



European Hrvatska

European 15 Productive City

Karlovac (HR)

LUŠČIĆ – PRODUCING THE NEW URBANITY

Urban transformation of the former military barracks „Luščić“

Site brief



European Hrvatska



Dobrodošli! Welcome!

Dear participants,

we would like to welcome you and thank you for choosing the location in Croatia for your participation in the EUROPAN 15 competition. This year, our national organization has offered the location of the former barracks in the city of Karlovac for considering the possibilities of urban transformation in the context of the main competition topic - *Productive city*.

Karlovac is the ninth largest city in Croatia, located at the place where the lowland meets the highlands, on an important traffic route and a strategic point that determined its formation exactly 440 years ago. The city is proud of its four rivers, military and industrial heritage, numerous parks and green spaces that contribute to the image of a pleasant city. As a powerful industrial city, Karlovac has a tradition of a *productive city*, and its strategic position required the presence of a numerous military facilities. This military history lasted until recently, and the wounds from the war in the early 1990s are still fresh. Former military locations within the urban fabric are now vacated and seeking new programmes.

Karlovac shares the problems of other Croatian cities, the most notable of which are unfavourable demographic trends, economic crisis and emigration of young and educated people. However, Karlovac also shares the optimism inspired by Croatia's accession to the European Union and the possibilities that this integration offers.

One of the great spatial possibilities for the future development of Karlovac is the area of the abandoned "Luščić" barracks, located not far from the city centre and within the main urban axis that has been planned as the main axis of the spatial development of the city since the middle of the last century. The goal is to make it possible, through the participation in this competition, for fresh ideas and new approaches to be developed to respond to the challenges of the future spatial development of Karlovac. We hope that not everything will remain as ideas only, since Karlovac plans to turn these ideas into concrete plans and projects for the urban transformation of this important urban space

In the spirit of this year's EUROPAN theme we wish you a productive work at this location and a lot of success.

We look forward to your ideas!

European Croatia



Rethinking the future development of Karlovac



Damir Mandić, Mayor of Karlovac

Karlovac is a city proud of its military and industrial heritage, but at the same time wants to open a new page of its development and transform itself into a city of knowledge, innovation, culture and tourism. The city revives its natural resources and sees its development vision as a city of encounters and pleasant living, culture and history, sports and youths. The transformation of the city takes place in the entire urban area, which includes the new urban centre covering the two most populous city districts - Novi Centar and Luščić. It is just at the junction of these two districts that the former barracks are located, in the extension of the green belt along the edge of which there are three important cultural institutions of Karlovac (City Library, Gallery and Archive). The opposite side of the barracks is protected by a green area which in a specific way makes it an intact oasis of this most urbanised part of the city.

Considering the direction in which the city is developing, the new productivity zone should be aimed at strengthening and supporting the public interest, sustainable use of space, integration and coexistence at a creative level, achieving progress and a positive environment of optimistic scenarios and realistic development, while protecting urban, cultural and ecological values. The new productivity zone should be a dynamic space coordinated with the development needs and the environment protection. The former

barracks could become a paradigm of an open creative space where new knowledge and technology, research and innovation will be produced and new content created that will enhance urban life and give it a look to the future compatible with a city of pleasant living characterised by preserved nature and four clean rivers flowing through the city.

Karlovac has owed its development through history to its good transport position. Today, the city is located on very important international transport routes and within a radius of 150 km there are Ljubljana, Zagreb and Rijeka. This good transport position should be more used for the development of the city in the future.

Karlovac is proud of its tradition of knowledge, which is the only guarantee of development in today's dynamic environment. It was in Karlovac that Nikola Tesla finished high school and had first contacts with innovation and science. Polytechnics of Karlovac with around 2500 students and currently one, but soon two student dorms, several vocational high schools and centres of excellence are located in Karlovac.

The very fact that we appreciate the knowledge has motivated us to actively involve, through the European platform, the knowledge of young European architects in designing the future development of Karlovac. We look forward to your fresh ideas.

A handwritten signature in dark ink, reading "Damir Mandić". The signature is written in a cursive, flowing style.

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Introduction



The City of Karlovac participates in the international European 15 programme, within which an international urbanistic and architectural competition to consider the best solutions for the location of the former “Luščić” military barracks will be conducted. At the strategic (urban) level, the area of the former “Luščić” barracks will be considered within the context of addressing the main urban axis, which has been planned since the mid-twentieth century as the basis for the spatial development of Karlovac and the area where the most important city amenities, public spaces and spaces of local identity are located.

European competitions, events and publications serve as a platform that gives young architects an opportunity to assert themselves at international architectural scene. For the cities involved, European provides an opportunity to benefit from the internationalisation of their urban problems.

Furthermore, European discussions, seminars, forums and other events that are accompanying the competition serve as an excellent platform for theoretical debates and exchange of views among architects, developers, experts, public servants and general public thus promoting urban and architectural culture.

The main thematic framework of the European 15 is the **productive city**. The topic is based on the fact that, apart from housing and business spaces, development projects of post-industrial cities rarely include productive economy. The competition encourages the location of the production within the city, so that it is an integral part of the city's fabric and connected to daily life.

It should be noted that Karlovac, as a city with strong industry and rich industrial heritage, which has partially entered into a post-industrial stage, still has

characteristics of a productive city. Large city areas are still being planned for productive uses, and the compact nature of the urban area makes these locations easily accessible. It is important to note that this primary production is generally not located along the main urban axis (the strategic site), which is primarily being the space with a concentration of various public amenities. Of course, productivity in the city should not be considered only in the context of traditional production. With regard to the Lušćić location, Karlovac would like that, when applying the „productive city” theme, consideration is primarily given to topics such as creative industries or culture factories. It is also possible to consider the temporary use of urban spaces until they are brought to their intended use (which is likely not to occur soon for all city's amenities that are planned). Finally, the productivity theme in the Karlovac location can be also applied by *producing an urban environment* at abandoned locations where urban fabric needs to be created, containing all aspects of urbanity, some of which – such as giving priority to pedestrians, a human scale and a mix of uses – are often lacking in today's cities.

The Karlovac location requires considering the revitalisation of abandoned city spaces through an urban transformation process, which will involve a long period for the completion of the city project and will probably not be possible without using the EU's mechanisms aimed at strengthening the role of cities as drivers of economic development. Such projects require long-term planning and a strategic approach with a clear spatial vision. The City of Karlovac has decided to use Europan as a reliable platform for obtaining fresh ideas on its urban development, the most successful of which will be translated into concrete urban development plans.

With regard to the Lušćić location, the City of Karlovac expects solutions that will ensure the sustainable use and vitality of the urban area, in particular by avoiding uniform and single-purpose solutions and by ensuring that high-quality public amenities and open public spaces are created, inspired by examples of good European practice.

General spatial, economic and social context



Karlovac and its surroundings (aerial photo: Matija Sužnjević)

Natural features

Karlovac was built in the basin of the Kupa River, with the tributaries of Dobra, Korana and Mrežnica rivers. Hilly areas covered in forests spread along the western and southern regions of the city, while the lowland forests and meadows prevail in the northern and eastern areas. The average altitude of the Karlovac hollow is 110 to 130 meters.

Waters

Lower courses of the rivers Mrežnica, Korana, Dobra and Kupa flow through Karlovac, along with numerous smaller watercourses descending from nearby hillsides.

Apart from the high level of underground waters, numerous watercourses (rivers and streams flowing down from the highlands) cause frequent floods during heavy rains and after snow melting. Due to the danger of flooding, defensive embankments were built along the lower river courses, which has partly affected the natural form of the river and stream banks and hinterland.

The rivers of Karlovac are one of the main identity features of the city that is often referred to as the city on four rivers.

Climate

The Karlovac region has predominantly moderate continental climate characterised by hot summers and cold winters, as well as humid southern and western, and cold northern winter winds.

Geological features

Karlovac region belongs to the zone of seismic intensity VII, according to MCS scale. The soil is mostly leached and poorly fertile. It is predominantly composed of medium or lower fertile loam and clay.

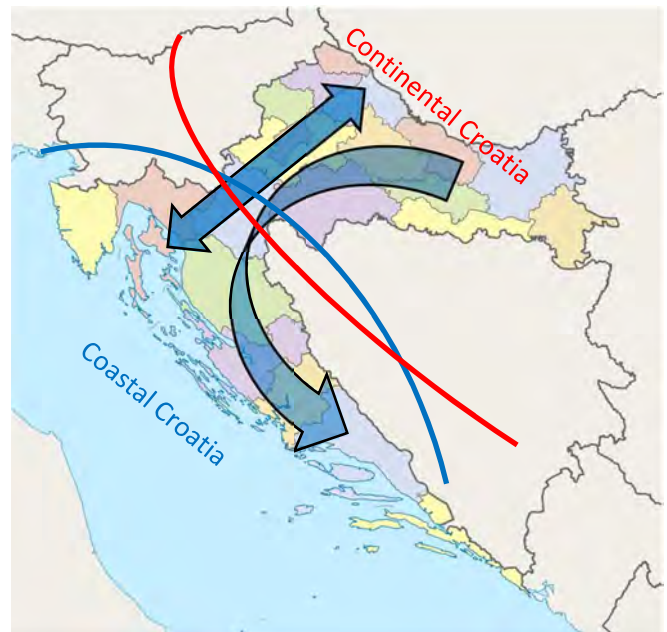


Flood in Karlovac in 2018.

National and regional context

Karlovac is located about 55 km south-west of the Croatian capital Zagreb, and is situated on the important route connecting Central Europe and the Adriatic (Budapest – Zagreb – Rijeka, with a branch to Split). In 2011, the city had a population of 55 705 and is the **ninth largest city in Croatia**. It is the largest city and administrative seat of the Karlovac County, which is one of the 21 regional administrative units of Croatia.

The area of the Karlovac County is the access area that connects the Central Transdanubian plain with the Adriatic. Such location resulted in the fact that *almost all infrastructure corridors which are of strategic importance for Croatia pass through Karlovac* (motorway, railway line, electricity transmission lines, oil pipelines, gas pipelines). The importance of the area is all the more greater because it is the only connection between the continental and coastal parts of the Republic of Croatia within its borders.



Population

Negative demographic trends are one of the major challenges Croatia is faced with. The demographic profile of Croatia is characterised by a decline in the total number of the population, continuous natural decrease (i.e. the number of deaths exceeds the number of births), increased aging of the population and an imbalance in the population's age structure.

In the period from 2001 to 2011, the population of Karlovac (within the city's administrative boundaries covering the Karlovac urban settlement and 51 suburban settlements) decreased by 3,690 (dropping from 59,395 as recorded in 2001 to 55,705 as recorded in 2011). The central Karlovac urban settlement had a population of 49,082 in 2001, and 46,833 in 2011.

Economy

In addition to demographic issues, which are seen as the country's main development problem, negative economic trends prevail, combined with a slow recovery from the crisis that started in 2008. Over the six recession years gross domestic product (GDP) fell by 12 %. Negative economic indicators are accompanied by a significant increase in unemployment. Although the slight decrease in unemployment is registered, it is not accompanied by an increase in employment, but is mainly due to emigration following Croatia's accession to the EU and to the removal of barriers to workers' mobility.

Elements of local identity

Karlovac – the legacy of a military city

The emergence of Karlovac is related to its important strategic position that can still be felt today, although the army had mostly left its locations in the central urban area. Karlovac was founded as a military fortress, and during the 20th century, large barracks were built in the city, outside of its historic core. During the time of Socialist Yugoslavia, Karlovac was an important defence city, full of military buildings. Most of these former military properties are now abandoned and the city is looking for their new uses.

At the location of Luščić, a part of the barracks has been transferred to the ownership of Karlovac – a cadastral parcel that occupies approximately two thirds of the former barracks area.

Karlovac – the legacy of an industrial city

In the context of the competition theme – productive city – it is important to reflect on the topic of Karlovac industrial legacy. Until recently, the city was known for its mighty factories and industrial giants. It is precisely the strong industrialization of Karlovac in the 20th century which was responsible for the growth and development of the city, and has left many traces in the local identity.

In the mid-19th century, Karlovac had about eight thousand inhabitants, and by the mid-20th century the population increased by 14 000. In 1981, Karlovac had 55 000 inhabitants. Almost the entire Karlovac industrial heritage, except the first few factories and the manufacturing production before, was part of the socialist modernisation project and a paradigm of the creation of an industrial society. According to the 1983 monograph, in the socialist Yugoslavia there were industries in which the production by the Karlovac factories accounted for about 70 percent of the republic production (construction equipment) or production throughout Yugoslavia (cutlery).

