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POSITIONING OF THE RAILWAY SYSTEM IN OSIJEK'S SPATIAL PLANS 1912-2019

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Abstract: This article focuses on the history of Osijek's spatial and urban planning with respect to the position and treatment of the city's railway system. The study compared eight plans, dating from 1912 to the present day, and found that railway construction in and around the city was completed in 1910. During this period, three different planning approaches were developed for the city's railway system. The oldest planning approach, starting in 1912, was a passive, "leave it as it is" approach, dealing cautiously with the network of newly constructed railway lines. The second, proactive approach, proposed dismantling or relocating railway lines from the city center while the third approach focused on the actual railway traffic in Osijek with respect to public use of vacant railway corridors. The results will help provide a scientific basis for future planning of railways and railway corridors in the urban area of Osijek.

Keywords: spatial planning; railway system; railway corridors; transformation potential; Osijek

ŽELJEZNICA U PROSTORNIM PLANOVIMA GRADA OSIJEKA OD 1912. DO 2019.

Sažetak: Rad predstavlja prikaz povijesti prostornog i urbanističkog planiranja grada Osijeka, s naglaskom na pozicioniranje i tretman željezničkog sustava. Istraživanjem je obuhvaćeno osam planova u razdoblju od 1912. godine do danas, uz napomenu da je glavnina željezničkog sustava oko i unutar Osijeka u potpunosti izgrađena do 1910. godine. Tijekom više od stotinu godinu definirana su tri glavna pristupa planiranju razvoja grada i željeznice. Najstariji, pasivni pristup, željeznicu prihvaća kao prostornu datost dok aktivniji pristup u desetljećima poslije II svjetskog rata predlaže radikalna rješenja izmještanja ili ukidanja pruga u središtu grada. Recentniji planovi treće faze pokušavaju povezati trenutnu poziciju željeznice u gradu s mogućnostima transformacije prostora koje sustav koristi. Rezultati prikazanog istraživanja predstavljaju znanstveni temelj za planiranje obnove i prenamjene željezničkih koridora u Osijeku.

Ključne riječi: prostorno planiranje; željeznički sustav; željeznički koridori; transformacijski potencijal; Osijek

1 INTRODUCTION

Railway construction in Europe rapidly increased during the mid-19th century, turning railway infrastructure into an engine of industrialization and urban development. The railway, as a symbol of technology, speed, and progress, has thus become the hallmark of modern society.

Croatia's railways, being a part of the Austro-Hungarian empire in the 19th century, were integral parts of the railway system in the monarchy. The line connecting Pragersky (Slovenia) and Nagykanizsa (Hungary) was commissioned on April 24, 1860, traversing a length of 42 km in the Croatian territory, in the section between Macinec, Čakovec, and Kotoriba. The construction of the Zidani Most - Zagreb - Sisak railway line in 1862 marked the beginning of the development of the Zagreb railway junction, which was then expanded in 1865 through the Zagreb – Koprivnica – Zákány line. The first railway line in Osijek, connecting the city to Villany (Hungary), was established in 1870. Subsequent railway lines in the Osijek area were built in the second half of the 19th and early 20th century, leading towards western Croatia and Bosnia. During this period, laying of railroads was motivated mainly by commercial interests, linking Osijek strategically with its immediate and wider environs, resulting in strong economic ascent of the city [1].

From its beginnings in the 19th century, the railway construction affected both the industrial as well as the spatial development of Osijek. The railroads were prudently designed at a sufficient distance from the city, which then consisted of three parts - Upper Town, Lower Town, and the fortress Tvrđa. In the 150 years since Osijek's first railroad was built, sections of the city have been administratively and spatially connected into a single entity. Over time, Osijek has expanded towards the once peripheral railway lines, ultimately integrating those spaces into the fabric of the city. The railway system, being a symbol of Osijek's growth in the first decades of its existence, has now become a physical barrier to its development.

Railroads are lately being rediscovered as an economically and environmentally friendly means of intercity, domestic, and international transport. Railway corridors, constituting of railway lines, built structures, and surrounding spaces, are now being recognized for their transformational potential, based primarily on central urban positioning. Station buildings, in particular, through numerous successful reconstructions and conversions, showcase the fact that they can perform a variety of functions, becoming focal points of urban revival [2, 3].

2 AIMS AND METHODS OF RESEARCH

The aim of this study was to establish a historic and conceptual framework that could define the positioning of Osijek's railway system in the city's planning documents from 1912 to the present day.

For the purpose of this study, all archival spatial and general urban plans of Osijek were analyzed considering textual, tabular, and graphic elements. Current and valid planning documents were analyzed at two levels. The first level was the spatial plans' level, covering the entire administrative area of the city. According to the Spatial Planning Act, spatial plans define construction areas (together with unbuilt and undeveloped parts), unconstructed areas, and infrastructure [4]. The City of Osijek's Spatial Plan was adopted in 2005 and has since been amended several times [5]. Valid planning documents were also analyzed at the (lower) level of general urban plans, since they cover a city's construction area. According to the Spatial Planning Act, they define the purpose of construction areas and construction conditions [4]. The General Plan of the City of Osijek (GUP Osijek) was adopted in 2006 and has since been amended several times [6].

All the mentioned documents were compared according to criteria that were relevant to this study. Plans were presented chronologically, with the criteria arranged into main groups - authors and scope of the plan, basic conceptual and planning guidelines, planning guidelines for the treatment of the railway system (options of relocation and new construction, railway corridors), and degree of realization of the plan.

