form of individual tickets per ride and a monthly ticket. The obligation of the carrier to regularly provide data on the number of passengers carried, the structure of monthly tickets in the total number of tickets, the hours of driving, etc. is not fulfilled. The procedure for the preparation and implementation of a public announcement for entrusting the operation of transport on city and suburban lines, and the introduction of e-tickets is underway.

A 2010 study of public urban and suburban transport indicated that spatial accessibility could be improved by introducing three new lines and corresponding changes to several existing ones. The need to improve the frequency of journeys between parts of the city and change travel time was also pointed out, which would stimulate passengers to use this mode of public transport intensively. The condition for achieving these goals is to increase the number and quality of buses.

However, a long period of time has elapsed since the study was made, and with the construction of new districts, roads and related facilities, significant changes have occurred in the space resulting in the generation of all types of journeys (markets, shopping malls, new housing blocks, etc.), and it may be concluded that the proposals from the study concerning the new city lines have been largely outdated.

The analysis of the transit capacity of individual corridors, around the city centre and on arterial streets leading to the city centre, justifies the consideration of the planning and reservation of existing lanes for this purpose. In analysing their justification, the density of lines, the number of journeys per each line and the number of passengers using this mode of transport, as well as the total traffic load of these routes, must be taken into account.

Due to all the limitations of the public urban transport, taxi car transport has assumed a dominant position in passenger transportation in the Capital City in recent years. The number of licenses issued at the end of 2018 was 337 for 966 vehicles. Also, there is some illegal taxi transportation which directly threatens legal taxi transportation and public urban transport. The availability and accessibility of means of transport for persons with disabilities is unsatisfactory. In order to improve accessibility, significant measures need to be implemented in public transport, such as adapting bus stops and vehicles to the needs of these persons and other measures related to infrastructure.

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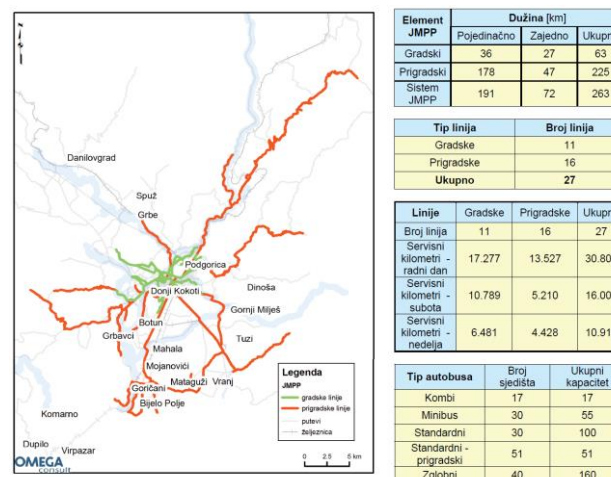


Figure 19: Network of urban and suburban bus lines in public passenger transport system in Podgorica⁴¹

The study of long-term development of public urban and suburban transport in Podgorica, among other things, identified the following measures for the improvement of the public transport system:

- increasing the access to public transport for citizens by introducing new lines and stops,
- increasing the access to public transport for citizens by increasing frequency of departures on the lines.

The analysis also showed that the temporal access to the lines did not correspond to the spatial access. The access to public passenger transport in new residential areas is unsatisfactory, especially given that the routes of public transport lines have not changed for 20 years.

⁴¹ Public Urban and Suburban Transport Study, OMEGA consult. d.o.o., 2010

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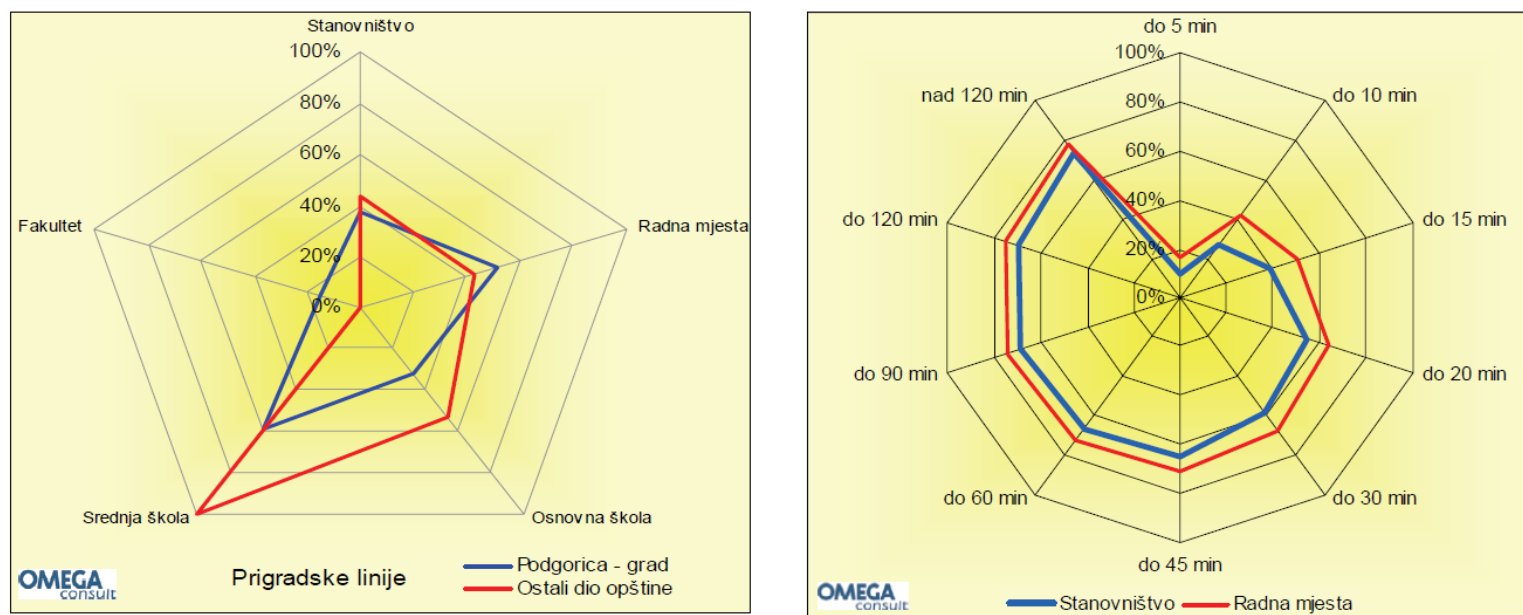


Figure 20: Spatial access to points of activity by using public transport⁴²

Using public urban transport

Data on the number of passengers carried by carriers is not available, either for the previous period or for 2019, except for the information provided on request sent to all carriers only by "Gradski saobraćaj PG" d.o.o. (City Transport Company) (and only for May 2019) and showing that during May 2019, 95,941 passengers were transported on 16 urban and suburban lines maintained by this carrier. According to the information provided by the said carrier, the average number per departure in urban transport is 6 passengers, and in suburban transport 5 passengers. This information leads to the conclusion that, despite the City subsidies, public urban transport is not cost-effective.

⁴² Public Urban and Suburban Transport Study, OMEGA consult. d.o.o., 2010

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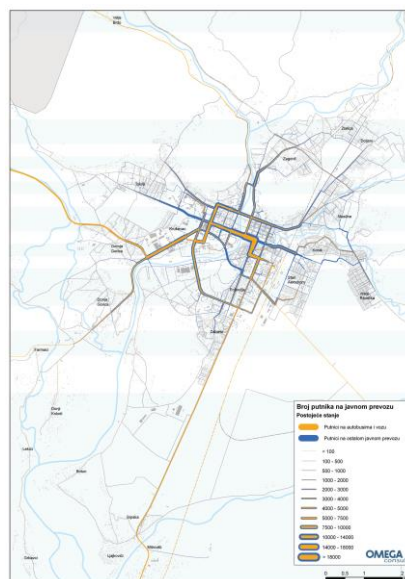


Figure 21: Number of passengers using public transport in Podgorica⁴³

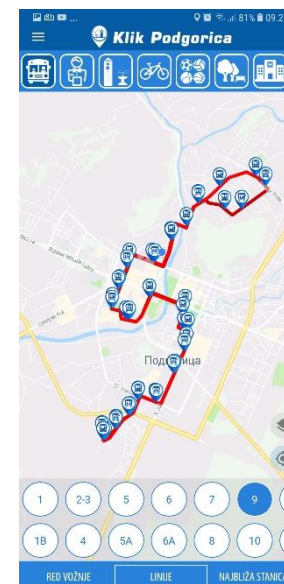


Figure 22: CLICK PODGORICA application

The budget for 2019 foresees subsidies for public transport in the amount of 90,000 euros. Subsidies for public urban transport in the period 2015-2018 are shown below:

Table 16: Amount of subsidies for regular public transport in the period 2015-2018⁴⁴

CAPITAL CITY BUDGET	2015	2016	2017	2018
Subsidies to public urban transport operators	79,880.00	82,600.00	81,880.00	84,370.00

⁴³ Public Urban and Suburban Transport Study, OMEGA consult. d.o.o., 2010

⁴⁴ Annual account of the Budget of the Capital City

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School transportation

According to the data provided by the Ministry of Education, Directorate for Pupils and Students Standard, the Ministry does not organize transportation of children, and only participates in transportation costs, 40% for primary school students and 20% for secondary school and university students. The participation was used by 205 students in 2015, 238 students in 2016, 230 students in 2017, 158 students in 2018 and 166 students in 2019.

For a certain number of schools in rural areas where there is no organized public transport, the Ministry finances school vehicles (eight vehicles in six schools) and three vehicles for the Children's Resource Centre.

Mobile phone application – CLICK PODGORICA

In an attempt to improve the state of public transportation of passengers, the Capital, with the help of donors, provided CLICK PODGORICA application for mobile phones. The application is designed to help the mobility of youth, people with disabilities and people using alternative modes of transport in Podgorica. The application contains a timetable, lines and informs the user of the nearest station (Figure 22).

OBJECTIVES OF PUBLIC URBAN TRANSPORT STRATEGY FOR PODGORICA

The citizens of Podgorica will have at their disposal modern, efficient, affordable and cost-effective public scheduled transport. Most of the City will be easily accessible by bus, the speed and frequency of travel will be competitive, and the system itself will be acceptable to persons with disabilities (PWDs) and persons with reduced mobility, as well as visually impaired persons. The urban bus network will be well integrated (connectivity of lines and timetables) with regional and national systems. Due to the visible progress made in the area of scheduled public transport, passengers will replace, to a large extent, the use of their own cars by public urban transport.

With a well-developed public transport system, the City will improve access for all categories of population, reduce environmental pollution, reduce traffic congestion and improve the safety of all road users. The system will be monitored on a regular basis, particularly through indicators on customer experience, proper selection of lines and stations, availability of information, quality of fleet, adequacy and consistency of timetables and customer satisfaction. This information will be regularly used to plan the further development of the public urban transport system.

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The goals to be achieved within the public urban transport pillar are the following:

- Increase the use of public urban transport,
- Improve public transport services offer,
- Improve availability and accessibility of public transport for persons with disabilities and persons with reduced mobility,
- Promote public urban transport and improve the current opinion of Podgorica residents about the public transport.

SPECIFIC OBJECTIVES AND RELEVANT TARGETS FOR PODGORICA SUMP PILLAR III

1. Increase public urban transport offer by 100% by 2025 compared to 2018,
2. Increase the share of road users using the bus as a means of transport to 15% by 2025,
3. Increase the percentage of satisfied citizens by more than 50% by 2025 compared to 2018,
4. Improve availability and accessibility of public urban transport for PWDs and persons with reduced mobility,
5. Raise the level of satisfaction of citizens of Podgorica with public urban transport.

