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Public space and urban barriers in Cracow. Analysis of the existing state

Przestrzeń publiczna a bariery urbanistyczne w Krakowie. Analiza stanu istniejącego

Abstract

Over the last twenty years Cracow has been experiencing changes associated with the dynamic spatial development. Together with the demographic growth, mobility patterns, change as well as defining the size and volume of transport. As a result of the process, they are often transformed into the space of the city. Attractive public spaces forming logical, continuous sequences could contribute to a more harmonious, sustainable development and rehabilitation of previously neglected neighborhoods. The article will be presented in the case of the transport infrastructure. These areas will be subject to the availability of the pedestrian public space.

Keywords: urban barrier, urban composition, public space

Streszczenie

W ciągu ostatnich dwudziestu lat Kraków przeżywał zmiany związane z dynamicznym rozwojem przestrzennym – wraz ze wzrostem demograficznym, wzorami mobilności, zmianą, a także określeniem wielkości i wielkości transportu. W wyniku tego procesu są one często przekształcane w przestrzeń miasta. Atrakcyjne przestrzenie publiczne tworzące logiczne ciągłe sekwencje mogą przyczynić się do bardziej harmonijnego, zrównoważonego rozwoju i odbudowy zaniedbanych wcześniej dzielnic. Artykuł przedstawia perspektywę infrastruktury transportowej. Obszary te będą uzależnione od dostępności przestrzeni publicznej dla pieszych..

Słowa kluczowe: bariera miejska, kompozycja urbanistyczna, przestrzeń publiczna

1. Introduction

Each urban layout, besides the structures that form it, consists of uncovered areas, cut out or left in the surrounding tissue. As the research based on the history of urbanism shows, the quality of the space surrounding us depends on its geometrical configuration and on its designing principle [5, 20]. The proportion between built fabric and open spaces has been a subject of numerous researches and spatial analysis. The space syntax theory introduced by B. Hillier explores, among others, the relation between the street network and pedestrian movement, showing the importance of density and connectivity [13]. Urban density in particular in German cities has been measured in a recent paper by Angelika Krehl et.al, where some observations concerning the intensification of the city centres in terms of buildings and human activities were made [21]. According to K.Clifton et al., characterisations of the urban form often concentrate on the quantitative aspects, while the quality of the built environment depends on the humans interpretations and cannot be measured directly [6].

The perception of the city as described by Kevin Lynch in his classical work takes place mainly in the public space – the street, the square or the crossroads [22]. These elements of the urban tissue play a significant role in shaping the form of the city. As J. Clos[1] observes, "The proportion of urban areas dedicated to streets and public spaces is a crucial feature of the spatial plans of cities. Indeed, cities that have adequate street and public spaces and greater connectivity are more liveable and productive"[39]. However, the observation of a contemporary city often leads to a conclusion that well-designed, liveable open public spaces are not a common phenomenon, especially in less central locations. The quality and spatial configuration of urban design has been proven to play an important role in promoting pedestrian mobility. Recent years show a growing number of studies related to the walkability of urban environments, conditions of accessibility and pedestrian preferences [2, 29, 33]. Several conclusions can be found in the work of R. Talavera-Garcia, who states: "cities are commonly understood rather as 'multimodal spaces' (where planning should be orientated towards mobile population) than as compact developments (where planning are related to residential population). In this context, walking must not only be circumscribed to specific areas into cities, but walking should be present in places which have not been initially conceived for them" [38, p. 3–4].

Therefore, this work addresses the following questions: What is the present state of the areas adjacent to transportation routes in the city of Cracow? To what extent does the transportation route constitute an urban barrier that affects pedestrian traffic?

