SUSTAINABLE URBAN MOBILITY PLAN OF THE LJUBLJANA URBAN REGION

For the people and space in an innovative and advanced region

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The Sustainable urban mobility plan of the Ljubljana Urban Region was unanimously approved on 24 October 2018 at the 10th regular session of the Ljubljana Urban Region Council. The Council consists of 26 mayors of Ljubljana Urban Region municipalities:

Municipality of Borovnica
Municipality of Brezovica
Municipality of Dobrepolje
Municipality of Dobrova - Polhov Gradec
Municipality of Dol pri Ljubljana
Municipality of Domžale
Municipality of Grosuplje
Municipality of Horjul
Municipality of Ig
Municipality of Ivančna Gorica
Municipality of Kamnik
Municipality of Komenda
Municipality of Litija
City of Ljubljana
Municipality of Logatec
Municipality of Log - Dragomer
Municipality of Lukovica
Municipality of Medvode
Municipality of Mengeš
Municipality of Moravče
Municipality of Škofljica
Municipality of Šmartno pri Litiji
Municipality of Trzin
Municipality of Velike Lašče
Municipality of Vodice
Municipality of Vrhnika

Photo: Nik Rovan

SUSTAINABLE DEVELOPMENT WILL LEAD US TO A COMMON FUTURE

In Ljubljana and in the Ljubljana Urban Region, we committed to sustainable development of our city and region over a decade ago; namely, we believe that the development of cities and regions must be based on a respect for the environment and all the residents who live there. This is our only path to the future, where generations to come will be able to live a full and happy life.

With this, the participation of municipalities that are part of the Ljubljana Urban Region is of paramount importance and I am pleased that all the mayors of the area are aware of the importance of development that is good for both the environment and people.

The regulation of mobility is one of our major challenges. As far back as in 2007 we already recognised sustainable mobility as one of the priority development tasks and collaboratively approached the preparation of expert bases for the regulation of public transport in the region.

Our activities are focused on the provision of affordable, fast, efficient, safe, clean, and economically sustainable transport, which is essential to help the region develop its potential, on the one hand, while providing comfortable living and bringing people together on the other.

Our common objective is to provide integrated mobility with a well-functioning public transport system and the development of a high-quality and safe infrastructure for pedestrians and cyclists.

Therefore, we have created an innovative strategic document known as the Sustainable Urban Mobility Plan of the Ljubljana Urban Region, which was drawn up by the representatives of all 26 municipalities of the Ljubljana Urban Region. This shows that we all recognise the immense importance of this document for both current and future generations.

In the Sustainable Urban Mobility Plan of the Ljubljana Urban Region, concrete measures for the regulation of sustainable mobility are provided and an innovative approach to solving transport challenges on a regional level is presented. At the same time, it is one of the key professional bases for the regional spatial plan and the foundation for finding resources for the implementation of development projects.

I am proud of the fact that the mayors of all 26 municipalities in the Ljubljana Urban Region, together with our professional services, have shown that through cooperation, team work, professionalism and an awareness of our residents being at the centre of our focus, we are leading our region into a future in which we can guarantee the quality and pleasant living conditions of all generations, both current and future ones.

Zoran Janković, President of the Ljubljana Urban Region Council and the Mayor of Ljubljana

ABOUT THE REGION

A GREEN DRIVER OF DEVELOPMENT AND A METROPOLITAN BIOREGION OF KNOWLEDGE

The Ljubljana Urban Region (LUR) unites 26 municipalities in central Slovenia, and it is the region with the most knowledge and creative potential: key national, scientific, research, educational and cultural institutions are concentrated here. Furthermore, it is the headquarters of numerous companies that employ significant numbers of people and create more than a third of Slovenia's gross domestic product.

Despite the region with Ljubljana, the capital city of Slovenia, being predominantly urban, it is also distinguished by its easily accessible natural environment, diverse wildlife and varied landscape. The vicinity of excellent natural areas and the interweaving of the built up and natural environments make Ljubljana truly unique among European metropolitan regions. It is situated at the crossroads of two major European corridors: the Baltic-Adriatic and Mediterranean Corridors. For the integration of the region in the international arena, its connection with the Ljubljana Jože Pučnik international airport is important, as it is located in the immediate vicinity of the LUR, approximately 25 kilometres from the city centre, as is its connection with the Port of Koper, which is approximately 100 kilometres away.

The LUR is the most important commuting destination in Slovenia. Its attractiveness, cleanliness, and numerous possibilities that are offered to almost 550,000 residents in the region, just under 28,000 students from other regions, as well as many other visitors, also represent major challenges in the area of mobility, which is one of the main factors of development. Within the region, daily commuting also takes place – more than 142,500 employed people commute to work from outside the municipality of their residence every day.

In its development programme, the LUR is committed to the improvement of economic flows and the reduction of the environmental burden with the renewal of its transport infrastructure in the direction of sustainable mobility, thus achieving its goals of becoming an effectively internally connected region, using space and resources rationally, developing knowledge, creativity and innovation, and consequently becoming a competitive metropolitan region with jobs, high added value, and a high quality of living.

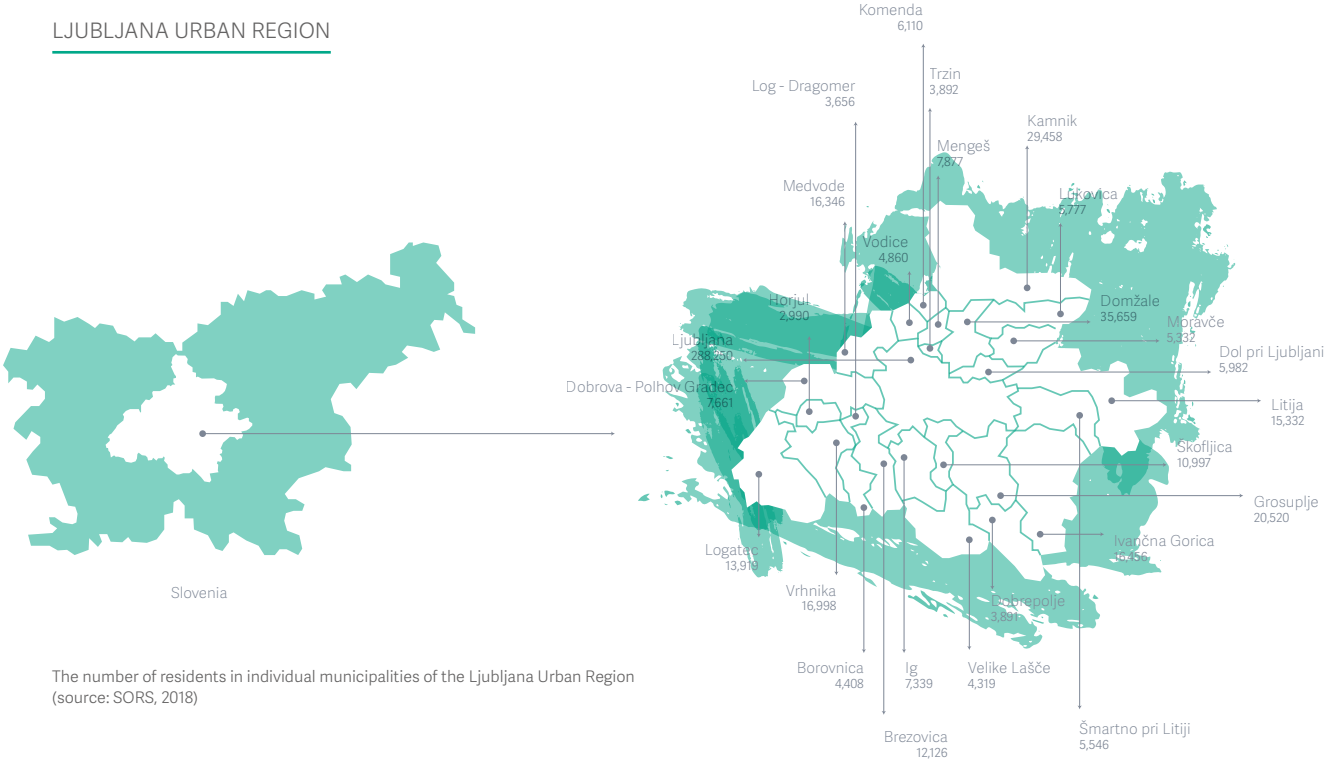
550,000
residents

28,000
students from other regions

142,500
commuters

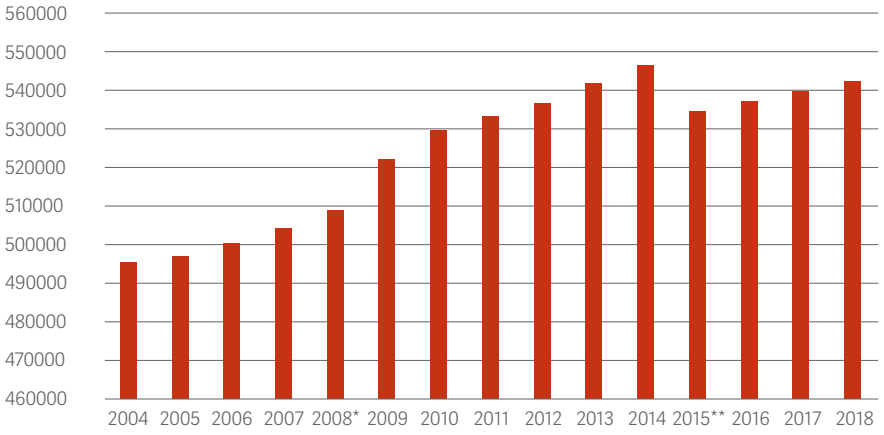
More than 142,500 people employed in the LUR commute to work from outside the municipality of their residence every day.

LJUBLJANA URBAN REGION



The number of residents in individual municipalities of the Ljubljana Urban Region (source: SORS, 2018)

CENTRAL SLOVENIA REGION



The number of residents in the region by year (source: SORS, 2018)

* After 2008, the definition of a population has been changed to include students, high-school students, foreigners and others with permanent or temporary residence; therefore, an additional increase in the number of residents in the region has been recorded in 2009.

** From May 1st, 2015, the Municipality of Litija statistically no longer falls within the area of central Slovenia; therefore, a decline in the number of residents in the region was recorded that year.

"If you plan cities for cars and traffic,
you get cars and traffic.
If you plan for people and places,
you get people and places."

Fred Kent, urban planner, founder and president of the non-profit organisation "Project for Public Spaces"

Photo: Fotolia

1 SUSTAINABLE MOBILITY: SUSTAINABLE MOBILITY PLANNING FOR AN INNOVATIVE AND ADVANCED REGION

Traffic connectivity and the mobility of people and goods play a key role in the development of cities and urban centres, municipalities, the region, and the country; however, only sustainable mobility promotes economic development, social justice and quality of the environment. The objective of sustainable mobility planning is to establish a sustainable mobility system by ensuring the availability of jobs and services for all, the improvement of safety, reduction in pollution, greenhouse gas emissions and energy consumption, increase in the efficiency of public transport, reduction in the costs of mobility, optimisation of freight transport, and a positive contribution to the health of residents and visitors of the region. In the past, Slovenia dedicated a large share of its development resources to the development of mobility based on the use of personal vehicles, while neglecting the development of public transport (JPP), rail transport, cycling and walking, which was followed by the patterns of settlement and spatial development.

The rapid development of non-sustainable forms of mobility, which has followed the economic development of the country, has brought rapid economic development to society, as well as its competitiveness in Europe; however, mobility that is based on car traffic does not lead to long-term sustainable development. Therefore, the future success of the region depends on the sustainable management of scarce resources and sustainable concepts that will provide a quality space for living and working for later generations, as well. The concept of the development of sustainable mobility is complex and feasible only with the active participation of key stakeholders on local, regional and national levels, and with the participation of the general public who generate the majority of traffic flows. The measures provided by the sustainable transport plan must therefore comprehensively address all modes and forms of transport such as public transport, motor vehicle passenger traffic, bicycles and walking, as well as freight and stationary traffic.

The region is developing towards sustainable mobility. It acts as an innovative and progressive region which focuses its development on the people, improving mobility opportunities for its residents and facilitates access to individual parts of the region and services, while also responding better to the needs of various user groups. Sustainable mobility planning is therefore planning for people, not for cars and increasing traffic. Improving the quality of public spaces, the positive effects on the environment, health and safety are at the forefront – especially for the most vulnerable groups of road users. It should also be noted that

Sustainable mobility planning is mobility planning for people, not for cars and increasing traffic.

in the coming years, both passenger and freight transport will experience a significant increase. Projections show that by 2030, the former will increase by more than 20%, and the latter by more than 60%, which is extremely worrying.

The concept of sustainable mobility planning, which follows the European guidelines, has in the last two years acquired an important role in mobility planning in the Slovenian municipalities, due to the fact that nine municipalities of the LUR have joined the preparation of the local Sustainable urban mobility plans (SUMP), and all 26 municipalities have joined the preparation of the regional SUMP. Previously, municipalities regulated transport mainly via municipal planning documents and strategies, with the exception of the City of Ljubljana (MOL), which had, as early as in 2012, adopted a Traffic Policy that is broadly consistent with the guidelines for the preparation of the SUMP. Experience has shown that solutions to transport challenges go beyond the boundaries of individual municipalities if we want to create the most effective transport system, due to the fact that bike tracks, bus routes, railways, and spatial development do not stop at local borders.

Therefore, the LUR municipalities were the first to join the joint preparation of the SUMP at the level of the entire development region. This is an innovative instrument that will, with its experience, also lay down the foundations and starting points for the preparation of the regional SUMP of other regions in the future. With its comprehensive treatment and clearly defined priority projects, this document will facilitate the implementation of projects for the region and municipalities from funding sources available for innovative solutions in the field of sustainable mobility, and clearly outline the direction of the development for the region in discussions with the government and the wider European community. At the same time, it will significantly contribute to the sustainable transition of the region to a low-carbon society.

A comprehensive approach to mobility planning is based on the harmonisation of the concepts of economic development, social justice and environmental quality.

Photo: Fotolia

2 SUSTAINABLE URBAN MOBILITY PLAN (SUMP) OF THE REGION: ITS ROLE AND PREPARATION PROCESS

The SUMP is a key tool in the new approach to mobility planning which has so far already been established at a local level in Slovenia, but not at a regional level. This innovative instrument of mobility planning at the regional level by which the region will pursue its strategic objectives and consequently establish a higher quality of living is important both in terms of the content it addresses, as well as in terms of its methodology design and process for its preparation. This will also be useful for further similar strategies in other regions.

The comprehensive approach to mobility planning is based on the harmonisation of the concepts of economic development, social justice and environmental quality. It is an approach that goes beyond the limits of the division of powers at a regional level, linking the local, regional and national levels, as well as promoting the participation of various groups of stakeholders in the preparation process. At a local level, the integration of various sectors of the municipality is particularly important, while at a regional level, this is true for creating synergies and commitments in the joint planning between various levels of planning, which is based on trust and transparency.

The SUMP of the region follows new approaches to mobility planning and its basic features are:

- Strategic and targeted planning.
- Participatory and transparent decision-making.
- Accessibility and quality of living are the two main objectives.
- Focusing on the people.
- Cost-effective planning.
- Managing transport demand.
- Focusing on effective and gradually-introduced improvements.
- Interdisciplinarity and integration of sectors for health, space, and the environment.
- Strategic assessment of compliance of project opportunities and objectives set.

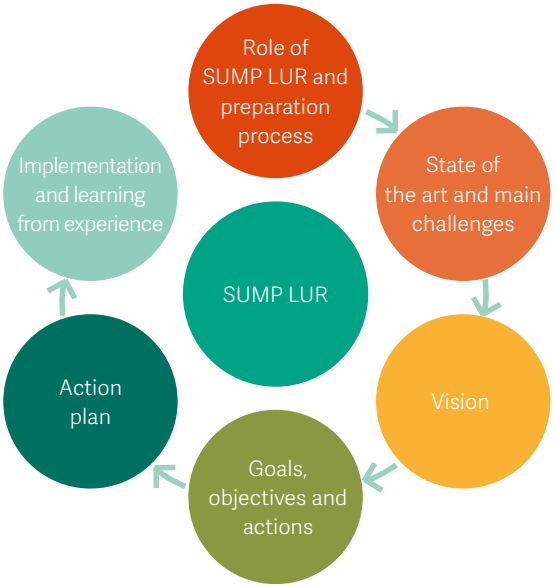
The establishment of a sustainable mobility system is included in the objectives of the SUMP so as to ensure the accessibility of jobs and services for all; improve road safety; reduce pollution greenhouse gas emissions and energy consumption; increase the efficiency of public transport; reduce the cost of passenger and freight transport; and improve the attractiveness and quality of the environment. Comprehensively regulated traffic does not only mean the better utilisation of transport infrastructure, lower mobility costs, less congestion, more efficient investments, and greater customer satisfaction. The emphasis is on friendliness towards pedestrians and cyclists, the development of public transport, and ways of changing travel habits of the population in the region, which will contribute to a greater proportion of sustainable mobility due to the reduced use of cars. The construction of infrastructure, especially roads, is only one of the possible ways to solve traffic problems and should be used when all other, especially more cost-effective options, are exhausted.

