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THE NEW URBANIST PRINCIPLE OF QUALITY OF LIFE FOR URBAN REGENERATION

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Abstract
Quality of life (QOL) is a crucial but complex concept, determined by the insights of multiple disciplines. This paper applies the holistic approach to planning known as New Urbanism (NU) to the analysis of QOL, and argues that this movement should no longer be thought of simply as dedicated to halting urban sprawl, but also as providing guiding principles for the process of urban regeneration within the city. The study therefore aims to verify the relationship between NU principles and QOL, from the perspective of urban regeneration. A comparative study is made of two strategic zones in Roubaix (France) and Lodz (Poland). These serve as physical models in which spatial elements crucial for NU are analyzed. Ways of improving QOL through the application of NU guidelines for urban regeneration are also elaborated. The conclusions have possible practical applications, especially in the case of the site in Poland, Green Polesie, where urban regulations are still being elaborated and the whole process of urban regeneration is only just underway.

Keywords: **Lodz; New Urbanism; Polesie, Roubaix; Urban regeneration; Quality of life.**

1. INTRODUCTION

New Urbansim (NU) should no longer be considered simply as a movement dedicated to halting the chaotic sprawl of American suburbs. It is developing in a multi-directional way: with implications for inner-city design, as an infill development pattern for abandoned areas [1], as an exploration of new modes of spatial dynamics [2], and as a system for expanding existing structures [3]. The renewal of historic urban landscapes is one of the priorities set out in the Charter of the New Urbanism [4]. These principles have been developed in wider research by the author on the influence of NU in post-industrial areas, of which this paper constitutes an important element.

The holistic approach to planning [5] is codified in a number of guidelines, defined by the Congress for the New Urbanism [6].These principles [7] were designed to change the relationship between people and their everyday living spaces [8]. One of the principles of NU, often discussed in the literature, is quality of life (QOL) [9]. The complexity of this principle is that it in some regards includes all the other aspects of NU [10]. In this paper, we therefore examine selected models through the lens of the integrated principals and guidelines formulated at the Congress for the New Urbanism, to show how the principles relating to quality of place also determine the quality of life [11]. The central concern of the New Urbanists is to change lifestyles by changing urban conditions [12], thereby increasing the quality of life of the users in the transformed area. The process of urban regeneration is guided by the notions of liveability and the attractiveness of living in urban environments, which according to New Urbanists can be optimized by applying the principles of walkability, connectivity, sustainable

