

## **ROLE OF THE RAILWAY-STATION ZONES IN THE SPATIO-FUNCTIONAL DEVELOPMENT OF ZAGREB**

**Miroslav Sić**

Geografski odsjek, Marulićev trg 19, 10000 Zagreb

e-mail: geogpmf@geog.pmf.hr

### **Abstract**

This paper analyses the role of the railway-station zones in the spatio-functional development of Zagreb during two characteristic periods of its development: period of industrial urbanisation, and that of tertiary urbanisation. The zone of the main passenger railway-station best shows the changes in the areas' purpose, as well as the trends of creating new functional structures of the central city.

**Key words:** railway-station zone, industrial urbanisation, tertiary urbanisation, citisation

## **POMEN KOLODVORSKIH PREDELAV V PROSTORSKO – FUNKCIJSKEM RAZVOJU ZAGREBA**

### **Izvleček**

Članek prinaša analizo pomena kolodvorskih predelov v prostorsko-funkcijskem razvoju Zagreba v dveh različnih razvojnih obdobjih: obdobje industrijske urbanizacije in kasneje terciarne urbanizacije. Predeli gostega prometa povezanega z železniško postajo najbolj kažejo prostorske spremembe kot tudi trende oblikovanja novih funkcijskih struktur v središču mesta.

**Ključne besede:** kolodvorski predeli, industrijska urbanizacija, terciarna urbanizacija, citizacija.

## INTRODUCTION

Research in urban and transport geography has undoubtedly shown that there is a connection in development between transport and urban systems, or city and traffic. The city is situated on favourable spots in the transport network - it is, in fact, a traffic node. Its significance depends upon accessibility, which is the result of traffic favours. Development of urban and transport network points to their correspondence. Every new transport network influences the urban network formation. And reversely: the changes in the network of urban centres are being reflected on the transport system modification.

The relation between traffic and spatio-functional development of the city is significant as well. On the one hand, Wolkowitsch (1973) differentiated the period of the railway transport that led to the establishment of the railway-station districts of the city and first suburbs, and on the other, the period of automobile transport, which intensified the suburbanisation process. Baerwald (1983) singled out three transport periods of the North-American metropolitan development and presented the interior urban structure in every of them. Analysing the influence of TGV on the area's organisation, Merlin (1991) pointed to the reflection of the new transport infrastructure on urban hierarchy and to the local consequences - building of new railway stations and concentration of various tertiary activities around them. It is indisputable that railway modernisation has generally enlarged the attraction of the central passenger railway stations and pointed to the necessity of their adaptation according to the new time demand (Endmann, 1980; Bergbrede, 1990; Zdunić, 1991).

Starting from the concept of railway-station zones (districts), this work considers the role of the railway-station zones in the spatio-functional development of Zagreb during the period of its industrial and tertiary urbanisation.

## DEVELOPMENT OF THE RAILWAY-STATION ZONES IN THE PERIOD OF ZAGREB INDUSTRIAL URBANISATION

The period of Zagreb's industrial development begins in the second half of the 19<sup>th</sup> century. The railway transport played the leading role in that development. The arrival of the railway lines to Zagreb, the first one from Zidani Most in 1862, which was a branch of the line Vienna-Trieste, and the second one from Budapest in 1870, directed towards Rijeka, which was the result of the Austrian and Hungarian traffic policy (Žuljić, 1964), made conditions for a quicker economic and population development of Zagreb. The small provincial city in Austria with only 50,000 inhabitants (1857) established communications with Vienna and Budapest, and via them, with wider European areas. With the construction of the first railway stations, there began the formation of the Zagreb railway node and development of the first railway-station zones of the city. There were two periods in the zones' development: the early period, which lasted until the end of the Second World War, and the mature one including some following forty years, more precisely from 1950 until 1990.

