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## PROBLEMS OF CREATING SPATIAL ORDER OF BUILDING DEVELOPMENT IN POST-AGRICULTURAL AREAS

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### PROBLEMATYKA KSZTAŁTOWANIA ŁADU PRZESTRZENNEGO ZABUDOWY NA TERENACH POROLNYCH

#### **Abstract**

An increase in the popularity of suburban areas as places of residence has triggered dynamic development of such areas in recent years. This resulted in mass designation of previously agricultural land for housing development. Suburban areas with typically agricultural land parcellation are not prepared for adopting building development structures of urban character without an interference into their parcellation structure. In a situation of sporadic application by communes of the procedure of land consolidation followed by secondary division for the purpose of preparing future investment land, the real estate economy becomes based on individual divisions. A lack of the right regulations in local development plans does not permit control of the progressing building development. As a result, urban sprawl occurs, and the resulting structures largely deviate from the rules of spatial order.

**Keywords:** building development, spatial order, spatial planning

#### **Streszczenie**

Wzrost popularności obszarów podmiejskich jako miejsca zamieszkania pociągnął za sobą w ostatnich latach dynamiczny rozwój zagospodarowania tych obszarów. Skutkiem było i jest masowe przeznaczanie pod zabudowę mieszkaniową terenów dotychczas użytkowanych rolniczo. Obszary podmiejskie o typowo rolnej parcelacji gruntów nie są przygotowane do przyjęcia struktur zabudowy o miejskim charakterze bez ingerencji w ich strukturę parcelacyjną. W sytuacji sporadycznego wykorzystywania przez gminy procedury scaleń i ponownych podziałów w celu przygotowania przyszłych terenów inwestycyjnych, podstawą gospodarki nieruchomościami stają się indywidualne podziały. Brak odpowiednich regulacji w miejscowych planach zagospodarowania przestrzennego nie pozwala na kontrolę rozwijającej się zabudowy. W efekcie dochodzi do rozlewania się zabudowy, a powstające struktury są dalekie od zachowania zasady ładu przestrzennego.

**Słowa kluczowe:** planowanie przestrzenne, rozwój terenów zabudowy, ład przestrzenny

## 1. Introduction

An increase in the popularity of suburban areas as places of residence has triggered a dynamic development of such areas in recent years. This resulted in a mass designation of previously agricultural land for housing development. Suburban areas with typically agricultural land parcellation are not prepared for adopting building development structures of urban character without an interference into their parcellation structure. The suburbs remain a sphere of urbanisation dependent on the inventiveness and financial potential of private investors, existing networks of technical and communications infrastructure, and land parcels that have not been ordered and adapted to urban planning by the procedure of land consolidation followed by secondary division of real estate [3]. Land management in conditions of the free market has relented a dash of private investors. The habitable built is rises without respect to planner arrangement which complement becomes a chaotic road system. Developer Installation is based on high-intensity building (terraced or twin buildings) and range communication system [8]. Residential, service and industrial functions replace agriculture, largely interfering with the natural environment or landscape. In the event of a major urban village environmentally-space problem is the destruction of identity. Using the directory architecture in conjunction with the division geodesic characteristic divisions in the country - created unreadable and chaotic urban landscape [8]. Such changes lead to the intensification of blurring the boundaries between urban and open landscape, and to the loss of the compact character of urban complexes in favour of an unspecified formation neither constituting a city, nor a suburb, nor a village [11].

It is worth emphasising the scale of transformations for building purposes. Impulsive suburbanisation – “urban sprawl” causes constant, violent growth of European urban areas at the expense of agricultural land and nature, disproportionately great in relation to the slight increase (or stabilisation) of the number of residents [1]. According to the results of balances of the designation of land pursuant to the binding studies of conditions and directions of spatial development of communes, the estimated demographic capacity ranges between 167 and 229 million people. The situation is similar in the case of local spatial development plans. Throughout the country as at the end of 2012, they allow for inhabitancy of 62 million people [12] in the conditions of approximately 30% cover with binding local spatial development plans in Poland. According to the authors of the report, a large portion of the land designated for building development does not meet the basic requirements for investments. The communes cannot afford its proper preparation. In Polish conditions, the procedure of land consolidation and secondary division for the purpose of preparation of future investment land is sporadically applied by communes, whereas self-governments are obliged to provide the land subject to consolidation and division with necessary water supply, sewage, and road infrastructure facilities at own cost. The majority of communes are not interested in such a solution, particularly due to the financial consequences [9]. In such a situation, individual divisions become the basis of property management. Lack of the decision on land consolidation and detailed rules of division in local spatial development plans does not permit control of building development. As a result, urban sprawl occurs, and

the resulting structures strongly deviate from the rules of spatial order. The result is chaos in forms of building development and architecture of urban complexes [16].

In the literature concerning the issue of suburbanisation and problems of building development, research particularly focuses on the issue of urban sprawl, economy of development of such areas, and destruction of environmental, landscape, and cultural values. Issues related to the comfort of life and safety of current and future residents is rarely investigated. Contemporary urban transformation is an effect of many economic and social processes in the modern world. One of them is globalisation. The process is currently considered as the main driving force behind the global economy. Also, globalisation is a combination of many different processes – including urbanisation [7]. Its effects are important for the space, economy, and most of all – for the society [4]. It is worth notice that spatial order, constituting the basis of spatial planning, also refers to the social sphere<sup>1</sup> aiming at satisfying the needs of current and future generations. Moreover, one of the main tasks of commune self-governments is the protection of the health of residents with consideration of the requirements of safety of people and property. Unfortunately, spatial order exhibits increasing spatial divisions or “quartering” of the city between elite citadels, new locations of the gentry, a suburban city, a tenement city, and an abandoned city [5]. Such a city is no longer the result of, or even influenced by, formal, spatial and structural ideals. Urban planning and urban design have little if any influence on this process of urban development and change [2]. According to Lanconte, among the ten key areas in which sustainable urban development can be addressed are include transportation, environment, health and social affairs [6]. Riddell also refers to the place of residence giving some recommendations for improving upon the general economic substance, the social wellbeing and the urban environments which comprise community living places [10]. Therefore, striving for the sustainable development of suburban areas, we should equally focus on creating a friendly and safe place of residence through a relevant shaping of parameters of building plots and their transport accessibility, so that they create functional structures of residential districts. It is therefore worthwhile tracing the spatial policy of communes in terms of the rational development of built-up areas and directions of transformations occurring in the areas of building development.

