

Metamorphosis of Modernist Large-Panel Housing Estates Towards a Sustainable Public Spaces System of the City

Abstract

Large-panel housing estates seem to be of particular importance in the debate on the evolution of the modernist heritage. The technocratic approach has left a deep mark on this kind of settlements. With time their environmental conditions degrade, and consequently they require regular corrective actions undertaken in thorough revitalisation processes. However, in many original design concepts of such housing estates, some core elements of sustainable development can be noticed. These elements recognised as a potential could play an important role in the contemporary process of metamorphosis of housing estates.

This paper explores a comprehensive approach to improving the quality of housing environment by focusing on the systematisation of spatial aspects of revitalisation in order to achieve optimal use of public spaces within large-panel housing settings.

An in-depth analysis of successful revitalisations of large-panel housing estates in Germany provided a foundation for proposing a methodology of a systematic socio-spatial approach to public spaces. Its possible applicability is particularly important in Polish housing estates and their metamorphosis towards developing the continuity of public space in the city, which is currently under threat.

Keywords: transformation of late modernist housing estates, continuity of public space, sustainable housing environment, revitalisation, complementary development

1. Introduction

Modernist ideas aimed to revolutionise the city and to introduce a new order, in which housing estate developments and appropriate housing conditions they provided constituted one of the key elements. Besides social ideas, a factor that was equally crucial was the growing opportunities in terms of technical solutions, with precast concrete systems being one of them. Thus, industrialisation of construction changed the thinking about the process of creating cities in the urban as well as architectural scale. In the increasingly technocratic reality, an apartment was replaced by 'a housing machine'. The 'large-panel housing estates' have been built in great numbers in Europe and also in Poland with the use of the precast concrete technology in the spirit of modernist ideas. These housing estates in many European towns and cities are well nested within their gardenesque landscapes. Nearly 10% of the population in Western Europe and 40% of the population in the former Eastern Bloc (Kempen et al., 2005) constitutes a living phenomenon in large-panel housing estates (Noworól, 1987).

Large-panel housing estates represent the so-called second generation of modernism (post-war modernism), when mass production was gaining momentum and developing on a growing scale. Simultaneously, war damage, which required quick replenishment of the urban tissue, prompted solutions which focused mainly on quantity. Next to numerous benefits stemming from the search of a new housing formula, the technocratic approach adopted in the attempts to solve the problems of cities did not take their complexity into account

in a sufficient way. Mass industrialised production reduced diversity, which resulted in mono-functionality and monotony of housing estates.

The development of large-panel housing estates since 1960s, 1970s, 1980s offered much to a debate on design and planning in the process of creating a new and better place for living that could counter extreme actions, such as blowing up Pruitt Igo, an American housing estate emblematic of the death of modernism – and was noted as a socio-spatial pathology of design and planning of large-panel housing estates.

There has been much discussion among architects, planners, and sociologists how to move forward in view of strengths and weaknesses of such projects (Cęckiewicz et al., 1986; Bieda, 1976; Noworól, 1987). Research findings signified the leading spatial problems in such housing estates were their mono-functionality, monotony of architecture, spatial degradation, isolation, and disjointed walkable connections (García-Pérez et al., 2020; Dekker, Kempen, 2004; Díez Medina, Monclús, 2017; Szczerek, 2018, Mochocka, 2019). These negative spatial attributes are accompanied by problems of a social nature, like unemployment, vandalism, low social cohesion, etc. (Beckhoven, Kempen 2006; Smagacz-Poziemska et al., 2007). Consequently, the interest in revitalisation significantly dropped.

Recent research recognised the transformation of social processes (Gorczyca, 2016) and urban densification (Treija et al., 2018; Kristiánová, 2016; Szczerek, 2021) taking place in housing estates. The goals and measures associated with transformation of housing estates aimed at improving the quality of housing environments

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at key scales: urban scales and the scales of a building and of a dwelling unit (Gomez et al., 2016). Other studies emphasised developing methods to improve decision-making processes in urban planning and public policy for large-panel housing estates in Europe (Turkington et al., 2004; Kempen et al., 2005; Rowlands et al., 2009; Hess et al., 2018), including ‘the hybrid methodology’ for mass housing estates (García-Pérez et al., 2020).

Other planning studies combined differences and similarities between housing estates in Eastern and Western Europe (Monclús et al., 2018). Furthermore, Hall (1997) and Muliulyt (2013) pointed out that public policy regarding revitalisation of housing estates must be considered in view of a wider urban context. Housing estates and their immediate surroundings need to be integrated within the urban context of its local city connected to the metropolitan urban conditions (Sotoca, 2012; Balla, 2018). Studies in environmental psychology indicated that in large-panel housing estates the relations between the impact of the urban layout and in-between spaces have a direct influence on altering social interactions and patterns of human behaviour (Can, Heath, 2016; Zerouati, Bellal, 2020; Dincer et al., 2014).

Consequently, sociological studies pointed to the specificity of social relations signifying the perception of housing estates in terms of symbolism (Erman, 2004), as well as stigmatisation and a negative image (Wasenberg, 2004; Brattbakk, Hansen, 2004). However, even though a large housing estate is not the most desirable place to live, some studies show that the attitude of people towards large housing estates and their level of satisfaction vary between cities and countries (Mustered, Kempen 2007; Kovács, Herfert, 2012), also among senior citizens (Temelová, Slezáková, 2014). In the context of such housing estates attention was also paid to challenges of a shrinking and aging society (Kabisch, Grossmann 2013).

In Western Europe, Germany is at the forefront in terms of revitalising large-panel housing estates (Kil, 2008; Hunger et al., 2007; Flecken et al., 2007; Pätzold et al., 2015). Studies have shown that many features and problems of large-panel housing estates are common; nevertheless, there are some unique sets of conditions that apply to each large-panel estate within their living context, implying that the findings of research studies should not be generalised (Díez Medina, Monclús, 2017; Dekker, Kempen, 2004).

Undoubtedly, the common denominator of all housing estates is the typology and structure of their architecture. Housing estate structures abound in unoccupied areas, which can be regarded as a positive aspect, albeit it can also be a source of possible problems (Díez Medina, Monclús, 2017, Dekker, Kempen, 2004).

Therefore, the characteristic feature of large-panel structures, that is their urban layout with a lot of unoccupied space, can become a starting point for deliberations devoted to the mutual complementarity of such forms as the traditional urban issue and the housing estate structure (Szczerek, 2018). The revitalisation measures adopted from Germany provided the methodology to achieve a systematic approach by focusing on the optimal use of the unoccupied space as an integrated system of public spaces around and within large-panel housing estates in Poland.

2. Research Problem

Evolutionary modernism understood as a betterment of the quality of life in large-panel housing estates is associated with their potential to develop useable and continuous public spaces that facilitate diversity of lively social encounters and connect to the city (Ill. 1). It should be noted that the corrective measures, taken in the revitalisation process, are not intended for a complete transformation of the housing estates. These design measures are to create a new urbanity turning negative spaces into an amiable public use facilitating a renewed urbanity – an eco-urbanity, complementing and connected to the traditional urban structure of the city.

Ill. 1. Schematic representation of the potential of housing estates in developing the complementarity in the scale of the entire city. Prepared by E. Szczerek

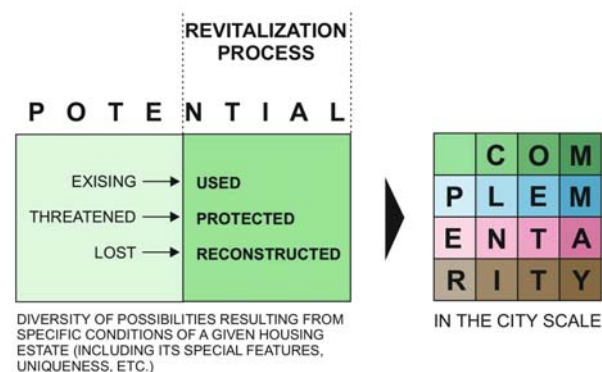


Table 1. Direction of the evolution of large-panel housing estates from technocracy to sustainable development. Prepared by: E. Szczerek, A. Franta

Consequences of technocratic approach	Solutions towards sustainable development
mono-functionality	functional and programme-related diversity
monotony	diversity of the structure of development and scale of urban interiors
‘nobody-spaces’	hierarchy of spaces (public, semi-public, and private domain)
shapeless and degraded spaces	high quality and distinctiveness of public spaces
spatial fragmentation of public spaces	continuity of the public spaces system relative to the scale of the housing estate and the city
spatial imperfections	legibility of the urban composition relative to the architectural values of spaces
urban and architectural unification	uniqueness in the scale of the city
stigmatisation and a negative image	identity of places and a positive image

As a result, it would lead to a metamorphosis of modernist large-panel housing estates towards a sustainable public spaces system of the city (Table 1).

It is important to note that the key issue that needs to be addressed in the aspect of problems and corrective processes in large-panel housing estates is their public space – a ‘social stage’ on which the ‘everyday life theatre’ takes place (Goffman, 1981).

Continuity of public spaces refers most of all to areas accessible to pedestrians. It is of key importance to develop them as pedestrian systems (Cui et al., 2015). This is associated with the broadly understood term ‘walkability’ (Forsyth, 2015).

A continuous public space within and around housing estates if connected to the city would constitute a spatial backbone for its functioning – it is a continuum that combines parts of the city of different characters and standards in fostering social encounters under attractive, safe, and lively settings (Franta, 2019a, 2019b); a network of public spaces along with ‘green corridors’, belonging to spatial elements that establish the ‘urban framework’ crystallising and harmonising the urban integrity of a metropolitan city. The strategy of building an integrated system of public spaces would allow to consolidate the spatial structure of the city by weaving critical connections between morphological and functional units of a fragmented urban tissue to revive and strengthen unused public spaces (Zuziak, 2008). Thus, contradicting the idea of a sum of individual spaces, public spaces should create a cohesive network (Pinto, Brandão, 2015), where ‘green’ connections may play a special role. Green areas determine the character and identity of the housing environment, as well as the way it functions (Haupt, 2018).

3. Methodology

This research selected housing estates that were built in Germany and were revitalised during the 1960s up to the early 1990. All housing estates are of different sizes: above 60 thousand residents: Marzahn (Berlin), Hellersdorf (Berlin), Grünau (Leipzig); 30 thousand – 60 thousand residents: Neustadt (Hoyerswerda), Märkisches Viertel (Berlin), Sachsendorf-Madlow (Cottbus); up to 30 thousand residents: Südstadt (Leinefelde), Neu Zippendorf (Schwerin).

