



RECONSTRUCTION STRATEGY AND DESIGN FOR NORTHERN SALTIVKA, KHARKIV

Kateryna Natalchuk

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DIPLOMA PROJECT

Studio Achten - Pavlíček
Czech Technical University in Prague
Faculty of Architecture and Urbanism
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Author:
Kateryna Natalchuk

Advisor:
Achten Henri H, Prof. Dr.
Pavlíček Jiří, Ing. Arch, Ph.D.



ANALYSIS

KHARKIV



NORTHERN SALTIVKA



PROPOSALS ON THE REBUILDING
OF NORTHERN SALTIVKA



REFERENCE PROJECTS



SITUATION ANALYSIS



PROJECT SITE ANALYSIS



DESTRUCTION ANALYSIS



PHOTOS



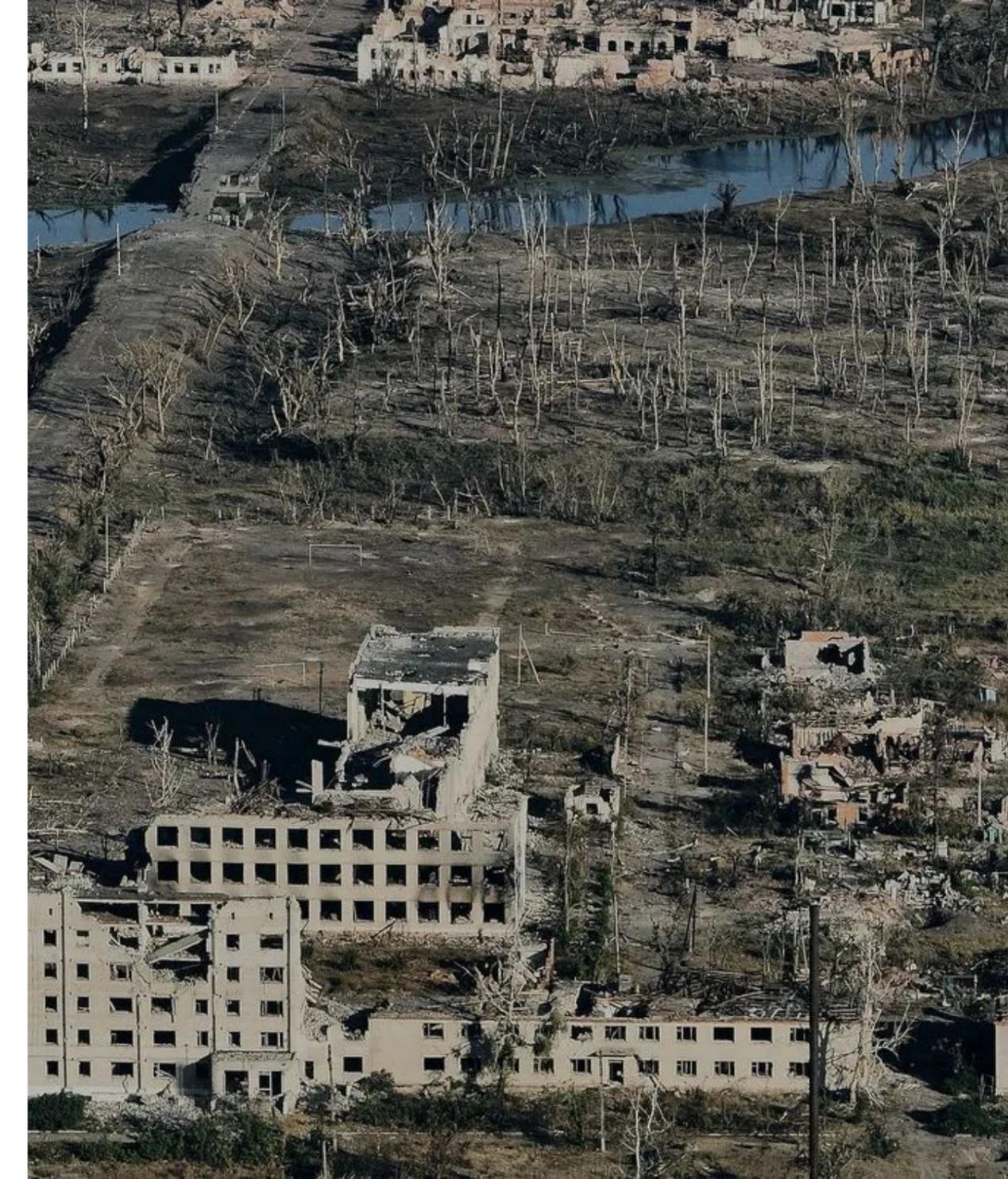
NUMBERS

INTRODUCTION

Architects gained a lot of theoretical and practical knowledge on post-war rebuilding of cities after 2nd world war, but in times of a modern-day crisis there is a need to learn from a previous experience and develop new approaches on how to bring war-damaged cities back to life. If there is already a need for rebuilding destroyed neighbourhoods - it gives us a unique opportunity to look at the existing problems of certain urban planning strategies and solve them instead of simply restoring them to their pre-war state.

In my diploma project i took one of the most damaged parts of Kharkiv - Northern Saltivka and, using it as an example, was looking for an approach that can be effectively applied to any similar area in Ukraine in its eventual post-war rebuild. For me this was the most obvious and practical use of my, so far gained, knowledge as an architecture and urbanism student.

Vovchansk, Kharkiv region, 2024



KHARKIV



GENERAL INFORMATION

Kharkiv is a city in northeastern Ukraine, in the Slobozhanshchyna region, the scientific center of Ukraine, the administrative center of the Kharkiv region. The second most populous city in Ukraine with a population of 1,421,125 people as of 01.01.2022. The area of the city is 350 km². Two rivers - Kharkiv and Lopan - converge in the historical center of the city.

Kharkiv is one of the largest industrial centers of Ukraine. The industrial potential of the city is made up of enterprises of the machine-building industry, as well as the chemical, electric power, fuel, and food industries, and since recent times - IT industry. It also is considered to be the center of science and education of Ukraine as it has one of the highest number of universities.