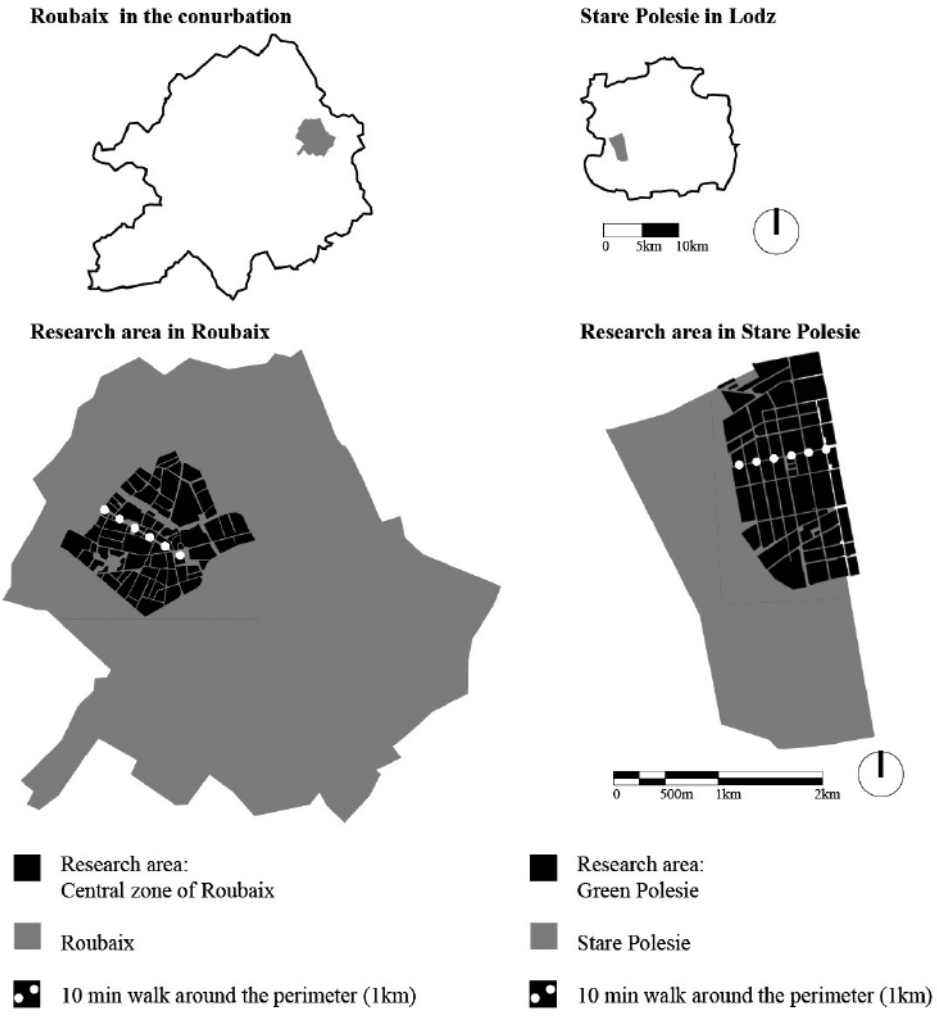

Figure 1.
Delimitation of the research area. On the left: Roubaix site; on the right: Lodz site. Own work, 2018

transportation, density, mixed land use and mixed housing. These key elements are especially important for creating a sense of safety, which is crucial for the revitalization of urban neighbourhoods [13].

The concept of QOL is difficult to define, because it draws on multiple elements from different disciplines [14]. The design qualities mentioned above have therefore been developed into a sort of metrics, which can help to measure this complex notion [15]. The present article focuses on physical models defined through spatial elements crucial for NU. The aim is to verify the relationship between NU principles and QOL in the light of urban regeneration.

2. METHODOLOGY

In this research, a comparative analysis was made of two urban areas in different European countries to reveal the impact of the principles of NU on QOL. The case studies enabled a comparison of particular elements of the urban structure specified by NU, and of their impact on QOL. Areas with an industrial past were selected to exemplify the context of urban regeneration. However, it was also important that the chosen locations functioned primarily as residential districts, not only as closed production complexes, since the purpose was to examine liveability in the perspective of urban regeneration projects.

Studies concerning QOL draw on various disciplines and can be conducted in multiple ways [16], including comparison of objective indicators [17], city rankings

[18, 19] or place ratings [20]. In this study, the indicators were defined based on New Urbanist principles, and analyzed using quantitative as well as qualitative methods. The figures provided in this paper are new calculations, created as part of a study based on documentation from the aforementioned municipal urban offices, the author's own cartography work and lengthy visits to the examined sites. The author lived in both metropolises for several years, and returns on occasion to keep track of developments. Data were collected in collaboration with French and Polish urban planning agencies: Agence de développement et d'urbanisme de Lille Métropole and Lokal Urban Studio in Lodz. The assistance of T. Baert and A. Sokołowska, the respective departmental directors, was invaluable, as were exchanges with J. Aufrere and B. Idzikowski, in France and Poland. In the case of Lodz, the cooperation of Housing Management, responsible for social housing affairs, is greatly appreciated, especially the help of M. Drożdżewicz.

3. EXAMINED MODELS

The first case study is of an area in Lodz – a city in central Poland well known for its industrial past [21]. The analyzed zone is located in the district of Stare Polesie, which adjoins the city centre. This urban structure was created in the middle of the nineteenth century, in response to the need for new investment in Lodz because of the rapid development of the textile industry [22]. Most of the buildings were established over a period of 30 years at the turn of the century, and they survive to this day. Currently, the area is degraded land, as Lodz in general is undergoing a process of significant depopulation [23]. This is why the planned revitalization project, known as Green Polesie, is so crucial. This study concentrates on a zone of around 200 ha in this area (Fig. 1), inhabited by almost 45 000 people, to indicate strategic elements requiring improvement.