The general aim of this study is to provide a preliminary look into the existing state of selected areas in terms of the shape and functioning of public spaces. In the part of the paper dedicated to the case study, the Author focuses on several locations. They were chosen on the basis of criteria referring both to the location and the functions of the space. The fundamental selection principle is the location within the vicinity of car traffic routes identified in the planning documents as essential for the city and its current functioning, as well as its future

[1] Executive Director of UN-HABITAT and UN Under-Secretary-General.

development. Another condition is the location within the perimeter of the city centre or the presence of the urban tissue or defined development layouts. In the categories of the function, an important factor is the presence or documented plans of the location of public spaces or structures in the direct vicinity. In a situation where the existing or transformed transport infrastructure comes into contact with an urban structure, an examination of the relations between these elements may provide information on the currently implemented directions, tendencies, and possibilities of shaping public spaces in the city outside its strict centre.

2. Cracow. Planning Conditions at the Turn of the 21st Century

Cracow has a defined urban structure of the historical Old Town, the geometrical order and characteristic quarter layout, which is responsible for the attractiveness of the city equally with its architectural heritage. The next areas, developed in different historical periods according to the then conditions or requirements, as it is the case in most towns and cities, represent considerable diversity in terms of the architecture itself, as well as its urban disposition. During the processes of extension and growth of the city, former suburbs were becoming new districts, shifting the administrative limits further from the historically developed city centre. The last significant growth of the area took place in 1951, when under an administrative decision, Nowa Huta, designed as a separate town, and its neighbouring villages, were incorporated in the surface area of Cracow[2].

Today, the dynamic development processes of the substance of the city, as well as suburban areas, have a significant effect on its form and function, too, changing e.g. its demographic structure, population density, and space use patterns. This development – similarly to other towns and cities in Poland – takes place according to gradually prepared local plans and administrative decisions defining development conditions. As of today, resolved and valid plans cover nearly half of the area of Cracow[3]; nevertheless, at the same time, the works on resolving new plans are accompanied by quite an opposite process: filing complaints and revoking decisions. This led to a situation where in 2013, the area of the city covered with valid plans was larger than two years later, in 2015 [44]. An obvious fault of the existing planning system is the fact that the whole process is stretched over time; individual, often adjacent plans are drawn up in intervals of even several years, or simultaneously, by different external units. That may lead to a fragmentary approach and to the lack of cohesion. The situation of Cracow is not so unique against the background of the spatial planning practice in Poland in general; on the contrary, for decades now, a vast majority of towns and cities have been through the long process of drawing up and resolving fragmentary local plans.

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2 Corrections of the limits of Nowa Huta were introduced also later, e.g. in 1986, when Węgrzynowice and Wróżenice were incorporated to it [36].

3 Since 12 April 2017 150 local plans are in force, covering 49.3% of the surface area of Cracow. Since 26 April 2017 another 170 local plans have been developed; although some of them duplicate parts of the plans which have already been resolved, as it is demonstrated on the collective map. So far, limits of administrative units demarcated in the Study have not found any reflection in the delimitation of new plans [47].

From the urban planning perspective, each selected case represents a different situation. Some of them have valid local plans that cover the area fully or partially. The examination of existing documents and studies[4] reveals that the border between plans or separate units is often drawn along main roads. That implies that the neighbouring areas surrounding transportation nodes are subject to different conditions and regulations. In terms of legal possibilities of shaping and transforming certain fragments of the city, roads can potentially constitute a barrier.

3. Systems of public spaces – accessibility

In terms of the existing public spaces, the zone of the historical urban tissue constitutes a certain pattern, in which the form of the space constitutes natural frames for social activities like walking, meeting or even being part of artistic events[5]. The concentration of services, including the growingly important tourist services, secures a constant inflow of users. Beyond the strict heart of the city, but still within the limits of the historical urban structure, the role of leading public spaces is usually played by streets with easily accessible ground floor housing service outlets. The sequential character and natural continuity in the case of historical layouts[6] are usually disturbed in areas of development reaching back to the second half of the 20th century and later [9, 12]. This phenomenon is particularly visible in places dominated by architecture erected over the last 30 years. We can still observe a growing number of fenced housing estates, where shared areas are limited to passages and access roads to individual buildings. This system of creating new structures has a negative effect on many aspects of the functioning of adjacent areas, depriving their users of convenient access to services, recreational grounds, or public transport, which may evoke social tensions and conflicts [18, 32]. Limiting physical accessibility of some areas and creating barriers implies the need to use car transport to the detriment of pedestrian and cycling traffic, which are marginalised today, especially in structures that are extensive in character [2, 10].