PACKAGES OF MEASURES FOR SUMP PILLAR III

COMPREHENSIVE PLANNING OF PUBLIC URBAN TRANSPORT OF PASSENGERS

In order to ensure optimal improvements to regular passenger transport services in Podgorica, both urban and suburban, the City should first develop a feasibility study of public transport. The City has opted for the preparation and launching of the public notice/invitation for delegating regular urban and suburban passenger transport (under competition) under the Public Procurement Law. The public invitation will consider elements such as the public transport network adaptation issue, the integration of organized school transport and transportation of employees in the public transport system and other opportunities to increase the diversity of offer in the City, tailored to different specific needs and groups of users, and other issues relevant to regulation of these issues.

5. FIVE PILLARS OF SUSTAINABLE MOBILITY OF PODGORICA



Measures:

- Preparation and implementation of the public notice/invitation procedure for delegating the operation of regular urban and suburban passenger transport (under competition) in accordance with the Law on Public Procurement (number of lines, routes, special lanes on the streets, modality of ownership over public transport...),
- Budget allocation in proportion to the requirements for the implementation of the SUMP measures for public urban transport.

OPTIMIZATION OF SERVICES AND INFRASTRUCTURE

In order to improve public urban transport services in Podgorica, the proposed measures will upgrade the existing offer and improve the quality of service and provide guidance for future development. Expansion of the offer with new and innovated lines, and higher frequency of departures, should be supplemented with the integration of school children and employee transportation. It is also planned to equip existing bus stops with displays where users can receive information on bus arrival times and timetables, and to install new bus stops throughout the City at places where bus stops should be located from the users' perspective but do not currently exist. For ease of access for all users, existing buses will be replaced by low-floor buses equipped with access ramps for PWDs and persons with reduced mobility.

Measures:

- Digitalization of public urban transport and introduction of a single e-ticket,
- The fixing up and equipping of bus stops to be available and accessible to all citizens,
- Procurement of new low-floor buses that are less polluting and more accessible to PWDs,
- Introduction of a measure of prioritizing public urban transport (priority, specially marked traffic lanes for buses on the streets and light signalling),
- The planning of new bus lines for new districts,
- Integration of city and intercity transport.

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IMPROVING THE EXPERIENCE OF PUBLIC TRANSPORT USERS

In making public urban commuter travel more attractive for daily trips, apart from frequency, area coverage and speed, customer experience is an important aspect. For residents to use public transportation more frequently, the City will strive to improve the availability of timetables and bus arrivals in both analogue and digital formats. Free Wi-Fi will be set up on buses and at main stops to make public transport more attractive to use. The ticket sales network will be expanded and the City will coordinate the integration of subscription tickets for all carriers through the electronic ticket system and will review the tariff system, as well as the possibilities of introducing free transportation for certain vulnerable groups of users. The customer experience for the blind and visually impaired will also be improved, and the public transit system will be upgraded with sound signals at stops and buses.

Measures:

- Expansion of the ticket sales network,
- Creation of a mobile phone application to inform users of the bus arrival,
- Introduction of free Wi-Fi on buses and at stops,
- Review of tariffs, particularly for monthly consolidated subscription tickets,
- Obliging the carriers to provide air conditioning on all of their buses,
- Introduction of subsidies for children under 18, students, retirees and PWDs,
- Provision of higher bus service frequency towards attractive zones (Clinical Hospital Centre, Delta City, other shopping centres, City Quarter, University of Montenegro,...),
- The conduct of regular controls and regular evaluation of passenger transportation services through surveys.

DEVELOPING CITIZEN AWARENESS OF THE OFFER AND ADVANTAGES OF PUBLIC URBAN TRANSPORT

The awareness of Podgorica citizens and other users of the offer and possibilities will be increased, and especially of the comparative advantages of using public urban transport compared to other modes of motorized transport. The benefits of using this mode of transport in relation to private cars and taxi cars will be promoted, and educational activities will be conducted on the advantages of using public urban passenger transport. Simultaneously with the implementation of the measures and the introduction of innovations, there will be numerous promotional campaigns aimed at raising public awareness and increasing the level of use of public urban transport.

5. FIVE PILLARS OF SUSTAINABLE MOBILITY OF PODGORICA



Measures:

- Provision of regular and targeted information to the general public about the improved offer of public transport services,
- General promotion of public transport and support for public transport measures through regular promotional and educational activities.

5.4 PILLAR IV – VALORIZATION OF CYCLING POTENTIAL

The bicycle is an urban transport vehicle that is cheap and accessible to all social groups of the population. On most short trips in cities cycling is the quickest mode, it is environmentally friendly and does not take up much space. Cycling also has a beneficial effect on health. Due to its positive impact on the quality of life, cycling has been recognized in many ways as an equitable, respectable and effective way of carrying out daily trips. Podgorica is a city where cycling could be a popular means of transportation all year long. Geographical and climatic characteristics of the area are ideal for its development. The city is also not too large, so the distances for most trips are appropriately short, and there is a very high potential for the development of cycling in Podgorica.

When considering development of cycling, we need to take into account the needs of two groups of cyclists, each with their own specific needs. The first are residents who cycle for their daily trips. It is important for them to have a secure infrastructure for cycling within the city and to have particularly good connections and secure parking at the key destinations. Particular attention should be paid to the younger generations, as a large proportion of primary school pupils want to cycle to school. The second group includes city residents and visitors who are cycling for recreation. For them it is more important that comfortable and safe infrastructure is available outside the city, as well as the links between key tourist points in the wider region.

A map of the areas that can be accessed by bicycle at intervals of 5, 10 and 15 minutes riding from the centre to the outskirts of Podgorica is given in Figure 23.

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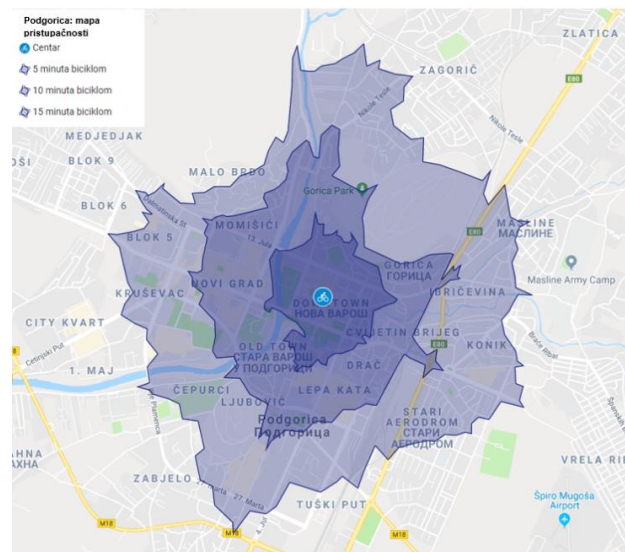


Figure 23: Map of cycling accessibility in Podgorica, for intervals of 5, 10 and 15 minutes.

Note: The map was created using a method that implies that in 5 minutes it is possible to cycle about 800m in an urban environment. It is assumed that the average speed of the cyclist is 12km/h for four minutes, while the remaining one minute is spent for a break due to traffic lights and crossing the street

Detailed information and an interactive map of accessibility by cycling are available [at this link](https://www.google.com/maps/d/viewer?mid=1DHQttitfpmNYia4llagmTZK_w-E8AzK9&ll=42.44193094630039%2C19.26265060000003&z=14)⁴⁵. The geographical features of Podgorica are suitable for cycling: starting from the centre, within 15 minutes you can reach the residential areas of Zagoric, Masline, Konik, Tuski Put, Zabjelo, Block 6 or Malo Brdo by bicycle. Twenty minutes away from the centre are Block 9 and Tolosi, City Quarter, Vrela Ribnicka, while the areas of Dahna, Zlatica, Gornja Gorica and Donja Gorica are a bit more distant. The constructed bicycle corridors have somewhat accelerated the movement of cyclists, and further expansion of cycling infrastructure would definitely bring these parts of the city closer to the centre.

⁴⁵ https://www.google.com/maps/d/viewer?mid=1DHQttitfpmNYia4llagmTZK_w-E8AzK9&ll=42.44193094630039%2C19.26265060000003&z=14

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Cycling suitability: An analysis of terrain and climatic conditions

Most of the Capital's urban core is largely flat. The exception is a number of residential areas extending partially over the hill: Momisici, Gorica C and Zelenika.

According to data from the *Climate Change Adaptation Strategy*⁴⁶ of the Capital City, the average annual temperature in the period 1961-1990 was 15.3°C, and between 2001 and 2010 it was 16.3°C. According to data from the Institute of Hydrometeorology and Seismology (IHS), from 2015 to 2018, the average annual temperature rose to 17°C.

The highest daily temperature since the measurements were made was recorded in August 2007 (44.8°C), while the lowest one was recorded in January 1956 (-9.7°C). According to IHS measurements, in 2015-2018 the warmest month was July, with an average temperature of 29°C, and the coldest one was January with 5.7°C on an average.

IHS data show that, on average, there were 102 tropical days a year (with a temperature of 30°C or more) in Podgorica in the period 2015-2018. During the same period, there were 23 frosty days on an annual basis (when the lowest recorded temperature during the day was below 0°C).

Regarding precipitation, the average annual rainfall in Podgorica between 2015 and 2018 was 1,590mm⁴⁷. This is slightly lower than in the previous period, since between 1961 and 1990 the average annual rainfall was 1,659.3 mm, and in the first decade of the 21st century 1,781.6 mm⁴⁸. In Podgorica, there are, on average, 111 rainy days per year, while snow is a rare occurrence and, if there is one, it lasts on average 2 to 3 days. The highest rainfall occurs in November and February, and the lowest one in July and August. The annual sunshine is large, so there were, on average, 2,456 hours of sunshine hours between 2015 and 2018. The average annual relative humidity from 2015 to 2018 was 59.25%⁴⁹. As for wind, the north wind has the highest frequency during the year (13.8% of all directions), followed by the northeast (11.5%) and southeast (11.1%). In Podgorica, on average, there are 58 days with strong wind (source: Capital website), and this is especially true for the north wind, which blows at an average intensity of 3.3 m/s⁵⁰.

⁴⁶ *Climate Change Adaptation Strategy of the Capital City*
http://podgorica.me/db_files/Urbanizam/Dokumenta/pg_urban_cca_final_mne_05082015-redigovan.pdf

⁴⁷ *Data from the Institute of Hydrometeorology and Seismology (IHS)*

⁴⁸ *Data from the Institute of Hydrometeorology and Seismology (IHS)*

⁴⁹ *Data from the Institute of Hydrometeorology and Seismology (IHS)*

⁵⁰ *Climate Atlas of Montenegro*

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Network analysis

Cycling corridors

Four bicycle corridors have been built in Podgorica, and the plan is to build a fifth one. A map of all corridors – built and planned – is given in Figure 24. The interactive version of the map can be accessed via [this link](#)⁵¹.

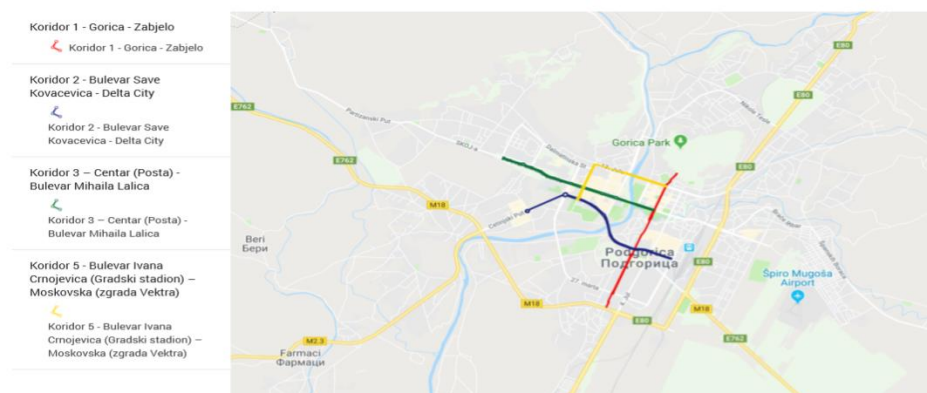


Figure 24: Map of cycling corridors in Podgorica⁵²

Corridors 1, 2, 3 and 5 have been constructed so far (an overview is given in Figure 25), while more detailed maps are available at the following links: [Corridor 1](#)⁵³, [Corridor 2](#)⁵⁴, [Corridor 3](#)⁵⁵, [Corridor 5](#)⁵⁶. The overview deviates from the plan in one segment. Specifically, it is envisaged that Corridor 2 will branch off and that part of it will connect Delta City with future Corridor 4 (Vukasina Markovica Street). However, except for the imprint on the roadway, there is nothing to indicate that there is a cycling corridor passing there, and this segment is not included in the map.