3 REVIEW OF OSIJEK'S SPATIAL PLANS BASED ON RAILWAY SYSTEM'S TREATMENT

The prerequisite for the planning of Osijek's urban development were the adoption of building codes, completion of initial cadastral surveys, and spatial plans. Osijek adopted the first *Building Order for the Free and Royal City of Osijek* in 1886 and the *Building Order for the Towns of Osijek, Varaždin and Zemun* in 1900 [7]. However, a

systematic approach to spatial planning was widely adopted only after all railway lines in and around the city were built.

Various regulatory and master plans, designed for the city and adopted at the city level, played an important role in the process of Osijek's spatial planning. Since the beginning of the 20th century, eight major plans have been used to regulate urban development of the entire urban area of Osijek. The plans, in chronological order, were:

1. Regulatory Basis of the City of Osijek from 1912
2. General Cadastral Plan of the City of Osijek from 1934
3. Directive Regulatory Basis from 1948 (approximate year)
4. Osijek's Urban Plan from 1965
5. General Urban Plan Osijek 2000 from 1975
6. General Urban Plan of the City of Osijek from 1988
7. Spatial Plan of the City of Osijek from 2005
8. General Urban Plan of the City of Osijek from 2006.

In the last 150 years, various political and geopolitical systems have existed in this area, dating from the Austro-Hungarian Empire (first railway lines constructed), through the Kingdom of Serbs, Croats, and Slovenes (interwar period), Socialist Federative Republic of Yugoslavia (after-war period), all the way to the Republic of Croatia, established in 1991. During this period, the railways were under the jurisdiction of the state, indicating the importance of the railway infrastructure [8]. This is true even today as Article 15 of the 2019 Railway Act establishes the railway infrastructure as a public property in general use owned by the Republic of Croatia [9].

First spatial and urban plans of cities and towns that were already connected with railway lines had to take this fact into account as a starting point in planning. Thus, in Osijek's spatial plans in the first half of the 20th century, the position and inherited requirements of its railway system were considered in their existing form.

With the growth of the city, especially after the Second World War, the railway was recognized as a mode of transport and a functional barrier to the process of merging different parts of the city. The various spatial plans have been trying to regulate the city-railway relationship, starting in 1934 and 1948 when new railway lines were planned. Later, complete reconstructions of the railway junctions and removal of freight traffic from the city were envisioned, together with the construction of intra-city lines for passenger traffic. These planned displacements and interventions have not occurred to date. Thus, current railway lines in Osijek are the same as those in 1910.

New transport routes of the European Transport Corridor Vc included a railway corridor running along the western edge of the city in order to address the need for an east-west freight traffic connection [10, 11]. The location and construction of the new river port in the eastern part of the city also created problems for freight rail traffic. The future city development needs to bind both the railway system and its technological limitations and demands with the urban needs of the city of Osijek. Spatial and urban plans can be effective tools to manage, regulate, and shape this relationship.

In the next subchapters, a review of eight successive plans is presented, consisting of a set of uniformed data for each plan - title, year, authors, spatial scope in hectares, conceptual characteristics, treatment of the railway system and its elements, and railway corridors and their transformative potential.

3.1 Regulatory Basis of the City of Osijek, 1912

The authors of the first urban plan for the city were Skender Kovačević and Kosta Čutuković. The plan covered 900 hectares (Figure 1).

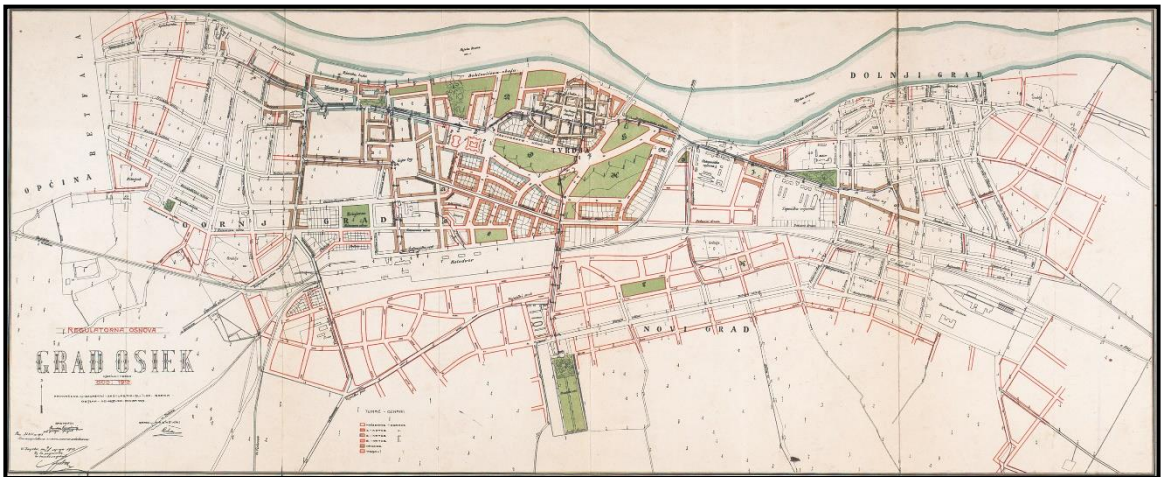

Figure 1 Regulatory Basis of the City of Osijek, 1912 [12]

The plan's concept included:

1. Connecting historically separated city units (Tvrđa, Upper, Lower, and New town) and closing of the empty area around Tvrđa,
2. Upper Town extension through construction of residential neighborhoods in the area rendered open by the demolition of the fortress walls, and
3. Expansion of the city south of the railway, creating the Industrial District.