[4] The Study of Conditions and Directions of Spatial Development for the City of Cracow currently in force, amended in 2014 and covering the entire city, is not a formal legal document, although its provisions are valid for all drawn up plans, which theoretically should guarantee a determined level of cohesion. As the basis for further provisions, it proposes a division into 63 structural urban units, each furnished with guidelines referring to possible and recommended directions of transformations.

[5] Most of all the Old Town and Kazimierz, as well as other areas until the so-called second ring road that surrounds the city erected in the 19th century.

[6] Legible also in the oldest, social realist part of Nowa Huta.

4. Transport systems – barriers

The historical development of the city in the concentric zone model resulted in the creation of a system of ring roads, the first of which[7] encircles the city centre, repeating the course of the former city walls[8]. In the early 19th century, fortifications constituted a much undesirable barrier, hindering spatial development and the necessary reconstruction; therefore, they were disassembled, and, in the area obtained this way, a municipal park was designed, which, at the same time, constitutes a symbolic opening of the so far fortified system. Today, the first ring road of Cracow is also an important border for individual car traffic, which is much calmed within the very heart of the city, and the main traffic, also subjected to considerable limitations, takes place along its course, where routes of the public transport run, as well. Another transport line, defined as the second ring road of the city, plays an important role in the municipal transport system. It consists of streets with two carriageways and at least two, but most often three lanes in each direction. It surrounds the city built in the 19th century, as well as the old part of Podgórze, Zabłocie, and areas located to the east of the diagonal railway.

The oldest part of the route is Aleje Trzech Wieszczów, avenues built in the 1930s in the place of the liquidated ring railway line [36]. Over several decades, they became the basic route leading around the city centre. The principle of relieving the city centre and limiting the transit route on the second ring road is inscribed in a number of strategic tasks in the field of the transport system. Nevertheless, it still not implemented, because Aleje Trzech Wieszczów avenues still play the role of an access road to the complex of the main railway station and the regional coach station, which form an extensive transport and service hub located at the verge of the Old Town. Due to considerable traffic and the parameters that need to be satisfied in relation to it, the course of the second ring road can constitute an obstacle for the local pedestrian and cycling traffic, which will be examined hereinafter.

5. Analysis of selected cases

The criteria provided above are satisfied in the fullest way by areas located along the current second ring road, especially along its section located in the city centre. In a situation where the existing or transformed transport infrastructure comes into contact with an urban structure, an examination of relations between these elements may provide information on the currently implemented directions, tendencies, and possibilities of shaping public spaces in the city outside its strict centre.

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7 As defined in the Study in force, it is formed by the sequence of streets: Straszewskiego, Podwale, Dunajewskiego, Basztowa, Westerplatte, Św. Gertrudy, and Podzamcze.