⁵¹ <https://www.google.com/maps/d/viewer?ll=42.43496356897611%2C19.24957900000004&z=15&mid=1GpQKEkH8D6WeCEp14P-XZzxwVFexVuHg>

⁵² NGO Biciklo.me

⁵³ <https://ridewithgps.com/routes/30395597>

⁵⁴ <https://ridewithgps.com/routes/30395316>

⁵⁵ <https://ridewithgps.com/routes/30395697>

⁵⁶ <https://ridewithgps.com/routes/30395434>

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Activities for the construction of cycling corridors started in 2015 and are still ongoing. An overview of the funds invested so far in this project is given in Table 17. Works on the construction of Corridor 4 (Zabjelo-Rimski Square) are planned. According to the data of the Capital City, the contracted price of the works is EUR 219,865.18, and construction will commence after the expropriation process is completed.

Table 17. Funds invested so far in the construction of cycling corridors ⁵⁷

Corridor	Funds spent	Source of funds
Corridor 1	EUR 284,611.04	EUR 80,000.00, donation of CRBC EUR 50,000.00, donation of Bemax EUR 154,611.04, Capital City Budget
Corridor 2	EUR 3,654,929.61	Capital City Budget
Corridor 3	EUR 198,500.00	Donation of Chinese Government
Corridor 5	EUR 79,519.00	Capital City Budget
Total	EUR 4,217,557.65	

Bike lanes and trails on Gorica Hill

In addition to the constructed corridors in Podgorica, bike lanes are also marked on Gorica Hill. Recently, a short access trail was marked for cyclists from Zagoric to the gate on Gorica on the north side of the hill.

Cycling routes

During 2018, the Capital marked two cycling routes in suburban and rural parts of Podgorica: 15 km long Kucka route (Doljani-Medun-Ubli) and also 15 km long Piperska route (Vezirov Bridge-Doclea-Djurkovici-Drezga-Rogami).

⁵⁷ Capital City of Podgorica

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Network quality

The quality assessment of the network was made on the basis of a survey on cycling conditions in Podgorica, conducted for the needs of the SUMP by the Biciklo.me NGO in July 2019 according to the methodology developed by *Trendy Travel Benchmarking*⁵⁸. The survey also covered the question of which parts of the city, streets, intersections and specific locations in Podgorica were considered by citizens to be particularly inappropriate and/or dangerous for cyclists and why. Based on the received answers, a map with reported locations was formed.



Figure 25: Black spots: locations that cyclists in Podgorica consider particularly dangerous⁵⁹

The analysis of the map shows that the citizens mostly complain about the lack of a safe way of cycling from the centre of Podgorica to Stari Aerodrom district (Fifth Proletarian Brigade Street), that they consider Krivi Bridge to be dangerous, that they would like the road to Mareza to be adapted to cyclists and that they find it unacceptable that the space provided for cyclists in Moscow Street and King Nikola Street are constantly occupied with cars parked.

Bike parking analysis

The cycling development trend and the increase in the number of cyclists in Podgorica has been followed and encouraged by the development of the necessary infrastructure: the construction of the first cycling lanes and the construction of bike parking. A map of currently available bike parking in the city is given in Figure 26⁶⁰.

⁵⁸ Bicycle Climate test, available at http://trendy-travel.eu/docs/Fahrradklimatest_EN0.pdf

⁵⁹ Capital City of Podgorica

⁶⁰

<https://www.google.com/maps/d/viewer?mid=1BQ9ePXG4dOY41WG0bbk3YhwLqSNHuDY5&ll=42.433395364207676%2C19.240682999999999&z=14>

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Bike parking

During 2014, the first 18 bike parking areas were built for 180 spaces⁶¹.

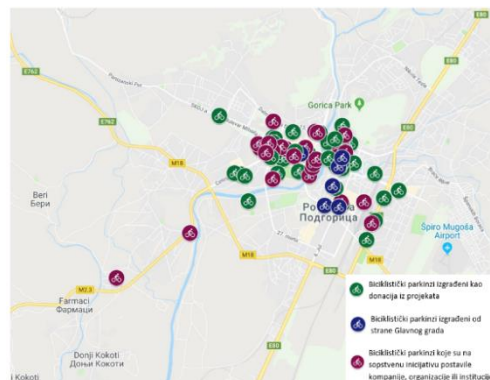


Figure 26: Map of bike parking locations in Podgorica, 2019

During 2015 and 2016⁶², faculty units in front of which there was no parking until then were given place for bicycles. 10 bicycle parking areas have been built with 66 spaces in total (some parking areas contain 3 and some 5 circle racks/stands) for the university population. The fact that bicycles are becoming more and more popular means of transportation is also evident in the private initiatives of a growing number of companies, which not only set up their bicycle parking stands, but also donate them to public institutions, as is the case with bike parking in front of the Maxim Gorky Primary School⁶³.

Following the construction of the first cycling corridors, the Capital has also installed bike parking stands in several locations along corridors 1, 2 and 3 along with this infrastructure. Bike parking has also been set up in the park on Pobrezje.

After the first bike parking areas were set up in 2014, the first initiatives of private companies as well as institutions and organizations were launched, and bike parking facilities were installed at several locations in the Capital. Most often, these parking facilities are open to the public, but on a few locations there is also

⁶¹ Biciklo.me NGO implemented the bike parking construction project in cooperation with the Capital City and Montenegrin Telecom – Podgorica which donated the necessary funds for the project implementation.

⁶² Biciklo.me NGO implemented the On Two Wheels to Faculty project, funded by the Commission for the allocation of part of revenue from games of chance.

⁶³ Donation of Sava Insurance Company

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closed-type parking (intended only for employees and clients). Rectangular, circular and spiral facilities are the three most common types of parking in Podgorica. Rectangular and circular types are recommended because they allow the bicycle frame to be attached to the parking stand, and therefore theft safety is greater. With the spiral type of parking, only the wheel of the bicycle can be tied, so safety is reduced.

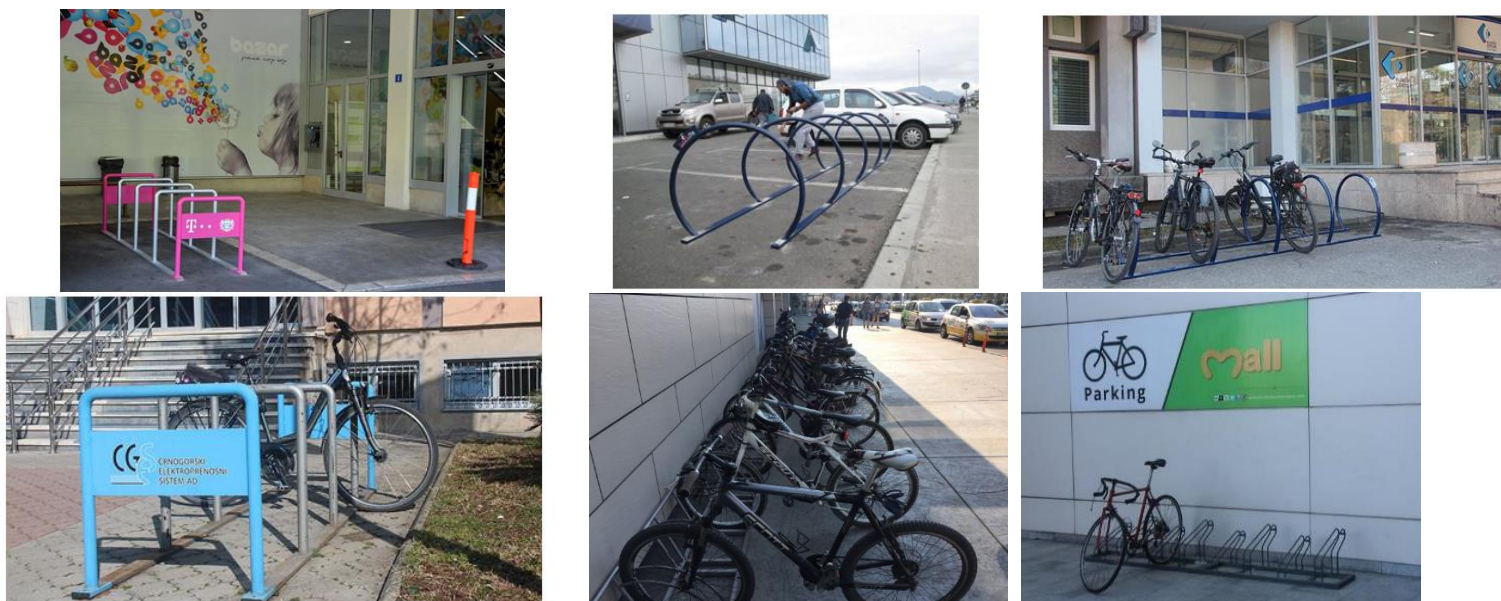


Figure 27. Bike parking installed by companies or institutions on their own initiative (photo: Biciklo.me)

Impact of bike parking locations on the degree of protection against theft

According to the survey, one of the main obstacles to a mass use of the bicycle as a means of transport in Podgorica⁶⁴, is the fear that the bike will be stolen. Good practice has shown that in order to reduce this risk, bicycle parking should be mounted in locations with intensive pedestrian traffic, which are visible (e.g. near cafe terraces and gardens) and under the supervision of permanent guards of buildings or offices. For this reason, some of the existing bike parking places need to be relocated to better and safer locations (e.g. parking behind the Moraca Sports Centre is less used, although a location at the entrance to this facility would be a much better option).

⁶⁴ 77.5% of citizens would banish motor vehicles from the centre of Podgorica, Biciklo.me, 2018, available at: <https://biciklo.me/motorna-vozila-iz-centra-podgorice-protjeralo-bi-77-5-gradana/>

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According to the data of Podgorica Security Centre⁶⁵ (2019), the number of reported bicycle thefts in the territory of the Capital is 72 for 2017, 97 for 2018, and 37 in the first 6 months of 2019. Furthermore, it is stated that in the same period 37 bicycles were found and returned to owners. It is a common belief that a number of citizens do not report bicycle theft because they believe the police is not committed enough to finding the perpetrators.

BYPAD analysis

BYPAD (BicYcle Policy AuDit) analysis is an audit of cycling development policy in the city, region or state. Developed by an international consortium of cycling experts as part of an EU-funded project, BYPAD analysis builds on best international practices in the field of cycling development as a way of urban mobility and provides a good overview of the measures implemented and possible improvements in local cycling policy⁶⁶.

The BYPAD process began in September 2019 when a BYPAD questionnaire was sent to 8 stakeholder representatives, 3 city councillors, 2 local government officials and 3 users.

During the BYPAD analysis workshop, various issues were discussed. Subsequently, a selection of possible measures was made and priorities for implementation were voted on. Part of the evaluation process was cycling, to visit completed bicycle projects in the City. The route selected covered major cycling hinterlands and key destinations relevant to cyclists.