The city's railway system was envisaged by accepting the position of existing seven railway lines as a *fait accompli* as well as acknowledging them as barriers to connecting different parts of Osijek. The Regulatory Basis was not realized to a large degree due primarily to the First World War, though no major changes occurred during the later periods. The plan, however, set developmental guidelines and a model for merging several urban nuclei into one.

3.2 General Cadastral Plan of the City of Osijek, 1934

The City Building Office, represented by the City Technical Superintendent Ivan Fay, was named as the author of this plan that covered approximately 900 hectares (narrower area) or 1200 hectares (wider area) (Figure 2).

Figure 2 General Cadastral Plan of the City of Osijek, 1934 [12]

The plan's concept included:

1. Connecting the Lower and Upper Town by the shortest route, as opposed to the 1912 Regulatory Basis that proposed bypassing the area around Tvrđa (as Tvrđa's walls had been demolished between 1923 and 1926) and
2. New construction in areas around Tvrđa.

Following the demolition of its fortress walls, Tvrđa was left bare, and without a plan of its inclusion in Osijek's ensemble. An international urban-architectural competition was launched in 1925 with the aim of designing the area around Tvrđa. The winner was Albert Esch, an architect from Vienna [13]. However, the winning design could not materialize because of high costs and Osijek's financial restrictions. Thus, the position of the existing seven railway lines was taken into account while a new shunting station was planned on the Osijek - Đakovo railway line. The 1934 plan was not implemented, though some parts of the city were finalized based on the plan. Also, while the plan led to the completion of several neighborhoods, it was actually aimed at filling the remaining urban spaces rather than executing a new concept of urban organization [7].

3.3. Directive Regulatory Basis, 1948 (approximate year)

The author of this plan was Josip Seissel from the Project Institute, Zagreb, and the plan covered approximately 3600 hectares (Figure 3).

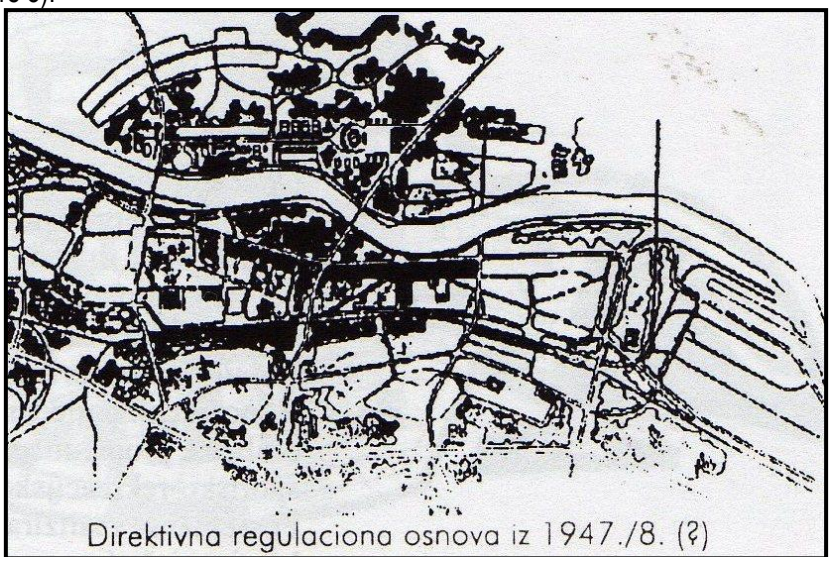

Figure 3 Directive Regulatory Basis, 1948 (approximate year) [7]

The plan's concept included:

1. Development of the recreational center on the left bank of the Drava river,
2. Completion of the existing construction in the settlements of Podravlje and Tvrđavica,
3. Creation of a park system connecting Upper and Lower Town and a linear green stretch south of the railway line connecting different parts of the city (first emphasis of the environmental component), and
4. Planning large work zones in the eastern part of the city.

Considering the treatment of the railway system, the plan proposed, but never implemented, eastward correction of the Beli Manastir railway line. It was envisaged that the road and rail corridor would merge with the new road being built along the north side of the railway line. The plan was only partially realized: a recreational center on the left bank of the Drava was built and several parts of the concept were incorporated in the following plans.

3.4 Osijek's Urban Plan, 1965

The author of this plan was Radovan Miščević from the Urban Institute of the Socialist Republic of Croatia, Zagreb, and the plan covered approximately 3600 hectares (Figure 4).