These housing estates were examined with regards to their public spaces after the revitalisation process, which helped to improve the quality of their living environment. The study also focused on methods that were applied to obtain continuity of public spaces inside the housing estate and in relation to the city.

Similarly, this study investigated housing estates located in Cracow built using precast concrete technology during 1960-1989 under the communist rule, which had a significant impact on the process of designing housing estates, as well as on the commencement of erecting buildings by means of industrial technologies. Cracow is a characteristic example of typical practices in this respect, commonly encountered across the country.

These chosen housing estates were located in different parts of the city. The following housing estates were selected for the study:

Podwawelskie housing estate (ca. 10,000 residents), Krowodrza Górka housing estate (ca. 12,500 residents), housing estates in Czyżyny, i.e. Pułku Lotniczego housing estate (ca. 4,300 residents) and Dywizjonu 303 housing estate (ca. 7,400 residents), housing estates in Mistrzejowice, i.e. Bohaterów Września housing estate (ca. 7,400 residents) and Piastów housing estate (ca. 4,300 residents).

This study adopted workable revitalisation measures of the German experience to analyse the selected Cracow-based large-panel housing estates with a focus on specific problems relating to their spatial programme and functional conditions that generated unfavourable tendencies of change in them.

Both the German and Polish housing estates were examined from two perspectives:

1. The spatial condition of large housing estates.
2. The spatial relationship between large-panel housing estates and the city.

The research objective is to investigate the presence of spatial relations between these two spatial dimensions of large-panel housing estates in Poland, as it was in the case of Germany.

The study was conducted on the basis of field studies (repeated numerous times so as to observe changes in time), as well as studies of the subject literature comprising scientific publications and conference materials, reports, online databases, information materials, design studies, professional journals, legal regulations (acts, regulations, etc.), planning documents, development strategies, etc.

4. Revitalisation strategies in Germany: towards quality and continuity of public spaces

The analysis of the German revitalisation strategy demonstrates that green areas play a special role in the process of transforming such housing estates. It is important for greenery systems within housing estates to belong to a bigger system of the city or even out-of-the-city, which is crucial for the continuity of the public space as well as ecological aspects (Ill. 2).

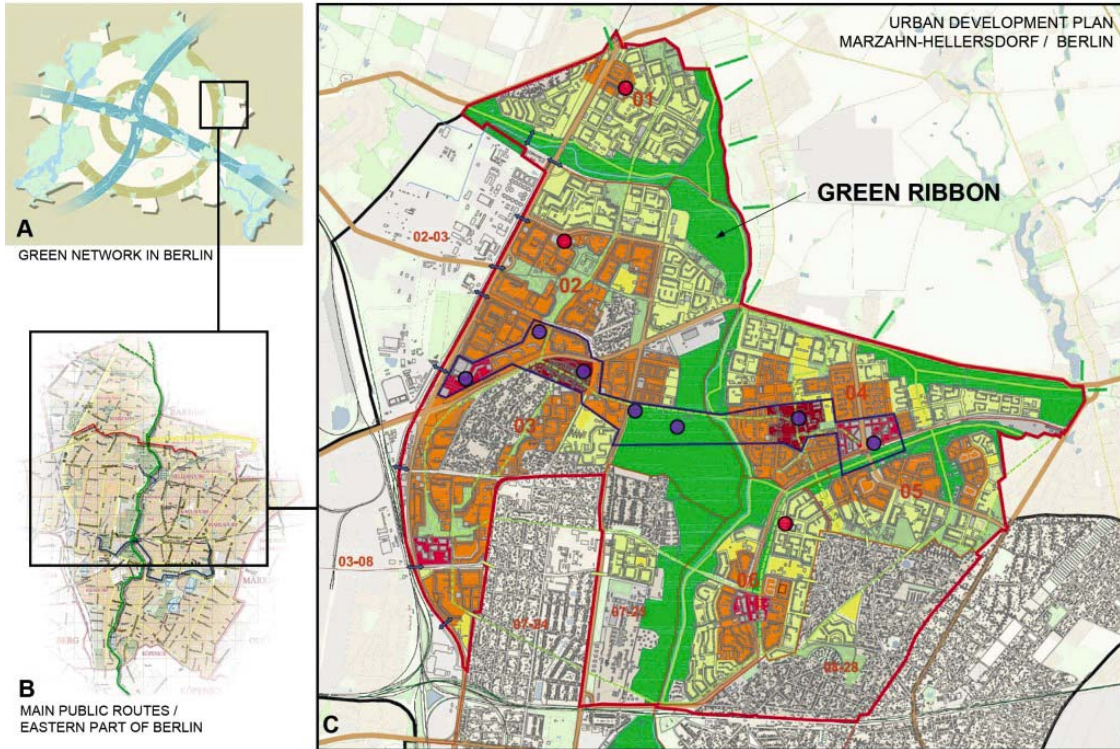
Also, centre-like nodes are important in emphasising the continuity of public spaces (including the green ones) and they constitute key elements of the process of creating a healthy and friendly housing environment. They are also significant from the perspective of identifying spaces and building their identity (Ills. 3,4).

Spatial transformations are helpful in clarifying the hierarchy of space, where ‘nobody’ space becomes a space that all or a particular group of inhabitants can identify with (Ill. 5).

Demolitions (mainly the partial ones), if properly arranged, lead to a diversity of forms, breaking the monotony and repetitiveness of architecture. In case of Germany, demolitions are particularly connected with the need to reduce the number of uninhabited apartments. However, they are treated as an instrument

COMPLEMENTARITY
CONTINUITY

SYSTEMS OF PUBLIC SPACES WITHIN THE HOUSING ESTATE
AND LINKS BETWEEN THE HOUSING ESTATE AND THE CITY



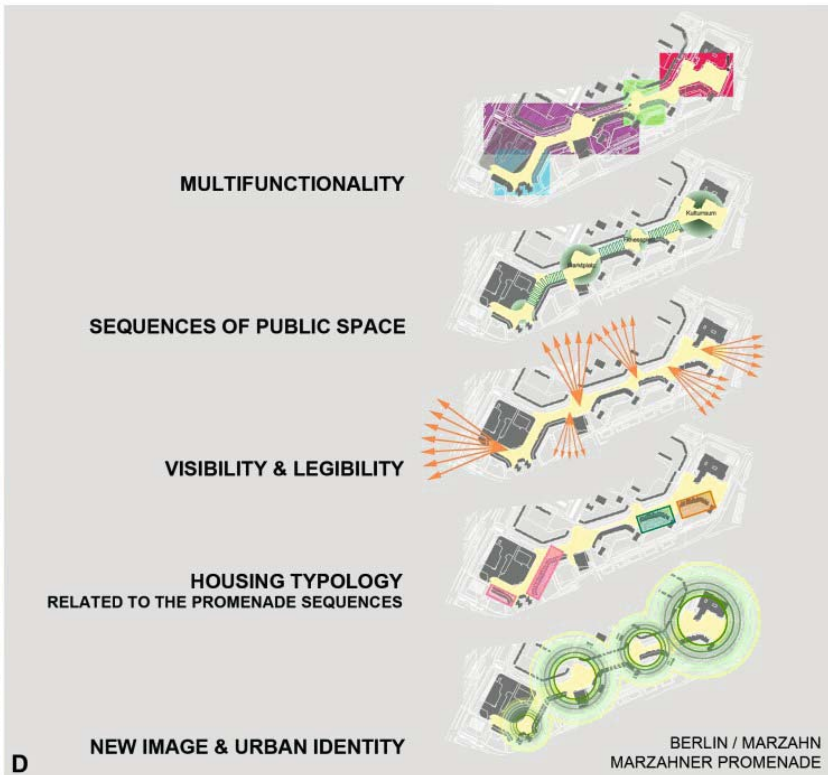
III. 2. Systems of public spaces within the housing estate and links between the housing estate and the city. Case study: Marzahn-Hellersdorf, Berlin. Source: A – <https://www.berlin.de/sen/uvk/natur-und-gruen/landschaftsplanung/gruene-hauptwege/> (accessed: 17.08.2023); B – www.berlin.de (accessed: 05.04.2017); C – (UrbanPlan GmbH, 2011)

III. 3. Systems of public spaces within the housing estate and links between the housing estate and the city. Case study: Markisches Viertel. Source: A, C - S.T.E.R.N. GmbH (2009); B – <http://www.stadtentwicklung.berlin.de> (accessed: 05.04.2017); D – photo: E.Szczerek

COMPLEMENTARITY
CONTINUITY

SYSTEMS OF PUBLIC SPACES WITHIN THE HOUSING ESTATE
AND LINKS BETWEEN THE HOUSING ESTATE AND THE CITY





III. 4. Special role of main public spaces in housing estates. Case study: Marzahn, Berlin. Source: A, B, C – photo: E. Szczerek, D – based on (Bezirksamt Marzahn-Hellersdorf von Berlin, 2008)

III. 5. Diversifying urban space; improvement of the legibility of urban composition; scale correction. Case study: German housing estates. Photos: E. Szczerek