## 2. Materials and methods

The selected study area covered three communes in the suburbs of Warsaw, namely Milanówek, Brwinów, and Michałowice (Fig. 1), representing three different administrative types, i.e. urban commune, urban-rural commune, and rural commune. The selected communes are located in the direct zone of influence of Warsaw, on the course of the city’s railway lines. Therefore, they are a popular direction of the settlement of the population and high urban pressure. Moreover, research on communes of different administrative types and

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<sup>1</sup> Spatial order is space development creating a harmonious whole and featuring ordered relations considering all functional, socio-economic, environmental, cultural, and composition-aesthetic conditions and requirements [24].

good accessibility from a metropolitan city provides the possibility of referring the study results to other suburban areas of Polish cities.

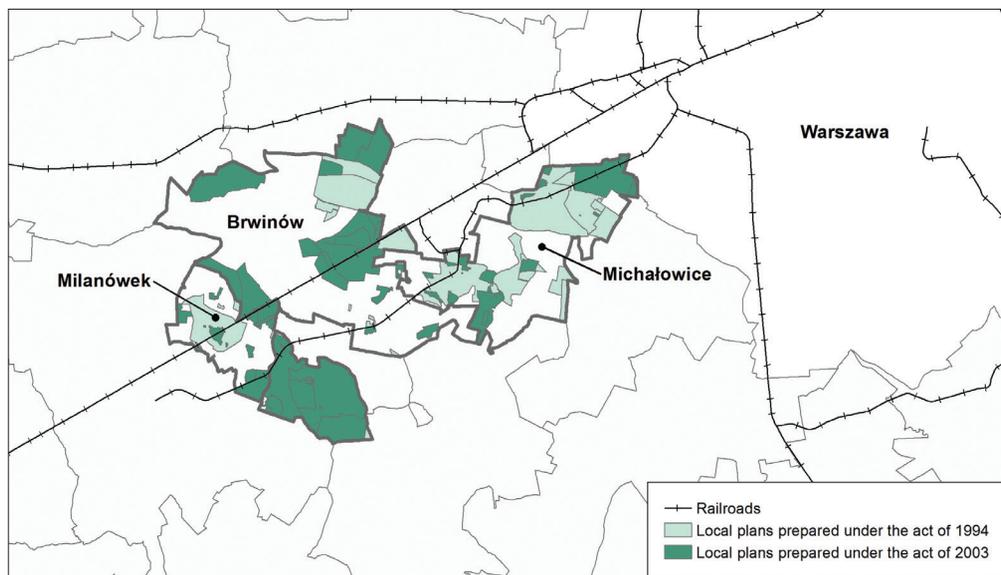


Fig. 1. Selected communes in the Warsaw Metropolitan Area together with boundaries binding in the local plans (source: own elaboration)

The first part of the research involved the analysis of planning documents of the selected communes – studies of the conditions and directions of spatial development, and binding local spatial development plans, in terms of identification of areas requiring land consolidation and secondary division, and detailed specifications for divisions into building plots and transport routes. This provided the basis for the preparation of a statistical representation of the cover of the study area with planning documents, and the scope and degree of detail of planning regulations included in such documents.

The second stage of the study involved the assessment of the spatial structure of the existing building plots based on the adopted criteria. The assessment concerned selected local plans designating new land for single-family housing development and adapting the structure of land division in an unchanged state. The criterion of selection of the study areas was also the condition of observable changes in development resulting from planning regulations that can be subject to assessment. With the application of ArcGIS software by ESRI, plots not meeting the adopted conditions were selected (the conditions are described further in the article). The analysis results provided the basis for the identification of areas with conditions unfavourable for the development of single-family housing, leading to the development of uncomfortable residential district structures.

### 3. Planning situation of selected communes

Pursuant to the binding act on spatial planning and development, the study on the conditions and directions of spatial development (study) constitutes the basic document at the commune level specifying in a general way the spatial policy and directions of development of the commune<sup>2</sup>. The specification of the purpose of land, distribution of public purpose investments, as well as ways of development and conditions of building development of land is included in the local spatial development plan [24] (local plan), constituting local law. Apart from the aforementioned documents, the act also introduces the instance of decision on the conditions of building development, and decision on the location of public purpose investments – administrative decisions prepared in the case of lack of a local spatial development plan for the purpose of specification of ways of development and conditions of building development of land. This article focuses on the analysis of provisions of local plans as documents aiming at a coordinated specification of spatial policy. Pursuant to Polish law, planning documents such as studies and local plans prepared under the act of 1994 [25] are still binding. The fact is very important for the discussion on the problems of creating a friendly residential environment. Pursuant to the requirements of the act of 1994, the scope of provisions required in documents was different than the currently binding one.

Pursuant to the legal requirement, all of the studied communes have binding studies of the conditions and directions of spatial development. Studies of all the described communes were prepared under the act of 1994. Only the Milanówek Commune is preparing an amendment of the study in accordance with the currently binding act. It is worth emphasising that the act of 1994 does not mention the necessity of indication of areas requiring land consolidation for the purpose of preparing land for building development. Pursuant to the currently binding act, the study identifies areas requiring land consolidation and division for which it is obligatory to prepare the local spatial development plan. The analysed studies of communes do not indicate any areas requiring consolidation and secondary division. Even a rough visual analysis of the structure of division of land for building development suggests that land consolidation and secondary division is necessary.

As mentioned above, local spatial development plans, constituting local law, are the main document at the commune level specifying the purpose of land and conditions of its building development. Due to this, in order to coordinate land development pursuant to the directions of development adopted in the study, they should cover the largest possible area of communes. The cover of selected communes with binding local spatial development plans is presented in Fig. 2. The analysed communes are covered with local plans in 43% to 60%.

Although the degree of cover is higher than the mean index at the scale of the country, the situation is dissatisfactory. In the Michałowice Commune, 42% of the area is covered with plans prepared under the act of 1994, and in the Milanówek Commune – 22%. This

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<sup>2</sup> The study is not an act of local law. The determinations of the study are binding for the commune authorities in the preparation of local plans [24].

constitutes half of all of the analysed plans. Pursuant to the requirements of the act of 1994, the arrangements of rules and standards of building development and land development, or rules and conditions of land division into building plots were determined depending on needs. In view of the currently binding act, obliging communes to determine such regulations, this leads to the situation of existence in the legal system of documents regulating the same issue in a different scope or degree of detail.