⁶⁵ Letter from Podgorica Security Centre, no. 17-240/19-6659/1 of 24 July 2019

⁶⁶ BYPAD – more quality for bicycle traffic, available at: http://www.bypad.org/cms_site.phtml?id=552&sprache=en

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Figure 28: Part of the working atmosphere during the BYPAD workshop (left) and pictures from the bike field tour (right). (Photo: Biciklo.me)

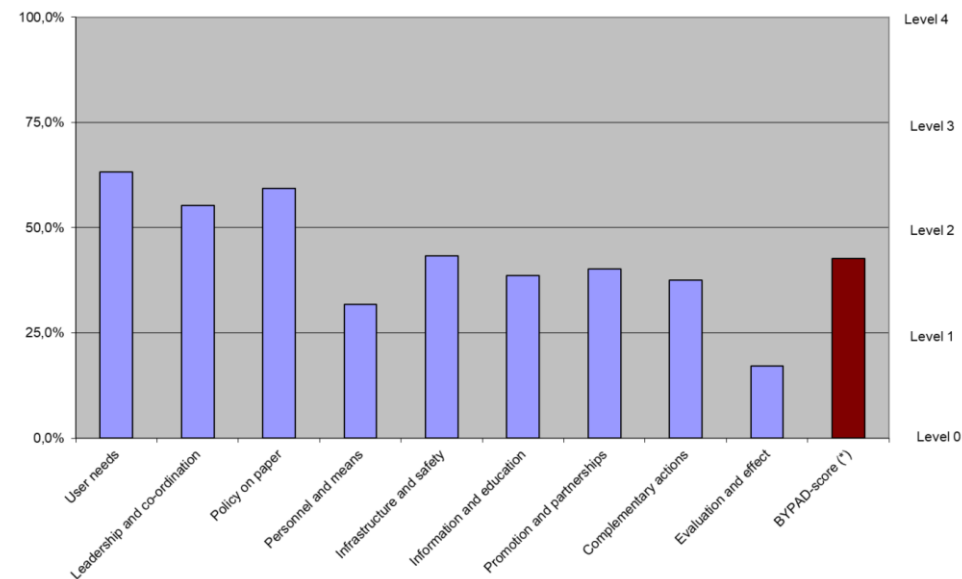


Figure 29: Graph showing the results of BYPAD analysis

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The cycling policy of the City of Podgorica has been assessed according to the following BYPAD development scale:

Level 0: (almost) no activity <25%

Level 1: Ad hoc-oriented approach ≥ 25 to <50%

Level 2: Isolated approach ≥ 50 to <75%

Level 3: System-oriented approach ≥ 75 to <100%

Level 4: Integrated approach 100%

On the weighted BYPAD development scale, Podgorica achieves level 1.7 or 42.7%. This means that, according to this methodology, it is estimated that most of the City's cycling policies are still at the "ad hoc-oriented approach" level, but approaching the "isolated approach" level.

The main findings of the BYPAD analysis are:

- *Generally, the field of cycling is developing in the City,*
- *There is a dialogue between political leadership, administration and users,*
- *Strategic documents for the development of cycling have been started,*
- *Resources and staff are limited,*
- *The first corridors are made, some solutions are good, others require improvements,*
- *Bicycle parking facilities are being developed,*
- *The attitude towards cycling is generally positive, while in practice there are conflicts between cars and cyclists, as well as pedestrians and cyclists,*
- *Informing and educating citizens and potential groups of bicycle users has great potential for development,*
- *Informing and educating different target groups of the population on cycling,*
- *Provision of funds and development of human resources for the field of cycling,*
- *Further development of infrastructure with a focus on traffic safety,*
- *Cycling is only one part of the City's transport policy, while complementary actions will be developed through the SUMP.*

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CYCLING STRATEGY OBJECTIVES FOR PODGORICA

Podgorica will become a city with optimal conditions for safe and comfortable cycling. A good cycling and traffic culture and calm motor traffic in the City will have a significant impact on the growing number of cyclists and the share of cycling in daily commuting throughout the year. All parts of the city and all key activities or services will be easily accessible by bicycle, and all the most interesting locations will be well equipped for secure bicycle parking. A network of safe cycling connections will be well-developed, regularly maintained and integrated with the traffic calming areas in Podgorica and larger surrounding towns. Improving the image of cycling will help to reach a critical mass of cyclists and, consequently, increase the safety, and acceptance of cyclists among other road users and traffic planners. Safe road environment and the acceptance of cyclists will also allow children and families to travel around the City on bikes more often. Cycling will make the City's residents healthier and increase road safety.

SPECIFIC OBJECTIVES AND RELEVANT TARGETS FOR PODGORICA SUMP PILLAR IV

1. Increase the length of bike lanes in the Capital by 100% by the end of 2025,
2. Equip potential locations in the Capital with adequate bike parking by 2025,
3. Increase the share of road users using the bicycle as a means of transport to 5% by 2025,
4. Increase the share of primary school pupils who use bicycles to go to school to 5% by 2025,
5. Increase the share of secondary school students who use bicycles to go to school to 10% by 2025,
6. Reduce the number of injured cyclists on the streets by 50% by 2025 compared to 2018.

PACKAGES OF MEASURES FOR SUMP PILLAR IV

COMPREHENSIVE PLANNING

Preparation of a comprehensive cycling strategy as a sub-strategy of the SUMP would integrate all the topics for a successful development of cycling in the city – network plan, design standards, promotional activities and financing. Currently Podgorica has four cycling corridors in place and one planned. But quality, safety and technical solutions vary between the corridors or even segments of the corridors. A document should be prepared to assess the current state and map segments requiring improvements, missing links and problem spots, and on the basis of that, an action plan for improvements should be prepared.

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It is necessary to work together with the Ministry of Transport and Maritime Affairs and the Ministry of the Interior to improve regulations in the field of road transport. Also, visits by decision makers and experts working in the city administrations of other cities, where similar challenges are approached differently, could be a useful approach.

Measures:

- Development of a cycling strategy, with a plan for the development of a cycling network,
- Organization of visits to regional and European cities (examples of good practice),
- Cooperation with the Ministry of Transport and Maritime Affairs and the Ministry of the Interior on the improvement of regulations in the field of road transport.

PROVIDING HIGH QUALITY INFRASTRUCTURE

Podgorica is trying to improve cycling conditions and become a leading example of this approach in Montenegro and the wider region. Therefore, it should develop a set of guidelines on desired quality of cycling infrastructure in the city. The guidelines should be in line with national standards (in the area of development), and, if needed, they should also focus on specific situations relevant for the urban environment, such as crossings, cycling facilities in traffic calmed areas, parking in higher density areas and around exchange nodes.

A database should be developed in cooperation with all stakeholders (such as NGOs, police, city inspection services) and an interactive map with several layers should be designed. One layer could include dangerous spots perceived by users. Users could define and describe the spots. The second layer should include actual reported cyclist accidents. The third layer should be managed by the City and should be dedicated to planned and already implemented improvements.

The City already implemented a scheme where institutions could apply for bike parking stands to be mounted in front of their entrance. Several private institutions followed the initiative and installed additional stands. This practice could be repeated, and several other bike stands could be installed. Each year a focus on different types of institutions could be selected. In cooperation with the schools, a particular focus should be put on bike parking for schools. Special attention should be paid to providing safe parking around public transport nodes. Parking should be secure and provide theft protection.

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Measures:

- Development of city-level guidelines for cycling infrastructure focusing on the safety of cyclists of all ages,
- Creation and update of a database of dangerous spots for cyclists,
- Regular equipping of public spaces with bicycle parking, especially for the needs of public institutions,
- Creation of conditions for the introduction of bike sharing service.

PROMOTION

In recent years, the City implemented several ambitious activities regarding cycling. Such activities need to develop further. Several new channels of communication should be introduced to reach specific age and social groups of residents. Cycling campaigns organized by the City and/or in cooperation with other partners will show a clear dedication of the City to supporting cycling. The campaigns, such as Critical Mass, could include several activities related to cycling and they should last longer. It could be, for instance: A Cycling Week or A Cycling Month.

Cycling to school is important in order to raise a generation of future cyclists. The activities to promote safe and pleasant cycling to school should be commonly developed by the City, the schools, parents' representatives and volunteers. Schools with existing safe infrastructure and parking should be targeted first. If segments or crossings in school surroundings are too dangerous, they should be improved, and opening events should be used as an opportunity for promotion. A large segment of daily trips is related to work. Cycling to work is therefore an efficient topic to trigger a larger modal shift. There are several existing bike to work campaigns which Podgorica could join.

A cycling map is a simple and effective measure to promote cycling. It should include main corridors but also other services relevant for cyclists, such as bike shops and service places, public pumps for tires etc. Besides the corridors, the map could include interesting routes not just for daily cyclists, but also for recreational cycling and tourists. The map could be published in printed and digital version.

Also, communal inspection authority and traffic police should jointly continuously monitor the problem of illegal car parking on cycling infrastructure. Without consistent pressure on those who violate the regulations, the situation will not change, which means that cyclists will not feel safe enough in the areas intended for them.

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Measures:

- Active communication with citizens and key stakeholders on ongoing and completed activities,
- Regular cycling campaigns (“Critical Mass”, “Bike to School”, “Bike to Work”...),
- Creation of a cycling map,
- Development of an educational program on cycling for schools,
- The launching of a campaign to prevent illegal parking of vehicles on cycling infrastructure.

5.5 PILLAR V – RETURN TO WALKING AS THE HEALTHIEST MODE OF MOBILITY

In the not so distant past, walking and biking were the main modes of transportation. In recent decades, there has been a rapid increase in the use of motorized transport, which has brought a faster and more efficient transport of passengers and goods, but also numerous problems. The solution to part of the problems lies in returning to walking as the healthiest mode of mobility.

Walking along with cycling represents the so-called non-motorized transport, i.e. these two modes of transport are referred to as active modes of transport. Compared to other forms of movement, walking does not cause exhaust emissions, noise and other negative environmental impacts, and is neither too spatially nor infrastructurally demanding. Walking is extremely important as it combines with other modes of travel, which begin and end with walking. These are also the basic motives for why it is important to create good walking conditions.

Podgorica is a city where walking can become a very popular way of traveling. The geographical and climatic characteristics of the area are suitable for development of walking. Considering the surface of Podgorica, distances for a good part of travels are suitably short for walking.

A good part of the population suffers from the problems of obesity and various diseases associated with insufficient activity, so walking is a combination of economical and healthy ways of traveling. When the pedestrian habits of Podgorica residents are analysed, two categories of population are identified. The first group consists of residents who carry out daily tasks by passing the necessary distances on foot. For this category of citizens, most important is pedestrian infrastructure in the centre of the city, connected, flat and protected from occupancy by cars. The other category of Podgorica residents use walking for recreation to make up for the lack of physical activity usually associated with excessive sitting at work. For this category of population, pedestrian infrastructure outside the city centre, besides rivers, etc., is of more interest.

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The fact that the European Mobility Week 2019 slogan was "Walk with Us" is enough to say that walking is a globally important topic.

PEDESTRIAN INFRASTRUCTURE

Podgorica's pedestrian communication system consists of sidewalks, independent walkways, pedestrian bridges, promenades and squares⁶⁷. Pedestrian sidewalks are constructed along a number of traffic routes in accordance with the spatial possibilities, one-sided and two-sided. The sidewalks are mostly made of concrete, with the exception of a smaller part made of granite and other materials, with one part being in poor condition. Podgorica has one underground passage and two pedestrian overpasses, of which the so-called "Zlatica Rainbow" is quite damaged.

Several zones in the City are intended for pedestrians (Independence Square, Argentina Square, part of Njegoseva Street, part of Hercegovacka Street, Becir-Beg Osmanagic Square, Roman Square, Park Forest Gorica, Ljubovic Hill, Toloska Forest, Bokeska Street), and Slobode Street closes for motor vehicle traffic in the afternoon and evening. The situation in the entire city territory reflects:

- lack of planning and architectural solutions,
- occupancy of streets and sidewalks by motor vehicles.

