THE CITY OF SARAJEVO AS THE FOCAL POINT OF THE DEVELOPMENT OF SPATIAL PLANNING

Rahman Nurkovic
University of Sarajevo, Faculty of Natural Sciences and Mathematics
Department of Geography
Zmaja od Bosne 33-35, 71 000 Sarajevo, Bosnia and Herzegovina
email: rahmannurkovic@hotmail.com

Abstract

This paper analyzes the city of Sarajevo as the focal point of the development of spatial planning. Thanks to its functions, the city of Sarajevo has, as often stressed, a focal significance in spatial planning. With the development of different branches of production activities, primarily industry and the production of handicrafts, cities organize the production of a variety of goods, not only within their borders but also in the wider surrounding area. A city is a specific form of human population whose size maintains the meaning of its functions in the area. In accordance with the socio-economic and other factors of development, the forms and dynamics of spatial planning of cities are different. In the city of Sarajevo, there are all the basic functions of human life (living in the community, working, supplying oneself, educating oneself, having leisure activities, and transport and communications) which affects the rapid changes in the appearance, structure and functions of spatial components. Based on the above facts, it can be seen that the area of influence of the city of Sarajevo can be differentiated into zones of varying degrees of socio-economic transformation and zones of functional connections with the city. This question is given a high priority in the world, as evidenced by the large number of scientific papers. In this paper, the attention will be devoted to the development as the focal point of regional planning of Sarajevo and its surroundings. Spatial planning is one of the most important contemporary features of the world. Space management makes it an essential element of rational and humane use of space and organization of vital functions, adjusting the planning with technical and technological development as a phenomenon of our times and the necessities of life of the population. Spatial planning is carried out on the basis of spatial and urban planning.

This kind of spatial planning is the result of pronounced differences in development and lifestyle between cities and villages, hence there is the intense migration of population from rural areas to the city of Sarajevo. The increase in urban population ranges mostly within the dynamics of growth of the total population. The focus of spatial planning in terms of concentration of population, jobs and housing developments is moved to the edges and the suburban areas of Sarajevo. There also occur changes in the structure of population and degree of
urbanization of Sarajevo from year to year. This primarily relates to the separation of urban settlements. It was therefore necessary to allocate these places according to the model which gives a more realistic picture of the number of urban settlements and the share of the urban population.

**Key words:** city of Sarajevo: functions; development; human resources; physical planning

1. Introduction and methodological notes

The spatial structure of a city can be defined as spatial distribution and system of connections and relationships between different phenomena in the area of a city (Vresk, 2002) or as spatial patterns of different functions within a city area (Mills, 2000). Pacione (2005) and Anas et al. (1998) point out that the development of traffic had great impact on the spatial structure of a modern city. Accordingly, Sohn (2005) defines the spatial structure of a city as the spatial pattern of economic activities and housing along the existing transport network. This largely uncontrolled development has transformed the city’s landscape and in some areas caused environmental problems such as deforestation and vegetation loss (Nurkovic & Gekic, 2011).

The spatial structure of a city is formed under the influence of natural, social, economic and other factors, and is therefore subject to constant changes (Vresk, 1990). In this context, significant changes in the spatial structure of cities in the world have occurred in the last thirty years, and the processes of globalization and computerization as well as the disintegration of the socialist system in the late 80s and early 90s of the 20th century can be considered the main causes. That is why the theme of the spatial structure of a city becomes the interest of many scientific studies, both geographical and other sciences, whether in the context of the entire research of the whole spatial structure of a city, or for a partial research of its individual components.

Within the display of functional structure of a city, we should mention the book The Post-Socialist City (K. Stanilova, ur., 2007) where the author gives a series of individual features of the spatial structure of some central and eastern European cities in the period after the fall of communism with an emphasis on their individual characteristics in certain segments of spatial structure of cities, including functional structures. Timar and Varadi (2001) investigate the spatial and functional structure of Budapest, and Rudolph and Brade (2005) of Moscow, stressing that the transformation of spatial structure of these cities during the nineties, was mainly manifested in the increased development of the city’s periphery due to the construction of large shopping centers and the development of residential areas, while in the inner parts of the city large shopping centres and various other business facilities were built on the sites of the former old industrial plants.

Functional structure of Prague is covered by Sykora (1999) who stresses that its change is characterized by the commercialization of the historic center, revitalization of neighborhoods within the city, and residential and commercial suburbanization of
the outer parts of the city. Pak (2004) concludes that the impact of the disintegration of the socialist system and process tertiarization in Slovenian towns, especially in Ljubljana, are reflected in more and more heterogeneous manner of use of urban land. Nuissl and Rink (2005) point out four stages in changing the functional structures in Leipzig, which include processes of increased construction of shopping centers on the outskirts of the city, through the stronger development of residential areas as part of suburbanization, to the increase of attractiveness of the inner city and weakening of the process of suburbanization, and, finally, depopulation of the suburbs and a strong increase in investment in the areas of internal parts of the city.