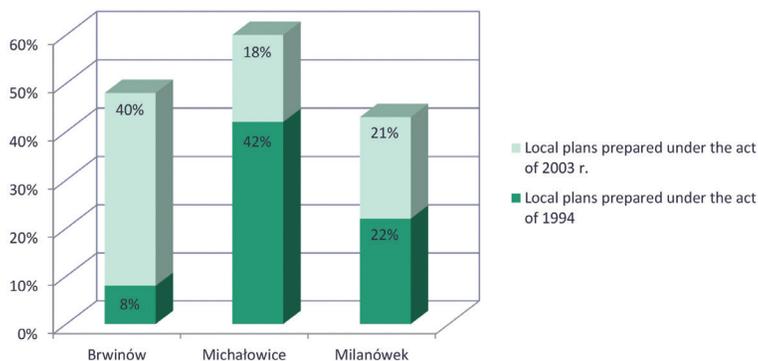


Fig. 2. Cover of communes with binding local spatial development plans (source: own elaboration)

The analysis of the completeness of the provisions of the binding local plans was performed in reference to requirements of the currently binding act on spatial planning and development and the implementing document of the act [14]. In spite of the concurrent validity of local plans prepared based on different legal regulations, referring their arrangements to currently binding provisions is justified for two reasons. Firstly, plans prepared under the old act could be amended adjusting their provisions to new requirements. Moreover, the scope of the required regulations in the binding act corresponds to the needs of the rapidly progressing development and necessity to control the spatial order of building development. In accordance with the subject of the article, the analysis of provisions of binding local plans was performed in terms of designation of land requiring consolidation and secondary division, as well as regulation of detailed parameters of building plots. The research covered all local plans of selected communes where land for housing development was designated – a total of 75 local plans.

First, the analysis covered the identification of land requiring consolidation and secondary division in the studied local plans. As was established before, studies of communes do not identify land for which undertaking such measures is necessary. The issue is also marginalised in local plans. The analysis results are presented in Fig. 3. Only two plans identified land for which consolidation and secondary division should be performed. Notice, however, that no obligation was stipulated, but only the possibility of applying such a procedure<sup>3</sup>. The remaining plans included provisions on lack of necessity to perform consolidations, or the issue was completely omitted.

<sup>3</sup> For agricultural land or undeveloped land designated for building development in the plan, it is recommended to perform consolidation of the existing plots and secondary division into building plots on request and cost of the owners [21].

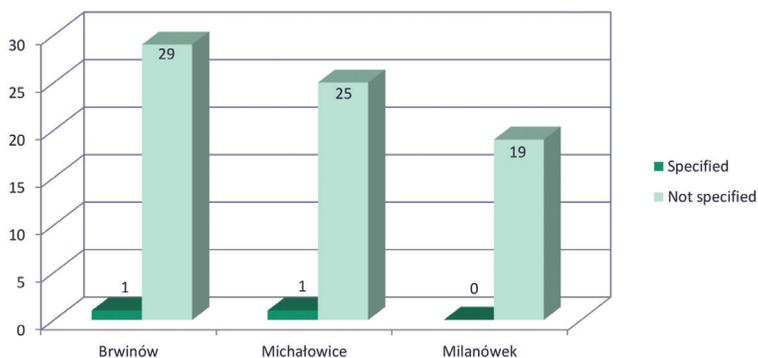


Fig. 3. Comparison of local plans in terms of identification of land requiring consolidation and secondary division (source: own elaboration)

Next, the analysis concerned the conditions of land division into building plots. The act on spatial planning and development imposes the obligation of specifying detailed rules and conditions of property consolidation and division. Regulation [14] determines their scope in more detail, stipulating the obligation to specify the width of fronts of plots, their surface area, and angle of the location of the plots in relation to the road<sup>4</sup>. Results of analyses of particular specifications are presented in Figs. 4, 5, 6. According to the results of the analysis, the minimum width of fronts of plots was specified in the majority of local plans. Four plans stipulated no such specification. The maximum width of new building plots was not regulated in 99% of plans. Only one plan includes such a provision. Lack of specification of the width of plots directly affects the spatial order of the resulting building development. Failure in regulating both minimum and maximum widths results in plots with unfavourable proportions and location in relation to roads. The effects of lack of such regulations are presented further in the article. The situation is much worse in the case of minimum and maximum surface areas of new building plots. The minimum surface area was specified in only 41% of the plans, and regulation of the maximum surface area of plots was omitted in all 75 analysed plans. It should be remembered that the surface area of a plot in combination with the width of its front directly affects the proportions of the plot the proper regulation of which shapes the spatial order of building development. It is also important that in many plans, in spite of regulation of particular issues, ambiguous provisions often appear, leaving a lot of freedom for investors to adjust such parameters to their own needs. This concerns both the change of the width of fronts of plots<sup>5</sup> and their surface area<sup>6</sup>. The angle of the location of

<sup>4</sup> Specifications concerning detailed rules and conditions of land consolidation and division should include the specification of parameters of plots obtained as a result of land consolidation and division, and particularly minimum or maximum widths of fronts of plots, their surface area, and angle of location of boundaries of plots in relation to the road belt [23].

<sup>5</sup> Widths of the front of plots resulting from the division other than those determined above are accepted under the condition that the dimensions of the plot resulting from division allow for the provision of pedestrian and road access, and for location of building objects in accordance with separate provisions, keeping the specifications of the plan concerning the biologically active surface [20].

<sup>6</sup> It is accepted to reduce the minimum plot surface area specified above by not more than 20% in cases justified by complicated conditions of location of investments on particular properties or in their vicinity [19].

plots in relation to the road belt was specified in less than 30% of plans. A major part of the plans including such a provision adapted the current plot layout without interfering in their orientation<sup>78</sup>. This type of provisions does not properly shape the spatial order of building development. Located on plots at an acute angle, it cannot form coherent building lines. The fact of the specification of the angle of the location of plot boundaries in accordance with the actual state at an acute angle suggests the necessity of regulation of the plots for the purpose of ensuring appropriate investment conditions.