8 Similarly to the situation in e.g. Vienna, Tallinn, or Frankfurt.

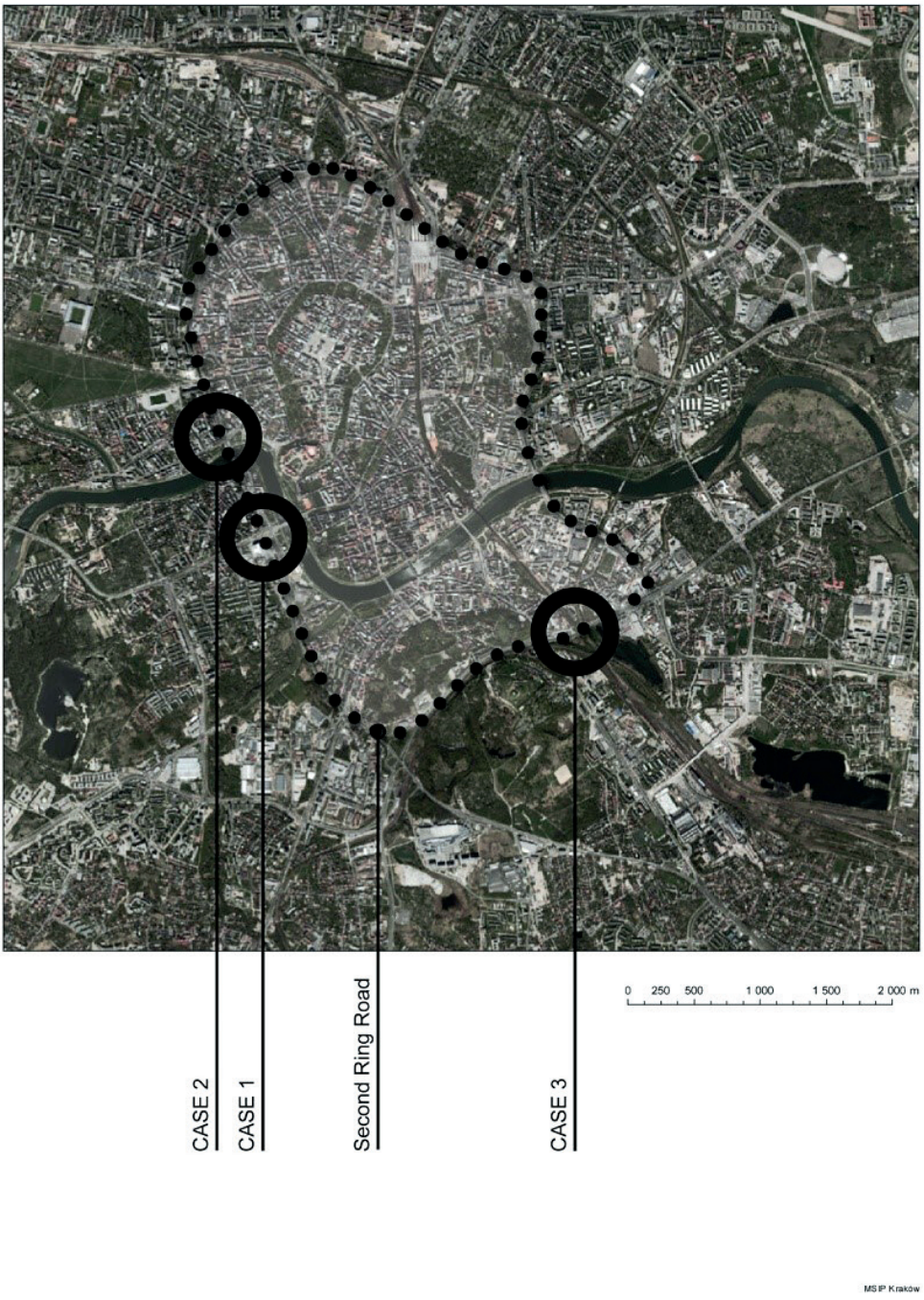

Fig. 1. The Scheme of Selected Cases
(source: Author's drawing on the basis of maps available at: [48]

Case 1

On the left bank of the Vistula, opposite the Wawel Hill in the area, which, in the Study, is defined as belonging to the city centre, there is a two-level interchange of Konopnicka street with a route that runs towards the west. Due to the heavy traffic, the Grunwaldzkie roundabout and road sections adjacent to it may constitute a barrier for the pedestrian traffic in this area. This barrier is even greater due to the fact that its effect is reinforced by the conditions of this location, in the oxbow, nearly on the very bank of the river, which, for ages, has constituted a natural limit for the development of the city. The village of Dębniki, reaching back to the medieval times, was incorporated to the administrative limits of the growing Cracow in the early 20th century, but it was the construction of the Grunwaldzki Bridge in the 1970s that finally linked both banks of the Vistula together, contributing to a considerable increase of traffic, as well. Over the last decades, this area has obtained many investments, important in the scale of the entire city. Starting from the Manggha Museum of Japanese Art and Technology, located between Konopnicka street and the Vistula boulevards, through modern hotels, to the Congress Centre erected in 2014[9], the characteristic edifice of which dominates the space, these structures fulfil the role of public utility buildings.

