GDAŃSK UNIVERSITY OF TECHNOLOGY

FACULTY OF ARCHITECTURE

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MASTER'S THESIS

Title of the thesis: Unveiling the Past, Shaping the Future.

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Supervisor: dr inż. arch. Ksenia Piątkowska

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DECLARATION regarding the diploma thesis titled: Unveiling the Past, Shaping the Future.

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Mode of study: Full-time studies

Type of the diploma thesis: master's thesis

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ABSTRACT:

This paper examines the phenomenon of urban sprawl, one of the most pressing challenges facing contemporary cities. Through a comprehensive analysis of its causes, consequences and potential, the paper highlights the urgent need for sustainable urban development strategies. Particular attention is paid to the Polish context, with case studies from the Gdańsk metropolitan area.

The study highlights the negative effects of urban sprawl on urban and rural landscapes, from environmental degradation and spatial chaos to social segregation and reduced quality of life. It also highlights the shortcomings of traditional planning policies, such as fragmented local governance and market-driven development, which often lead to ineffective spatial management.

Revitalization is presented as a key strategy to counter urban sprawl. By reusing degraded urban areas, cities can reduce the pressure on undeveloped land while improving the standard of living of residents. The paper examines a range of international revitalization projects—from New York's High Line and Seoul's Cheonggyecheon Stream to community-based renewal in Wałbrzych—highlighting the diversity of tools and approaches used around the world, including placemaking, heritage preservation, adaptive reuse, and participatory planning.

Based on these analyses, the paper proposes a project that aims to revitalize a degraded area by integrating environmental, social, and architectural aspects. The proposed solution focuses on creating inclusive public spaces, increasing greenery, and strengthening the historic identity of the place, while meeting the contemporary needs of its users.

The study concludes that urban revitalization, when approached holistically and with strong community engagement, offers an effective path to curbing urban sprawl. It also highlights the growing trend of reurbanization, where residents are returning from the suburbs to downtown areas in search of connectivity, services, and a renewed sense of community. This change creates an opportunity to build more compact, accessible, and future-proof cities.

Revitalization offers a practical and sustainable response to urban sprawl. By focusing on existing urban spaces and engaging local communities, cities can grow in a way that is both inclusive and future-oriented. The challenge now lies in turning these ideas into consistent, well-implemented policy.

Keywords: regeneration, reuse, revitalisation, society, degradation, recreation, people, culture, reduce

STRESZCZENIE:

W poniższej pracy zbadano zjawisko rozlewania się miast, jedno z najpilniejszych wyzwań stojących przed współczesnymi miastami. Poprzez kompleksową analizę jego przyczyn, konsekwencji i potencjału, artykuł podkreśla pilną potrzebę zrównoważonych strategii rozwoju miast. Szczególną uwagę poświęcono kontekstowi polskiemu, z przykładami z obszaru metropolitalnego Gdańska.

Badanie podkreśla negatywne skutki rozlewania się miast na krajobrazy miejskie i wiejskie, od degradacji środowiska i chaosu przestrzennego po segregację społeczną i obniżoną jakość życia. Podkreśla również niedociągnięcia tradycyjnych polityk planowania, takie jak rozdrobnione zarządzanie lokalne i rozwój napędzany rynkiem, które często prowadzą do nieskutecznego zarządzania przestrzennego.

Rewitalizacja jest przedstawiana jako kluczowa strategia przeciwdziałania rozlewaniu się miast. Poprzez ponowne wykorzystanie zdegradowanych obszarów miejskich miasta mogą zmniejszyć presję na niezagospodarowane tereny, jednocześnie poprawiając standard życia mieszkańców. W artykule przeanalizowano szereg międzynarodowych projektów rewitalizacji — od nowojorskiej High Line i Cheonggyecheon Stream w Seulu, po odnowę opartą na społeczności w Wałbrzychu — podkreślając różnorodność narzędzi i podejść stosowanych na całym świecie, w tym tworzenie miejsc, ochronę dziedzictwa, adaptacyjne ponowne wykorzystanie i partycypacyjne planowanie.

Na podstawie tych analiz w artykule zaproponowano projekt, którego celem jest rewitalizacja zdegradowanego obszaru poprzez integrację aspektów środowiskowych, społecznych i architektonicznych. Proponowane rozwiązanie koncentruje się na tworzeniu inkluzywnych przestrzeni publicznych, zwiększaniu zieleni i wzmacnianiu historycznej tożsamości miejsca, przy jednoczesnym zaspokajaniu współczesnych potrzeb jego użytkowników.

Badanie wykazało, że rewitalizacja miejska, gdy jest podchodzona holistycznie i przy silnym zaangażowaniu społeczności, oferuje skuteczną ścieżkę do powstrzymania rozrostu miast. Podkreśla również rosnący trend reurbanizacji, w ramach którego mieszkańcy wracają z przedmieść do centrów miast w poszukiwaniu łączności, usług i odnowionego poczucia wspólnoty. Ta zmiana stwarza okazję do budowy bardziej zwartych, dostępnych i przyszłościowych miast.

Rewitalizacja oferuje praktyczną i zrównoważoną odpowiedź na rozrost miast. Skupiając się na istniejących przestrzeniach miejskich i angażując lokalne społeczności, miasta mogą rozwijać się w sposób zarówno inkluzywny, jak i zorientowany na przyszłość. Wyzwaniem jest teraz przekształcenie tych pomysłów w spójną, dobrze wdrożoną politykę.

Słowa kluczowe: regeneracja, ponowne wykorzystanie, rewitalizacja, społeczeństwo, degradacja, rekreacja, ludzie, kultura, redukcja

Table of contents:

I. STUDY OF DESIGN PROBLEM

1. Preliminary description of the thesis

The topic of my work will be a detailed look at the issue of urban sprawl, which means the uncontrolled spread of city areas and its major challenge for modern cities. I will examine several aspects of this problem: its causes, effects, and possible solutions.

First, I will explore why and how urban sprawl happens. Urban sprawl often results from different factors. I will analyse how global trends, local policies, and investment choices affect the spread of cities.

Next, I will discuss how urban sprawl impacts the city and its people. This includes changes in the city's layout and how it affects residents' daily lives, their access to services, and their overall quality of life.

After looking at the causes and effects of urban sprawl, I will explore tools that can help reduce it. I will consider different strategies for planning spaces, sustainable development policies, and innovative urban solutions. I will focus on research about effective space management and examples of successful practices from cities around the world.

A key part of my work will be analysing how revitalization can help fight urban sprawl. Revitalization, which involves renewing and modernizing city areas, can be an effective way to address uncontrolled urban growth. I will show how revitalization improves city spaces and residents' lives. I will provide examples of cities where revitalization has worked, demonstrating how it has helped with sustainable development and better living conditions.

My work will be based on a wide review of literature and studies by experts in urban planning, ecology, and sociology. I will use both theoretical ideas and practical examples to better understand urban sprawl and how to manage it effectively.

2. Purpose of the work

The problem of uncontrolled urban expansion, also known as urban sprawl, is becoming increasingly common and noticeable in many metropolises around the world. As a long-time resident of rural areas, I have a unique perspective that allows me to clearly see the negative effects of this phenomenon. Urban sprawl has a destructive impact not only on the natural environment but also on the daily lives of rural inhabitants.

The increasingly blurred boundaries between urban and rural areas are becoming a noticeable problem, transforming the landscape of these places.

The constant need of acquiring new land for development results in low-quality architecture, which not only disrupts the harmonious appearance of towns but also leads to the degradation of spaces that should be protected and nurtured. My personal observations of this phenomenon inspired me to undertake an analysis aimed at identifying actions that can limit uncontrolled urban growth while simultaneously creating spaces that are visually and functionally attractive.

I want the space and architecture I design to have deep meaning for the residents of specific districts, while also strengthening social bonds. In my project, I want to focus significant attention on degraded inner-city areas, to create spaces that, while respecting historical and cultural values, not only meet contemporary needs but also reflect the identity of local communities.

I will conduct an in-depth analysis of revitalization processes worldwide to develop an individualized project based on collected best practices that perfectly fits the character of the chosen area. I hope that my project will become an example of good practice, which can be successfully applied in future urban developments, positively influencing the development of both urban and rural spaces.

3. The Problem of Our Times – Urban Sprawl

The concept of urban sprawl has been around for a long time. As noted in the article by Gerald Franz, Gunther Maier, and Pia Schröck: "The term 'sprawl' was first used in 1937 by Earle Draper of the Tennessee Valley Authority in the context of a national conference of planners (cit. in Wassmer 2002). Sprawl was referred to as an unaesthetic and uneconomic settlement form." Over time, definitions have been modified and increasingly adapted to the relevant times. Many researchers consider urban sprawl to be a multidimensional phenomenon. As Siedentop (2005) stated, the concept can be summarized into five general definitions:

- Low-density development and functional separation of uses
- De-concentration processes of urban functions combined with the spatial expansion of urban uses into rural areas
- The transformation of cities from central forms to polycentric cities, spatial and social segregation
- Loss of green spaces
- Unplanned urban development

Although the first definitions of suburbanization appeared in the 20th century and were related to rail development, the true scale of the phenomenon became noticeable at the beginning of the 21st century with the massive growth of road transport. The great urbanization and population growth contributed to the expansion of city boundaries. The main factors behind this phenomenon include decreasing transportation costs, increasing incomes, and population growth. More and more often, after calculating costs and benefits, people choose to move to the suburbs. Attractive land prices, improved infrastructure, and the availability of cars seem to create ideal conditions for building a home outside the city. Commuting to business centers does not deter people, as the prospect of having more space is very appealing. Another factor contributing to the migration to the countryside is the high cost of housing in cities, the lack of open spaces, and the constant noise of city life. Often, people with higher financial status also decide to move out. Large spaces provide them with more freedom to build attractive high-standard properties. These factors contribute to changing the model of cities from monocentric, where key points are concentrated in the center, to polycentric cities with new subcenters, leading to the development of "city edges," or peripheral cities. Subcenters become fully self-sufficient, equipped with all necessary services and workplaces, which discourages visits to historic centers, resulting in the transformation of downtown areas mainly for tourists.

Another cause of urban sprawl in Poland is the local government policy. Each municipality plans its development independently, fostering competition. Most prosperous municipalities strive to increase the number of residents, which, in turn, allows for greater tax revenue.

In 1998, Burchell described the specific characteristics of urban sprawl. According to the author, the phenomenon can be divided into dispersed residential development with low population density and dispersed industrial and service development. As noted by Gerald Franz, Gunther Maier, and Pia Schröck (2006) "He further describes 10 points that characterize urban sprawl (…):

- *Low residential density*
- *Unlimited outward extension of new development*
- *Spatial segregation of different types of land uses through zoning regulations*
- *Leapfrog (discontinuous) development*
- *No centralized ownership of land or planning of development*
- *All transportation dominated by privately owned motor vehicles*
- *Fragmentation of governance authority over land uses between many local governments*
- *Great variances in the fiscal capacity of local governments because the revenue-raising capabilities of each are strongly tied to the property values and economic activities occurring within their own borders*
- *Widespread commercial strip development along major roadways*

- *Major reliance upon the filtering or 'trickle-down' process to provide housing for low-income households."*

Urban sprawl is an urban phenomenon with numerous negative consequences. The continuous expansion of urban areas leads to the degradation of green spaces, increased infrastructure maintenance costs, excessive energy consumption, and deepening social and functional divisions in cities. The expansion of suburban areas fosters increasing dependence on cars as the main mode of transport, leading to higher air pollution.
Social segregation contributes to the development of enclaves for the rich and the poor, and more people choose to leave city centers, turning them from places of permanent residence into areas for short-term rentals. "Those who can afford cars live in the suburbs, those who can't in the inner city." The migration of high-income populations can also lead to higher tax rates and increased crime rates. The education system is also affected by these changes, with city centers being left mainly to young people from poorer families and minorities, while middle- and upper-class individuals move to the outskirts.

Urban sprawl negatively impacts not only cities but also rural areas. The blurring of boundaries between urban and rural areas leads to the degradation of the natural environment. The growing demand for land significantly increases the population density in rural areas, transforming quiet and peaceful villages into so-called "bedroom communities," where road traffic and service activities rise. Charming, historic buildings are overshadowed by low-standard housing estates, where quantity outweighs quality. The greatest threat is faced by towns located close to large cities, as they offer better employment prospects. "There are significant differences in the income level per capita between municipalities near the largest cities in Poland and those that are not in their immediate vicinity. In the peripheries of large urban areas, municipalities' income from the PIT income tax averages PLN 2,000 per capita. In more distant municipalities, this income averages PLN 800 per person," says Dr. Zadorozhna.

Despite the numerous negative aspects of urban sprawl, some positive aspects can also be observed. As Wassmer (2005) notes, moving to rural areas has significantly increased society's satisfaction with living conditions. Moreover, the convenience of car travel has improved, and the level of education in suburban and rural areas has risen. These areas also experience lower crime rates. However, it is worth asking whether the pursuit of personal comfort is worth contributing to the ongoing degradation of the natural environment?

4. *The Phenomenon of Urban Sprawl in the Context of Cities and Its Impact on Rural Areas (Gdańsk, Juszkowo and Bakowo)*

4.1 The Rapid Growth of the Gdańsk Metropolitan Area

The concept of urban sprawl can be easily observed in the city of Gdansk. This coastal town is an attractive destination, particularly for young people. The increasing number of business centres, excellent infrastructure, and transportation options have led to a significant rise in the population in recent years, as shown in graphic [1.1].

Additionally, the location of workplaces in districts distant from the historical heart of the city means that these areas see a noticeable decrease in the number of residents, especially during off-peak seasons.

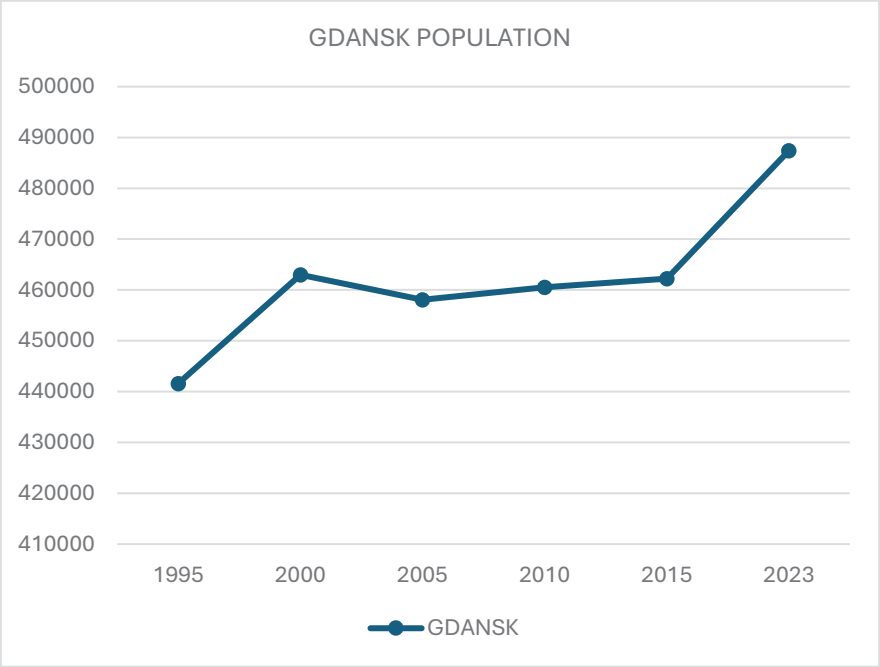


Figure 1. Own graphic based on data from the Local Data Bank of the Central Statistical Office (GUS)

A sudden increase in the number of residents led to a greater demand for housing. Developers started buying more land for new investments. This caused the city to grow quickly and expand its borders (shown on graphic [1.2]). New districts appeared, like Gdańsk Południe. In these new areas, developers focused more on building a lot of apartments instead of making high-quality neighborhoods. As a result, the city became messy, with poor construction and not enough public spaces for people. Some buildings were put in controversial places, like next to the city bypass or near the landfill in Gdańsk Szadółki. The borders between Gdańsk and nearby towns like Kowale, Pruszcz Gdański, or Borkowo started to disappear.

These places became more connected to Gdańsk, especially because city buses go there, so people started to treat them like parts of the city. As we can see in the graphic below [1.2] , the boundary between the cities is now merely symbolic.

Because the city grew so fast, infrastructure couldn't keep up. In many new districts, the only way to get around is by bus. But traffic jams and long, indirect bus routes make many people choose to drive instead. The city wants to reduce car use, but building train connections takes many years. By the time one area is connected, new ones are already growing even farther away. This fast growth and the increase in cars are bad for the environment and for people's daily lives. Traffic jams, longer travel times, and more pollution make the city less pleasant to live in. To fix this, the city is trying to improve infrastructure in both the new outer districts and modernize inner-city degraded areas.

This gives people more choice and can encourage them to live closer to the city center. Gdańsk is also investing a lot in public transport and bike lanes to give people better alternatives to driving. The city is buying electric and hydrogen buses, which makes it one of the leaders in sustainable transport in Poland. These actions help reduce pollution and slow down the city's expansion into new areas.