PUBLIC SPACE

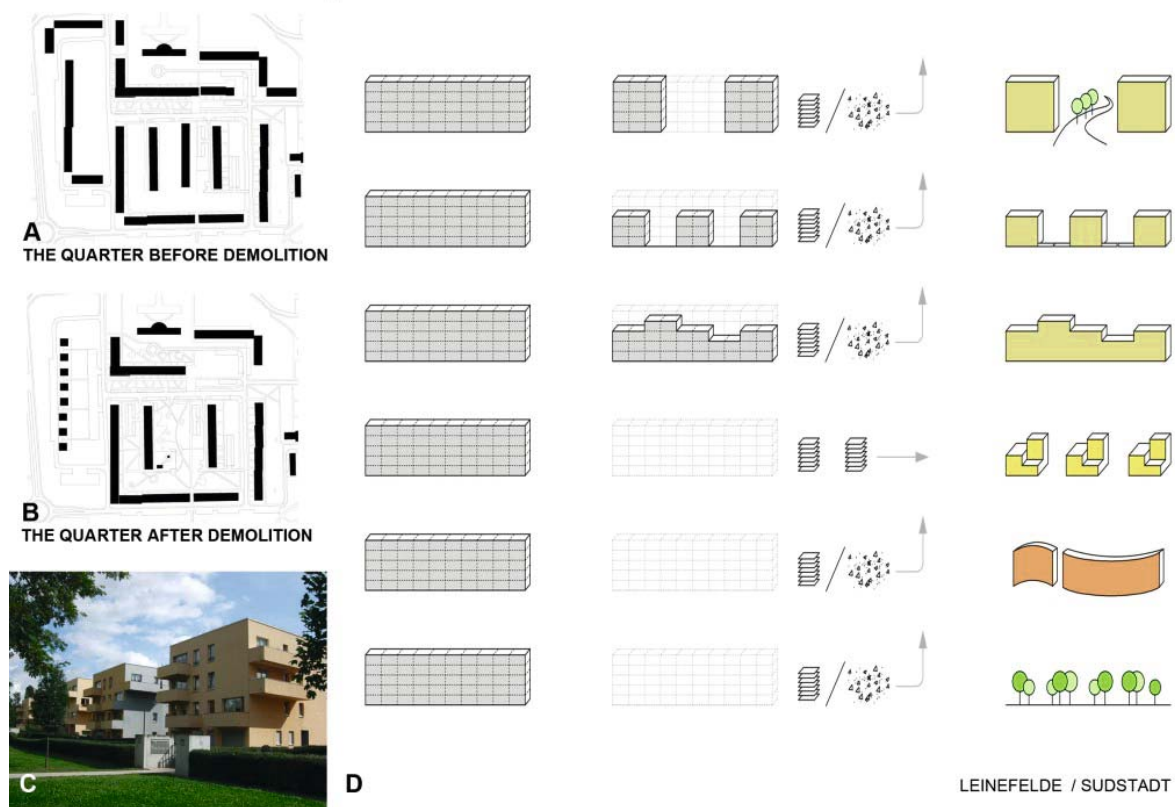


SEMI-PUBLIC SPACE



PRIVATE SPACE





III. 6. Diversity of the development structure. Case study: German housing estates. Source: A, B – (Kil, 2008); C – photo: E. Szczerek, D – (Szczerek, 2018)

which allows to obtain a new quality of the housing environment (Anthony, Becker, 2007), (III. 6).

In case of housing estates which often struggle with a bad image and stigmatisation a certain emphasis is put on creating a new, positive image of the estate. It is achieved by strengthening an identity of particular areas, by creating landmarks, which are supposed to become a symbol of a new face of such housing estates, by making a reference to the historical or cultural legacy if there is any, and also by introducing a different kind of art (III. 7). The measures taken to improve spatial and functional dimensions led to an improvement of the quality of living environment, complementing its relationship to the city. These design measures helped to stop the emergence of the so-called excluded areas resulting in the steady growth of a new and positive image of housing estates as a functional and spatially attractive and yet affordable place to live. It should be noted that all design and revitalisation measures were conducted simultaneously along with other measures relating to the social, economic, and administrative domain – becoming a multidimensional process of revitalisation. The rich and diversified German experience demonstrates that the creation of high-quality public spaces of such housing estates exhibits a greater spatial and functional continuity between the housing estate and the city. This systematic approach to revitalisation safeguards long-term activities associated with large-panel housing estates in Germany. Similar design measures can be applied to Polish estates, as well as those from the

entire former Eastern Bloc. This relates in particular to the experience stemming from revitalisations of housing estates within the territories of the former German Democratic Republic, where similar, and sometimes the same, precast concrete technologies. The most intensive development of these housing estates took place in the same period of time and under analogous conditions of central control of the economy, generating similar issues, which need to be addressed.

5. Lively spatial continuity of public space – potential methods for housing estates in Cracow

Large-panel housing estates in Poland struggle with a number of shortcomings, such as mono-functionality (residential function), undefined spaces between the buildings, as well as low quality of architectural solutions and a bad technical condition of buildings. Furthermore, disturbing ongoing changes can be observed in them. One of the most serious of such changes is chaotic densification with new buildings, which often have a higher technical standard, but unsatisfactory aesthetic values and – most importantly – are built without appropriate relations with the surrounding areas, ignoring the existing urban layout of the housing estate along with its original compositional assumptions (III. 8). This way one of the key potentials of large-panel housing estates – the green areas – is being destroyed. The continuity of public spaces within the housing estate and beyond it is often disturbed, frequently with no chance to rebuild it, by such densification of housing estates, particularly

COMPLEMENTARITY
CONTINUITY

CONFERRING IDENTITY TO PLACES / STRENGTHENING THE SENSE
OF IDENTIFICATION / CHANGE OF THE IMAGE OF THE HOUSING ESTATE

A
**COLOUR IDENTIFICATION
OF AREAS**
BERLIN – HELLERSDORF –
'RED QUARTER'



B, C
FLAGSHIP PROJECTS
BERLIN – MARZAHN –
AHRENSFELDER TERRASSEN
HOYERSWERDA – NEUSTADT –
'LAUSITZ TOWER'



D
**REFERENCE TO THE
HISTORICAL LEGACY**
LIPSK – GRUNAU –
FORMER SALT TRAIL



E
ART
BERLIN – HELLERSDORF –
LARGE-SIZE SCULPTURE



III. 7. Conferring identity to places. Case study: German housing estates. Source: A, B, C, D, E – photo: E. Szczerek

III. 8. Unfavourable tendencies: changes in the housing estate development structure. Case study: Cracow housing estates. Prepared by E. Szczerek


CITY ↔ HOUSING ESTATE

UNFAVOURABLE TENDENCIES
CHANGES IN THE HOUSING ESTATE DEVELOPMENT STRUCTURE

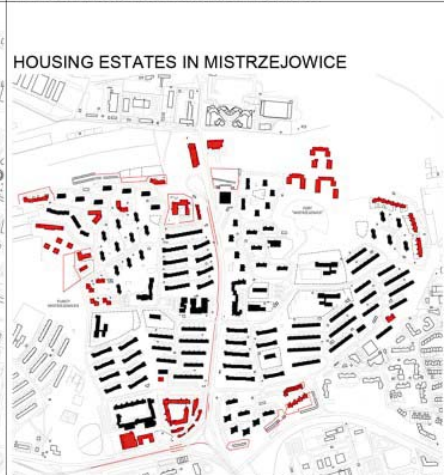
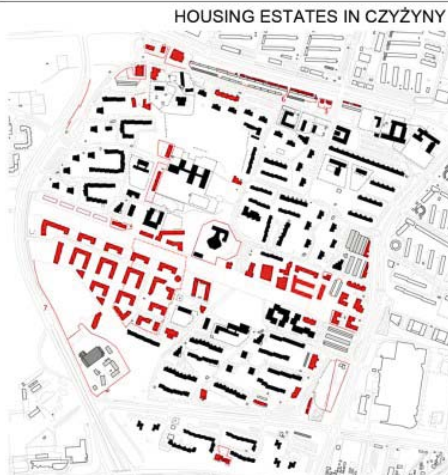
 STRUCTURES ERECTED
WITHIN THE SCHEME OF THE
CONSTRUCTION OF THE
HOUSING ESTATES

 **DENSIFICATION** –
STRUCTURES INTRODUCED
AFTER 1989

 STRUCTURES ERECTED
BEFORE CONSTRUCTION OF
THE HOUSING ESTATES

 GARAGES AND UTILITY
BUILDINGS (IRRESPECTIVE OF
THE TIME OF CONSTRUCTION)

 FENCES



when it is accompanied by fencing of such complexes (Szczerek, 2019; Gyurkovich et al., 2021).

Furthermore, Poland lacks well-defined, comprehensive strategies of revitalisation of large-panel housing estates in meeting the current needs, whereas positive examples from other countries, especially from Germany, prove that a properly conducted revitalisation can bring numerous benefits and can considerably improve existing conditions and the scale of the housing estate towards the city. Not only can a strategic revitalisation process stop degradation of housing estates in Poland and preserve their strengths, but it can also change them into the sustainable housing environment.

Housing estates in Poland are rich with numerous open green areas, which allows for opportunities to spatially juxtapose them with its urban tissue. Carefully arranged links will turn the 'nobody's spaces' into a connected system following the spatial pattern of German housing estates. Individual design elements and spatial advantages would constitute the foundation for shaping the unique character of a housing estate. Furthermore, public transport linking a housing estate with other parts of the town would strengthen its integration with the city. This would develop an attractive market for housing estates even in their current state, particularly for young people.

It is noted that Poland still has a significant housing deficit of ca. 640 thousand apartments (Ministry of Development, 2020), indicating that revitalisation of housing estates in Poland would require increasing of the number of apartments in line with a comprehensive

policy and planning to improve the quality of the housing environment.

5.1 Unique features of large-panel housing estates as a value in the city scale

Cracow-based housing estates exhibit unique spatial values which add to the urban composition with their existing buildings and iconic structures, vicinity of watercourses, green areas, or areas of high historical and cultural values, which in turn offers ample opportunities to create public spaces capable of strengthening their continuity in the city scale.

One of many such examples is the Krowodrza Górka housing estate, located right by two park complexes and other green areas leading into the out-of-town greenery of high natural values. Another characteristic feature of the estate is its original urban layout with a diamond-shape composition of residential building (Ill. 9A).

Another example is the Podwawelskie housing estate. Its location is in close proximity to the historic inner city with vast green recreational areas and rich topography (Ill. 9B) along the Wilga watercourse from the south side of the housing estate. The idea of the 19th-century water canal being the second arm of the Vistula river is important to note. The currently implemented municipal policy of Cracow has ignored this unique unifying possibility that was once planned as the 'Relief Canal'. Now it can be developed as a linear park to become part of the city. The original urban composition of the housing estate highlights the unique visual relations with the silhouette of the old town on one side and the topographic uplift on the other.