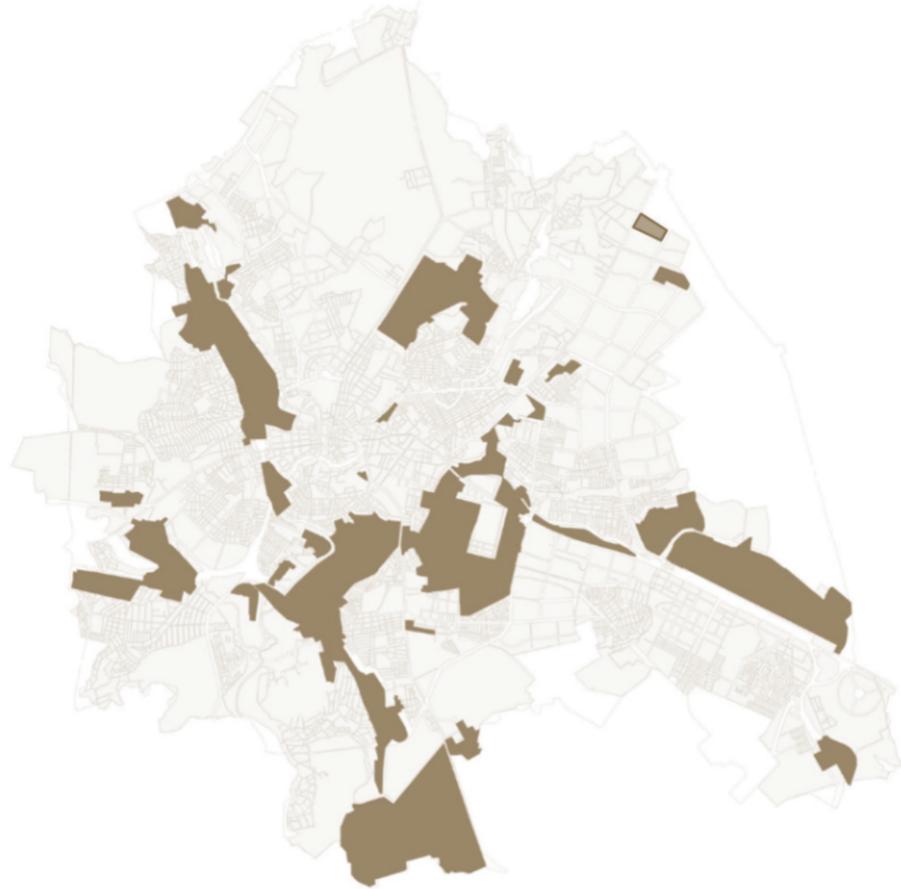
HISTORY OF THE CITY

Kharkiv was founded in 1654 as a fortress to deter raids by the Crimean Tatars and Nogais. Since 1765, as a result of the abolition of the Cossack system of Slobozhanshchyna, Kharkiv became a provincial city. At the beginning of the 20th century, the city was a major industrial, cultural, trade and educational center of Sloboda Ukraine in the Russian Empire. 2 years after the February Revolution of 1917, in December 1919, the Soviet government returned to Kharkiv, and Kharkiv became the first capital of the Ukrainian SSR - the Ukrainian Soviet Socialist Republic. The city began to develop in the