This kind of spatial planning is the result of pronounced differences in development and lifestyle between town and countryside, hence there are intense migrations of population from rural areas to the city of Sarajevo. The increase in urban population ranges mostly within the dynamics of growth of the total population. The focus of spatial planning in terms of concentration of population, jobs and residential areas has been moved to the edges and suburban areas of Sarajevo. From year to year, there are also changes in the structure of population and degree of urbanization of Sarajevo. This primarily relates to the separation of urban settlements. It was therefore necessary to allocate these places according to the model which gives a more realistic picture of the number of urban settlements and the share of urban population.

The aim of this study is to define the current state of functional-spatial structure of the city of Sarajevo on the basis of analysis of the components of functional structure after 1991 and at present, as well as the processes influencing the changes. In doing so, the main task is studying the transformation that the city experienced in the mentioned period (with special emphasis on the conversion of industrial land into commercial land). Methods used in preparing this paper include independent field research and mapping, analysis of cartographic attachments and processing, and analysis of statistical data.

2. The development of functional-spatial structure of Sarajevo

Sarajevo has a polycentric urban structure, which is a logical result of merging several smaller town units and settlements that were physically separated into a larger urban center. Each of these smaller units and settlements had its central area around which businesses gathered and which had the function of the center of the settlement. Sarajevo, as well as the whole of Bosnia and Herzegovina, has undergone changes in the socio-economic system by transition from predominantly socialist to capitalist market economy. The changes were also made by disintegration of the former state and the independence of Bosnia and Herzegovina, which is why Sarajevo has changed its position in relation to its gravitation area. Moreover, the Sarajevo industry lost the market of the former state. All segments of urban life have been disturbed, and after the termination of direct war activities, the restoration and normalization of life was started.
During this period, the Sarajevo area lost its transport and transit significance because new corridors were formed that bypassed the war zones. In recent years, Sarajevo has been trying to restore its significance in the region, to take advantage of its favorable geographical potentials and evolve in the direction of a modern city. The opening of the Corridor Vc motorway will significantly affect the connectivity of Sarajevo by connecting it to the European motorways, which provides excellent prerequisites for successful economic development of Sarajevo. Currently, Sarajevo is linked by highway to Zenica, and in the future, with the construction of the entire highway on the Vc corridor, it will be connected with the Adriatic coast and Budapest. All these changes were also reflected in the spatial structure of the city of Sarajevo. Market economy brought a new legality in the functioning of the economy and society as a whole, which was reflected in the development of the elements of the spatial structure of Sarajevo. In this context, the functional structure of Sarajevo has undergone a transformation and the process of change is expected to continue.

3. The urban structure of Sarajevo

The urban structure of Sarajevo in its spatial dimension is asymmetrical and in its hierarchical functional dimension is irregular. These characteristics of urban development maintain the value and way of valorization of certain parts of the space. The spatial distribution of settlements in Sarajevo treats settlements as points in space, which means that it ignores their size and function. This understanding represents settlements only as a centroid. It still allows network analysis and research of shape and spatial characteristics of the distribution of settlements. Among other authors, Nurković, R. (2010) states that the land in the city of Sarajevo, like in many cities in the world, is mostly covered by residential zones. In 2011, in Sarajevo, there were more than 30 residential areas. (Map 1)

According to the Spatial Plan of the Sarajevo Canton, 2003-2006, there are observed residential areas that occupy most of the territory of the municipality of Novo Sarajevo, as well as the Novi Grad municipality, while a smaller part of territory is under the function of housing in the municipality of Centar, and the smallest part is in the area of the municipality of Stari Grad. This is significantly conditioned by natural geographical base of the space of individual municipalities, first and foremost by relief configuration, which primarily relates to the municipality of Stari Grad, which is mostly of hilly type. On the other hand, the distribution of residential areas is determined by the distribution of other primarily economic activities in the territory of individual municipalities, which is primarily related to the territory of the municipality Centar where large areas are used in the function of business, or rather a larger number of business zones. In Sarajevo, from year to year, there is growing planned construction of residential units, which started after 1950. Thus, in Sarajevo, planned construction of Novo Sarajevo residential units began only after 1955. In 2010, in Sarajevo, there were more than 20 residential areas of various sizes.
fully constructed or under construction. They developed almost all over the city, but the scope of the construction was the largest in the areas along the main roads. Settlements in the residential areas of Ilidza, Vojosca and Hadzici had over 110,000 inhabitants in 1991. The largest settlements were Ilidza with 67,937 and Vojosca with 24,647 inhabitants. After 1995, the construction of new residential blocks began in these settlements, so the number of population, especially in Vojosca, significantly increased. (Agency for Statistics of Bosnia and Herzegovina, 2010 (Table 1))

Until 1991 - that is until the end of the war in 1995 - the planned construction of apartments mostly took place in the city of Sarajevo, and after that period planning and construction of new residential areas took place in the area of Sarajevo. Modern organization and constitution of Cantonal Housing Fund of Sarajevo was preceded
by an organization which had its legal basis and commitment in time and space through three stages of its existence:

- Phase I, 1970-1992, when the system of organization in the field of housing was introduced under the name Autonomous Interest Organization in the Field of Housing;
- Phase II, 1992-1997, when there was an abolition of the Autonomous Interest Organization in the Field of Housing, and continuation of realization of housing policy in the city through the formation and organization of the Housing Fund of Sarajevo;
- Phase III, 1997-2007, when there was a transformation of the City Housing Fund into the Cantonal Housing Fund, and all the rights and obligations that were continuously implemented since the first phase were taken over in the residential area of the Sarajevo Canton. (www.ksfs.ba)

In 2001, in the Canton of Sarajevo, there were completed 158 flats with a total area of 8.853 m² with an average floor area of 56 m², while the number of uncompleted flats was 697. (Demography and settlement system, 2005). According to the Spatial Plan of the Canton of Sarajevo (2006), within the construction area, the relation between utilization of the land which is planned as construction land, and utilization of other lands, i.e. agricultural and forest land and water protection zones, land for construction, is expressed in a ratio of 92%: 8% or 8,069 hectares: 701 ha. According to these elements, areas for residential purposes were used with 81.7%. Basic directions of engagement of new areas are developed in the Sarajevo field along the valley of the river Bosna and along the main road from Sarajevo to Mostar.

From Table 2, it can be concluded that the largest number of housing units is located in the municipality of Novi Grad, a total of 43,200 or about 36% of all housing units in the city. This is conditioned by a larger surface of flatter terrain in this municipality, and the construction of settlements with high-rise buildings: skyscrapers (eg. Alipašino Polje). (Table 2) However, the municipality of Novi Grad has the highest average number of people per apartment, 2.70, which is due to its overpopulation. This average is above the average in Western Europe, where the average value of this indicator is 2.56 inhabitants / 1 apartment (Housing Finance in Transition Economies, 2002)
In his work, Nurković R. (2011) points out that the municipality of Novo Sarajevo is second in the total number of housing units in the city with 30,850 or about 26% and with an average below the European which is 2.44 inhabitants / apartment. The municipality of Centar has 27,880 housing units or about 23% of the total fund and an average of 2.44 inhabitants / apartment. The smallest housing fund is in the municipality of Stari Grad, which has a total of 18,690 housing units, which is only 15.5% when compared to the city fund. This municipality also has the smallest average population per housing unit which is only 2.05 inhabitants / flat as a result of the construction of private multi-storey houses. This is caused by lower population density as well as great diversity and unfavorable topographic basis of the Stari Grad municipality for the development of urban settlements.

In terms of physical standards per capita, it is necessary to point out the average value of this indicator in Europe, in order to perform comparative analysis and more easily determine the situation in Sarajevo. In fact, in 1990, the European average of physical standards was 39 m² / inhabitant. According to Williams (2009), in England in 2008, the average spatial standard was 44 m² / inhabitant while in social housing it was 36 m² / inhabitant. Table 3 shows the values of the above indicators for the city of Sarajevo in 2006:

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Stari Grad</th>
<th>Centar</th>
<th>Novo Sarajevo</th>
<th>Novi Grad</th>
<th>Grad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of residential units</td>
<td>18,690</td>
<td>27,880</td>
<td>30,850</td>
<td>43,200</td>
<td>120,620</td>
</tr>
<tr>
<td>Population</td>
<td>38,211</td>
<td>68,067</td>
<td>74,402</td>
<td>116,832</td>
<td>297,512</td>
</tr>
<tr>
<td>Average number of people per apartment</td>
<td>2.05</td>
<td>2.44</td>
<td>2.41</td>
<td>2.70</td>
<td>2.4</td>
</tr>
<tr>
<td>Total</td>
<td>56,901</td>
<td>100</td>
<td>105,252</td>
<td>121,152</td>
<td>418,132</td>
</tr>
</tbody>
</table>

Source: Spatial plan of the Canton of Sarajevo, from 2003 to 2023, 2006.

Table 3. Spatial standard per inhabitant of Sarajevo, 2006.

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Total area of housing fund (m²)</th>
<th>Spatial standard m² / inhabitant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novo Sarajevo</td>
<td>1,903,904</td>
<td>25.59</td>
</tr>
<tr>
<td>Novi Grad</td>
<td>2,692,650</td>
<td>23.05</td>
</tr>
<tr>
<td>Centar</td>
<td>1,732,820</td>
<td>25.46</td>
</tr>
<tr>
<td>Stari Grad</td>
<td>1,271,550</td>
<td>33.28</td>
</tr>
</tbody>
</table>

Source: Spatial plan of the Canton of Sarajevo, 2003-2006

The above Table 4-4 shows that there are 33.28 m² / inhabitant in the area of the municipality of Stari Grad but its value is significantly below the European average for this indicator which in 1990 was, as mentioned above, 39 m² / inhabitant.
The minimum spatial standard is in the most populous municipality of Novi Grad which is only 23.05 m² / inhabitant. City average of this indicator is 25.59 m² / inhabitant, and it is below the average in the Canton. The achieved spatial standard per inhabitant for the area of Sarajevo Canton is 28.3 m² / inhabitant. This standard per inhabitant is primarily a result of reduced population in the Canton in comparison to the achieved volume of the housing fund in 2003, then an increase in the average number of storeys of individual residential buildings, a significant volume of illegal construction of individual residential buildings and a large number of apartments in the real estate market. (Spatial Plan of the Canton of Sarajevo, 2006)