The public spaces that accompany them are predominantly small sections of squares, or slightly extended sidewalks. The key role in the analysed area seems to be played by the sequence of the Vistula boulevards, which, especially in the area of the Wawel castle, is an important place of recreation, leisure, entertainment, and sometimes it becomes a stage for mass events. The links, grasped in the categories of pedestrian use, between fragments of important spaces located further on from the river bank, can be defined as faint. A small number of pedestrian crossings, located predominantly within the perimeter of the main interchange, makes it difficult to cross the route in the direction of the east – west, as well as north – south. Pedestrian routes are long, and choosing them is connected with a number of inconveniences, such as the waiting time at the traffic lights, the proximity of intensive traffic, noise, exhaust fumes, no protection against atmospheric conditions, which automatically makes a pedestrian occupy the category of a worse, or less important user. The function of car traffic is executed in the form of roads of several lanes and two-level interchanges. The car traffic, predominantly transit in character[10], and public transport lines, as well as the form of the transport hub comprising exits to the tunnels and underpasses, create a real barrier, which hinders the combined functioning of fragmentary and separate spaces, or even makes it completely impossible.

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[9] Also designed by the studio of Ingarden and Ewý. Naturally, the list of structures provided herein is not closed or complete. One should mention e.g. the building of the once luxury Forum Hotel, located on the southern bank, in the oxbow of the Vistula (designed by Janusz Ingarden, implementation 1978-1989), which for many years shaped one of the most representational skylines of the city with its dynamic form. Today, only its small part is utilised. Hotel rooms are empty, vast banquet halls on the ground floor house restaurants, fair and exhibition spaces. This informal situation is actually very favourable for the space that surrounds the hotel, which along with the nearby municipal beach constitutes a popular and attractive place.

[10] Marii Konopnickiej street is a main road according to the classification contained in the Study currently in force, which predestines it to be burdened with heavy traffic. The Grunwaldzkie roundabout is one of the key hubs of the existing road system of Cracow, as well as the one designed in the perspective of the decades to come [46].

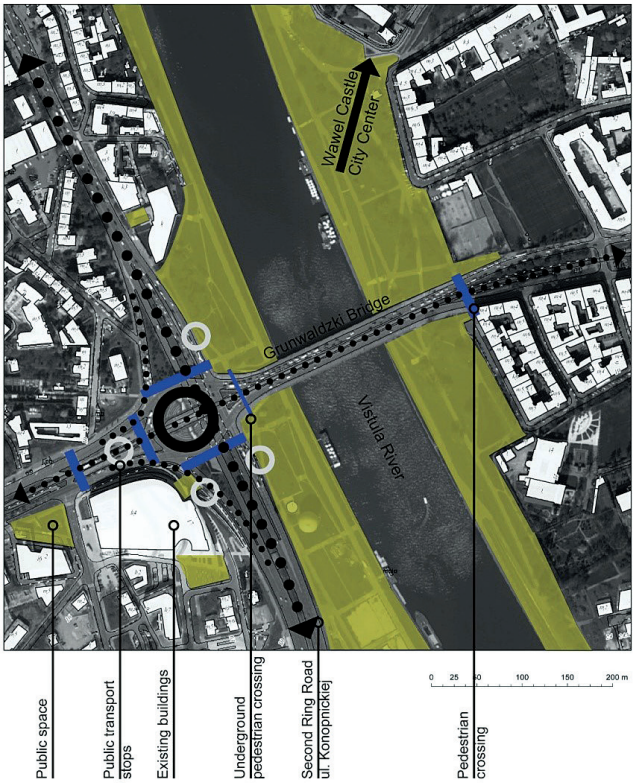

Fig. 2. The Scheme of Case 1
(source: Author's drawing on the basis of maps available at: [48]

Fig. 3. Views of the Existing State
(photos by K. Dudzic-Gyurkovich)