TRADITIONAL MOBILITY PLANNING	SUSTAINABLE URBAN MOBILITY PLANNING
Infrastructure is the central issue	Infrastructure is one of the ways of achieving broader objectives
Project planning	Strategic and targeted planning
Non-transparent decision-making	Transparent decision-making with public participation
Fluidity and speed are the two main objectives	Accessibility and quality of living are the two main objectives
Focusing on cars	Focusing on people
Investment-intensive planning	Cost-effective planning
Meeting the transport demand	Management of transport demand
Focusing on large and expensive projects	Focusing on the effective and gradually-introduced improvements
Domain of traffic engineers	Interdisciplinarity and integration with the health, environment, and space sectors
Selection of transport projects without strategic assessments	Strategic evaluation of options against set objectives

Key features of sustainable mobility planning – Guidelines for the preparation of the SUMP: Sustainable mobility for a successful future (2012).

The preparation of the SUMP of the region follows the guidelines for the preparation of the SUMP, which was drawn up by the European Commission at a European level, and by the Ministry of Infrastructure at a national level, as well as logically builds on the proposed procedures for its preparation at a local level according to the needs of the region.

In particular, the regional level differs from the local in that for the development of the strategy, the participation of various stakeholders and representatives of organised public of various levels (state, municipal) and areas is more important, and the participation of residents in the preparation must be planned more carefully and in a more targeted way.



The preparation phases of the Sustainable Urban Mobility Plan for the region

Specifically, the preparation of the Sustainable urban mobility plan for the region has involved various stakeholders and the public in all preparation phases. In the context of the state of the art analysis, two workshops for stakeholders and representatives of municipalities were performed. Interviews were conducted with all 26 mayors of the LUR. For the general public, an online survey of travel habits, the challenges of mobility in the region, and priorities for the development of sustainable mobility, in which almost 2,000 people participated, was performed. The state of the art analysis has thus laid the foundation for defining the vision for the region and the objectives to be achieved, which was tested at five workshops that were performed at various transport-related parts of the region and on the GIS portal, where the residents in the region, stakeholders, and decision-makers in the region could also graphically convey their suggestions for priority actions which will help achieve the objectives. Priority measures that are an integral part of the action plan were verified at workshops with the representatives of municipalities and key stakeholders, and further through interviews with key stakeholders, who are going to be implementing these measures in the future.

From a professional point of view, under the management of the Regional Development Agency of the Ljubljana Urban Region (RRA LUR), the SUMP of the region has linked together the findings, knowledge, resources, and procedures of the following projects: SMART-MR (Interreg Europe Programme), Peripheral Access (Central Europe Programme) and InterConnect (ADRION Programme), and especially the professional work of the team of authors (the Urban Institute of Ljubljana, Research Centre of the Slovenian Academy of Sciences and Arts – Anton Melik Geographical Institute, Institute of Traffic and Transport Ljubljana, and the Institute for Spatial Policies), whose work was outside of the mentioned projects funded by all 26 municipalities of the LUR.

The challenges of mobility should be viewed from a long-term perspective. They can only be solved by joint efforts and the cooperation of all municipalities and key stakeholders.

Photo: Fotolia

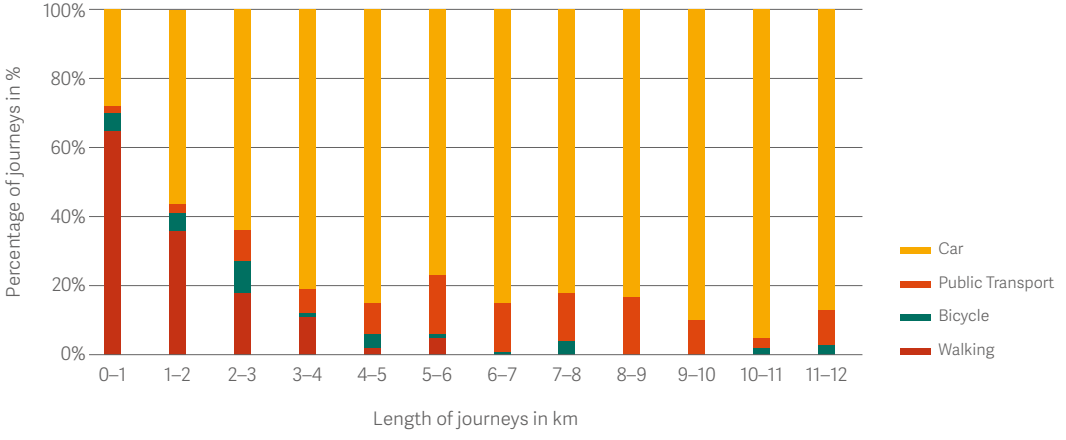
3 TRAFFIC AND THE MAIN CHALLENGES OF THE REGION

MOBILITY IN THE REGION

In Slovenia and especially in the LUR, special attention has been given to the development of sustainable mobility in the past twenty years. This is evidenced by a growing number of adopted development documents and strategies (e.g. the Spatial Development Strategy of Slovenia, 2004; the Resolution on Transport Policy of the Republic of Slovenia (Intermodality: Time for Synergy), 2006; the Resolution on the National Programme of Transport Development in the Republic of Slovenia for the Period until 2030, 2016; the Transport Development Strategy in the Republic of Slovenia until 2030, 2017), as well as studies that impose a more pro-active shift towards the implementation of the set commitments in practice.

Despite the stated commitments and various efforts, the mobility in the region mainly remains based on private car traffic.
The consequences of the rail network modernisation, as the backbone of public transport, being too slow, as well as unconnected and insufficiently developed network of public transport, especially in terms of intermodality, are reflected in the inadequate and uncompetitive offer of public transport and the increase in car use on short daily routes. The trend of the increasing use of private cars is rising and this has remained unchanged. In 2013, an in-depth study on the travel habits of residents in the MOL and the LUR showed that as many as 60% of journeys in the LUR are made by car, while the percentages of journeys by car in the LUR are especially large regarding short distances.

PERCENTAGE OF JOURNEYS BY MODE OF TRANSPORT AND DISTANCE TRAVELLED – RESIDENTS IN THE LUR



Percentage of journeys made by the LUR residents by mode of transport depending on the length of journeys 2013 (source: A Survey of Travel Habits in the MOL and LUR, 2014)

The LUR with the capital city of Ljubljana is the most important destination of daily commuting in Slovenia, because it attracts commuters to jobs and schools from this region and neighbouring regions (RDP, 2014–2020). The MOL offers more than 222,000 jobs, which is more than a quarter of all jobs in the country (SORS, 2017). Of this, more than 120,000 people (55%) commute on a daily basis to the MOL from elsewhere (approx. 25% from other municipalities of the LUR and 30% from the rest of Slovenia). In addition, approximately 22,500 employed persons commute to other municipalities (not the MOL).

CHART SHOWING WORKING COMMUTES

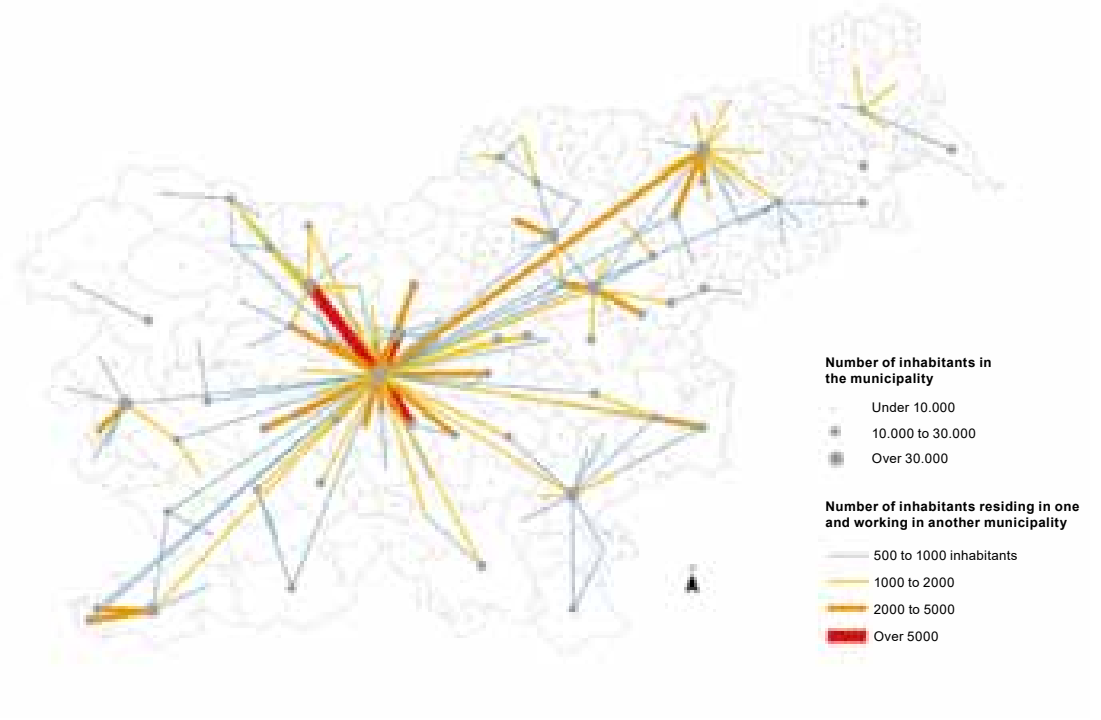
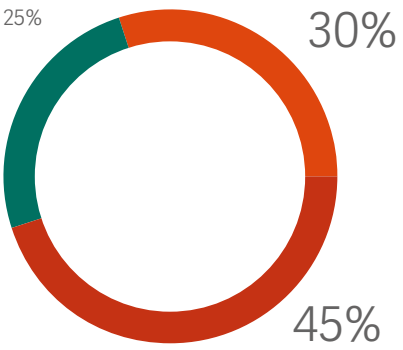


Chart showing working commutes (source: Tatjana Marn, IPoP, data from SORS, 2010)

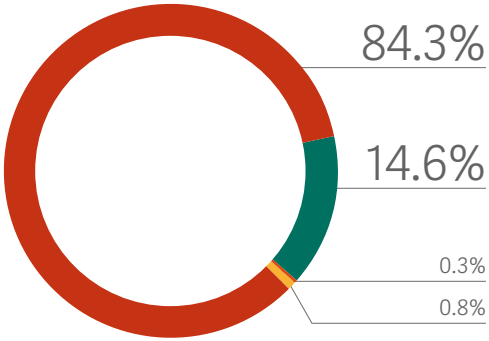
PERCENTAGE OF EMPLOYEES/COMMUTERS IN THE MOL BASED ON THEIR LOCATION OF RESIDENCE



- Percentage of journeys to a work place within the MOL
- Percentage of journeys to a work place from the LUR to the MOL
- Percentage of journeys to a work place from Slovenia to the MOL

Source: A Survey of Travel Habits in the MOL and LUR, 2014

PERCENTAGE OF JOURNEYS BY MODE OF TRANSPORT THAT BEGAN OUTSIDE THE MOL IN THE LUR AREA AND ENDED IN THE MOL AREA – 2013

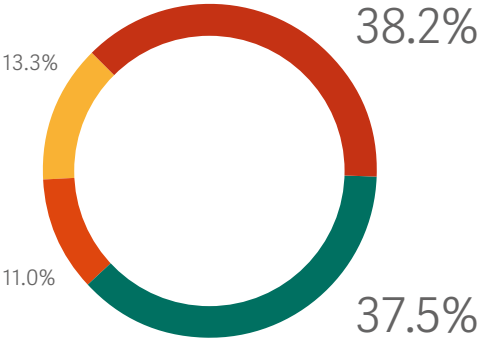


- Car
- Public transport
- Bicycle
- Walking

Source: A Survey of Travel Habits in the MOL and LUR, 2014

The last Representative Survey of Travel Habits in the MOL and the LUR (2014) shows that the majority of journeys (84%) to the MOL are made by car.

PERCENTAGE OF JOURNEYS BY MODE OF TRANSPORT THAT WERE ENTIRELY MADE WITHIN THE MOL – 2013

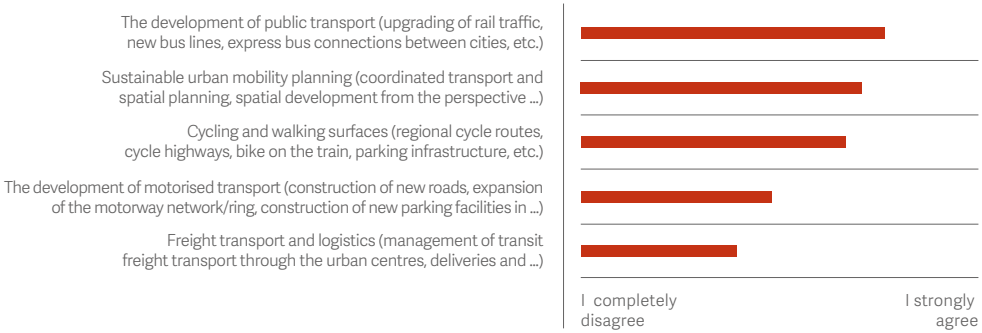


- Car
- Walking
- Bicycle
- Public transport

Source: A Survey of Travel Habits in the MOL and LUR, 2014

In this study, the data on journeys exclusively within the MOL was evaluated. In this case, the figure of the selection of mode of transport is fundamentally different. Only slightly more than one third of the MOL residents uses a car for their journeys, while many use the alternatives that mean a competitive selection within the MOL. Shorter distances allow the use of a wider range of modes of transport.

ACCEPTANCE OF THE DEVELOPMENT OF MODALITIES OF SUSTAINABLE MOBILITY BY THE LUR RESIDENTS

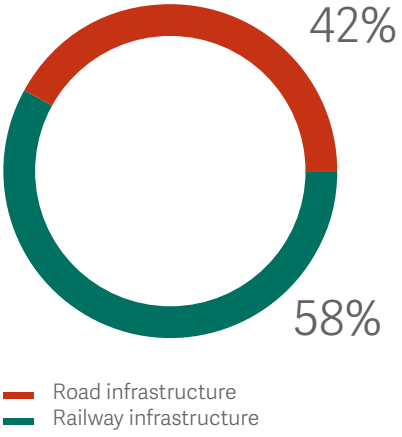


Source: A survey carried out in the context of the preparation of the SUMP LUR (2018)

As part of the preparation of the SUMP LUR, we examined the acceptance of the development of modalities of sustainable mobility by the LUR residents with a public opinion survey. The development of public transport has received the biggest support of the public.

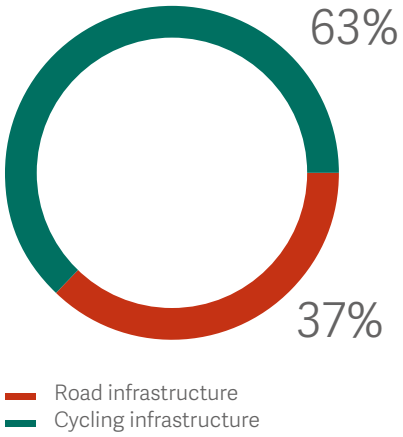
The respondents also supported the intention of the LUR to provide more attention and resources for the future planning of sustainable mobility.

INVESTMENTS ARE NEEDED IN:



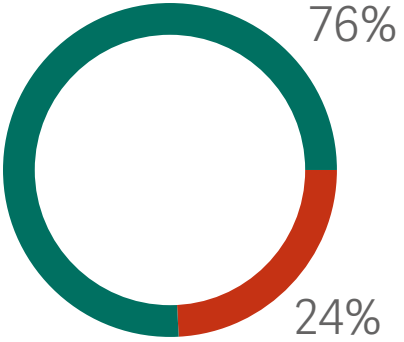
The results of the survey carried out as part of the preparation of the SUMP LUR (2018)

INVESTMENTS ARE NEEDED IN:



The results of the survey carried out as part of the preparation of the SUMP LUR (2018)

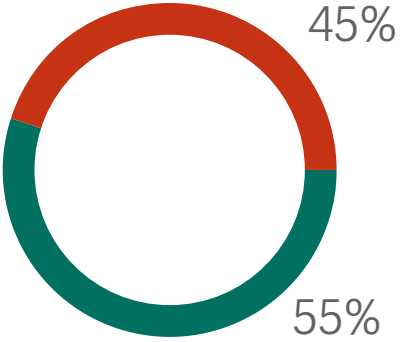
IN PLANNING, THE FOLLOWING SHOULD BE GIVEN PRIORITY:



Car
Public transport

The results of the survey carried out as part of the preparation of the SUMP LUR (2018)

IN PLANNING, THE FOLLOWING SHOULD BE GIVEN PRIORITY:

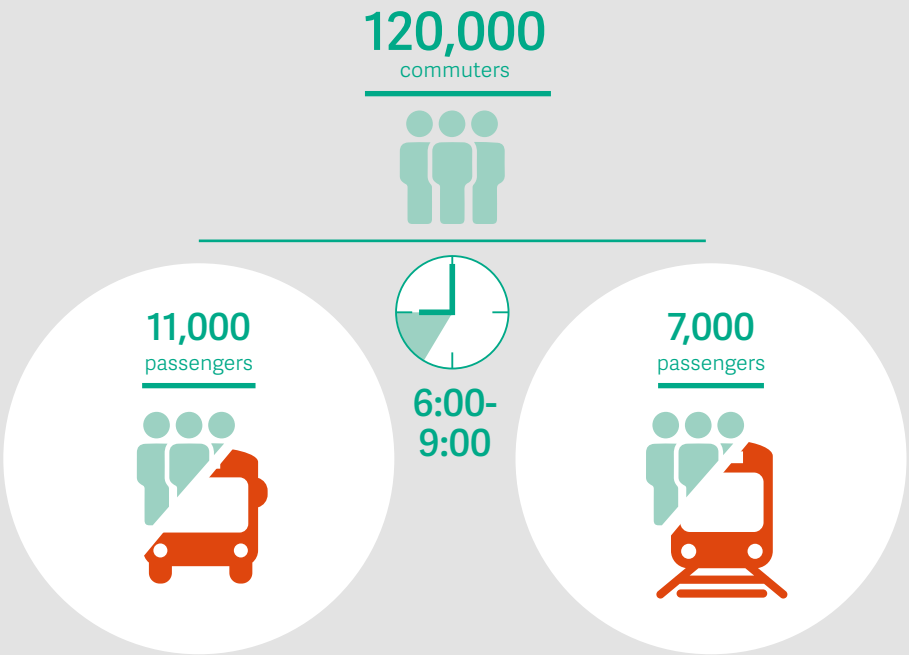


Bicycle
Public transport

The results of the survey carried out as part of the preparation of the SUMP LUR (2018)

The biggest step forward at a regional level could be made in public transport. There is not only a need to change the travel habits of daily commuters, but above all the reorganisation of public transport. The current capacity of public transport is minimal and even if it were fully utilised, it could take over only a small percentage of passengers who commute daily by car. The capacity of public rail transport in the morning rush hour, until 9:00, driving from the outside of the MOL into the MOL, is estimated to be around 7,000 passengers, while the capacity of the bus public transport in the same time span is estimated at 11,000 passengers. Alongside 120,000 daily commuters, there are many school children and students travelling to the MOL. The school children who reside outside the MOL alone can fill the capacity of public transport, which is already fully occupied between 7:00 and 8:00.