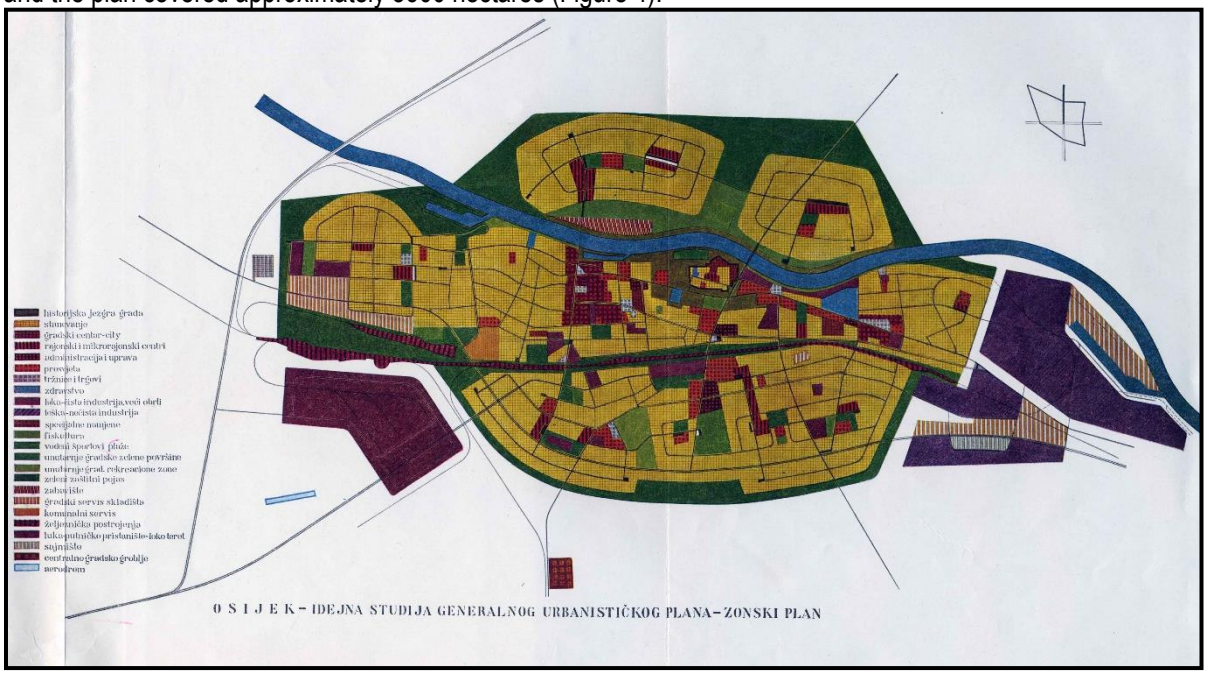

Figure 4 Osijek's Urban Plan, 1965 [7]

The plan's concept included:

1. Significant increase of planned city expansion areas (based on doubling the number of inhabitants),
2. Separation of city functions: housing, traffic, work, and recreation into different zones,
3. Division of the city into "districts" and "micro districts" as basic units,
4. Planned construction north of the Drava river, and
5. Planning of large work zones east of the city, as well as clean industries' and crafts' zones.

Considering the treatment of the railway system, the plan stated that the railway remain at the level of 1906, although the population had increased twice since then, requiring a significant improvement of the system with the priority being the construction of a modern freight station. A new railway route to Beli Manastir was foreseen in the western part of the city. The plan also considered two variations of railway traffic. In the first one, the railway running through the city was to be retained with partial lifting of the railway lines, and the road connection with southern parts of the city was to be achieved through several underpasses. The other option was deconstructing and dismantling the railway system in the inner city area, allowing for a further scope in Osijek's spatial development.

The plan was not implemented in its original form: no new construction materialized on the left river bank, no reconstruction of the road network was done, and neither did a significant reconstruction of the railway system occurred.

3.5 General Urban Plan Osijek 2000, 1975

The author of this plan was Radovan Miščević from the Urban Institute of the Socialist Republic of Croatia, Zagreb, and the plan covered approximately 5455 hectares (Figure 5).

The plan's concept included:

1. Significant new construction on the left river bank (New Osijek) and reconstruction of existing buildings,
2. Creation of economic zones in the eastern and western parts of the city, and
3. Emphasis on new traffic solutions, construction of a traffic ring around the city.

Considering the treatment of the railway system, the plan envisioned a new freight rail system on the south side of the city, while the existing railway route through the city was to be used for urban transport and regional rail

connections. This railway line was planned to be raised in the inner city area, with the aim to allow passage of road and pedestrian walkways underneath. The construction of four new railway stations, connecting the surrounding settlements and industrial zones with the center, was envisioned. A new freight station, separating freight and passenger traffic, was also in the plans and the railway line to Beli Manastir was to be moved west. The plan was partially implemented by constructing the southern bypass and economic zones at the entrances to the city. The plan has not been realized in its essence: neither did the construction on the left bank materialized nor did the construction of a new railway system.