Ill. 9. The main potential of housing estates as a starting point for the creation of complementarity of public space in the scale of the city. Prepared by E. Szczerek

CITY ↔ HOUSING ESTATE

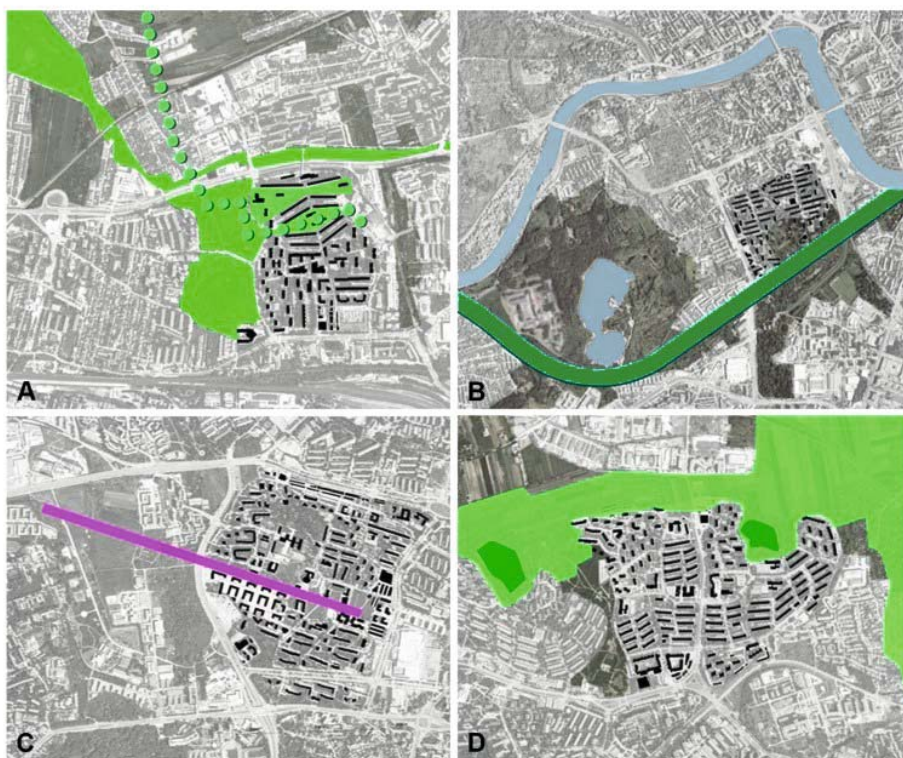
THE MAIN POTENTIAL OF HOUSING ESTATES AS A STARTING POINT FOR CREATION COMPLEMENTARITY OF PUBLIC SPACES IN THE SCALE OF THE CITY

A
INTRODUCTION TO
OUT-OF-TOWN GREEN AREAS
KROWODRZA GÓRKA
HOUSING ESTATE

B
LINEAR PARK ('RELIEF CANAL')
A CITY-WIDE LANDMARK
PODWAWELSKIE HOUSING
ESTATE

C
FORMER RUNWAY
A CITY-WIDE LANDMARK
HOUSING ESTATES IN CZYŻYNY:
PUŁKU LOTNICZEGO HOUSING
ESTATE & DYWIZJONU 303
HOUSING ESTATE

D
FORTRESS GREENERY SYSTEM
AS THE GROUNDS FOR SHAPING
THE CITY EDGE
HOUSING ESTATES IN
MISTRZEJOWICE:
BOHATERÓW WRZEŚNIA
HOUSING ESTATE &
PIASTÓW HOUSING ESTATE



Another example are the housing estates in Czyżyny (Pułku Lotniczego housing estate and Dywizjonu 303 housing estate). They are situated on both sides of a runway of a former airport (III. 9C). The former runway is a unique element in addressing the scale of the housing estates and the city. Due to its spatial, historical, and cultural values, it creates a space of the metropolitan character and acts as a backbone for enriching the residential function, contributing to the improvement of the quality of the housing environment.

These housing estates can offer an opportunity to significantly enhance the system of open spaces of the eastern part of Cracow, besides being an element of identity binding it to the history of this place.

Another example are the housing estates in Mistrzejowice (Bohaterów Września housing estate and Piastów housing estate) situated on the outskirts of the developed zone of the city with direct access to the green park and natural areas connected to a river valley with preserved forts and fortress greenery (III. 9D) signifying the former defence line of the Cracow Fortress. Consequently, positive spaces of the housing estates can play an essential role in developing green connections to the city with the fortress greenery.

The linear park 'Relief Canal', as well as the former runway, arranged as a continuous public space would constitute a distinct and unequivocal spatial element in creating public spaces in Cracow, similar to the Old Town with Planty Park, the Wawel Castle, and Błonia Park, as well as the urban complex of Nowa Huta with the Nowa Huta Meadows (III. 10).

The semantic layering of spatial elements that could bring out the historical and cultural values can add a significant value to the functioning of the housing estates operating as an identifier in the process of building the identity of a place.

5.2. Continuity of public spaces

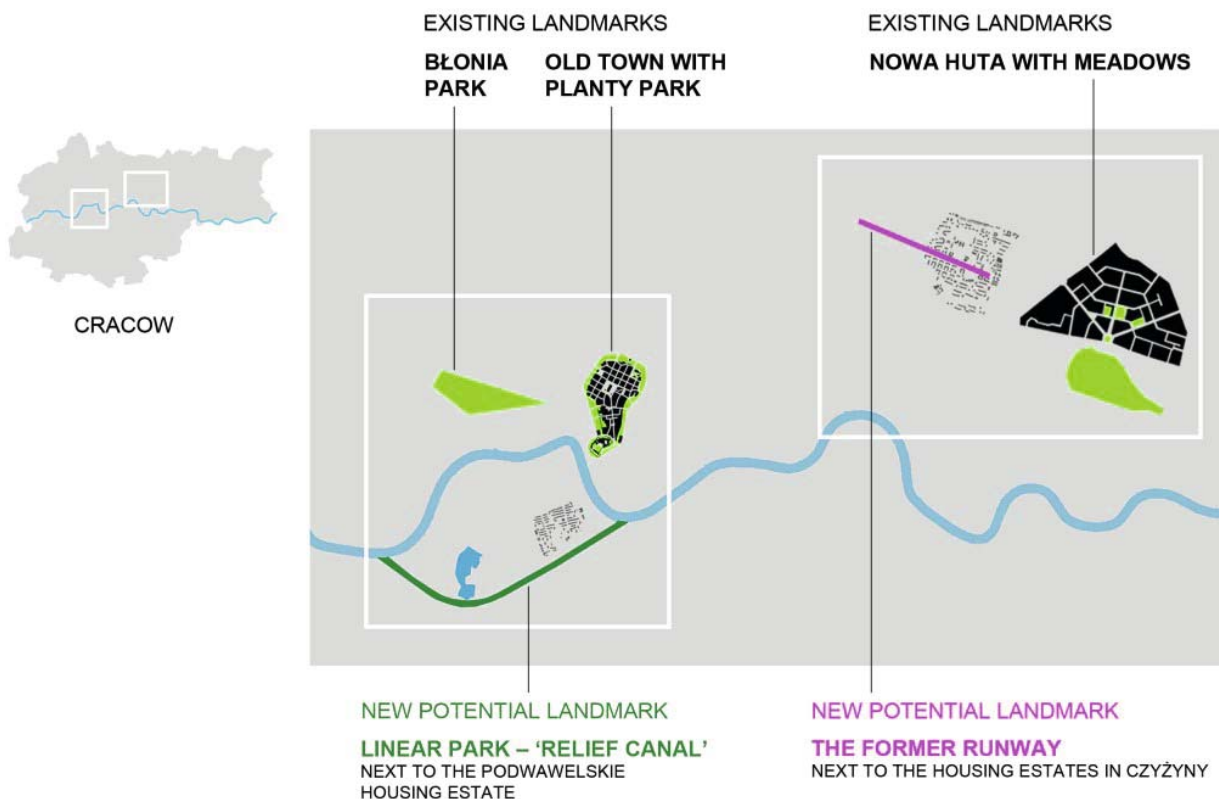
One of the crucial aspects for the improvement of the quality of the housing environment would be to condition the connectedness of its spaces with the changing design that complements the city. The mono-functionality of open spaces must be overcome by introducing new public functions besides fixing housing residential units. Consistent, continuous, and attractive spaces within housing estates weaved through public spaces can play an important role in connecting services, entertainment, culture, education, recreation within the larger urban sphere of the city. Housing estates integrated with the urban tissue can facilitate a congenial environment favourable to local economy through lively social connectedness. The character and intensity of relations may vary relatively to the size of the housing estate and its socio-spatial functions, besides its cultural circumstances. The bigger the housing estate, the more the complex system of spatial relations would require a meaningful connection to the public transport system, where transfer nodes need to be connected to the centre facilitating the effectiveness and vitality of the system.

The Krowodrza Górka housing estate, relatively small in scale, can develop its system of public spaces on the basis of the existing composition of its spatial layout and the programme of services. It would require clearing up

III.10. City-wide spatial landmarks. Case study: Cracow. Prepared by E. Szczerek

CITY ↔ HOUSING ESTATE

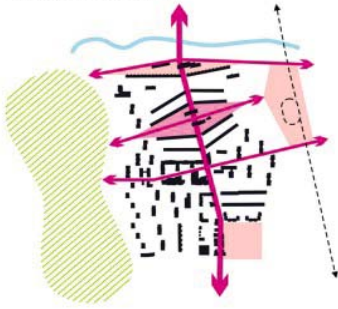
THE MAIN POTENTIAL CITY-WIDE SPATIAL LANDMARKS



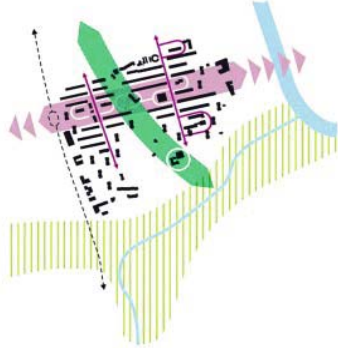
CITY ↔ HOUSING ESTATE

POTENTIAL USED
METHODS OF OBTAINING CONTINUITY OF PUBLIC SPACES

ACTIVITY GRATE
KROWDRZA GÓRKA
HOUSING ESTATE



ACTIVITY CROSS
PODWAWELSKIE HOUSING ESTATE



ACTIVITY STRING
HOUSING ESTATES IN MISTRZEJOWICE



- EDUCATION & CARE
- HEALTH
- SERVICES
- SPORT & RECREATION
- FORT
- PARKS & GREEN AREAS
- TRAM LINE WITH TRANSFER NODE

III. 11. Methods of obtaining continuity of public spaces. Case study: Cracow housing estates. Prepared by E. Szczerek

III. 12. Methods of obtaining a legible and diversified urban space. Case study: Cracow housing estates. Prepared by E. Szczerek