Case 2

Remaining in the course of the second ring road, heading towards the north, we approach the city centre. The area in which a number of important directions meet or intersect is located at the exit of the Dębnicki Bridge, on its northern side, in the place where Aleje Trzech Wieszczów avenues begin. And here, again, the part of the Vistula boulevards in the oxbow of the river, enjoying the southern exposition and the view of the Wawel Hill, should be regarded in the categories of the most vital space. The nearby square with a tourist information point[11] and a temporary coach stop decide about a close relation with the sites most often visited by tourists, located in the heart of the city. Barges moored at the river bank, housing restaurants, coffee shops and clubs, additionally improve the attractiveness of this space in the summer season. The first barrier for high social activity is the line of Zwierzyniecka and Kościuszki streets, but the role of the barrier is ascribed to them rather due to the lack of interesting, well-developed spaces on the northern side, narrow sidewalks, and temporary, chaotic kiosks and

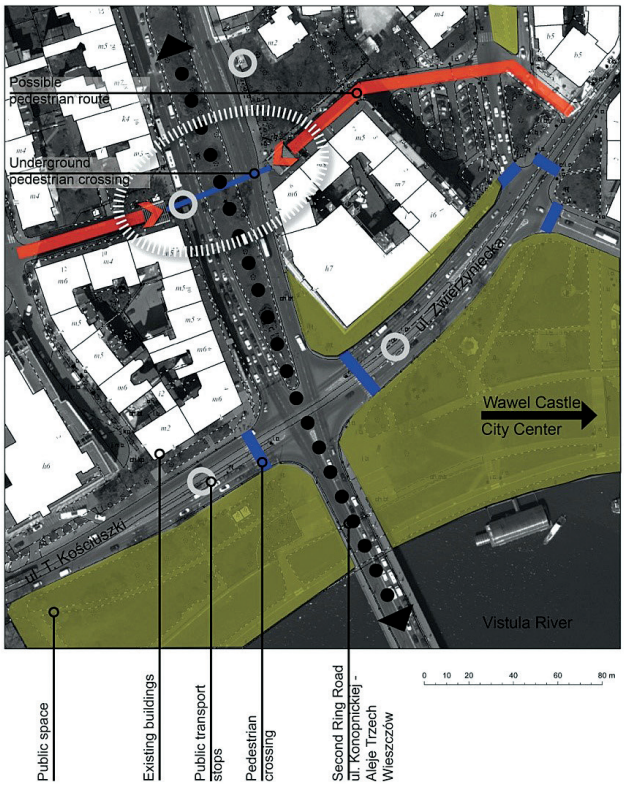

Fig. 4. The Scheme of Case 2
(source: Author's drawing on the basis of maps available at: [48]

[11] Both the square and the building embedded in the ground were designed by imb asymetria [49].

Fig. 5. Views of the Existing State
(photos by K. Dudzic-Gyurkovich)

food stalls, obscuring the potential values of the interiors[12]. Another barrier, this time closely connected with the road transport, is very noticeable. It is created by the route of the second ring road, discussed herein. On the section of ca. 700m, there is only one pedestrian crossing, and it is an underpass. It is not located within the perimeter of the interchange, but further on towards the north, and is functionally connected with the stops of public buses.

When identifying existing public structures and spaces besides the aforementioned boulevards, an observation arises that there are relatively few of them, considering the fact that they are located in the city centre; furthermore, they are not interconnected to form some legible system. Organisation of different types of traffic in its present form points to the priority of the car transport, and simultaneously the pedestrian traffic is restricted to sidewalks and passages. Arranged urban spaces in the understanding of social places, fostering staying and spending free time there, are almost exclusively located to the east from the Zygmunta Krasińskiego avenue, which determines the way of the functioning of the neighbouring spaces in the area in question.

Case 3

The southern part of the second ring road of the city runs across areas with a much less intensive development compared to the northern route, located in the city centre. Podgórze was incorporated in the administrative limits of Cracow relatively late – only in 1915. During World War II, a Ghetto was located there, and the reminiscences of those times are still visible in the oldest part of this district[13]. Structured architecture was developing along the main street in the form of a semicircle, limited from the south with the land relief, and from the north and

[12] The green walking lane of Retoryka street is finished when it reaches a makeshift car park, which today is Kossaka square, and does not find its natural continuation, e.g. in the form of pedestrian crossings, or broadened sidewalks, which could lead towards the boulevards or the city centre.