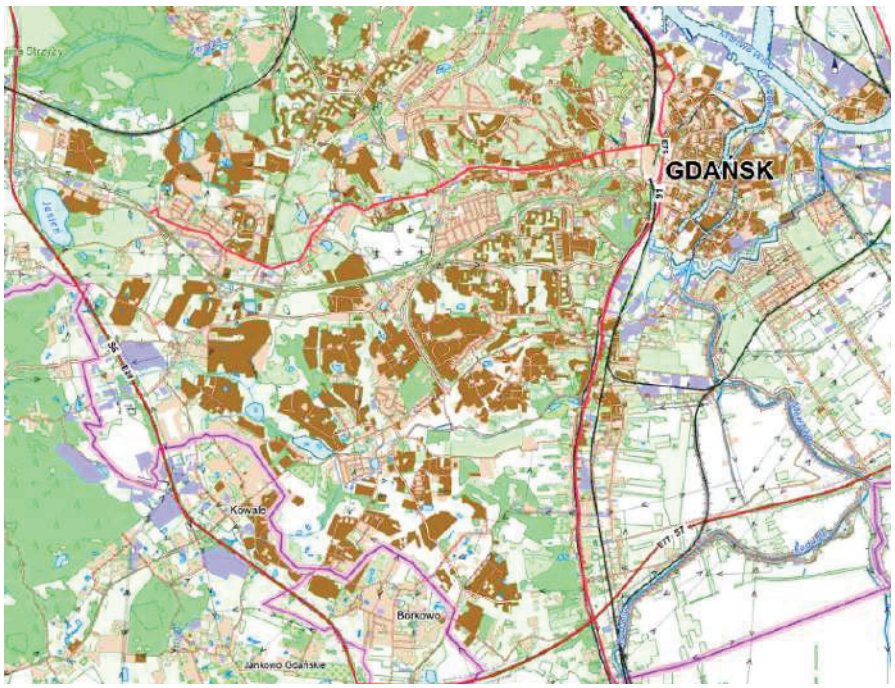


Figure 2. Administrative map of Gdansk Południe. Graphic from Geoportal site

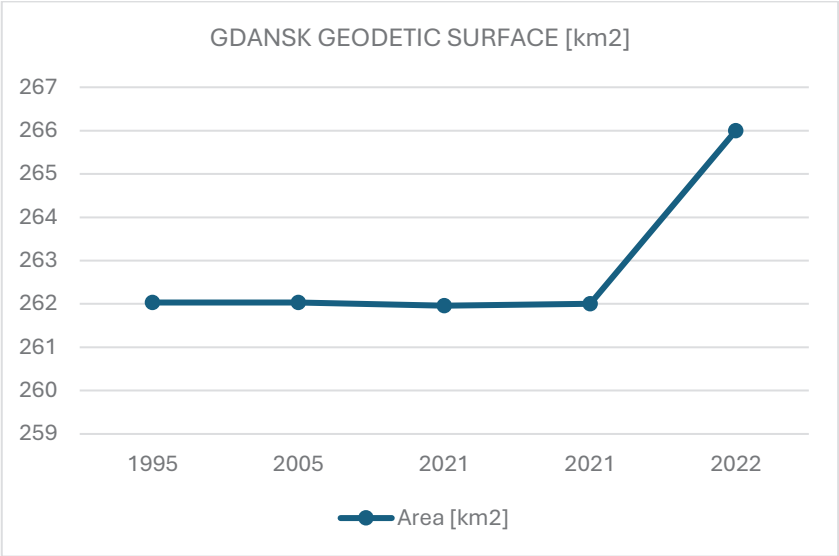


Figure 3. Own graphic based on data from the Local Data Bank of the Central Statistical Office (GUS)

4.2 Destruction of Rural–Urban Borders: The Case of the Village of Juszkowo

It may seem that urban sprawl mainly affects cities and is a threat to them. However, people don't just move from city centers to the suburbs — they also move from cities to the countryside. Villages near big cities are most at risk.

Large green areas and the short distance to the city make them attractive to young families and people looking for a quieter life. In recent years, developers have also become interested in these areas. More and more identical row houses with few square meter of gardens and neighbours fence in fence are being built. Its cheap alternative which try to follow one family house, but can we still call it household?

Urban sprawl is a big threat to rural areas because it changes their traditional look and turns them into "bedroom communities." In the early 2000s, many people started leaving cities. They realized that for the price of a small apartment in the city, they could buy a big house with a garden. More and more people moved to suburban villages. A great example of this is Juszkowo, a village in the Pruszcz Gdański commune, about 15 km from Gdańsk. Because of its popularity, its population has grown almost six times larger.

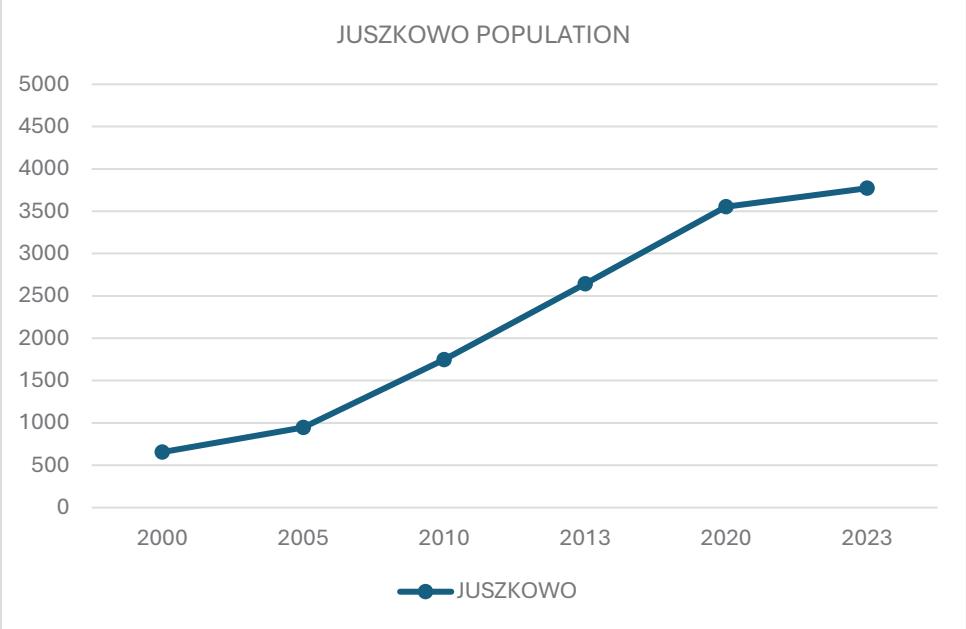


Figure 4. Own graphic based on data from the Commune Office regarding the population of the village (https://bip.pruszczgdanski.pl/)

The housing density changed significantly. It became very rare to find a plot of land without a neighbour right next door. Another advantage of this location was its proximity to the Gdańsk bypass, which improved connections to city centre. Infrastructure was heavily modernized to handle the increased car traffic.

The village started expanding, and its borders with the neighbouring town of Pruszcz Gdański began to disappear.

Figure 5. Topographic map of Juszkowo – comparison of 2008 and 2025 from Geoportal website

Topographic map of Juszkowo – comparison of 2008 and 2025 from Geoportal website https://mapy.geoportal.gov.pl/imap/Imgp_2.html?gpmap=gp0

As we can see in the maps above, the amount of buildings has increased significantly over the past 15 years. In 2008, the village was mostly concentrated near the Radunia River, and the road to Pruszcz Gdański passed through fields and meadows.

Today, the border between Juszkowo and Pruszcz is almost symbolic. Buildings now stretch continuously along the main road, and many new housing estates have been built at the entrance to Juszkowo. The village has lost its uniqueness and independence, as it is now treated as a district of the city.

Local authorities are trying to make the village more independent. New kindergartens, nurseries, and schools are being built, and the first supermarkets are opening. This has both advantages and disadvantages.

Creating a self-sufficient village reduces the need for cars and encourages alternative transportation. However, supporting the development of self-sufficient villages also leads to even more urban sprawl and encourages more people to move out of the city. The very attractive location close to the city, along with a wide range of services, has drawn increasing interest from developers. More and more houses are being built. Unfortunately, the quality of these new buildings is quite poor. In most cases, we see rows of many identical houses that completely disrupt the authentic character of the traditional neighborhood. The village is starting to lose its identity and is becoming very crowded. The idea of quiet place far away from city centre started to disappearing.

Villages will never be 100% self-sufficient—people will still need to commute to work and access services. Expanding suburban housing areas harms the environment by taking over new land, increasing CO_2 emissions, and destroying the existing landscape. Villages are losing theirs authenticity and permanent residents started to feel that their not live in there childhood place anymore.

4.3 Bąkowo – A Suburb Shaped by Developers

Urban sprawl doesn't just change cities – it can also completely change life in some villages. As land in cities becomes more expensive, developers look for cheaper places to build, often in the countryside.

People's strong wish to own their own home gives developers a chance to offer very low-quality housing. This type of poor development – known in Poland as Toxic development – has now reached rural areas and is changing them completely.

A good example is Bąkowo, a small village about 10 km from Gdańsk. It used to be a quiet place between Gdańsk and the larger town of Kolbudy. A few years ago, a well-known developer from the Tricity area bought a large piece of land in Bąkowo and built a huge housing estate with rows of terraced and semi-detached houses. The advertisements promised a peaceful home far from the city noise, and many people were interested. The first homes sold very quickly. In the end, the new estate became almost as big as the original village, which you can see in the images below [1.6]. The number of people living in Bąkowo grew very fast, and the area suddenly needed many basic services. The quiet village, once full of fields and forest, became a crowded residential area. The houses don't look like traditional village buildings.

They are all very similar and built very close to each other. Most people only have a few square meters of private garden, fenced in on all sides. There are no public spaces on the estate, and the only nearby attraction is the forest. On top of that, a major road is now being planned near the village. The new Metropolitaln Bypass will connect southern Gdańsk with towns like Żukowo. The expressway will pass right next to the new estate in Bąkowo.

Figure 6. Topographic map of Bąkowo– comparison of 2015 and 2024 from Geoportal website

https://mapy.geoportal.gov.pl/imap/Imgp_2.html?gpmap=gp0

The description of this investment shows how developers, driven by profit, are willing to sacrifice the unique character of villages. Focusing only on making money, they build large housing estates that can be sold at attractive prices.

This uncontrolled suburban development destroys the village's fabric and has a harmful impact on the environment. Local authorities should pay more attention to local plans to limit the growth of this kind of development.

Figure 7. New investment of Bąkowo - shows the massive amount of similar row houses [author's photo}

5. Directions for Combating Urban Sprawl: Pros and Cons, definition of degraded areas

Since the problem of urban sprawl has been present for many years, cities have begun to take action to combat this phenomenon. Various methods are being implemented, but they don't always achieve the desired results. The cities of London and Ottawa decided to limit urban expansion by introducing green belts, intended to restrict the development of new neighborhoods. However, this proved to be only a minor obstacle, as construction began just beyond these green belts, which turned out to be merely a "jumping point."
Another attempt was made in Portland, where one of the main reasons for people moving to rural areas—lower land prices—was addressed by raising property prices on the outskirts to discourage people from leaving the city. This move was met with negative feedback from residents, who accused the city of interfering with free market principles.

This raises the question: what measures can effectively limit urban sprawl? Increasingly, emphasis is being placed on creating competitive urban conditions compared to the suburbs, rather than relying solely on restrictions. Cities have numerous undeveloped and degraded areas that, while often requiring significant financial investment for revitalization, hold great economic and social potential due to their historical context and attractive locations.

Degraded areas are often plagued by social problems such as unemployment, poverty, lack of social cohesion, social inequalities, and homelessness.
Andreas Billert (2007) notes, however, that "*It wasn't urban poverty or the impoverishment of old tenement owners that triggered the degradation processes in many old city districts, but rather the rise in wealth, the real estate market's reaction to it, and flawed government policies*." The real estate market's actions, which overlook older properties, lead to a limited selection, forcing owners of these properties to compete with new investments, a daunting challenge.

Old buildings, despite already existing and not requiring new land, boast a unique charm and atmosphere that surpass the experience offered by modern, functional construction. However, revitalizing these buildings often comes with high costs, making new investments a more attractive option. As Andreas Billert (2007) writes, "*A large number of decapitalized houses, combined with an increasing number of vacancies and deepening socio-economic problems of residents, leads to the disqualification of the entire district, including functional houses*." The value of the location plays a crucial role here – the condition of one building affects the perception of the entire area, creating a domino effect and leading to a so-called "spiral of degradation." Therefore, holistic thinking is essential, and space regeneration should encompass entire areas, not just individual buildings.

Degraded areas are a widespread problem affecting many Polish cities. It is estimated that these areas account for an average of 25% of urban spaces.

In Poland, the highest percentage of degraded areas is found in the Upper Silesian and Rybnik agglomerations, and in regions where mining operations have been drastically reduced or ceased altogether. Degraded areas also exist in cities where large industrial centers have collapsed. In cities with county rights, the average area of degraded land is 1,680 hectares. Degraded areas have been well illustrated on the maps of cities such as Szczecin [fig. 1.5], Kraków [fig. 1.3], and Gdańsk [fig. 1.4]. The basis for determining degraded areas and those eligible for revitalization is the designation of problem areas, known as the social degradation index. This index highlights areas where certain social norms have been broken, typically indicating a transition from an upper to a lower social class. This is well depicted in the following example of a map of Kraków.

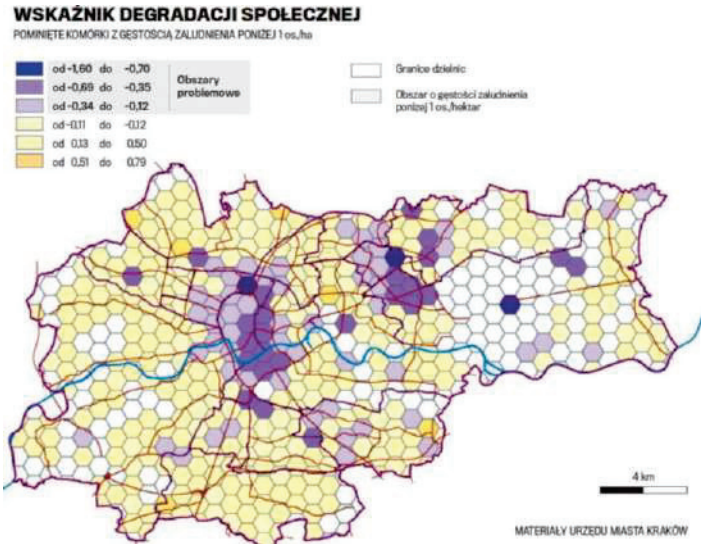


Figure 8. Social Degradation Index – Cracow

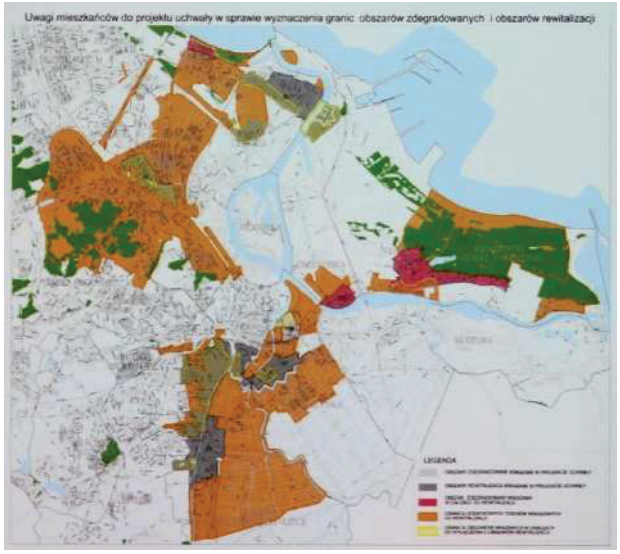


Figure 9. Map of Revitalization Areas and Degraded Areas, Taking into Account All Resident Submissions During Public Consultations – Gdansk

As we can see from the example above, many areas have been marked, with a distinction between degraded areas designated for partial revitalization and those marked for complete revitalization. This includes a significant portion of the historic city center, which is an area of important cultural value.

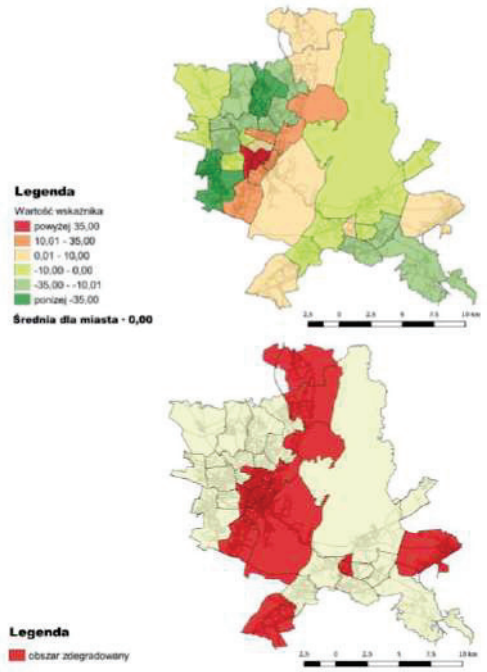


Figure 10. Cumulative Social Degradation Index (a) and Identified Degraded Area (b) as Illustrated by Szczecin, Source: Local Revitalization Program for the City of Szczecin

The example of Szczecin presented above also shows vast degraded areas. It provides a good comparison between these areas and the social degradation index.