CITY ↔ HOUSING ESTATE

POTENTIAL USED
METHODS OF OBTAINING A LEGIBLE AND DIVERSIFIED URBAN SPACE

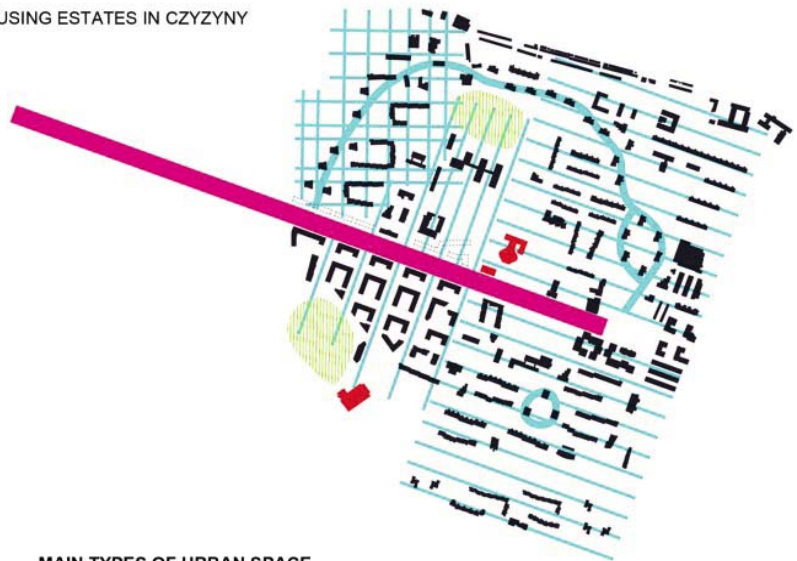
KROWDRZA GÓRKA
HOUSING ESTATE



PODWAWELSKIE HOUSING ESTATE



HOUSING ESTATES IN CZYZYNY



MAIN TYPES OF URBAN SPACE

- ICONIC PUBLIC SPACE IN THE CITY SCALE
- ICONIC PUBLIC SPACE IN THE SCALE OF THE HOUSING ESTATE
- THE MAIN PUBLIC SPACE OF THE HOUSING ESTATE
- MAJOR GREEN PUBLIC SPACES

MAIN ELEMENTS OF URBAN COMPOSITION

- SPATIAL LANDMARKS
- COMPOSITION AXES
- URBAN DIRECTIONS
SOFT LINE
- URBAN DIRECTIONS
HARD LINE

and even rearranging key pedestrian routes to connect appropriate functions and services into order towards improving spatial legibility – an ‘activity grate’ (Ill. 11). In the case of larger housing estates in Mistrzejowice, the residential functions facing each other can offer a significant opportunity in creating a linear public space that is continuous by integrating functions of education, services and recreation together – as a ‘string of beads of activities’ (Ill. 11).

On the other hand, the specificity of the location and composition of the Podwawelskie housing estate offers an opportunity to create a ‘cross of activities’ – connecting recreational activities along the N-S line (Błonia – Linear Park) forming a centre along the E-W line (Old Town aligning with attractive green areas) (Ill. 11).

5.3. Spatial legibility and hierarchy

Revitalisation measures implemented in German housing estates demonstrate the essence of creating a clear, continuous, hierarchical system of public spaces in improving the legibility of the urban layout.

The Cracow-based housing estates have a considerable potential for improving the legibility of their layout along with crucial public spaces and private interior layouts fostering integration with the urban community. In the housing estates in Czyżyny, the runway of a former airport offers a potential to become a vibrant public space and can improve the spatial legibility and hierarchical composition of the project by turning the airport runway into a linear public space that would strengthen spatial integration of individual housing estates in the vicinity into one cohesive communal environment (Ill. 12). A spatially legible linear system of public space with a green sequence can become the spatial spine of housing estates creating compositional axes of pedestrian and vehicular routes that would facilitate positive spatial measures for the Podwawelskie housing estate (Ill. 12). Similarly, in the Krowodrza Górka housing estate, the urban compositional axes improve spatial legibility while strengthening the diamond-shape layout of the development, becoming the spatial identity of the place (Ill. 12).

6. Results and discussion

The metamorphosis of housing estates presented in this paper shows the spectrum of measures undertaken toward improving the spatial quality, composition, and legibility of the housing environment, but also threats resulting from uncontrolled and chaotic development. Despite varying sizes of the selected housing estates, several spatial qualities were achieved using carefully adopted spatial strategies and planning policies. At the same time, a theoretical simulation of adapting the German solutions to selected housing estates in Cracow shows the possibility of their wide application, e.g. in Poland, as well as in other post-communist countries. This in turn allows to undertake an attempt at a more universal systematisation of such measures on the basis of the criteria adopted.

In this context, it should be emphasised that the presented methodology refers to the revitalisation of a common practice encountered at the time when large-panel housing estates were being built. It is also worth mentioning that there were attempts at eliminating this common

practice (in particular at the turn of the 1980s), which succeeded to a point in obtaining results close to the current expectations in terms of design and implementation. Such attempts, however, were only exceptions to the rule, with the Ursynów housing estate in Warsaw being an example of such projects (Trybuś, 2011).

The result of the research presented in this paper is a systematic approach presented in the form of a matrix (Table 2), which can become a useful tool for achieving optimal results of the metamorphosis of large-panel housing estates. The matrix is based on specified objectives of revitalisation and spatial, functional, transport-related, and cultural measures necessary to achieve them. It is paramount that such measures contribute to making use of the potential of housing estates, to protecting it if it is at risk, and to recreating it, if possible, if it has been lost. The existence of relations between individual measures and objectives is marked with one or more ‘x’s, depending on the strength of these relations. The matrix system illustrates the multitude of relations between individual elements, linking them with each other by means of relations of varying weights. They are favourable for achieving mutually complementary effects, and at the same time they contribute to the protection of the existing potential.

The matrix provides an account of how housing estates function today and constitutes the grounds for the development of revitalisation programmes. It shows the optimisation of measures in the context of specific objectives of revitalisation. It also objectively evaluates revitalisation steps and the possible corrective measures plan.

The matrix offers several combinations of qualitative measures for choosing solutions to create public space continuity in housing estates. It can be applied to a specific housing estate, already at the initial stage of the process of selecting rational measures aimed to achieve a systematic sequence of revitalisation objectives, while meeting the needs and expectations of the housing estate as well as of the city.

7. Conclusion

The German experience of transforming large-panel housing estates points to the need to adopt a systematic approach, grasping the issue in a multidimensional way. Such an approach can foster not only the establishment of foundations for the rational planning of revitalisation, but it can also stop undesirable tendencies, clearly visible upon the example of Cracow, but – regrettably – common in other Polish towns and cities, too, relating to the functioning of housing estates (especially their chaotic densification), which cause an irreversible loss of their values, the existing ones as well as the ones that could be achieved. The determination and definition of the potential of a housing estate is the foundation for undertaking measures aimed to use and highlight it, and if threatened – to protect or restore it, if possible and practical.

It should be emphasised that the potential that is shared by housing estates is the ‘resource of space’. It can be frustrated by densification – uncontrolled, but also irreversible ‘predatory exploitation of the resource’. Or else it could be used in an optimum way for the betterment of the housing estate itself as well as of the city.

	CONSEQUENCES OF TECHNOCRATIC APPROACH TO BE TRANSFORMED							
	Mono-functionality	Monotony	'Nobody-spaces'	Shapeless and degraded spaces	Spatial fragmentation	Spatial imperfections	Urban and architectural unification	Stigmatisation and a negative image
MAIN DIRECTIONS OF MEASURES BASED ON THE POTENTIAL	OBJECTIVES TOWARDS SUSTAINABLE DEVELOPMENT							
	Functional and programme diversity	Diversity of the building structure and the scale of urban enclosures	Space hierarchy / public, semi-public, private/	High quality and distinctiveness of public spaces	Continuity of the public spaces system in the housing estate and in the city scale	Legibility of the urban composition and architectural values	Uniqueness in the city scale	Identity of places and positive image
A.		x	xx	xx	xx	xxx	x	xx
B.		x	xx	xx	xx	xxx	x	xx
C.	x	xxx	xx	xx		xx		x
D.	x	xxx	x	xx	xx	xx		x
E.	x	xxx	x	xx	xx	xx		xx
F.	x	xxx	xx	xx		xx		xx
G.	xx	x	xx	xxx	xx	x		x
H.		x	xx	xx	xx	xx		xxx
I.	xx	xx	xx	xxx	xx	xx	x	xx
J.	xx	x	xxx	xx	xx	xx		xx
K.	xx	xx	xx	xx	xx	xx	xxx	xx
L.	xxx	x	xx	xx	xx	x	xx	x
M.	x	x	xx	xx	xxx	xx	xx	xx
N.			xx	xx	xxx	xx		
O.		x	xx	x	xxx	x		x
P.			x	xx	xxx	xx		x
R.	xx	x	x	xx	xxx	x		x
S.		x	x	xxx	xx	xx		x
T.			x	xx	x	xx	xxx	xx
U.			x	xx	x	xx	xx	xxx
MAIN DIRECTIONS OF MEASURES /SPATIAL, FUNCTIONAL, TRANSPORT-RELATED, CULTURAL/ : A. Highlighting / introducing space organising urban composition elements (axes, landmarks, etc.) B. Strengthening spatial and view relationships C. Introducing new structures D. Eliminating structures E. Partial demolition of existing structures F. Modernisation and transformation of structures G. Adaptation of ground floors or entire buildings to other functions than the residential ones H. Creation of recognisable neighbourhoods within housing estates I. Transformation of undeveloped areas into recreational and natural spaces (temporary, permanent) J. Creation of a hierarchical system of centres, subcentres, points of activity K. Introducing 'flagship projects' L. Development of the functional programme of a housing estate – adding missing functions, introducing competitive functions M. Creating green corridors of links with the city N. Neutralisation of urban barriers O. Creating / strengthening the estate's network of walking and cycling lanes P. Creating / strengthening walking and cycling lanes connecting with attracting neighbouring areas R. Creating a public transport network (inside a housing estate and beyond it) and integration of transfer nodes with centres S. Enhancing the effectiveness and spatial quality of parking zones T. Highlighting unique features – historical, cultural and natural values U. Artistic interventions of a temporary and permanent nature (sculptures, murals, etc.)								
WEIGHT OF THE RELATIONSHIP: xxx – KEY xx – SIGNIFICANT x – SUPPLEMENTARY								

Table 2. Systematic approach to the metamorphosis of modernist large-panel housing estates towards a sustainable public spaces system. Prepared by: E. Szczerek, A. Franta

Thoughtful creation of the public space, 'practically densified', without losing its pro-social values, must have a safe, naturally stimulating 'social connection' with a manageable distance, which is one of crucial challenges during the pandemic (Honey-Rosés et al., 2020). It is a new role of public space – a space of an appropriate social distance, providing a possibility of safe

contacts and interactions for each and every city resident, and this requires the 'resource of space', which is still an inherent feature of large-panel housing estates that can be properly used to create the contemporary continuity of the city's public space, as an integral element of sustainable development.