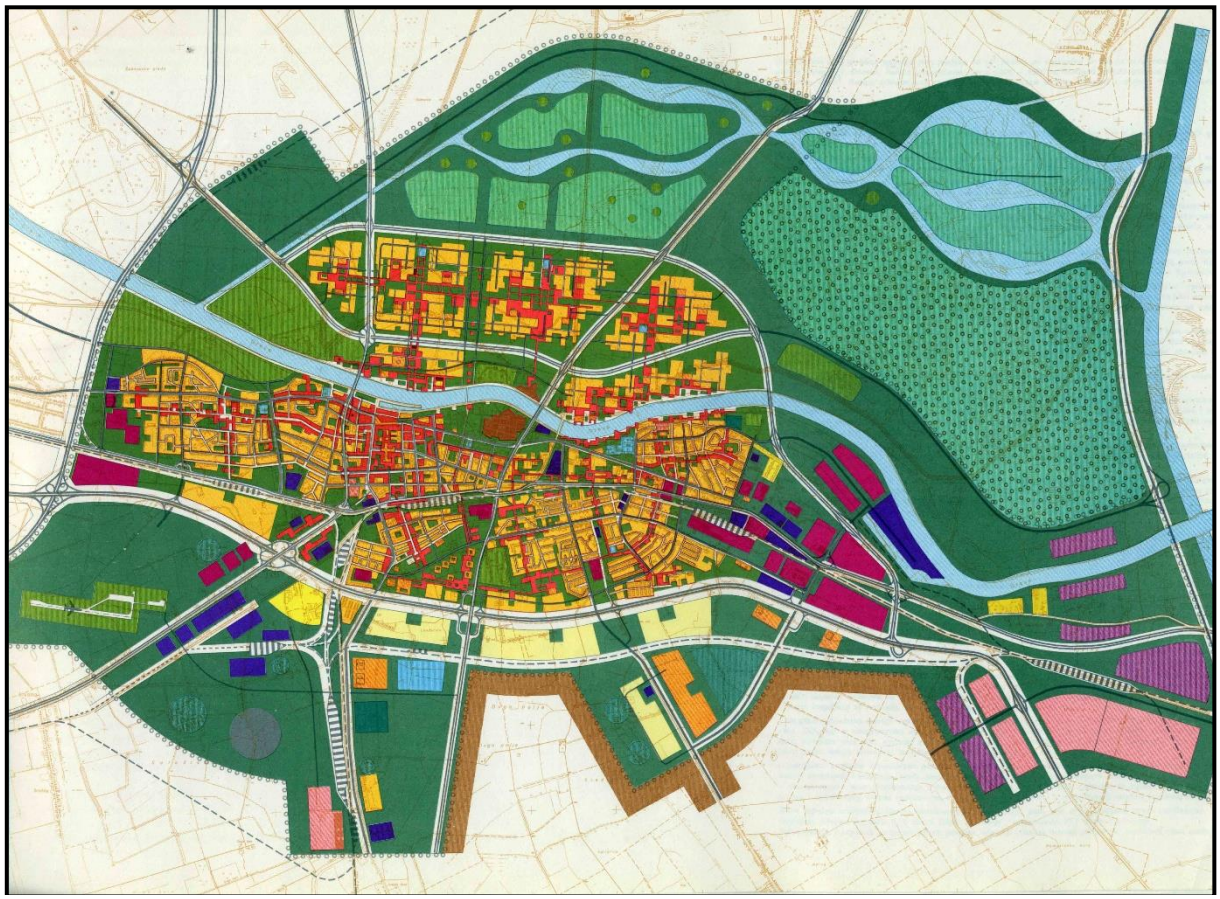

Figure 5 General Urban Plan Osijek 2000, 1975 [7]

3.6 General Urban Plan of the City of Osijek, 1988

The author of this plan was Vlatko Dusparić from the Department of Urban Planning and Construction, Osijek, and the plan covered approximately 3780 hectares (Figure 6).

The plan's concept included:

1. Linear expansion of the city in combination with the southwest expansion,
2. Construction on the left river bank, but to a lesser extent as compared to the previous plans,
3. Increase of the eastern and southwestern work zones, and
4. Northern road traffic bypass and eight new bridges across the Drava river.

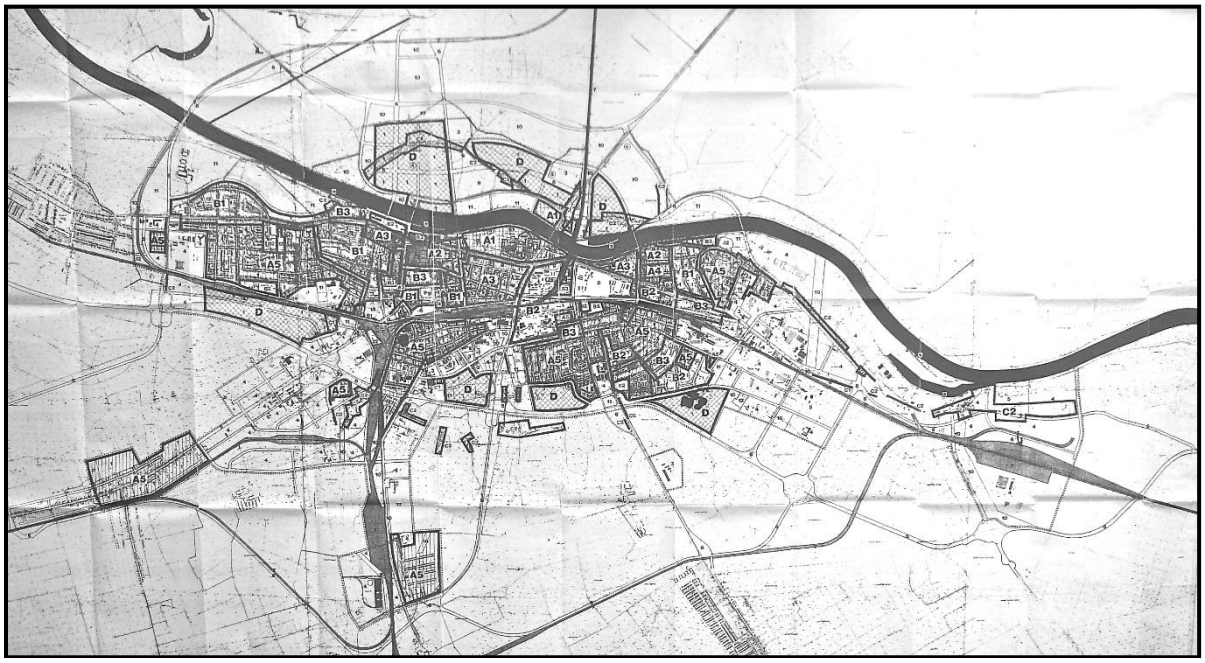

Figure 6 General Urban Plan of the City of Osijek, 1988 [14]

Considering the treatment of the railway system, the plan devised a new concept of railway lines with the construction of a river crossing (towards Baranja), a south bypass route, and construction of new freight and container stations.

The plan has not been implemented in its original form as no new construction on the left river bank took place, while the planned reconstruction of the road transport network and construction of the eastern work zone also did not materialize.