The level of greenery is an excellent indicator of the condition of inner-city areas. It is also a key element in creating spaces that reflect the character of suburban areas and attract future users. However, the level of greenery in Polish cities varies significantly and depends on numerous factors. A crucial factor is the city authorities' policy on creating green spaces. Below is a chart showing the ratio of parks, green areas, residential greenery, and forests to the total city area.

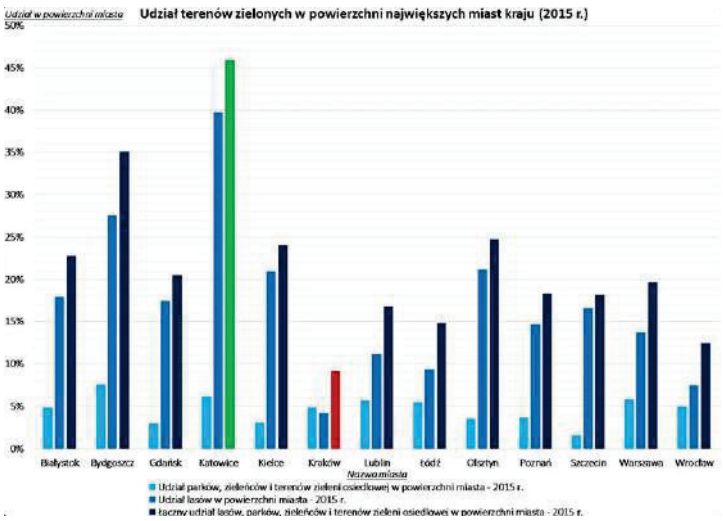


Figure 11. Share of Green Areas in the Total Surface of the Largest Cities in the Country (2015)

The analysis shows that cities have vast areas of unused space, often located in central areas of significant historical and cultural importance. To counteract the growing migration of residents to the suburbs, revitalizing degraded areas may be an effective solution. Revitalizing these areas not only improves their appearance but also contributes to economic growth and increases social satisfaction. This is a complex process that requires careful analysis, but when done correctly, it can yield positive outcomes and help mitigate urban sprawl.

6. What is revitalisation and its directions

The concept of revitalization is a very complex definition encompassing many different categories. As a general definition, revitalization is understood as the process of transforming degraded areas, involving physical, economic, social, historical, and cultural aspects. This means that revitalization is a process that not only brings physical results through the modernization of degraded areas or buildings but also positive effects in many other categories such as financial or social.

According to Professor Krzysztof Skalski, revitalization is*: "[...] a comprehensive program of repairs, modernization of buildings and public spaces, and the revaluation of monuments in a selected area, usually a former city district, linked with economic and social development. Revitalization combines technical actions – such as repairs – with programs for economic revival and efforts to address social problems in these areas: unemployment, crime, demographic imbalance. It is therefore incorrect to talk about the 'revitalization' of a single building or a 'revitalization' of a city square if these actions only involve the modernization of buildings or the revaluation of monuments."*

7. Tools of Revitalisation

Revitalization is a general concept that includes more specific corrective actions. The tools of revitalization can be:

a) Restructuring – also known as transformation or metamorphosis, refers to corrective actions taken when a particular object or area ceases to meet its original economic and social expectations. This process may involve an immediate change in the activity conducted at a given site or a change in its mode of operation. The goal is to restore stability in the market and make the object profitable again, which is called corrective or adaptive restructuring.

b) Revaluation – a conservation action aimed at restoring the functional values and exposure of cultural heritage, including both architectural monuments and urban ensembles. This process is divided into three stages:

- Analysis and Documentation – examining the historical development and current state of the ensemble, including study work, analyses, inventories, architectural research, and,
- if necessary, archaeological research. Reliable documentation is crucial as part of the original state may be removed during construction work.
- Protection and Directions of Work – determining the scope and method of protection through valuation, designation of protection zones, development of conservation guidelines, and concepts integrating the existing substance with new functionality.
- Planning and Implementation – developing plans and implementation projects and obtaining necessary approvals.

c) Conservation – not only a technical procedure aimed at prolonging the existence of the material substance of a monument but also a philosophy of protecting this substance. Various methods and means are used to effectively achieve the intended goal.

d) Reintegration – actions aimed at restoring the “wounded” monument to its original shape by recreating lost parts that resulted from damage or modifications.

Reintegration elements may be made from the same material and appropriately marked, or from substitute materials. Depending on available documentation, they may be accurately recreated or simplified. Reintegration work does not encompass the entire object.

e) Restoration – a set of actions aimed at returning a damaged or altered building to its original architectural form, artistic value, and functionality. Restoration work is based on preserved archival materials such as plans and photographs, and utilizes original details and preserved fragments of the building.

f) Reconstruction (conservational falsification) – involves recreating a destroyed historic building or its missing details to their pre-destruction state, based on preserved plans, projects, photographs, or sketches.

Reintegration ≠ Restoration ≠ Reconstruction

8. Process of revitalisation in the World – Global trends

All around the world, we can find various approaches to the process of revitalization. These approaches often stem from the country's economy, population, level of urbanization, and the development of specific regions. Many countries create individual regional support programs, which include specific revitalization models, training programs, and, most importantly, financing models, which are crucial for initiating change.

8.1 Revitalisation in USA

The concept of revitalization has been present in the United States since 1970. Despite large cities leading this process, it is also noticeable in smaller towns.

Over the past three decades, the United States has experienced significant urbanization, which has brought about many negative effects, such as urban sprawl. As stated in the book Land Policies and Their Outcomes, edited by Gregory K. Ingram and Yu-Hung Hong, "*Between 1970 and 2004, the nation's urban population grew 22 percent, and beginning in 1970 more urbanites lived in the suburbs than in central cities." The increasing expansion of suburban areas, which has created "residential islands*" dependent on automobile transportation, has necessitated efforts to restore the former vibrancy of inner-city areas.

The example of Atlanta illustrates the problem of excessive growth in American cities. Although both Atlanta and Barcelona have a similar population (around 5 million), Atlanta covers an area 12 times larger.

As a result, Atlanta residents produce five times more emissions, clearly demonstrating the negative impact of sprawling cities on the environment.

Revitalization has become a widely used process to slow down uncontrolled urban expansion. Eugénie L. Birch, who currently works at the Department of City & Regional Planning, University of Pennsylvania, discusses 21st-century revitalization in Chapter 12 of the aforementioned book. According to Birch, the national situation has driven changes that have fueled revitalization.

Theoretical concepts such as "Place matters," "Heterogeneity is important," "Locals know best," "Private market is crucial," and "Cities 'rock'" as well as practical changes including economic, demographic, and legislative/public policy shifts have emerged. Birch describes that despite varying age conditions, local political power, and economic activity, revitalization efforts can be categorized into four different development directions: first—(catalytic) large-scale catalytic projects funded by public and private investors; second—(downtown) projects focusing on city centres as hubs of mixed-use facilities; third—(neighbourhood) efforts combining private and public groups to address complex legal regulations; and fourth—(project-focused) strategies aimed at constructing large-scale projects to attract interest from across the city. Each city, based on individual analyses, selects the development direction that suits it best. Revitalization is mainly a local process relying on a mix of non-profit foundations and private entities. Despite many years of practice, the United States does not have a specific national policy on revitalization, but over time, numerous transformative processes have been carried out, with their effectiveness measurable by the increasing or decreasing populations of cities.

8.2 Revitalisation in Italy

In Italy, the concept of revitalization has been present for many years. Increasing urbanization has led to significant steps being taken towards the regeneration of degraded areas. Although urban revitalization does not always involve merely renovating buildings or redesigning land, it often begins with the need to transform abandoned or underused areas, which are abundant in Italy. Their abandonment is almost always a result of urban transformations such as deindustrialization, relocation of production, cuts in public services, or lack of funding for public housing. An additional significant issue in Italy is the migration of residents from inland areas to the coast.

This leads to uneven population distribution, degradation of architecture and infrastructure in the central parts of the country, and also to the growing expansion of cities along the coast. According to data from ISTAT (Istituto Nazionale di Statistica) from 2011, Italy had around 740,000 abandoned buildings, which accounted for over 5% of the total. By 2019, the number of empty homes or those occupied by non-residents had risen to around 10 million, representing 29.7% of the total.

Although the concept of revitalization has been present in Italy for over 20 years, it still lacks a solid legal foundation. None of the proposals from recent years have been implemented, and the latest one from 2021 was rejected due to inadequate protection of historical centers and certain mechanisms favoring private initiatives.

Historic spaces pose significant constraints on the regeneration of urban areas. Many city centers contain numerous historical landmarks, and any urban intervention requires special care to avoid damaging valuable cultural assets. One of the main challenges is the need to modernize infrastructure (e.g., transportation, sewage) in a way that does not conflict with historical sites.

Carlo Cellamare, a professor of urban planning at the University of La Sapienza in Rome, emphasizes in his book Territory Without Government that few regions in Italy have approached revitalization in an innovative and specific manner. He points out that most initiatives have been characterized by a lack of integrated approach, focusing mainly on planning and construction rather than socio-economic issues. Additionally, many regional regulations have focused on economic valorization, offering benefits in spatial planning and regulatory simplifications but neglecting public participation.

Despite many unsuccessful attempts at revitalization, the country continues to develop new design models. National development programs, such as the National Recovery and Resilience Plan (Pnrr), allocate 10 billion euros for urban revitalization, primarily for social inclusion and cohesion. Many associations in Italy focus on cultural and social promotion, often supported by private foundations or public funds, and carry out grassroots revitalization initiatives in areas affected by social and economic disintegration. These projects almost always involve the reuse or rethinking of abandoned spaces.

8.3 Revitalisation in Poland

The concept of revitalization in Poland began to emerge at the beginning of the 21st century, with significant actions taking place between 2004 and 2006. After joining the European Union, Poland became highly engaged in national development, resulting in the creation of the National Development Plan 2004-2006. This plan aimed to support three main areas: enterprises, infrastructure, and human resource development. One of the operational programs was the Integrated Operational Program for Regional Development, which provided substantial funds for implementing revitalization programs in Polish cities.

Over time, revitalization has become a process increasingly practiced and supported by national programs.

One important initiative was the "Model Revitalization of Cities" competition, during which 20 Polish cities were selected, including three pilot cities (Łódź, Wałbrzych, Bytom). This competition included a series of training sessions, advisory support, sharing of best practices, and study visits.

A key aspect of the competition was the provision of micro-grants of 50,000 PLN, which were used for small investments intended to activate residents towards broader development efforts.

The competition resulted in the creation of over 100 best practices and 50 ready-to-use documents available on the national revitalization knowledge center's website.

The main thematic areas addressed by revitalization in Poland include: housing, urban mobility, financing, social policy, environmental protection, economic revitalization, social participation, urban space shaping, and cultural heritage.

Additionally, three important model actions were carried out: financing – developing concepts for securing funds for investments, economic revitalization – creating favorable conditions for trade and services, and cultural heritage – locating projects in historic areas to restore their former glory.

As stated on the national revitalization knowledge center's website, a proper practice should be preceded by appropriate preparation. Assistance in this includes three programs: the animation program – creating a network of various entities aimed at conducting effective revitalization; the participatory program – involving the local community in every aspect of the process; and the educational program – developing and preparing a long-term educational program.

Despite the initial revitalization processes starting after 2004, the first legal foundations in Poland were only introduced in 2015.

8.4 Summary of different approaches

Revitalization methods differ by country due to economic, cultural, and legal factors. In the US, revitalization has been ongoing since the 1970s with local strategies but lacks a national policy, leading to varied results. Italy faces challenges in balancing modern development with historical preservation and lacks a solid legal framework. Recent efforts have funding but face regulatory issues. Poland began revitalization in the early 2000s with substantial EU funding and programs like "Model Revitalization of Cities." Legal foundations were set in 2015, with a focus on preparation, community involvement, and education.

In summary, while the US, Italy, and Poland all engage in revitalization, their methods and challenges differ. The US relies on varied local approaches without a national policy, Italy struggles with historical preservation alongside modernization, and Poland integrates revitalization within broader national development plans, with a focus on preparation and community involvement. Each country’s approach is shaped by its specific historical, economic, and regulatory context, resulting in diverse practices and outcomes in revitalizing urban areas.

9. *Case studies*

9.1 Urban renewal program of 8th district of Budapest – Józsefváros

Budapest is a vast European capital that is continually evolving. The city invests significant amounts of money into developing existing districts. One of the major renewal programs was the redevelopment efforts in the 8th district, known as Józsefváros. This district is situated in a strategic location within the city and has enormous development potential; however, due to its history, it is currently considered one of the more dangerous districts. During the city's expansion in the 12th century, Józsefváros was located on the outskirts of Pest and primarily served agricultural functions.

As the city grew, the 8th district underwent significant changes, becoming an industrial hub with numerous brickworks. In 1777, the district officially gained administrative status, but a flood in 1838 completely destroyed most of the single-story clay houses. From the mid-19th century, numerous industrial enterprises were established in Józsefváros, and the district began to develop at a rapid pace. However, during World War II, the palace-like buildings suffered extensive damage, and the reconstruction process was very slow. Today, the district is inhabited by a large number of ethnic minorities, and its high standard of living began to decline due to an outflow of higher-status residents and an influx of lower-status residents. The district earned the reputation of being one of the most dangerous in the city, with high crime rates, low levels of education, neglected residential buildings, and high crime rates including drug abuse and trafficking causing many investors to be wary of investing in the area. By 2001, over 37% of residential buildings were in very poor technical condition, and more than 42% of the properties were owned by the municipality.

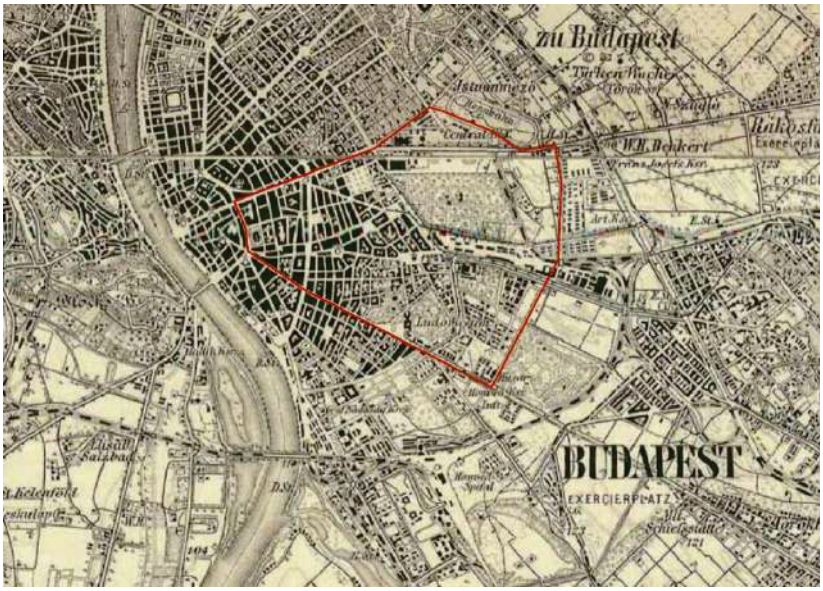


Figure 12. Custom graphic of the district based on the historical map of the Habsburg Empire (1869-1887) from Arcanum maps

The city has initiated concrete actions aimed at regenerating the area. Given its important location, Budapest’s authorities want to restore the district's former glory.

Rather than a comprehensive revitalization, actions have been taken on a block-by-block basis. Several programs have been started, each contributing step-by-step toward reclaiming the district's former splendor.

One of the largest programs was the Magdolna Neighbourhood Program, carried out from 2005 to 2010. This was the first fully integrated Hungarian revitalization program with a budget of over 2.8 million euros.

Implemented by the private company Rev8, it was intended as a pilot project for further revitalization programs in the country. By 2015, three phases of investment had been completed.