direction of industrialization. Large factories began to be built, the population increased due to migration. Science and culture developed in parallel. In Kharkiv, the first atomic nucleus was split in the USSR.

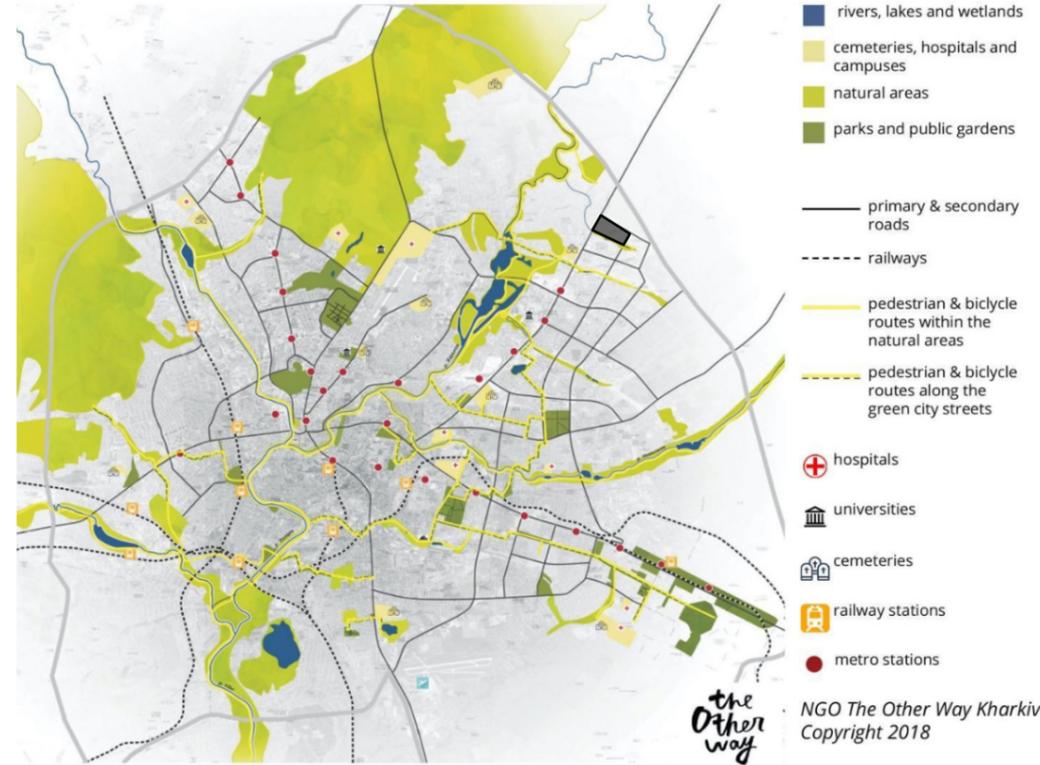
During the Soviet era, the city was a major industrial, scientific, educational, and transport center of Ukraine and the USSR. With the beginning of Ukraine's Independence, Kharkiv, like the entire country, found itself in a situation of economic restructuring. Many enterprises were closed or reconstructed due to ties with the markets of the CIS countries and dependence on Russian oil, minerals, and gas.