3.7 Spatial Plan of the City of Osijek, 2005 - present

The author of this plan was Vlatko Dusparić from the Department of Urban Planning and Construction, Osijek, and the plan covered approximately 17497 hectares (Figure 7).

The plan's concept included:

1. Coordinated development of all parts of the City of Osijek,
2. Development of infrastructure systems,
3. Rational use of natural resources and preservation of ecological stability and the environment, and
4. Integration of Osijek into the system of European Transport Corridors: Corridor Vc Sarajevo-Ploče-Osijek-Budapest and the Danube Corridor VII.

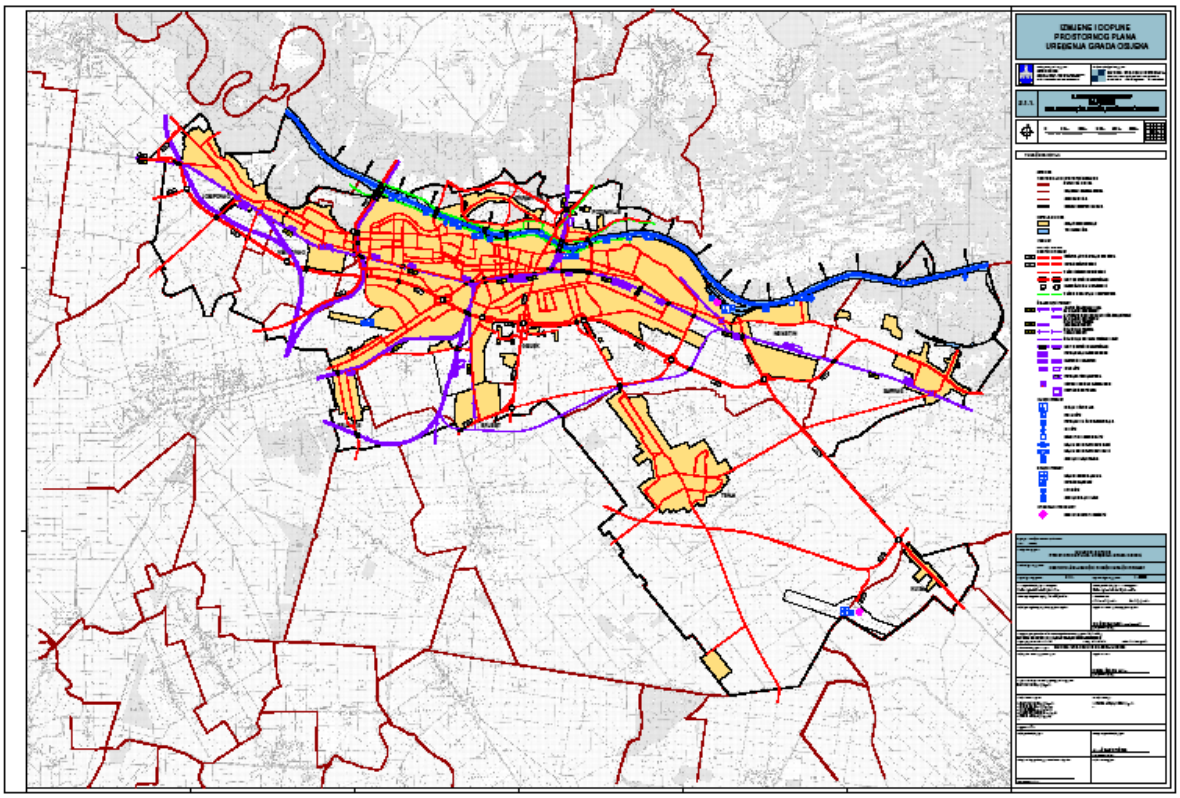

Figure 7 Spatial Plan of the City of Osijek, 2005 – present [5]

Considering the treatment of the railway system, the plan envisioned a complete reconstruction of the Osijek railway junction: reconstruction of the Upper Town station for passenger traffic, reconstruction of the Lower Town station, and construction of a southern freight traffic detour. An improvement of technical and technological conditions of the railways and junctions was planned, in addition to the reconstruction of the system in accordance with the north-south axis, improvement of signaling systems and safety of road crossings, and inclusion of industrial zones in the railway system. Reconstruction of the Beli Manastir - Osijek - Đakovo railway was planned as part of the Trans-European railway network on the Corridor Vc, aiming to accommodate trains with the velocity of circa 160 km/h. Given the short time since its adoption, the degree of implementation of this plan is hard to assess. To date, none of the given planning guidelines considering the railway system have been materialized.

3.8 General Urban Plan of the City of Osijek, 2006 - present

The author of this plan was Vlatko Dusparić from the Department of Urban Planning and Construction, Osijek, and the plan covered approximately 3260 hectares (Figure 8).