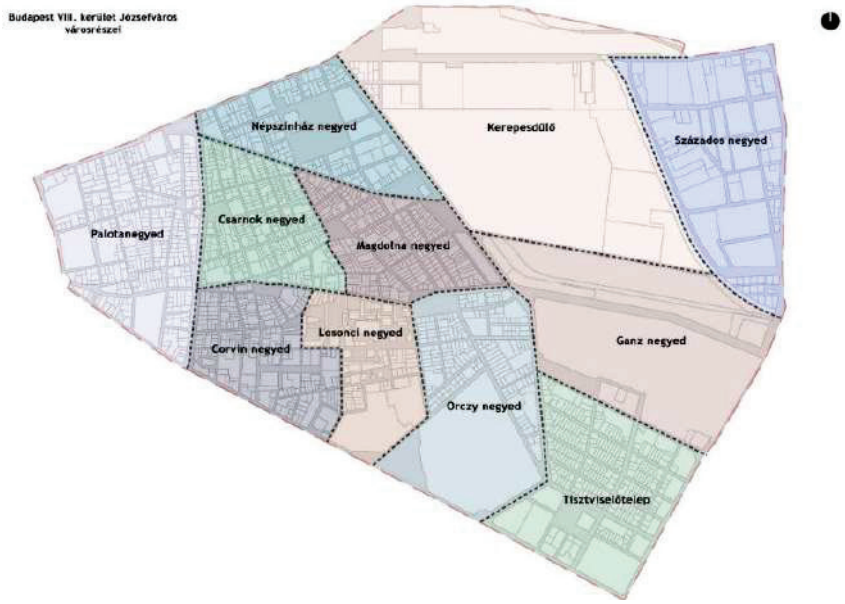


Figure 13. Map of quarters in the Józsefváros district

The program focused on four main aspects: housing, public space revitalization, social programs and community building, and crime prevention & employment programs. The overall goal was to improve access to education, services, and entertainment, as well as to reduce crime rates.

The program did not solely concentrate on modernizing the damaged buildings but also on a range of social and physical interventions.

Over 30% of municipal buildings were modernized, and the number of low-standard social housing units was reduced from 50% to 10%. More than 750 families experienced improved living conditions, and 100 of them actively participated in the renovations.

Awareness of maintaining the renovated buildings was increased, and new non-governmental organizations were established to monitor the state of the buildings.

Figure 14. Comparison of the state before and after the modernization of historical tenements

Public spaces were also modernized, with new functions such as sports and artistic facilities introduced. All changes were made following consultations with the local community.

This concept is related to placemaking, which involves active collaboration with the community for which the space is intended. Many non-governmental organizations emerged to care for the newly created spaces. As stated in the program's promotional book (Municipality of Józsefváros, Rév8 Plc, Gyula Nyáry, Ujirany Group – Office for Landscape Architecture, Layout, text: Rév8 Plc), “A non-governmental organization was established by locals called the Association for Teleki Square to participate in the square’s management and future improvements after the reconstruction.”

Figure 15. Shared spaces in the Józsefváros district

The Glove Factory Community Center has become a key place in Central Józsefváros, offering free activities such as arts, sports, and internet courses.

Over the past year, 737 lessons were held as part of 17 programs. The center has also engaged in initiatives for homeless people, with 21 individuals participating in street work, half of whom found permanent jobs. The Intensive Family Protection Services supported 56 families in crisis, and the school remediation project included 900 lessons and teacher training, focusing on developing talents among the most troubled children.

Figure 16. Public vegetable garden in the 8th district [author's photo]

The crime problem was addressed through awareness lessons on addiction with the local community. Many discussions with residents involving the police were held. Job fairs were also organized as part of the fight against unemployment. The Magdolna Program provided direct employment for at least 50 people, for instance, in social and renovation work.

Despite many achievements, the district continues to develop. The goal is to create a safe and healthy district in line with sustainable development principles. Further renewal programs are being created, and projects and competitions are being conducted in collaboration with students from urban universities. As an Erasmus participant in Budapest, I had the opportunity to carry out a group project on the revitalization of Népszínház utca.

Figure 17. Site plan, group project „Water Managmento" Aleksandra WYRZYKOWSKA, Lise LEMASSON, Laura MARTÍNEZ"

Népszínház utca, and all the street of Budapest, suffer from heat waves. Our main idea was to fight against heat island. To achieve this, we wanted to create as much green space as possible. We were also use the water. We wanted to collect water from the roofs of surrounding buildings and from the hard surfaces of the street and keep it at the surface of the street.

We created a closed circuit and make the water circulate on the surface of the street, this will help to cool down the street. Based on this, we wanted to educate the community about the environment and ecology.

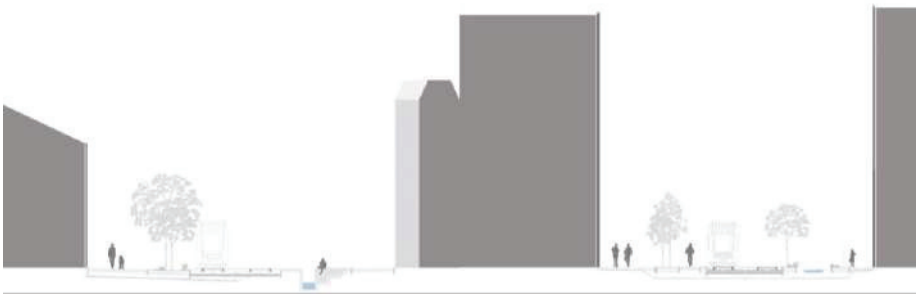


Figure 18. Sections, group project „Water Managmento" Aleksandra WYRZYKOWSKA, Lise LEMASSON, Laura MARTÍNEZ"

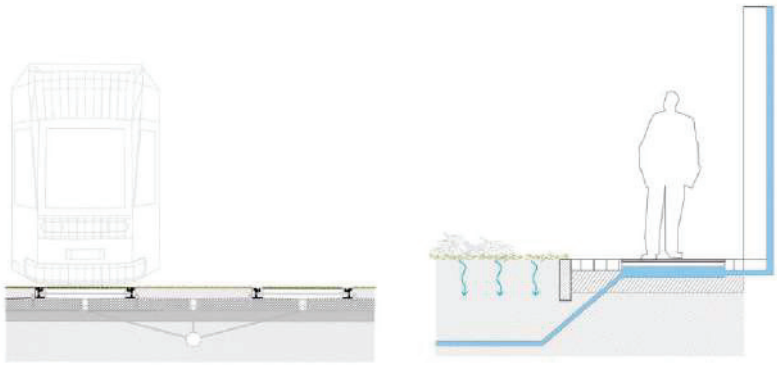


Figure 19. Details of collecting water and green railway, group project „Water Managmento" Aleksandra WYRZYKOWSKA, Lise LEMASSON, Laura MARTÍNEZ"

9.2 Maboneng Precinct Johannesburg – the artistic district

Large metropolises in Africa are particularly vulnerable to rapid urbanization. The continent's low economic level and relatively small number of development sites lead to a flood of people seeking a better life. In response to uncontrolled urban sprawl, cities are beginning to seek ways to address the problem.

Johannesburg, one of the largest cities in southern Africa, is a vast, vibrant metropolis. Historically, it is a very unique city because it did not develop along rivers or other water bodies but as a byproduct of the 19th-century gold rush. Johannesburg literally arose on old gold mines. Initially, the rapidly growing city in the 19th century became very dangerous.

The era of Apartheid (1948–1994), characterized by racial segregation imposed by the government, played a significant role in this. Specific social groups had restricted contact, separate spaces were designated for them within the city, and transportation was segregated. Racial segregation forced Black people to move out of the city, leading to the formation of slums on the outskirts. One of the important districts during the city's golden age was the Maboneng Precinct in the city centre. For a long time, the district was part of the Central Business District, the business centre not only of the city but of the entire country. However, after the Apartheid era, crime rates soared, and the once wealthy district became a ghost area. The district faced problems as described by Mikhaela Anja Sack (2016):

- Displacement of homeless squatters
- Lack of effective policing in general—criminality and drugs being common elements within the precinct
- Lack of maintenance with regard to infrastructure and public spaces
- Lack of management and maintenance regarding advertising boards, public art, and public spaces, which is unsustainable, such as noise control

The person responsible for revitalizing Johannesburg's abandoned district was Jonathan Liebmann, who initiated one of the most interesting revitalization programs in the city’s history. Together with city officials, he created a vision for a creative district that aimed to attract not only artists but also residents who had fled to the outskirts years ago.

Figure 20. The district's landmark - the Maboneng sign

The beginnings of the revitalization process started in 2009 and initially focused on constructing residential buildings, initially just a few buildings. The revitalization proved to be a significant success, leading to the decision to further expand residential buildings and also work on public spaces and services, presenting an organic approach to development.

The goal was to introduce small spaces that would encourage people to visit and fall in love with the emerging project. The district offers a vast playground for artists, including street artists. The created spaces are intended to be accessible to everyone and to elevate Johannesburg to a global level. The Maboneng Precinct offers countless art galleries where regular artistic events are held. There are also art studios, art walks, murals, and even an artistic space created by Adidas. The city and district offer many local tours to better understand the character of the place. Visitors will also find numerous cafes, restaurants, and one of the largest antique bookstores in the world. For those seeking entertainment, there are also local theaters and cinemas.

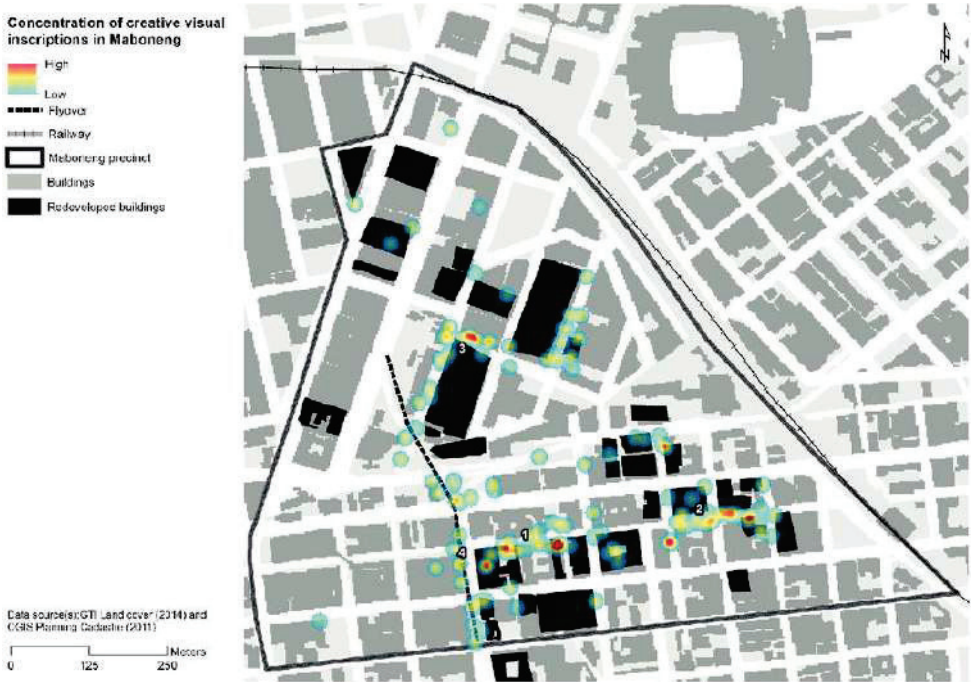


Figure 21. Concentration of creative visual inscriptions in Maboneng

The project is still developing, but its success can already be seen based on the results to date. Designers strive to make the most of every part of the district, giving it new functions and meanings. Through consistent efforts, the district is gradually becoming a cohesive, artistic space that attracts attention and increases in value.

Figure 22. Jewel City Redevelopment - A Massive New Extension of Maboneng

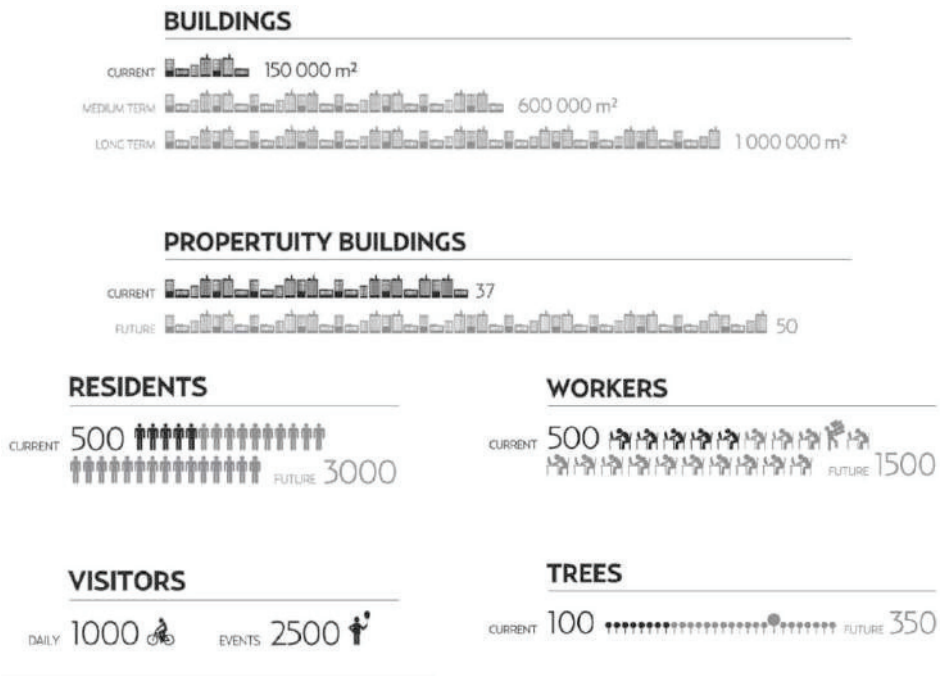


Figure 23. "Current and projected developments, population growth rates, and indications of investment potential based on the possibility to demonstrate growth prospects. (Source: Maboneng Property Growth Report. 2013, 10)"

9.3 Nine Elms district in London – post-industrial revitalisation of Battersea Powerplant

During the industrial period, many factory buildings were built, taking up large areas of land. As cities urban planning changed, many companies moved to new locations, and the old buildings were left empty. Many cities in Europe have degraded post-industrial areas. These areas have a lot of potential, mainly because of their location. Cities often try to regenerate these places and turn them into new social centres. Creating new homes and commercial spaces gives a great chance to bring people into the city and make use of difficult areas in good locations.

One example of post-industrial regeneration is the project in the new Nine Elms district of London, between Vauxhall and Battersea Power Station. This area was mostly known for its large brick power plant with impressive chimneys following doric style. The plant operated from 1933 to 1983, and then it was empty for almost 30 years. The area was a mix of abandoned land and industrial buildings. Big changes started in 2012 when a Malaysian investor bought the old power plant and decided to invest a lot of money into fixing it up. This was the beginning of a large plan to regenerate the whole district, with the first work starting after the US embassy moved to this area.

The regeneration project was divided into several stages. The first stage was creating Circus West Village, which included two big residential blocks. These buildings had a lot of space for services near the railway.

Figure 24. Battersea Power Station before regeneration program (Source: https://www.itv.com/)

Figure 25. New District Nine Elms (Source: https://www.researchgate.net/)

The next stage, and the most important, was regenerating the old power station. 254 new homes were created inside and around the power station, along with office spaces and shops. The old chimneys were fixed, and a viewing platform was built. This regeneration helped create a large residential and commercial centre, with a lot of space for companies like Apple.

The third stage added more homes with an organic architectural style, including roofs with gardens. The plan included more than 1,300 new homes, a hotel, shops, and a new high street called "Electric Boulevard," which is the main entrance to the new area.

Building such large spaces and creating new homes required changes to the infrastructure.

A lot of money was spent on improving bus services, river bus piers, bike lanes, and new footpaths. The metro was also expanded, creating new stations: Nine Elms and Battersea, connected to Kennington Station by the Northern Line extension. This extension allows people to get to central London in just 12 minutes. The big regeneration project created spaces that are good for people. The new district has a lot of green areas, with the Thames River Path being the most important one. It is called the "Linear Park" and connects Battersea Power Station and Vauxhall without cars.

The new district completely changed the old industrial areas. After regeneration, about 227 hectares of land were transformed, from Lambeth Bridge in the north to Battersea Power Station and Chelsea. New commercial spaces, retail shops, schools, parks, around 20,000 new homes, new transport connections, and cultural facilities were created, along with a new bridge over the Thames. More than 25,000 new jobs were created. The area gained a new riverfront, increasing its value. The whole project also created many jobs during construction and provided local people with opportunities to work in the community. Although many projects in Nine Elms are finished, the full regeneration is still going on, and some projects are still being planned or built.

The regeneration of post-industrial areas, as seen in Nine Elms, is an opportunity to turn old, run-down areas into modern, useful spaces. With investments in infrastructure, housing, transport, and green spaces, it is possible to revive old industrial areas and make cities more attractive.

The Nine Elms project shows that with good planning, regeneration can improve the lives of local people and help the economic, social, and cultural development of the city. This can be a good example for other cities facing similar problems.