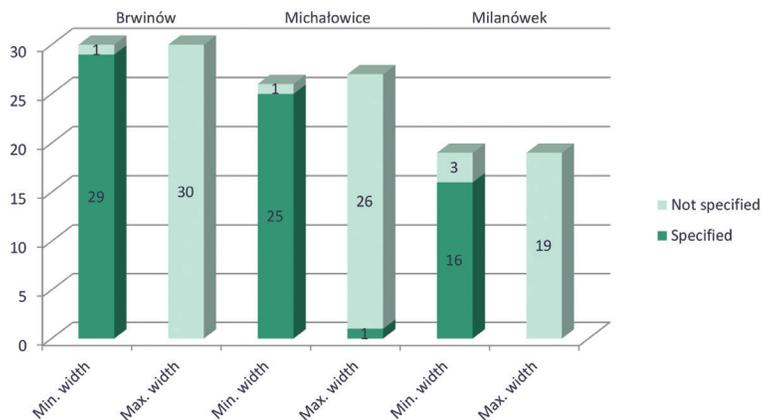


Fig. 4. Comparison of local plans in terms of specification of the width of fronts of building plots (source: own elaboration)

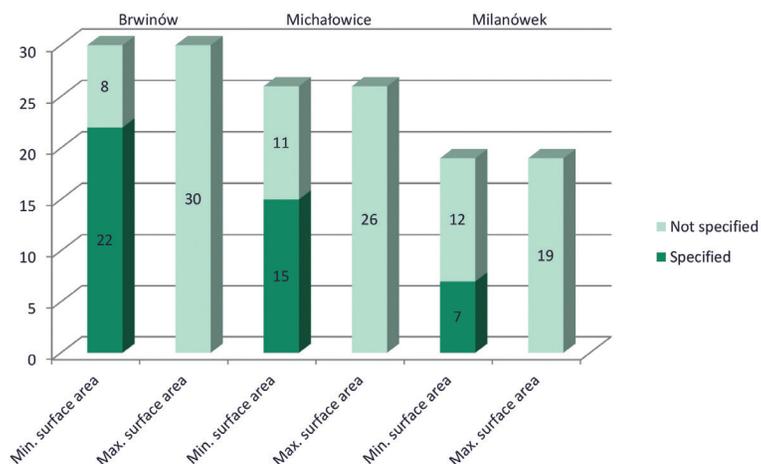


Fig. 5. Comparison of local plans in terms of specification of the surface area of building plots (source: own elaboration)

<sup>7</sup> Angle of location of plot boundaries in relation to the line designating the road: from 60 degrees [17].

<sup>8</sup> Angle of location of plot boundaries in relation to the road belt of the Pruskowska Street: from 50° to 130° [20].

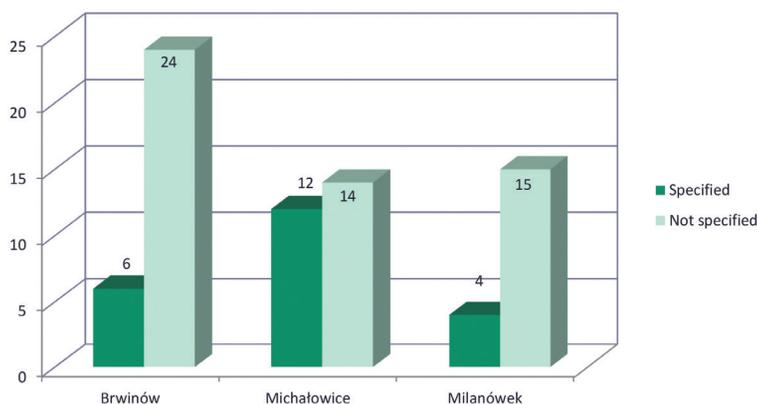


Fig. 6. Comparison of local plans in terms of specification of the angle of the location of boundaries of building plots in relation to the road (source: own elaboration)

To sum up this part of the analyses, the scope of specifications concerning building plots is not satisfactory. The issue of land consolidation and secondary division is marginalised. Many plans include provisions permitting land consolidation and division adjusted to the needs of plot owners. This suggests lack of detailed analyses of the parcellation structure of the land at the stage of preparing plans. Failure to identify land requiring regulation of the spatial structure of plots, and leaving the decisions to private owners does not ensure the spatial order of building development. The situation is similar in the case of regulation of land division into building plots. Many specifications in the plans depend on the ownership situation adapted in an unchanged state. The fact of omitting certain specifications results from the impossibility of their determination without land consolidation and secondary division, as evidenced further in the article. Parts of regulations corresponding to the current state of land development lead to the intensification of spatial chaos instead of ensuring spatial order. The scope and way of formulating planning specifications in the analysed plans suggest a lack of interest of communes in the improvement of the conditions of building development, and a lack of understanding of the need to obtain a spatial order. Communes focus on “producing” new investment land without incurring costs related to land consolidation and secondary division.

#### 4. Assessment of the parcellation structure of investment land

The assessment of the spatial structure of building plots covered one local plan for each commune. The selection criterion was the designation of land for single-family housing development in the plan, and commenced implementation of divisions and investments pursuant to the provisions of the plans. The assessment concerned not entire plans, but only fragments the degree of investment of which was possible to assess based on the adopted criteria. Figure 7 presents land selected for assessment. The analysis covered a total of 875 plots from three local plans (605 in Żółwin in Brwinów Commune, 166 in Komorów in Michałowice Commune, and 104 in Milanówek).

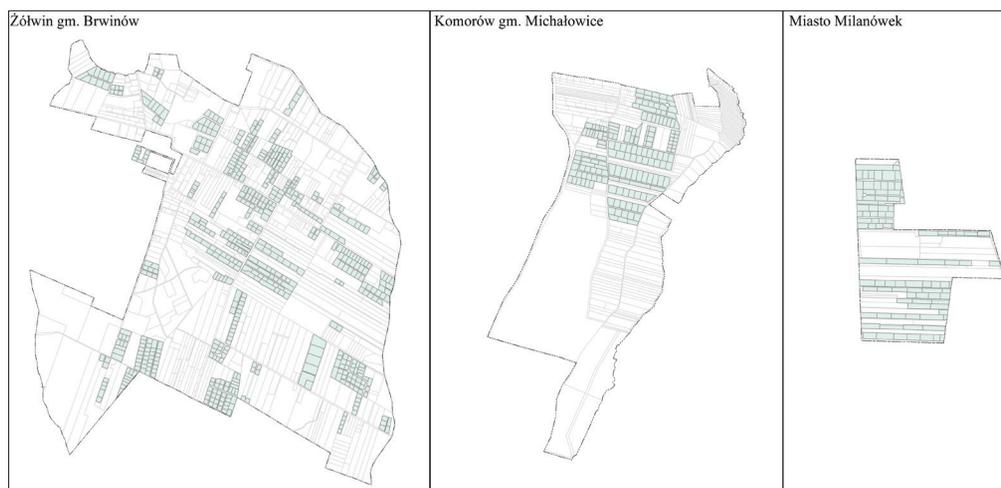


Fig. 7. Selected building plots subject to analysis (source: own elaboration)

For the purpose of assessment of building plots in terms of conditions they provide for building development, the following criteria were adopted:

- ▶ the building plot is accessible by an internal road not regulated in the plan, not meeting technical requirements for public roads;
- ▶ the building plot is oriented with its longer side towards the road;
- ▶ the building plot has unfavourable elongation making its development difficult.