The second example is an area in the conurbation of Lille-Roubaix-Tourcoing. This zone is located in the centre of Roubaix (Fig. 1), adjacent to the main city. Roubaix became known at the beginning of the nineteenth century for its booming textile industry [24, 25]. However, after the oil crises conditions in the city deteriorated. Factories closed, there was high unemployment and social problems increased. In order to counteract the rapid degradation of the area, local authorities (the commune and the intercommunality responsible for the entire conurbation of Lille-Roubaix-Tourcoing, Lille Métropole Communauté Urbaine), with significant support from central authorities, decided towards the end of the 1980s to begin a vast revitalization programme. Across an area of around 150 ha inhabited by over 10 000 people, a number of projects were implemented, including the Grand Projet de Centre-ville [26, 27], the Programme National de Renouvellement Urbain, the implementation of a Zone d'aménagement concerté [28] and the creation of a Zone Franche Urbaine. This study does not analyze the revitalization programs themselves, but rather assesses their effects on the urban tissue, in the context of QOL. The conclusions could be of practical relevance for architects and city planners, including those responsible for Stare Polesie, where the process of revitalization is only just under way.

4. DISCUSSION

4.1. Walking though a diverse urban environment

A reflection on a short, 10 min walk around the perimeter of the examined zones first enabled their evaluation in terms of the NU criterion of walkability. The analysis was then extended to the entirety of each zone, with the objective of examining mixed-use and diversity. The functions as well as the forms of the buildings were noted. Finally, the increased density directive of NU was considered.

The analysis of walkability concentrated on the local centre: the axis from the city hall to the train station in Roubaix (along the avenue Jean Lebas), and from the main axis of communication in Lodz north-south (avenue Kościuszki) through the historic market square (plac Barlickiego), ending by the hospital complex (along Zielona Street). The 1 km area was chosen, in each case, as the most representative of the site, under the assumption that if the guidelines of NU were fulfilled there, with time they would become a standard for the rest of the zone (Fig.1&2). Within the selected perimeter in Roubaix, most facilities can be found within the 10-minute walk: offices or housing on the upper levels of tenements, a vast array of retail shops on the ground floor and a significant provision of public and private services, mostly located in impressive buildings, such as the university École Nationale Supérieure des Arts et Industries Textiles (ENSAIT) or the museum (La piscine). The zone in Lodz is also both a residential and commercial area, but the services and retail facilities are less comprehensive (Fig. 3). Even if, in both cases, the buildings close to street are easily accessible by pedestrians, the dimensions of the shopfronts are


Figure 2.
Delimitation of the research area. On the left: Roubaix site; on the right: Lodz site. Own work, 2018


Figure 3.
On the left: La piscine, on the right: Barlickiego Squer. Own work, 2018

restricted in the Polish zone, while in the French case almost all the buildings have large doorways opening out onto the street, welcoming passers-by. In both locations, most of buildings are of historical value. The streets in both areas also still require some improvement, to be made more pedestrian friendly. The greenery in both sites is very limited (in the Polish case, almost non-existent), while cars are parked along the pavements and the streets are busy with vehicles.

At a larger scale, the principle of mixed-use can be discerned in both locations, but in a very specific and not always effective way. Both neighbourhoods are dominated by housing, but in the zone in Lodz this function takes up 83% of the area, which is thus close to becoming a single-use monoculture. In the zone in Roubaix, housing comprises 54% of the area, but is often accompanied on the ground floor by services, which in total constitute 11% of the available space. The share of services, including retail, is alarmingly low at the Lodz site, comprising only 1% of the available space. No doubt, this is a result of the lack of a policy to encourage investors into the area, and may also be explained by the low standard of the existing urban tissue. In Roubaix, the higher ratio of services is due mostly to two factors: one the introduction of a special economic zone, the other the large number of public buildings. Public services in Roubaix occupy 17%, while in Lodz they compose only 4% of the examined area.

Table 1.
Structure of uses. Own work, 2018

	Case study in Lodz	Case study in Roubaix
Housing	83%	54%
Offices	8%	9%
Commercial services	1%	11%
Public services	4%	17%
Industry	4%	9%

However, even in Roubaix, where the process of transformation started long before the regeneration project in Lodz, the negative image of the place has

not been entirely dispelled. In both cases, the share of space occupied by offices is very similar: 8% in Roubaix and 9% in Lodz. Companies rarely choose the Polish zone for their headquarters. This may be a result of the current state of industrialization: in Roubaix 9% and in Lodz 4% of the examined area is dedicated to industry. However, it says much about the general character of the neighbourhoods – which are still not very elegant, which contain significant numbers of empty, abandoned buildings and where substantial open areas remain without a defined purpose.