The biggest step forward at the regional level could be made in public transport.



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CHALLENGES

Underutilised potential of cycling and intermodality at a regional level

The main challenge of cycling in the LUR is the development of a cycling infrastructure. A network of interconnected, safe and comfortable cycling routes needs to be developed. Cycling routes are essential to increase the number of daily journeys – for example to work or to school. Furthermore, the development of a cycling infrastructure is important for the development of tourism and recreation. In the MOL, 230km of cycling routes are built; however, it is crucial to continue with their development by connecting important cities within the MOL and at a regional level.

Although recreational cycling as a form of leisure activity is popular in the LUR, the proportion of daily cycling (to work, school, on errands) is relatively small. The Survey on Traffic Habits of the Population at the level of the Republic of Slovenia (2016) shows that the majority of journeys in the LUR are made by car (73%). However, with appropriate measures, we can encourage cycling, because the majority of the population lives in the flat parts of the region. At the same time, the distances suitable for everyday cycling are increasing due to the introduction of electric bikes. A good example is the MOL where the percentage of cyclists cycling on daily errands is increasing annually. In 2013, it reached 11% for journeys within the MOL.

The connection of rail passenger transport and cycling has huge potential in that the proportion of people in the region who are daily commuters by car would change this habit and start combining the use of the train and bike. Such a journey unites the flexibility of the bike on the first and the last kilometre, and a relatively fast main part of the journey. During morning peak hours, travelling by train is faster than by car, due to the fact that car traffic congestions are typical for the LUR, just like for other regions. At the same time, travelling by train is more predictable, because the duration of the journey does not extend due to accidents or incidents.

Unlike the roads, where the capacity is fully utilised at peak hours, railways have the possibility of increasing their capacity to transport a large number of passengers.

Intermodal points (stations, stops, and P + R) are often designed in a way that does not allow passenger-friendly integration of various modes of transport and the development of intermodality. Since stations are often not properly adapted for people with disabilities, the elderly and children, these groups rarely use public transport. Optimisation of the internal organisation and integration of intermodal points, as well as accessibility for vulnerable groups is therefore of key importance.

Inefficiency of public transport and the need for its reorganisation

The percentage of daily use of public transport (work, school, errands, etc.) in the LUR is relatively low at around 8% as most journeys are made by car. With an appropriate investment in the infrastructure, rolling stock and adjustment of schedules, it is possible to encourage people to use public transport since the LUR is the largest generator of personal transport in Slovenia and has the greatest potential for growth in public transport at a national level. In areas with sparse and scattered settlements where the organisation of conventional public transport is energy inefficient, flexible forms of transport are being introduced, such as on-demand services that complement the existing public transport system.

The poor state of road and rail infrastructure is reflected in longer travel times and unforeseen delays, making public transport uncompetitive compared to other modes of transport. An efficient infrastructure requires higher initial investment costs, which may be partly reimbursed through an efficient system of public transport in the LUR and the benefits that such use entails. The modern design of public transport stations and stops increases the attractiveness of public transport. Increasing the speed of buses on the roads in the form of yellow lanes and higher speeds of trains would significantly shorten public transport travel times.

A large proportion of public transport vehicles does use alternative drives (CNG, methane, electricity), but in the field of bus services, diesel-powered vehicles are still prevalent. The use of fossil fuels in bus transport and an outdated fleet of passenger trains cause air pollution and a great deal of trouble to public transport passengers due to breakdowns and delays. Most passenger trains exceed their lifetime, are not air-conditioned, have inadequate access, and do not give information on upcoming stops. By investing in new rolling stock, the attractiveness of public transport may increase and the accessibility for all users improves; the vehicles are more user-friendly. The new rolling stock may also shorten travel times.

Timetables represent a major challenge in the organisation of public transport in connection with public infrastructure and rolling stock. The integration of schedules between bus and rail providers has not yet fully come to life, and building a network of P + R and other intermodal transfer points has not yet been completed. The region lacks express bus lines to regional centres and a direct rail link between the municipal centres of the LUR. Interval transport of passenger trains is dependent on the availability of infrastructure and its capabilities. The coordinated action of public transport may shorten the travel times of public transport.

Traffic congestion during peak hours as a result of an excessive car use in daily commuting

Congestion on roads in the LUR and MOL is lower compared to other cities and regions in Europe (TOMTOM Traffic Index); travel times are not significantly increased even in peak hours. Investments in road infrastructure and the construction and expansion of roads can therefore not be a priority measure to improve mobility in the region, while on the other hand, the infrastructure and public transport facilities are inadequate. In the future, priority should therefore be given to regulating the infrastructure in the field of public transport, thus providing a platform for smart planning and traffic management.


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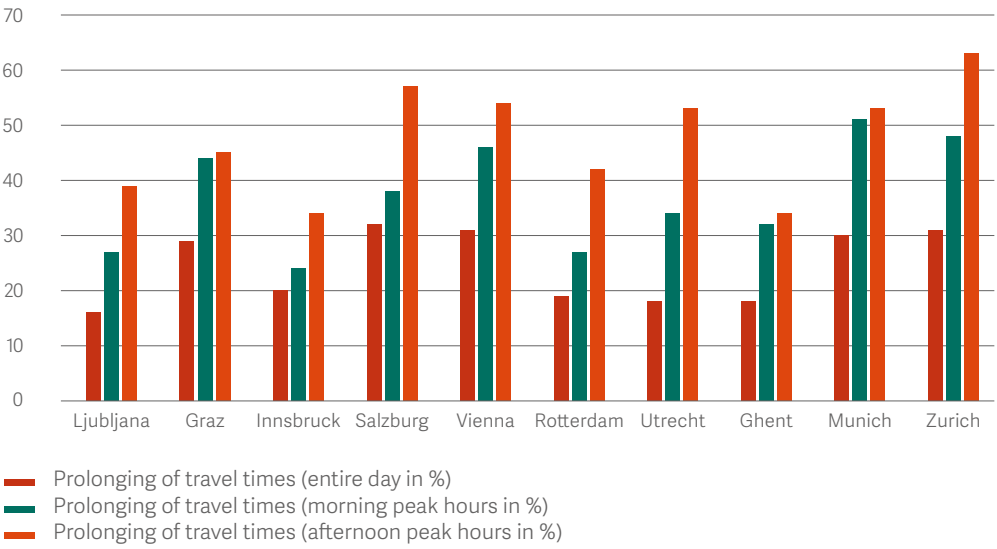
PROLONGING OF TRAVEL TIMES DUE TO CONGESTION IN EUROPEAN CITIES (TOMTOM DATA)



Prolonging of travel times in the MOL compared to other European cities according to the Tom-Tom navigation technology company

Daily, more than 120,000 people commute to the MOL. More than 22,500 employed persons commute to another municipality in the region. The number of employed persons in the MOL doubles daily. In addition, several daily commutes from the region to the MOL are also made by school children and students. Students mainly use cars for their journeys, and even though the rational use and car-pooling wih others, where greater occupancy of the vehicle is normal practice, they still constitute an additional burden which is reflected on the roads during the school year especially in the vicinity of the MOL.

The problem of an increase in car traffic is most obvious in all the directions of the motorway network and the Ljubljana ring road, and even on some of the major national roads where transit (commuting) flows are strong and directed towards the MOL (e.g. Škofljica, Medvode, Trzin, etc.). Especially on the motorway network and the Ljubljana ring road, transit flows that come from a broader Slovenian and European area are also present during peak hours; however, these do not constitute more than one third of the total load in any section; at some points, these loads are even less than 5%.

Due to this, traffic congestion and traffic jams occur in peak hours on all of these sections; thus, travel time to work is prolonged.

TRAFFIC LOAD IN THE MORNING RUSH HOUR (BETWEEN 6:00 AND 9:00) ON THE MAIN TRAFFIC ROUTES IN DIRECTION OF MOL

GORENJSKA

12,000
commuters

Total number of commuters in the MOL from Gorenjska according to the SORS

Residence in the municipalities of Vodice, Cerklje na Gorenjskem, Šenčur, Kranj, Naklo, Radovljica, Bled, Tržič, Preddvor

10,200
vehicles on an average weekday

GORENJSKA MOTORWAY SECTION
R1 public road: Kranj – Jeprca
R3 public road: Vodice – Ljubljana

PRIMORSKA

21,500
commuters

The number of commuters in the MOL from Primorska according to the SORS

Residence in the municipalities of Ajdovščina, Ankaran, Bloke, Bovec, Brda, Brezovica, Cerknica, Divača, Hrpelje – Kozina, Idrija, Ilirska Bistrica, Izola, Kanal ob Soči, Kobarid, Komen, Koper, Log – Dragomer, Logatec, Loška Dolina, Miren – Kostanjevica, Nova Gorica, Piran, Pivka, Postojna, Renče – Vogrsko, Sežana, Šempeter – Vrtojba, Tolmin, Vipava, Vrhnika

14,300
vehicles on an average weekday

PRIMORSKA MOTORWAY SECTION
R2 public road: Vrhnika – Brezovica
R3 public road: Podpeč – Vnanje Gorice

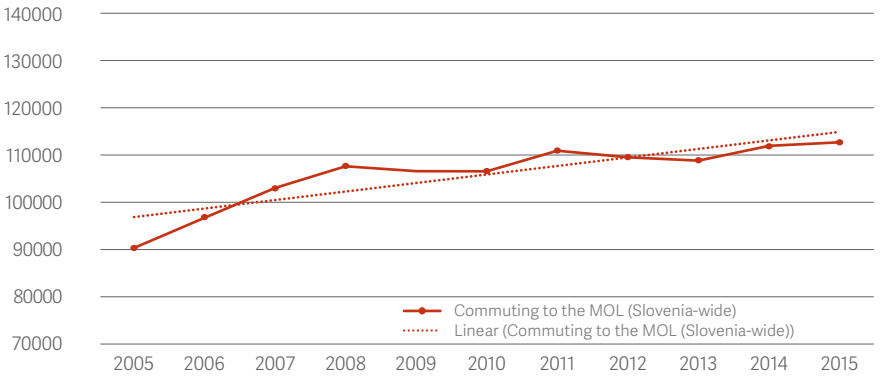
MOL

6:00-9:00

A simple analysis shows that, according to statistics, there are more commuters driving to Ljubljana in the morning rush hours than vehicles on the main roads. From this it can be concluded that the percentage of transit traffic during peak hours is low (on some routes almost negligible); therefore, traffic congestion during peak hours on the roads towards Ljubljana is mainly the result of daily commuting.

Traffic congestion and prolonged travel times on the road network are particularly pronounced during the morning rush hour which lasts for approximately two hours. During the rest of the day, the traffic load is more evenly distributed and the travel speed (apart from the occasional local congestions and incidents) is higher. The sample corresponds to the loads resulting from commuting; these originate in the region and beyond and their destination is (mostly) the MOL. In the event of such a travel pattern, the construction of new infrastructure and the expansion of existing motorways and major national roads, where traffic congestions occur, is a relatively ineffective approach to resolving this problem, as it only eliminates the effects, places the problem at a local level, and does not eliminate the cause. The need for transport to work thus remains and although the expansion of the motorway ring and the connecting roads does temporarily solve the problems of the motorway network, in reality it simply shifts them to an area (e.g. of the urban (municipal) road network) which cannot easily be expanded due to spatial limitations making it unable to take additional traffic.

COMMUTING TO THE MOL (SLOVENIA-WIDE)

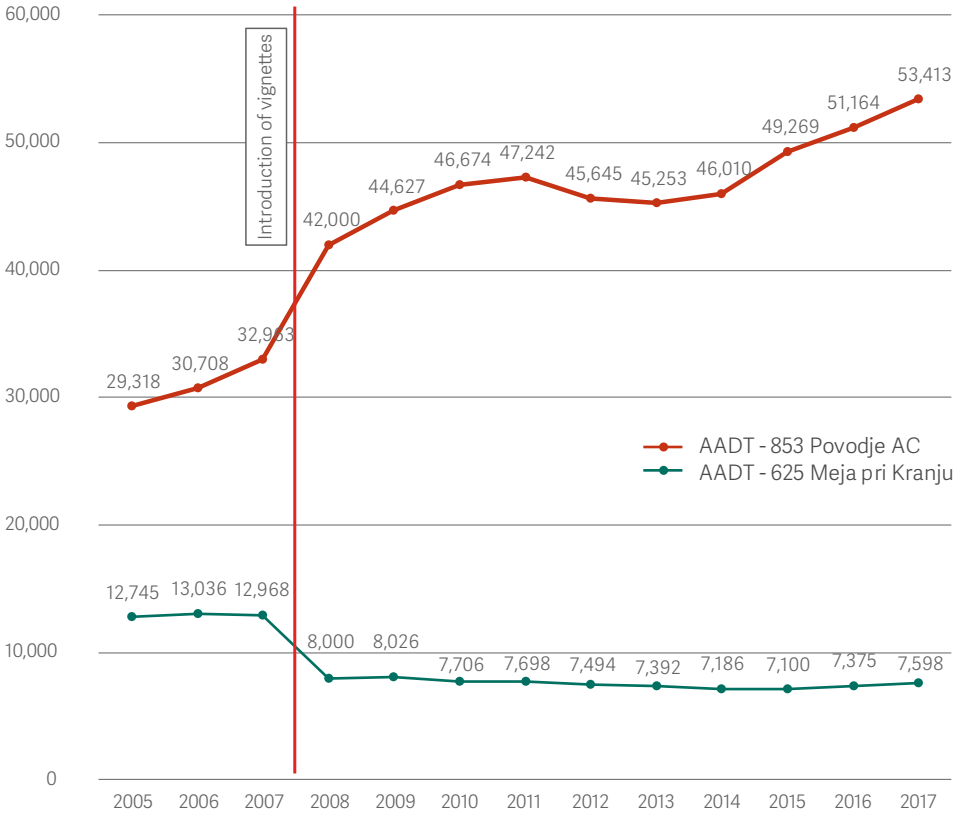


Commuting to the MOL (Slovenia-wide). Source: SORS

In recent decades, large investments in the development of road infrastructure throughout the entire territory of Slovenia have been made. The motorway network and a number of other road links have been completed. The completion of the motorway network and the construction of a new road infrastructure had, among other factors, a significant impact on settlement patterns; traffic flows to Ljubljana were strengthened. At the same time, the influence of Ljubljana's hinterland and the level of suburbanisation have been increasing. If we also consider the mono-centric spatial development and the impact of the past economic crisis, when people were willing to commute longer distances for work, the result is expected. The number of commuters has been increasing every year, while the choice of a car as the main mode of transport was the logical consequence of disproportionate investments in road infrastructure at the expense of development of other modalities (rail, bus, bicycle, walking). In addition, the ease and economy of use of the motorway was also affected by the introduction of the vignette system that does not financially distinguish between shorter and longer journeys, and the frequency of use (according to the polluter-pays principle).

And although the introduction of vignettes has significantly improved the statistics on safety on our roads, it has at the same time contributed to the increasing of numbers of journeys and the level of car use in the long term.

GROWTH OF ANNUAL AVERAGE DAILY TRAFFIC (AADT) ON THE GORENJSKA MOTORWAY AND THE PARALLEL REGIONAL ROAD



AADT growth on the Gorenjska motorway and the parallel regional road.
Source: Data on traffic loads on national roads; DRSI, Traffic count between 2005 and 2017.