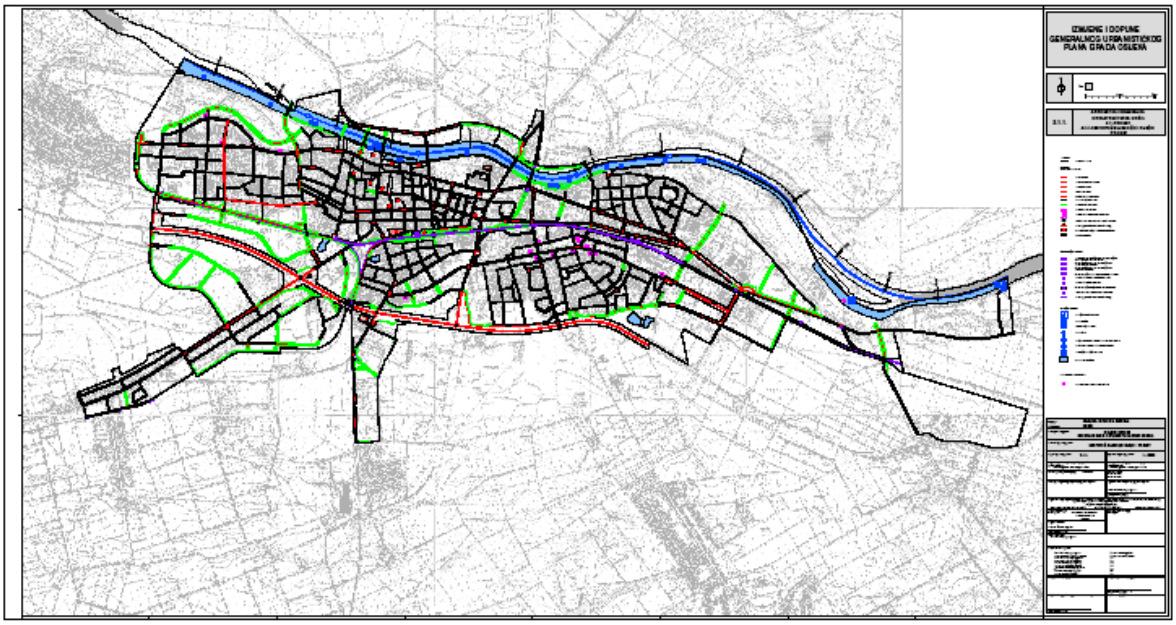

Figure 8 General Urban Plan of the City of Osijek, 2006 – present [6]

The plan's concept included:

1. Preserving the longitudinal spatial development of the city,
2. New construction on the right river bank and establishing new recreational spaces on the left river bank,
3. Creation of urban areas designed for development both north of the city bypass as well in transformational spaces along the railway corridors, and
4. Transformation and redevelopment of the existing city area contributing to overall urban development.

Considering the treatment of the railway system, the plan acknowledged unsatisfactory technical aspects of the railway system like low velocity, low payload, and poor signaling. Furthermore, the Upper Town station was presented as a compromised element of the railway system, combining passenger and freight functions. This plan was the first to designate railway corridors as potential transformative spaces, considering the fact that development of rail transport often results in unnecessary industrial tracks being abolished. The plan also stated all targets that were already present in previous plans like the planned reconstruction of the Osijek railway junction, construction of a passenger technical station, reconstruction of the Upper Town station for passenger traffic, reconstruction of the Lower Town station, and relocation of freight traffic from the inner city. Following the implementation of this last, currently valid plan, it can be observed that its realization is very limited, featuring smaller interventions with low probability of significant future reconstructions.

4 DISCUSSION

Comparative analysis of the eight major spatial plans, starting in 1912 and ending with valid plans from 2005 and 2006, was conducted considering the interdependency of the city and its railway system. The analysis was based on several criteria: authors and scope of the plan, basic conceptual and planning guidelines, planning guidelines for the treatment of the railway system (options of relocation and new construction and railway corridors), and degree of realization of the plan. The tabular review presented in Table 1 highlights a particular plan's treatment of the railway system, based both on transport aspects as well as on the railway's imprint on shaping the city.

At first, railway construction did not significantly affect Osijek's existing urban structure as it was positioned in undeveloped and remote city areas. However, during the period between 1870, when the first railway was constructed, and 1912, when the first plan was adopted, the build-up and exploitation of Osijek's railway system initiated the growth of city center towards the main railway station as well as the formation of the industrial district south of the main station. In these four decades, the length of railroads within the city increased to 28,100 m, while the number of inhabitants increased from 17,000 to 28,000.

In the period between 1912 and the end of the Second World War, Osijek's spatial and urban plans acknowledged the existing placement of Osijek's seven railway lines, treating them as a *fait accompli*. However, the construction of the new urban tram network in 1926 and the construction of new workers' settlements and several streets around the main railway station were all consequences of the positioning of the railway system.

Comparing the two periods of both urban and railway evolution in Osijek, it can be concluded that during the period from 1870 to 1912, Osijek's railway system, driven by the industry's economic interests, developed rapidly and led to the development of the city. During the period between 1912 and 1945, both the city and the railway grew in parallel.

Table 1 Comparative Analysis of Spatial Plans' Treatment of Osijek's Railway System 1912 – 2019