The issue of abandoned, functionally ineffective areas can also be perceived in a density analysis, which reveals that buildings occupy 33% of the land in the case of the zone in Lodz and 40% in the studied area in Roubaix. These figures run counter to the ideal of a compact district. Moreover, the distributions of the buildings do not correspond to the idea of transect, which recommends a clear and gradual increase in development towards the urban centre. The increase in building intensity towards the local centre is slightly better around the main service axis in the Roubaix location (avenue Jean Lebas) and in the streets around the main square in the Lodz location (plac Barlickiego).

4.2. Public places

The notion of public place draws on several NU principles. The first is connectivity, understood as accessibility through the street grid network, with a gradient hierarchy of streets (narrow interior passages, streets and alleys), taking into account the quality of these connections for pedestrians. The second is the traditional neighbourhood structure, with defined centres, including the local centre. Finally, there is quality architecture and urban design, particularly with regard to the adapting of historic buildings for public use and their integration into a revitalized urban composition.

Although they might look very different, the urban layout is marked in both cases by the cities' industrial pasts (Fig. 4). The Polish site is much more regular than the rather chaotic French grid. However, both were created under time constraints, when industry was growing rapidly. In Lodz, the main street grid network and the public square were designed in a regular urban layout. Not much has changed, with the exception of the historic square (plac Barlickiego), almost the entirety of which has now been built over. The result is that 26% of the area is currently public space, which is comparable to the French case, where the figure is 27%. However, in the French case there are more semi-public spaces and secondary roads and aisles, which subdivide the city blocks, as can be seen in Fig. 4. Moreover, the revitalisation programme in Roubaix was focused on increasing the quality of the streets for pedestrians, especially the main urban axis (avenue Jean Lebas).

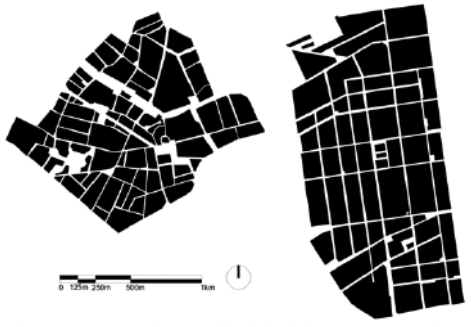

Figure 4.
City block diagrams. On the left: Roubaix site; on the right: Lodz site. Own work, 2018

Focusing on particular components of the public realm, in the examined area of more than 200 ha in Lodz, there is currently no open square. The historic square today still functions as a local centre, but in the form of a market building. In case of Roubaix, the revitalization program increased the quality of the public open areas, and today the square constitutes 8% of the total area of the public spaces in the zone. The renewal of open space has often been linked to the project for re-adapting the historic buildings around the square (Gare-Jean Lebas and Hôtel de Ville). As part of the revitalization programmes, new open spaces were also added in front of significant buildings which have been transformed for use as new public facilities (e.g. La piscine).

Table 2.
Structure of public space. Own work, 2018

	Case study in Lodz	Case study in Roubaix
Place	0%	8%
Street	90%	76%
Greenery	10%	16%

The next component of the public realm, greenery, today makes up 16% of the ground-level public space in the French case. In the Polish case, prior to the full

Figure 5.
On the left: the park in Roubaix. On the right: the park in Lodz. Own work, 2018

implementation of the project Green Polesie, it is currently only 10% (Fig. 5.). Apart from the greenery within the public space, there is also an amount of greenery within the city blocks. However, the quantity of organized and well-maintained greenery in Lodz is insignificant, while in Roubaix the total defined greenery is more than 10 ha (8% of the total area of the examined zone).

Roads are the final component of the public realm that will be considered here. They are the main element of public space in both cases, but compose 90% of the ground-level public space in the Lodz zone, which can be seen as an imbalance. In Roubaix, the figure is 75%. This is a result of the industrial and economic composition of the city, but it is also due to the introduction of more diverse functional elements into the zone.

4.3. Mixed Housing

Given that both sites are mostly residential, analysis of housing data is very important. There are more than 6 300 social housing units in the area in Lodz (data available from the Housing Management, 2018), which is 42% of the entire housing stock in this area. There are on average 28 social housing units per 1 ha within the research zone, while in the area in Roubaix there are on average 11 per 1 ha (2016 data using aggregated units for statistical information (Iris) developed by the National Institute of Statistics and Economic Studies (INSEE) in France). The total number of inhabitants divided by the number of social housing units in Green Polesie is slightly higher in the Polish case, it is 7, than in the French case, where it is 6. This indicator of the social structure of the surveyed areas reveals a slightly higher proportion of persons in need of state or municipal help in the area in Lodz than live in the Roubaix district. On the French site, there are more than 1600 social housing units (Habitation à Loyer Modéré), amounting to almost 30% of the entire housing stock in the area.