Large loads of (transit) freight transport on populated areas and the absence of sustainable logistics in urban centres

Another challenge for the reduction of motor traffic is the reduction of freight transport, especially the transit one, and congestions in populated areas of the LUR caused by the freight vehicles. In the last five years, freight transport has increased in the LUR. According to the traffic counters data, the number of freight vehicles on certain road and motorway sections has increased by more than a quarter. The number of heavy freight vehicles on certain sections has increased by more than a half.

With some measures, freight transport may be limited in the short term, especially where there are alternative routes that are less burdensome for the local population. A greater challenge is long-term measures that would help shift a part of the load on the railways, which can only be achieved via sustainable mobility planning.

The measures of sustainable logistics are a challenge particularly in larger towns of the LUR. The delivery of goods in urban centres is an important part of the supply of the population and the economy, with special features such as distribution at the end of the transport chain, small loads, a lot of journeys, limited infrastructure, high population density, and population requirements to protect the environment. At the same time, urban centres have problems in the transport sector, such as traffic growth and the growth of the need for mobility, as well as congestion and increased negative impacts on the environment.

Sustainable logistics planning in urban areas can contribute significantly to optimising the delivery of goods, reducing costs, and consequently any negative environmental impacts. While reducing access to the number of vehicles in the urban centre, suppliers can also optimise the number of journeys by combining them (in the MOL, for example, there are more than thousaunt of permits for entry to the city centre). To achieve these objectives, a suitable variety of measures is required, which may be specific to the settlement. It is also necessary to involve all stakeholders throughout the implementation process.

Uncoordinated and incoherent functioning of the administration (municipalities, state) and sectors (transport, industry, spatial planning), as well as lack of public participation

Sustainable mobility can work in practice only if the operation is coordinated between various levels of government (national, regional, local) and between various areas of planning (transport, settlement, economy, energy, tourism, health, etc.), as well as if the public is included in the planning. For the improvement of the situation in the transport sector, a systemic approach is required that goes beyond administrative boundaries and it involves and coordinates various areas. Due to uncoordinated planning, commitments for more sustainable transport are not always respected and implemented, which affects all levels of our lives. The result is inefficient and uncompetitive public transport and settlement planning, as well as allocation of employment centres without the possibility of establishing public transport. This is followed by an increase in the use of cars and consequently poorer traffic safety, greater environmental pollution, and general deterioration in the quality of life. Connections between spatial development and mobility in practice often appear too late. The irreversibility of spatial interventions does not allow for the correction of mistakes.

Often, the public is not sufficiently involved in transport and spatial planning outside the prescribed procedures when drafting documents. The active participation of the public in Slovenia has mainly not been an established practice until

the process of preparation of the local SUMPs. At the level of municipalities, significant changes occurred in this area with the preparation of the SUMPs in 2017. Involving the public in mobility planning should be continued at the regional level. The regional level is demanding for the participation of the public, because people are more likely to get involved in the planning of measures that relate to the space in the vicinity of their homes, rather than in the planning of measures at the regional level. This can be overcome with a greater participation of various representation, advocacy, and other stakeholder organisations.

The missing regional level of planning

The new legislation (Spatial Planning Act; Slo., ZUreP-2) (re-)introduces the regional level of planning, because it provides for the establishment of new strategic documents – regional spatial plans. The design of public utility infrastructure will be a part of these. In this context, special attention will have to be placed on the design of sustainable mobility. Regional planning of sustainable mobility is particularly important for the design and implementation of mobility schemes (such as, for example, public transport), which have proven to be effective only if they are coordinated at the regional level.

At the level of the LUR, the importance of regional regulation of transport (Public Transport in the LUR, 2010) has already been recognised, while in the Regional Development Programme (RDP) 2014–2020, prepared in 2015, which is the fundamental programme, strategic and implementing document at the regional level, one of the programmes for the people-friendly region is also sustainable mobility (Programme No. 3.1), followed by the following measures: encouraging the use of public transport, modernisation and optimisation of railway networks, promotion of non-motorised mobility.


Photo: Fotolia


Photo: Fotolia

The region will offer
its residents and visitors
the highest quality of life and work
in a healthy, green, friendly and
efficient environment in the future, too.

Photo: Luka Klemen

4 VISION

The vision of a Sustainable urban mobility plan sets out the long-term vision of mobility in the region in the future and shows us in what kind of region we want to live in the future, as well as how the region of the future will differentiate from the region of today. The vision, which has been shaped by the stakeholders and the residents of the region, is the basis for all subsequent preparation steps of the Sustainable urban mobility plan for the region, for defining the objectives that support the vision, and for the measures that will help us realise the vision. A sustainable vision for the development of mobility complements the overall development vision for the region content-wise, which the region has set out in the Regional Development Programme.

As a green driver of development, the Ljubljana Urban Region will provide good and fast connections of all region municipalities with urban traffic centers in Slovenia and in the wider region with the help of various types of sustainable modes of mobility. It will focus on effective, accessible, comfortable and safe public transport, where the redirection of traffic flows to functional rail passenger transport and good cycling conditions with an emphasis on long-distance cycling routes will be at the forefront. Cars will no longer be necessary for everyday errands, because the fast, frequent and internally-connected public transport will cover all corners of the region, and quickly and comfortably take passengers to their desired destination. With this, we will achieve objectives such as reducing car use and congestions, as well as high level of emissions and noise. Thus, the region will continue to offer its residents and visitors a healthy, green, friendly, and efficient environment in the future, too.

We have identified five key pillars
of sustainable mobility
in the Ljubljana Urban Region.

Photo: Unsplash

5 PILLARS OF SUSTAINABLE MOBILITY

PILLARS OF SUSTAINABLE MOBILITY	STRATEGIC OBJECTIVES
PILLAR NO. I: Walking and cycling	1. Good connections with the network of cycling routes 2. A higher percentage of journeys made by bicycle 3. Improved intermodal points for pedestrians and cyclists
PILLAR NO. II: Public transport	4. Upgrading the public infrastructure for public transport 5. The modernisation of the public transport vehicle fleet 6. Improving the management system of public transport
PILLAR NO. III: Motorised transport	7. Optimised car traffic 8. Comprehensive regulation of stationary traffic 9. More safety and less pollution of towns with emissions and noise
PILLAR NO. IV: Freight transport and logistics	10. Effective (transit) freight transport with as little impact on the local population as possible 11. Design of sustainable logistics in urban centres 12. Promotion of modern and environmentally-friendly logistics centres
PILLAR NO. V: Sustainable mobility planning	13. A more coherent and focused management at various levels (vertical and horizontal) 14. Sustainable mobility planning coordinated between various areas (transport, spatial, economic, etc.) 15. Education, raising awareness and public participation 16. Improving financing conditions and rational use of resources

Pillar No. I: Walking and cycling

OPERATIONAL OBJECTIVES:

→ A national and inter-municipal network of cycling routes will be established

→ Intermodal points will be accessible via safe and comfortable walking paths

STATUS

Cycling between municipal centres in the LUR has great potential, because the majority of the population lives in the flat parts of the region, and distances between settlements are relatively small. The bicycle is a particularly attractive choice especially in the morning and afternoon peak hours, because due to road congestion, the travel speed of a bike and a car are not that different. With electric bikes or a combination of a bike and rail transport, the time needed to travel from home to work can even be shorter during peak hours or at least similar to the travel time by car as the region is characterised by daily traffic jams. However, the development of everyday cycling depends on the development of a cycling infrastructure. In the last decade, the infrastructure in urban centres has been developing at a rapid pace, while there is still great potential for improvement between towns and municipalities. The construction of suitable cycling routes is therefore a prerequisite for the increased use of bicycles on a regional scale.

Walking is the most natural, healthy, and economical way of travelling short distances. Walking is an inseparable part of any regional transport scheme, especially in connection with public transport. It is therefore necessary to improve accessibility of the intermodal points for pedestrians so that even the most vulnerable population groups in the region will use them.

ACHIEVEMENTS

The BicikeLJ bicycle rental system at the MOL

At the MOL, a system of bicycle rental called BicikeLJ has been established which currently operates at 58 stations with 580 bicycles for rent. It is a bicycle sharing service within the city and has a significant impact on the regional level, because it enables the combination of regional public transport and bicycles. Therefore, people who get to the MOL by regional public transport can move around the MOL using a rented bicycle; the systems are connected with the URBANA City Card that integrates the services of the city and some suburban municipalities. The service is very popular among the residents and visitors of the city; namely, according to the SUMP MOL survey, 97% of respondents supported its introduction. The system of bicycle rental BicikeLJ is a good practice that would be logical to extend to other municipalities of the LUR, thus improving intermodality and interoperability of systems of public transport in the region.

Bring happiness to work (Slo.: Pripelji srečo v službo)

It makes sense to complement infrastructure improvements with promotional activities, so as to encourage people to cycle. *Bring happiness to work* is a national initiative aimed at promoting cycling to work.

Walking is the most natural, healthy, and economical way of travelling short distances.

It is a promotional activity for highly demanding passengers – employees. They want to get to work quickly, safely, and ready. Each year, more and more cyclists join this initiative, because their arrival at the work place is combined with competition and team building, as well as tangible rewards.

Rent a bike in Medvode

Cycling tourism has great potential for the local economy. At the train station in Medvode, the Tourist Information Centre has provided bike rental and thus included cycling in its tourist offer. With the bicycle rental, the visitor also obtains a discount on services from the area's tourist offer. Good practices of the connection of bikes and trains, as well as recreation and tourism, could be transferred to other towns and urban centres in the LUR.

OBJECTIVES

Strategic objective No. 1: Good connections with the network of cycling routes.

The basic condition for cycling in the LUR is an appropriate network of cycling routes. The newly-established infrastructure will enable cycling on a regional level, while the development of safe and comfortable network of existing cycling routes needs to be continued for a major change in travel habits of the residents in the region.

In the LUR, an extended network of cycling routes planned by the state will be completed (national, main, and regional). It will connect the cities and larger towns. The network will primarily be intended for safe, comfortable, and quick daily mobility, and it will also be appealing to tourists and recreational cyclists. The national network will be complemented by a network of inter-municipal cycling routes that will also connect the smaller towns in the region.

Municipalities and the state will strengthen their cooperation in the development of the cycling infrastructure, because knowledge of the local

Photo: Urban Jeriha

MAP OF CYCLING ROUTES

Map of cycling routes in the LUR. Source: RRA LUR, October 2018

environment and the needs of the residents of the region are necessary for the effective implementation of projects of the national cycling infrastructure. For effective cooperation, the creation of a regional coordinating body that will be responsible for the coordinated preparation of project documentation, communication and monitoring of the construction of cycling routes is required. Moreover, a set of objectives in the field of tourism promotion and local economy will be prepared, as well.

Modern technology brings new challenges. Cycling is changing rapidly due to the use of electric bicycles. These allow faster driving and long-distance cycling, which is crucial in terms of mobility at the regional level. The electric bicycles also allow cycling for the elderly, who are an important group of road users. The cycling infrastructure should be adapted to the growing number of electric bicycles. Besides other measures, this includes widening of cycling infrastructure and removal of short ramps.

While improving the cycling infrastructure, it is also important to take greater account of pedestrians and cyclists in the construction of other roads.

Strategic objective No. 2: A higher percentage of journeys made by bicycle

For a higher percentage of commuting by bicycle, it is essential to allow the combination of cycling and rail passenger transport, as well as encouraging the use of electric bicycles.

Travel time is crucial when commuting. Bicycles are time-competitive with cars when cars are stuck in traffic jams, which is typical for the peak hours, and when the use of bicycles can be combined with train journeys. At the same time, it is possible to achieve higher speeds with electric bicycles, which is comparable with travelling by car during peak hours also without the use of a train. Therefore, special attention will be given to promoting the use of electric bicycles and the promotion of combining the use of bicycles and trains.

Secure bicycle parking should be provided at the destination. The cycling infrastructure must be improved and bicycle parking places at schools and workplaces available. Larger organisations can in particular encourage the use of bicycles by providing them for business purposes and with various incentives for employees.

Strategic objective No. 3: Improvement of intermodal points for pedestrians and cyclists

Accessibility for all (i.e. universal accessibility) is an important guideline in modern spatial planning, because in this way, spatial planning and transport take all its users into account. Special attention is given to the most vulnerable user groups (the elderly, physically or sensory impaired, children or people with wheelchairs). Intermodal points – stations, stops, and P + R, will be available without built barriers, they will be accessible to all, and at the same time safe and pleasant.

At the intermodal points, the conditions for the combined use of bicycles and public transport need to be improved. This includes various ways of combining the use of bicycles and trains: either with people bringing their own bicycle from home to the entry station, where they can park it, or taking a folding or ordinary bicycle on the train or bus and then travelling with this bicycle to their destination. Another option is a combination of travelling to the train station using a rented bicycle, travelling by train and then continuing the journey using a rented bicycle in another municipality. All of these options require the appropriate equipment of stations (safe and monitored bicycle parking facilities), bicycle rental or bicycle sharing at stations, and the possibility of transporting bicycles by bus, train, or transport on demand.

Pillar No. II: Public transport

OPERATIONAL OBJECTIVES:

- Increasing the number of passengers on public transport
- Shortening travel times of trains and buses
- Increasing the share of the population with access to public transport

SITUATION

Public transport, represented by bus and rail passenger transport, has the largest potential for development of sustainable mobility in the LUR. An analysis of the accessibility of the Ljubljana city centre with all modes of public transport in the LUR (Koblar, 2017) has shown that the LUR is relatively well-covered by public transport. 49% of the LUR residents reside at a 30-minute distance from the city centre with all available modes of public transport. It is satisfactory that only 10% of the residents in the region do not have access to public transport, taking into account the distance of 1,000 m across the footpath network and the time distance of 90 minutes with arrival time in the morning traffic peak hours. Notwithstanding the good coverage with public transport stops, there has been a decline in the number of journeys made by buses and trains in the last years. The scope of intercity and city bus transports, as well as train transport is decreasing from year to year. Public transport company Ljubljanski potniški promet, d.o.o. (LPP) has brought public transport nearer to the needs of passengers with the extension of some lines to suburban municipalities, the introduction of the URBANA card, the purchase of modern vehicles, the introduction of environmentally-friendly buses, and the extension of the yellow lanes on some arterial roads, as well as lowering the prices for some suburban lines quite extensively; however, without adequate actions at regional and national levels, it cannot offer a comprehensive offer to the public transport passengers who are travelling to the LUR and MOL. Namely, in the intercity and interregional connections, public transport is still slow, the frequency is not sufficient, it is unpredictable as far as time is concerned, and uncompetitive with car traffic in terms of pricing. The share of people who use public transport for their daily travel needs reaches approximately 8%. The users of public passenger transport services are, as a rule, the owners of subscription tickets (primary school pupils, secondary school pupils, and students) or residents of the LUR and other regions who do not have the option of using a car. The capacities of public transport in the LUR (bus and train together) during the morning peak hours are approximately 18,000 seats.

Analyses of the public transport lines in the LUR show that both the number of journeys on the urban public transport lines, as well as intercity public transport, are evidently high during the morning and afternoon rush hours. Slightly more than in the urban passenger transport, a decline in the number of journeys on weekends (Saturday, Sunday) is extremely evident in intercity public transport. The Ljubljana bus station is connected with Slovenia with approximately 160 intercity

Public transport, represented by bus and rail passenger transport, has the largest potential for development of sustainable mobility in the LUR.

The Ljubljana bus station is connected with Slovenia with approximately 160 intercity bus transport lines.

bus transport lines. The urban passenger transport in the MOL covers 39 lines. Due to the large number of cars with which they share the road, the travel speed of city buses is quite low. The introduction of yellow lanes and the closure of the road Slovenska cesta for other traffic have somewhat improved travel speed; however, without reducing the number of cars, significant progress cannot be achieved. The LUR is connected to the five rail roads in the directions of Zasavje, Kamnik, Gorenjska, Primorska, and Dolenjska in the shape of a star. More than 130 passenger trains arrive at the Ljubljana central railway station daily. Their average travel speed is approximately 48km/h. The average occupancy of passenger trains is about 27%.

AREAS IN THE LJUBLJANA URBAN REGION WITH INADEQUATE ACCESS TO PUBLIC TRANSPORT

Areas in the Ljubljana Urban Region with inadequate access to public transport. Source: Anton Melik Geographical Institute ZRC SAZU, 2012.

During peak times, 15-, 30-, and 60-minute public transport intervals are proposed, depending on the direction and demand of transport. The best frequency must be ensured in the MOL area by combining buses and trains. Moreover, new railway lines in the direction of Ribnica, Vrhnika, and the Jože Pučnik Airport at Brnik have been proposed.

The Ljubljanica River also has potential, particularly in the area of accessing the Ljubljana Marshes and for tourist and recreational purposes, to a lesser extent in the field of daily mobility. The possibilities that it offers are presented in the Expert Bases for Navigability of the Ljubljanica River (2012).