## EARLY PERIOD

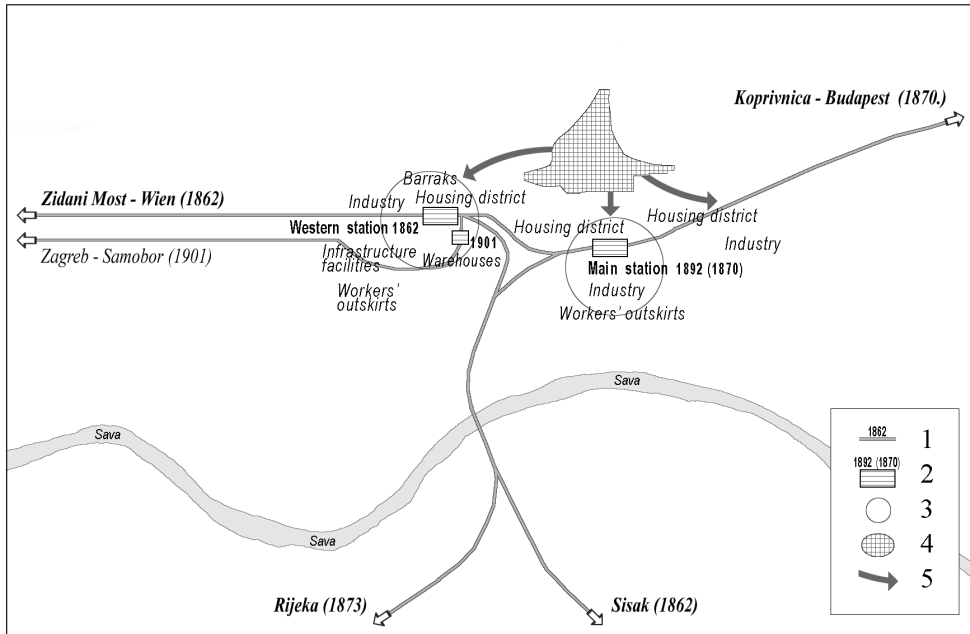
In that period the attraction of railway stations directly influenced distribution of the first industries, craftsman workshops and warehouses. The locations closer to the railway station were being chosen, and the industry working with many raw materials was connected with the railway station by a factory siding. Simultaneously, the city widened towards the railway zones with its housing areas, public and infrastructure facilities. First city plans, from the nineteenth century, led to the creation of planned city districts, but at the same time, they built unplanned poor suburbs.

Western Railway-Station Zone. Around the Western, previous Southern, Railway-Station, built in 1862, the first Zagreb railway-station zone was formed. The attraction effect became prominent in some following twenty years, when typical town processing industries were built: a chicory factory in 1882, a brewery in 1893, and later parquet, textile and tobacco factories, brickyard and pharmaceutical industry. The zone's significance increased with the construction of the local narrow-gauge railway Zagreb-Samobor in 1901, when the Western Railway-Station became the place of reloading of goods from the narrow-gauge railway to that of normal-gauge (Gorničić-Brdovački, 1952). The construction of the railway depot Črnomerec (1920) had even a greater effect. It increased the efficiency of the goods transport and enabled development of new economic facilities. While mostly small production workshops, as well as retail trade, especially that of building material, were established around the Samobor Railway Station, big warehouses were built on the southern side of the railway depot Črnomerec, as well as infrastructure facilities (power plant and water supply system), and more recent industries (electrical industry, etc.) (Fig. 1)

The attraction of the Western Railway Station caused Zagreb expand towards the west. The construction skeleton was Ilica - the old road leading from the suburb to Slovenia. New city districts spread from Ilica towards the railway track and industrial facilities. Besides tenement houses, specific city contents were the military installations constructed in the late 19<sup>th</sup> and the early 20<sup>th</sup> centuries. Their location was a characteristic indicator of connection between traffic and military function. The Western Railway-Station zone had an equal impact on development of the city south from the railway track. The social lodging buildings (railway workers' flats) were being built closer to the railway track, by the warehouses. A workers' suburb northern Trešnjevka was developed on somewhat greater distance crossed by industrial gauges and facilities.

Main Railway-Station zone. The building of today's Main Railway Station was built in 1892, instead of a provisional station construction. It was a strong impulse for the development of the second railway zone of Zagreb, which was more complex by structure than the first one. It was important for its development that until 1936, mixed, passenger and goods transport was done at the Main Railway Station. The construction of the railway depot Borongaj in 1925, and that of the Zagreb Eastern Railway Station (a goods station) in 1928 (Šegrc, 1976), widened the railway station zone more significantly towards the east. That enabled locations of numerous industrial and other economic facilities and development of new part of the city. During the centuries-long development (1870-1945) the Main Railway-Station zone became the principal railway-station zone of Zagreb. (Fig. 1)

Figure 1: Zagreb Railway-Station zones in the second half of the 19<sup>th</sup> century and their influence on the spatio-functional development of the city; 1) Railway track with the year of construction; 2) Railway station with the year of construction; 3) Influential area of the railway station; 4) Historical core of the city; 5) City expansion direction.