Table 3.
Structure of housing. Own work, 2018

	Case study in Lodz*	Case study in Roubaix
Surface < 30 m^2	30%	11%
Surface 30 - 40m^2	18%	17%
Surface 40 - 60m^2	30%	23%
Surface 60 - 80 m^2	15%	21%
Surface > 80 m^2	7%	28%

*Taking in the consideration only social housing

In order to assess the diversity of the housing sector, it is important further to examine the quality of the existing flats. Currently, within the Green Polesie, 30% of the social housing has a surface area of less than 30 m^2, almost the same number of social housing units are between 40 and 60 m^2, 15% are between 60 and 80 m^2 and only 7% are larger apartments. The number of units with surface areas of 30–40 m^2 is relatively large, constituting 18% of the total number of social housing units in this area. The site in Roubaix has a slightly different overall distribution of flats, indicative of the higher standard of residential premises. Only 11% of the housing units are up to 30 m^2, 17% are between 30 and 40 m^2, 23% are 40–60 m^2. There are also more larger apartments: 21% between 60 and 80 m^2 and 28% over 80 m^2. The differences in the standard of flats are also visible in terms of toilet facilities. In the Lodz area, more than half of the social housing units have no toilet in the building (45% of them are equipped with a toilet outside the building, while 15% have no toilet at all).

Data is available concerning all bathroom facilities in the apartments in the site at Roubaix. In this case, 70% of the apartments have bathrooms, which is much higher than Lodz area.

4.4. Social inclusion and sustainability though ecology and transportation

Sustainability is a very broad concept. This section focuses mainly on its environmental, social and transportational aspects, with reference to selected projects developed recently in the examined areas. In terms of green transportation, at the site in Lodz there is currently only one bicycle route of 200 m, which, when compared with the 9 km of cycle routes in Roubaix clearly requires improvement as part of the urban strategy. A comparison of the public transportation facilities is also revealing. Public transport is available in the Lodz zone; however, it does not have priority yet over private vehicles, and is therefore inefficient. The trams and buses do not have a dedicated lane, and as a consequence may be blocked by individual cars. In the case of Roubaix, as well as trams and buses, which mostly run in dedicated lanes, there is also an underground metro. It is important to note that this was the first fully automated driverless metro in Europe, introduced in the conurbation of Lille-Roubaix-Tourcoing as a crucial element for the sustainable development of the entire metropolis. The location of the underground stations in degraded but strategically important districts (there are three stations in the examined zone) was seen as an effective tool for increasing the attractiveness of these areas.

Two projects that are further contributing to sustainable development in Roubaix are the Trichon urban and circular farm and the Barka cooperative. The goal of the first is to transform a 9 000 m^2 brownfield site with 7 000 m^2 of abandoned buildings into an economic ecosystem, understood as a low cost, self-financing green development. The authors of the concept want to make a vegetable garden within the urban structure. The project was initiated in 2017 and will be fully operational in 2020. By this time, several companies, including two start-ups and an association, will have begun operating on the site. The objective is to create a real place of food production, but also to give new life to a district in the heart of the city. The second initiative, the Barka cooperative, was started in 2008 and is today fully operational. On one hand, this project is focused on the promotion of eco-constructions with the lowest possible environmental footprint. On the other hand, Barka aims to facilitate social contacts through the creation of a convivial place to meet, discuss and work together. There is not only a restaurant but also meeting rooms to rent on site, which can be used by people with problems relating to adaptation and acculturation. Actions against unemployment were begun even during the construction of the centre, when internships connected to self-construction and ecological building solutions were proposed to the population of Roubaix.

In the case of the site in Lodz, although there have as yet been no specifically ecological projects there are some interesting initiatives which could have a positive impact in the future. For instance, it has been proposed to provide municipal subsidies to encourage the exchange of conventional heating systems with ecological alternatives. Any inhabitant, homeowner association or entrepreneur can receive a non-returnable subsidy of up to 80% of the cost of replacing a coal furnace, or of joining the central heating or gas network. A second initiative is the Społecznie Zaangażowani association, which runs a Community Culture Centre dedicated to local residents. Re-using an existing (albeit perhaps not very attractive) building, it is possible for various social groups, elders, children and workers. Collaborative spaces are also available for workshops and as training areas. These spaces play an important role in encouraging public participation in the development of the space. Multiple events concerning upcoming urban planning projects take place there: meetings for residents aimed at co-designing specific spaces, especially selected sections of the streets, workshops for children and adults and other consultations. These initiatives complement the standard tools for public participation in urban planning, guaranteed by law and executed in the process of passing local urban regulation on the site.