INDUSTRY DISTRIBUTION



GREEN AND BLUE INFRASTRUCTURE



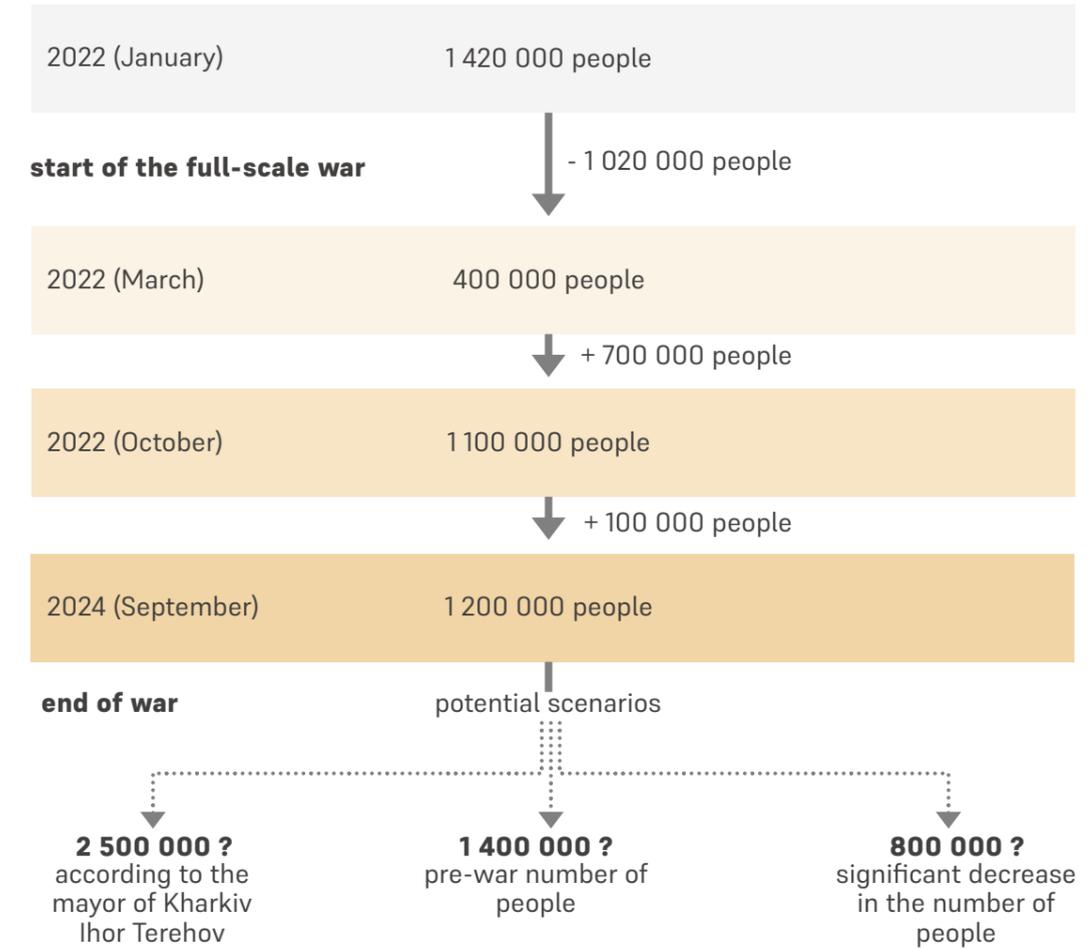
KHARKIV POPULATION

Kharkiv was a second largest Ukrainian city in terms of population. By 01.01.2022 the population was estimated to be 1 421 125 people. After the full-scale invasion of the Russian Federation, a large part of the residents left the city. In March 2022, about 400,000 people remained in Kharkiv, and this was the lowest point. Subsequently, Kharkiv residents gradually began to return.