Name and date of the plan	Basic planning guidelines	Planning guidelines for the railway system	Railway lines relocated	Formation of railway corridors
Regulatory Basis of the City of Osijek, 1912	Connecting historically unrelated city units - Tvrđa, Upper, Lower, and New town. Expansion of the city south of the Osijek-Voillany railway line, north of the Osijek-Našice railway, and around Tvrđa.	The city's railway system was presented in the plan as a default situation, acknowledging railway lines as barriers to connecting different parts of Osijek.	**NO**	**NO**
General Cadastral Plan of the City of Osijek, 1934	Connecting Upper and Lower town through the zone of demolished fortification walls.	Position of existing seven railway lines was taken into account while a new shunting station was planned on the Osijek - Đakovo railway line.	**NO**	**NO**
Directive Regulatory Basis, 1948	Recreational area on the left river bank, Upper, and Lower town connected through a park system, environmental component.	Merging road and railway traffic in the east-west direction, displacing the railway line leading towards Beli Manastir.	**PARTIALLY**	**PARTIALLY** Linear green stretch south of railway tracks.
Osijek's Urban Plan, 1965	Separation of city functions into zones (work, housing, traffic), "micro districts".	Two options of railway traffic, one retaining the railway system in the city partially lifting the railway lines, other dismantling railway lines in the city; flexible development options for the city.	Reconstruction of the Osijek railway junction, shifting the Beli Manastir railway westward.	**PARTIALLY** Linear green stretches along the east-west railway tracks.
General Urban Plan Osijek 2000, 1975	A new part of town to be built on the left river bank (New Osijek), emphasis on traffic solutions for the city.	New freight railway line south of the city, intercity railway for urban and regional traffic, new freight station.	Reconstruction of the Osijek railway junction, new freight railway south of town, shifting the Beli Manastir line westward.	**PARTIALLY** Linear green stretches along the railway tracks.
General Urban Plan of the City of Osijek, 1988	Southwest direction of city expansion, reduced plans for New Osijek on the left river bank, eight new bridges across the Drava river.	New freight railway line south of the city, intercity railway for urban and regional traffic, new freight and passenger stations.	Reconstruction of the Osijek railway junction, new freight system south of town, shifting the Beli Manastir line westward.	**PARTIALLY** Linear green stretches along the railway tracks as protective greenery.
Spatial Plan of the City of Osijek, 2005 - present	Coordinated city development - development of infrastructure. new traffic position of Osijek (European corridors Vc and VII)	New freight railway line south of the city, intercity railway for urban and regional traffic.	Reconstruction of the Osijek railway junction, new freight system south of the city.	**PARTIALLY** Land formation along infrastructural corridors.
General Urban Plan of the City of Osijek, 2006 - present	Respecting longitudinal spatial development of Osijek, transformation of several parts of the city.	Reconstruction of the Osijek railway junction, new freight system south of the city.	Reconstruction of the Osijek railway junction, new freight system south of the city.	**PARTIALLY** Land formation along infrastructural corridors, railway corridors aa potential transformative spaces.

In 1948, after the end of the Second World War, Osijek already had around 50 000 residents and the railway system started to interfere with the growth of the city. Therefore, in the following four decades, Osijek's plans handled the railway issue more radically, proposing either dismantling of the railway system within the city or lifting the railway lines off the ground, creating railway overpasses. It was an era of grandiose and extensive planning, not only in the railways but also in pursuing the idea of crossing the Drava river with the construction of "New Osijek". Although the city grew as fast as envisioned at first, from 73 000 inhabitants in 1961 to 93 000 in 1971 and 103 000 in 1981, its development thereafter started to decelerate. As a result, neither the railway system's deconstruction and relocation nor the New Osijek's construction could be realized. The 1988 plan accepted this scenario, went back to the original postulates of linear southwest expansion of the city, and abandoned excessive planning.

In the last three decades, urban and spatial plans tended to be more realistic, taking into account the fact that the previous plans never materialized. Contemporary plans considering the positioning of the railway system could thus develop in two main directions, one being the use of railway traffic as means of inter-urban and suburban transport in the Osijek area and the other being identification of railway corridors as potential transformative spaces of the city of Osijek.

Since the construction of the first railway lines, the railway system's management has been under state jurisdiction, depending on national level politics, thereby limiting the impact and scope of city level planning.

5 CONCLUSIONS

This study looked at the history of Osijek's spatial and urban planning, focusing on the position and treatment of the city's railway system. The study was based on the results of a comparative analysis of all the eight plans, once or at present valid for the city of Osijek, starting with the first Regulatory Basis of the City of Osijek from 1912 up until the current General Urban Plan of the City of Osijek from 2006. During this period, three different planning approaches to treating the city's railway system were observed. The oldest one was a passive, "leave it as it is" approach that dealt with the railway system "geometry" as a default precondition for planning. The second approach encompassed a bold and proactive planning, proposing invasive treatment of the railway system through either dismantling of railway lines in the city center or creating railway overpasses instead. The more recent plans show efforts to link the reality of the railway traffic situation in Osijek and beyond with possibilities of communal use of spaces left vacant through the system's modifications.

Additionally, city level planning is dependent of relevant strategic and planning documents on regional and national level. A new Spatial Development Strategy of the Republic of Croatia, adopted in 2017, defines construction, reconstruction, and modernization of railway traffic as important prerequisites for economic development. It also deals with urban rehabilitation that is to be comprehensive and infrastructure-based, respecting socio-economic, environmental, social, and social integration issues. The combination of both these aspects of the Spatial Development Strategy points not only to the need to reduce road transport, using rail in inter-urban traffic but also designates railway hubs (stations and train stations) as areas of developments in form of new urban centers [15].

The analysis from this study can be used to help draft guidelines for future planning of Osijek's railway system. Sectoral approach to railway planning, used in most of the observed plans, should develop into an integrated spatial and urban approach, with respect to the history, current situation, trends, and overall complexity of the issue. This presumes using modern multi-criteria decision-making methods as opposed to momentary single-criteria functional solutions of traffic problems [16]. The integral approach to Osijek's railway system should also enhance planning in the area of public urban or suburban transport while connecting the railway traffic with other transport systems like pedestrian or bicycle traffic [17, 18]. The railway system's planned overcrowding - constructing new railway lines (bypasses west and south of the city) while keeping all of the existing lines passing through Osijek - should be avoided in subsequent plans through careful analysis of the city's needs and limitations.

Finally, existing railroad tracks within the city, together with attached corridors, present spatial, traffic, and safety related concerns. Future plans should value their transformative potential instead, planning for new spatial resources in the heart of the city.

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