As part of the city center, it is possible to expect processes of transformation of residential property in favor of social infrastructure. Modern and very attractive area of the city core, with raising of the quality of the housing fund, will be the focus of interest of temporary residents of Sarajevo in the future, to rent or buy flats and offices for their needs. Smaller parts of the municipality of Novi Grad as well as Ilidža, which is outside the city limits but within the limits of the Sarajevo Canton, are more and more exposed to the most intense construction. For the purposes of residential buildings, the highest quality agricultural land, protection zones of drinking water, the existing and potential areas of exploitation of thermal and thermo-mineral waters, areas of natural and architectural heritage and vital transport routes are irreversibly usurped. (Spatial Plan of the Canton of Sarajevo from 2003 to 2023, 2006)

The period after 1995 in the Sarajevo region was marked by a dynamic construction of housing in all municipalities, primarily because of the migration of people from other parts of Bosnia and Herzegovina and the development of new tertiary activities, as well as the increasingly rapid development of new infrastructure in suburban areas. In the process of new construction, a big problem for Sarajevo, but also for other cities in Bosnia and Herzegovina, is more and more massive illegal construction. In 2010, the most massive illegal construction was in the area of the municipality of Centar, and the lowest in the municipality of Stari Grad. It can be concluded that there was built a large number of illegal buildings in the urban area of Sarajevo. Their total number is 3,728. Most of them are in the municipality of Centar, a total of 1,558 or about 42% when compared to the whole city, while the lowest number of illegal buildings were erected in the municipality of Stari Grad, 626 or about 17% of illegal housing in relation to their total fund in the city. (Spatial Plan of the Canton of Sarajevo from 2003 to 2023, 2006)

Nurković R. (2011), analyzing the spatial structure of Sarajevo, indicates that, in terms of the spatial distribution of areas under the illegal construction in Sarajevo, one can notice spatial imbalance as well as the high share of these areas on territory of all four city municipalities. Further, it can be concluded that, in relation to the territory of the municipality itself, the lowest concentration of illegal areas is in the municipality of Novo Sarajevo which was caused by a high degree of urbanization of the municipality. In the case of municipalities of Centar and Stari Grad, one can notice an intensive process of illegal construction on the slope areas while in the Novi
Grad Municipality illegal construction is present in the southwest in its flat part, by the mouth where the rivers of Sarajevo merge into the river Bosnia. Assessing the state of the functions of housing and residential construction, it can be concluded that the housing and residential construction, especially illegal, had expansion in the area of the city of Sarajevo, particularly in the period after 1995, which led to the irrational use of available land and resources. Parts of the city which are characterized by the individual residential construction are partially or not at all fitted with social infrastructure and the urban city line is lost.

4. Traffic in the city of Sarajevo

One of the major factors that affect the expansion and spatial structure of Sarajevo is the traffic. The possibility of spatial mobility of people and goods is reflected in urban construction and spatial distribution of urban activities. Sarajevo is the hub of the urban network of Bosnia and Herzegovina that is more important than the others because it is the confluence of a number of connections. Such hubs have good accessibility. The highest availability is in settlements in which there is the largest number of central functions as this is a prerequisite for better spatial organization. The least accessible hubs are located in southern and eastern Bosnia as well as in western Herzegovina. Sarajevo occupies a central position in Bosnia and Herzegovina and it is an important center in terms of geo-communication because there are transport corridors running north-south and northwest-southeast as well as a railway and international airport on its territory. Sarajevo is the center of the road transport in Bosnia and Herzegovina. Seven main roads connect the city to other parts of the country. In the north, M-5 in the direction of Travnik, Banja Luka and Bihać; M-17 towards Zenica and Doboj; and the M-18 towards Tuzla; in the east M-5 to Višegrad and Goražde; the M-19 towards Zvornik. M-18 over Foča towards Dubrovnik leads to the south, and M-17 towards Mostar leads to the west. The planned European highway, Corridor 5-C, will pass by Sarajevo connecting it to Budapest in the north and Ploče in the south. (Nurković, R. 2007: 24)

The density of the road network in individual municipalities is very uneven. Thus, there are urban municipalities with a density of over 90 km / 100 km² as opposed to the peripheral municipalities. Density of the categorized network of the Sarajevo Canton is 68.4 km / 100 km², which is significantly higher than the average of Bosnia and Herzegovina, which is 40.8 km / 100 km². The density of the road network in the Sarajevo Canton is higher than, for instance, the density in the Tuzla Canton which is 52.7 km / km², the Central Bosnia Canton 42.3 km / km², and the Una-Sana Canton 28.9 km / km². Furthermore, the length of the road network in the Canton of Sarajevo is longer than all the road networks of other regions in Bosnia and Herzegovina. In 2010, the total length of all roads was 2941.77 km. The peripheral municipality of Ilijaš has the longest road network of 568.22 km within the
region, while the central municipalities of Stari Grad and Novo Sarajevo are at the back end of the list. (Nurković, R. 2007: 24) (Figure 2 and Table 4)