Pursuant to the provisions of Polish law, both a newly designated land plot [23] and any building plot [13] must have access to a public road. Transport accessibility of built-up plots is also necessary for the comfort of their use by residents and ensuring access for order services, particularly emergency services. Provision of comfort and safety is related to the technical parameters of roads. In a situation of lack of implementation of land consolidation and secondary division, designing the development of the transport network is very difficult. It usually involves the purchase of land belonging to many owners. Moreover, lack of coordination of building development on narrow agricultural fields often makes it impossible to design an efficient transport system. In such a situation, communes frequently forgo the designation of public roads in local plans, making the transport accessibility of plots dependent on internal roads. This also results from the fact that communes do not want to bear the costs of construction of public roads constituting public purpose investments. Such a solution, however, has two serious drawbacks. Firstly, provisions specifying parameters of roads, guaranteeing the comfort of their use and safety, refer to public roads, excluding internal roads<sup>9</sup>. Secondly, pursuant to decisions of administrative courts, the designation of the course of internal roads in a local plan can be exclusively indicative, and cannot constitute a specification of the plan. Due to this, internal roads constructed by private owners within their own plots remain entirely dependent on the decisions of investors both in terms of

<sup>9</sup> Roads, cycling paths, parking lots, and areas dedicated for vehicle traffic not included in any category of public roads and not located within the road belt of such roads are internal roads [22].

their course and parameters. The analysis of the selected plots assumed that pursuant to legal provisions, internal roads should have a width of at least 5 m<sup>10</sup>, and in the case of a dead end of a road providing access to more than four plots, also a turning area. The second condition was determined based on provisions concerning public roads<sup>11</sup> and experience of the author of this article. Results of the analysis are presented in Figs. 8, 9.

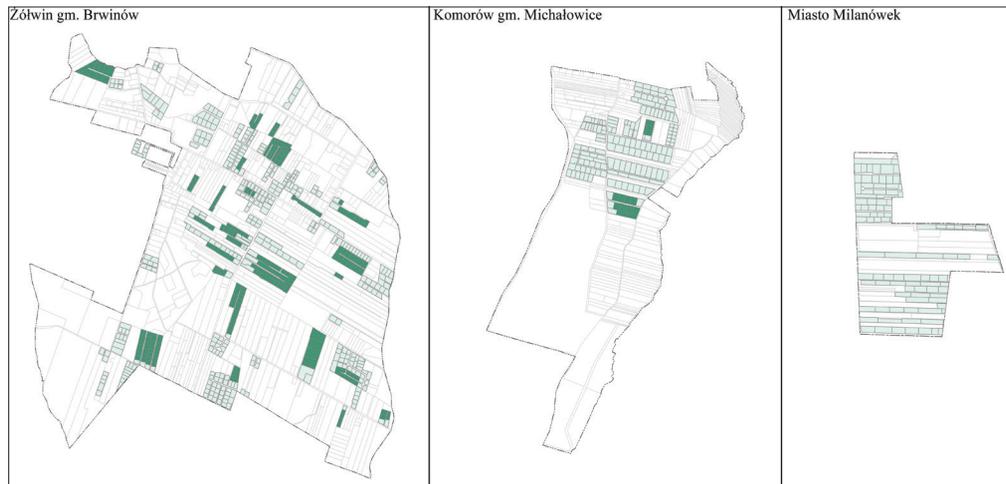


Fig. 8. Building plots accessible through private internal roads not meeting technical conditions (source: own elaboration)

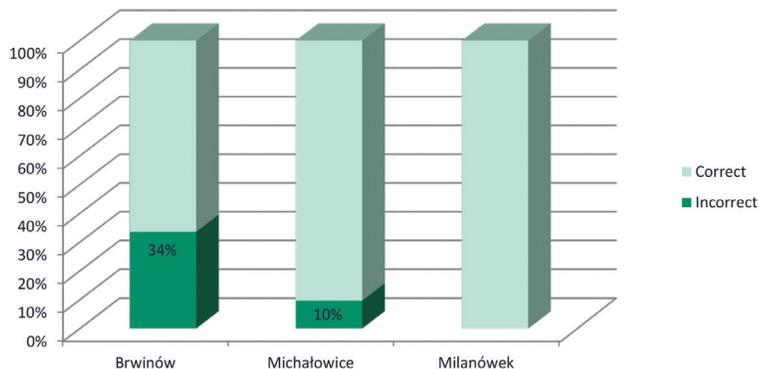


Fig. 9. Comparison of building plots accessible through private internal roads not meeting technical conditions (source: own elaboration)

Among the analysed plots, 25% feature transport system not meeting the conditions. This concerns as much as 34% of newly designated plots in the Brwinów Commune. This results from the fact that apart from several main public roads, the transport system in the

<sup>10</sup> It is accepted to provide pedestrian and road access to building plots in the form of a lane for pedestrian and motor traffic under the condition that it has a width of not less than 5 m, enabling pedestrian traffic and movement, as well as parking of vehicles [13].

<sup>11</sup> In the case of a dead end of a class L or D road, a turning area is constructed for vehicles [15].

local plan of the Brwinów Commune is based on the system of private internal roads. In spite of the indicative specification of their course in the plan, including manoeuvring areas, their designations on land are different. This results from the causes listed above. It is also worth emphasising that in the majority of cases, the roads met the condition of width (although roads with a width of less than 4 m also occurred), but the majority of them did not have a manoeuvring area at the end. It is of high importance from the point of view of access of order and emergency services to built-up areas. The use of roads with a width of 5–6 m and length of approximately 350 m (often providing access to approximately a dozen building plots) is very difficult, and often impossible due cars parking on the road. They also make it impossible for large vehicles of e.g. Fire Brigade to turn around within the area of the road. Road congestion can be therefore a serious safety threat for residents of new districts. Moreover, too narrow roads often make it impossible to provide technical infrastructure, usually located within the road belt.