Podgorica lacks a pedestrian communications system and a more detailed arrangement of surfaces that would connect parts of the city, existing pedestrian bridges (Gazela Bridge, Moskovski Bridge and Andrija Kazic Bridge) and recreation areas. Pedestrian areas are needed along primary and secondary roads. Thus, the Local Action Plan for Sustainable Development⁶⁸, within the priority theme of Promoting Green Infrastructure Development, envisages the introduction of incentive measures such as days and locations without cars, and an increase in the number of pedestrian streets and pedestrian areas. The construction and equipping of walkways is also needed in the context of the planned increase in green parkland, so that they can increase the capacity of the City for GHG absorption and thus have particularly positive effects on the health of residents. The importance of these measures for the improvement of air quality has been confirmed by other city planning documents (Air Quality Plan for the Capital City⁶⁹, Local Energy Plan 2015-2025⁷⁰, Sustainable Energy Action Plan⁷¹).

⁶⁷ http://podgorica.me/db_files/Urbanizam/PUP/pup.pdf

⁶⁸ http://podgorica.me/db_files/Urbanizam/Dokumenta/lapor_nacrt_konacno_ispravljeno.pdf

⁶⁹ http://podgorica.me/db_files/Urbanizam/Dokumenta/plan_kvaliteta_vazduha_za_glavni_grad_podgorica_final_31.0.pdf

⁷⁰ http://podgorica.me/db_files/Urbanizam/Dokumenta/lep_pg.pdf

⁷¹ http://podgorica.me/db_files/Urbanizam/Dokumenta/seap_podgorica_eng.pdf

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The General Urban Planning Decision for Podgorica⁷², in the chapter on transport, recognizes the need for upgrading the street network through the construction or formation of streets, avenues, boulevards, squares, and footways and bikeways, which together with the elements of the green area system form and give identity to the open city space.

A major problem in the city is the traffic at standstill, i.e. parking, and this problem is solved in competition and in conflict with the movement of pedestrians, cyclists, but also with green areas, and the space for sports and recreation.

The Podgorica Spatial and Urban Plan, in the spatial development section, emphasizes the problems of underdeveloped public space systems, namely: their modest typological choice, lack of equipment of the city parterre, and inadequate program. Upgrading and improvement of urban public spaces, foreseen by earlier planning documents, has been realized in recent decades through the completion of the Independence Square, the Roman Square, the entrance square to the University of Montenegro, the Becir-Beg Osmanagic Square, as well as through the construction of a pedestrian zone in the Old Town (Stara Varos), a smaller square and a park along the court complex at Krusevac, and the entrance squares to the Clinical Hospital Centre and the Cepurci Cemetery.

Walking rate

A map of the areas accessible by foot at 5, 10 and 15 minute intervals moving from the centre to the outskirts of Podgorica is given in Figure 30.

⁷² SUP, p. 222

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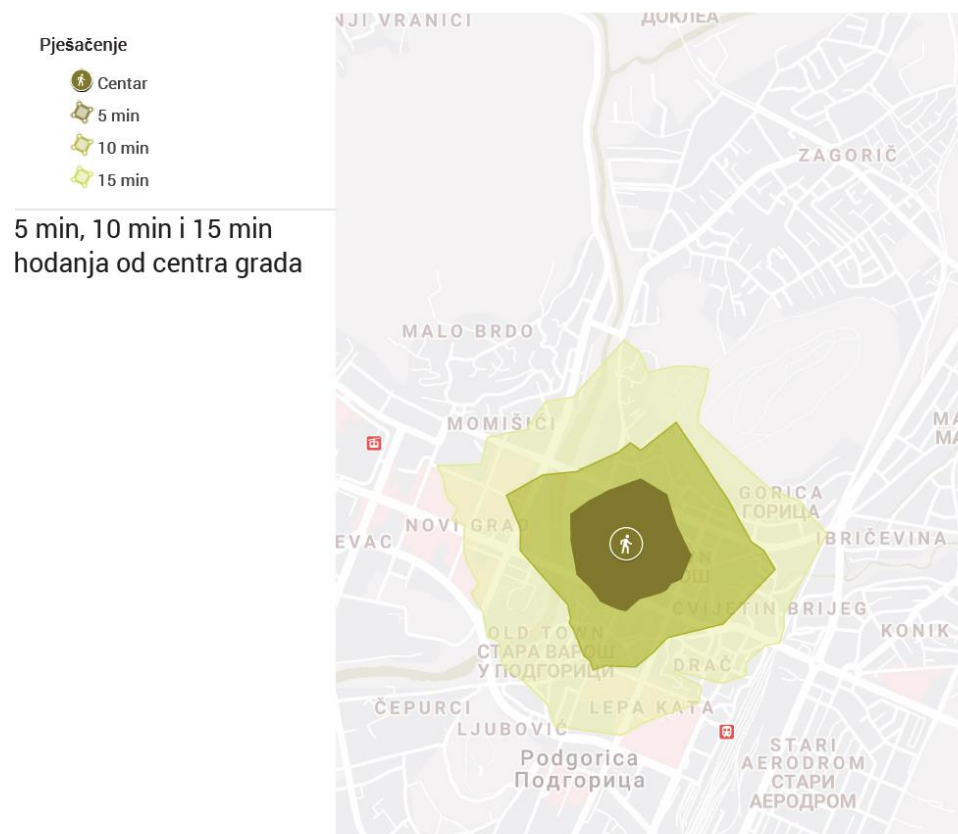


Figure 30. Walking map from Podgorica centre to the zones that are within 5, 10 and 15 minutes walking distance

Analysis and perception of the state of pedestrian infrastructure

In the online survey described above, citizens also commented on the state of pedestrian infrastructure, with the possibility of making proposals for improvement, which were used by citizens in significant numbers.

5. FIVE PILLARS OF SUSTAINABLE MOBILITY OF PODGORICA

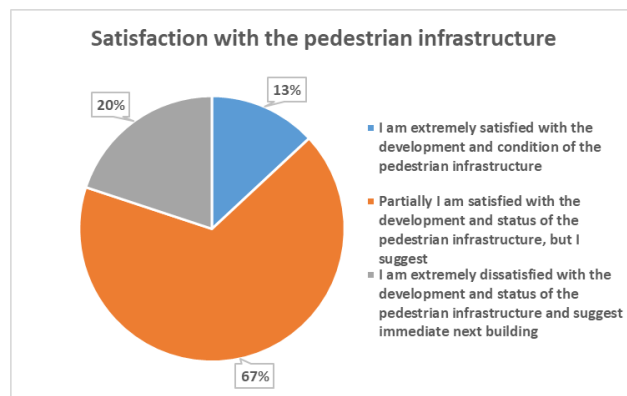


Figure 31. Distribution of citizens' answers regarding satisfaction with pedestrian infrastructure in the Capital City⁷³

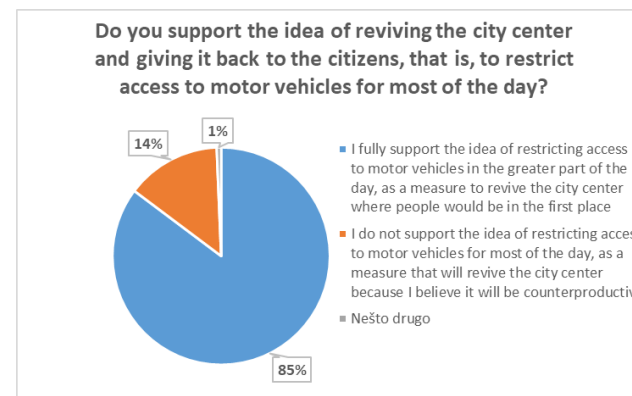


Figure 32. Podgorica citizens' response to the issue of the inner city centre closure for motor vehicle traffic⁷⁴

Figure 31 shows the results of citizens' satisfaction with the existing pedestrian infrastructure, which shows that about 13% are extremely satisfied with the pedestrian infrastructure in the Capital, 20% are extremely dissatisfied, and about 67% are partially satisfied. Citizens seized the opportunity and gave numerous suggestions on this issue, which were considered by the SUMP Working Group, such as: lack of sidewalks in individual streets, uneven and damaged concrete that does not allow normal mobility for persons with reduced mobility – persons with disabilities, parents with babies in strollers, untreated curbs, then newly constructed bicycle lanes taken away from pedestrians, lack of connections between footpaths and other pedestrian infrastructures. Numerous proposals for afforestation and greening of the city have been made, as well as for the construction of a promenade along the Moraca River.

The survey was used to get the opinion of citizens about the closure of the inner city centre for motor vehicles and about 85% of the respondents supported this idea (Figure 32). Interestingly, the majority of respondents living in the heart of the city also supported this idea.

Active schooling

The survey conducted in 7 primary schools, among other things, aimed at finding out how many children aged 6-10 and 6-14 have active schooling, i.e. how many

⁷³ Secretariat for Transport of the Capital City of Podgorica – Survey, July 2019

⁷⁴ Secretariat for Transport of the Capital City of Podgorica – Survey, July 2019

5. FIVE PILLARS OF SUSTAINABLE MOBILITY OF PODGORICA

children go to school on foot. When it comes to coming to school by bicycle, quite concerning information has been obtained. Only **11** children out of a total of **2,389** surveyed stated that they use a bicycle as a means of transport. Although there are limitations under the Traffic Safety Act, regarding children cycling independently, it is still an extremely small number. Insufficient physical activity and, among other things, insufficient use of bicycles is one of the main causes of obesity in school-age children.

Regarding the age from 6-10 years, **878** children from the 3rd grade were surveyed, of which 411 (47%) stated that walking was used as a way of transportation to school, 33% were brought by their parents, 19% used a bus and about 1% used taxi.

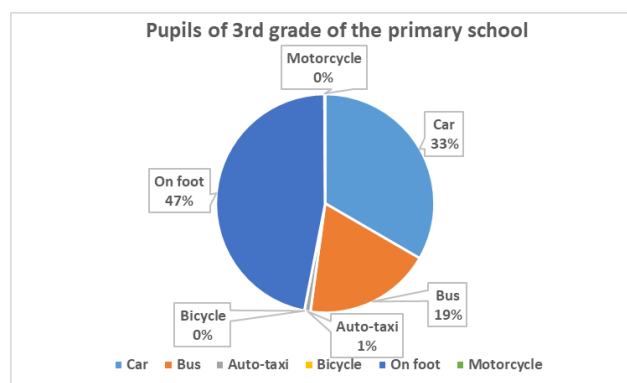


Figure 33. Share of modes of travel to the primary school by pupils of 3rd grade⁷⁵

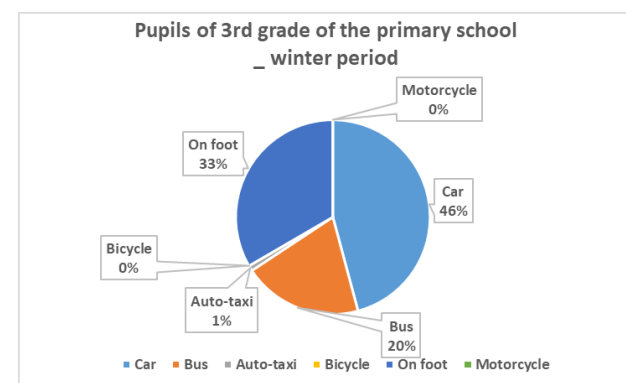


Figure 34. Share of modes of travel to the primary school by pupils of 3rd grade in the Capital in the winter⁷⁶

WALKING STRATEGY OBJECTIVES FOR PODGORICA

Podgorica will be a modern city where citizens are happy to walk, whenever the weather permits. Considering the size and configuration of Podgorica terrain, very significant distances can be walked. Pedestrian infrastructure will be upgraded, connected, rebuilt, and adapted to persons with reduced mobility. The traffic culture of Podgorica residents is significantly improved. Sidewalks will no longer be used for parking because the mechanisms for enforced collection of fines for illegal parking have been improved and citizens are complying with the regulations. A significant number of new streets are converted to calm streets. This leads

⁷⁵ Secretariat for Transport of the Capital City of Podgorica – Survey, July 2019

⁷⁶ Secretariat for Transport of the Capital City of Podgorica – Survey, July 2019

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to a drastic decrease in the number of deaths, and also reduced the number of lightly and seriously injured pedestrians in traffic accidents. The above mentioned measures will make parents send their children to walk to school and extracurricular activities more often.