*Figure 2. The transport network of the city of Sarajevo, 2010.*

<table>
<thead>
<tr>
<th>Community</th>
<th>Major asphalt</th>
<th>Regional</th>
<th>Local asphalt</th>
<th>Local/community</th>
<th>Major asphalt</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centar</td>
<td>7.34</td>
<td>0</td>
<td>44.71</td>
<td>26.70</td>
<td>88.70</td>
<td>167.45</td>
</tr>
<tr>
<td>Hadžići</td>
<td>25.99</td>
<td>18.68</td>
<td>33.64</td>
<td>58.44</td>
<td>388.94</td>
<td>525.69</td>
</tr>
<tr>
<td>Ilidža</td>
<td>14.59</td>
<td>15.62</td>
<td>43.59</td>
<td>62.45</td>
<td>297.01</td>
<td>433.26</td>
</tr>
<tr>
<td>Ilijaš</td>
<td>33.77</td>
<td>12.07</td>
<td>18.36</td>
<td>44.34</td>
<td>459.68</td>
<td>568.22</td>
</tr>
<tr>
<td>Novi Grad</td>
<td>12.26</td>
<td>0</td>
<td>54.88</td>
<td>26.03</td>
<td>200.75</td>
<td>293.92</td>
</tr>
<tr>
<td>Novo Sarajevo</td>
<td>8.73</td>
<td>0.64</td>
<td>29.71</td>
<td>13.48</td>
<td>54.50</td>
<td>107.06</td>
</tr>
<tr>
<td>Stari Grad</td>
<td>4.53</td>
<td>7.88</td>
<td>32.23</td>
<td>10.48</td>
<td>147.48</td>
<td>202.60</td>
</tr>
<tr>
<td>Trnovo</td>
<td>5.81</td>
<td>25.79</td>
<td>52.26</td>
<td>59.08</td>
<td>281.31</td>
<td>424.25</td>
</tr>
<tr>
<td>Vogošća</td>
<td>23.88</td>
<td>2.42</td>
<td>7.01</td>
<td>35.52</td>
<td>150.49</td>
<td>219.32</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>136.90</strong></td>
<td><strong>83.10</strong></td>
<td><strong>316.39</strong></td>
<td><strong>336.52</strong></td>
<td><strong>2.068.86</strong></td>
<td><strong>2,941.77</strong></td>
</tr>
</tbody>
</table>

*Source: Traffic study of the Sarajevo Canton, Sarajevo 2005*
The most important railway network in Bosnia and Herzegovina spreads from the valley of the river Bosnia to Sarajevo and the Neretva valley to the south. The construction of the standard gauge railway Šamac-Sarajevo with a length of 238.9 km was done in record time and opened to traffic in 1947. The railway track Sarajevo - Ploče was completed in 1966 with a length of 193.2 km. The length of the railway track Sarajevo - Podlugovi is 24 km, and the length of the railway track Sarajevo - Bradina is 41 km. The combined length of the railway track within the Canton of Sarajevo is 52 km. (www.bosniahercegovina.biz)

The railway network is fully electrified with the previously planned and carried out overhaul of the railway track from Blažuj to Bradina. In the past, rail transport was the most characteristic phenomenon of traffic that connects the city with the environment. The full functionality of the rail traffic was in the period up to 1992 when numerous economic systems functioned in the gravitational field of the Sarajevo region, whose integral part of the technological process were infrastructure and rolling stock of rail transport. In the period after 1992, the economic structure has undergone significant changes in the city of Sarajevo. The main characteristic of these changes is reduction of the volume of production or complete closure of large economic systems. Industrial tracks are mostly neglected and are used in a very small scale. However, they still represent a strong transportation infrastructure that can be used for other purposes which are required by modern development of economy such as the establishment and construction of industrial and duty-free zones, goods transport terminals and major shopping centers. In future, rail transport will be of great importance in the development of intermodal nodes in Sarajevo, but also in the development of traffic in the area of the Sarajevo Canton and the metropolitan areas of the city. In 2010, the maximum speed of passenger trains in Bosnia and Herzegovina was 70 km/h, while the speed of the cargo rail was 60 km/h.

The city of Sarajevo with its function of work encourages daily labor mobility from the environment to the city, which implies socio-economic and other changes in the environment. The function of work and urbanization of the city environment are closely related. According to Cekic, (2005), an analysis of the number of suburban passengers towards the center of Sarajevo has decisive importance for the planning of urban transport. The daily movement of the population is directed from the place of residence to place of work, or to a place used for providing or performing recreation. During the 24 hours, the population density of the city greatly changes: during the day it is higher in commercial and industrial zones, while at night it is higher in residential areas. On the example of the Sarajevo city region in Table 8-2, it is evident that in 2005 most daily commuters, workers, students and pupils were from the Stari Grad municipality (61,654) and from Novo Sarajevo (44,553). (Table 5)
Table 5. Daily commuters in the Sarajevo city region, 2010.