The second aspect not regulated by any legal provision and resulting from good urban planning practice is the orientation of the building plot in relation to the road. For the purpose of ensuring a zone of intimacy and rational development of a plot, it should be oriented with its shorter side to the road. This provides for the following pattern: front garden along the road with a parking space for cars in front of the garage, residential building, and garden at the back of the house ensuring privacy. Unfortunately, adapting a typically agricultural layout of plots for building development purposes in many cases makes such development impossible. Largely elongated plots with a width of a dozen or several tens of meters, divided across into building plots, force a different layout. For this purpose, communes should specify the minimum and maximum width of the front of plots in local plans. As was evidenced in the earlier analyses, the specification of the minimum width of plots in the analysed plans is common, but the maximum width is completely disregarded. This results from the fact that in the case of imposing the maximum front of plots and their minimum area, it would be impossible to designate plots meeting such conditions. The result is the orientation of plots with largely elongated sides towards the road, as presented in detail by results of the performed analyses in Figs. 10, 11. More than 30% of the analysed plots have improper orientation, whereas only in Milanówek they constitute more than 87% of the analysed plots. The designated plots include those with a front width exceeding 60 m and length of approximately 20 m. Due to such orientation, gardens are located on the side of the house on the road, largely limiting privacy. Moreover, the unfavourable parameters of plots determine the architecture of buildings which also need to be elongated towards the road, negatively affecting the harmony of building development and landscape values.

The elongation of a plot is closely related to its orientation and surface area. It informs on the ratio of length to width. As was determined above, a plot should be oriented with its shorter side to the road. The proper ratio of sides is equally important. It determines the comfort of use of the plot. Both the value of the width of the front and elongation must be adjusted to the type of implemented building development – detached or semi-detached. The study focused on detached housing development as the dominant type in the analysed area. The model elongation of such plots is 1:2 (two squares), providing favourable conditions of



use with simultaneous maintenance of rational parameters of plots in the context of spatial order. The analysed plans determine the minimum width of building plots for 20 m and minimum surface area for 1000–1500 m<sup>2</sup>. The maximum front of plots or their maximum surface area was not specified. The analysis adopted the maximum front of plots of 30 m and the surface area specified in the local plans. The assumed parameters provide elongations from approximately 1:1 to 1:3. Elongation of more than 1:3 was adopted as unfavourable. The results of analysis based on the adopted criteria are presented in Figs. 12, 13. 6% of all plans do not meet the condition. In Milanówek, the contribution is 24%. This results from the considerable elongation and low width of original plots, and minimum surface area specified in the plan for 1500 m<sup>2</sup>. In the Brwinów and Michałowice Communes, plots were more proportionate, and the minimum width of building plots determined in the local plans amounted to 1000 m<sup>2</sup>, and in some cases to 800 m<sup>2</sup>. It is worth paying attention to the occurring extreme elongations, e.g. 1:6 in Milanówek. Such parameters are desirable in the case of agricultural plots, but they provide no comfort of use of built-up plots. The obtained

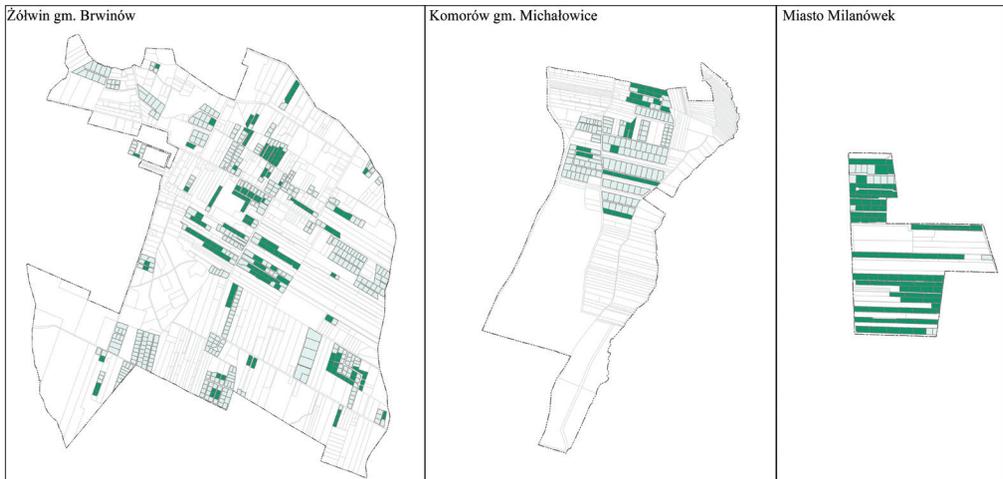


Fig. 10. Building plots oriented with the longer side to the road (source: own elaboration)

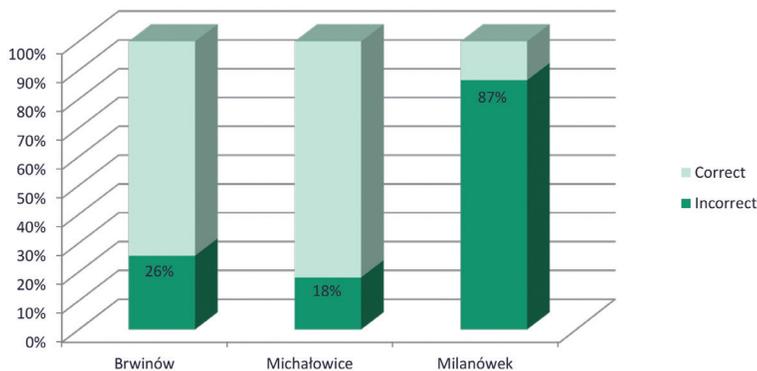


Fig. 11. Comparison of building plots oriented with the longer side to the road (source: own elaboration)

results were also compared to results of the analysis based on other values of the criteria, i.e. approximate to model values – below 1:1.5 and above 1:2.5. Only 33% of all of the analysed plots are approximate to model ones. This shows a considerable variability of elongations of plots in the study area. In addition to the comfort of use, it also has a substantial effect on the harmony of building development which cannot be maintained in a context larger than building development located along one internal road.