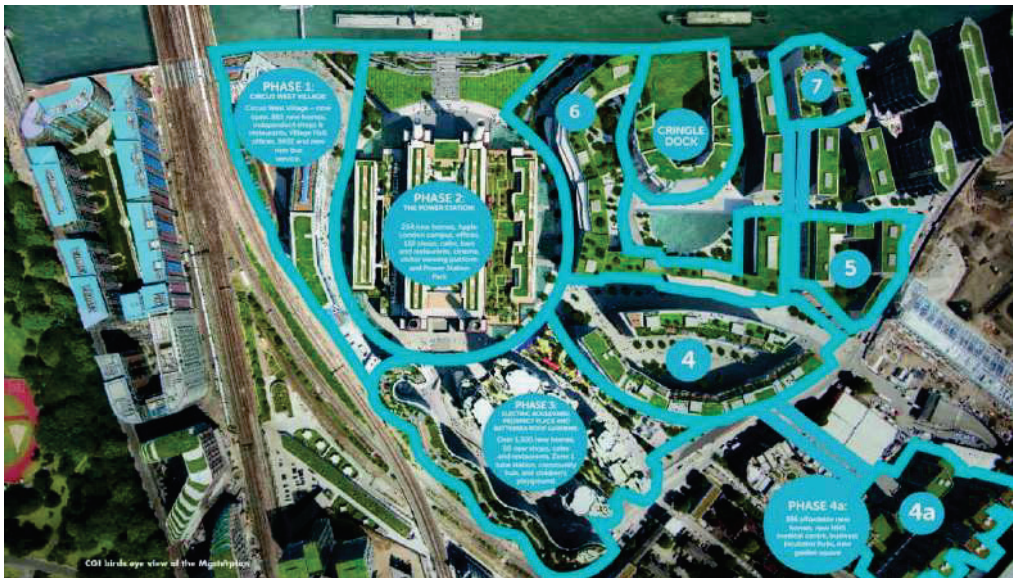


Figure 26. Phases of Nine Elm district regeneration program (Source: Battersea Power Station website)"

9.4 The High Line New York – revitalisation of degraded infrastructure

Revitalization is often associated with changes in architecture. However, the concept also applies to the modernization of deteriorated infrastructure. A notable example of this is in New York City, where an old railway viaduct has become one of the most recognizable parks in the world.

In the mid-19th century, New York City experienced rapid expansion, affecting both its buildings and infrastructure. As part of this growth, a new railway line was constructed in the Upper East Side neighborhood, initially used by freight trains transporting food to Manhattan. The large number of accidents caused by collisions with roadways and pedestrian traffic eventually necessitated the construction of an elevated railway. In 1934, the first train ran on the High Line, a line known as the "West Side Elevated Line." As freight transport demand decreased, the High Line fell into disuse by the 1980s. The viaduct remained neglected for many years, overgrown with weeds, which tarnished the city's image and contributed to increased crime and drug trafficking. Under pressure from residents, a decision was made to demolish the High Line. However, in 1999, two New York residents, Robert Hammond and Joshua David, founded a non-profit organization called "Friends of the High Line," advocating for the preservation of the viaduct and its transformation into a public space. In 2004, following a competition, the project by Field Operations and Diller Scofidio + Renfro was chosen to redesign the former High Line.

Figure 27. The High Line viaduct in the mid-20th century

Surveys from 2002 indicated that the project was economically viable, leading to its implementation. The project spans nearly 3 kilometers. Environmental surveys revealed that everything had to be removed down to the steel and concrete structure. After the renovation, a new drainage system and a waterproofing layer were installed, and all steel elements of the High Line were sandblasted to remove the original lead-based paint.

The park uses a green roof method, which offers additional environmental benefits. The High Line is fully accessible to wheelchair users and can be easily reached via elevators, ramps, and stairs. Bicycle racks are also available at eight street crossings. The park is open daily from 7:00 AM to 10:00 PM, and due to the protection of vegetation, dogs are not allowed.

Figure 28. High Line today [author's photos]

Figure 29. High Line today (Photo © Iwan Baan)

The High Line is a highly original project that repurposes existing infrastructure. Incorporating the viaduct as a central element of the design perfectly aligns with the industrial character of New York City. The creation of the park aimed not only to benefit residents but also to elevate the overall standard of the neighborhood.

Once a well-maintained industrial area, Chelsea has now become a more upscale location offering a wide range of service and residential facilities. The iconic park has contributed to the revitalization of the entire area, attracting private investors to rehabilitate vacant properties into various attractions for the public. The new facility has initiated the expansion and modernization of existing buildings into service-oriented properties with diverse functions, drawing not only local residents but also visitors from other regions seeking interesting entertainment options. The High Line has also become a major tourist attraction, visited by people from around the world and frequently featured in the media. The project has generated substantial economic benefits and created a green space that is always sought after in urban areas. It is an excellent example demonstrating that old infrastructure can regain its former glory and become a source of significant economic and social benefits.

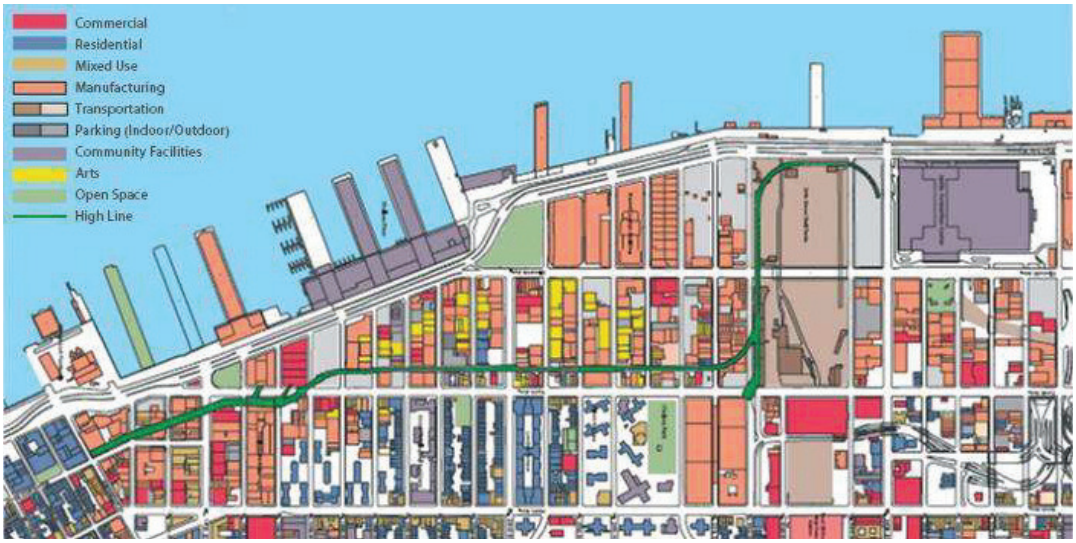


Figure 30. "Map shows the uses for the neighbourhood buildings surrounding the proposed High Line public park in New York City that ultimately reclaimed an old elevated railway." ©(2002) Design Trust for Public Space

9.5 Cheonggyecheon Stream Restoration Project – Seoul. South Korea

A very interesting example of successful revitalization is a project conducted in South Korea. Cheonggyecheon is a new public space created on a former stream located beneath a highway overpass.

Figure 31. Cheonggycheon before and after

After the Korean War, Seoul experienced a massive urban expansion. People from across the country flocked to this vast metropolis in search of better living conditions. Many settled in rundown houses along the Cheonggyecheon stream. The sudden growth necessitated the expansion of both residential and infrastructural development. Seoul began to transform into a major business center for the country, leading to continuous modernization. As the areas around the stream became increasingly congested, a decision was made to build a highway with an overpass above the stream.

The district served as a buffer between the northern and southern parts of the city, making it a good communication link. In the 1950s, a multi-lane highway was built, and in the 1970s, an overpass was added, symbolizing the city's development. For 20 years, the area was covered with concrete, gradually destroying the original sources of the stream. While the infrastructure improved traffic flow in the city, it had a dramatic impact on the environment and society. The dangerous, concrete-covered areas, lacking greenery, became high-crime zones. Over time, the investment began to attract increasing negative public opinion. The enormous population growth in Seoul led to higher pollution levels and carbon dioxide emissions. The city had to take action to introduce more environmentally friendly investments. During the 2002 elections, the main slogans of the campaign focused on "friendly and comfortable town." At that time, a decision was made to demolish the highway and reveal the hidden stream. After years of devastation, it was discovered that Cheonggyecheon was on the verge of drying up. Therefore, a system of underground drains was created to regularly pump and filter water from the Han River and groundwater. After two years of construction, the 6 km project was opened to the public in 2005 and was recognized as a great success in city renewal and beautification.

The key goals of the project were:

- Flood Prevention: Managing stormwater runoff and embankments to withstand a once-in-a-century flood.
- Improvement of Water Quality: Enhancing the quality of surrounding waters.
- Ecosystem Regeneration and Biodiversity Increase: Revitalizing the ecosystem and boosting biodiversity.
- Promotion of Natural Spaces: Advocating natural spaces as favorable choices in the city.
- Reduction of Traffic: Lessening road traffic.
- Increase in Neighborhood Value: Enhancing the value of the district, especially local investments.
- Air Quality Improvement: Improving air quality.
- Reducing heat islands and creating cooler spaces for people.
- Environmental Protection: Safeguarding the natural environment.
- Sustainable Development: Creating a balanced development between various types of spaces.
- Tourism Attraction: Establishing a new tourist attraction.

Figure 32. "Site Plan Presented in 2002 by the Research Center Director of the Seoul Development Institute, Seoul Metropolitan Government"

The revitalization project of the Cheonggyecheon stream was an avant-garde project with many challenges. Initially, there were concerns about reducing the number of traffic lanes, but ultimately, thanks to the traffic reorganization, the process proceeded with minimal disruptions. The 6 km project was divided into 24 distinctive segments with various arrangements, and throughout its length, 22 bridges were constructed to facilitate convenient crossing between both sides of the stream. The symbolic source of the stream is located in the city center.

The main beneficiaries of the investment were: local government, private sector, and private investors.

9.6 Jardin del Turia – regeneration by recreation

For many years, Valencia was divided by the Turia River, which brought both benefits and risks, especially floods. The most tragic flood happened on October 14, 1957, known as "La Riada." After heavy rain, the river overflowed, causing a lot of damage and killing over 80 people. This disaster showed the need to protect the city from future floods.

Figure 33. Jardin del Turia before regeneration program

In response, the "Plan Sur" was created. This plan moved the main flow of the river about 5 km south of the city center, to a lower area, reducing the flood risk. The new mouth of the river was 2.5 km from the original one. After moving the river, an empty area was left – the old riverbed (Viejo Cauce), which in the 1960s was planned to be used for a highway connecting the airport with the port. Although the highway was part of the 1966 city plan, due to public pressure and political changes after Franco's death, the project was stopped. In the 1980s, new plans were made to turn this area into a park, a place for both residents and visitors to relax. In 1981, an urban plan was made by Ricardo Bofill. He suggested dividing the old riverbed into 10 sections, with each section designed by a different architect. The park would cover 10.4 km in length and 200 m in width (more than 1.5 million m²).

The transformation of the area took many years and happened in stages. In the 1980s, work began to turn the old riverbed into a park. The park was divided into sections, each with its own design and purpose. One important part of the project was to create different recreational spaces for both locals and tourists. These included walking and biking paths, sports fields (football, basketball, rugby, and baseball), ping-pong tables, chess tables, skateparks, and outdoor gyms. Many playgrounds were built for children, including the famous Gulliver Park, with a giant sculpture of characters from "Gulliver’s Travels." There were also many areas to relax, with fountains, ponds, and lots of plants. A key part of the project was connecting the park to the city with 18 bridges, both old and new.

The project also included several cultural projects, like the Ciudad de las Artes y las Ciencias (City of Arts and Sciences), designed by Santiago Calatrava. This has become a symbol of the city and attracts tourists from all over the world.

Figure 34. Jardin del Turia after regeneration program

Today, Jardín del Turia is the largest city park in Spain and one of the most important places for recreation and tourism in Valencia. Its transformation has brought many positive changes, especially turning degraded land into beautiful green spaces. The park has become a symbol of the connection between different parts of the city and encourages interaction among residents. It has also helped increase the value of nearby properties, supporting the growth of the area. Thanks to improvements in infrastructure, the park promotes sustainable transport and an active lifestyle. It is a popular place for walking, cycling, and running. Additionally, Jardín del Turia, along with the city's beaches, is now a top tourist attraction.

Figure 35. Functional plan of Jardin del Turia

9.7 Wałbrzych - revitalization of a Polish city through intensive social participation

Wałbrzych, which once had over 140,000 residents, was an important industrial center in Lower Silesia, mainly due to coal mining. As mining declined, the city had to find new ways to develop, focusing on renewing old, neglected areas and creating a new housing policy. Housing became very important in Wałbrzych because after the mines closed, the city had many buildings that needed to be demolished or heavily repaired. The city also faced many problems after the industrial changes. To deal with these issues, revitalization programs were started to bring back Wałbrzych's former glory.

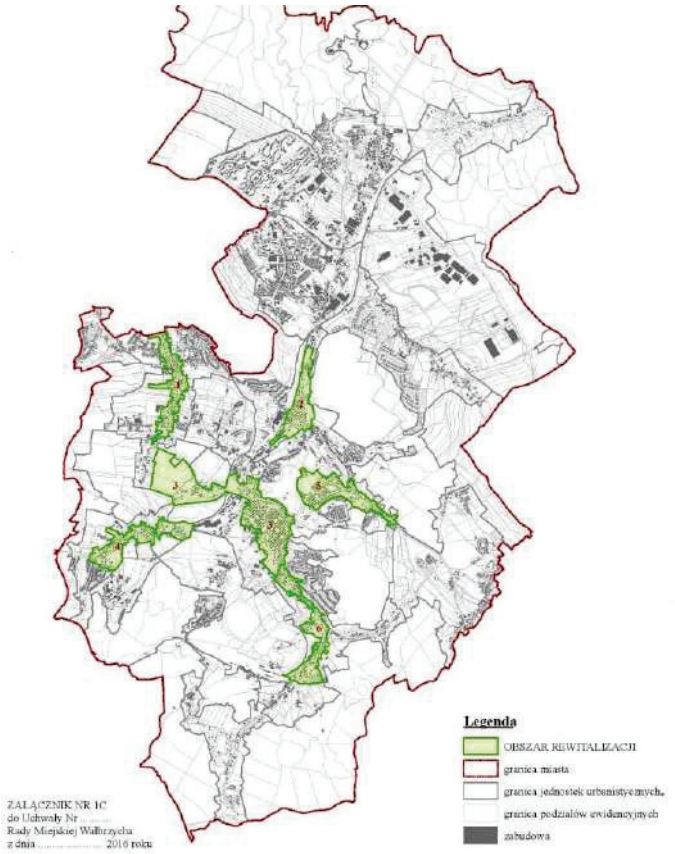


Figure 36. Selected revitalization areas of Wałbrzych for the pilot program

At first, a small area of the city was chosen to create an effective revitalization plan, which could later be expanded to the rest of the city. The focus was on six neighborhoods with the biggest problems. In these areas, documents were created to show what needed to be done. Urban plans were made with the help of residents, addressing their needs and identifying problems to fix. The main goal of the revitalization was to connect planning with the revitalization process, improve the quality of life for people in damaged areas, and encourage social activity and community integration. Along with the renovation plans for buildings, there were also actions to help residents, such as the "Social Lantern" program. The Lantern helped people who had to leave buildings set to be demolished by helping them move to new homes.

An innovative idea was the creation of a website where people could find updates on the revitalization progress and also use a "Calculator of Economic and Financial Effectiveness" to check the cost-effectiveness of renovation projects.

One interesting social project that combined urban renewal with building local identity was the "Yard – Mine of Art" project. In this project, residents and artists worked together to create a mural called "Little Homeland – The History of the Place," which told the story of Wałbrzych and its important people and events.

Thanks to educational and social projects like mini-grant competitions, city games, and meetings at civic cafés, many residents got involved in the revitalization process.

The city paid a lot of attention to social participation, organizing consultations, workshops, and meetings with residents, non-governmental organizations, public institutions, and businesses. This helped to develop the revitalization plan together. Even today, meetings and social activities are organized, and information can be found on the revitalization website for Wałbrzych. According to the Act on Revitalization from October 9, 2015, the Wałbrzych Revitalization Committee was set up after the city created the Municipal Revitalization Program. The committee was created after an open selection process, and the first meeting was held on April 11, 2017.

Figure 37. Revitalised city centre of Wałbrzych

The city's revitalization program was part of a pilot project by the Ministry of Investment and Development to define priorities and revitalization ideas. Wałbrzych was one of three cities in Poland to join this project.

The program cost 4.7 million PLN, with 100% of the cost covered by a Technical Assistance grant. The project ran from 2016 to 2019. Thanks to this initiative, the city developed one of the first Municipal Revitalization Programs and involved the local community.

Microgrants helped fund 63 projects, such as workshops, activities for children and seniors, and public space development, which improved life for residents. A major part of the revitalization also involved renovating old buildings, giving them a new look and improving the whole city. Although the program has ended, revitalization activities in Wałbrzych continue, and the city is still growing. All these changes are based on social participation, which is one of the most important tasks for the city's development.