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Stari Grad</th>
<th>Centar</th>
<th>Novo Sarajevo</th>
<th>Novi Grad</th>
<th>Ilidza</th>
<th>Vogosca</th>
<th>Hadzici</th>
<th>Ilijas</th>
<th>Trnovo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stari Grad</td>
<td>61,654</td>
<td>42,735</td>
<td>32,448</td>
<td>27,568</td>
<td>8,207</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Centar</td>
<td>42,735</td>
<td>49,729</td>
<td>42,064</td>
<td>37,920</td>
<td>12,842</td>
<td>3,030</td>
<td>-</td>
<td>720</td>
<td>-</td>
</tr>
<tr>
<td>N. Sarajevo</td>
<td>32,448</td>
<td>42,064</td>
<td>44,553</td>
<td>36,053</td>
<td>14,742</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>N. Grad</td>
<td>27,568</td>
<td>37,920</td>
<td>36,053</td>
<td>54,447</td>
<td>12,842</td>
<td>524</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ilidza</td>
<td>8,207</td>
<td>12,482</td>
<td>14,742</td>
<td>12,482</td>
<td>13,759</td>
<td>2,948</td>
<td>-</td>
<td>131</td>
<td>-</td>
</tr>
<tr>
<td>Vogosca</td>
<td>-</td>
<td>3,030</td>
<td>-</td>
<td>524</td>
<td>-</td>
<td>8,452</td>
<td>-</td>
<td>2,294</td>
<td>-</td>
</tr>
<tr>
<td>Hadzici</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2,948</td>
<td>-</td>
<td>7,862</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ilijas</td>
<td>-</td>
<td>720</td>
<td>-</td>
<td>-</td>
<td>2,294</td>
<td>-</td>
<td>6,551</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Trnovo</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>131</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>33</td>
<td>-</td>
</tr>
</tbody>
</table>

Izvor: Cekic, S. (2005)

5. The distribution of businesses

The variety of functions of commercial-business centers and their involvement in the sphere of social activity with the constant presence of advertising messages in the media affects the intertwining motives of visits to such a facility which in turn can be reflected not only in the economic structure of the city, but also in its traditional public spaces: a street, a square, a market, a park and so on. In more recent years, especially after 1995, in the urban development of Sarajevo we had big spatial and functional changes. Whatever its position in a certain urban hierarchy, each urban settlement exerts influence on its immediate surroundings. In recent years, in Sarajevo began to emerge a new type of urban spatial pattern which is distinguished by the appearance of recognized hierarchical settlements that we surveyed. Our research will focus primarily on the development of urbanization, then on the expansion of new shopping centers in the city center and on the periphery, on the tendency of dynamic and diverse residential construction and renovation of large transport infrastructure. The above mentioned processes strongly influence the contemporary geographical and functional structure of the spatial plan of Sarajevo.

New multi-storey commercial and residential buildings with offices of large financial, IT, trading and other companies are built at the site of old industrial enterprises, small workshops and warehouses. The new urban development of Sarajevo is connected to the other smaller towns in the interconnected urban system where each provides services and products for its environment, the corresponding region and its hinterland. They are accompanied by specialized shops (banking services, legal services, wholesale market, a diverse workforce, extensive public services, car and furniture showrooms, IT equipment stores, etc.). New economic activities entered the earlier industrial zone and changed their structure. In recent years, service activities are strongly developed. Software companies help banks in developing more
efficient, computer-driven banking systems. Tertiary activities accelerated automo-
tive trends and urbanization of the periphery of the city. Strong pressure from foreign
and domestic investors leads to poor quality and illegal construction. The tendencies
of concentration of urban development and construction, accompanied by a steady
increase in the number of cars, have created serious traffic problems in Sarajevo.

In the city center, there are eight shopping centers while in the intersections
of the main city highways and near road junctions there are three shopping cent-
ers. There is a strong concentration of shopping centers in several municipalities of
Sarajevo. These are: Stari Grad, Centar, Novo Sarajevo, Novi Grad, Ilidza, while
there are much less shopping centers in the municipalities: Hadzici, Trnovo, Ilijas
and Vogosca. In Sarajevo, there are two zones of concentration of shopping centers.
The first zone of concentration is in the southern part of the city. There are several
shopping centers, among others: The shopping center Robot, which is located in the
Hrasno area of Sarajevo, was founded in 2002 and covers an area of about 12,000
square meters. (Nurkovic and Gekic, 2009: 594)