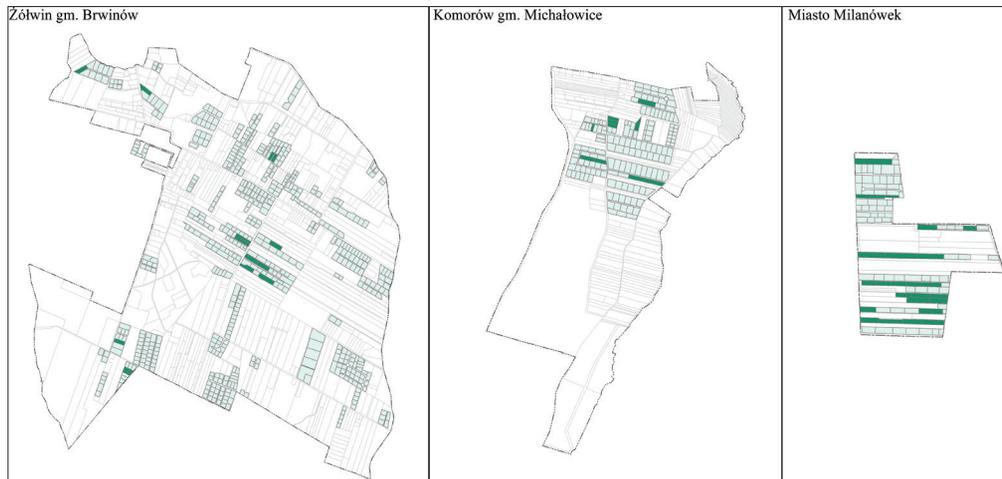


Fig. 12. Building plots with excessive elongation (source: own elaboration)

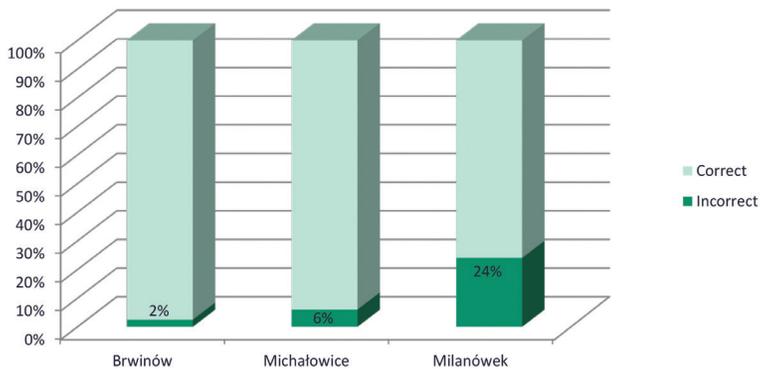


Fig. 13. Comparison of building plots with excessive elongation (source: own elaboration)

## 5. Summary and conclusions

To sum up the results of the analyses, a statistic of plots not meeting one or more criteria was obtained. The results are presented in Figs. 14, 15.

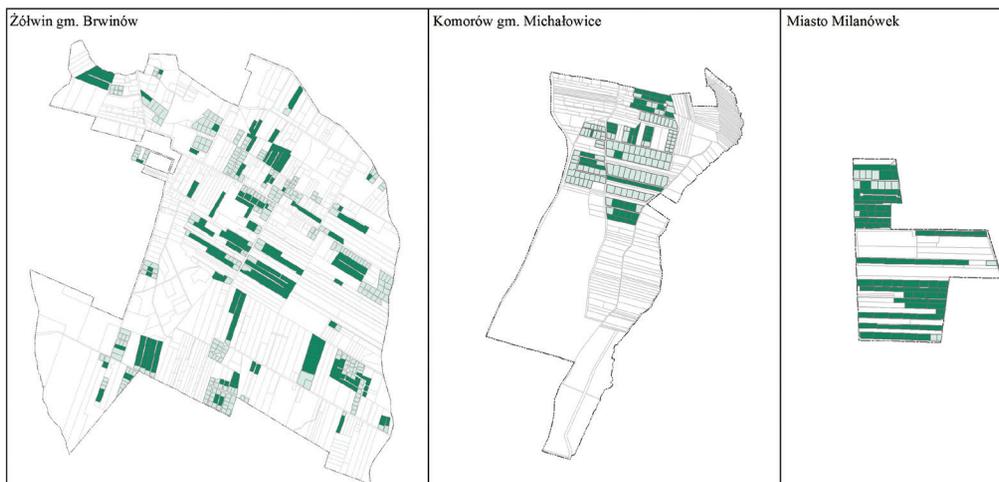


Fig. 14. Building plots not meeting the adopted assessment criteria (source: own elaboration)

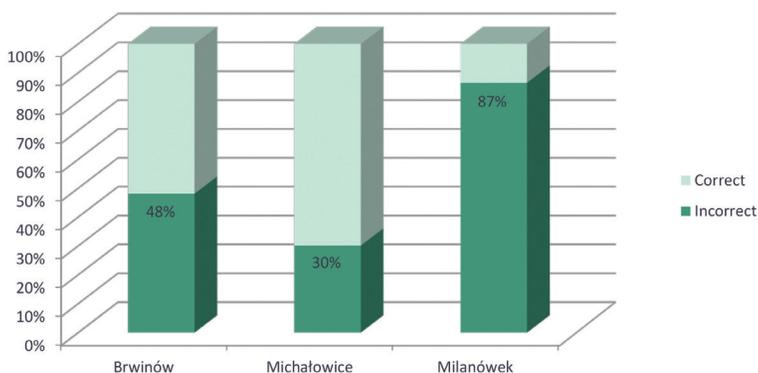


Fig. 15. Comparison of building plots not meeting the assessment criteria (source: own elaboration)

Almost half of the plots do not meet at least one of the specified conditions (87% in Milanówek). Considerable differences are observed between particular towns. This results from differences in the scope of specifications stipulated by particular local plans and original structure of land subject to division. In the Brwinów Commune, plots designated for building development had more favourable parameters than in the remaining communes, but the transport system was not properly designed. The Milanówek Commune regulated the transport system in a complex way, but lack of consolidation of plots with extreme elongation did not permit the designation of rational building plots. The situation is relatively good in the Michałowice Commune. Building plots here, however, were designated through cross division of two or more neighbouring plots. Whether the plots belonged to one owner or plots of several owners were consolidated and divided at their cost is not known to the author of this article. The example confirms the thesis that performing land consolidation and secondary division is necessary also according to landowners. Moreover, results of the analyses and conclusions for their particular parts present difficulties in the development of plots with improper parameters and transport accessibility. The plots create substandard district structures not providing

a basic level of comfort expected from private investments. The way of development of the area can also cause a threat by obstructing access for emergency services. Finally, it is worth emphasising the fact of the destruction of spatial order and landscape through chaotically implemented divisions and building development. Similar analyses should become the basis for works at the stage of preparation of local spatial development plans in terms of the determination of usefulness of land for housing development. Currently, communes are reluctant to perform land consolidation and secondary division. They only attempt to force the adjustment of plot parameters to ownership conditions to enable building development of new areas irrespective of the effects. This fact is confirmed by analyses discussed in the first part of the article. Omitting certain regulations such as the maximum width of fronts of plots or their surface area results from lack of regulation of land parcellation. Determining all parameters in accordance with the commonly adopted standards would result in the actual exclusion of land from building development. The study shows lack of thorough analyses and understanding of the needs of maintaining spatial order.