This paper demonstrates a systematic revitalisation

process that ensures positive functional and spatial values of housing estates by creating high-quality and continuous public spaces. A significant role of the revitalisation process – if properly defined – can significantly contribute to the improvement of the quality of public space in the housing estate towards building its new image overcoming the pejorative perception of the housing estate, and also connecting it to the scale of the city. In addition, the structural specificity of housing estates offers an opportunity to build effective and mutually harmonising relations with the city, balancing and

strengthening the continuity of the system of public spaces, and it creates and 'integrated dimension of urbanity' stemming from the specificity of public spaces. The adoption of a uniform approach of revitalisation in diagnosing spatial problems in large-panel housing estates will allow to coordinate relevant plans and actions to provide economically proven solutions. The matrix provided in this paper offers a comparative measure for developing a systematic approach to metamorphosis of modernist large-panel housing estates towards a sustainable public spaces system of the city.

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— Main concept.

On line. Global scale solutions.

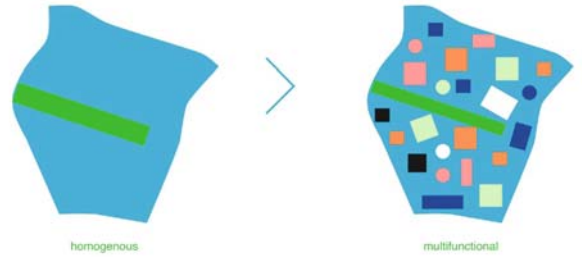
Project site as a new symbol of the city together with Nowa Huta, Vistula riverside and the Old Town.



— Site analysis.

Homogenous into multifunctional.

existing situation: homogenous space.
project aim: mosaic of functions, multifunctionality.



— Master plan.

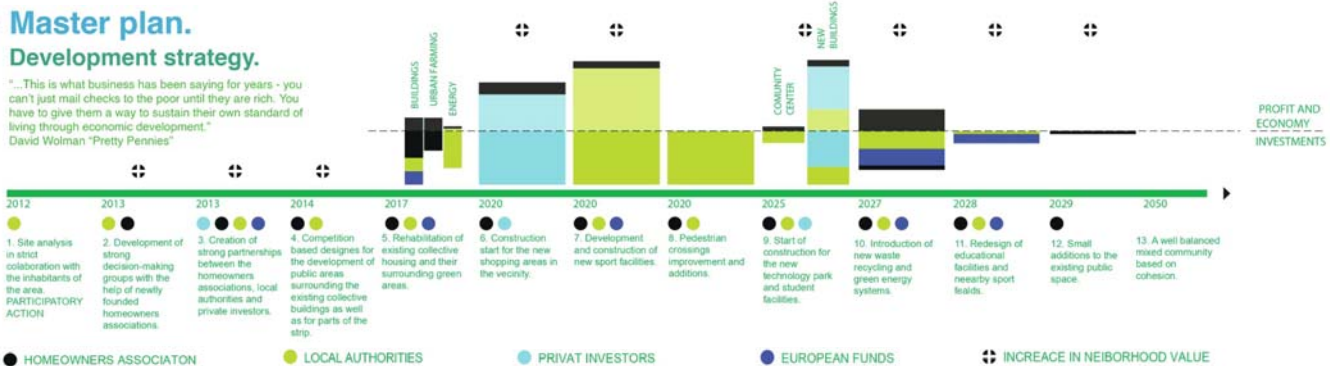
On line.



— Master plan.

Development strategy.

"... This is what business has been saying for years - you can't just mail checks to the poor until they are rich. You have to give them a way to sustain their own standard of living through economic development."
David Wolman "Pretty Pennies"



– Public spaces. Activation.

Minimize - site activation.
Maximize - activation of Nova Huta through our site



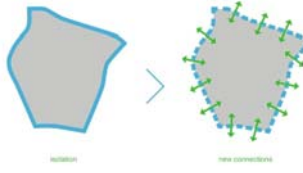
– Public spaces. Activation effect.

See people coming to the site.
Attraction effect.



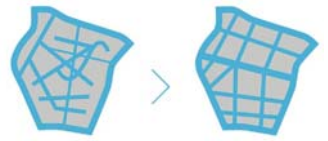
– Communication. Integrating the site into the city.

Existing situation:
Closed and separated area.
Aim:
New connections.
Introducing urban grid into the site.



– Communication. Chaotic connections into an ordered grid.

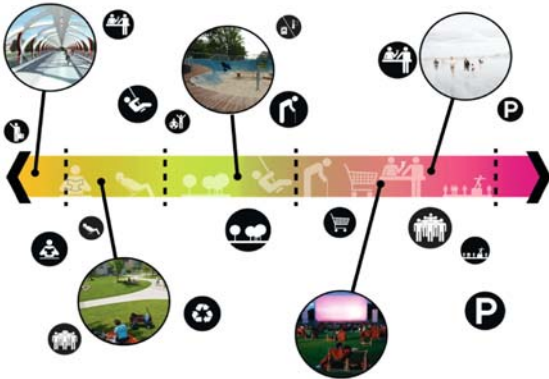
Introducing new order of connection.
Connecting public spaces into a governmental structure.



– Main public spaces.

Runway. Multifunctional flowing space.

Functions situated at the runway correspond with the areas by the runway.



– Public spaces. Introducing hierarchy.

Introducing hierarchy.

Existing situation:
Lack of semipublic spaces.
Spaces similar.
Lack of identity.
Aim:
Differentiation of public spaces.
Individual approach for each space.



- superpublic - for all inhabitants
- public - for neighbourhood inhabitants
- semipublic - for settlement inhabitants



– Communication. Schemes. Pedestrian axis - main connections.

Gradation of pedestrian traffic.
Connecting the site with the outside.
Connecting public areas.
Central pedestrian and bicycle area.

- main bike paths
- main pedestrian axis
- other pedestrian axis

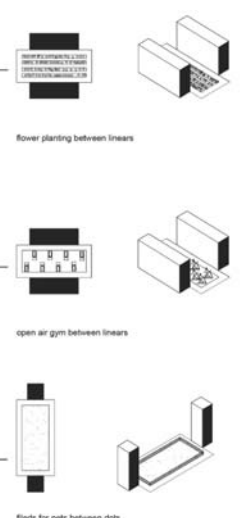


– Residential areas. Solutions.

Types of solutions. Strategy.

Solution proposal, according to space type. Table.

INFLATED PROGRAM	open air theatre	fountain	grid trees	organic garden	podium addition	floating addition	flower planting	open air gym	kids playground	field for pets	leisure	wifi spot
TYPE OF VOID SPACES												
PUBLIC FACILITY - STREET CAPACITY												
BETWEEN POINT												
BETWEEN LINEAR & POINT												
BETWEEN LINEAR												
INDEX LI-SHAYS												





Podwawelskie 2020
creating a new image

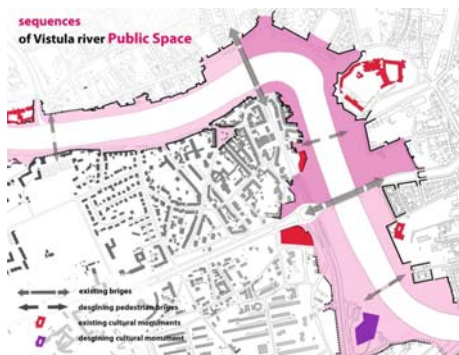
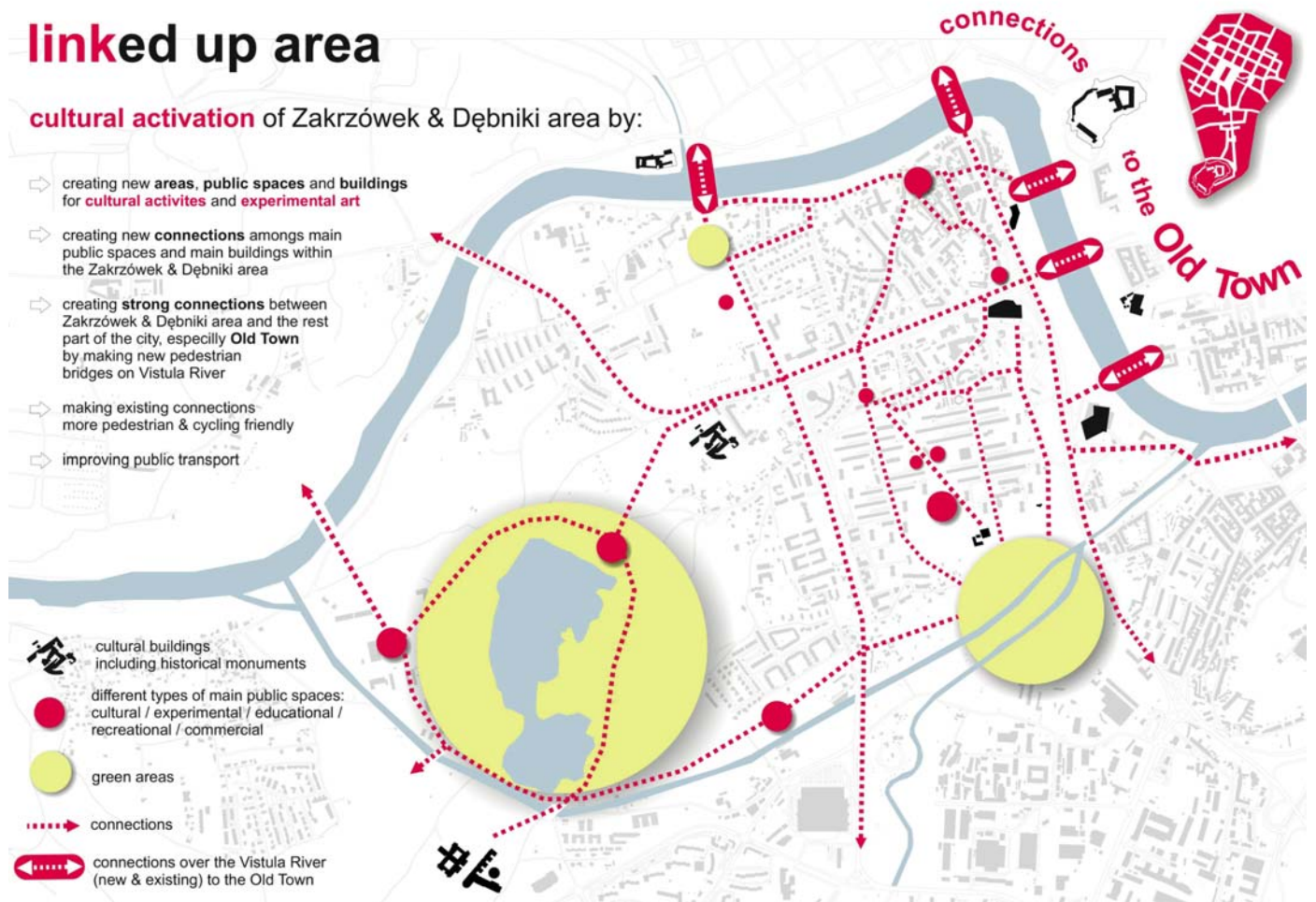