In the immediate vicinity of this center there is another shopping center which is
also owned by the group “Robot” and is located in Novo Sarajevo on the road near
the tramlines. It was founded in mid-2007 and covers an area of about 14,000 m². The Robot is the first major shopping center in Sarajevo which was founded in 1999,
and since then it has been in constant development. In 2010, the Robot was employ-
ing 700 workers in Sarajevo and 600 workers in Bihać. It uses around 55,000 m² of
retail space of their own in which it offers a wide range of food and chemical prod-
ucts, home appliances, audio and video equipment, dishes and toys as well as its own
storage space. In Sarajevo, in addition to these two shopping centers, there is also
the shopping center Robot in the Ciglane settlement, founded in 2000 with a sales
area of 9,000 m², and the shopping center Robot in Rajlovac which was established
in 2004 with a sales area of 20,000 m². (Nurkovic and Gekic, 2009: 594) (Table 6)

The shopping center Mercator, was founded in 2003 and has since been on a
constant rise. This center is part of the eponymous company which has its sales of-
fices of various capacities and facilities in Slovenia, Croatia, Serbia and Bosnia and
Herzegovina. The total number of employees is more than 20,000 people, and the
number of employees in Sarajevo is 1,045. The Mercator center differs from other
shopping centers by the ambience. By its space, especially the interior, in which it
houses business content and frequent promotions, it tries to send a message that it
can be a place to meet and socialize, and that shopping can become a special experi-
ence. In the immediate vicinity to the Mercator in Novo Sarajevo, there is also the
shopping center Konzum and several supermarkets. Among others, there is also the
Interex center that was founded in 1999 and uses a sales area of 1,950 m². Today
the Interex is present in 19 cities with 21 outlets, and in the following years Interex
plans to continue developing and to duplicate the leading position in the market. It
employs 80 workers in Sarajevo, and its average sales area is 2,500 m². (Nurkovic
and Gekic, 2009: 594)
Table 6. Shopping and business centers in Sarajevo, 2010

<table>
<thead>
<tr>
<th>Shopping and business centers</th>
<th>Year of foundation</th>
<th>Area</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Robot”</td>
<td>2000</td>
<td>9,000 m²</td>
<td>Hakije Kulenovića bb</td>
</tr>
<tr>
<td>“Robot”</td>
<td>2002</td>
<td>12,000 m²</td>
<td>Azize Šaćirbegović bb</td>
</tr>
<tr>
<td>“Robot”</td>
<td>2004</td>
<td>20,000 m²</td>
<td>Rajlovačka cesta 41</td>
</tr>
<tr>
<td>“Robot”</td>
<td>2007</td>
<td>14,000 m²</td>
<td>Zmaja od Bosne bb</td>
</tr>
<tr>
<td>“Interex I”</td>
<td>1999</td>
<td>3,000 m²</td>
<td>Stupska bb</td>
</tr>
<tr>
<td>“Interex II”</td>
<td>1999</td>
<td>1,950 m²</td>
<td>Kolodvorska 12</td>
</tr>
<tr>
<td>“Mecator”</td>
<td>2003</td>
<td>13,000 m²</td>
<td>Ložionička</td>
</tr>
<tr>
<td>“Mecur”</td>
<td>2008</td>
<td>16,000 m²</td>
<td>Stupska bb</td>
</tr>
<tr>
<td>“Bingo”</td>
<td>2009</td>
<td>12,648 m²</td>
<td>Hadžići</td>
</tr>
<tr>
<td>“Tuš”</td>
<td>2008</td>
<td>9,000 m²</td>
<td>Iliđa</td>
</tr>
<tr>
<td>“Obi”</td>
<td>2009</td>
<td>8,547 m²</td>
<td>Iliđa</td>
</tr>
<tr>
<td>“BBI”</td>
<td>2009</td>
<td>3,355 m²</td>
<td>Stari Grad</td>
</tr>
</tbody>
</table>

Source: Archives of shopping centres, 2010

The second zone of concentration of shopping centers in Sarajevo is in the western part of the city not far from the motorway junction. This zone is dominated by the Konzum. There is also the shopping center Interex with a sales area of 3,000 m². In the immediate vicinity to the Interex is a new shopping center Merkur, founded in mid-2008. This new center uses a sales area of 16,000 m² and has 360 free parking spaces. This center has 100 employees. All trade and business centers have provided large parking lots. After the 1992-1995 war, the European Union has enabled a lot of capital investment and the opening of domestic producers towards the Western European market. Besides general social changes, the process of transition from centrally-planned to a market economy has also brought changes in the economic structure of the Sarajevo region, but also in other regions of Bosnia and Herzegovina (Nurkovic and Gekic, 2009:594)

6. Industrial zone

Industrial zones around the world are an important instrument for encouraging and developing entrepreneurship and the overall economic development of a certain environment. They are established on the basis of the clearly expressed interest between businessmen and local / regional authorities with support from higher levels of government and research and educational organizations and institutions. The importance of these instruments of economic development is demonstrated by the experience of other countries in which their establishment and subsequent management is paid great care and attention. The contemporary economic development in Sarajevo is manifested in specific spatial prospects. Spatial basis for the development
is the increase in production zones in the area of Sarajevo valley (Reljevo-Rajlovac-Brijesce), in the valley of the river Zujevina (the Mostarsko crossroads and Gladno polje), in the valley of the river Bosna (Ilijas) as well as in the less isolated areas near the settlements of Vogosca and Semizovac, and in accordance with a commitment that the future localities are situated along the primary traffic flows, that there is utility infrastructure or that there is a possibility of easier connection to the infrastructure systems. (Table 7)