ACHIEVEMENTS

An integrated ticket

An integrated public transport ticket (IJPP) is an electronic ticket that the user can use for subsidised transport by train, intercity bus, and city bus. At the moment, it is available only for pupils and students. The MOL has introduced the URBANA ticket for all users and for all services offered, which also applies to the extended lines in some suburban municipalities, but it is not valid for intercity bus transport and rail transport, which are managed by the state and should be connected by a technologically-similar IJPP ticket in the future. An important advantage of the IJPP is that the passenger with an integrated ticket can use urban transport services, as well as trains and buses in intercity travel. The extension of the IJPP system to other products that can be used by other passengers, and which are not included in the subsidised school ticket system, is planned, which will enable unification of public transport services at the national level, just like the URBANA ticket has unified services at the level of the city and some suburban municipalities.

Construction and renovation of railway stations

The main objective of the construction of new railway stations is the redirection of passengers from road to rail, thereby decongesting road transport in the LUR. The rearrangement of seven existing railway stations in Ljubljana has been performed: Tivoli, Litostroj, Brinje, Ježica, Vodmat, Stegne, and Medno contribute to the greater appeal of rail passenger transport. Moreover, the new stations of Lavrica and Dolgi Most that were constructed in 2018 will also significantly contribute to this objective.

Visualisation of a new railway station at Lavrica. Source: Slovenian Infrastructure Agency

Extension of the LPP lines

With the extension of the LPP city lines in the municipalities of LUR (e.g. Grosuplje, Škofljica, Medvode, Vodice, Dobrova - Polhov Gradec, Ig, and Brezovica), the capacity and frequency of bus connections have increased. An example of a good practice is the Municipality of Grosuplje that has, together with the LPP and MZI, brought together school transport with regular lines and thus extended the LPP city line into the suburban one, to Grosuplje. Thus, with a minimum cost increase, they have greatly improved the quality of public transport services.

New vehicles for the public transport

The LPP has in the past invested a lot of resources in the purchase of new, comfortable vehicles and the introduction of alternative fuels for city buses. All the LPP buses are air-conditioned, low-floor, with areas for people with disabilities, they meet the highest standards of EURO 5 and EURO 6, more than a third are powered by compressed natural gas, and new investments and purchases are planned. The LPP will update its fleet with 23 new CNG buses, whose arrival is scheduled for August 2019. The planned modernisation of the passenger train fleet will also bring an important contribution to regional passenger transport. The purchase of new rolling stock for rail passenger transport will raise the quality of services and partially replace the existing worn-out fleet. The supply of 26 passenger trains will improve the appeal of rail public transport, allow unhindered transport of bikes by train, and enable access to the trains also to functionally impaired persons and those in a wheelchair.

OBJECTIVES

Strategic objective No. 4: Upgrading the infrastructure for public transport

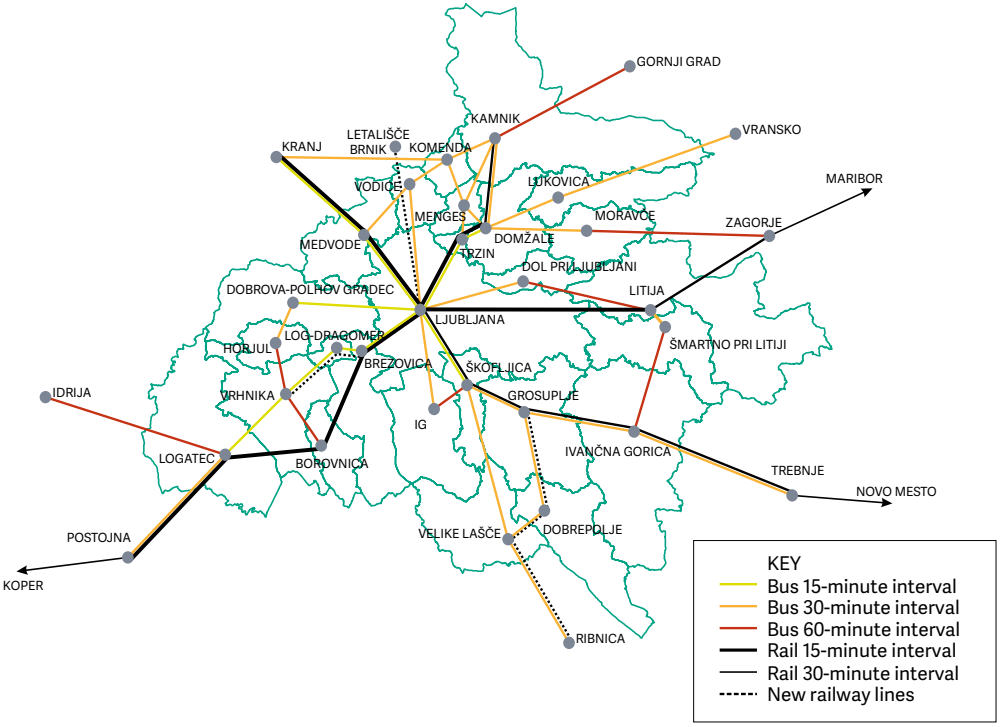
Public infrastructure requires large investments to improve the existing situation. Its upgrade is necessary for efficient public transport and to provide competitive services to personal cars.

In the field of bus transport, the MOL began with the gradual introduction of separate lanes for public transport, which have improved the speed of bus travel within the city centre. The process should be continued beyond the region, where the speed of public transport during rush hours has proven crucial for the appeal of public transport. Similarly, it is necessary to introduce good practices also in the regulation of intersections and signalisation automation, which gives priority to public transport vehicles. From the passenger's point of view, the modern design of stations and improvements to services and information at stations have proven to be very encouraging in the MOL and in some other municipal centres. The process should be continued at other stations in the region, with a focus on railway stations and bus stops. Better conditions for combining various modes of travel should be achieved; therefore, it is necessary to continue with the construction of a P + R network, bicycle parking areas in the vicinity of stations and stops, and enable easier changes between various systems of public transport, where the needs of passengers need to be taken into account. The key to the functioning of the entire system of public transport in the region is a complete renovation of the Ljubljana railway hub and the central bus station, the renovation of existing railway lines, and the construction of new lines for passenger transport (e.g. Vrhnika, Ljubljana Jože Pučnik Airport), which will increase the quality of rail and bus passenger services and reduce travel times of public transport vehicles. By increasing the capacity of railway lines and the construction of additional tracks (Ljubljana – Kranj), the frequency of passenger trains may also be increased. The electrification of the lines (e.g. Ljubljana – Kamnik) shortens the travel times of trains. Revitalisation of the railway connection between Ljubljana and Kočevje will relieve the road infrastructure.

Strategic objective No. 5: Modernisation of the public transport fleet

The outdated fleet urgently needs modernisation, because this is the only way it can compete with private transport. Just like some bus companies have already started with the modernisation of their fleet and most of their vehicles are already air-conditioned, environmentally friendly and, especially in urban transport, suitable for passengers with disabilities, other systems also require the modernisation of their fleet and the increase in the number of vehicles. Especially in railway transport, it is necessary to expand the fleet, introduce alternative drives (or electrification), provide unhindered access for the functionally impaired persons, people with wheelchairs and other special equipment, enable the transport of bicycles, and all vehicles should be equipped with air conditioning and a Wi-Fi system.

PROPOSAL FOR FREQUENCY IN PUBLIC TRANSPORT DURING PEAK HOURS



Proposal for frequency in public transport during peak hours. Source: Institute of Traffic and Transport Ljubljana l.l.c., and ZRC SAZU Anton Melik Geographical Institute, October 2018

Strategic objective No. 6: Improving the management of the public transport system

Improving the management of the public transport system is to a large extent dependent on upgrading the public infrastructure and the public transport fleet, but it can nevertheless be improved independently of them. The adaptation of the timetables and frequencies of public transport to the actual needs of the passengers is necessary. The proposed cycle of public transport during peak times is 15, 30, and 60 minutes. It depends on the direction and mode of transport. The task of the IJPP Manager will be to link public transport, which is the responsibility of the state (train, intercity bus transport), with those at the local level (urban transport). In less populated, hilly areas without connections to public transport, it is appropriate to ensure "on-demand service". The selection of the most appropriate model of transport on demand at a regional level should be led by the objective that the service is intended for all population groups, that it unites passengers, and complements the existing public transport. It is reasonable to extend some of the existing bus and rail lines, as well as introduce new bus tangential and integrated lines, and connect them to the P + R systems throughout the LUR area. It is necessary to introduce "fast lines" for bus and rail passenger transport, which will quickly and directly connect the municipal centres with the regional centre. The integrated public transport ticket for pupils and students urgently needs to be extended to all users of public transport services. It is necessary to highlight the comprehensive tariff integration for all passengers.

Photo: Uroš Podlogar

Photo: Uroš Podlogar

Pillar No. III: Motorised transport

OPERATIONAL OBJECTIVES:

→ Reducing the traffic load in the municipal centres of the LUR

→ Reducing the use of cars for driving to work

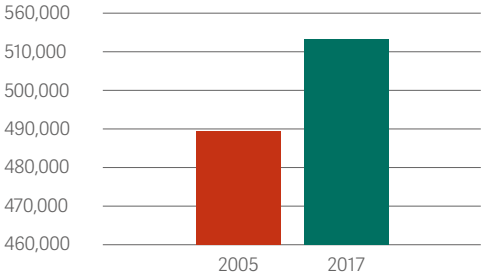
STATUS

The LUR is the area of regional connections to the area of the Ljubljana transport hub and the crossroads of European transport corridors (the Baltic-Adriatic and Mediterranean Corridors). The LUR with the capital city is the employment, administrative, economic and educational centre of Slovenia. It is also a region with the most jobs in the country and the most densely populated area in the country. The investments in upgrading the road network and the growing motorisation rate in the past are the consequences of this large daily commuting from Slovenia and the LUR to the MOL.

Traffic flows of daily commuters have more than doubled between 1995 and 2005. Daily commuting is most apparent in the directions of the motorway network. Large investments in road infrastructure and the construction and completion of the motorway network with the Ljubljana Motorway ring had a major impact on the settlement pattern (suburbanisation, scattered settlements), and the related daily commuting to bigger employment centres. Such commuting is also stimulated by the current method of payment for the use of motorways (the vignette system is not based on the fact that the polluter pays nor that the toll is paid based on the actual distance travelled) and the regulation of the reimbursement system for the costs of transport to work.

The traffic situation is closely connected and interdependent in many areas. The construction of new roads and additional lanes to deal with congestion is a less successful and, above all, a short-term measure, because new roads and additional lanes further encourage people to use cars. The problem repeats itself in more lanes and with more vehicles.

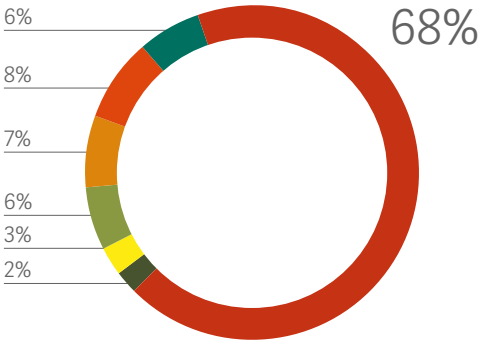
TRAFFIC GROWTH BETWEEN 2005 AND 2017 ON THE GORENJSKA MOTORWAY SECTION



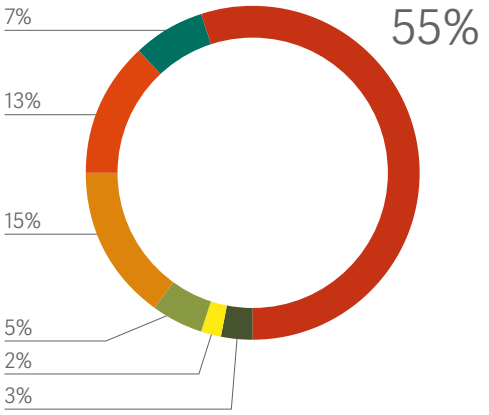
Traffic growth between 2005 and 2017 on the Gorenjska motorway section. Source: Data on traffic loads on national roads; DRSI, Traffic count between 2005 and 2017

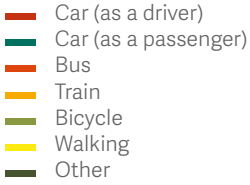
The data in the survey made in the framework of the preparation of the SUMP LUR show that the use of a car as a primary mode of transport is more common in municipalities with direct connection to the motorway (in these municipalities, more than 70% of people use cars, either as a driver or as a passenger), while in the municipalities where there is no direct connection to the motorway, the percentage of people using a car is at least 10% lower, and the percentage of people using the train increases by almost 10%.

USE OF MODE OF TRANSPORT IN MUNICIPALITIES NEAR THE MOTORWAY NETWORK



USE OF MODE OF TRANSPORT IN MUNICIPALITIES THAT ARE NOT NEAR THE MOTORWAY NETWORK





SUMP LUR survey.
Use of mode of transport in municipalities near the motorway and municipalities that are not near the motorway. Excluding the MOL.

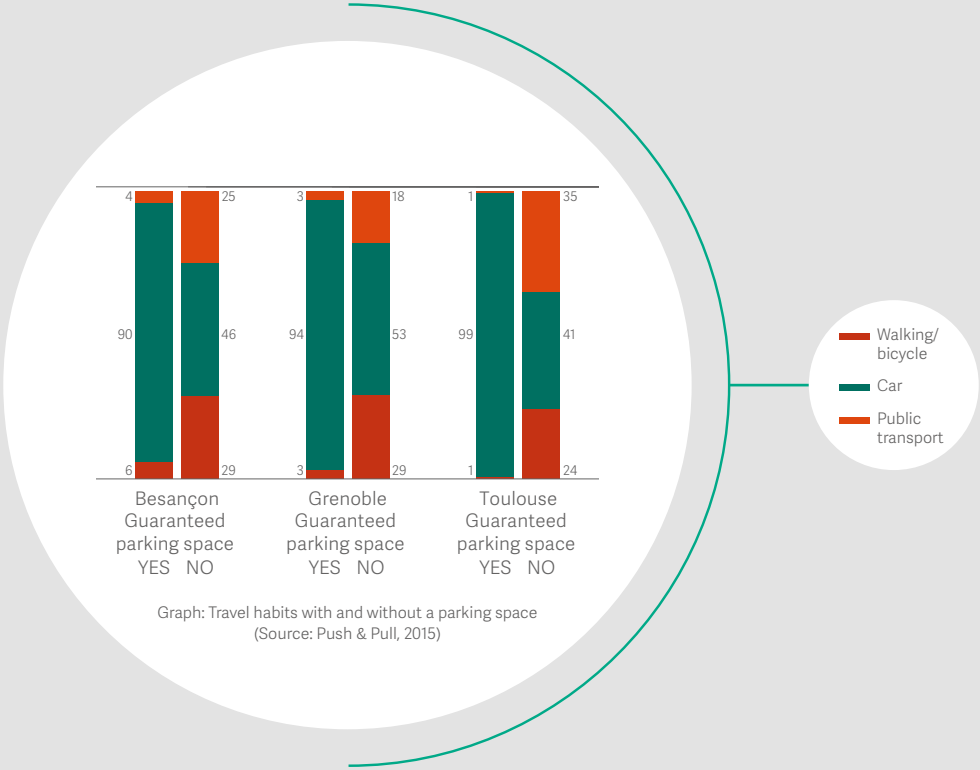
The overall increase in travel by car over the past few decades is reflected not only in higher motorway network loads, but also in the rapid increase in traffic on state and municipal roads, where there was not enough investment in the infrastructure at this level. All major urban centres in the region are in connection with national roads, but these mainly pass through the town centres. In some cases, bypass roads were built to relieve the towns of motor traffic, but construction in general could not keep up with the needs of spatial and urban development and transport. With the practice of constructing bypass roads as the first, and perhaps not the most rational, justified or sensible choice, especially in the absence of upgrades in the infrastructure of railways or other forms of public transport, it is not surprising that the majority of the region's population still sees the solution to the problems of congestion and traffic in the construction of bypasses around towns and the expansion of the motorway ring.

Choosing a car as a primary mode of transport in the region is still by far the most prevalent. In the use of more sustainable mode of transport, only the MOL significantly deviates from the average (e.g. there is increased use of bicycles on daily routes and the use of public transport). The parking policy and planning of parking areas have a major impact on the modal split. As practice shows, a big impact on the selection of a car as a primary mode of transport is whether there is a possibility of parking at the destination; the lower chance there is for the user to park at the destination (e.g. space restrictions, parking fee), the more chances there are that they will use alternative mode of transport for their journey. The MOL is at the forefront of the awareness of the importance and impact of the management of parking, with its active parking policy influencing the entire region and encouraging other municipalities to manage parking (introducing time-limited parking, for example, the blue zone, or paid parking in the centre of towns).

The survey carried out as part of the preparation of the SUMP LUR has shown that the residents in municipalities where a stationary traffic management regime has already been introduced support the introduction of time-limited or paid parking more. Thus, they are more aware of the advantages that such management brings than in municipalities where they do not have stationary traffic regimes. Municipalities with the most support of the parking management are Kamnik, Logatec, Litija, and the MOL.

The use of a car as a primary mode of transport is more common in municipalities with direct connection to the motorway.

THE PARKING POLICY AND PLANNING OF PARKING AREAS HAVE A MAJOR IMPACT ON THE SELECTION OF MODE OF TRANSPORT



Graph: Travel habits with and without a parking space
(Source: Push & Pull, 2015)

One of the main factors in the choice of travel mode is the (expected) availability of a parking space at the destination. A guaranteed parking space is a factor that strongly influences the decision of users about the mode of transport they will use to reach their destination. If there is a guaranteed parking space, it is much more likely that they will choose to use a car.