On the basis of this industry, and as part of the city industrialisation, Karlovac was inhabited and built, and its population doubled compared to the situation before the Second World War.



Former Jugoturbina factory in Karlovac

Karlovac – a city of pleasant living

Excellent transport link with Zagreb and Adriatic coast, as well as its surroundings rich in natural resources (rivers, forests on the outskirts of the city and preserved natural landscape), cultural and historical importance of *Zvezda* historic core and the comfort of a mid-size town accessible by walking and cycling represent fundamental advantages of Karlovac. For many years, despite numerous economic difficulties, Karlovac has been successfully creating an image of a pleasant living environment.

Karlovac likes to be called the *city of parks*. The *town on four rivers* is the other name often attributed to Karlovac. The city is also proud of its tradition of knowledge, and is recently developing its polytechnics as the centre of education and knowledge. New museums are becoming the centres of culture and new tourist attractions.



Further reading:

The **appendix** of this site brief (available in the complete file) contains more detailed info about:

- general spatial, economic and social (national) context as well as national spatial planning guidelines,
- more info about the Karlovac county and the regional context,
- more info about the legacy of Karlovac as a military city and an industrial city.

Historical development of Karlovac



Zvijezda Karlovac

Zvijezda is the name for the historic core of Karlovac, the so called Karlovac fortress, which was built in the 16th century as a Renaissance fortification system of a characteristic hexagon shape.

Karlovac is a planned town, built at the end of the 16th century for the purpose of defending Austria (to which the area of Karlovac belonged at that time) from the expanding invasion of the Ottoman Empire. *Zvijezda* (meaning “the star”) is the representation of the highest fortification ideas of that time and is considered one of the top achievements of national significance that bears witness to the layers of European civilisation and culture in these areas. *Zvijezda* represents a unique historical and urban space and has remained the trademark of Karlovac to this day.

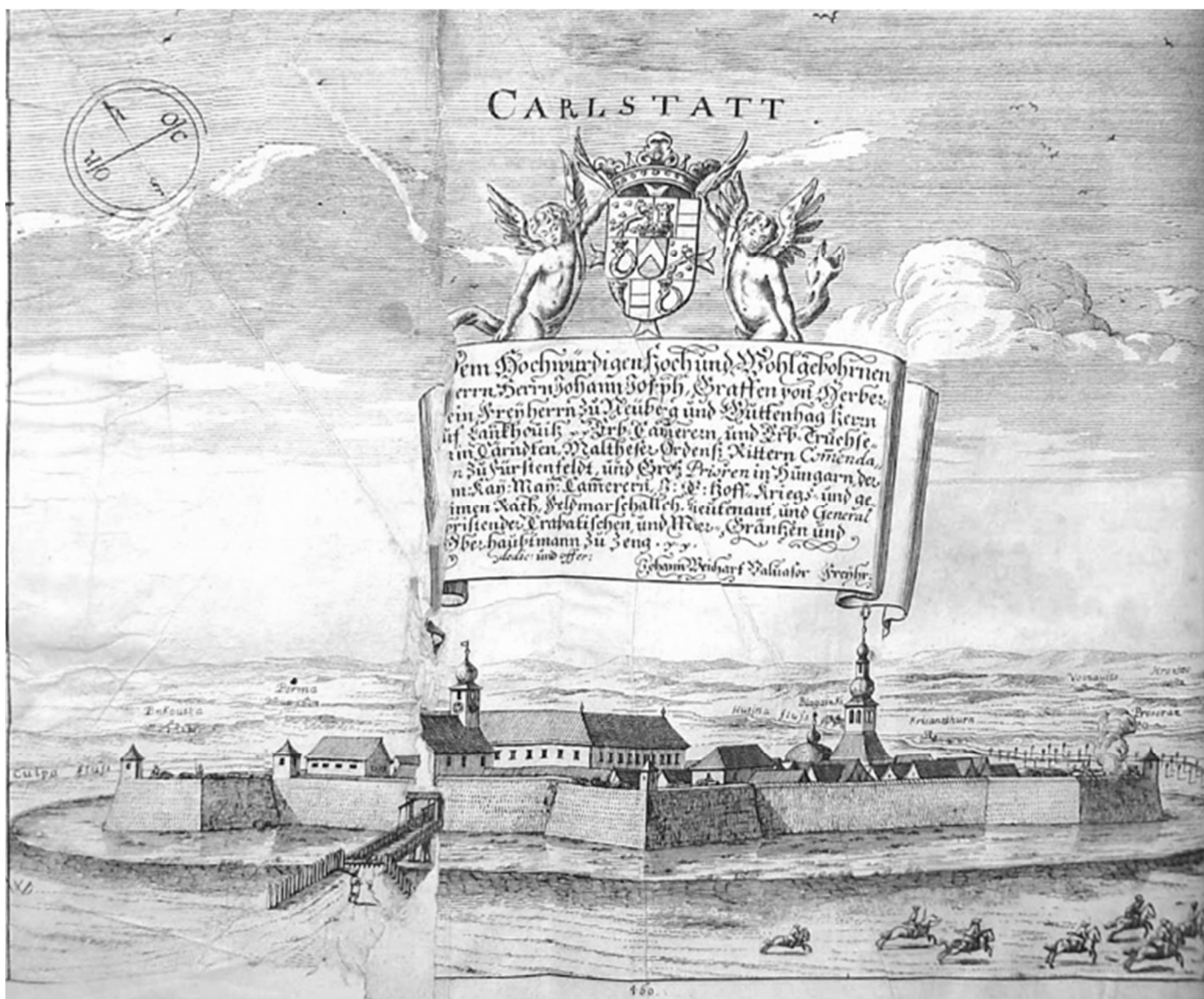
The traces of settlements in the Karlovac area date back to the Paleolithic and Neolithic Age. Certain materials remain from the Roman times, but there was no important Roman settlement in this area, nor has the existence of major connections been confirmed.

During the late Middle Ages, fortified settlements (old towns) emerged in the wider area. One of such towns is the nearby Old town of Dubovac (today within the city limits of Karlovac).

In the 15th and 16th century, the increasingly frequent Turkish invasions towards the northwest of the Croatian territory changed the image of settlements by destroying their manorial estates.

In 1527, the systematic defence of the lower Austrian provinces from the Turkish invasion began by establishing a Military Frontier (that is, a permanent military institution submitted to the War Council in Graz), which was exempted from the authority of the Ban and the Croatian Parliament. It covered the area from the sea to the right bank of the Kupa River.

When in 1578 the emperor Rudolf II handed over the administration of the Military Frontier to Charles (Karl) II in Bruck an der Mur, it was decided to construct a fortress on the confluence of four rivers and name it after its founder – **Karlstadt (Carlostadium, Karlovac)**. The modern defensive fortress also became the main military headquarter of the Karlovac General Command.



Karlovac fortress in the 17th century. Drawing by J. W. Valvasor

The construction of the great Karlovac Fortress is one of the most significant construction projects of the 16th century on the Croatian territory, related to the defence of Slavonia and Kranjska from the Ottomans.

The construction of the Karlovac fortress in the form of the "star" ("Zvijezda") began on **13 July 1579**, in accordance with the previously conceived model of the planned "ideal" Renaissance city. The construction of the fortress was led by architect Martin Gambon. Owing to the hexagon shape with earthen embankments adjusted to the defence military technology systems of the time, the main square with military and religious content and the orthogonal street layout, the city-fortress represented the most significant construction venture of the Renaissance period.

Having weakened the Ottoman threat and after the peace in Srijemski Karlovci in 1699, politics and

economy were gradually stabilizing, which was a prerequisite for the overall architectural and commercial reconstruction. Since the Kupa River was navigable to Karlovac, the Gaja suburb started to develop and the construction of the roadway to Bakar and Rijeka began (Carolina road, in 1727), as well as the trade and postal road which connected Karlovac and Senj (Josephine road, in 1776). Numerous trading houses in the suburb were built next to the roadways, as well as storage buildings along the Kupa River.

By the end of the 18th and in the first half of the 19th century, the city reached its golden age as a trading centre between continental and coastal Croatia, and it was the richest Croatian city at that time.

Consequently, along with Zagreb, it also became the centre of national and cultural movement in the spirit of Enlightenment and Romanticism, known as the Croatian national revival.



Karlstädter Generalat - First Military Survey (1763-1787) (source: www.mapire.eu)

The change in political circumstances during the Napoleonic wars and the entrance of Karlovac into the system of the Illyrian Provinces encouraged the construction of the most modern roadway between Karlovac and Rijeka, the so-called Louisiana road (1833-1842). It was the main connection between the Adriatic and Pannonian territories until the railway construction in 1873. It conditioned the construction of road settlements and from the middle of the 19th century the historical market places were transformed into the industrial districts of Karlovac (Dubovac - brewery, Turanj, Rakovac-Mustad).

The Carolina (1727), Josephina (1776) and Louisiana (1833) roads are three important transport routes from Karlovac towards the Adriatic Sea. They defined Karlovac as an important traffic junction, the role the city has kept until today.

The Military Frontier in the second half of the 19th century became an anachronism and a brake of the economic development, and the demilitarization and abolition of the Military Frontier in 1881, as well as its annexation to the Croatian state territory within the Austro-Hungarian Monarchy enabled the expansion of the city of Karlovac and the connection of the urban area into a complete territorial and administrative unit.

Therefore, the bridges (the so called City gate) were demolished by the end of the 19th century and the city opened towards the outskirts.

As a result of the Zagreb-Rijeka railway construction in 1873, the commercial role of the city suddenly weakened, and Zagreb as a traffic junction became more significant. The industry was at the beginning of its development and it could only meet local needs, while craftsmen and merchants shifted to agriculture.

Because of the geo-strategic position of Karlovac, a large Home Guard barrack was built outside of Zvijezda at the beginning of the 20th century. The First and Second World War led Karlovac to remain a significant military centre, and new military barracks were built outside of Zvijezda (Logorište, Mekušje, Turanj, Luščić, Dubovac).

After the First World War, slow industrial development began in Karlovac. It was primarily the industry based on cheap labour (textile industry) and raw materials (food and wood industry).

After the Second World War, Karlovac witnessed a strong industrial development. It was principally a consequence of the five-year plans within the planned socialist economy. Large factories were built, primarily

manufacturing plants. Karlovac became, together with Zagreb, one of the most important industrial centres of central Croatia. Large Karlovac companies employed thousands of employees (Jugoturbina, the largest Karlovac company, alone had over 8,700 employees by the end of the 1980s). New industrial settlements were built, as well as new administrative and cultural centres (Grabrik and Novi Centar) and this new construction started to change the image of historic settlements and ambiances.

After the Second World War, the strong industrial development occurred. Karlovac, along with Zagreb, became one of the most important centres of central Croatia. The Karlovac Jugoturbina alone employed around 8000 employees.



Lušćić Urban Development Plan from 1976

Construction of the Zagreb-Karlovac motorway, the first one in Croatia, was also important for the development of the city in 1971. Prosperity of the Karlovac industry led to a rapid settlement of the workforce from the surrounding area. Companies built apartments for workers in planned settlements with built infrastructure. Leisure time was organized through the work of various sports, cultural and humanitarian organisations. The city was spatially expanding into new areas, and modern public buildings (hospitals, state archives, libraries, bus station, sports hall etc.) were built.

In the 1980s, the socialist system crisis came to light. The Croatian Homeland War started in the early 1990s and caused great damage to the economy of the city. Although not the only one, it was the main reason for the slow or even lagged economic development of the city during that and the post-war period. Much of the industry was lost, since it was technologically outdated and could not deal with international competition. The former Yugoslav market was lost, and the process of European integration went slower than expected.

Karlovac met the outbreak of the Croatian Homeland War with many military facilities, run by the Yugoslav People's Army (JNA) and situated in the urban area with deployed military forces.

In November 1991, the JNA abandoned some of its locations in the central part of the city. However, despite having left the city, the fights for it did not cease. During the Homeland War (1991-1995) the city suffered continuous devastation and human casualties as it was on a demarcation line, which was situated partly on the Kupa River and near the rivers Korana and Mrežnica. The city was continuously exposed to shelling, and experienced lots of civil casualties as well as physical damage on its buildings and infrastructure.