The oldest industrial facilities built beside the railway station were the steam mill (1862), and railway workshop (1893), today the Factory of Railway Vehicles. During some first thirty years of the 20<sup>th</sup> century, particular locations northwards from the railway track were used for: the factory of candies and chocolate, table oil factory (1917), textile industries. However, the greatest explosion of industrial facilities took place along Radnička Road, respectively in the southern marginal city zones Zavrtnica and Peščenica. Besides the gas factory (from 1911) there were also constructed plants of chemical (1913), textile and paper industries. When the Zagreb Eastern Railway Station (goods station) was opened, numerous warehouses and new processing facilities were established.

There was a dual development of residential (housing) districts in the Main Railway-Station zone. The Railway attractiveness caused the expansion of the city's core towards the south. In the period until the First World War, the central city belt of public buildings and parks emerged in the area of former gardens on the stretch: Zrinjski Square, Strossmayer Square - Tomislav Square, a part of so called Lennuzzi's horse's shoe. However, in that interspace from Jelačić Square to the Main Railway Station, housing construction prevailed. It was planned in a straight line on a town-planning screen (Mohorovičić, 1952).

In contrast, southwards and south-eastwards from the Main Railway Station, the outskirts of the city was being built (Trnje, Zavrtnica and Volovčica). Similar to the Western

Railway-Station zone, there were also the social lodging buildings constructed for the workers employed in the railway, municipal services and industry. However, the unplanned city areas with ground-floor houses inhabited by poor population dominated in the structure. Some main directions of expansion and functional development (Trnjanska Road, Miramarska Road and Paromlinska Road), as well as the zones of a denser construction (Martinovka, the triangle Držićeva-Radnička, Dubrovačka Street) were prominent in that chaotic structure.

The Main Railway-Station zone experienced the greatest development after the First World War, that is during the nineteen twenties and thirties. Such a development was the consequence of Zagreb's quick economic and urban progress. Although it lagged behind the capital Belgrade by its size, Zagreb became the most important business centre of the country in the inter-war period. It was especially remarkable for its banking functions. The financial role was favourable to industrialisation, and the privileges of Zagreb's geographical position contributed to it as well. Closeness to the Central European countries, and well connection with the Adriatic ports made Zagreb become the most important centre of the western part of Yugoslavia. Its economic and central significance caused a quick population growth, from 79,000 inhabitants in 1910 to 186,000 inhabitants in 1931.

## MATURE PERIOD

This period corresponds to the period after the Second World War, or to the time of the second Yugoslavia. In that forty-year period, Zagreb experienced an especially strong industrial development. It was stimulated by country's general economic policy and important role of Zagreb as the political centre of the Republic of Croatia. The inherited industry, mostly small, often at low technological level and with a small number of workers, grew in size and became modernised. Simultaneously, numerous new industrial facilities were established. Different from the previous period, which was characteristic for a spontaneous location, in the following period, industrial zones were planned in advance. New and restructured industries were placed in those zones, and the old ones were restructured and relocated there. The planned industrial zones on the outskirts of the city (Žitnjak, Jankomir and Hrvatski Leskovac–Stupnik) were equipped with corresponding infrastructure, in the framework of which the importance of the railway transport was especially pointed out. It was the beginning of the mature period in the Zagreb railway-station zone development.