The data obtained for the Push & Pull project from some French and Swiss cities show that employees with a guaranteed parking space at work are more likely to drive to work by car than those without or those who have limited parking options.

ACHIEVEMENTS

Completion of the motorway ring

Despite some negative consequences, such as the effects on the settlement or the incentive for more journeys by motor vehicles, the construction and completion of the motorway ring is an important national project that has enabled good connections and thereby stimulated the economic development and new jobs, consequently greatly influencing the development of the entire LUR.

Introduction of electronic toll collection for freight transport on motorways

The system of electronic toll collection (DarsGo) is a modern electronic toll collection system in free traffic flow, which applies to vehicles whose maximum permissible weight exceeds 3.5 tonnes. The toll is paid for each toll section that the vehicle travels, wherein the cost depends on the length of each section and characteristics of the vehicle (e.g. the number of axles and EURO emission class of the vehicle). The system enables a more equitable toll collection (according to the polluter pays system). At the same time, the infrastructure provided for such a toll collection will enable the upgrade of tolling schemes in the future (e.g. dynamic toll collection, where tolls are more expensive on specific routes or time periods). With the establishment of the system, toll stations, which had represented a bottleneck in the motorway system and reduced the flow rate on individual sections, were eliminated.

Closing the urban centres for car traffic

Intorduction of special traffic free zones due to the establishment of a sustainable mobility infrastructure is an ever more present trend also in the LUR settlements. Municipalities are considering the regulation of the quality of public space also at the expense of traffic or elimination of parking spaces. With a complete transformation of the city centre to meet the needs of pedestrians and cyclists, the MOL has set new standards in spatial planning and thus paved the way for other municipalities. The conclusion of the inner-city ring, construction of parking garages, restriction of delivery to the city centre, expansion of the payable parking area, expansion of the LPP offer to the neighbouring municipalities, and reduction in the number of parking spaces on the streets have allowed that today, 12 ha of modern paved streets are intended primarily for pedestrians and cyclists. Within the city centre, free-of-charge transports with the "Kavalir" electric vehicles are also available.

Managing the problem of stationary traffic and the construction of the P + R

More and more municipalities are aware of the importance and benefits of the regulation of stationary traffic. The MOL has established a stationary traffic management system and upgraded it in time so that the areas of paid parking were extended to the city area within the motorway ring. This practice was followed by other municipalities in the region, which have, according to their needs and starting points, introduced various areas of stationary traffic regimes, e.g. areas of paid parking or time-limited parking. The LUR municipalities have jointly prepared a comprehensive study of the P + R network development in the LUR, which aims to stop the car traffic as close as possible to its origin and redirect the passengers to public transport. In total, there are 28 P + R locations planned in the region, of which 11 have been constructed to date and four new ones are planned shortly. A substantial portion of the P + R in the region represent the locations within the MOL where five P + R locations with 1,673 parking spaces are available today, and which will shortly be joined by another 445 parking spaces at the new location in Stanežiče.

Electric car sharing

The Avant2Go service is a service of sharing exclusively electric cars, which was first introduced in the MOL and is now spreading to the LUR and

other Slovenian cities. This is a self-service rental of electric cars at predetermined locations, and it is a short-term rental of vehicles. This is an Avant car project where partners in various roles, including the National Eco Fund, municipalities and companies in the private and public ownership, have offered a new service on the market in the field of mobility – a new form of rental or car sharing, whereby the local community plays an important role by providing public space and thus contributing to the development of the new service.

OBJECTIVES

Strategic objective No. 7: Optimised car traffic

In the past, investments in improved infrastructure were based largely on the construction of road infrastructure. Motorways did connect various parts of Slovenia and facilitate economic development, but they also led to an increase in suburbanisation and commuter flows. The experience of European cities shows that it is pointless to follow the growth of motorisation with the construction of new infrastructure and the expansion of the existing infrastructure. Such solutions improve the situation and reduce congestions only in the short term. Over time, due to improved conditions, the number of vehicles further increases and congestions reappear; this time with an even greater number of vehicles and lanes. At the same time, the changed conditions also have a negative impact on the reduced use of public transport and the choice of a bicycle as the mode of transport in the urban centre (a phenomenon known as the Downs-Thomson paradox).

The municipalities and the region will have to plan the investments in new road infrastructure in cooperation with the state carefully and with a focus on sustainable solutions, as well as on promotion of alternative and innovative solutions. Better mobility of the residents and the use of the existing infrastructure will also be addressed with organisational measures or with non-complex investment projects that are well thought out and well placed.

Strategic objective No. 8: Comprehensive regulation of stationary traffic

A great influence on the choice of a car as a primary mode of transport is, among other things, the possibility of parking at the destination. Planning of parking spaces and parking policy, therefore, have a major influence on the choice of mode of transport. At the same time, smart planning and allocation of surfaces for stationary traffic also enable the development of public transport or encourage the forms of carpooling and car sharing. Municipalities in the LUR will, by smart planning of the areas for stationary traffic, managing stationary traffic, and informatisation of parking, take care of balancing demand and supply with an emphasis on ensuring optimal conditions for sustainable mobility.

Strategic objective No. 9: More safety and less pollution of towns with emissions and noise

Safe infrastructure for all participants is the basis for the use of various modalities. The municipalities and the region will provide a safe infrastructure on municipal and state roads in cooperation with the state, especially in towns where the MOL has already set standards of various arrangements. The region joins the objectives of the Vision ZERO initiative (Slo.: Vizija NIČ), for zero fatalities and severely injured road users, which the MOL was the first to join and actively encourages others.

In addition to security, the municipalities and the region will work to neutralise the harmful effects of traffic as far as possible, such as the exposure of residents to excessive noise or pollution with hard particles and nitrogen oxides. Therefore, they will reduce the speed in towns with various measures, thereby achieving lower levels of noise and emissions, and continue to promote the increase in the use of electric and gas vehicles (CNG and LPG).

Pillar No. IV: Freight transport and logistics

OPERATIONAL OBJECTIVES:

→ Limiting or decreasing (transit) freight transport

SITUATION

Freight transport in the LUR has increased in recent years. The impacts of freight transport are felt particularly on the local level, where residents are affected by noise, vibration and emissions, while this also affects the safety of other road users where traffic jams occur. At the same time, freight transport contributes significantly to the economic growth and development if the origin of goods is in the home country or region. This is less true for transit, where the origin is outside of the area or country concerned. Restricting or even prohibiting traffic should therefore be carefully studied and various stakeholders should be involved in the planning, mainly due to the impact on the local economy. In the short term, measures for limiting freight transport are possible, such as in certain time windows or redirection to less populated alternative routes if they exist. In more radical measures, such as restricting freight transport, a preliminary impact analysis and participation of various entities are necessary.

The construction of bypass roads is a measure with limited effectiveness on reducing the impact of freight transport on the quality of the living environment and, as shown by practice, only in the short term, while in the long term, the more sustainable solutions are shown in combination with the redirection of freight from the road to the rail, for which appropriate rail infrastructure needs to be set up.

ACHIEVEMENTS

Environmentally-friendly delivery vehicles

More and more companies where the shipment of goods on shorter distances represents an important part of their business are introducing sustainable logistics measures. Main Slovenian postal company, for example, adopted a long-term strategy of fleet renewal. Electric and gas-powered delivery vehicles already represent a large part of their fleet. There are also initiatives that have launched green delivery with cargo bicycles in the MOL with the help of European funds and with the support of the Ministry of Economic Development and Technology. Examples of good practice, raising awareness, and measures of the SUMP will also contribute to greater use of sustainable mobility in freight transport.

Limiting delivery in the MOL

In recent years, the MOL has restricted access to vehicles in the city centre, also due to the introduction of new pedestrian areas. In the immediate city centre, generally only light goods vehicles of the total weight of up to 3.5 tonnes have access. The delivery time within pedestrian zones is limited to the morning hours between 6 and 10 a.m. in accordance with the Ordinance regulating traffic. Pedestrian zones are protected with physical barriers and access of delivery vehicles is possible only with electronic permits. At the same time, this limited time of delivery encourages the use of more sustainable delivery vehicles, such as delivery bicycles.

OBJECTIVES

Strategic objective No. 10: Effective (transit) freight transport with as little impact on the local population as possible

Freight transport is a significant environmental burden due to its emissions, but is also essential for ensuring the business activities of many companies. In the LUR, we will offer solutions to reduce the impact of freight transport with measures from the Sustainable urban mobility plan.

The limitation of freight transport, particularly the transit one, is particularly important in urban areas, because their impact on the local population is the largest. At the most critical areas, restrictions during rush hours will be implemented to reduce congestions and improve safety, as well as, for example, limitation during the night or the reduction of speed limits due to noise emissions.

A total ban of freight transport is a possible measure especially where there are alternative routes and where a wider consensus among stakeholders will be reached.

The measures of limitations or bans of freight transport can be achieved in the short term, but must be carefully planned. At the level of the LUR, a study on the impacts of freight transport on the population will be carried out, which will include a prioritised list of the most critical areas where limitations are required. Measures to improve the situation in these areas will be proposed.

In implementing measures of restrictions on freight transport, the cooperation of the state will be necessary (DARS, Slovenian Infrastructure Agency in the case of national roads), as well as municipalities, local/urban communities and regional chambers of craft and small businesses representing the interests of the local economy.

The appropriate measures will limit the long-term parking of freight vehicles in populated areas or near urban areas by establishing the necessary infrastructure outside these populated areas. Where other measures will not produce the desired effect, it is necessary to thoughtfully approach the design of new bypass roads.

To ensure efficient freight transport with minimal impact on the local population, the redirection of freight from the road to the rail is important, which can be achieved in the long term by modernising the rail infrastructure and with transport policy measures at the national level, which will make rail transport more competitive in comparison with road transport.

Strategic objective No. 11: Design of sustainable logistics in urban centres

The logistics of urban centres can be an important part of the transport policy, particularly in larger cities where the requirements for a large number of deliveries are high and where, due to the specifics of architecture and housing densities, introducing access restrictions to the urban centre (e.g. walking zones, environmental zones with special access regimes) are appropriate measures.

In the context of the SUMP implementation, access restrictions in urban centres will be promoted and these can be introduced in respect to the environmental standards of vehicles, which will promote green vehicles powered by alternative fuels (electricity, gas, hybrids, cargo bicycles), having advantages in terms of access. Less environmentally acceptable vehicles may have limited or even no access. Access to urban centres can be adjusted with time frames that are more favourable for green vehicles. New environmental/ecological zones and pedestrian zones may be introduced, where deliveries are subject to special arrangements and promote cleaner vehicles.

Gathering or consolidation of deliveries means delivery to an area outside the urban centre, and then the delivering of several shipments together and its

further distribution (possibly with low-emission vehicles) to the city centre, which can drastically reduce the number of journeys and emissions.

Consolidation centres within the LUR will be able to supply the urban centres from various municipalities of the LUR.

In the LUR, deliveries by bicycles in the urban environment will be encouraged. The introduction of cargo bicycles is the practice in many European cities, which has proven to be a sustainable and people-friendly mode of delivery because it is reducing the number of motor vehicles in urban centres. For this, the appropriate infrastructure for cargo bicycles (delivery routes, delivery points) will be established and marked.

Strategic objective No. 12: Promotion of modern and environmentally-friendly logistics centres

Logistics centres are important for the supply of urban centres and economic activity of many businesses. The measures of the Sustainable urban mobility plan will promote the construction of modern and environmentally-friendly logistics terminals.

The sustainable urban mobility planning of the logistics centres that are friendly to the environment and nearby residents is important, implying the introduction of an integrated approach and coordination between municipalities/the region and the companies or cooperation between the public and private sector, local residents, local/urban communities with the purpose to achieve optimum results and minimum environmental impact. After the establishment and expansion of new logistics centres, care must be taken to avoid adverse effects on people and the environment (e.g. increased noise or traffic).

In the LUR regional centre in the MOL, a new modern intermodal logistics centre will be established in collaboration with various stakeholders (Slovenian Railways, DRSI, MOL, BTC, Mercator, transport and logistics and other companies), which will allow for better integration between modes of transport and promote freight transport by rail.


Photo: Arhiv DARS


Photo: Fotolia


You are not stuck in a traffic jam,
you are the traffic jam.
Photo: Fotolia

Pillar No. V: Sustainable mobility planning

OPERATIONAL OBJECTIVES:

- Preparation and adoption of the Regional Spatial Plan (RSP) by 2023
- Preparation and adoption of the remaining municipal SUMPs by 2023
- The establishment of a coordinating body for a more effective coordination of transport development at the national, regional, and local levels
- Increase of funding to promote sustainable mobility and public participation

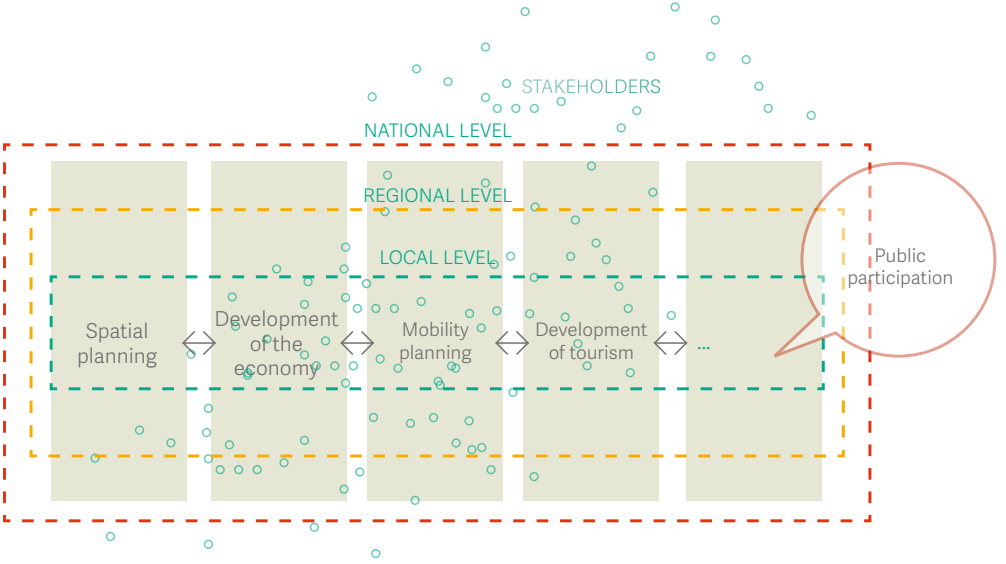
STATUS

The objective of sustainable mobility planning is sustainable mobility for all, and it includes the balanced development and integration of various modes of transport, providing good transport security, optimising the efficiency of the transport system and thereby also reducing air and noise pollution, as well as increasing the attractiveness of the area which results in higher quality of living.

Coordinated and coherent action by all actors at various levels (the state – region – municipality) and domains (transport, settlement, economy, etc.) was identified by the municipalities as early on as during the preparation of the SUMP to be of key importance and emphasised the need for inter-municipal or regional integration. Municipalities that have committed to move forward towards a more sustainable mobility with the preparation of the municipal SUMP see the opportunity in the improvement of public transport at the regional level or wider.

The connection is already running vertically (e.g. between the state and municipalities, e.g. in the allocation and design of interventions in the space) and horizontally (e.g. between government agencies, inter-municipally, and at the local level between various areas); however, municipalities are reporting that participation in the inter-municipal level is only good in principle. In their opinion, rare contacts exceed the project-related cooperation. They all want better cooperation with government agencies for the development of transport.

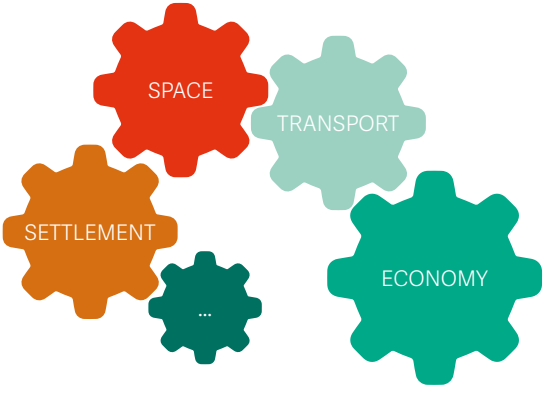
The LUR is characterised by a concentration of the settlement in the lowlands linked to the regional centre (MOL) and other major cities and urban centres (e.g. Domžale, Kamnik, Vrhnika, Medvode, Grosuplje, and Litija) with suburbanised areas. Despite the strong suburbanisation and dispersion of settlements, a large part of jobs remains in the MOL, which causes very intense flows of daily commuting due to employment, education, care, and services. The majority of jobs (and the business and shopping districts) in the MOL is linked to the outskirts of the city, especially at the motorway ring, which promotes the use of car traffic.