The Homeland War in Karlovac (photo: Dinko Neskusil, source: KAfotka).

Basic spatial data and guidelines from applicable development strategies

Population

The settlement of Karlovac is just one of the settlements of the administrative entity of the City of Karlovac, which, in addition to the settlement of Karlovac, includes 51 other (suburban) settlements. It has already been stated that both the City of Karlovac and the settlement of Karlovac are losing population – over the last intercensal period (2001 – 2011) the whole of the territory of the City of Karlovac lost 3 690 residents while the population of the settlement (urban area) of Karlovac fell by 2 249 residents.

Apart from numbers expressed in absolute terms, there are other unfavourable demographic trends. For example, the share of highly educated persons is only 18% (the average for Croatia and the EU is 20% and 27% respectively).

Migrations

As regards migration characteristics, the majority of the population of the City of Karlovac (53.2%) live in the same settlement from their birth onwards. Out of the total number of immigrants, the largest share is made up of persons who arrived to the City of Karlovac from other parts of Croatia (74.2%). According to the 2011 Census, the number of residents who arrived from abroad accounts for 25.8% of the total number of immigrants. The majority of them arrived from Bosnia and Herzegovina, Germany and Serbia.

The biggest migrant contingent are economic migrants from countries that came into existence following the break-up of Yugoslavia who, due to relatively small cultural and linguistic differences, find it possible to find employment. A significant number of them are Croats who arrived from these countries to Croatia in search of better living conditions. Hence, although the percentages of immigrants are relatively high, it should be noted that the degree of integration is high and that cultural and linguistic differences are minor.

Although the recent transcontinental migration waves were also felt in Croatia (which is located on the so-called "Balkan route"), a relatively small number of these migrants stays here due to the fact that they mostly want to settle in some of the more developed European countries. Although Croatia participates in the EU's migrant quota distribution scheme, the numbers of immigrants of this type are still negligible.

Development index

According to national development index indicators, Karlovac is part of the group of Croatian cities comprising the second quartile of cities ranked above average (index 105 as compared with the national average of 100). In relation to the national average, Karlovac has a higher average income per inhabitant (115), higher average original income per inhabitant (101), a lower average unemployment rate (103) and its population has a higher general education level (119). Below the national average feature demographic indicators – general population movements (97) and the population ageing index (98).

Employment

In 2016, there were 16 808 people classified as employed in the territory of the City of Karlovac, which represents 70% of the working population. The greatest number of employed persons work in the processing industry followed by those employed in public administration, trade, education and health care.

At the end of 2017, 1 908 persons were recorded as unemployed in the territory of the City of Karlovac. (The number of unemployed is probably higher because a number of the unemployed is crossed off the Employment Bureau's records after failing to fulfil certain administrative requirements.)

Employees in legal entities in the City of Karlovac

Activity	2011	2012	2013	2014	2015	2016
A Agriculture, forestry and fishery	188	212	181	176	159	163
B Mining and quarrying	-	-	-	-	-	-
C Processing industry	4.924	4.962	5.088	5.405	5.380	5.279
D Electricity, gas and steam supply and air conditioning	298	289	260	238	235	234
E Water supply, sewerage, waste management and remediation services	353	339	363	359	337	381
F Constructions	855	861	697	731	743	797
G Wholesale and retail trade services, repair of motor vehicles and motorcycles	2.031	1.907	1.983	1.922	1.879	1.919
H Transportation and storage	790	885	891	843	807	871
I Accommodation and food service activities	200	178	164	174	246	327
J Information and communication	199	208	193	182	186	226
K Financial and insurance activities	470	454	439	410	389	362
L Real estate activities	19	16	18	17	18	16
M Professional, scientific and technical activities	372	387	388	379	333	512
N Administrative and support service activities	375	419	401	312	345	293
O Public administration and defence, compulsory social security	3.338	3.261	3.752	3.160	2.119	2.068
P Education	1.400	1.426	1.431	1.446	1.462	1.488
Q Health care and social welfare activities	1.414	1.501	1.499	1.480	1.391	1.494
R Arts, entertainment and recreation	229	213	214	217	209	232
S Other service	150	111	114	108	93	146
City of Karlovac	17.605	17.629	18.076	17.559	16.331	16.808

Number of apartments

According to the 2011 Census, the City is recorded to have 20 895 housing units, 20 855 of which are occupied. Two-room (8 004) and three-room (5 681) apartments prevail.

The average number of inhabitants is 2.7 inhabitants per housing unit.

According to the Croatian Bureau of Statistics, in 2011, in the territory of the City of Karlovac 4 060 apartments were recorded as temporarily unoccupied and 1 045 as abandoned, their total surface amounting to 332 727 m². (For the most part these apartments were owned by the former Yugoslav army and were used by the army's employees. They are still encumbered by unresolved property relations and unregulated rights of former users.)

In Croatia the housing policy is mostly regulated by market forces. Apartments are relatively expensive and inaccessible, in particular to young families due to the high youth unemployment rate. The City of Karlovac took part in the national social housing construction scheme (under which a part of the housing

construction costs were covered together by the state and the cities) but the number of apartments constructed under that scheme is not significant.

Although under the first impression the number of apartments satisfies current needs, in particular so in light of the negative demographic indicators, it should be pointed out that many young Croatians live with their parents and do not set up independent households, which is a consequence of local culture as well as (lacking) economic means. Increased economic activity, higher levels of youth employment and labour market changes would no doubt lead to a greater need for apartments.

In Croatia three out of four young persons aged 25 – 29 still live in the parental household!

According to 2016 Eurostat statistics, in Croatia as many as 74.5%, i.e., three out of four young persons aged 25 – 29 still live in the parental household. That is the highest percentage in the EU, the EU average being 39.6%, that is, almost half as much as in Croatia. For the sake of comparison, in Denmark only 4.5% of the young aged 25 – 29 live with their parents, with the numbers

for the other Scandinavian countries – Finland, Sweden and Norway – close by.

Widespread living with one's parents in adult age is in itself nothing bad, but apart from cultural specificities this is most certainly due to economic reasons.

Construction dynamics

The construction industry has been hit by a recession and is slowly raising. In 2013 a total of 59 construction permits for the construction of buildings have been issued in the whole of the city. Of these, 45 concern residential buildings of a total surface of 15 935 m², and 14 non-residential buildings of a total surface of 10 996 m².

In 2015, a total of 71 construction permits for the construction of buildings were issued on the territory of the city. Of these, 36 concerned residential buildings of a total surface of 5 149 m², and 35 non-residential buildings of a total surface of 12 735 m². With the situation following the crisis improving, in 2017 and 2018, a total of 111 and 128 construction permits were issued, respectively.

Availability of public infrastructure

Education

In the Republic of Croatia systematic education of children and young people is implemented from preschool age until the end of secondary education.

Network of kindergartens

A network of kindergartens, of which the City of Karlovac is in charge, was set up according to the territorial principle so that it uniformly covers the whole of the city territory and ensures easy availability to all users. On the territory of the City there are (in organisational terms) three kindergartens carrying out their activities at a total of 9 locations. In the 2017/2018 pedagogical year, 1 250 children attended kindergartens in Karlovac.

Primary schools

The City is also responsible for a network of primary schools. It is set up according to the principle of even

territorial representation of the urban area ensuring easy availability to pupils, including an appropriate distance from their place of residence and a network of routes (mostly pedestrian) that does not jeopardize the safety of pupils. School buildings have to fulfil the requirements and standards laid down in national pedagogical standards.

In Karlovac there is a total of 11 primary schools and, additionally, 11 field departments (in which grade 1 – 4 classes are held; upon completing the fifth grade, pupils attend their parent school).

In the 2017/2018 school year a total of 4 048 pupils attended schools in the Karlovac area. All the primary schools on the territory of the City recorded a visible drop in the number of pupils, but due to the national programme of conversion to single-shift schools the required number of school buildings remains unchanged.

Secondary schools

Secondary-school education is under the responsibility of regional administration (counties). In Karlovac there is a total of 11 operating secondary schools that are attended by pupils from both Karlovac and other places in the Karlovac county. Pupils with no available public transport to take in order to get to and from school live in pupil residence halls.

The following secondary schools are located on the territory of the City:

1. Karlovac Gymnasium
2. Secondary School of Medicine
3. School of Economy and Tourism
4. Trade and Catering School
5. School of Forestry and Wood Crafts
6. Technical School
7. Mixed Industrial-Crafts School
8. Natural Sciences Secondary School
9. First Private Gymnasium
10. Children and Youth Education Centre
11. Karlovac Music School

In 2017/18 school year 3 120 pupils attended Karlovac secondary schools.

The Trade and Catering School, Mixed Industrial-Crafts School and Music School have made known their need to have their buildings extended or to have new buildings constructed.

Higher education

In the City there is also the Karlovac Polytechnic at which students can enrol in the following study programmes:

1. Mechanical Engineering
2. Mechatronics
3. Textile studies
4. Food technology with specialisations in Brewing and Milk Processing
5. Hunting and Nature Protection
6. Safety and prevention with specialisations in Health and Safety at Work and Fire Prevention
7. Catering industry, economics
8. Business management

In the 2017/18 academic year, 2 665 students were enrolled in the Karlovac Polytechnic. The city also boasts a student centre and a student residence hall (which in the summer season operates as a hostel). Currently under development are a project for the construction of additional residence hall capacities, the student restaurant refurbishment project and the Polytechnic building reconstruction project that will enable it to introduce new programmes.

Culture, art and sport

The following cultural institutions operate in Karlovac:

1. City theatre "Zorin dom"
2. Karlovac City Museum with Vjekoslav Karas Gallery in Novi centar and the Homeland War Museum in Turanj
3. City library "Ivan Goran Kovačić"
4. Public institution "Aquatika" – Karlovac freshwater aquarium
5. National archives
6. Hall of the Armed Forces of the Republic of Croatia "Petar Zrinski" (has a hall for cultural events).

Sports are well developed and the city has an athletic club, rowing club, baseball club, equestrian club, kennel club, underwater activities club, bowling clubs, contact sports clubs, football club, basketball club, handball club etc. For sports purposes the city has sports centres, a football and athletic stadium, a shooting range, tennis courts, an open-air ice rink, a skateboard polygon and a big sports and recreation centre Korana (still under construction). There is one big school sports hall but the majority of schools have sports halls which, at times when there are no classes,

are used by sports clubs. The city also has a number of open-air sports and recreation areas.



Aquatika – freshwater aquarium is the latest built cultural institution in Karlovac

Health care

The main hospital in the City of Karlovac is the Karlovac General Hospital. Primary health care is provided in family medicine surgeries that cover the whole urban area. Also located in the city are the Karlovac health centre, Karlovac county emergency medicine institute, Karlovac county public health institute, private laboratories, family medicine and specialty surgeries and polyclinics, as well as a Hearing and Speech Polyclinic.

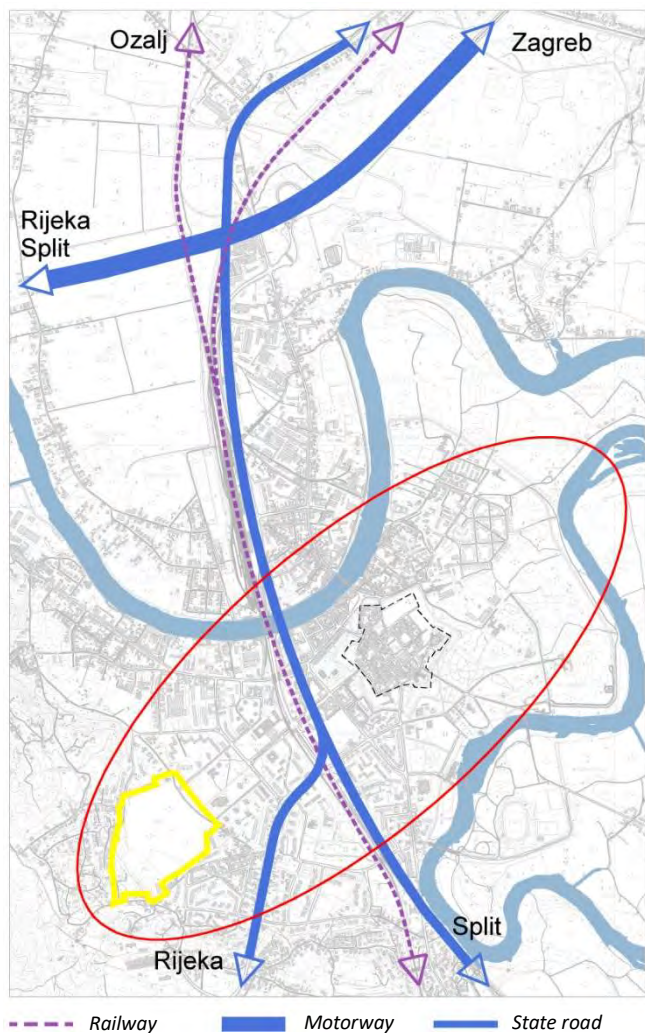


Karlovac General Hospital

Transport

The Karlovac transport axis consists of the A6 Zagreb – Rijeka / A1 Zagreb – Split motorways (in this section the two share the same corridor) that pass very close to the city centre. That is the main traffic route towards the Adriatic Sea as well as towards Zagreb.