Figure 38. Revitalised city centre of Wałbrzych

10. Comparison of the presented examples of revitalisation

Project	Country	Date of realisation [years]	Financing	Problem of the area	Former function	New Function	Main tool of revitalisaton
Budapest – Józsefváros	Hungary	2005-2010	Private + public funds	high crime, many minorities living in the area	Center of brickworks companies	Residential district with services	*PLACEMAKING* – main tool during changes
Maboneng Precinct Johannesburg	RPA	2009-present	Private funds	high homelessness and crime, no local policy	Gold mines and later Central Business district	Artistic – residential district with many public places	*ART* – changing district by implementing many artistic activators
Nine Elms district in London	Great Britain	2012 - present	Private + public funds	Degraded, empty post-industrial areas	Industrial area	Residential district with services and public spaces	*POST-INDUSTRIAL PROJECT* – using old industrial buildings as the new function
The High Line New York	USA	2004-2009	Private + public funds (donations)	decaying infrastructure, drug trade	Railway viaduct with freight trains	Park	*GREENERY*- recreating space for people by implementing green areas
Jardin del Turia - Valencia	Spain	1981-2005	Public funds	degraded area of the former river dividing the city into two parts	initially a river, later a dry river bed	Park with many recreational areas	*RECREATION* – changing degraded river bank into park with many open-air recreational gyms, cycling roads and water sports centres
Cheonggyecheon Stream	South Korea	2003-2005	Public funds	high danger associated with high road traffic, lack of greenery	Main highway of the city	Park and public spaces	*WATER* – Creating stream to reduce heat island and increase biodiversity and public places for people
Wałbrzych	Poland	2016-1019	Private + public funds	Degradation of areas after the change in importance of the mining industry	important industrial centre due to coal mining	City with renewed public spaces and renovated residential buildings	*PARTICIPATION* – Revitalisation program was prepared based on public opinion about their problem and needs

11. Summary

The phenomenon of uncontrolled city growth, called urban sprawl, is one of the biggest challenges in modern urban planning. The goal of this paper was to look at the causes, effects, and possible ways to limit this issue while making sure cities grow in a sustainable way. The research and review of literature helped to form a detailed understanding of the problem and point out actions needed to solve it.

Unplanned and chaotic city growth is happening all over the world, in both developed and developing countries. The main reasons for this include people moving to the suburbs, a lack of available land for construction in city centers, poor planning policies, and too much reliance on cars. This leads to many negative results - environmental (damage to green spaces, air pollution), social (segregation, loss of community ties), economic (higher infrastructure costs, scattered public services), and spatial (one-purpose areas and fragmentation of space).

The analysis shows that solutions to urban sprawl can include ideas like creating compact cities, improving public transportation, fixing run-down areas of cities, and better planning with input from the community. But this needs long-term thinking, cooperation between different government levels, and consistent action to control space usage.

Growing awareness of the negative effects of uncontrolled urban sprawl has also contributed to the emergence of a new trend in urban development: reurbanization. Often referred to as the back-to-the-city movement, this process involves people returning from suburban areas to city centers. It reflects a renewed interest in urban living, shaped by factors such as revitalization efforts, improved public services, lifestyle changes, and housing needs across different stages of life. Reurbanization can lead to a demographic and economic strengthening of inner-city areas, often supported by local development policies and new investment in housing and infrastructure. While it may occur alongside ongoing suburbanization, it marks a shift towards more compact, accessible, and socially dynamic cities that promote sustainable urban lifestyles.

In the Polish context, this phenomenon is increasingly visible, especially among young adults and families with children who, after experiencing suburban life, choose to return to the city in search of better connectivity, services, and a stronger sense of community. As prof. Katarzyna Kajdanek describes in her book “Powrotnicy”, these returnees often bring with them new expectations and behaviors that help redefine urban life, contributing to the transformation of city centers and their social fabric.

Altogether, the challenge of urban sprawl and the opportunities offered by reurbanization highlight the need for balanced and forward-thinking urban policies. The future of cities lies not only in limiting their uncontrolled expansion but also in creating vibrant, inclusive, and resilient urban cores that people are drawn to — and choose to return to.

In conclusion, fighting uncontrolled city growth is not easy, but it’s necessary to improve the quality of life for future generations.

Responsible and sustainable planning is important, taking into account social needs and environmental limits. The future of cities depends on the decisions we make today - decisions that should focus on connection, accessibility, and protecting shared spaces.

12. Analyses and guidelines for the design project

Urban revitalization should always start with people. It's not just about fixing buildings or improving streets — it's about making places where people truly enjoy living, working, and spending time. A well-designed area helps people feel safe, welcome, and connected.

Good revitalization means creating neighbourhoods that support daily life: where you can walk to the store, meet neighbours in a local park, or rest in a quiet green space. These improvements should make cities not only more beautiful, but more comfortable and human.

At the same time, *nature* should be a key part of every revitalization project. Green areas — like parks, trees, gardens, and natural water systems — make cities healthier and more pleasant. They help clean the air, lower temperatures, reduce noise, and support mental well-being. These spaces also bring people together, encouraging community life and physical activity. Even small green corners can become important spots for rest or play, especially in busy city centres. Nature should not be added as decoration at the end — it should be part of the plan from the very beginning.

Another important idea is to *focus on spaces that already exist*, but are no longer used well — for example, old factories, empty buildings, or abandoned lots. These places can be transformed into something valuable, like community centres, art spaces, gardens, or shared public areas.

It's sometimes cheaper and more sustainable to reuse what's already there than to build something new. In the meantime, these spaces can be used in creative ways — like pop-up parks, outdoor events, or urban farms — giving them life again before big changes happen.

What really makes revitalization work is the *involvement of local people*. The people who live in a neighbourhood know best what is missing, what needs improvement, and what is already working well. They should be included in every step — from planning ideas to making final decisions. This helps build trust and ensures that changes meet real needs. It also gives people a sense of pride and ownership in the place they call home.

Moreover, it's useful to *learn from other cities* around the world that have done revitalization well. But it's just as important to adapt those ideas to the local culture, needs, and environment. What works in one city might not work the same way somewhere else. The best projects are those that combine global knowledge with local identity, creating solutions that fit the specific place and its people. Each project should have its own character an fit perfectly to given space.

What is the most important is that revitalization help *reduce urban sprawl*, which happens when cities grow outwards too fast. Instead of using up more land at the edges, we should focus on making city centres and older neighbourhoods stronger, greener, and more attractive to live in. This means supporting good public transport, bike lanes, walkable streets, and mixed-use buildings that combine homes, shops, and services in one area. When the centre of a city works well, people don't need to move far away. One part of this strategy is to make sure that revitalized places offer open spaces for rest and recreation. Public parks, benches, sport areas, and playgrounds are not extras — they are essential. These spaces improve physical and mental health, offer a break from busy life, and help people of all ages connect. Whether it's a large park or a small courtyard with a tree and a bench, these places make cities feel more alive and more human. Revitalisation is the chance to design city according to sustainable goals and can safe biodiversity.

We need remember that revitalisation is not only about improving spaces — it's about improving lives. A human-centered, green, and creative approach helps cities become better places to live, now and in the future.

II. DESIGN SOLUTIONS

1. Introduction and aim of the project

The phenomenon of uncontrolled urban expansion is one of the biggest challenges in spatial planning. This issue affects many cities around the world. The aim of the conducted analysis was to identify the causes of this phenomenon and explore tools that could help limit its negative impact on the city. One of the main methods of reducing urban sprawl is the revitalization of degraded inner-city areas. Focusing on improving the quality of central urban spaces presents an opportunity to encourage people to stay within the city rather than move to its outskirts.

The problem of urban sprawl also affects the city of Gdańsk. A significant influx of new residents to this coastal city has substantially increased the population, and consequently, the demand for housing. Many new districts have emerged on the outskirts, consuming ever more land. The expansion of Gdańsk illustrates the urgency of taking action as soon as possible. In this paper, I will focus on the design of new urban spaces in the Przeróbka district – a forgotten industrial area located close to the city centre. Its location and vast areas hold great potential for developing a new residential and service-oriented neighbourhood, which could become a new, attractive location on the map of Gdańsk.

2. General data

2.1 Description of the Current State of the District

Przeróbka is an administrative district in Gdańsk since 1907, combining both industrial and residential functions. It is located in the northeastern part of the city on the Port Island. The district covers a total area of 6.88 km² and has approximately 3,585 inhabitants. Its population density is around 521 people per km², which highlights how sparsely populated this large area is—especially when compared to Gdańsk-Wrzeszcz, which has a density of 5,174 people per km².

Przeróbka is connected to the rest of the city by two Gdańsk bridges: the Siennicki Bridge and the cable-stayed John Paul II Bridge. Public transportation in the district is provided by trams and buses.

In the residential area, one can find Primary School No. 61, the Gedania Rowing Club, and a kindergarten.

A significantly larger part of Przeróbka is occupied by industrial spaces, such as: the Gdańsk Phosphoric Fertilizer Plant "Fosfory", the "Maritim Shipyard", the former Military Transit Depot (Westerplatte), and the Gdańsk-Przeróbka Penitentiary.

The area also includes historical halls once belonging to the Railway and Municipal Rolling Stock Repair Plant in Gdańsk, which will be the subject of the proposed urban design project.

2.2 Urban, Functional, and Transportation Context of the District

Przeróbka is located on Port Island, bordered to the southwest by the Martwa Wisła River and situated in close proximity to the districts of Stogi and Śródmieście. To the south and west, the area features numerous waterfront spaces with varying levels of development—some of which are remnants of former shipyard functions. The residential area is concentrated in the southern part of the district, where building density is the highest. This area is predominantly characterized by multi-family housing.

The plot enjoys good transport accessibility. The main road dividing Przeróbka into residential and industrial zones is Siennicka Street. A tram line to Stogi runs along this street, and there are also several bus stops. From Przeróbka, it is possible to directly access Expressway No. 89.

Przeróbka is a heavily industrialized district. Despite the closure of many companies, degraded post-industrial spaces still occupy the majority of the area. The district noticeably lacks public spaces such as parks or playgrounds. There is also a very limited number of basic services. Aside from a few small grocery stores and a pharmacy, there are no larger retail outlets, forcing residents to travel to neighboring districts to meet their everyday needs.

2.3 Location of the Project Site

The project site includes the area of the ZNTKiM (Railway and Municipal Rolling Stock Repair Plant) and the waterfront area along the Krakowskie Quay. The site is located in close proximity to the main Siennicka Street.

Figure 39.Location of the site. Own graphic based on Google Earth maps

2.4 Analysis of the Local Spatial Development Plan

Przeróbka is a district with minimal urban intervention, due to the significant privatization of industrial lands. The most recent Local Spatial Development Plan was released in 2002. It mainly defines the boundaries of plots, roads, and pedestrian pathways.

The site in question for the project is located on plots 013-41 and 12-41. The local plans impose virtually no restrictions. Commercial activities are allowed on these plots, provided they do not pose a threat to the environment. Cultural, sports, health, and educational services, among others, are also permitted. At least 10% of the plot area must be preserved as biologically active space.

All buildings of the Railway and Municipal Rolling Stock Repair Plant in Gdańsk have cultural value and are subject to full protection.

3. Site Analysis

3.1 Analysis of Building Functions and Heights

The building density in the district is very low. A much denser development is located to the south, with predominant residential and service functions. Above Siennicka Street, the area is mainly occupied by industrial and warehouse buildings, many of which are vacant. The waterfront is mostly degraded due to the former shipyard industrial sites.

The height of the buildings increases towards Siennicka Street. The district is dominated by 2-4 story buildings, but in the center, along the main street, there are taller buildings, including five 10-story high-rise buildings.

The project site includes historic halls of the ZNTK plant, the former boiler house, forge, water tower, and workshop buildings. The buildings are low-rise, not exceeding 15 meters in height. The boiler house chimney and the water tower are significant landmarks within the area. The presence of railway tracks running throughout the entire site is characteristic of the area.

3.2 Analysis of greenery

In the Przeróbka district, it is difficult to find organized green spaces. Apart from a small park located in the central part of the residential area, vast areas of wild, neglected vegetation dominate. Low shrubs and grasses are prevalent, often damaged or degraded by the proximity of industrial zones, which have negatively affected the local environment over the years. Especially along the waterfront areas, there is a dense thicket of tall grasses and shrubs, creating an inaccessible, disorganized green space, resembling uncontrolled nature rather than a deliberately designed part of the city.

Tall greenery is mostly limited to a few distinct locations—mainly tree rows along Przetoczna Street and the area of the former prisoner of war camp from World War I, where remnants of historical tree planting have been preserved.

Figure 40. Location of the site. Own graphic based on Google Earth maps

3.3 Historical analysis

The Railway and Municipal Rolling Stock Repair Plant (ZNTKiM) in Gdańsk was established in 1910 as Eisenbahn-Hauptewerkstatt Danzig-Troyl, or the Gdańsk-Trojan Main Railway Workshops. At the time, it was one of the largest industrial complexes of its kind in Pomerania.

The urban layout and architecture of the buildings were based on the principles of German industrial functionalism. The hall was built in an eclectic architectural style.

Key elements of the complex included monumental industrial halls, such as the wagon repair hall, which measured 251 × 103 meters, and the locomotive repair hall, which was 166 × 102 meters. The buildings were characterized by brick facades, large windows, and gabled roofs that provided natural lighting inside. Their structure was based on steel and reinforced concrete frames, allowing for the installation of heavy equipment and cranes inside the halls.

In the interwar period, part of the interiors was modernized to accommodate industrial and repair production. The buildings retained their original character, but new installations and equipment necessary for the new line of business were introduced.

During World War II, the plant's function was changed to serve war production needs, including the construction of torpedo boat hulls for the German Navy. The halls were partially transformed, but their architectural structure largely remained intact.

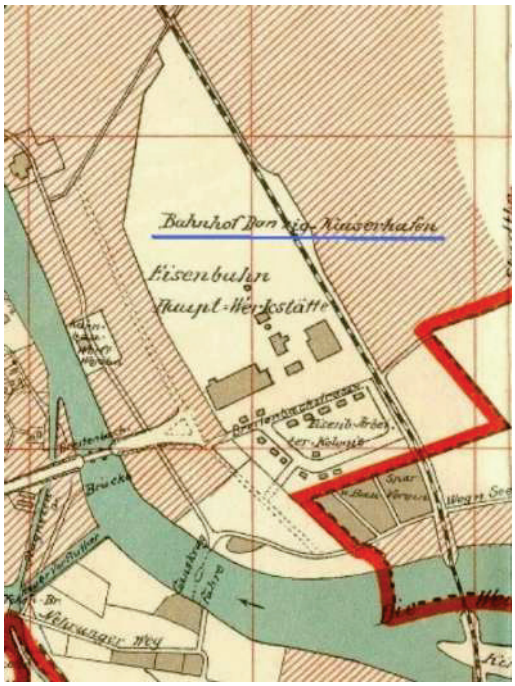
After 1945, the plant was taken over by the Polish State Railways and transformed into the Gdańsk-Trojan Main Workshops, and in 1952, it became the Railway Rolling Stock Repair Plant. During the period of the People's Republic of Poland (PRL), the plant expanded rapidly, employing several thousand workers. Modernizations and reconstructions of damaged buildings took place, while preserving their original architectural style. The technical infrastructure was also expanded, including the addition of a carpentry shop, paint shop, and social buildings, along with the introduction of prefabricated structures typical of the 1970s and 1980s.

Figure 41. Histroical photos from left: the management building, the water tower, the Siennicki Bridge

After 1989, the plant gradually lost its significance. Some of the halls were decommissioned or leased to various companies. Currently, rolling stock repairs are only carried out in one hall, while the remaining buildings are remnants of the district's former industrial grandeur.

In 2002, the most important buildings of the complex, including the halls and the administrative building, were listed as historical monuments. Despite the transformations and partial degradation, the plant has retained a clear spatial structure and many valuable architectural elements.

Today, ZNTKiM is an example of preserved industrial heritage in Gdańsk, with significant potential for adaptation and revitalization, especially in the context of the growing interest in post-industrial spaces.



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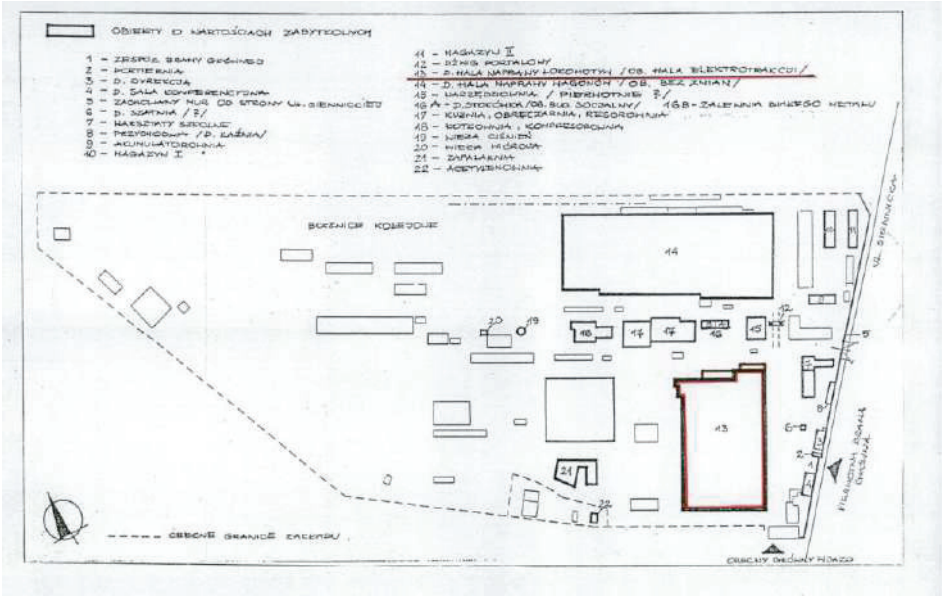

Figure 43. Historical plan site from white board

3.4 Analysis of transport

Despite being located on an island, the Przeróbka district benefits from very good transportation connections.