Linking of operation at various levels and areas for the development of an effective sustainable mobility system. Source: LUZ, October 2018

On the other hand, the growing attachment of the economically active population to their cars led to several other measures and decisions in various fields, such as the construction of the motorway network, the introduction of vignettes, moving the central and certain institutional activities to the outskirts of towns, etc.˝ The Slovenian motorway network, built mostly in the 1970s, 1980s, and 1990s, has generally led to a significant strengthening of the settlements in certain areas that are connected with it. With the changes in society, politics, and economy during the same period and also later, the number of craft and small business zones at the local level has been increasing significantly (between 1997 and 2002, their number has almost doubled, Potočnik Slavič, 2010). At the end of the 1990s, the decision on new territorial administrative division led to a strong increase in the number of municipalities, which further contributed to fragmentation and less coherent spatial development. Frequently inconsistent consideration of the criteria for allocation of activities in the space (checking the suitability of the space for the development of an individual activity, taking into account the protection constraints and development prospects, and hence the search for optimal connections between economic zones with the transport and energy network), has, at the expense of the administrative or ownership structure together with the population increase and the stagnation in the development of public transport, led to a number of traffic problems and the negative consequences of such a development (such as the prolongation of traffic routes and hence excessive pollution, decreased safety, noise, etc.). Efforts should be

Allocation of activities in the space without simultaneous thorough consideration of an effective mobility system leads to a deterioration of the area.



Connection of planning areas. Source: LUZ, October 2008

continued for a balanced development of settlement in connection with the development of social and service activities in the LUR, as well as implementing measures to improve the situation in the field of mobility. Experience at home and abroad shows that the allocation of activities in the space without simultaneous thorough consideration of an effective mobility system leads to a deterioration in the state of the space (e.g. several parking areas which could otherwise serve for other uses should be provided), as well as an increase in the problems caused by traffic (e.g. motor traffic congestions and traffic jams).

ACHIEVEMENTS

The Coordinating Committee for Public Transport

An important step in the development of public transport in the LUR was the establishment of the Coordinating Committee for Public Transport in 2012. Its main task is coordinating the development of public transport in the LUR and representing the region in negotiations with the state, transport providers, neighbouring regions, and other stakeholders in the field of public passenger transport.

Studies at the regional level

For over a decade, the RRA LUR has been focused on the development of sustainable mobility in the region; therefore, it has, in the context of its activities, created a number of studies in cooperation with experts in various fields, such as the Expert Basis on Managing Public Transport in the Region (2010), the Expert Basis for the Navigability of the Ljubljanica River (2012), the Modernisation of Railway Transport in the Ljubljana Urban Region (2014), and the Network of P + R Collection Points in the Ljubljana Urban Region (2014), which have been prepared on the initiative of the RRA LUR and co-financed by the municipalities of the LUR and various European projects.

Preparation of the local SUMPs

In the preparation of the local SUMPs, public participation was high and some municipalities continue with the practice of public participation in the preparation of transport projects – they are involving local residents in the process of measure planning in the field of transport, such as the creation of new areas or connections for pedestrians and cyclists, or closing streets for car traffic.

OBJECTIVES

Strategic objective No. 13: A more coherent and focused management at various levels (vertical and horizontal)

The effectiveness of management needs to be enhanced through a more coordinated action at various levels: vertically (from the local to the national level) and at all levels also horizontally (cooperation between municipalities, between regions, between ministries). Coordinated action means well-informed and regular concertation on joint projects and joint work. Through coordinated and targeted mobility management we will optimise the costs of administrative work, shorten procedures, facilitate mutual communication, and make better use of the existing professional staff.

The establishment of a coordinating body for the more effective coordination of transport development at the national, regional, and local levels can contribute to a more targeted action in the field of transport development at all levels. The agreement on priorities and defining common objectives in the development of mobility must be the starting point for the measures to be consistently implemented in practice. It is necessary to provide good opportunities and conditions for the development for all forms of modalities, especially the development of public transport as a key pillar of sustainable mobility. Establishing common objectives should include the needs on various levels, including at the regional level.

Possible measures to achieve the objective of a more coordinated and focused management are in the area of human resources (to ensure adequate human resources for coordination at national, regional, and local levels), organisation (establishment of regular communication, information, coordination, provision of initiatives and coordination of initiatives for joint projects, joint communication of municipalities and the state), and implementation (harmonisation of regulations, adjustment of the method of awarding concessions). Moreover, coordination of activities at the regional level is very important.

At events in the process of preparation of the regional SUMP, most of the entities (municipalities, sectors, decision makers) strongly supported the measure of the establishment of a joint regional working body that would manage the coordinated preparation of inter-municipal projects in the field of regional cycling and other infrastructure development, for more effective communication between the state and municipalities, and appropriate professional support. In the establishment of a working body, the municipalities see good opportunities for rationalising resources and better organisation.

The Ministry of Infrastructure has already started with the implementation of activities for the establishment of regional coordinators for coordinating promotional activities between municipalities at events related to the European Mobility Week (EMW). The willingness of municipalities to co-finance the measure with joint assets was expressed at the workshops if it proves to be effective and facilitates the work of municipalities, which they have with various joint, inter-municipal content. At the implementation level, regular sources of funding and harmonisation of regulations need to be provided in the long term, so that the municipalities can more effectively implement measures related to sustainable mobility.

Strategic objective No. 14: Sustainable mobility planning coordinated between various areas (transport, spatial, economic, etc.)

In order to enable effective planning at the regional level, in addition to connecting the vertical levels, it is essential to ensure the interlacing of spatial and mobility planning together with housing and employment policies. Efforts to achieve a balanced development of settlement in connection with the development of social and service activities should continue, as well as measures to improve the situation in the field of mobility, as was found:"In order to establish a balanced polycentric system of settlements around the metropolis, additional elements of social infrastructure should be provided in individual settlements in accordance with the settlement function in the polycentric urban system." (RDP, 2014–2020: p. 37).).

Opportunities for improving the connection between spatial and mobility planning are most evident in the appropriate preparation of the RSP, which will be adopted by 2023. As part of the RSP preparation, the interests of transport development with other development interests at the level of the region should be harmonised. Strategic planning at the regional level must also be reflected in more harmonised municipal documents, for example in spatial plans, in the expansion of settlement areas, the provision of social infrastructure, employment and institutional activities, together with good accessibility.

We can speak more widely about the coordination of areas within the framework of sustainable mobility planning also in the context of directing the development and allocation of activities into the space. Directing the activities into the space must be in line with the long-term concept of sustainable mobility, so that appropriate conditions for the development of activities are ensured (e.g. simultaneous development planning of activities and ensuring accessibility to public passenger transport). Such planning is justified in the Spatial Development Strategy of Slovenia and in the strategic parts of the municipal spatial plans, but

it is not sufficiently expressed in practice. Particular emphasis should be placed on the implementation of the sustainable mobility concept in all arrangements, including renovations.

The public and private sectors, for example, larger employers such as the University of Ljubljana, the Medical Centre and others, can contribute to the more sustainable mobility of the region by communicating with the stakeholders through representatives to raise awareness of the promotion and changing the travel habits of employees. To this end, it is advisable to prepare a plan for the mobility plans of larger employers in the region.

Last but not least, the creation of the regional SUMP is one of the most important measures for more sustainable mobility in the region. In the preparation of the SUMP LUR, communication with stakeholders at various levels was among the most important actions. After the adoption of the SUMP LUR, it will be necessary to ensure its implementation at the regional level and regularly review the implementation, as well as follow the objective that the municipalities that have not yet prepared their municipal SUMP should do so as soon as possible.

Strategic objective No. 15: Education, raising awareness and public participation

Although various campaigns for raising awareness and the promotion of sustainable mobility are taking place within the framework of the EMW in many Slovenian cities, more intensive awareness raising is necessary that can lead to real changes in the travel habits of working people. Therefore, awareness raising campaigns should be extended beyond the existing frameworks of the EMW and implemented on smaller units, for example in companies, public institutions, neighbourhoods or larger, completed residential units. Education and training on sustainable mobility should be continued, not only for children and young people, but also for the active part of the population.

In the framework of the SUMP, several initiatives for the continuous monitoring of travel habits and the implementation of the needs analyses of various users have been proposed, initially at the local level and then also at the regional level. The monitoring of the situation should continue and the findings should be used in the planning of further measures.

Strategic objective No. 16: Improving financing conditions and rational use of resources

In order to more effectively implement all actions in the various areas of mobility, the available funds for the construction of infrastructure should be significantly increased and programmes related to sustainable mobility should be expanded. The means to implement these measures should be provided in the national budget and through various international programmes. At the national level, the key is also the planning with the inclusion of regional and local levels, as well as the realisation of the set objectives. The contents of sustainable mobility need to be extended to all areas, not only to the field of transport infrastructure development, e.g. in the areas of green infrastructure development, social equality, economic development, etc. Particular attention should be placed on financial resources for the implementation of soft measures of sustainable mobility, for example, the increase in the use of public transport, where financial incentives, such as subsidies for employers or users, should also be included among soft measures.

At the planning level, the various possible indirect financial effects of the increased use of public transport (the effects on the environment, safety and health of the population or economic effects related to health and the environment) should be verified and, in the context of the analysed data, investments and the use of resources should be planned more effectively and in a balanced manner. A careful and balanced selection of measures (incentives and limitations for users) can lead to the successful realisation of sustainable mobility and the changes in travel habits among residents and organisations (employers).

49 sets of measures for sustainable mobility in the Ljubljana Urban Region.

Photo: Unsplash

6 ACTION PLAN

PILLAR	OBJECTIVE	MEASURE	ACTOR	TIMEFRAME	FINANCIAL FRAME
I.	1, 2, 3, 7, 13, 14, 15, 16	**Establishing a national and inter-municipal network of cycling routes in the region** The allocation and construction of new long-distance national cycling routes The connection of inter-municipal cycling routes between towns into a network Conducting calls for co-financing	DRSI, RRA, MUNICIPALITIES, DRI (inter-municipal)	MEDIUM TERM	MODERATELY DEMANDING
I., V.	1, 2, 4, 13, 14, 16	**Strengthening the cooperation of municipalities and the state in the development of the cycling infrastructure** The establishment of a common regional working body that will coordinate the preparation of inter-municipal projects, increase effective communication between the state and municipalities, and provide relevant professional support The preparation of the document on priority cycling routes with the definition of secondary objectives in the field of tourism and economy The reconstruction of roads with a more consistent consideration of the needs of pedestrians and cyclists	RRA, MUNICIPALITIES	SHORT TERM	LESS DEMANDING
I.	1, 2, 3, 4, 14	**Development of infrastructure and introduction of modern technology** The construction of adequate infrastructure at the destination (bicycle storage facilities, charging stations for electric bikes, etc.) The adaptation of cycling routes for a faster journey (wider cycle paths, flatter ramps, etc.)	MUNICIPALITIES, SŽ	CONTINUOUS	LESS DEMANDING
I., II.	1, 2, 3, 4, 5, 6, 7, 13, 16	**Improving the time competitiveness of the bicycle in peak traffic hours** Achieving greater use of electric bicycles, including Incentives Co-modality of bike and public transport	MzI, RRA	CONTINUOUS	LESS DEMANDING
I.	2, 13, 14, 15	**Improving the bicycle infrastructure at the workplace** Incentives for the use of bicycles in companies (secure bicycle storage areas, company bicycles, cargo bicycles, showers, etc.) Financial incentives for the use of bicycles	MzI, companies, public institutions	CONTINUOUS	LESS DEMANDING
I., II.	1, 2, 3, 4, 5, 6, 13, 14, 15	**Access to intermodal points with safe and comfortable walking paths** Bus and railway stations, as well as the P + R will be accessible according to the criteria of universal accessibility within a radius of 1 km The improvement of areas surrounding bus and railway stations for pedestrians	MUNICIPALITIES, SŽ	MEDIUM TERM	LESS DEMANDING

PILLAR	OBJECTIVE	MEASURE	ACTOR	TIMEFRAME	FINANCIAL FRAME
I., II.	1, 2, 3, 4, 5, 6, 13, 14, 15	**Improved conditions for the use of bicycles at intermodal points** Construction of safe and supervised bicycle storage infrastructure at major intermodal points The introduction of bicycle rental at railway stations The possibility of transporting bicycles by bus, train, or transport on demand	MUNICIPALITIES, SŽ, Transport providers	MEDIUM TERM	LESS DEMANDING
II., IV.	4, 10, 13, 14, 16	**Upgrading of existing railway lines in the LUR area** Ljubljana – Litija Ljubljana – Borovnica – Logatec, increasing the speed Ljubljana – Kamnik Ljubljana – Medvode (–Kranj) Ljubljana – Grosuplje – Ivančna Gorica Grosuplje – Kočevje, the introduction of passenger transport	DRSI	LONG TERM	VERY DEMANDING
II., III., IV., V.	2, 4, 9, 10, 12, 13, 14, 16	**Complete renovation (upgrade) of the Ljubljana railway hub, including new lines for passenger transport** Comparative study of different variants Preparation of the NSP The construction of a new railway and bus station The construction or deepening of the bypass freight line The upgrading of existing lines and removal of level crossings Railway connection of Ljubljana and the Jože Pučnik Airport	DRSI	LONG TERM	VERY DEMANDING
I., II., V.	1, 2, 3, 4, 13, 14, 16	**Renovation, modernisation of existing and establishment of new public transport stations and stops** Providing universal accessibility Shelters, bike racks Reconstructions for the provision of technical standards	DRSI	SHORT/ MEDIUM TERM	MODERATELY DEMANDING
II.	4, 5, 8, 13, 14, 15 ,16	**Introduction of yellow lanes for bus transport** Arterial roads in Ljubljana Public roads with heavy traffic	DRSI	SHORT TERM	MODERATELY DEMANDING
I., II.	2, 5, 9, 13, 15, 16	**Modernisation of the bus fleet** New buses powered by alternative energy sources Transport of bicycles and unimpeded access for wheelchairs and functionally impaired persons	Bus operators	SHORT/ MEDIUM TERM	MODERATELY DEMANDING
I., II.	2, 5, 8, 9, 13, 15, 16	**Modernisation of railway rolling stock** New passenger trains equipped with Wi-Fi Options for the transport of bicycles and unimpeded access for wheelchairs and functionally impaired persons	MzI, SŽ - Passenger transport	MEDIUM TERM	MODERATELY DEMANDING
II.	2, 6, 13, 14, 15, 16	**The extension of existing public transport routes and the introduction of clock-phased timetable**	SŽ - Passenger transport, bus providers	SHORT TERM	MODERATELY DEMANDING
II.	2, 6, 13, 14, 15	**The introduction of an integrated public transport ticket for all users**	MzI, SŽ - Passenger transport, bus providers	SHORT TERM	MODERATELY DEMANDING

PILLAR	OBJECTIVE	MEASURE	ACTOR	TIMEFRAME	FINANCIAL FRAME
II.	2, 6, 13, 14, 15	**Harmonisation of bus and train timetables and introduction of frequencies co-responding to the passenger's needs**	DRI, DRSI, SŽ - Passenger transport, bus providers	CONTINUOUS	MODERATELY DEMANDING
II.	6, 13, 14, 15	**The introduction of public transport in less accessible areas of the LUR based on the "transport on demand" principle «**	LUR municipalities, providers	SHORT TERM	LESS DEMANDING
II.	2, 3, 6, 13, 14, 15	**Online sale of train tickets**	SŽ - Passenger transport	SHORT TERM	LESS DEMANDING
II.	2, 6, 13, 14, 15	**Ensuring shorter travel times by introducing direct and fast public transport lines**	SŽ - Passenger transport, bus providers	SHORT TERM	LESS DEMANDING
II.	2, 6, 15	**Encourage, promote and educate about the advantages and benefits of the public transport use**	MzI, transport providers, societies, agencies	CONTINUOUS	LESS DEMANDING
I., III., IV,. V.	1, 2, 7, 8, 9, 10, 11, 13, 14, 16	**Restricting traffic (including transit) in municipal centres** Closing the urban centres for car traffic Establishing one-way and dead-end streets for car traffic The implementation of regulations for limiting (freight) transport The construction of bypasses around urban centres	MUNICIPALITIES, DRSI	CONTINUOUS	MODERATELY DEMANDING
I., II,. III., IV,. V.	1, 2, 7, 9, 10, 13, 14, 15, 16	**Rational construction of transport infrastructure and the introduction of new mobility planning solutions for achieving better traffic flow** The study and the pilot project of the use emergency lanes in rush hour on the motorway The study and the pilot project of the use of reversible lanes on suitable main roads in the LUR Removing of bottlenecks to improve traffic fluidity (motorway interchanges, crossings of the state and municipal roads) Rational construction of bypasses around urban centres which are heavily trafficked Planning usable bypasses for other modalities (cyclists, pedestrians) at the time of roads reconstruction The introduction of new planning practices (e.g. Shared Space)	DARS, MzI, DRSI, DRI, MUNICIPALITIES	CONTINUOUS	VERY DEMANDING
III., IV.	7, 8, 9, 10, 13, 14, 16	**Optimising the use of cars** Car sharing Carpooling A study and a pilot case of the implementation of dynamic toll collection on the motorway for freight transport during peak hours	MUNICIPALITIES, DRSI	CONTINUOUS	LESS DEMANDING