The city is also traversed by state roads linking Zagreb with Rijeka and Split. Through the city they function as urban highways that after the construction of the motorway were relieved of major transit traffic.



Parallel to the state road also passes the main international railway line Zagreb – Karlovac – Rijeka, off which branches the local railway line to Ozalj and the state border with Slovenia. The main railway line that passes through the densely built-up urban area and is strained with heavy transit traffic affects negatively life in the urban areas through which it passes (noise and the creation of a spatial barrier that prevents transversal traffic links). Despite the fact that the City of Karlovac is contemplating a railway bypass, at the same time the national railway infrastructure company has plans to extend the existing railway line in order to increase the transport capacities of the current railway route.

Daily migrations

Daily migrants (persons travelling to work or school outside their place of residence) number about 6 700, of which some 800 are pupils and 500 are students. Travelling on a weekly basis is done by some 1 100 employees, about 40 pupils and around 600 students

who mostly travel on local railway and bus lines or by car.

Public transportation

Public transportation is based on a network of suburban bus lines that have stops also in the inner urban area. However, transport in the inner city has its weaknesses because intervals between arrival times are long (and adapted to the needs of commuters from the suburbs) and the lines are not designed so as to link different parts of the city or the main urban amenities. An exception to this are the relatively frequent bus lines to the medical centre located in the southern part of the city.

Suburban public transportation includes in part the railway, especially along the route Duga Resa – Karlovac – Ozalj. However, its attractiveness is decreasing as a result of lack of investments in railway infrastructure and cars.

Other infrastructure networks

The inner city is well covered by all kinds of infrastructure networks.

The public water supply system provides enough water from the source located within the City of Karlovac.

Waste waters are collected and treated at the central wastewater treatment plant.

Electricity and gas supply systems provide for a stable supply of the urban core with electricity and gas.

Heating is ensured through the city's central heating system (Karlovac CHS) which provides heat to central city districts from the Centar heating plant. Some remote settlements have their own separate heating systems.

There is organised collection of waste from the city area which is disposed at the city waste dump. Green islands and recycling yards have been set up in the city.

Areas of potential natural and other disasters

Floods

There is a risk of floods and torrents in almost the entire city of Karlovac. The upper courses of the rivers of Kupa, Korana, Mrežnica and Dobra as well as the other smaller water courses are of a torrential nature

and thus at times of heavy precipitation they flow into the valley around Karlovac frequently causing flooding. Since 2012 two natural disasters caused by flooding have been declared on the territory of the city of Karlovac (the first in 2014 and the second in 2015).

There exists a city flood defence project. Parts of the system have been implemented, which has reduced the risk of floods in the urban core. Other parts of the system are still in the design or construction phase of the project.

Floods defence:

https://youtu.be/KE_hF7TYF3E

Earthquakes and fires

The City is located in seismic zone VII of the MSC scale. Design, construction and reconstruction of important structures have to ensure that they are earthquake resistant in line with the applicable legislation.

Also to be ensured are sufficiently wide and safe evacuation routes, unrestricted access to all types of assistance in accordance with the applicable regulations on fire prevention, protection against natural disasters and war threats.

Strategic development documents

2013–2020 Development Strategy of the City of Karlovac

The defining of the development strategy as well as the role, duties and responsibilities of the City in its implementation will determine the direction of the City's long-term development in political, economic, social and any other terms. This strategic document also represents the starting point for all other development plans, including physical planning.

Vision of the City of Karlovac:

"Karlovac is the ideal Star City – a city of encounters based on high economic and social values."

The Strategy defines a total of three goals, which are further broken down into 10 priorities and 30 measures. The goals set by the Strategy are as follows: (1) competitive economy, (2) improving the quality of life, and (3) revitalisation of *Zvijezda*.

2012– 2020 Karlovac's Tourism Development Strategy

This strategy defines the vision of tourism development based on the city's cultural and natural heritage and the fact that it rests on "four rivers": *Karlovac, the Star City – an attractive inland destination offering its visitors an exceptional cultural heritage and an abundance of waters, gardens and parks, unifying differences through unique encounters.*

Key Strategy goals are the following: (1) develop from a transit destination to a tourist destination; (2) attract tourists interested in culture and history; (3) attract tourists whose goal is to visit rural areas; and (4) attract tourists interested in sports and recreation.

2014 – 2024 Karlovac's Cultural Development Strategy

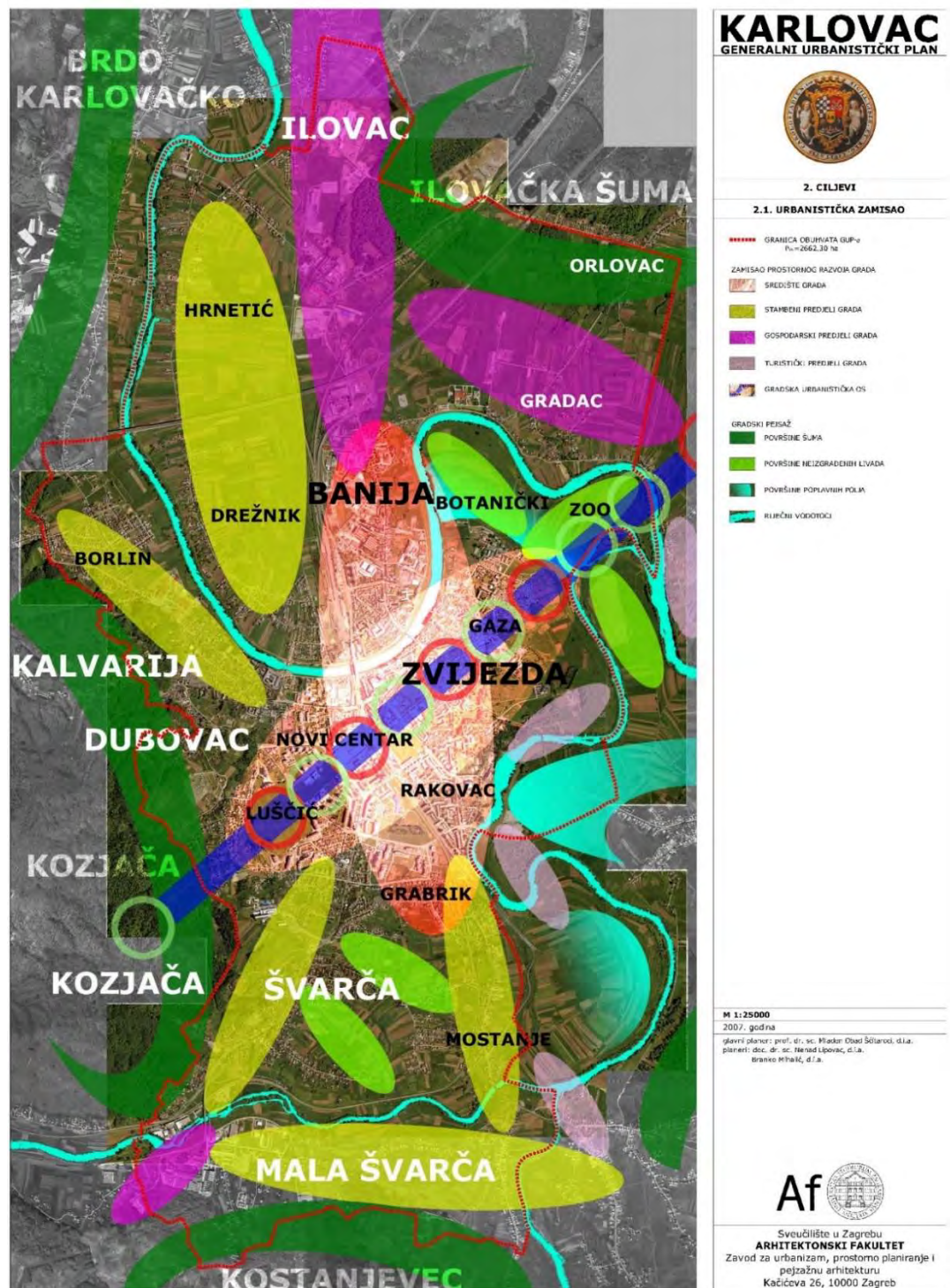
Following up on its Tourism Development Strategy, the City of Karlovac adopted a Cultural Development Strategy based on the following vision: *Karlovac, a city whose citizens recognize its cultural and natural heritage, cultural creativity and art as the basis of their identity and affiliation with the City whose cultural development makes it recognizable in the national and international environment, which makes it a City of encounters.*

Its mission is defined as follows: a city of encounters, the cultural hub of the County, guardian of tradition and cultural identity, in particular of cultural and natural heritage, Karlovac offers its citizens and visitors varied cultural programmes and experiences, continuously encouraging creativity and excellence in all areas of art and culture so that in the national and international environment it would remain a permanently recognizable City of Culture.



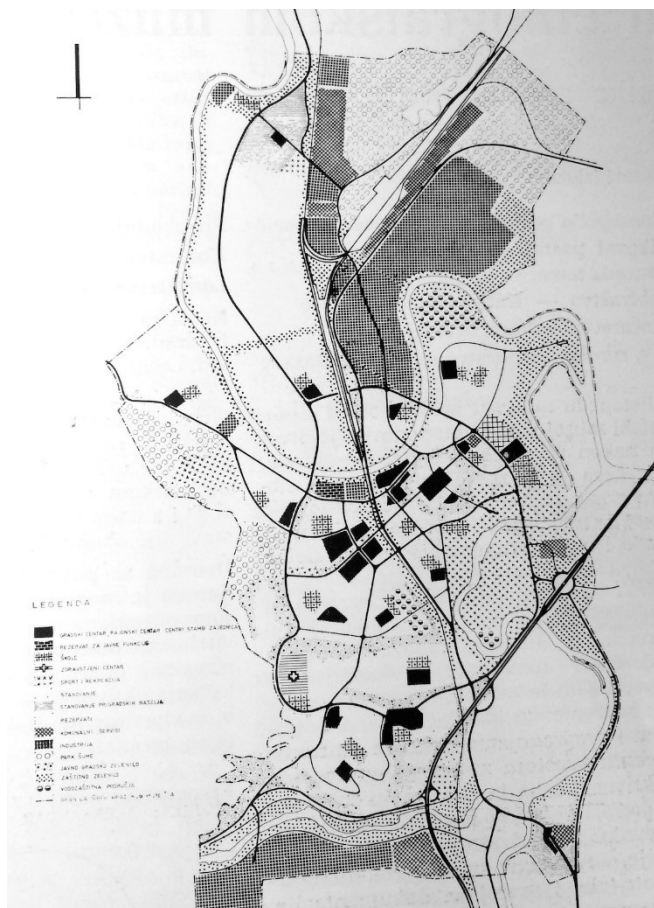
Karlovac – city of encounters

Master Plan – concept of the city's spatial development



The most important urban planning document for the inner urban area of Karlovac is the Karlovac *General Urban Development Plan* (Master Plan - MP) that was adopted in 2007 and was amended twice (in 2011 and 2014). The MP sets planning goals for a balanced and coordinated development of the entire urban territory and rational land use. Special attention is devoted to the protection and affirmation of built heritage (the area of Zvijezda) and to the reaffirmation of old

planning ideas of which the most important one is the idea of the **main urban axis Luščić – Novi Centar – Zvijezda – Gaza – Korana**. This urban axis is a constant in the spatial planning of Karlovac in the second half of the 20th century. It spatially develops from the 1950's with a recognizable realisation of the Novi Centar area as a central new residential area built to the west of the fast road and the railway line.