The cargo stations Resnik and Žitnjak were built along the eastern tangential railway. They were doing services for the industrial zone Žitnjak. In the elongation of that tangential railway, the railway depot Jakuševac was constructed. The industrial zone Žitnjak with the planned area of 2,337 ha was started in 1947 (Kunšten, 1977). The plan anticipated a space for clean and dirty industry, as well as that for service shops and ware-houses. During some first thirty years, 24 industrial firms, as well as 42 service shops and warehouses moved to that zone. Seven industries, oriented chiefly to the mass raw-materials (thermo-electric power plant - heating plant, oil refinery, basic chemical industry, paper mill, oil factory and railway vehicle production) had an industrial gauge. Other Industries, services and ware-houses used lorry transport. During the nineteen seventies and eighties, some more processing industries were established in the zone, and the housing construction expanded, although

it had not been planned. The railway depot Jakuševac, on the part of the eastern tangential railway southwards from the river Save, attracted numerous accompanying projects and influenced the development of the surrounding suburban settlements.

During the mature period of Zagreb industrial urbanisation, a new railway-station zone was built in the western part of Zagreb, as well, with the foothold on the main railway towards Slovenia. As the planned western tangential railway had not yet been constructed, in the nineteen sixties, a new industrial zone Jankomir started to emerge as an elongation of the Western Railway Station around the railway depot Vrapče. Some huge projects (electro and processing industry, as well as furniture industry) were connected by factory sidings. Then other projects were included into that zone - a lorry station with a free economic zone, city bus transport garage and various warehouses. Parallel with the industrial development, housing construction was intensified and numerous small industry services were opened, especially along Samoborska Road. The construction of a temporary container terminal on the railway depot Vrapče made this zone even more attractive.

The mature period of Zagreb industrial urbanisation, which overlapped the period of the second Yugoslavia, ended in the late nineteen eighties. A new period of the Zagreb railway-station zones development began by the creation of the new Croatian state and introduction of a new market economic system. It was essentially marked by changes in their functional structure.

## **DEVELOPMENT OF THE RAILWAY-STATION ZONES IN THE PERIOD OF ZAGREB TERTIARY URBANISATION**

In that period, the Zagreb railway-station zones experienced significant structural changes. First, it was visible in the Main Railway-Station zone. The key process was the change of the space purpose. Tertiary function structures - business centres and buildings, office-and-residential buildings, trade centres and hotels were built in the place of demolished or relocated former industries, as well as in that of survived small industry workshops and illegal housing construction.

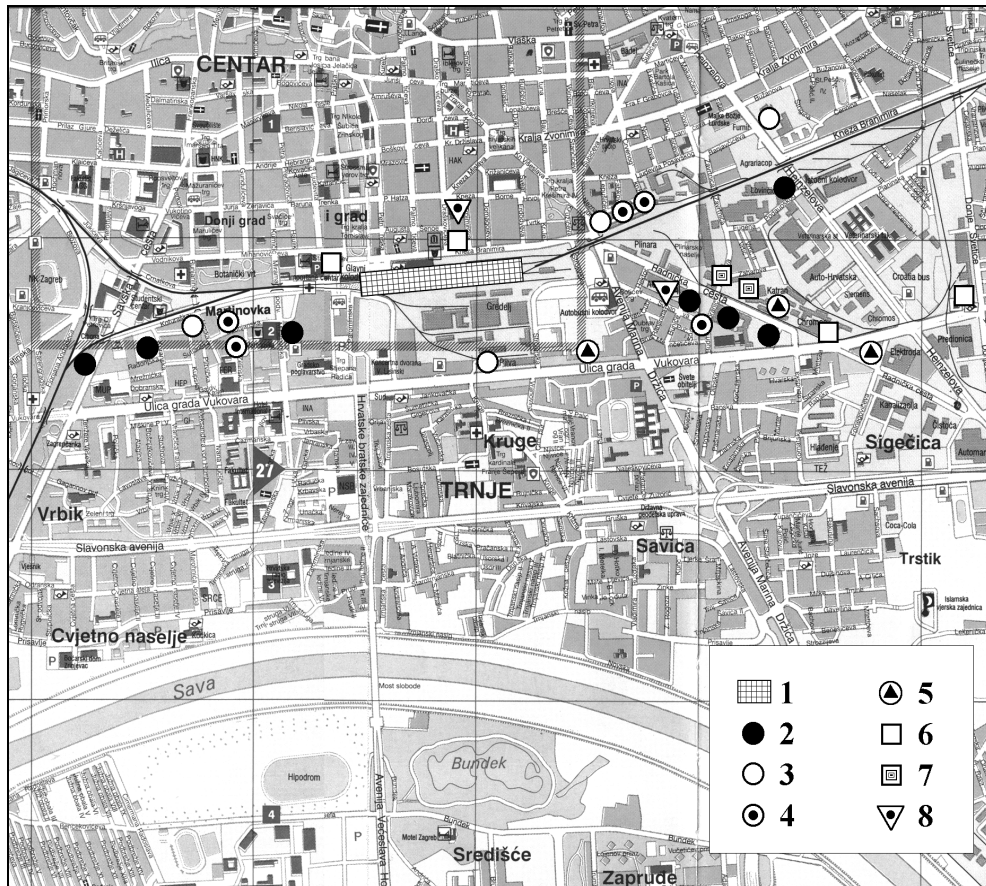
The areas' reorganisation process in the Main Railway Station zone, and somewhat less in other ones, pointed to a new functional orientation of those city parts. That organisation was the result of a new tertiary period in the development of Zagreb and its increasing fitting into globalisation processes. The tertiary or metropolitan period in Zagreb's development had started, admittedly, some ten years earlier, but only drastic changes in socioeconomic system opened the way to complex changes.