PILLAR	OBJECTIVE	MEASURE	ACTOR	TIMEFRAME	FINANCIAL FRAME
I., II., III., IV.	1, 3, 4, 5, 6, 7, 8, 9, 13, 14, 15	**Reduction of car journeys to work** Providing high-quality alternatives for other modalities (public transport, cycling, walking) Financial incentives for the use of bicycles and public transport Introducing teleworking Considering a different form of compensation for transport to work	MZI, DRSI, DRI, MJU, MOP, MUNICIPALITIES	MEDIUM TERM	VERY DEMANDING
I., II., III., V.	2, 3, 7, 8, 9, 13, 14, 16	**Providing intermodal points** The construction of the P + R near entries in major urban centres The construction of the P + R in the region Reconstruction of existing regional wild parking areas into car sharing areas The construction of new parking spaces for car sharing	MzI, DRSI, MUNICIPALITIES	SHORT TERM/ MEDIUM TERM	MODERATELY DEMANDING
III., V.	2, 6, 8, 13, 14, 15, 16	**Parking management** Introducing and upgrading of the parking policy in municipalities and municipal centres The introduction of paid parking zones or parking lots in the areas of large traffic generators and in urban centres Adaptation of legislation (looser minimum parking norms, meaningful introduction of the maximum parking norm)	MUNICIPALITIES	SHORT TERM/ MEDIUM TERM	LESS DEMANDING
III.	7, 8, 15	**Computerisation of stationary traffic** Providing intelligent information systems for parking management Establishing systems for traffic management to parking spaces	MUNICIPALITIES, MzI	SHORT TERM	MODERATELY DEMANDING
I., III.	1, 2, 9, 13, 14, 16	**Safe infrastructure for all road users** Design and construction of infrastructure for universal accessibility (tactile markings, ramps, etc.) Compliance with the guidelines for the design of traffic areas for pedestrians and cyclists in urban areas Elimination of critical (black) points (blind corners, speed, level crossings with the railway, etc.)	MUNICIPALITIES, DRSI, DRI	CONTINUOUS	MODERATELY DEMANDING
I., III., IV.	1, 2, 5, 7, 9, 10, 11, 12, 13, 14	**Lower speed of motor vehicles in urban areas and less noise** Providing technical measures for slowing speed (bumps, paving, etc.) The use of silent asphalt in sensitive areas Administrative speed limits of freight vehicles (carrying capacity) Consistent implementation of monitoring and sanctioning	MUNICIPALITIES, DRSI, DRI	CONTINUOUS	LESS DEMANDING

PILLAR	OBJECTIVE	MEASURE	ACTOR	TIMEFRAME	FINANCIAL FRAME
III.	7, 9, 11, 12, 13, 14, 16	**Promoting e-mobility and the use of alternative energy sources** Providing the infrastructure for e-mobility (charging station, parking spaces, etc.) The incentives for the use of electric vehicles and vehicles on gas (LPG, CNG)	MUNICIPALITIES, MzI, MOP	CONTINUOUS	MODERATELY DEMANDING
II., IV., V.	4, 7, 9, 10, 12, 13, 14	**Restricting road (transit) freight transport** Limiting the transit freight transport during the night and peak hours Reducing speed (noise reduction) Redirecting to the railway (long term, very demanding)	MzI, SŽ, DARS, DRSI, MUNICIPALITIES, RRA, OOZ, GZS, LOCAL / URBAN COMMUNITIES	SHORT TERM, CONTINUOUS	LESS DEMANDING
IV., V.	2, 4, 7, 9, 10, 12, 13, 14	**Banning of (transit) freight transport** The preparation of studies/strategy for the effective transit in the region by identifying critical points and a priority list of measures Limitations for freight transport where there are alternative routes (e.g. encouraging redirection to the railway)	DARS, DRSI, MUNICIPALITIES, RRA, OOZ, GZS, LOCAL / URBAN COMMUNITIES	SHORT TERM	LESS DEMANDING
III., IV., V.	8, 10, 12, 13, 14	**Limiting long-term parking of freight vehicles in populated areas or near urban areas** Introducing special parking places outside populated areas Establishing the necessary accompanying infrastructure (water, electricity, sanitation)	DARS, DRSI, MUNICIPALITIES	MEDIUM TERM	MODERATELY DEMANDING
I., IV., V.	2, 7, 8, 10, 11, 12, 13, 14, 16	**Introduction of restrictions of access in urban centres** Restrictions of access in relation to the emission standards of vehicles Limited time frame of deliveries (access at certain times) New environmental/ecological zones and pedestrian zones, where deliveries are subject to special arrangements and promote cleaner vehicles	MUNICIPALITIES, TRANSPORT AND LOGISTICS COMPANIES, LOCAL COMPANIES, LOCAL / URBAN COMMUNITIES, GZS, OOZ	SHORT TERM/ MEDIUM TERM	MODERATELY DEMANDING
IV., V.	2, 7, 9, 10, 11, 12, 13, 14, 15, 16	**Optimisation of deliveries in urban centres in order to reduce the number of delivery vehicles** Introducing consolidation centres to optimise and reduce the number of deliveries	MUNICIPALITIES, RRA, TRANSPORT AND LOGISTICS COMPANIES, LOCAL COMPANIES	MEDIUM TERM	MODERATELY DEMANDING
IV.	2, 9, 11, 12, 13, 14, 16	**Promotion of environmentally-friendly delivery vehicles in urban centres** The introduction of electrical and other delivery vehicles on alternative propulsion	MUNICIPALITIES, RRA, TRANSPORT AND LOGISTICS COMPANIES, LOCAL COMPANIES	CONTINUOUS	LESS DEMANDING

PILLAR	OBJECTIVE	MEASURE	ACTOR	TIMEFRAME	FINANCIAL FRAME
I., IV., V.	1, 2, 9, 11, 12, 13, 14, 15, 16	**Introduction of the implementation of deliveries by bicycle in urban environment** Introduction of cargo bicycles The establishment of adequate infrastructure (setting of special places and routes for cargo bicycles, etc.)	MUNICIPALITIES, TRANSPORT AND LOGISTICS AND OTHER COMPANIES	SHORT TERM	LESS DEMANDING
IV., V.	4, 10, 11, 12, 13, 14, 16	**Construction of modern and environmentally-friendly logistics terminals** (e.g. Intermodal Logistics Terminal Ljubljana)	MUNICIPALITY, DRSI, SŽ, TRANSPORT AND LOGISTICS AND OTHER COMPANIES	MEDIUM TERM	VERY DEMANDING
IV., V.	4, 10, 12, 10, 11, 13, 14, 16	**Sustainable mobility planning of logistics centres that are environmentally sound and friendly to nearby residents** The introduction of a sustainable approach and coordination between municipalities/the region and companies or cooperation between the public and private sectors, local residents, local/urban communities to achieve optimum results and minimum environmental impacts	DARS, DRSI, MUNICIPALITIES, RRA, OOZ, GZS, LOCAL / URBAN COMMUNITIES	CONTINUOUS	LESS DEMANDING
V.	1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 13, 14, 16	**Establishing a joint coordinating body for the more effective coordination of transport development at the national, regional and local levels** Ensuring adequate human resources for coordination at national, regional, and local levels The establishment of the coordination body (regular communication between ministries, regions, and municipalities; professional support and participation in joint projects) The harmonisation and establishment of common strategic foundations for the development of mobility (e.g. harmonisation of regulations, method of granting concessions, participation of the state in the design and implementation of measures, etc.) that will be able to be realised in practice	MINISTRIES (e.g. MZI), MUNICIPALITIES, RRA others: DRI, public transport providers (SŽ)	PRIORITY MEASURE SHORT TERM	LESS DEMANDING
I., II., III., IV., V.	1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16	**Preparation, adoption and implementation of regional SUMP** The implementation and revision of the regional SUMP Adoption of the missing local SUMPs Revision of the prepared local SUMPs	MUNICIPALITIES, RRA, MINISTRIES, service providers and other key stakeholders	PRIORITY MEASURE SHORT TERM	LESS DEMANDING
I., II., III., IV., V.	1, 2, 3, 4, 7, 8, 10, 12, 13, 14, 15, 16	**Preparation and adoption of the regional spatial plan** Coordinating the interests of the development of transport with other interests and areas in the preparation and adoption process of the RSP	ALL PARTICIPANTS (national, regional, local level, various fields, the public)	PRIORITY MEASURE SHORT TERM	LESS DEMANDING
I., II., III., V.	1, 2, 3, 4, 7, 8, 11, 12, 13, 14, 15, 16	**Consideration of the long-term aspect of sustainable mobility planing in the land-use planning (including reconstructions, renovations)**	ALL PARTICIPANTS	CONTINUOUS	MODERATELY DEMANDING

PILLAR	OBJECTIVE	MEASURE	ACTOR	TIMEFRAME	FINANCIAL FRAME
V.	2, 3, 4, 6, 7, 8, 9, 10, 12, 13, 14, 15	**A more active direction of the development and allocation of activities in the space by the municipalities and the state** A more precise definition of and adherence to professional positions in the allocation of activities in the space, strict compliance with the provisions of spatial acts, enforcement of supervision, financial incentives Coordination between municipalities/the region and companies (employers, etc.) for the implementation of measures by the employers: reducing the number of daily commuters (e.g. providing jobs at the place of residence, enabling work from home, etc.) Prepare mobility plans for major traffic generators in the region (companies, employment centres, schools, University of Ljubljana and faculties, University Medical Centre Ljubljana, etc.)	MUNICIPALITIES, RRA, MINISTRIES, service providers and other key stakeholders (companies, employment centres, schools, University of Ljubljana and faculties, University Medical Centre Ljubljana, etc.)	CONTINUOUS	MODERATELY DEMANDING
I., II., III., V.	2, 6, 7, 8, 9, 13, 14, 15	**Awareness-raising and educational campaigns (e.g. more than once a year during the European Mobility Week)** Promotional and awareness-raising campaigns for sustainable mobility and travel behaviour change at the level of the state, regions and municipalities (the establishment of the EMW regional coordinators, the increase of resources for the promotion and awareness raising, etc.). Education and training on sustainable mobility	MzI, RRA, MUNICIPALITIES, MIZS, PS, etc.	SHORT TERM/ CONTINUOUS	LESS DEMANDING (Norwegian mechanism for the establishment of the EMW regional coordinators)
I., II., III., V.	4, 6, 7, 8, 13, 14, 15	**Continuous monitoring of travel behaviour and performing needs analyses of various users** Monitoring the travel habits of the population and the number of road users – regular monitoring and evaluation of the effects for the planning of new measures A needs analysis of various users (children, students and the young, employees, the elderly) to increase the autonomy of their mobility at the level of municipalities and the region; on the basis of the findings, planning of effects and measures	MzI, RRA, MUNICIPALITIES, PS, etc.	CONTINUOUS	LESS DEMANDING
I., II., III., IV., V.	13, 14, 15, 16	**Ensure adequate participation of the public and key stakeholders in the planning and implementation of measures for sustainable mobility**	ALL PARTICIPANTS	CONTINUOUS	LESS DEMANDING
I., II., V.	1, 2, 3, 4, 5, 8, 9, 11, 12, 13, 14, 15, 16	**Increase sustainable mobility programmes to secure funds** Securing funds for the implementation of measures (EU funds, harmonisation of budgets)	MINISTRIES, RRA, MUNICIPALITIES, EU	CONTINUOUS	VERY DEMANDING
I., II., V.	1, 2, 3, 4, 5, 6, 7, 8, 9, 10 ,11, 12, 13, 14, 16	**Balanced planning of investments and spending** Increasing financial resources for the implementation of soft sustainable mobility measures, in particular an increase in public transport use (e.g. financial incentives, subsidies for users or employers) Securing funds for the introduction of the sustainable mobility concept simultaneously with the construction of infrastructure projects	MzI, RRA, MUNICIPALITIES	MEDIUM TERM	VERY DEMANDING

Urban Institute of Ljubljana

Institute for Spatial Policies

Institute of Traffic and Transport Ljubljana

Research Centre of the Slovenian Academy of Sciences and Arts, Anton Melik Geographical Institute

Regional Development Agency of the Ljubljana Urban Region

AUTHORS OF THE SUMP LUR

Regional Development Agency of the Ljubljana Urban Region (RRA LUR)

We bring together 26 municipalities and communities in central Slovenia in which we support sustainably oriented business, infrastructural, social, cultural and creative activities. At the same time, we encourage the connecting and developing of partnership networks among various stakeholders whose activities build the region's sustainable development. We are a young and highly-qualified team of experts from diverse fields who conceive, coordinate and carry out the development projects that contribute to the rise of the quality of life in the region, identify synergies among projects and connect with domestic and foreign experts. At the same time, we are constantly planning new projects according to the most promising potentials of the region.

Urban Institute of Ljubljana (LUZ)

We are at home in spatial planning. We are characterised by tradition, versatility, quality and connectedness. We are proud of our satisfied clients and well-prepared projects. Independently and in connection with business partners, companies, professionals and groups, we prepare projects in the field of spatial planning, urban development, architecture and landscape architecture, environmental protection, traffic planning, municipal infrastructure, energy and spatial informatics. We rapidly develop new areas of work. We are winning recognition in the field of urban economics and are testing out the opportunities provided by international projects.

We are qualified to organise, manage and execute demanding projects in the field of spatial planning.

Research Centre of the Slovenian Academy of Sciences and Arts (ZRC SAZU), Anton Melik Geographical Institute

The fundamental mission of the ZRC SAZU or, to be more precise, eighteen institutes is scientific research in the field of humanities, social sciences and natural sciences. There the researchers of the Anton Melik Geographical Institute focus on research in the field of regional planning, human geography, rural geography, land use, mobility, creativity, cultural heritage, environmental protection, tourism, protection against natural disasters, geographic information systems, physical and regional geography, geographical names and geographical terminology. We are actively involved in a series of applied projects within which we are transforming our scientific knowledge into strategies, programmes and projects so as to assist stakeholders in achieving better quality and spatial development planning.

Institute of Traffic and Transport Ljubljana (PIL)

We are a research organisation owned by the Slovenian Railways and we work in the field of transport. Our research projects, strategic and development studies and research focusing on railways relate to the areas of traffic economics, traffic planning, traffic technology, transport infrastructure and the preparation of investment documentation. In the domestic market, we also actively participate in the preparation of national strategic and development studies in the field of transport and infrastructure, as well as in the preparation of Sustainable urban mobility plans, while we are involved in various international projects in the field of development of transport and railways in Slovenia and Europe.

Inštitut za politike prostora (IPoP)

We are a non-governmental, consulting and research organisation in the field of sustainable spatial and urban development. We focus on participatory processes, urban regeneration, sustainable mobility, and new spatial practices. We connect NGOs and local initiatives and offer them professional support and information, conduct research, carry out studies, advise on project development, and help form partnerships, lead participatory processes, train for participation in spatial planning, engage in policy making and strive for better legislation with an impact on spatial development, disseminate information about sustainable spatial and urban development and react to topical issues.

We have participated in the preparation of 13 local Sustainable urban mobility plans.

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GLOSSARY OF ABBREVIATIONS

AADT – Average daily traffic

CNG – Compressed natural gas

DARS – Motorway Company in the Republic of Slovenia

DRI – Investment Management Company Ltd.

DRSI – Slovenian Infrastructure Agency

EMW – European Mobility Week

EU – European Union

GZS – Chamber of Commerce and Industry of Slovenia

IJPP – Integrated public transport

IPoP – Institute for Spatial Policies

JPP – Public passenger transport

LPG – Liquefied petroleum gas

LPP – Public transport company Ljubljanski potniški promet, d.o.o.

LUR – Ljubljana Urban Region

LUZ – Urban Institute of Ljubljana

MIZS – Ministry of education, science and sport

MJU – Ministry of Public Administration

MOL – City of Ljubljana

MOP – Ministry of the Environment and Spatial Planning

MZI – Ministry of Infrastructure

NSP – National Spatial Plan

OOZ – Regional Chamber of Craft and Small Business

PS – Primary School

PIL – Institute of Traffic and Transport Ljubljana l.l.c.

RSP – Regional Spatial Plan

RRA – Regional Development Agency

RRA LUR – Regional Development Agency of the Ljubljana Urban Region

RDP – Regional Development Programme

SMART-MR – Sustainable Measures for Achieving Resilient Transportation in Metropolitan Regions; project co-funded by the Interreg Europe programme

SORS – Statistical Office of the Republic of Slovenia

SUMP – Sustainable Urban Mobility Plan

SUMP LUR – Sustainable Urban Mobility Plan of the Ljubljana Urban Region

SŽ – Slovenske železnice, d. o. o. (Slovenian Railways)

UL – University of Ljubljana

UMCL – University Medical Centre Ljubljana

ZRC SAZU – Research Centre of the Slovenian Academy of Sciences and Arts

Municipality of Borovnica

Municipality of Brezovica

Municipality of Dobrepolje

Municipality of Dobrova - Polhov Gradec

Municipality of Dol pri Ljubljani

Municipality of Domžale

Municipality of Grosuplje

Municipality of Horjul

Municipality of Ig

Municipality of Ivančna Gorica

Municipality of Kamnik

Municipality of Komenda

Municipality of Litija

City of Ljubljana

Municipality of Logatec

Municipality of Log - Dragomer

Municipality of Lukovica

Municipality of Medvode

Municipality of Mengeš

Municipality of Moravče

Municipality of Škofljica

Municipality of Šmartno pri Litiji

Municipality of Trzin

Municipality of Velike Lašče

Municipality of Vodice

Municipality of Vrhnika

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