The main urban axis as seen in the Master Plan of Karlovac from 1960

The 2007 MP sets the following goals with respect to the city's spatial development:

A desirable city to live in

The MP defined six main city areas in which relatively large residential settlements are planned, accompanied by social, public and commercial facilities and where there is the possibility of applying a diversified urban and architectural typology: **Lušćić** and **Borlin** (conversion of former barracks into a mixed use areas), **Drežnik**, **Hrnetić**, **Gaza** and **Švarča**.

Especially valuable are the parts of the city where city projects are envisaged (marked with the symbol M3). One such part is the location of the former Lušćić barracks. These urban areas are of special interest to the city and the City either participates in the implementation of the project or owns the land. These areas are envisaged to become areas of high urban, architectural and landscape value, which is why urban-architectural competitions must always be held.

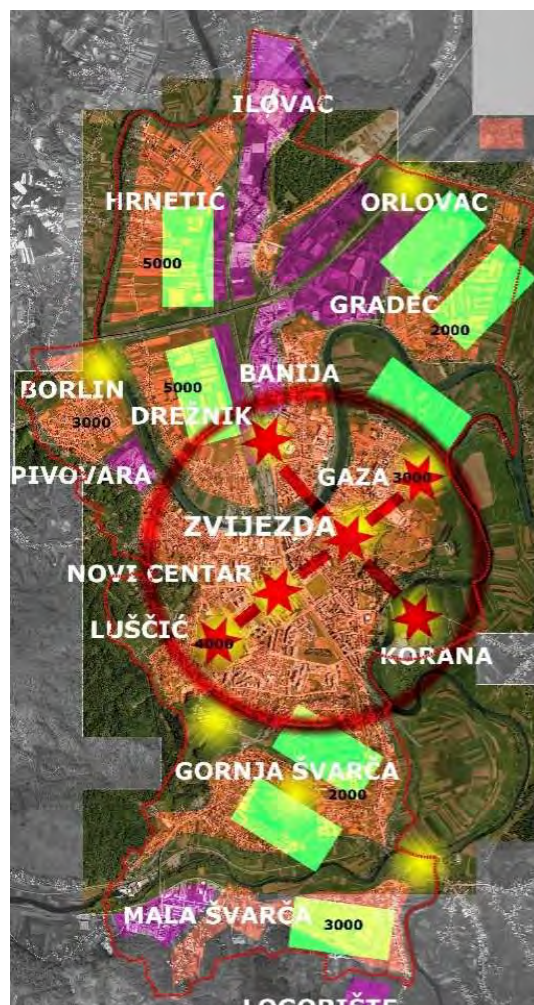
A city on rivers and water

The MP wants to affirm the rivers of Karlovac as city rivers so that the city comes to the rivers and that the

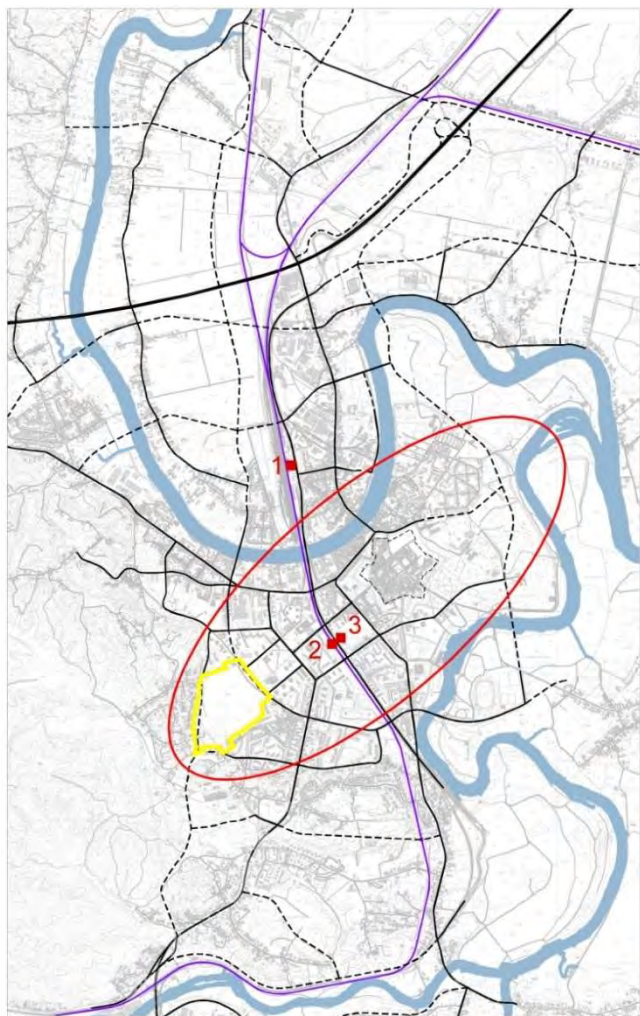
ivers be incorporated in the urban tissue and everyday life. This implies building promenades along the river banks and the river belts (Korana, Mrežnica, partly Kupa), constructing residential buildings with fronts turned towards the river (along the banks of Kupa), constructing tourist, sports, recreation and entertainment facilities and attractions with public tree-lined walks and promenades (mostly along Korana).

A city of culture and tourism

The MP recognizes Zvijezda as the main tourist asset which it wants to reaffirm as a Renaissance and Baroque city of European recognisability which at present is, unfortunately, relatively unknown. The MP provides for the obligation of developing a long-term strategy and a renovation and revitalisation programme for Zvijezda. (In the meantime the first steps in this direction have been taken – the *Zvijezda Urban Development Plan* has been prepared and the *2018–2028 Zvijezda Management Plan* has been adopted.) The MP also provides for the improvement of sports, recreation and bathing facilities and parks and the development of a network of city hotels.



Master Plan 2007 – areas of development



Traffic solution in the current Master Plan of Karlovac

A city accessible by different modes of transport

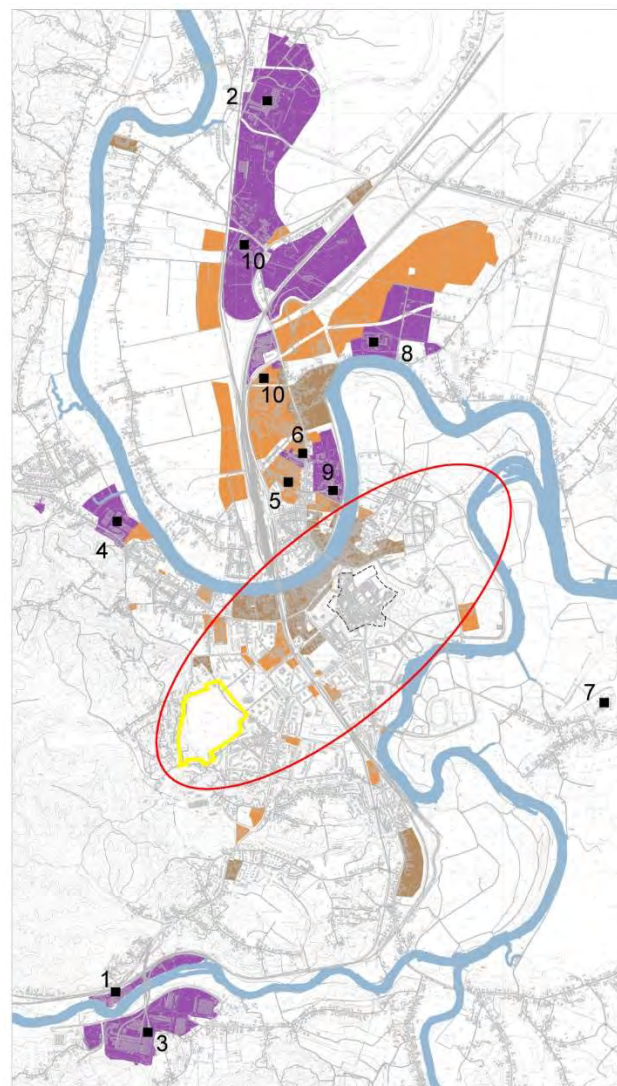
The city is well connected in terms of transport infrastructure to the system of national roads and motorways. The MP envisages the construction of a number of major city streets that would improve the transport network. This implies the construction of a new street to the east of the historic core (which will allow for a decrease in traffic within the historic core) and a city street in the western part of the city (which will make it possible to connect the yet unconnected settlements in that part of the city).

Due to the distance between the existing railway station and the city centre (marked with the number 1 in the preceding diagram) the MP envisages the construction of a new railway stop "Karlovac Centar" (marked with the number 2) that would be closer to the main urban axis and to the coach station (marked with the number 3), which would create the preconditions for intermodal transport. This was implemented in 2013 by creation of Karlovac Centar train station where local and regional trains stop.

A city of urban transformation

The MP envisages the transformation of abandoned or relocated industrial facilities, especially at Banija and partly along the river of Kupa. One of the main goals is the integral revitalisation of the Renaissance and Baroque Zvijezda.

A city of trade and entrepreneurship



Production uses in the current Master Plan of Karlovac

Today's major production facilities are highlighted in the picture: 1. Lola Ribar, 2. Ilovac (Wienerberger Ilovac), 3. General Electric Hrvatska, Adriadiesel, Kelteks, Gas turbine factory and others, 4. Karlovac brewery, 5. Kordun, 6. Žitoprodukt, 7. Karlovac milk industry (KIM / Dukat-Lactalis), 8. PPK, 9. HS Produkt, 10. Lana printing office

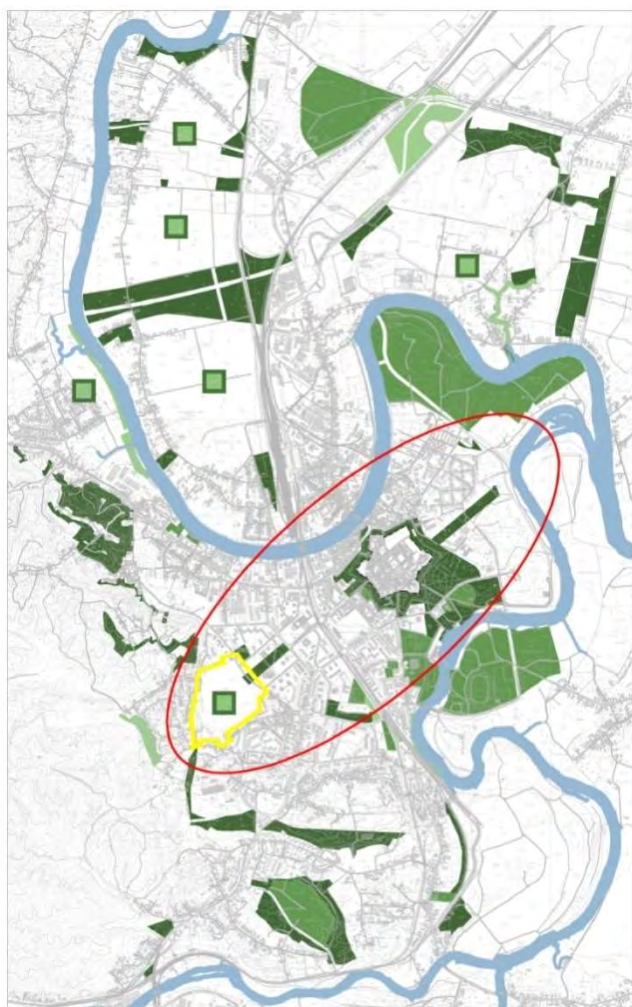
By marking off large areas on the outskirts of the city that are intended for economic purposes, i.e., the locations Drežnik and Hrnetić (services and trade), Selce (commercial and servicing facilities), Banija (services and trade, urban transformation), Ilovac (mostly for industrial purposes and small crafts), Mala Švarča (existing industrial purposes and small crafts),

the MP provides the necessary planning preconditions for economic development. In central parts of the city commercial facilities are envisaged within the mixed use areas.