## **STRUCTURAL CHANGES IN THE MAIN RAILWAY-STATION ZONE**

Those changes were visible in the construction of a series of new business and business-residential buildings, which essentially changed earlier functional features of that railway-

station zone. Among those new projects, the most interesting were those that stood out by their size, business programmes and dynamics, or visit frequency. (Fig. 2)

Figure 2: Office buildings in the Main Railway-Station zone in Zagreb constructed after 1990; 1) Main Railway Station; 2) Multipurpose business centre; 3) Office building; 4) Office-and-residential building; 5) Bank & insurance company; 6) Shopping centre; 7) Wholesale trade; 8) Hotel.



The Importanne Centre was built in the early nineties under Starčević Square. It is a shopping centre with a great number of various purpose shops. Office premises are located on two underground floors, and the third one serves as a parking area. By a trading passage, the Centre is connected with the city bus transport terminal. Every day the Importanne Centre and the passage experience great pedestrian flows and a big turnover in the shops.

Two office buildings constructed on the reserve locations northwards from the Main Railway Station have had an impact on more recent life dynamics in the central railway-station zone. They are the hotel Sheraton and the Shopping centre Branimir. Sheraton is a

hotel of a high category considerably oriented towards the foreign clientele. The shopping centre Branimir was built in the place of the former factory of chocolate and biscuits. On the area of 44,000 sq metres there are, besides shops and catering establishments, office premises and multiplex cinemas. Both installations contain underground garages on 2-3 levels.

In the eastern part of the Main Railway-Station zone there was the same process of the city areas' restructuring. New office and office-and-residential buildings were constructed in the place of the former table oil factory. With regard to the available areas, the process of changing purpose of the city area will continue to grow more powerful.

Changes were even more significant in the railway-station zone southwards from the Main Railway Station. The city district Martinovka nearly completely changed its structure. Numerous new city programmes such as multipurpose business centres and office-and-residential buildings emerged in the place of the former small industry, craftsman workshops and warehouses. Once a typical industrial district around Radnička Road experienced similar changes. New buildings were concentrated at the crossroads of Radnička Road and Vukovar Avenue, and attractive locations in Heinzel Street and Savska Road were increasingly used.

The process of office buildings' expansion was evident in the whole zone southwards from the Main Railway Station. Together with earlier constructed buildings of similar character (banks, insurance companies, offices of industrial firms), a new, markedly functionally oriented urban structure was being created. Only a few installations of various functions stuck out of it (city council, concert hall, Hall of Justice). They had been built some forty years before when the city started to expand towards the south and a reconstruction of old city suburbs took place. There was another characteristic trend in the office-building construction: growth in height. The towers of more than 20 floors had already been built, and even higher buildings were planned. During that period of business construction, there were the greatest land speculations and conflicts between the investors and city authorities.