5. CONCLUSION

The purpose of this paper was to examine liveability in the context of urban regeneration projects, using quality of life indicators drawn from New Urbanist directives. This aim has been achieved. As QOL is related to the satisfaction of human needs, it applies to different elements of the urban environments in which people work and live [29]. The particular elements of the urban structure specified by NU and discussed in this paper have had a positive impact on QOL in the two sites analyzed as case studies. The results of this research point to possible ways in which

quality of life can be improved, through the implementation of NU principles. Based on a comparison of a site in Roubaix, where revitalization is already at an advanced stage, and a zone in Lodz, where it has only recently started, possibilities have been presented for the transformation of extremely degraded areas into more pleasant and welcoming urban environments.

The analyses of walkability, mixed use and the density factor revealed that both functional and formal diversity are required to achieve a high level of QOL. In the case of the Green Polesie project, where the local development plan (Miejscowy plan zagospodarowania przestrzennego) is still being elaborated, this means that buildings should be given more varied functions than are currently proposed. The area remains, for now, dominated by residential housing. Based on the experience of Roubaix, it is recommended to have more public buildings in the area, and to pay greater attention to the quality and quantity of the commercial services. More shopfronts and improved streets could form part of a spatial solution to promote more active ground floor spaces.

Reference to the NU indicators of connectivity, traditional neighbourhood structure and quality architecture and urban design thus makes clear the crucial influence that the improvement of the quality of public spaces can have on urban regeneration. In light of the case study of the zone in Roubaix, it is worth exploring possibilities for introducing more secondary roads and aisles in the Green Polesie zone. Due to existing ownership structures this may be difficult, but it could lead to the creation of more semi-public space and, as has been the case in Roubaix, to the presence of more greenery in the city blocks within the city blocks. It should be noted that the current focus of the Green Polesie project is mainly on introducing greenery in the main streets. These proposed "garden streets" are similar to woonerf streets, with shared spaces and low speed limits. One third of all streets within the perimeter of the Green Polesie project are to be transformed into "garden streets" [30]. The target is to increase the greenery factor per inhabitant by more than 600%. The streets are currently the only public spaces in the examined area. The regeneration of the historic square (plac Barlickiego) seems necessary, but is still a matter for discussion.

Studies of mixed housing, sustainability and green transportation demonstrate that initiatives can have quite different effects. In the case of Lodz, diversification of the housing sector in still recommended, because such a large concentration of social housing as there is now may lead to stigmatization of the area. A comparison with Roubaix also suggests the need to improve the quality of the housing. A proposal by municipal urbanists to introduce within the Green Polesie perimeter single-family housing in city blocks should also be considered. The diversification of the housing sector is desirable, but should be carried out carefully.

The Green Polesie project includes plans to improve public transport and extend the network of bicycle paths. As we have seen, this is of huge importance if urban regeneration projects are to support and develop pro-ecological social initiatives. In Roubaix, as in Lodz, this issue has recently gained more traction.

A final, crucial factor is the renovation and re-adaptation of historic buildings to meet the needs of the local society. This should be a continuous process in both studied areas, both at the scale of buildings and at the larger urban scale [31].

As shown especially by the case of Stare Polesie, which despite its central location has the fastest rate of depopulation in the city of Lodz, there is a clear need to renovate degraded post-industrial areas. Progressive degradation of the physical condition of the buildings, the road infrastructure, the public spaces and the social fabric leads to a decrease in the number of investments. This process can be reversed if improvements are made to the quality of life in the area. In this paper, a number of quantifiable parameters have been used to illustrate this transformation. The results from the two case studies could have universal significance, as reference parameters for other revitalization areas, since they reveal the improvement of strategic urban elements. However, to maintain the unique character of the place, the specific context of each particular site must always be taken into account. The principles of New Urbanism can help to develop sites at the human scale and preserve their historical structure, but should be adapted to the needs of the particular revitalised place and above all to the needs of its users. Further research should focus on the perceptions and assessments of the residents themselves, and the role of public participation in developments applying the NU approach.

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