Numerous educational campaigns for the population in the media are fruitful and citizens become aware of all the comparative advantages that walking has over other modes of transport. More pedestrians mean fewer drivers and cars, making Podgorica a city with cleaner air and less traffic noise.

SPECIFIC OBJECTIVES AND RELEVANT TARGETS FOR PODGORICA SUMP PILLAR V

1. Increase the share of pedestrians walking to 10% by 2025,
2. Increase the share of children taken by parents to kindergarten on foot to 30% by 2025,
3. Reduce the number of pedestrian injuries on the streets by 50% in 2025 compared to 2018,
4. Adjust the pedestrian infrastructure to PWDs in the city centre and main footpaths by 2025,
5. Increase the share of citizens extremely satisfied with the development and condition of pedestrian infrastructure to 20% by 2025.

PACKAGES OF MEASURES FOR SUMP PILLAR V

COMPREHENSIVE PLANNING

Podgorica has unsatisfactory pedestrian infrastructure. The existing pedestrian infrastructure is characterized by disconnection, insufficient sidewalk width, uneven concrete, untreated curbs, and numerous obstacles for persons with disabilities, persons with reduced mobility and parents with baby strollers. It is necessary to prepare a document to assess the current state of pedestrian infrastructure with a map indicating locations where improvements are needed, missing links and problematic spots. Based on this document, it is necessary to prepare an action plan for the improvement of pedestrian infrastructure with an estimate of financial costs and a timeframe.

Measures:

- Preparation of a Pedestrian Infrastructure Development Plan.

5. FIVE PILLARS OF SUSTAINABLE MOBILITY OF PODGORICA



PROVIDING HIGH QUALITY WALKING INFRASTRUCTURE

All future infrastructure measures, including those already defined in other strategic documents of the City, will be checked and aligned with the SUMP principles and elements before further design or implementation. Within the construction of walking infrastructure, greater emphasis will be placed on removing barriers for persons with disabilities, which will be implemented in cooperation with relevant associations. Particular attention will be paid to the appropriate widths and slopes of the ramps for the disabled, the construction of ramps instead of the stair lifts, the layout of handrails, the construction of guides (tactile sidewalks) for the blind and visually impaired, placing traffic signs at the appropriate height, etc., in accordance with the applicable regulations.

The database could be developed in cooperation with the Secretariat for Transport and several stakeholders and entities (Police Directorate, NGOs). It would be good if the base were in the form of an interactive multi-level map. One level should include dangerous spots that users would define, describe and mark on the map. The second level should cover reported traffic accidents involving pedestrians. The third level would be managed by the City and would be dedicated to the planned and already implemented improvements.

It is necessary to select pedestrian corridors to serve as pilot projects. These pilot projects should include innovative or high quality solutions to clearly defined challenges, such as facilitating mobility for PWDs or safe travel to school. Through testing and implementation, detailed monitoring and evaluation should be carried out and the results could be used for promotion and making decisions about dissemination of the practices tested.

Measures:

- Construction of the missing and improvement of the quality of the existing pedestrian infrastructure adapted to the needs of PWDs and persons with reduced mobility, with strict adherence to the standards prescribed by the Rulebook on more detailed conditions and methods of adaptation of facilities for access and movement of persons with reduced mobility and PWDs,
- Creation of a database of dangerous spots for pedestrians,
- Implementation of a pilot project for pedestrian corridors.

5. FIVE PILLARS OF SUSTAINABLE MOBILITY OF PODGORICA



PROMOTION

Walking campaigns organized by the City can show a clear commitment to walking support. Campaigns could take longer, such as A Walking Week or A Walking Month.

Walking to school is very important to bring up healthy generations. Obesity of school-age children is a serious problem that can be significantly addressed by these activities.

A walking map is a simple and effective measure to promote walking. It should include major pedestrian corridors, but also other services relevant to pedestrians, such as places to visit, green spaces and other local attractions. The map could be published in both print and digital versions.

Measures:

- A walking campaign or an event for the general public, encouraging people to go to work and school on foot,
- Development of a walking map.

6. ACTION PLAN

6.1 PILLAR I – COMPREHENSIVE PLANNING FOR SUSTAINABLE URBAN MOBILITY

MEASURE PACKAGE 1 – IMPLEMENTATION AND ASSURANCE OF THE SUMP

	Measure	Responsibility	Priority	Cost estimate	Implementation period	Note
I.1	Form a coordination body for SUMP monitoring and implementation	CC	high	Funding not required	2020-2025	
I.2	Prepare a balanced mobility budget with a guaranteed minimum annual allocation for each transport mode	CC	medium	Funding not required	2021-2025 On-going activity	
I.3	Revise SUMP	CC	high	€10,000	2022	
I.4	Develop a new SUMP	CC	high	€50,000	2025	Possible financial support from a donor or international project

MEASURE PACKAGE 2 – MONITORING AND EVALUATION OF THE SUMP

	Measure	Responsibility	Priority	Cost estimate	Implementation period	Note
I.5	Establish a system for regular data collection, monitoring and evaluation of selected mobility indicators	CC	high	Funding not required	2020	
I.6	Regularly monitor and evaluate the SUMP and the Action Plan	CC	medium	€5,000	2020-2025	

⁷⁷ Financial cost estimate for the implementation of the envisaged measures will be further elaborated and revised by a GIZ expert for finance and economic matters.

6. ACTION PLAN



MEASURE PACKAGE 3 – STRENGTHENING AND INTEGRATION OF PLANNING SECTORS AND GOVERNANCE LEVELS

	Measure	Responsibility	Priority	Cost estimate	Implementation period	Note
I.7	Recruit/appoint a competent person to be responsible for monitoring the SUMP implementation	CC	high	€19,860	2020	
I.8	Regularly participate in EU projects in the field of sustainable mobility	CC	medium	Required funding to be aligned with approved project cost estimate at the annual level	2020-2025 On-going activity	Co-financing by the CC, 15% of project cost estimate
I.9	Regularly educate employees responsible for transport including those in related sectors at City level on new approaches and good practices in the field of sustainable transport	CC	low	€5,000 per year	2020-2025 On-going activity	Feasible in 2020 if donor financial support is provided
I.10	Establish an integrated system of sustainable mobility planning and the planning of other sectors and enhancing cooperation among sectors, with special focus on the spatial planning of compact urban structures of short distances	CC, MSDT	medium	Funding not required	2020 On-going activity	
I.11	Prepare technical guidelines for traffic areas where practice does not offer good solutions: <ul style="list-style-type: none"> - guidelines for car and bicycle parking for new buildings in new urban plans; - technical guidelines for pedestrian and cycling infrastructure 	CC	medium	Funding not required	On-going activity	
I.11a	Assess the impact of new larger structures/buildings on traffic	CC	medium	€10,000	2020 - 2025	
I.12	Integrate SUMP into the curricula of the Road Transport study program at the Faculty of Mechanical Engineering, University of Montenegro	University of Montenegro	low	Funding not required	2020	
I.13	Establish a specialized portal that will allow every citizen to be a "traffic policeman" and to photograph and send traffic violations	CC, PD	low	€5,000	2020-2025 On-going activity	
I.14	Cooperate with the MTMA in order to improve road transport legislation, and with the MI in order to improve the road traffic safety legislation	PD, MI, MTMA	medium	Funding not required	2020-2025 On-going activity	

6. ACTION PLAN



MEASURE PACKAGE 4 – IMPLEMENTATION OF INTEGRATED MEASURES IN THE FIELD OF MOBILITY

	Measure	Responsibility	Priority	Cost estimate	Implementation period	Note
I.15	Revise existing road network hierarchy and prepare a Development Plan for “superblocks”	CC	medium	€10,000	2021	Implementable in 2020 if financial assumptions (donor funds) are provided
I.16	Implement pilot “superblocks” (3 to 4 by 2025)	CC	medium	€120,000	2021-2025	Required funding will be aligned to project documentation findings
I.17	Develop Mobility Plans for key traffic drivers in the city (minimum 4 by 2025): - Clinical Hospital Centre complex - University of Montenegro - City Cemetery etc.	CC	medium	€40,000	2021-2025	Implementable in 2020 if financial assumptions (donor funds) are provided
I.18	Introduce a single city card for payment for parking, public transport, museums etc.	CC	medium	€3,000	2020	Supported by GIZ, on behalf of BMZ

MEASURE PACKAGE 5 – PUBLIC PARTICIPATION AND PROMOTION OF THE SUMP ACHIEVEMENTS

	Measure	Responsibility	Priority	Cost estimate	Implementation period	Note
I.19	Develop the SUMP Promotion and Public Relations Plan	CC	medium	Funding not required	2020	
I.20	Implement the SUMP Promotion and Public Relations Plan	CC, NGO	high	€45,000	2020-2025 On-going activity	2020 budget allocated €5,000
I.21	Introduce a so-called participatory budget, which serves to consider and support citizens' initiatives in the field of sustainable mobility	CC	medium	€20,000	2021-2025	
I.21a	Include the topic of sustainable mobility in the existing call for financing NGOs	CC	medium	Required funding depends on project applications	2020	

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6.2 PILLAR II – MORE RATIONAL USE OF PASSENGER CARS

MEASURE PACKAGE 1 – STRATEGIC PLANNING

	Measure	Responsibility	Priority	Cost estimate	Implementation period	Note
II.1	Develop a Parking Management Strategy	CC	high	€50,000	2021	
II.2	Develop Traffic-Calmed Zone Plan	CC	medium	€30,000	2022	
II.3	Establish a financial framework for the SUMP implementation from parking income	CC, PS	high	Funding not required	2020	
II.4	Create a cadastre of parking spaces for cars and bicycles on the territory of the Capital City	CC	low	€10,000	2021	
II.5	Develop a Sustainable Energy and Climate Action Plan (SECAP)	CC	medium	€50,000	2022	Donor funds
II.5a	Update annually data on GHG emissions from traffic	CC	high	€5,000	2023 -2025	

MEASURE PACKAGE 2 – INCREASE IN PARKING FEE PAYMENT SYSTEM EFFICIENCY

	Measure	Responsi- bility	Priority	Cost estimate	Implemen- tation period	Note
II.6	Regularly expand paid parking zones, with priorities and tariffs	CC, PS	medium	€100,000	2020-2025 On-going activity	An income- generating investment
II.7	Change legal frameworks to address illegal parking issues more effectively: - Ensure consistent application of regulations in this field in cooperation with all relevant stakeholders; - Initiate changes to the relevant law to decriminalize illegal parking, so that parking offences can be enforced city-wide by the city parking company, the communal police and the communal inspection authority.	CC, PS, PD	high	Funding not required	2020-2025 On-going activity	
II.7 a	- Use bollards and similar self-enforcing measures to stop parking on footways and cycleways; - Provide adequate visible signage for all existing restrictions and free parking spaces.	CC,PS	high	€100,000	2020-2025 On-going activity	
II.8	Modernize "Parking Service Podgorica Ltd." (city parking company) – further automation of payment and control, new methods of information, additional competencies in enforcement of fines and illegal parking, etc.	CC, PS	low	€50,000 per year	2020-2025	
II.9	Identify "black" spots for cyclists and pedestrians and adjust the prescribed speed	CC	medium	€5,000	2021	
II.10	Annual campaigns to remove old vehicles from parking lots and introduce financial liability of owners for unreasonable use of public space	CC, PS	low	€5,000	2020 -2025 On-going activity	