[13] These are e.g. the remains of the Ghetto wall.

the east with the course of the Vistula river and of the diagonal railway [26]. As late as until the end of the 20th century, the old Podgórze remained a district degraded to a considerable extent, developing in the shadow of the central parts of the city. Over the last years, it is possible to observe a high dynamisation of the gentrification processes, initiated and supported by new residential, cultural, and infrastructural investments [34]. Gradually, buildings and spaces are subjected to revalorisation, sometimes obtaining new functions corresponding to the changing needs of city residents, as well as tourists, who visit this area in constantly growing numbers. These phenomena are clearly visible in the historical, northern part of the district, and partially also in the post-industrial part of Zabłocie, located to the east from the railway line.

The analysed fragment is located at the border of compact quarter development, the legible limit of which is still the course of the intersecting railway lines. Along the line running to the west, there is a road[14], which constitutes a component of the aforementioned southern part of the second ring road. The location of its intersection with the route running towards the south is a very important element of the road system of the city, and in the future, it is to fulfil the role of one of the most important transfer nodes. The construction of a rail link, completing the system of the Fast Metropolitan Rail [42], has been indicated as one of the prioritised municipal strategic investments in terms of the transport system. A massive two-lane railway trestle bridge, which is at the final stage of construction, constitutes a new, aggressive landmark. Besides it, in the area in question, there is a big interchange, a road over a trestle bridge, and a small bus station. The existing buildings along Limanowskiego street[15] and on the eastern side of the tracks, as well as the greenery complex linked with the historical part of the Podgórski Cemetery[16], juxtaposed with the entire extensive infrastructure, lose their significance as elements forming the structure of the city.

Arranged urban public space is particularly difficult to identify here. It seems that Limanowskiego street, which has potentially high architectural and compositional values, does not have any continuation, or even a proper closure in the area in question. On the contrary, the closure of the view corridor could be regarded as a quite accidental one. Each of the transport routes constitutes a very clear and noticeable barrier, which can be overcome by pedestrians only within the perimeter of the interchange by means of consecutive crossings, requiring haste or waiting on small traffic islands dividing the lanes. It seems that the completion of the planned railway stops, and consequently, further extension of the transport node may only legitimise the dominance of the car transport over the pedestrian and cycling traffic. The possibility of a continuation of clearly defined, attractive open spaces has been squandered.

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[14] Category of the main road according to the Study [46].

[15] Including a historic complex of a baroque inn, located at the corner of Limanowskiego and Powstańców Śląskich street [36]. This complex is connected with a public space planned by the city; it is not known, however, what its character is going to be [43].

[16] Partly destroyed during the World War II, and finally in the 1970s during the construction of the then Telewizyjna street, today Powstańców Śląskich street [36].