## References

- [1] Dylewski R., *Żywiolowa suburbanizacja w świetle raportu Komisji Europejskiej i wnioski dla Polski*, Człowiek i Środowisko 31 (1-2), Poznań 2007.
- [2] Hildebrand F., *Designing the City: Towards a More Sustainable Urban Form*, E&FN Spon, London 2005, (first published 1999).
- [3] Jaworski P., *Niewidzialne przedmieścia*, Autoportret 2/2010 (31), Kraków 2010.
- [4] Keil R., Ronneberger K., *The Globalization of Frankfurt am Main: Core, Periphery and Social Conflict*, [in:] *Globalizing Cities. A New Spatial Order?*, Blackwell Publishers Ltd., Oxford 2000.
- [5] Kesteloot Ch., *Brussels: Post-Fordist Polarization in a Fordist Spatial Canvas*, [in:] *Globalizing Cities. A New Spatial Order?*, Blackwell Publishers Ltd., Oxford 2000.
- [6] Laconte P., *Towards Sustainability in European Cities Contrasts between the Overall Effects of European Union Policies and Achievements at the Level of Individual Cities*, ISOCARP Review no. 8, Netherlands 2012.
- [7] Lorens P., *Współczesne przemiany struktury miast i obszarów metropolitalnych*, Miasto Idealne – Miasto Zrównoważone, Warszawa 2014.
- [8] Małek J., *Historyczne i współczesne uwarunkowania procesów suburbanizacji*, Przestrzeń i Forma, Szczecin 2016.
- [9] Pijanowski J. M., *Systemowe ujęcie planowania i urządzania obszarów wiejskich w Polsce*, Zeszyty Naukowe Uniwersytetu Rolniczego im. Hugona Kołłątaja w Krakowie, nr 509, Kraków 2013.
- [10] Riddell R., *Sustainable urban planning: tipping the balance*, Blackwell Publishing Ltd, Oxford 2013.

- [11] Zieliński M., *Świadoma i nieświadoma działalność człowieka jako czynnik krajobrazotwórczy*, Teka Komisji Architektury, Urbanistyki i Studiów Krajobrazowych VIII/2, o.L. PAN, Lublin 2012.
- [12] Praca zbiorowa, *Raport o ekonomicznych stratach i społecznych kosztach niekontrolowanej urbanizacji w Polsce*, Fundacja Rozwoju Demokracji Lokalnej oraz IGiPZ PAN, Warszawa 2013.
- [13] Rozporządzenie Ministra Infrastruktury z dnia 12 kwietnia 2002 r. w sprawie warunków technicznych, jakim powinny odpowiadać budynki i ich usytuowanie (Dz.U. 2015, Nr 0, poz. 1422).
- [14] Rozporządzenie Ministra Infrastruktury z dnia 26 sierpnia 2003 r. w sprawie wymaganego zakresu projektu miejscowego planu zagospodarowania przestrzennego (Dz.U. 2003, Nr 164, poz. 1587).
- [15] Rozporządzenie Ministra Transportu i Gospodarki Morskiej z dnia 2 marca 1999 r. w sprawie warunków technicznych, jakim powinny odpowiadać drogi publiczne i ich usytuowanie (Dz.U. 2016, poz. 124 z późn. zm.).
- [16] Uchwała Nr 239 Rady Ministrów z dnia 13 grudnia 2011 r. w sprawie przyjęcia Koncepcji Przestrzennego Zagospodarowania Kraju 2030 (M.P. 2012, poz. 252).
- [17] Uchwała nr 528/XLII/14 Rady Miasta Milanówka z dnia 6 listopada 2014 r. w sprawie uchwalenia Miejscowego Planu Zagospodarowania Przestrzennego terenu „Śródmieście” w Milanówku.
- [18] Uchwała nr LI/530/2006 Rady Miejskiej w Brwinowie z dnia 3 lutego 2006 r. w sprawie uchwalenia miejscowego planu zagospodarowania przestrzennego części gminy Brwinów obejmującej miejscowość Owczarnia część I.
- [19] Uchwała nr LIII/539/2006 z dnia 6 marca 2006 r. Rady Miejskiej w Brwinowie w sprawie uchwalenia miejscowego planu zagospodarowania przestrzennego terenu wsi Żółwin oznaczonego jako część II.
- [20] Uchwała nr VII/44/2015 RADY Gminy Michałowice z dnia 12 maja 2015 r. w sprawie miejscowego planu zagospodarowania przestrzennego Gminy Michałowice obszaru „Kamelskiego” na terenie obrębu geodezyjnego Nowa Wieś.
- [21] Uchwała nr XLIV/412/2006 Rady Gminy Michałowice z dnia 13 października 2006 r. w sprawie zatwierdzenia miejscowego planu zagospodarowania przestrzennego Gminy Michałowice obszaru „Komorów” – część VI obejmująca fragment wsi Komorów.
- [22] Ustawa z dnia 21 marca 1985 r. o drogach publicznych (Dz.U. 2016, Nr 0, poz. 1440 z późn. zm.).
- [23] Ustawa z dnia 21 sierpnia 1997 r. o gospodarce nieruchomościami (Dz.U. 2016, Nr 0, poz. 2147 z późn. zm.).
- [24] Ustawa z dnia 27 marca 2003 r. o planowaniu i zagospodarowaniu przestrzennym (Dz.U. 2017, Nr 0, poz. 1073 z późn. zm.).
- [25] Ustawa z dnia 7 lipca 1994 r. o zagospodarowaniu przestrzennym (Dz.U. 1999, Nr 15 poz. 139 z późn. zm.).