A city of sports, recreation and fun

The tradition of sports and recreation in Karlovac should be further cherished and enhanced so as to make Karlovac a recognizable city with sports and recreation, bathing and entertainment facilities – and not just at the local level but also more widely in northwestern Croatia, in particular Zagreb. The MP envisages the creation of a sport and recreation centre and of numerous sports facilities on both sides of the Korana river and of larger sports and recreation facilities (structures / halls) at locations that are of special interest to the city (Drežnik, Hrnetić, Borlin, **Lušćić** and Švarča).

A city of parks and green spaces



Areas of urban greenery in the current Master Plan of Karlovac

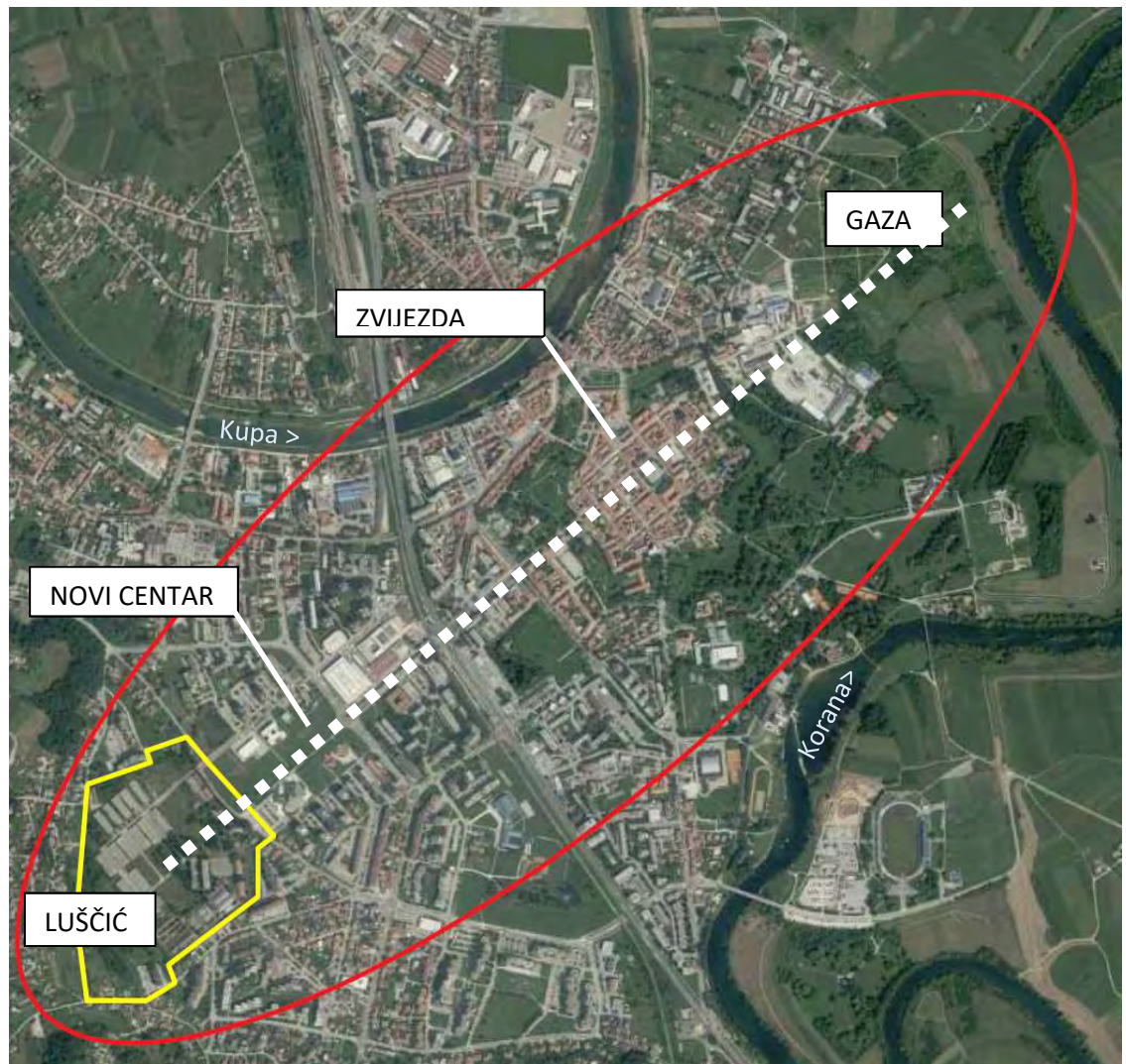
The MP takes as its starting point the park heritage of Karlovac and builds on it by envisaging the creation of new parks, promenades and walks that will contribute to the city's identity and recognisability. Notable are the **new parks and parks-squares of the "urban axis"**, new city parks in residential areas, zoological and botanical gardens at the confluence of the Korana and the Kupa rivers, new urban forests (urban eco reserves) and tree-lined walks along the rivers and city routes. The MP does not reserve precise planning areas for certain new urban areas (such as the area of **Lušćić**) but lays down the obligation of creating park areas within future mixed-use areas further along the urban axis.

Planned housing density

On the basis of the current state of affairs the MP plans the following housing densities:

High housing density – over 100 inhabitants/ha (most 20th-century settlements – Novi centar, Grabrik, Lušćić , Rakovac)
Middle-of-the-range housing density – up to 100 inhabitants/ha (areas to the north and west of "Zvijezda" – mostly 19th/beginning 20th-century settlements)
Low housing density – up to 50 inhabitants/ha (areas to the west and south of "Zvijezda" – mostly 20th-century settlements consisting of family housing units)

Main urban axis



Main urban axis and strategic site

Karlovac has a tradition of urban planning dating back to the beginning of the 20th century (the first urban development plan dates back to 1905). Attempts at introducing order and geometry in its urban development in the first half of the 20th century were not particularly successful because achievements in terms of construction were partial due to the city's slow growth. It was only in the second half of the 20th century that a bigger but still incomplete urban development intervention "Novi centar" was achieved.

With Novi centar an urban axis further west from Zvijezda was set up. **However, its pedestrian aspect is not visible enough and it lacks the continuity of urban facilities.** Moreover, it is traversed by transport infrastructure of national significance (state road, railway line).

The purpose of creating and reaffirming the urban axis Lušćić – Novi centar – Zvijezda – Gaza – Korana is to direct the city's development so as to achieve a new urban recognisability by using the formational possibilities of urban intervention as strong spatial gestures that are not only visible when looking down from great height or on the urban development plan but which can also be experienced from the pedestrian viewpoint in the city itself.

Further along the modernist axis the MP envisages a new landscaped axis to the northeast of Zvijezda in the direction of Gaza and the Korana river. This axis is to take the form of a central elongated swathe of parks and park squares encircled by new commercial, communal and residential structures. On the other, western side of the axis, the completion of public

spaces in the area of Novi centar and the continuation of the axis into the area of the former Lušćić barracks are planned.

With this urban layout Karlovac will obtain an urbanistically visible 2,500 km-long urban axis that is recognizable in terms of its form.

According to the MP, the endpoints of the axis are planned as the sites of skyscrapers (commercial-hotel towers) from which the whole of the city could be viewed. The 2011 amendments to the MP dismissed the possibility of constructing such a tower at the location of Gaza while leaving this option (though not as an obligation) at the location of Lušćić.



Aerial view of the main urban axis. Photo: Nenad Sužnjević

Strategic site – current state and planning guidelines



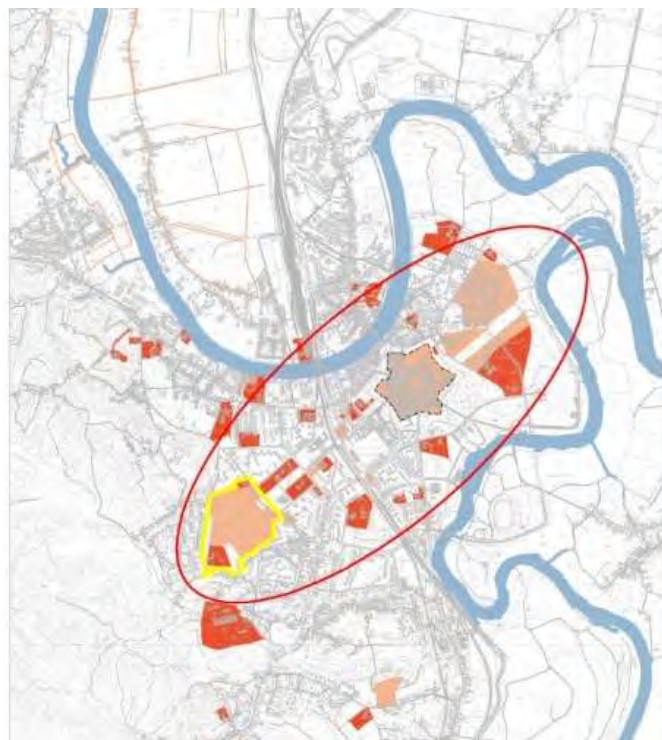
Main urban axis. Photo: Matija Sužnjević

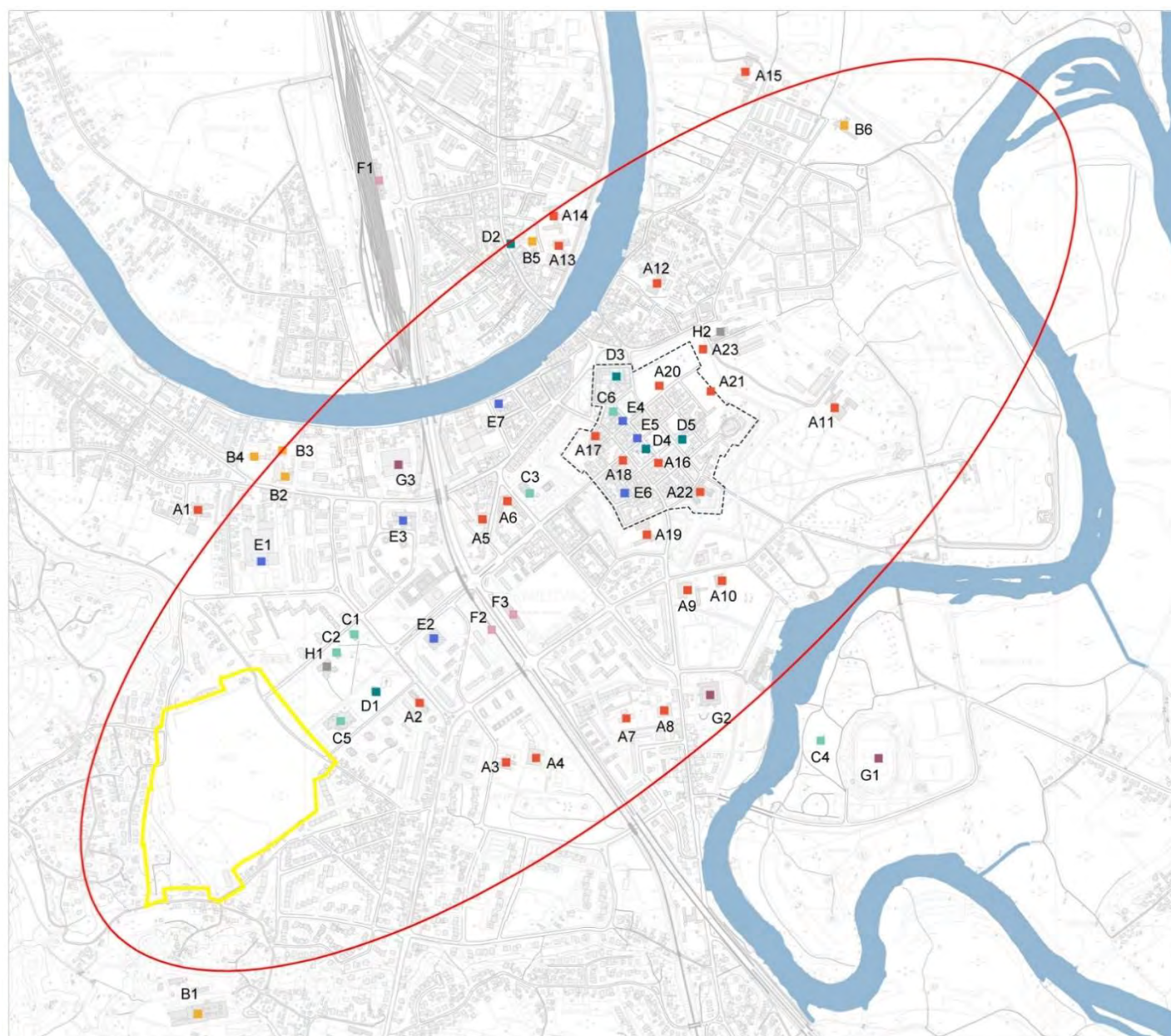
The strategic site covers the central urban area that is mostly used for mixed uses, in which residential use, commercial activities and services, administration and public uses intertwine (education, health, culture, religion and other uses).