## STRUCTURAL CHANGES IN OTHER RAILWAY-STATION ZONES

In contrast to the Main Railway-Station zone, where typical office buildings expanded through change of land purpose, development of various trade forms prevailed in other railway-station zones. It was already visible in the Western Railway-Station zone, where, besides pharmaceutical industry, two supermarkets were constructed and the third one was in construction. Commercial facilities such as specialised commercial centres (of furniture, home necessities), automobile showrooms and some supermarkets entered the planned industrial zones (like Žitnjak and Jankomir) on a large scale. The failed industries' installations were very frequently used in that connection. Variety of commercial functions were completed by simpler forms of sale, often immediately by goods railway stations (warehouses of building material, solid fuels, and similar).



## CONCLUSION

Since the nineteen nineties, the railway-station zones of Zagreb, established in the period of industrial urbanisation, have shown great structural changes. These changes are most visible in the Main Railway-Station zone, less in other ones. In new transition conditions, office-and-service buildings are being constructed (poly-functional business and commercial centres, office-and-residential buildings and hotels) in the locations of former industries and small craftsman businesses. The process is quick, powerful and with far-reaching effects on the city's development. It shows that in the period of the Zagreb's tertiary urbanisation, the central railway-station zone did not lose its attractiveness, but on the contrary, it grew.

The restructure of the Main Railway-Station zone intensifies the process of Zagreb citisation. Southwards from the traditional city centre on the stretch Ilica - Ban Jelačić Square - Jurišić Street, there is a new CBD grada? between the Main Railway-station and Vukovar Avenue, Savska and Heinzel Streets. The characteristic of that new centre is domination of financial, commercial and other various business firms, chiefly of foreign origin or with strong international connections. The formation of that new business centre is in full progress. Its more complete formation will be undoubtedly influenced by change of purpose of the old industry spacious complex - steam mill and factory of railway vehicles, which are situated along the southern fringe of the Main Railway-Station.

The increased significance of the central railway-station zone of Zagreb is the consequence of several factors. First, we can point out increasingly complex functions of the Main Railway Station as a terminal point of suburban, interregional and progressively important international (EC and IC) transport. But the attractiveness of this railway-station zone is the result of a more and more marked sinenergy -concentration of mutually attractive and dependent business and public functions. Numerous facts also point out that the financial speculation factor, present in the process of changing purpose of the city land, should not be excluded. With no regard to the above-mentioned, it is quite evident that the significance of this railway-station zone is increasing – it is outgrowing into a new centre of the city. In this connection, the necessity of technological and functional modernisation of the Main Railway-Station complex is more necessary, which is similar to the interventions done on some old passenger railway stations in particular European cities.

## References

- Boerwald, T. J., 1983: Transportations and the Decentralization of Activity in North American Metropolies. Proceedings of the International Geographical Union, Working Group on Transport Geography, Venice-Athens, 1-20.
- Bergbrede, G., 1990: Der Strukturwandel in der Personenbahnhoefer und ihren Eupfanfsgebänden, Eisenbahningenieur, (2), Hamburg
- Bunjevac, H., 1992: Tako je počelo. 1892-1992 : 100 godina Zagrebačkog glavnog kolodvora, HŽ, Zagreb, 9-25.
- Endman, K., 1980: Umgestaltung des Bahnhof Dusseldorf Hbf, ETR (8), Darmstadt.

- Gorničić-Brdovački, J. 1952: Razvitak željeznica u Hrvatskoj do 1918. godine, JAZU, Zagreb, s. 202.
- Kunšten, V., 1977 : Žitnjak – industrijska zona Zagreba, Geografski glasnik, 39, 121-142.
- Merlin, P., 199: Geographie, economie et planification des transports, PUF, Paris.
- Mohorovičić, A., 1952: Analiza historijsko-urbanističkog razvoja grada Zagreba. Rad JAZU, 287, 27-51.
- Szabo, G., 1971: Stari Zagreb, Spektar, Znanje, 99-122.
- Šegrc, V., 1976: Povijesni pregled razvoja te koncepcije rješenja zagrebačkog željezničkog čvorišta željeznica u teoriji i praksi, (5-6), 3-12.
- Wolkowitsch, M. 1982: Geographie des transports, Armand Colin, Paris
- Zdunić, Z., 1991: Željeznički glavni kolodvor u Zagrebu, Građevinar 43 (2), 79-86.
- Žuljić, S., 1964: Zagreb i okolica, Geografski glasnik, 26, 65-182.