MEASURE PACKAGE 3 – INFRASTRUCTURE INTERVENTIONS

	Measure	Responsibility	Priority	Cost estimate	Implementation period	Note
II.11	Convert space currently used for parking to other uses (public space)	CC	medium	€300,000	2021-2025 On-going activity	
II.12	Pilot project – Construction of parking at the entrance to the City to encourage parking of private motor vehicles and use of public urban transport, cycling and walking	CC	medium	Required funding will depend on project documentation findings	2021	
II.13	Plan and construct underground public garages with electric car charging infrastructure	CC	medium	Required funding will depend on project documentation findings	2020-2025	Implementation in 2020 is possible if financial resources are provided through PPP
II.14	Control and restrict access to cars at identified locations to support walking	CC	medium	€50,000	2020-2025 On-going activity	

6. ACTION PLAN



MEASURE PACKAGE 4 – PROMOTIONAL ACTIVITIES

	Measure	Responsibility	Priority	Cost estimate	Implementation period	Note
II.15	Implement promotion and awareness campaign on the new Parking Strategy	CC, PS	Medium	€1,000	2022	
II.16	Promote the motor vehicle drive alternatives, which do not endanger individual segments of the environment	CC	Low	€5,000	2020-2025 On-going activity	

6.3 PILLAR III – MODERNIZATION AND POPULARIZATION OF PUBLIC URBAN TRANSPORT (PUT)

MEASURE PACKAGE 1 – COMPREHENSIVE PLANNING OF PUBLIC URBAN TRANSPORT

	Measure	Responsibility	Priority	Cost estimate	Implementation period	Note
III.1	Prepare and launch public notice/ invitation procedure for entrusting the operation of scheduled urban and suburban passenger transport (under competition) in accordance with the Law on Public Procurement	CC	high	Funding not required	2020	
III.2	Allocate funds from the Budget for subsidies for public urban transport of passengers	CC	high	€500,000	2020-2025	

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MEASURE PACKAGE 2 – OPTIMIZATION OF INFRASTRUCTURE SERVICES

	Measure	Respon- sibility	Priority	Cost estimate	Implementa- tion period	Note
III.3	Implement a new Public Urban Transport network in Podgorica on the basis of a Public Notice	CC	high	Required funding will depend on public notice findings	2020-2025	
III.4	Digitalize public urban transport and introduce a single e-ticket: <ul style="list-style-type: none"> - Introduce e-ticket; - Expand and digitalize the ticket sales network; - Prepare easily accessible timetable and information about public urban transport (tariffs, discounts, etc.) in all forms; - Develop a real-time bus tracking and bus arrival announcement system; - Create an application for mobile phones and the Internet to inform users of bus arrivals. 	CC, PUT	medium	€84,000 €3,000,000	2020-2025	A pilot project for the introduction of an e-ticket is planned for 2020, for which GIZ, on behalf of BMZ allocated €17,000 and the City €67,000. The remaining funds indicated are presented summed up for the overall implement-tation of the measure within the estimated timeframe of the SUMP.
III.5	Fix up and upgrade bus stops to be available and accessible to all citizens	CC, PUT	medium	€150,000	2020-2025 On-going activity	
III.6	Procure new low-floor buses for public transport that are less polluting and more accessible to PWDs	CC, PUT	high	Required funding will depend on the findings of the Public Invitation	2020-2025	
III.7	Procure more modern and smaller vans, with higher frequency of departures, instead of buses	CC, PUT	high	Required funding will depend on the findings of the Public Invitation	2020-2025	
III.8	Introduce free Wi-Fi on the buses and bus stops	CC, PUT	low	€10,000	2020	In cooperation with telecoms
III.9	Introduce a measure for prioritizing public urban transport (priority lanes for buses on the streets and efficient light signalling)	CC	high	Required funding will depend on project document-tation findings	2020-2025 On-going activity	Implementa-tion for 2020 will be about adapting existing infrastruc-ture to the PPP prioritization model

6. ACTION PLAN



MEASURE PACKAGE 3 – IMPROVING THE EXPERIENCE OF PUBLIC URBAN TRANSPORT USERS

	Measure	Responsibility	Priority	Cost estimate	Implementation period	Note
III.10	Reform tariffs of the PUT system: <ul style="list-style-type: none"> - Review tariffs with emphasis on monthly single subscription ticket; - Introduce subsidies for children under 18, students, retirees and persons with disabilities. 	CC, PUT	low	Required funding will depend on the findings of the Public Invitation	2020-2025	
III.11	Introduce criteria in the Public Invitation for Carriers in terms of bus safety and comfort (air conditioning, etc.)	CC, PUT	medium	Will be defined in public invitation in line with award requirements	2020-2025	

MEASURE PACKAGE 4 – DEVELOPMENT OF PUBLIC AWARENESS ABOUT THE OFFER AND ADVANTAGES OF PUBLIC URBAN TRANSPORT

	Measure	Responsibility	Priority	Cost estimate	Implementation period	Note
III.12	Inform the public about the improved offer of PUT in terms of general promotion of PUT use and support to PUT measures through educational activities and informing on the introduction of benefits for PUT users	CC, PUT	low	€20,000	2021-2025 On-going activity	Benefits for users after the findings of Public Notice
III.15	Regularly control and more frequently evaluate the quality of PUT services through appropriate verification methods	CC, PUT	low	€3,000	2020-2025	

6. ACTION PLAN



6.4 PILLAR IV – VALORIZATION OF CYCLING POTENTIAL

MEASURE PACKAGE 1 – COMPREHENSIVE CYCLING PLANNING

	Measure	Responsibility	Priority	Cost estimate	Implementation period	Note
IV.1	Develop a Cycling Strategy with a Cycling Network Development Plan	CC, NGO	high	€30,000	2021	
IV.2	Visit regional best practice examples	CC	medium		2020-2025 On-going activity	Donor support

MEASURE PACKAGE 2 – PROVIDING HIGH QUALITY INFRASTRUCTURE

	Measure	Responsibility	Priority	Cost estimate	Implementation period	Note
IV.3	Implement Cycling Strategy measures	CC	medium	€30,000	2022	
IV.4	Prepare city-wide cycling infrastructure guidelines focusing on cyclist safety	CC, NGO	high	Funding not required	2021	
IV.5	Create and update a database of dangerous spots for cyclists	CC, NGO	low	€5,000	2020-2025	
IV.6	Design a pilot corridor with new standards based on new guidelines	CC	low	500 €/m	2023	
IV.7	Regularly equip public areas with bicycle parking	CC	medium	€20,000	2021-2025	
IV.8	Create conditions for the introduction of a bike sharing service	Public Private Partnership	medium	€50,000	2021	

MEASURE PACKAGE 3 – PROMOTIONAL ACTIVITIES

	Measure	Responsibility	Priority	Cost estimate	Implementation period	Note
IV.9	Campaigns: - Against illegal parking of vehicles on cycling infrastructure	CC, NGO	Medium	€6,000	2020-2025	
IV.10	Create a cycling map	CC, NGO	Low	€5,000	2021	
IV.11	Develop an educational program on cycling for schools	CC, NGO	Medium	€5,000	2021	
IV.12	Subsidize the purchase of bicycles for citizens	CC	Medium	€10,000 per year	2020-2025	

6.5 PILLAR V – RETURN TO WALKING AS THE HEALTHIEST MODE OF MOBILITY

MEASURE PACKAGE 1 – COMPREHENSIVE WALKING PLANNING

	Measure	Responsibility	Priority	Cost estimate	Implementation period	Note
V.1	Develop Pedestrian Infrastructure Development Plan (adjusting traffic lights to increase pedestrian safety and prioritization, with pilot project development: 2 to 3 intersections with diagonal pedestrian crossings; removal of street dividing lines in residential areas; zigzag lines instead of straight axes on pavement, especially in front of pedestrian crossings; continuous planting of trees along sidewalks and pedestrian zones)	CC	medium	€30,000	2021	

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MEASURE PACKAGE 2 – PROVIDING HIGH QUALITY WALKING INFRASTRUCTURE

	Measure	Responsi- -bility	Priority	Cost estimate	Imple- mentation period	Note
V.2	Construct the missing and improve the quality of the existing pedestrian infrastructure adapted to the needs of PWDs and persons with reduced mobility, while strictly adhering to the standards prescribed in the Rulebook on more detailed conditions and methods of adaptation of facilities for access and movement of persons with reduced mobility and PWDs	CC	high	€200,000	2020-2025	Funds are provided for 2020 in the amount of €25,000; part of the money will be spent on measure II.14
V.3	Create a database of dangerous spots for pedestrians	CC, UP, NGO	Medium	€5,000	2021-2025	
V.4	Pilot projects: - reconstruction of the Gazelle pedestrian bridge in order to adapt it to the needs of PWDs and persons with reduced mobility	CC, NGO	Medium	Cost estimate will be made after preparation of project document-tation	2021-2022	
V.5	Arrange infrastructure in the vicinity of footpaths	CC	Low	€100,000	2020-2025	

MEASURE PACKAGE 3 – PROMOTION FOCUSING ON SAFETY AND HEALTH

	Measure	Responsibility	Priority	Cost estimate	Implementation period	Note
V.6	Organize walking campaigns, encouraging going to work and school on foot	PD, NGO	medium	€5,000	2021-2025	
V.7	Make a walking map	PD, NGO	medium	€5,000	2021	

7. MONITORING AND EVALUATION



7.1 INTRODUCTION

Monitoring and evaluation are the continuing processes of monitoring and measuring progress in relation to the set vision and goals of the SUMP, and therefore these activities should be given special attention in the SUMP implementation.

Monitoring is the continuous collection of data on selected status indicators in order to determine the level of progress and achievement of the planned goals. Monitoring is carried out over short periods and through the use of appropriate methods and techniques.

The aim of the evaluation is to determine the importance and degree of fulfilment of the defined general and specific goals. Accordingly, evaluation is conducted less frequently and usually after the completion of one SUMP planning cycle in order to better prepare the next one. Evaluation also requires the application of appropriate methods and techniques. It is preferable to use the methods that are simple, repeatable and not too costly. Such an approach will also ensure transparency in traffic planning.

7.2 MONITORING AND EVALUATION PROCESS

The SUMP monitoring and evaluation process is implemented through the following steps:

- During the process of developing the SUMP, with the aim of assessing the initial situation, several surveys of the capital's population were conducted. As a rule, the surveys cover as many stakeholders as possible. This provides feedback on the current situation and agreement with the basic goals that the SUMP needs to meet. Parents bringing children to kindergarten, and primary and secondary school students were interviewed in Podgorica, as well as citizens through online surveys conducted by the Capital and Biciklo.me NGO;
- Collection of available existing data from competent institutions and organizations for the purpose of assessing the current situation, i.e. indicator analysis. This is a form of the so-called desk research.
- Collection of missing data by conducting various types of interviews and by monitoring the situation on the ground to obtain a broader picture of status indicators of the situation in this area. During the preparation, interviews were conducted with three focus groups (parents, employees, secondary school students);
- Analysis of all collected and available data;

7. MONITORING AND EVALUATION

- Presentation of the results to the public with a view to achieving transparency and involvement of stakeholders in this process, receiving feedback and developing awareness of the importance of the SUMP for the whole society;
- Evaluation of the SUMP, assessment of its performance, evaluation of cost-effectiveness and collection of information in order to improve and develop the next SUMP.

The foregoing indicates that monitoring activities, which include the collection of data and reporting on the SUMP's performance, are carried out continuously during the implementation of the SUMP in order to determine the achievement of the set goals and the possible introduction of corrective measures. The monitoring and evaluation process is conducted to ensure continuous improvements and long-term sustainability of the project, in accordance with the PDCA (Plan-Do-Check-Act) Cycle.