This is an area of the greatest significance for the identity of Karlovac which is also home to numerous unfinished urban development ideas – from the city's relationship with the river banks, the issue of revitalisation of Zvijezda and its inclusion into the living urban tissue, the problem of pedestrian recognisability of the main urban axis and the lack of attractive features, especially in Novi centar. In certain streets vehicular traffic still has primacy over pedestrian traffic with new commercial facilities mostly generating vehicular traffic.

With respect to the MP, it is apparent that the greatest concentration of spaces reserved for public uses is located precisely in the competition's strategic site.

Public uses (including the strategic urban projects) in the current Master Plan of Karlovac

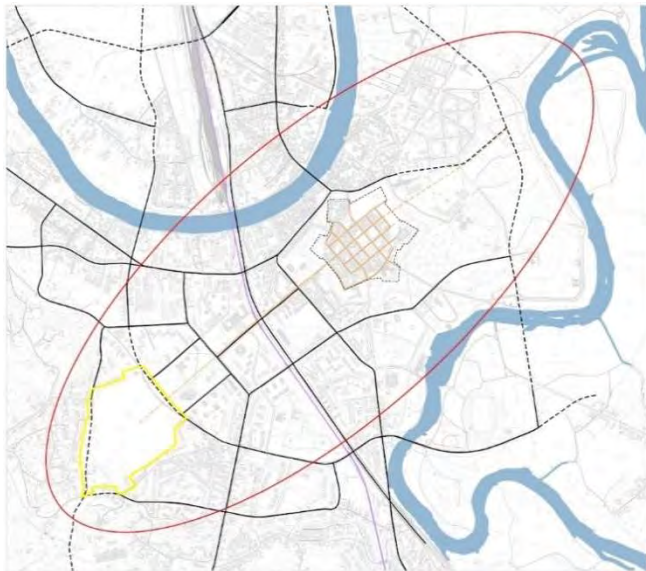




■ A- Education ■ B- Health care ■ C- Culture ■ D- Religious use
■ E- Administration ■ F- Traffic ■ G- Sport ■ H- Other

A1	Dubovac primary school	B1	Karlovac general hospital	E1	Karlovac police station
A2	Polytechnic of Karlovac	B2	Karlovac community health center	E2	Karlovac Magistrates' Court
A3	Grabrik kindergarten and nursery	B3	Karlovac County department of emergency medicine	E3	Karlovac police station
A4	Grabrik primary school	B4	Suvag - Karlovac rehabilitation polyclinic	E4	City Administration
A5	"Vladimir Nazor" home for children	B5	Community health center	E5	City Administration
A6	"Braća Seljan" elementary school	B6	„Nada“ rehabilitation center	E6	State Administration Offices
A7	Rakovac kindergarten			E7	Karlovac County
A8	Karlovac highschool				
A9	Dragojla Jarnević elementary school	C1	"Ivan Goran Kovačić" city library	F1	Karlovac train station
A10	Karlovac economic and tourist school	C2	"Vjekoslav Karas" gallery	F2	Karlovac Centar train station
A11	Karlovac forestry and woodcutting school	C3	"Zorin dom" citytheatre	F3	Karlovac bus station
A12	Karlovac preschool care center	C4	Aquatika – freshwater aquarium Karlovac		
A13	Banija kindergarten	C5	Croatian Army house	G1	Football stadium
A14	Banija primary school	C6	City museum	G2	Sports Hall
A15	Karlovac natural science school				
A16	Pupil's home	D1	Sacred heart's church	H1	The National Archives
A17	Music school	D2	Holy three kings church	H2	Fire department of Karlovac
A18	College	D3	Evangelistic church		
A19	Technical school of Karlovac	D4	Holy trinity's church and franciscan monastery		
A20	Polytechnic of Karlovac	D5	St. Nikola's church		
A21	Polytechnic of Karlovac				
A22	St. Antun's nursing home				
A23	Student dorm				

Traffic solution to the central urban area

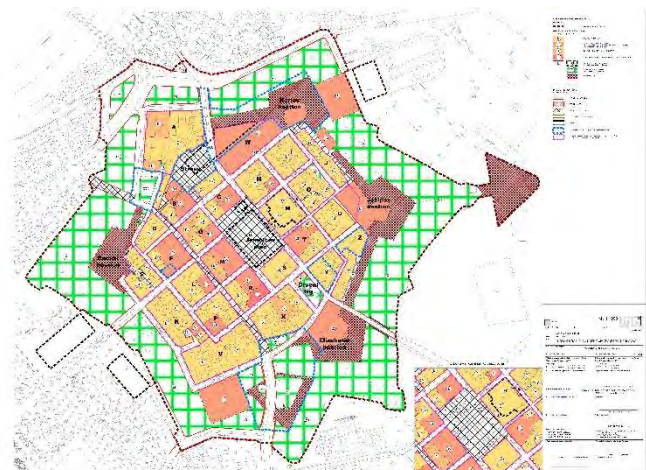


Traffic solution in the current Master Plan of Karlovac

The traffic solution from the current Karlovac MP includes the basic planned roads. In the western part, alongside the narrow area of coverage (former Lušić barracks) a west road is planned as well as a correction of the existing road between Lušić and Novi centar.

Current plans, studies and projects

Plans and studies for revitalisation of Zvijezda



In 2017, the *Zvijezda Urban Development Plan* was prepared and adopted for the Zvijezda area. The plan includes expert opinions and reports (conservation, horticulture, traffic, economy, demography and sociology). In 2018, the project documentation for the reconstruction of traffic areas and part of the infrastructure within Zvijezda was finalised and the *Zvijezda management plan* prepared.

The Zvijezda Urban Development Plan envisages the reconstruction and presentation of bastion elements from several phases of construction of the fortress. Zvijezda is planned to house public and communal facilities that will contribute to the vitality of the central urban area. There are plans for a traffic system consisting of pedestrian streets and squares as well as streets turned into shared spaces as well as for a road ring providing access to car parks to be constructed on the outskirts of the historic core.

The revitalisation of Zvijezda is large and important project for the City of Karlovac. Planning documents for the revitalisation of Zvijezda have been prepared and serve as the basis for particular projects, some of which are already under preparation. Due to the complexity of this task it is to be noted in particular that the area of Zvijezda is not the subject of this competition. Authors may give proposals for a general programming of facilities of importance to the city and of measures for Zvijezda's integration into the overall urban conception of the urban axis.

Project "Nikola Tesla Experience Centre"

The Nikola Tesla Experience Centre is a project envisaged in the fringe area of the Karlovac Zvijezda which is to bring together in one place the functions of education and culture, art, science and commercial tourism sectors. (In his youth Nikola Tesla was a student of the Karlovac Gymnasium.) The Centre is conceived of as a place of encounters between science and art, pupils and scientists, a place of promotion of the latest technologies and renewable energy sources. In addition to that, the Centre will support young entrepreneurs and citizens of all ages showing an affinity for life-long learning.

More info about Nikola Tesla Experience Center:

<http://www.kazup.hr/images/dokumenti/Nikola%20Tesla%20Experience%20Center.pdf>

The building in Zvijezda, the so-called Armoury, will become a regional centre of competences in mechanical engineering, electrical engineering and computing, tourism and catering. The aim is to improve the quality of vocational training in line with the needs of the economy.

A key process in the development of a productive city is the dynamic intertwining of spaces, social life and economy.

Expectations at the level of the strategic area

In the strategic area competitors are expected to:

- ponder the idea of the central urban axis, its programming both in physical terms and in terms of its content;
- reflect on the possible new uses (content) that are of importance to the city in the central urban area and their general spatial distribution;
- propose the necessary spatial links, how to complete started (and unfinished) urban stretches and design new ones;
- propose solutions to the problem of the state traffic infrastructure barrier traversing the city;
- examine possible relationships between the central urban area and the river banks;
- propose new public spaces of importance to the image of the city and their harmonious integration into existing parks and promenades;
- propose possible spatial interventions (new developments, urban transformation);
- propose an urban morphology for new developments (density, typology, urban accents);
- give a proposal on how to improve urban mobility with priority being given to walking, cycling and public transport;
- give proposals for using renewable energy sources (including geothermal energy).

Additionally, the competitors are requested to ponder the notion of *productive city* so as to come up with such content that will lead to the creation of jobs and economic progress while at the same time being appropriate to the central urban area.

Issues raised at the level of the strategic site

At the level of the strategic site we expect to receive proposals providing answers to the following questions:

Regional role of Karlovac

Which new functions and contents can Karlovac offer the surrounding region in order to prompt the development of the wider region? What is the regional role of post-industrial Karlovac? How can Karlovac become the engine of development of the surrounding area?

Transport role of Karlovac

How can Karlovac take advantage of its convenient location transport-wise? Can it become a centre of logistic services for the surrounding region? A research centre? How can numerous transit tourists (travelling to the coast or to local tourist destinations) be prompted to visit Karlovac?

Which contents can generate development most quickly?

Although the central urban area is envisaged as the venue for numerous public spaces and facilities, it is certain that in the absence of more significant rates of economic development these projects will not be implemented soon. In the best case scenario one can expect the area's preservation for their future implementation. Competitors are expected to ponder such purposes that can generate new production and jobs and incite economic development while at the same time being appropriate for the area in question.

What can be produced in post-industrial Karlovac?

Although Karlovac retains part of its industrial basis, the trend towards the post-industrial society is apparent. In what way can Karlovac step forward into the tertiary and quaternary economic sectors? Which preconditions need to be fulfilled? What are the creative scenarios of such development? Can the city's industrial heritage be used to advantage to create new potential that will not just serve to preserve the memory like some new institution of museum?

How to endow the new urban areas with an attractive identity?

Although the Novi Centar project implements the idea of the urban axis extending into the new urban area, it

is in principle thought that the new area has not been given an attractive new identity. Apart from that, the main axis is traversed by national transport infrastructure. Current plans envisage the extension of the urban axis into the new areas of Luščić and Gaza. An answer to the question of how all the areas lying on the urban axis are to be united into a coherent whole with a recognisable identity/identities is expected.

Open city

It presupposes the creation of such urban tissue as will ensure accessibility of the city centre. Examine possibilities of opening up the city to the rivers. Creation of a long-term vision that must be open for such changes and uncertain scenarios. Proposed urban structures must be adaptable to circumstances existing in real time. Reflections on provisional uses of areas that most probably will not be developed in the next 10+ or 20+ years are also possible.

Planning for pedestrians

Solutions are expected to result in walking and cycling accessibility. However, planning for pedestrians does

not only presuppose the creation of physically separated and safe movement zones but also the creation of interesting urban facilities, vistas and attractive urban features that in the long run will lead to reduced vehicle use and greater pedestrian attractiveness of urban areas.

New city typologies

Coming up with new construction typologies ensuring easier accessibility of apartments for the young and a sufficient degree of structural flexibility for new forms of work such as start-ups, working from home and the like. Examine possibilities for cohabitation, collective housing and combining living and working spaces.

Sharing economy

Examine the opportunities offered by the sharing economy in the field of services, urban mobility and other aspects of urban life. Reflect on new forms of urban life for the post-consumer society.

Project site – current state and planning guidelines



The project site is the area of the former barracks located within an urban surroundings. Existing constructions are run down and construction-wise mostly unsafe. The architectural and building condition assessments do not reveal any reasons for preserving the majority of the buildings.

The site has basic infrastructure but its condition is unknown. Apart from the rainfall drainage system, infrastructure systems are not used. New spatial interventions will necessitate the construction of new infrastructure.

The site has a considerable quantity of high-quality tall vegetation that needs to be valorised and possibly incorporated into the new urban development solution which also requires a certain percentage of landscaped spaces.

The planned use for the project site is M3 (mixed use – city projects). The area along the south rim of the site includes a space reserved for public and community uses. This space needs to be dealt with as an integral part of the larger intervention respecting the uses defined by the MP (public use).