Two of the largest bridges in Gdańsk, the Siennicki and Wantowy bridges, provide access to the island, and the district is directly connected to the expressway number 89. Two tram lines heading towards Stogi and buses serve the district. The main stops are located along Siennicka Street, which was thoroughly renovated a few years ago. The district is also equipped with bike paths leading both to the city center and Stogi, providing a convenient route towards the beach. Walking to the city center takes about 15 minutes, highlighting the district's excellent location.

Public transportation mainly reaches the southern part of Przeróbka, while the northern, more industrial area is accessible only via bus line 138 heading towards Westerplatte.

3.5 Noise Analysis

Przeróbka Przeróbka is a rather quiet district. The industrial functions, which once played a significant role in shaping the character of this area, are gradually fading. Despite the overall tranquility and intimate atmosphere, the main sources of noise remain the areas located along expressway number 89, which marks the eastern boundary of the district. Additionally, the presence of railway tracks—mainly used by freight trains—also affects the noise levels in the area. However, apart from these localized disturbances, the district retains its peaceful character.

4. Analysis of User Needs

4.1 Interwiew with residents

As part of the Urban Design project, our project team — consisting of Natalia Baraszkiewicz, Aleksandra Chamier Ciemińska, Dominika Janowska, and Aleksandra Wyrzykowska — conducted interviews with residents of the Przeróbka district. The goal was to listen to both the issues and the positives of the neighborhood to create a strong foundation for future design work in this area.

Four people participated in the interviews: Ms. Krystyna, Ms. Ewa, a woman with a child who wished to remain anonymous, and a cyclist who also preferred to stay anonymous. They were asked five questions:

a) Why do you live in Przeróbka?

• "*I’ve lived in many places, but only here do I feel a sense of all-encompassing peace*." ~ Cyclist

• *"I came back to Gdańsk — back home*." ~ Woman with a child

• *"I moved here from the Gdańsk area — here everything is more accessible."* ~ Ms. Ewa

• "*I’ve lived here for many years; my family used to live here too."* ~ Ms. Krystyna

b) Where do you meet people in public spaces?

• "*Outside of Przeróbka."* ~ Ms. Ewa

• "*At work or passing neighbors in the courtyard — unless it's summer, then we all like to go out to the park. It becomes our 'sanctuary' and everyone gathers there."* ~ Ms. Krystyna

• "*I mostly spend time walking with my child, so the main square would be the place."* ~ Woman with a child

• "*In the city center."* ~ Cyclist

c) What places/routes do you choose for walks?

• *"The route along the Dead Vistula towards Stogi."* ~ Cyclist

• "*Mostly around the housing estate."* ~ Woman with a child

• "*I go outside Przeróbka or walk around the block."* ~ Ms. Ewa

• *"From home to the Markus store, or sometimes the park next to the store."* ~ Ms. Krystyna

d) Are there any changes happening in the area? What are they? How do you assess them?

• *"Changes are mostly 'on paper.' The district authorities aren't keeping up with the times."* ~ Cyclist

• "*It's definitely better than 25 years ago, but the current district council doesn't really take care of public spaces."* ~ Woman with a child

• "*Only the seasons seem to be changing."* ~ Ms. Ewa

• "*The parks have been renovated and it turned out great."* ~ Ms. Krystyna

e) If you could change something, what would it be?

• "*I would improve the Kolejarza Square."* ~ Ms. Krystyna

• "*Clear the bushes where drunk people leave trash, and clean up the general mess."* ~ Ms. Ewa

• "*Definitely better maintenance of public spaces, and more greenery."* ~ Woman with a child

• "*Definitely better maintenance of public spaces, more greenery — the lawns are in a pitiful state."* ~ Cyclist

4.2 Analyses of residents needs

Insights from residents' interviews reveal that Przeróbka is a place deeply connected with personal history and emotions. Residents emphasized the district's peaceful atmosphere, good accessibility, and a strong sense of belonging.

Despite this, public spaces are rarely used — social interactions mostly happen during the summer months and are centered around the park, while for the rest of the year, people tend to meet outside the neighborhood. Walking routes are limited, usually involving errands like going to the store or walking around the block, although one person mentioned walking along the Dead Vistula. This indicates a need to make everyday spaces more engaging and diverse. Opinions on local changes are mixed — some see them as superficial, while others appreciate the revitalization of the park. This suggests a need for better community involvement in local initiatives and improved communication with the district council. The most frequently mentioned needs include: cleaning and organizing public spaces, increasing greenery, tidying up littered areas, and revitalizing key spots, such as Kolejarza Square. Residents care about aesthetics, functionality, and having a pleasant environment for everyday life.

There is a strong attachment to the area — residents do not want to move elsewhere. They express a deep desire to create shared, communal spaces. It's important that any new development in the district is not disruptive and that communal spaces serve as a bridge between long-term and new residents.

Przeróbka is a district full of potential — quiet, well-located, and with an established residential base. However, it requires:

- active development of shared public spaces,
- strengthening of local identity,
- creation of areas for social interaction and relaxation,
- reintroduction of greenery as a key urban element, and ensuring cleanliness and safety.

5. Project concept description

5.1 Design guidlines

The main objective of the revitalization project for Przeróbka is to breathe new life into the district by introducing a variety of social functions.

Though full of potential, the area is currently neglected. Residents feel emotionally connected to the neighborhood and appreciate living there, but they lack access to basic infrastructure and social services. The project seeks not only to improve the quality of life for current residents, but also to promote the district in a way that preserves and supports the local community.

Revitalization efforts are also intended to attract new residents to settle closer to the city center, ultimately helping to reduce the outward expansion of the urban area. A key part of this transformation will be the introduction of new residential developments. The district will be designed to bring together both "long-term" and "new" residents, with a large community center located in the heart of Przeróbka acting as a natural connector. A special role in this process will be played by the site of the former Railway Rolling Stock Repair Plant, which will be transformed into a Culture and Sports Center, also housing the University of the Third Age. This new facility will be fully accessible to all — young and old — aiming to foster a strong sense of community and belonging.

Przeróbka will also gain long-awaited essential services: a supermarket, a small market hall, sports fields, and new service-oriented retail spaces. The rich functional program will ensure easy access to everyday needs within walking distance, eliminating the necessity of commuting to other parts of the city.

The district will also benefit from a significant increase in greenery and the creation of new recreational areas. The central feature will be a waterfront park — a space designed for relaxation, recreation, and social integration. These shared activity zones will help build social bonds and raise awareness of healthy living.

The planned development of local services will also generate long-term economic benefits, providing the district with stable sources of income. Importantly, the project does not include disruptive functions such as nightclubs or an excessive number of restaurants. The aim is to maintain a peaceful and harmonious atmosphere, where life is focused around daytime activity, while nighttime brings quiet and calm.

5.2 Description of Urban Concept

The primary objective of the project is to enrich the district with new residential areas and establish a central hub for social interaction. The masterplan is based on dividing the area into four main zones that harmoniously combine residential, social, recreational, and industrial functions.

In the southern part of the site, the existing residential neighbourhood will undergo modernization, with adjacent waterfront promenades revitalized to enhance accessibility and visual appeal.

Just above this area, a new Culture and Sports Centre will be developed, accompanied by a large urban park. This green space will act as a spatial and functional buffer between the historical centre and the new housing estates, which are planned further to the south.

In the northern zone, an industrial area will be established, consolidating businesses currently scattered throughout Przeróbka. This zone will be separated from residential areas by Potoczna Street and a strip of small-scale services, providing both a functional buffer and essential amenities to enhance everyday life for residents. The urban design also introduces a significant increase in green and recreational areas, which will have a direct positive impact on the district's quality of life. The new residential developments are intended to attract future inhabitants to a self-sufficient neighbourhood, aligning with the concept of the 15-minute city, where all key functions and services are within a short walking distance.

Additionally, Potoczna Street, which currently divides the site, will be routed through an underground tunnel to create a safe, uninterrupted recreational zone above ground. Industrial traffic will be redirected via a new bypass road running along the existing railway tracks, ensuring efficient logistics without interfering with residential or pedestrian areas.

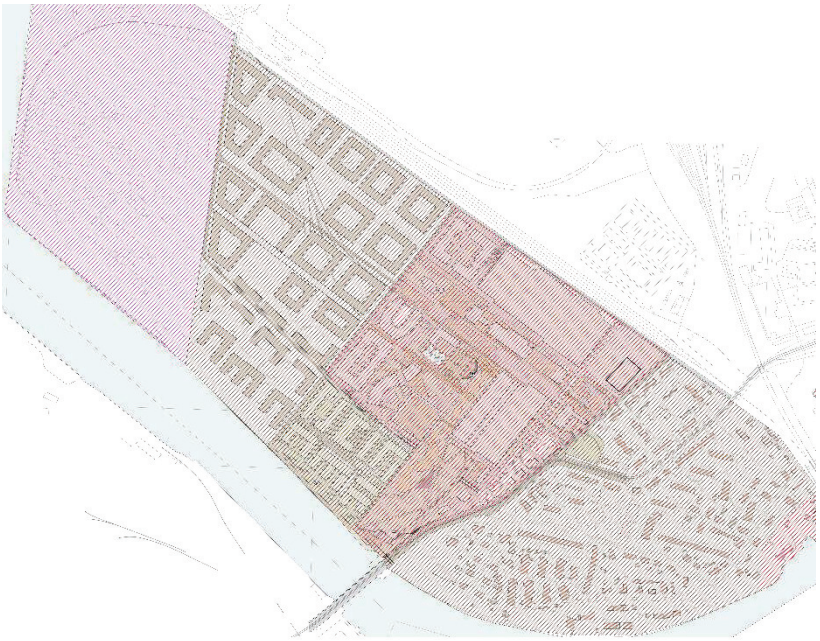

Figure 44. Zone divisions of Przeróbka [own graphic]

The concept blends historical architecture with contemporary design, creating a cohesive urban space immersed in greenery — stretching from a large waterfront park to newly planned residential quarters.

The development will feature high-density housing, while maintaining appropriate distances between buildings to ensure a sense of openness and access to natural light. Building heights will gradually increase toward the industrial zone, forming a natural visual and acoustic barrier. This creates a smooth urban transition and a harmonious composition in relation to the existing high-rise buildings across Siennicka Street.

As a result, Przeróbka will evolve into a district that not only meets the needs of its residents, but also sets new standards for urban living — blending heritage with innovation, green spaces with built form, and a strong sense of local identity with openness to the future.bThis is a human-centered space, where daily life unfolds in the rhythm of community, closeness, and well-crafted urban harmony.

5.3 Description of architecture concept

As part of the architectural component of the project, the historic Locomotive Repair Hall is being redeveloped. This iconic building will now house the Culture and Sports Center as well as the University of the Third Age.

Due to the site's railway heritage, railway-inspired motifs became the key design narrative for the entire concept. Exposed structural elements appear throughout the architecture of the building and the urban design of the surrounding area. The remaining historical railway tracks have been integrated into the spatial layout and play a crucial role in shaping the site's structure. The building has undergone a comprehensive modernization and expansion. The original roof structure with skylights — which was in very poor technical condition — has been reconstructed based on the original design. The steel roof trusses, carefully restored, now serve as one of the main interior design highlights, celebrating the building's industrial legacy.

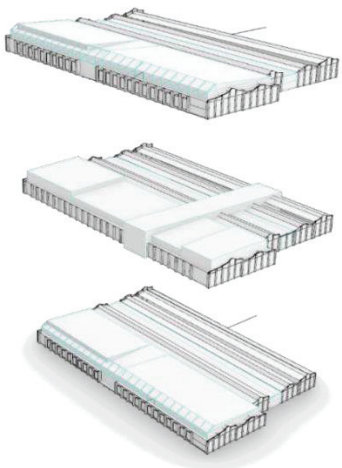

Figure 45. Scheme of building development [own graphic]

The building's volume has been expanded with an additional floor on the southern side. This new extension allowed for the creation of mezzanines, where activity rooms have been located. The design naturally draws the viewer's eye upward, highlighting the restored steel roof structure.

On the northern side, at the center of the building, a portion of the original roof has been removed to create an atrium, where the exposed truss structure is showcased — properly secured and adapted to withstand outdoor conditions. A fully glazed connector links the two main halls, helping to reduce the building's monumental scale while creating a bright visual axis between the waterfront park and the recreational plazas located between the halls.

The brick façades have been restored, and damaged windows were replaced with new ones designed in a style reminiscent of the originals. The façade of the new addition features a mix of glass, aluminum cladding, and perforated panels, ensuring ample daylight access while preserving privacy where needed.

From the mezzanine level, a new bridge-like connection has been created to the neighboring hall, inspired by historic railway bridges. The interior has been divided into two main zones: a Cultural Center and a Sports Center. Among the many functions are:

- activity rooms,
- a theater and cinema hall,
- a district library,
- a milk bar and café,
- volleyball courts,
- a mezzanine running track with views over the courts,
- outdoor recreation areas,
- and a squash center.

The entire volume forms a cohesive and well-thought-out architectural concept. The original walls and façades have been preserved, while modern architectural additions highlight the historical character of the building. The structure integrates seamlessly with its surroundings, and the historical railway tracks have been incorporated into the design — emerging from the halls and extending into the surrounding recreational areas.

6. Land Development Plan

6.1 Geodetic division

The waterfront area is located within Area 12 in Zone 41. The historical buildings of the Locomotive Repair Works and Municipal Railway Workshops fall within Zone 41 in Area 13. Przetoczna Street lies within the scope of Area 046-82.

6.2 Description of the Development Project – Existing Condition

The scope of the project covers two areas: the site of the former Locomotive and Municipal Rolling Stock Repair Works (ZNTKiM) and the waterfront area along the Krakowskie Embankment. The Krakowskie Embankment area currently serves mostly industrial functions, primarily storage purposes; however, many of these facilities are no longer actively used. The waterfront sections of the area have been partially transformed and adapted for mooring ships. The remaining space consists of underdeveloped greenery with neglected vegetation and overgrown bushes. The embankment itself is in a state of significant degradation. Along Przetoczna Street, there are a few single-story residential buildings that are in poor technical condition and hold no historical value.

The ZNTKiM area is currently dominated by small services and industrial activities. Only one hall still serves its original function. The infrastructure of the entire complex is in very poor technical condition. The site contains numerous small warehouse buildings with inconsistent architecture. It is common to find temporary metal structures attached to historic brick buildings, which severely disrupts the harmony of the place.

The former boiler house building and the water tower are abandoned. In February 2025, a fire broke out in one of the warehouse halls, leaving only the brick walls intact. The site is crisscrossed by former railway tracks. In some places, the land is overgrown with vegetation, primarily consisting of damaged lawns and individual tall trees.

Both locations are characterized by poor technical condition, neglected infrastructure, and a lack of coherent development. The area is dominated by unused warehouses, damaged greenery, and industrial elements devoid of functional or aesthetic value.

6.3 Description of the development project – planned condition

Significant changes are planned for the area. The most important goal is to connect the two areas by running Przetoczna Street in an underground tunnel on this section. This action is primarily aimed at reducing car traffic in the planned park, which will serve recreational functions, and opening the hall building to green spaces and water. The Krakowskie Embankment will be revitalized, and industrial functions will be moved to the northern part of the district, thanks to which the waterfront will gain spectacular boulevards, and the district will open up to the water. A housing estate will be built in the immediate vicinity of the park, the height of which will increase with distance from the shore. Thanks to this, more residents will have a view of the water spaces. An expanded, historical hall, a business center and a new municipal swimming pool with a green roof available to residents will be located next to the park. Despite the proximity of the swimming pool in Stogi in Gdańsk, there is still a large demand for this type of facility. Its location in Przeróbka may become an asset, promoting the district.

A café will be built near the swimming pool, located in the former locomotive shed, which will give the building a unique character. The green space in front of the building will allow it to be seen from a distance and will also create an additional place to relax.

An important element of the project is the promotion of sports areas. It is planned to create a football pitch on level +1, a tennis center surrounded by greenery and a climbing center in the former boiler room. In winter, the boiler room chimney will serve an additional function as a route for the facility. A skate park will be located directly next to the sports center, which will lead users towards the park. It is also planned to build a primary school with a nursery.