**Table 7. Industrial zone Sarajevo, 2006**

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stari Grad</td>
<td>2.3</td>
</tr>
<tr>
<td>Centar</td>
<td>9.3</td>
</tr>
<tr>
<td>Novo Sarajevo</td>
<td>12.4</td>
</tr>
<tr>
<td>Novi Grad</td>
<td>443.8</td>
</tr>
<tr>
<td>Grad Sarajevo</td>
<td>468.1</td>
</tr>
<tr>
<td>Ilija</td>
<td>471.4</td>
</tr>
<tr>
<td>Vogosca</td>
<td>43.4</td>
</tr>
<tr>
<td>Hadzici</td>
<td>116.7</td>
</tr>
<tr>
<td>Ilijas</td>
<td>169.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,269.0</strong></td>
</tr>
</tbody>
</table>


7. Areas for recreation and leisure

Comfortable life from the environmental and health aspect and aesthetically acceptable criteria are the determinants of the urban environment which are unfortunately ‘eaten’ by betonization even in the capital of Bosnia and Herzegovina. Public and green spaces that serve as spaces for socialization and recreation in Sarajevo are disappearing and being replaced with concrete construction. The city offers recreational and sporting green areas to residents and visitors, such as Forest Park Mojmilo, Vilson’s promenade (Vilsonovo setaliste), Great Park, Pioneer Valley (Pionirska dolina), Bentbasa and parks within Grbavica or Ali-pasino Polje. Unfortunately, the fact is that in the city core there are not a lot of parks, green spaces, alleys, squares, as well as landscaped urban public spaces. This type of green corridor may be realized in Vilson’s promenade which is the main green artery of the city with occasional branching as is the case at the intersection of Zmaja od Bosne and Hamdije Cemerlica streets. It would be best to plant plenty of flowers, trees and boxwood along the tram route, and the green corridor would continue through the Student Campus of the University of Sarajevo to the railway station. The problem is the lack
of new park areas in the urban tissue, particularly in the western and eastern part of the city of Sarajevo.

8. Conclusion

Changes in the spatial structure of Sarajevo are the result of political, economic and social changes of Bosnia and Herzegovina after its independence. In the period of instability, since the beginning of the war in 1991 to the peaceful reintegration of 1997, there were no major construction interventions in Sarajevo, so all significant changes in the space were created in the past decade. This ten-year period of intensive construction greatly changed the functional structure of Sarajevo. In the functional structure of the city, the most significant is the conversion of industrial land into space for trade, business or residential purposes. This way Sarajevo, which until 1991 developed as an industrial city, transformed into functionally diversified city with the prevailing commercial function. Shopping centers also occupied free spaces in urban surroundings, and there were announcements of the construction of about ten new shopping centers of large areas.

By strengthening the economy, which is primarily a result of the development of secondary and tertiary activities in Sarajevo, the central settlements gradually changed their urban appearance. The degree of urbanization expressed in share of population living in urban areas shows a significant increase in urban population. New transport links have caused the radial expansion of the process of socio-economic transformation of the settlements caused by travel choices. The radial extension of this process is particularly expressed towards Hadzici, Ilijas, Kiseljak, Vosgosca and Pale. It can be said that the transport links in these directions enabled the development of the axis of urbanization and development. In addition to transport links, the satellite towns also contributed to the above mentioned expansion of zones of suburbanization. They are important hubs connected with Sarajevo and have a function of work and their gravitational zones of daily migrations. Consequently, the intensity of transformation of settlements around satellite towns are more pronounced than the intensity of migrations in Sarajevo. This is especially noticeable around Ildizda, Vosgosca and towards Hadzici. Based on these data on the socio-economic transformation of settlements, it can be concluded that the suburbanization of Sarajevo became intense. It is done in a differentiated manner and it is still dependent on daily migrations of employees in Sarajevo. Certainly, satellite towns have an important role in this process. Migration of the population is an important indicator of meaning and attractive force of any city and the value of its environment.

The process of transformation of the functional and spatial structure of the city of Sarajevo in times of economic transition is in line with changes in the functional and spatial structure in certain cities in Bosnia and Herzegovina as well as certain European cities, especially post-socialist ones, primarily in the context of the occurrence and expansion of shopping centers and hypermarkets (especially in the areas...
of former industrial plants), residential construction in the new conditions and traffic problems. Based on the degree of socio-economic transformation and the functional dependence on the city, it is possible to isolate the environment of Sarajevo. The environment of Sarajevo is separated and differentiated on the basis of socio-economic features and functional connections with Sarajevo. It is evident from the level of employment shown by the percentual share of employees in their own economies in the total active population as well as share of commuters employed in Sarajevo.

References