According to the MP's provisions and guidelines, the future urban development plan for the site (mixed-use – city projects - M3) may envisage public and communal facilities (with no restrictions on maximum surface areas), commercial facilities (no more than 20% of the surface area), catering and tourist facilities (no more than 20% of the surface area) and residential buildings (according to the MP, no more than 70% of the surface area, although less is recommended – residential buildings are not a priority). High density of more than 100 inhabitants/ha is recommended.

It is important to note that the above stated percentages represent maximum percentages for each of the purposes covered by the plan. The goal of the City of Karlovac is that development plans for this location primarily include public and communal facilities important for the city and the surrounding densely populated residential area that lacks public facilities. This obligation was also assumed when the state transferred to the City the ownership of the area of the former barracks.

For residential construction (including the existing surrounding residential buildings) basic communal infrastructure needs to be envisaged (primary school, kindergarten, basic medical care). Other public purposes need to be programmed taking into account the urban standard and the existing urban environment.

Significant areas of public open spaces need to be ensured (squares, park squares, parks, promenades).



The original (former) uses of existing buildings in the project site:

- | | |
|--|-------------------------------|
| 1. Guardhouse | 21. Office building |
| 2.-5. Office buildings | |
| 6.-7. Military – residential buildings | 22.-24. Warehouses |
| 8. Office building | 25. Hangars |
| 9. Military restaurant | 26. Guardhouse |
| 10. Military – residential building | 27. Gas substation |
| 11. Boiler room | 28. Warehouse |
| 12. Laundry | 29.-30. Electrical substation |
| 13.-16. Warehouses | |
| 17. Office building | |
| 18. Eaves | |
| 19.-20. Open garage for vehicles | |



Outline of the ownership structure within the area of coverage

The City of Karlovac is the owner of only one (south) cadastral plot of the former Lušćić barracks. The Republic of Croatia is still the owner of part of the former barracks. A number of plots are privately owned. The goal of the City of Karlovac is to become in the near future the owner of all the land on which the former barracks were located.

The area occupied by the barracks needs to be considered and planned integrally irrespective of the present ownership structure. A general guideline is that on the area that is owned by the Republic of Croatia mostly public facilities be planned as this will facilitate the transfer of ownership.

Images of the current state of the area of coverage are provided in the complete site folder.

A bird's eye view video footage of the entire area and its position within the urban context can be found on YouTube (uploaded by user Max lange)*:



<https://youtu.be/OhdZsUt1hR8>

* The organisers of this tender are not connected with the said author and merely refer to the published material as tenderers might find it useful. We cannot be held responsible for the availability of the said material at the time of tender preparation.

Issues raised at the level of the project site

At the level of the project site we expect to receive proposals providing answers to the following questions:

Mixed purpose

How can a mix of uses creating a city agreeable to live in be achieved in a completely new urban area? We expect competitors to elaborate construction scenarios by phase and come up with a way to reserve space for larger public programmes that will not be implemented in the first phase.

Production facilities in the residential area

Which production facilities are appropriate for the primary area in which the residential (existing in surrounding areas and planned at the Lušćić location) and public components intertwine? Ideas along the lines of service production, culture production, creative industries, production not conditioned by the location at which it takes place (digital industries and the like) are expected.

Relationship with the border areas

The area of the former barracks has never been connected with the surrounding residential areas. The surrounding area is one of the most densely populated urban districts lacking communal infrastructure. It is very important to find an answer to the question of how this area can be integrated into the urban tissue so that it become an attractive whole consisting of mutually complementing parts.

Adaptability and provisionality

Proposed urban structures must be adaptable in real time to changing circumstances. It is advisable to consider development scenarios including provisional uses for areas that most probably will not be developed in the next 10 odd or 20 odd years.

New residential typologies

When reflecting on residential typologies consider how they can contribute to easier accessibility of apartments for the young. Ensure structural flexibility for new forms of work (working from home and the like).

Mobility

The solution must ensure transport connections with the urban transport network. It is necessary to ensure a high level of accessibility for pedestrians and cyclists. Solutions leading to reduced car use at the city level are expected. This can include proposals for new public transport possibilities and the principles of the economy of sharing.

Renewable energy sources and use of geothermal energy

In the vicinity of the City geothermal sources have been found that are planned to be used in the urban area. Possible uses of geothermal energy include heating, pool heating, garden heating and the like.

Construction requirements for the project area:

According to the MP's provisions and guidelines, the future Urban Development Plan for the former barracks zone needs to satisfy in respect of envisaged mixed-purpose – residential and public – surfaces (city projects) (M3) the following requirements:

Purpose	Maximum share
Residential purpose	max. 70% of the surface *
Commercial purpose	max. 20% of the surface
Catering and tourism	max. 20% of the surface

** As provided in the MP, but given the current negative demographic trends the residential component is not a priority.*

Maximum percentages of public purpose and public green surfaces are not limited but must be planned rationally and in accordance with the needs of the city and the inner city.

Envisaged housing density is over 100 inhabitants/ha.

It is necessary to ensure significant areas of public open spaces (squares, garden squares, gardens, promenades, tree-lined streets and the like). The minimum park planning criterion is 5 m²/inhabitant (number of inhabitants means the maximum planned number of inhabitants within the coverage of a more detailed plan).

Planned construction includes medium-rise residential buildings comprising at least seven apartments, of up to 6 storeys in height and up to 15.7 m tall (h), and high-rise buildings of between 6 and 10 storeys in height – residential buildings between 15.71 m (h) and 30.6 m (h) tall.

The quality and design of urban and architectural solutions must contribute to the creation of a new city identity.

Other MP requirements of importance for the area of coverage:

MAXIMUM BUILT-UP AREA for tall buildings in newly planned areas of the city is set at 40% for the part of the plot on which buildings may be constructed. A higher built-up area may be allowed but not in excess of 60% provided the ambience and urban integrity of the space is not disrupted. The gross floor area does not include underground car parks (below ground

level) or car parks up to 80 cm above ground, whose surface is outside the building's layout provided there are apartments on the ground floor.

GARDEN AND LANDSCAPE SURFACES

In addition to maintaining and restoring historic gardens and promenades, it is necessary to establish new public gardens, garden squares and promenades of contemporary design not only in order to preserve but also in order to enhance Karlovac's tradition of landscape architecture.

Public and social uses (D)

Public and communal purpose surface areas (D) include existing and planned areas for the construction of public and communal facilities. These include buildings for: administration (D1), social care (D2), health care (D3), pre-school education (D4), primary and secondary school education (D5), institutions of higher learning, science, technology parks and research centres (D6), culture (D7), religious needs (D8), pupil and student residence halls (D9) and surface areas marked with the letter D on which any public and communal component that has or has not (the police, firefighters etc.) been previously mentioned may be planned and constructed.

Residential and commercial buildings may not be constructed on building plots designated as having a public or communal purpose.

Parking needs

The parking needs for all planned components need to be satisfied within the area of coverage, in principle within plots of designated content and only in part with public car parks. Dimensioning criteria are as follows:

PP = parking place

Housing – 1.5 PP/1 apartment

Student residence hall, pensioners' home – 0.7 PP/room

Offices – 9 PP/10 employees

Shops – 6-9 PP/100 m²

Movie theatre, theatre, culture – 0.3 PP/1 spectator

Sports hall – 0.3 PP/1 spectator

Museums – 6 PP/100 m²

Further reading:



Survey guidelines for facility programming at the project site

The City of Karlovac conducted a survey among city departments, relevant city districts and all interested parties on the possible facilities that need to be planned at the Lušćić site.

The survey is added in the **Appendix** of this site brief (in complete site folder)

List of competition materials (complete site folder)

CONURBATION / TERRITORIAL SCALE

HR-KARLOVAC-C-AP1.JPG	Aerial photo of the wider urban area
HR-KARLOVAC-C-M1.dwg	Map of the wider urban area – urban geography 1/25.000 (dwg)
HR-KARLOVAC-C-M1.dxf	Map of the wider urban area – urban geography 1/25.000 (dxf)
HR-KARLOVAC-C-M2.tfw	Georeferenced map (loads to dwg/dxf above as external reference)
HR-KARLOVAC-C-M2.tif	“
HR-KARLOVAC-C-M3.tfw	“
HR-KARLOVAC-C-M3.tif	“

STRATEGIC SITE / URBAN SCALE

HR-KARLOVAC-SS-AP1.jpg	Orthophoto of the strategic site
HR-KARLOVAC-SS-AP2.JPG	Aerial photo of the strategic site
HR-KARLOVAC-SS-AP3.JPG	“
HR-KARLOVAC-SS-AP4.JPG	“
HR-KARLOVAC-SS-AP5.JPG	“
HR-KARLOVAC-SS-M1.dwg	Map of the wider urban area 1/5000 (dwg)
HR-KARLOVAC-SS-M1.dxf	Map of the wider urban area 1/5000 (dxf)
HR-KARLOVAC-SS-M2.dwg	Orthophoto map of the wider urban area 1/5000 (dwg)
HR-KARLOVAC-SS-M2.dxf	Orthophoto map of the wider urban area 1/5000 (dxf)
HR-KARLOVAC-SS-M3.tfw	Orthophoto image of the wider urban area 1/5000 (loads to M2 above as external reference)
HR-KARLOVAC-SS-M3.tif	“
HR-KARLOVAC-SS-M4.tfw	“
HR-KARLOVAC-SS-M4.tif	“
HR-KARLOVAC-SS-M5.tfw	“
HR-KARLOVAC-SS-M5.tif	“
HR-KARLOVAC-SS-M6.tfw	“
HR-KARLOVAC-SS-M6.tif	“
HR-KARLOVAC-SS-M7.pdf	General urban development plan of Karlovac – zoning 1/5000
HR-KARLOVAC-SS-M8.pdf	General urban development plan of Karlovac – zoning – translation of the legend
HR-KARLOVAC-SS-M9.pdf	General urban development plan of Karlovac – traffic plan 1/5000
HR-KARLOVAC-SS-P1.JPG - - HR-KARLOVAC-SS-P45.JPG	Ground pictures of the strategic site

PROJECT SITE / ARCHITECTURAL SCALE

HR-KARLOVAC-PS-AP1.jpg	Aerial photo of the project site
HR-KARLOVAC-PS-AP2.jpg	“
HR-KARLOVAC-PS-AP3.jpg	“
HR-KARLOVAC-PS-AP4.jpg	“
HR-KARLOVAC-PS-AP5.jpg	“
HR-KARLOVAC-PS-M1.dwg	Map of the project site 1/2000 (dwg)
HR-KARLOVAC-PS-M1.dxf	Map of the project site 1/2000 (dxf)
HR-KARLOVAC-PS-P1.jpg - - HR-KARLOVAC-PS-P28.JPG	Ground pictures of the project site

TEXT

HR-KARLOVAC-T-Annex.docx	Annex of the Site brief
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Sources

City of Karlovac Physical Plan (2002., 2011.)
Karlovac Master Plan (2007., 2011., 2014.)
Karlovac Spatial Situation Report (2017.)
Karlovac County Physical Plan (2001., 2008., 2013., 2014.)
Karlovac County Spatial Situation Report (2015.)
Spatial Development Strategy of the Republic of Croatia (2017)
Karlovac County Department of Physical Planning

Official website of the City of Karlovac: www.karlovac.hr
Karlovac history: <https://www.karlovac.hr/the-city-star-3034/3034>
Tourist board of the City of Karlovac: <https://visitkarlovac.hr>
Official website of the Karlovac County: <https://www.kazup.hr>
Tourist board of the Karlovac County <https://river-adventure.info>

MAPIRE - Historical Maps Online: <https://mapire.eu/en>
Karlovac City Museum: <http://www.gmk.hr>
Virtual Museum of Karlovac Industry: <http://vmki.gmk.hr/>
KaFotka: <http://www.kafotka.net/>

Other useful links:

Karlovac County investment opportunities:
<https://www.karlovac.hr/UserDocsImages/2018/2018%20dokumenti/Invest-in-Karlovac-county-final.pdf>

Nikola Tesla Experience Center:
<http://www.kazup.hr/images/dokumenti/Nikola%20Tesla%20Experience%20Center.pdf>

Gimnazija Karlovac:
<https://www.gimnazija-karlovac.hr/>

Karlovac promo video:
<https://www.youtube.com/watch?v=srljKkLryA>

A bird's eye view video footage of the project location:
<https://youtu.be/OhdZsUt1hR8>