Culture Capital Cracow

linked up area

cultural activation of Zakrzówek & Dębni area by:

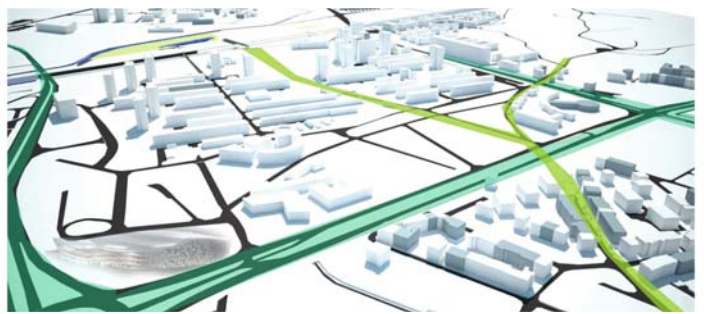
- ⇒ creating new **areas, public spaces** and buildings for **cultural activities** and **experimental art**
- ⇒ creating new **connections** amongs main public spaces and main buildings within the Zakrzówek & Dębni area
- ⇒ creating **strong connections** between Zakrzówek & Dębni area and the rest part of the city, especially **Old Town** by making new pedestrian bridges on Vistula River
- ⇒ making existing connections more pedestrian & cycling friendly
- ⇒ improving public transport





Prefabricated Buildings Redesign Urban Agriculture:

Different types of urban agriculture:
 Green covering roof
 Community gardens
 Vertical gardens
 Greenhouses on the roof



Forest
In the forest there will be a Soundforest

Prefabricated Buildings Redesign Urban Agriculture
 Could we design ways to reduce the distance food travels?

Recreation area and sport

Allotments

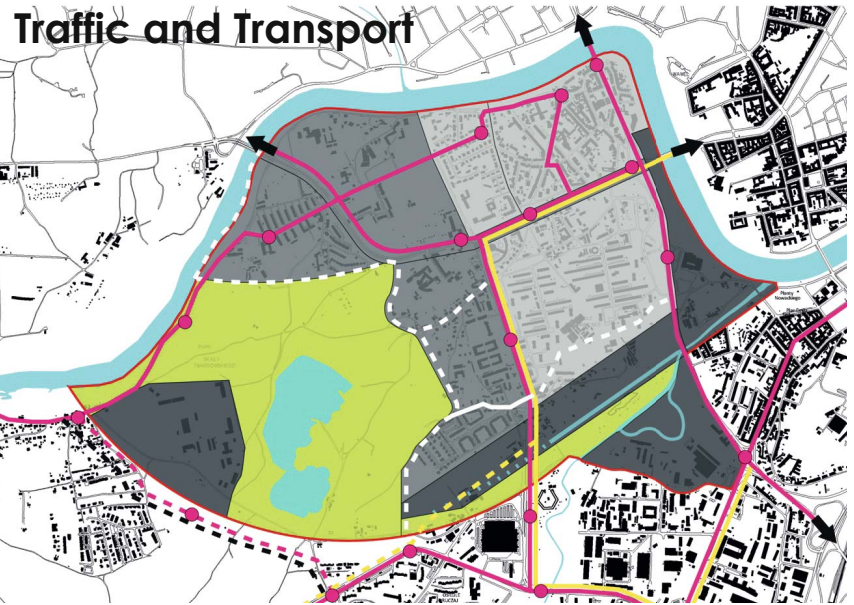
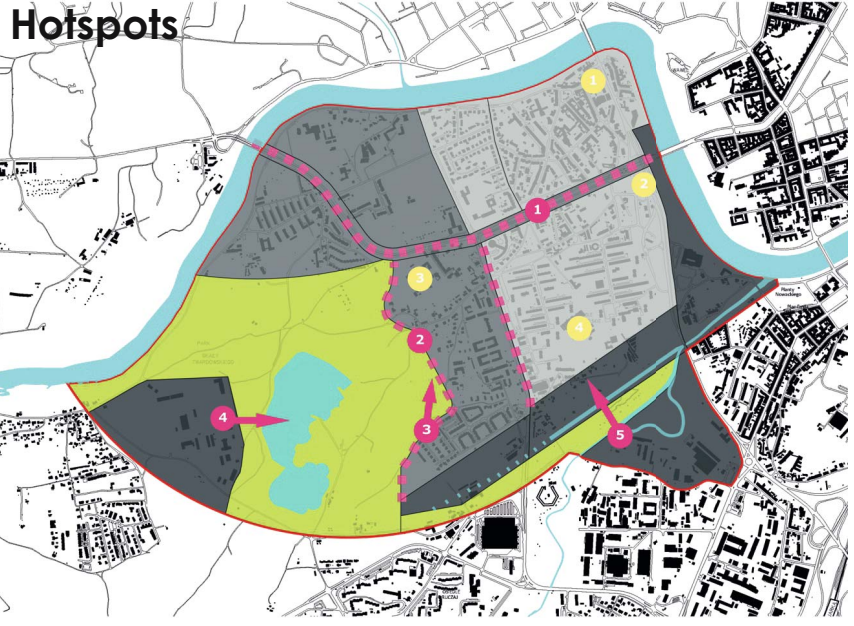
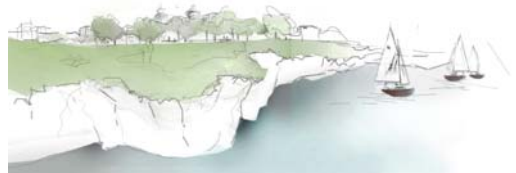
Entrance in the North
There will be an info point, checkout counter and restrooms
Garden for blind people

Entrance in the East
Storage boxes function
Green covering of a roof
Storage boxes and their color concept
New Parking area

Entrance in the West
Living, working and visiting



- | | |
|---|--|
| <p>intensity of development</p> <ul style="list-style-type: none"> less average very | <ul style="list-style-type: none"> green space water site quarters |
| <p>existing hot spots</p> <ul style="list-style-type: none"> 1 market place 2 congress centre 3 monastery 4 church | <p>intensity of development</p> <ul style="list-style-type: none"> less average very |
| <p>planned hot spots</p> <ul style="list-style-type: none"> 1 numbers of sketches direction of sketches active zone | <p>traffic development</p> <ul style="list-style-type: none"> bus existing with station bus planned with station tram existing tram planned road existing road planned |





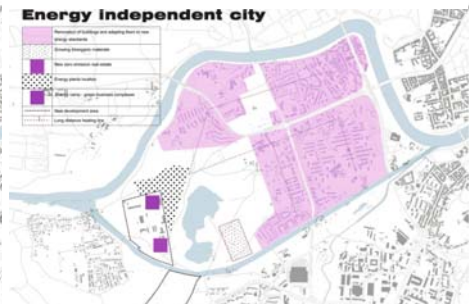
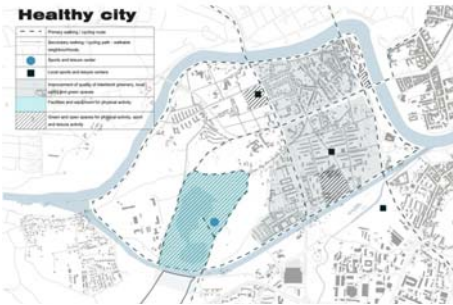
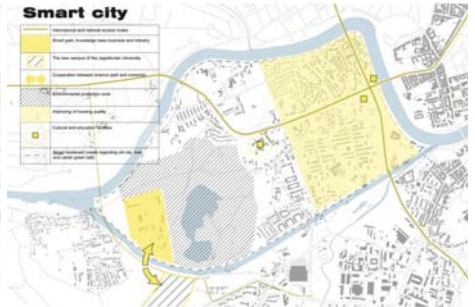
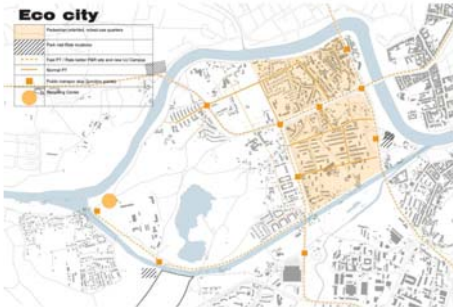
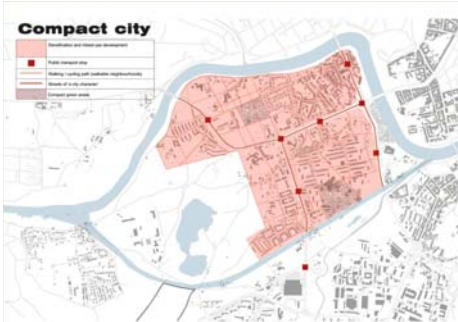
Nexus noun, plural, nex-us-es, nex-us.
 1. a means of connection; tie; link.
 2. a connected series or group.
 3. the core or centre, as of a matter or situation.