The former forge will be transformed into a market where you will be able to buy fresh products. The school workshop building will be transformed into a new center for the district councils. The water tower will be adapted into a bookstore with a café, surrounded by greenery.

Another important building is the wagon hall, which was destroyed in a fire. The goal is to functionally divide the hall. From the side of the railway tracks, the hall will be available for industrial and warehouse services, which will allow for separating this function from the common spaces. From the side of the forge, the building will serve as a catering and service facility. This solution will create an important center of the project, between four important facilities, and will enable the creation of summer gardens, where the social life of the district will be concentrated. It will be a strategic place that will attract passers-by from Siennicka Street. The first larger supermarket is also planned to be located on the premises of the facility. The project assumes a comprehensive revitalization of the area, connecting two main locations - the waterside areas at the Krakowskie Quay and the area of the former Rolling Stock Repair Plants. The aim is to create a space that combines recreational, residential, sports and service functions, while maintaining the historical character of the buildings. The revitalization of post-industrial spaces will allow for the creation of a modern district that will fully integrate with the water and the surrounding nature, improving the quality of life of residents.

6.4 Context of existing development

The area covered by the project is located in the industrial part of Przeróbka. This area is characterized by an irregular layout of development, with a dominance of small service facilities and single, single-family houses. Most of the development is suitable for expansion, which creates great opportunities for freely shaping new spaces. From the east, the area borders the railway line and the prison. The noise coming from this side may require the design of an appropriate acoustic barrier. From the south, the plot is adjacent to Siennicka Street and historic residential development - three-storey multi-family buildings, distinguished by characteristic mansard roofs. Individual historical buildings have classic roofs.

Figure 46. Residential development on Siennicka Street in the past and today

7. Architecture General Data

7.1 General data

Design plot area: 270323,99 m2

Design main building area: 16973,89 m2

Total buildings area: 89930,64 m2

Development intensity: 0,33

Maximum building height: 13,34 m

Biologically active area: 20%

7.2 Description of functional zones

The Culture and Sports Centre, which was built in the former locomotive repair hall, was functionally divided into three zones: the Culture Zone, the Sports Zone and the Restaurant. The clear boundary between them is a glazed passage located in the place of the former hall connector.

On the south side is the Culture Centre. On the ground floor, in the widest nave of the hall, a vast common space has been created. It will be filled with greenery, places to rest and space for studying. There are also many tables planned, where you can eat a meal in the canteen located at the entrance or drink coffee in a small café.

On the west side, a large multifunctional hall has been created, where performances will take place, and in the future it is also planned to open an arthouse cinema - a type that is definitely missing in the Tri-City. The hall is adjoined by spacious technical and storage facilities. On the east side, there is a two-story district library with quiet work zones. On the first floor, there are planned activity rooms, including art rooms (with easels), dance rooms and lecture rooms, which will enable the organisation of various activities for both younger and older residents. Additionally, on the first floor there is a co-working space, with an exit from the library and a view of the common space on the ground floor. On the north side there is the Sports Centre and a restaurant. The restaurant is located in the former guardhouse directly adjacent to the hall. The building has gained a new, fully glazed floor, from which there is an attractive view of the transformed district. The sports zone has been divided into a closed and open part.

The open part was created in the newly created atrium, where the estate basketball and volleyball courts, as well as table tennis tables, have been planned. Between the restaurant and the atrium, a new squash centre has been created, responding to the growing interest in this discipline. On the east side there is a large volleyball centre - two full-size courts and changing room facilities allow for the organisation of sports competitions under the patronage of volleyball associations. On level +1, on the mezzanine, a running track was created with a view of the pitches and gym. The Culture and Sports Center is a modern social space created in a revitalized repair hall, which combines cultural, sports and gastronomic functions.

The division into zones and well-thought-out functional solutions create an open, accessible and multifunctional meeting place for residents of all ages.

8. Building structure

Information about the structure and materials can be read from the White Card:

"-foundations - brick footings under the load-bearing walls, reinforced concrete in the lower part. Reinforced concrete foundation footings under the columns.

- walls - hall built of ceramic bricks on cement-lime mortar, elevations faced with facing, glazed window sills. Gables, frieze crowning the fields between pilaster strips and buttresses, interior - plastered. Partition walls between the hall naves - skeleton structure, steel skeleton, ceramic brick filling. Western annexes covered with sheet metal.

Poles:

Nave I - reinforced concrete, supporting the roof structure and the crane track

Nave II, VI - from the side of nave I and VII steel columns attached to the skeleton structure of the partition wall and the crane track (nave II). On the opposite side of the nave, the roof support structure is formed by steel columns based on pointed arch frame of nave III and V.

Nave III, V – structure of the nave in the form of pointed arch steel frame with horizontal skylights. Frame made of riveted plate girder with horizontal skylights. Frame made of riveted plate girder of variable height, connected to the foundations, supports the roof structure of the nave and adjacent side aisles through posts of the steel structure placed on the frame."

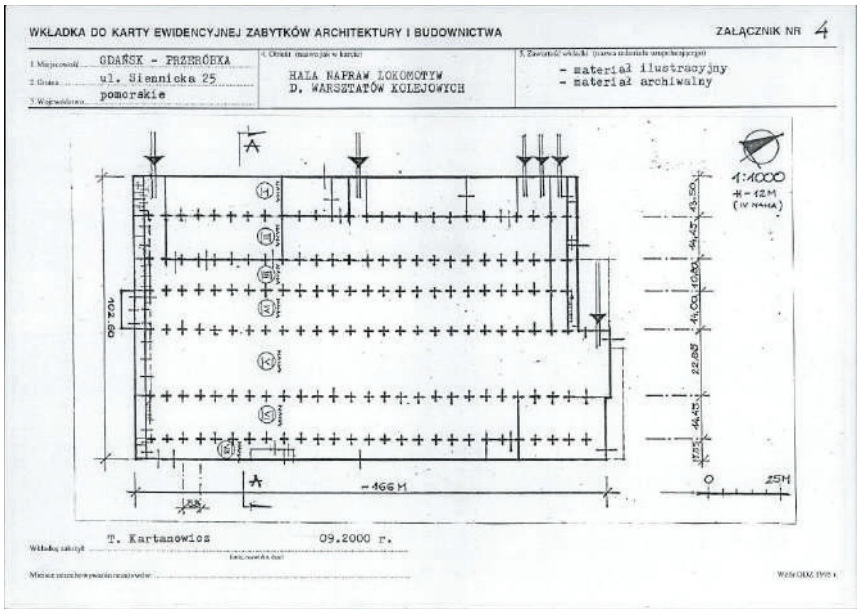

Figure 47. Insert for the record card of Monuments of Architecture and Construction

The superstructure will be constructed as a steel skeleton structure. Its design assumes the most independent supports, placed near the existing columns. The classrooms will be in the form of glazed boxes, placed between the supports, which will allow for an independent structure. The mezzanine, which also serves as a corridor leading to the classrooms, will be partially based on the existing structure. The design preserves the original structural axes, the grid of which coincides with the spaced steel columns.

Figure 48. Examples of independent box solutions inside the hall

9. *Designed Internal installations*

9.1 Drainage of the building

Drainage of the building is carried out by two systems: gutter and drainage, with downpipes leading into the interior of the building. Rainwater from the gable roofs is drained by a gutter system without eaves. Water is collected: in the case of gable roofs to gutters located along the roof recesses, and in the case of the single-pitch roofs of the extension, rainwater from the flat roof with an 8% slope is drained by a gutter system without eaves. The gutters drain the water to drains measuring 70×80 mm, which then goes to the sewage system.

9.2 Electrical installations, photovoltaics

The building is connected to the power grid on Siennicka Street. The technical rooms, where the main electrical switchboards are located, have been placed on the southern side of the building to facilitate connection to the main network. Electrical boxes have been placed on the western elevation to allow access for the network administrator. The main power switches are located at the main entrances to the building on the southern elevations. The facility has been equipped with a photovoltaic system. Photovoltaic panels are placed on gable roofs without covering the roof skylights.

9.3 Fire installations - smoke extraction, fire installations

Smoke extraction flaps measuring 125x125cm have been placed on the staircases. The facility is equipped with a Fire Alarm System and an Audio Warning System.

9.4 Ventilation

The facility is equipped with mechanical supply and exhaust ventilation. Two independent ventilation rooms were designed in the building. The project used ground intakes and roof exhaust vents. The facility was designed with gravity ventilation in the staircases in the form of smoke extraction flaps located on the highest floors. Ventilation was also located in the built-in waste room located in the southern part of the facility and in the elevator shafts.

9.5 Central heating installation

The buildings are connected to the city heating network. Technological heat is supplied to the heat exchanger room located in the southern part of the building.

9.6 Sanitary sewage installation

The buildings were connected to the sewage system. The building had water and sewage shafts with ø150mm sewage pipes ending on the roof with sewage vents. The vents are not located within 6 m of the roof outlet.

9.7 Hot water installation

The investment was connected to the municipal water supply network. Hot utility water is supplied to the thermal collector located in the heat exchanger room. Cold water is supplied to the measuring point located in an independent room on the ground floor. There is a meter well on the plot.

9.8 Low-voltage installation

The investment includes the installation of a BMS system, which will enable the optimization of energy consumption in the facility. The main server of the system will be placed in a dedicated technical room, located in the administrative area of the building.

Additionally, it is planned to install a monitoring system and motion sensors. The building will also be connected to the telecommunications network, the central unit of which is located in the main switchboard. In order to ensure fire safety, the telecommunications connection has been separated by a wall with the required fire load-bearing capacity. All installations will be properly planned, and connections will be led out through connection shafts.

10. Desription Of the Landscaping project

10.1 Existing and planned greenery

The project area lacks organized greenery, and the existing tree cover is very limited. Wild vegetation is dominant, resulting from the neglect of the area. The main concentration of tall greenery is the rows of trees located along Przetoczna Street. The coastal area is mostly degraded as a result of industrial activity, without any major greenery.

The aim of the project is both to introduce new development and to develop previously unused land into user-friendly common spaces. Due to the small number of trees, a small number of plants will not be removed, and compensatory planting will be created as part of the project. New species will be planted in the area of the planned park and large lawn areas will be created for recreational purposes. In addition to the main paved paths, a system of new gravel paths along the green belts

is also planned, which will contribute to increasing the biologically active area. Two terrain basins for rainwater retention have been designed in the park space, in which vegetation adapted to the function they perform will be planted.

In addition, an outdoor gym, playground, recreation hill and ground floor café with water access will be built on the premises. Thanks to integration with nature, the facilities are to promote users' proximity to the surrounding nature. Vegetation resistant to damp ground conditions will be planted along the edges of the area. In order to maintain the biologically active surface as much as possible, extensive green roofs have been planned on most of the newly designed development. The project is to create a green connector diagonally across the entire investment. The project involves the creation of new development and the development of neglected land into common spaces that will promote integration with nature. The aim is to improve the quality of space by planting plants, including new species of trees and shrubs, and creating large grassy recreational areas. The project aims to create a green connector throughout the entire investment, emphasizing the natural values of the area.

10.2 Environmental impact

The design of the buildings assumes minimal impact on the surroundings and the environment. The investment was designed in a way that eliminates noise and pollution emissions. The choice of installation technologies based on ecological solutions limits interference with nature.

11. Fire protection Issues

11.1 Technical parameters

- Human hazard category: Ground floor of the building and restaurant ZL I, Floor +1 ZL III
- Height group: building classified as a medium-high building (SW) – above 12 m
- Total area:
- Number of above-ground floors: 2 above-ground floors

11.2 Distance to the border of the project plot

The facilities were located in accordance with the technical conditions and the Local Spatial Development Plan. The buildings are located at the required distances: 5 m from Tamka Street, 3 m from plot 002-41, 15 m from the shoreline and 50 m from Zimna Street. The minimum distances from neighboring buildings were also maintained.

11.3 Flammable substances

The location or use of rooms with flammable substances is not permitted.

11.4 Fire resistance class

The building is classified as a medium-rise building (SW) and has a fire resistance class of “B”

The building elements were made in accordance with the Polish Standard concerning fire resistance classes of elements for a given class and are:

- R 120 for the main load-bearing structure
- R 30 for the roof structure
- REI 60 for the ceiling
- R 60 for the columns
- EI 60 for internal and external walls that are not the load-bearing structure of the building
- for doors, half of the fire resistance of the partition on which they are located

11.5 Evacuation conditions

The facilities are located in fire zones ZL III and ZL I, which means that the maximum length of evacuation access from at least two evacuation routes cannot exceed 60 m for ZL III and 40 m for ZL I.

Evacuation is provided by 4 staircases in the Cultural Center part and 2 staircases in the Sports Center part and six additional evacuation exits on the ground floor. All evacuation staircases lead directly outside the building. The distances between exits and fire zones do not exceed the appropriate limits of 60 m for ZL III and 40 m for ZL I.

The widths of the flights of stairs and landings have been adapted to Polish standards. The flights of stairs are cm wide, and the landings are cm wide. The height of the steps does not exceed 0.175 m and is exactly 0. m. The evacuation routes are spacious, and the exits to the outside meet the required minimum width equal to the width of the flights of stairs.

The circulation routes are at least 150 cm wide and have been designed in a transparent manner, with clear evacuation directions marked.

11.6 Fire roads

Due to the length of the building exceeding 60 m and its classification as a medium-rise building (SW) with ZL I zones, a fire route was designed along the longer side of the building, along the new street created on the southern side.

For the shorter part of the building, also exceeding 60 m, a second fire route was planned in the pedestrian area. Both roads are located at a distance of at least 5 m from the building and are equipped with appropriate maneuvering routes.

11.7 Hydrants

The facilities have DN 25 hydrants installed on all above-ground floors. The devices have been arranged in accordance with the requirements of the State Fire Service, ensuring easy access to all areas of the building for emergency services.

12. Accesibilty Issues for the people with disabilities

The investment meets all requirements regarding accessibility for people with disabilities.

12.1 Objects access

Four parking spaces dedicated to people with disabilities have been planned on the site, located near the main entrances to the buildings, which is intended to shorten the access distance. The paths within the plot have been paved with concrete blocks and adapted to the needs of people with limited mobility. Two ramps with a slope not exceeding 6% and a width of at least 1.2 m lead to the paths along the water, which are located a meter lower. All paved surfaces contain changes in the surface and a system of texture markings informing about potential hazards.

12.2 Entrance zone

In front of and after the entrance to the buildings, a maneuvering space of at least 150x150 cm was designed, and recessed doormats were used, which were distinguished by color. Access to the facility is provided at the level of the sidewalk, and the surface in front of the entrance was made of anti-slip material. The entrance doors are thresholdless, made of glass, with additional contrasting stripes that improve visibility.

12.3 Fire communication

Each building has been equipped with a lift measuring no less than 110x140 cm, providing adequate maneuvering space in front of the device. Call buttons are in contrasting colors and equipped with Braille markings. In the event of fire, evacuation is carried out using staircases with the required fire resistance, which have been equipped with evacuation chairs. The stairs have a minimum width of 120 cm between handrails, and the first and last steps have texture markings in the FON system.

12.4 Horizontal communication

The circulation routes have been designed in a clear manner, with a difference in the colour of the floor in relation to the walls. The circulation space is free from obstacles, and there is adequate space for manoeuvring in front of the entrances to the rooms. All structural and installation elements are highlighted in contrasting colours, which facilitates orientation.

12.5 Availability of rooms for disabled persons

In front of the entrances to the rooms, there are planned maneuvering spaces measuring 150x150 cm, and the width of doors and passages is at least 90 cm. The interiors are designed in subtle colors, contrasting with the floor. The entire building is threshold-free.

Induction loops have been built into the information point, the multifunctional room and some rooms, and the rooms with this equipment have been marked with appropriate signs.

12.6 WC for people with disabilities

All facilities are equipped with toilets and changing rooms adapted to the needs of people with disabilities. Access to the toilets is free from obstacles, and there is adequate maneuvering space in front of the entrance. The doors are at least 90 cm wide and open outwards. The interiors of the toilets have been designed with a maneuvering space of 150 cm x 150 cm.

The rooms are equipped with sanitary facilities adapted to the needs of people with disabilities, maintaining the required distances. The floors are matt and anti-slip, ensuring the safety of users.

12.7 Communication and information accessibility

The entire investment has been equipped with clear markings both on the premises and inside the building. The content is legible and contrasts with the background. The rooms have been marked in clear colours, as well as using Braille. The facility provides users with access to an evacuation plan, and the reception desk has typhlographic plans that facilitate orientation in space.

13. Safety an health protection issues

The investment was designed with maximum safety in mind, minimizing the risk of accidents. Staff will be appropriately trained to respond skillfully in various crisis situations. Health and safety rules will be clearly marked in the facility, accessible to both employees and users. All potentially dangerous places will be appropriately marked, taking into account the needs of people with disabilities. 1.10 m high balustrades will be installed at heights.

Evacuation routes will be clearly and visibly marked to enable quick and safe exit from the building in the event of a fire. A detailed evacuation plan will be available to users upon request.

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