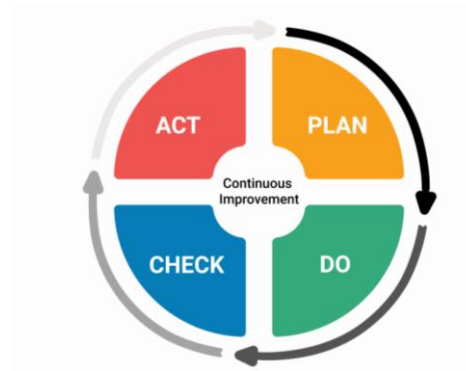


Figure 35. PDCA Continuous Improvement Cycle (Deming Circle)

Plan – Planning for feasibility (goals, estimates or activities);

Do – Performing daily tasks;

Check – Checking the success of the implementation of planned events;

Act – Acting to improve the intended solution.

7. MONITORING AND EVALUATION



Monitoring and evaluation (M&E) activities provide insight into the progress of the process of developing and implementing the Sustainable Urban Mobility Plan (SUMP), as well as the impact of the implemented measures and activities within the SUMP. M&E activities are carried out at all stages of the process, i.e. before, during and after the implementation of measures and activities, with the aim of:

- providing regular information to decision-makers, potential funders and stakeholders;
- demonstrating the achieved or planned benefits for the local community from the implementation of the SUMP;
- demonstrating the economic effects of the activities carried out;
- creating prerequisites for decision-makers to improve implementation or modify planned measures to achieve greater success rates and
- providing insight into lessons learned while applying the SUMP.

The monitoring and evaluation plan is an integral part of the SUMP and its systematic implementation increases the efficiency of the planning and implementation process, helps optimize the use of resources and provides empirical evidence for future planning and assessment of the impact of the measures on mobility.

The monitoring and evaluation plan provides a detailed description of M&E practices, methods, schedules and planning, defines those responsible for M&E activities, and provides indicators and targets for defined goals, as well as the approximation of required resources for M&E activities before, during and after the implementation of the SUMP.

7.3 THE REPORTING, ANALYSIS AND EVALUATION METHODS

Reporting on M&E results will be carried out by using different descriptive techniques for better transparency of results, while different methods and techniques will be used to analyse and evaluate the data obtained, depending on the type and amount of data collected, as well as the importance of the data for further activities. Below is an overview of the methods and techniques that are planned to be applied for the reporting, analysis and evaluation during the implementation of the SUMP.

7.3.1 Reporting methods and techniques

For the purpose of more transparent and clearer reporting of the results obtained, the following will be applied, as appropriate:

7. MONITORING AND EVALUATION



- Overview tables presenting quantitative data;
- Graphs (histograms) for comparative review of quantitative data;
- Maps for displaying geographical locations;
- Photos and videos to show specific situations from the field and situations before and after the implementation of SUMP measures;
- Qualitative description when more detailed explanations of certain situations, data, results of work are needed...

7.3.2 Data collection and analysis methods and techniques

The implementation of the SUMP activities foreseen on an annual basis will be monitored and two basic outcome indicators will be:

- travel habits in Podgorica using the cordon counting method on bridges over the Moraca River;
- travel habits of primary school pupils by using classroom surveys.

Following the SUMP update (after the first two years), the following indicators will be monitored:

- Satisfaction of residents with traffic management – online survey,
- Travel habits of children in kindergartens – surveys for parents,
- Travel habits of secondary school students – classroom surveys,
- Travel habits of employees when going to work – online survey,
- The number of traffic accidents involving pedestrians, cyclists, children and minors – an analysis of data from the Ministry of the Interior.

When the SUMP is renewed (after five years), all data collection will be repeated, as was done in the context of the status analysis for the purposes of this document.

The following data analysis methods and techniques are planned:

Descriptive statistics – for the purpose of describing the data collected during the test and presenting it in a clear spreadsheet and/or graphical form in order to see trends in changes in the situation over time.

The development trends will be estimated on the basis of the **regression analysis**, while the **correlation analysis** will be applied if necessary to determine the strength of correlation of certain parameters.

In order to analyse the data obtained, the working team will apply the so-called **brainstorming** method to provide comprehensive data analysis and active involvement of all participants. Brainstorming will also be applied during the workshops to take into account the views of all stakeholders.

7.3.3 Application of evaluation methods in the SUMP evaluation

The overall assessment of the implemented SUMP should answer the following key questions:

1. Has the SUMP been implemented as planned?
2. Did the population feel the benefits of implementing the SUMP?
3. Did the achieved results of the SUMP implementation justify the invested funds?
4. Are the improvements achieved in economic, social and environmental terms the result of the implementation of the SUMP measures?
5. Which of the SUMP measures were more effective and which were less effective?
6. Is it necessary to develop a SUMP for the next time frame?

For the answers to these questions, a combination of the following methods will be applied:

Cost-benefit analysis will determine and evaluate the financial effects of the SUMP implementation on the basis of an analysis of the costs incurred and benefits achieved.

The **MCDM (Multiple Criteria Decision Making)** method, as highly applicable to ranking solutions by relevance based on defined criteria, will be used if the cost-benefit analysis has not provided the necessary information for certain parts of the SUMP. It is, for instance, used to evaluate the significance of some measures in relation to the goal set or the success of the measures implemented, if this is not apparent from the cost-benefit analysis. The **AHP (Analytic Hierarchy Process) method** will be used for this purpose.

Brainstorming method will be used in evaluating the success of the SUMP implementation phases that cannot be answered using the cost-benefit analysis and the AHP method. The brainstorming will involve a working team and stakeholder representatives.

7. MONITORING AND EVALUATION



The SUMP evaluation will be conducted on the basis of available data.

7.4 ORGANIZATIONAL STRUCTURE AND STAKEHOLDERS

7.4.1 Organizational structure

The primary responsibility for implementing the SUMP monitoring and evaluation lies with the Secretariat for Transport of the Capital City of Podgorica. The Secretariat for Transport will appoint a person to oversee the implementation of the measures envisaged by the SUMP and coordinate the monitoring and evaluation process. The staff of the Secretariat will implement the measures and activities foreseen for the individual strategic pillars of the SUMP, and thereby the key activities in the monitoring and evaluation process.

Other stakeholders in this process, such as representatives of companies founded by local self-governments, representatives of the Ministry of Transport and Maritime Affairs, NGOs, Faculty of Mechanical Engineering of the University of Montenegro, public carriers etc., will participate in the monitoring of the SUMP, provide feedback on the success of the SUMP implementation and participate in the dissemination of information.

7.4.2 Stakeholder involvement

For the SUMP goals to be achieved, active and joint action of all stakeholders in this process is required. From the very beginning of the SUMP project implementation, a number of stakeholders were involved, namely: representatives of the Ministry of Transport, NGOs, public carriers, the academic community etc. The same stakeholders will actively participate in the monitoring and evaluation of the SUMP, which will allow transparency, effectiveness and efficiency of the SUMP implementation.

7.5 PRESENTING THE RESULTS ACHIEVED

The results of the monitoring and evaluation of the SUMP should be presented to stakeholders and citizens preferably by applying quantitative indicators with the necessary interpretation of the results achieved. Quantitative indicators always provide a much better picture of the results achieved and are objective performance indicators, so they should be preferred over a qualitative description of the results.

The presentation of the results should be guided by the following:

- The information presented should be clear and concise;
- Data processed using the methods and techniques described above should be presented in relation to the set goals and by applying the reporting methods and techniques described above;
- All data must be publicly available. They should be presented to citizens and stakeholders and published on social networks, portals, newspapers etc.;
- It is advisable to use visual effects to draw attention to important data.

7.6 PLAN FOR MONITORING AND EVALUATION OF OBJECTIVES

The plan for the monitoring and evaluation of the goals is presented in the table below. The plan lists at least two indicators for each defined goal that create an image of the goal being met. For each indicator, the target (or specific objective), the necessary actions to monitor that indicator in relation to the specified target (monitoring method), and the monitoring and evaluation period are stated.

7. MONITORING AND EVALUATION

Strategic goals	Indicators	Specific targets as compared to 2018	Monitoring		Performance evaluation
			Action	Time period	
STRATEGIC TRANSPORT PLANNING	• Regular revision of SUMP	• Revising SUMP in 2-3 years	Monitoring the success of SUMP implementation	Semi-annual review of the situation	
	• Number of strategies for individual modes of transport	• Developing 4 strategies that incorporate inclusive aspect (urban transport, cycling, parking, walking) for 5 years	Monitoring the development of strategies for particular modes of transport	Semi-annual analysis of the development of planned strategies	
RAISING THE TRAFFIC CULTURE AND TRAFFIC SAFETY LEVELS	• Collection rate for parking fines	• Increasing the collection rate for parking fines to 100% by 2025 25.11% (2018) >>100%	Analysis of records of collection of parking fines	Semi-annual review of the situation	
	• Number of traffic accidents involving injured persons on the streets	• Reducing the number of traffic accidents with injured persons on the streets by 1/3 by 2025 527>>369	Analysis of the number of traffic accidents involving injured persons on the streets	Semi-annual review of the situation	
BALANCING THE DEVELOPMENT OF ALL MODES OF TRANSPORTATION WITH A FOCUS ON PUBLIC URBAN AND NON-MOTORIZED TRANSPORT	• Modal split	• Performing more than 30% of all daily commuting by combining sustainable modes of transport; public urban and non-motorized transport by 2025 11%>>30%	Analysis of traffic count results using the same methodology as for the purposes of status analysis	Annual review of the situation	
	• Motorization rate	• In 2025, increase in motorization rate must be below 3% 6.6%>>3.0%	Analysis of increase in motorization rate	Annual review of the situation	

7. MONITORING AND EVALUATION

PROVIDING AVAILABILITY AND ACCESSIBILITY OF THE TRANSPORT SYSTEM TO ALL CITY RESIDENTS	<ul style="list-style-type: none"> • Offer of public urban transport (line innovation and higher frequency) 	<ul style="list-style-type: none"> • Increasing the public urban transport offer by 100% by 2025 City lines 30 min>>15 min Suburban lines 60 min>>30 min 120 min>>60 min while innovating existing lines 	Departure frequency analysis of all PUT lines	Annual review of the situation	
	<ul style="list-style-type: none"> • Percentage of citizens satisfied with how the transport system works 	<ul style="list-style-type: none"> • Increasing the percentage of satisfied citizens by more than 50% by 2025 13%>>20% 	Analysis of the results of the repeated citizen satisfaction survey	Annual review of the situation	
REDUCING THE NEGATIVE CONSEQUENCES OF TRAFFIC ON THE ENVIRONMENT AND PUBLIC HEALTH	<ul style="list-style-type: none"> • Average age of vehicles 	<ul style="list-style-type: none"> • Reducing average age of vehicles by 2 years by 2025 16>>14 	Analysis of the average age of registered vehicles	Annual review of the situation	
	<ul style="list-style-type: none"> • Share of children coming to kindergartens, primary and secondary schools by car 	<ul style="list-style-type: none"> • Reducing the percentage of children coming to kindergarten, primary of secondary schools by car by 50% by 2025 kindergarten 76%>>38% primary 27%>>13% secondary 20%>>10% 	Analysis of the results of a repeated survey in kindergartens, primary and secondary schools	Annual review of the situation	

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8.3 List of acronyms

SUMP – Sustainable Urban Mobility Plan

CC – Capital City of Podgorica

SUP – Spatial and Urban Plan

GUD – General Urban Design

SEAP – Sustainable Energy Action Plan

SECAP – Sustainable Energy and Climate Action Plan

LEP – Local Energy Plan

COMP – Companies in the territory of the Capital City

PD – Police Directorate

MSDT – Ministry of Sustainable Development and Tourism

MTMA – Ministry of Transport and Maritime Affairs

NGO – Non-governmental organization

EE – External experts

PS – Parking Servis Podgorica doo (city parking company)

PUT – Public urban transport

PWD – Persons with disabilities

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