Nexus City

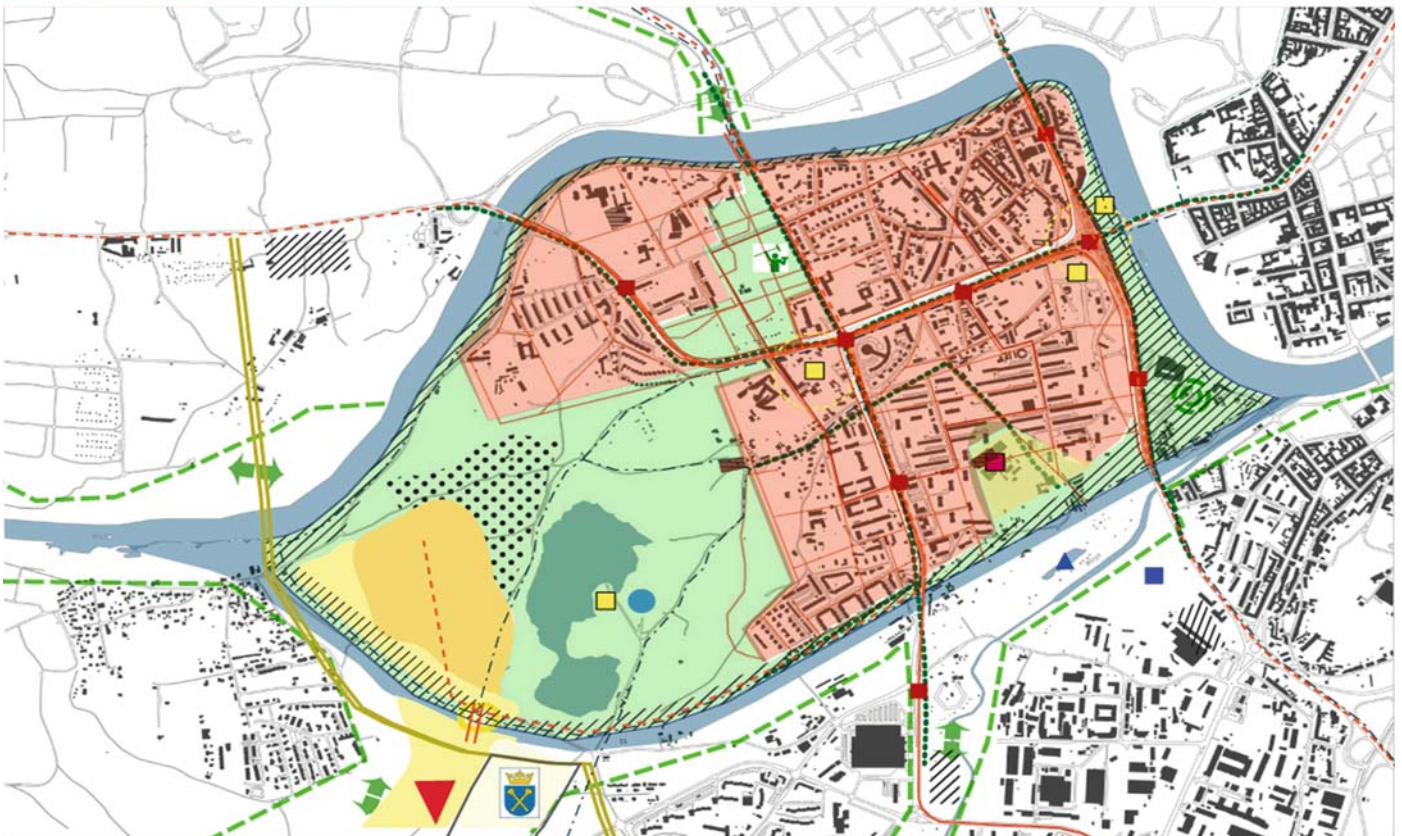
A product results from combining and connecting many ideas and concepts focusing on integrating physical, social, environmental, and economical aspects

Process flow chart

- A. Understanding task and the background
- B. Carry out SWOT analysis for the area of interest
- C. Develop theories for city concepts
- D. Undertake research and carry out SWOT analysis on the selected city concepts
- E. Apply selected city concepts to the area of the task
- F. Overlay all the maps to obtain complementary and conflicting elements
- G. Create preliminary proposals
- H. Review against area of interest's SWOT and the participants' opinions
- I. Final proposals and Master Plan



master plan





Kreacja i uatrakcyjnianie przestrzeni publicznych



Wyodrębnienie przestrzeni sąsiedzkich dostosowanych do grupowych preferencji mieszkańców



Przekształcenia infrastruktury społecznej



Poprawa walorów środowiska przyrodniczego



Podwyższenie standardu technicznego i walorów użytkowych zabudowy mieszkaniowej

green area

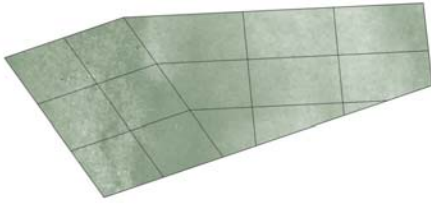
existing development



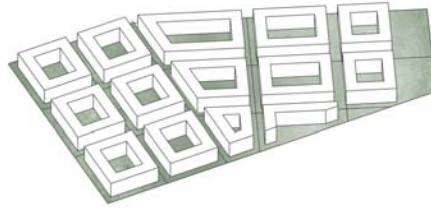
sport and activity

mobility

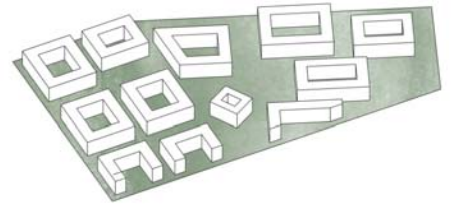




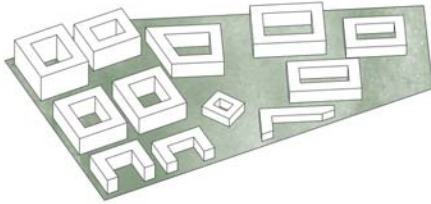
ZAKRES, PODZIAŁ



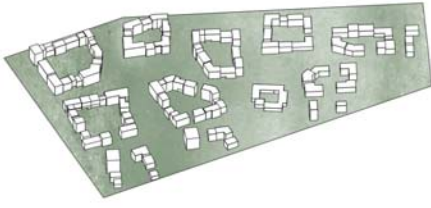
KWARTAŁY



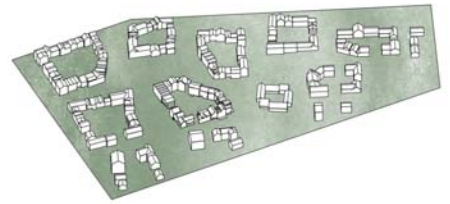
ROZBICIE KWARTAŁÓW



ZRÓŻNICOWANIE WYSOKOŚCIOWE



ZRÓŻNICOWANIE BRYŁ



ZRÓŻNICOWANIE KSZTAŁTÓW

WOLBROM NOWE OBLCZE OSIEDLA
PROJEKT ZAGOSPODAROWANIA TERENU

SKALA 1:1500

LEEGENDA

- TERENY LEŚNE
- TERENY ZIELONE
- TERENY UTWARZONE
- TERENY SPORTOWE
- TERENY ROLNICZO-REKREACYJNE- OGRODKI DZIAKOWE
- WODA
- PLAŻA
- MIEJSCA POSTOJOWE Z ZIELONĄ NAWIERZCHNIĄ
- MIEJSCA POSTOJOWE

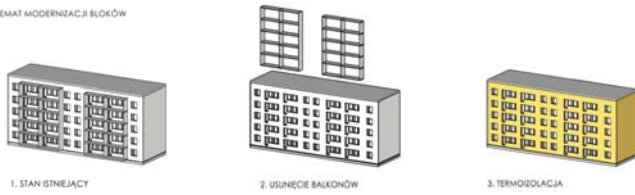
- DRZEWA
- WEJŚCIA DO BUDYNKÓW
- WJAZDY DO GARAZÓW PODZIEMNYCH
- PRZESTRZEŃ AUTOMOBILOWA
- OBRYSY BUDYNKÓW PROJEKTOWANYCH
- ZAKRES SZCZEGÓŁOWEGO OPRACOWANIA

- LICZBA PIĘTER:
- I
 - II
 - III
 - IV
 - V
 - VI

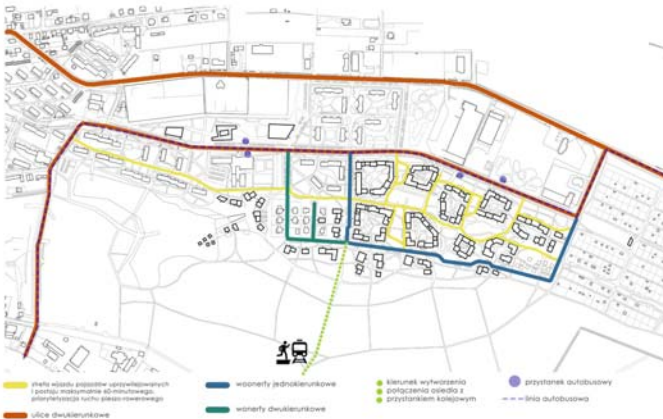
1. UTWORZENIE PARKU PRZY CMENTARZU Z PARKINGAMI NAZIEMNYMI W BUDYNKACH
2. SZKOLA PODSTAWOWA, WYKORZYSTANIE ISTNIEJĄCEJ DROGI I BOISKA ASFALTOWEGO DO ZMIANY PARKINGU SZKOLNEGO.
3. STWORZENIE BOISKA BEZPIECZNEJ NAWIERZCHNI TARGANOWEJ
4. CIĘŻKA PRZESTRZEŃ PRZEZNACZONA DO POŁOWU RYB. PRZEZ LOKALNY ZWIĄZEK WĘDKARSTWA
5. BOISKA DO GRY W SIATKÓWKĘ PŁAZOWĄ
6. WODNY PLAC ZABAW
7. PRZESTRZEŃ DLA DOMU SPOKOJNEJ STAROŚCI
8. DREWNIANE DONICE PRZEZNACZONE POD UPRAWĘ WARZYW I OWOCÓW
9. ZMIANA PLANU ZAGOSPODAROWANIA PRZESTRZENNEGO- TERENY PRZEMYSŁOWE-> MIESZKANOWE
10. OGRODKI DZIAKOWE Z TERENAMI PRZEZNACZONYMI NA KINO PLENKOWE I KONCERTY



SCHEMAT MODERNIZACJI BLOKÓW



SCHEMAT KOMUNIKACJI



SCHEMAT ZIELONI



SCHEMAT FUNKCJONALNY



SCHEMAT WYSOKOŚCI