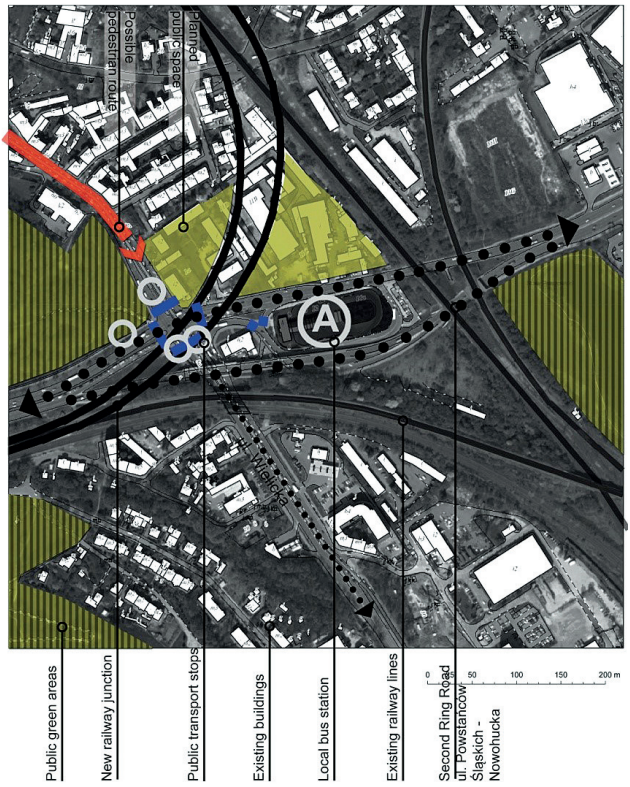

Fig. 6. The Scheme of Case 2
(source: Author's drawing on the basis of maps available at: [48]

Fig. 7. Views of the Existing State
(photos by K. Dudzic-Gyurkovich)

6. Summary

On the basis of the analysis of several selected situations where the transit car transport comes into contact with the urban tissue, several conclusions can be drawn with reference to the morphological structure, as well as to the functioning of space. In the analysed cases, transport systems dominate the areas in terms of the space they occupy, which usually exceeds the share of the public space. Roads and interchanges, junctions, acoustic screens and other elements of the infrastructure that accompany them, create powerful spatial barriers in the scale of a pedestrian, which contribute to the fragmentation of the tissue, as well legitimise and perpetuate the existing divisions. In the situations in question, transport routes usually maintain their continuity and logical course; systems of public spaces and pedestrian routes are adjusted to the conditions imposed this way. The functioning of public spaces in the direct vicinity of much frequented and well-developed roads is considerably limited by the existence of 'dead edges', by the lack of a sense of security, as well as by the accumulation of unfavourable factors, such as noise and exhaust fumes, or excessive exposition to weather conditions connected with the time of waiting for a crossing. In each of the locations discussed herein, a transport route creates a barrier in an urban scale, which, in its current form, limits the possibilities of creating sequences of public spaces, which might complete the already existing, although fragmentary, system.

Contemporary examples of projects relating to the integration of the transport infrastructure in the city, implemented globally for the last 20 years, clearly demonstrate the pursuit for attractive pedestrian spaces, which may create an integrated network comprising a considerable part of the city. Areas until recently occupied or dominated by road transport are transformed so that the pedestrian traffic and activities connected with it could be ascribed greater importance. The most radical solution, encountered e.g. in cities in America, consists in the elimination of a freeway, which constitutes a barrier, and replacing it with a local road, as well as a new arrangement of the released space taking social needs into account[17]. In Europe, where both urban systems and transport routes that accompany them have been subjected to different processes, this model does not seem to be applicable. The existence of freeways is necessary for the efficiency of the contemporary urban system, and traffic accessibility decides about the economic competitiveness to a considerable extent in the global context [19].

The relation between transport systems and the urban tissue and their mutual multi-faceted links are of a functional as well as compositional character, as the course of roads constitutes one of the most durable elements of the structure affecting the spatial disposition and form of architectural development [3, 12]. A solution, which is more and more often applied, is the aforementioned integration of transport systems and their accompanying infrastructure with the urban tissue, maintaining the previous courses of roads and their capacity[18]. As is demonstrated by numerous European and global projects, a barrier in an urbanised area, which most often is a much-frequented transport line, may be considerably

[17] This course of action was undertaken in e.g. San Francisco, Portland, and Milwaukie, and these cities became 'case studies' for many further planned and postulated projects [50].

[18] The opportunities of development of public space systems along the existing elements of the second and third ring road of Cracow are pointed out by e.g. K. Bojanowski [4].

weakened, and its unfavourable effect annulled by appropriately selected architectural measures. Many examples of such measures are to be found in e.g. Barcelona, were, for decades, there have been transformations of degraded areas performed, which also comprise the land occupied for the purposes of transport [8]. Transformations, which result in the creation of an attractive pedestrian space, are characterised by a diversified extent of interference into the barrier itself; they always bring about, however, new compositional and functional directions, enriching the space of the city and inscribing in the existing or planned systems. Strengthening the network of public spaces by means of creating new belts or nodes may become one of the tools of building the postulated cohesion of the city.

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