According to representatives of the city authorities, there were four waves of return of Kharkiv residents:

- The first wave. It was in the spring of 2022, when the armed forces liberated the settlements in the north of the region, from which residential areas of Kharkiv were shelled. In that period, 2,000 people returned to Kharkiv every day.
- The second wave. It took place after September-October 2022. As a result of the Kharkiv counteroffensive, almost the entire previously occupied territory of the Kharkiv region was liberated. Artillery shelling of the city stopped. Kharkiv residents returned even to the "most dangerous" areas, for example, to Northern Saltivka. The city's population grew to 1.1 million people.
- The third wave passed in the New Year's area of 2023.
- The fourth wave. It was held at the end of the summer of 2023. The city authorities associated it with the beginning of the new academic year.

As of 2024 Kharkiv has 1 million 200 residents and displaced persons. Kharkiv Mayor Ihor Terekhov believes that after the war, the city's population will increase to 2.5 million.





NORTHERN SALTIVKA

GENERAL INFORMATION

Saltivka is one of the youngest densely populated residential areas in the north-east of Kharkiv, built in 1987-1993. By February 24, 2022, about 400 thousand residents lived there. Until the early 1960s, Saltivka was called Saltivske settlement. It consisted of several small, isolated areas of one-story and three-story buildings. The name "Saltivka" came from the road that ran from the center of Kharkiv outside the city - this is the current Akademika Pavlova Street and Saltivske highway.

The main principle laid down in the development of the area by architects Demeshko and Tulpa is the principles of zoning and focusing. It can be seen that in Saltivka, infrastructure facilities are concentrated around the intersections of the main street highways of the city. The residential area consists mainly of typical-planning panel buildings of five-, nine-, twelve- and sixteen stories. The construction of houses began in 1967, but the mass development of the area continued in the 1970s.

The layout is done as a typical modernistic district. The buildings are located within vast distances from each other and are separated with big areas of greenery and distributed main amenities - like schools, kindergartens and hospitals. It is said that the layout and mutual arrangement of buildings in Saltivka was designed in such a way as to provide maximum protection from the winds. The buildings are built in accordance with the geographical location and wind rose. The topography of the district is predominantly flat, which allowed to not take natural relief into consideration too much when planning the urban layout.

Northern Saltivka, Kharkiv, 2022



NORTHERN SALTIVKA AFTER THE WAR

During the Russian invasion of Ukraine in 2022, Kharkiv was the site of fierce fighting between Ukrainian and Russian troops. In May 2022, Ukrainian forces pushed Russian forces away from the city. Russian artillery and missiles remained within range of the city, and it continued to be systematically bombarded and rocketed. Following the Kharkiv counteroffensive in September 2022, the city remains under periodic Russian shelling, mostly with S-300 missiles. The northern areas of the city, such as North Saltivka, were particularly hard hit.

The fighting around Kharkiv began on the first day of the full-scale Russian invasion, when enemy troops approached the city. From that time on, for several months, Kharkiv was shelled almost daily, one of the most affected areas was North Saltivka - a residential area closest to the border with Russia.

Due to the enormous scale of the destruction, North Saltivka is now called a dead area, or a dead city - 70% of the buildings here were damaged or destroyed. Frequent shelling of North Saltivka was minimized after Ukrainian defenders liberated most of the Kharkiv region from the occupiers in September 2022. After that, residents of the surviving homes began to return to this residential area. As of 2023, the post office in Pivchnia Saltivka was still not working, there were no shops, and transport ran at fairly frequent intervals. At the moment, the neighborhood is gradually coming back to life. However, the houses where people live still often lack water, heating, gas, or electricity.

PROPOSALS ON THE REBUILDING OF NORTHERN SALTIVKA

KHARKIV HOUSING CHALLENGE BY NORMAN FOSTER

This competition was part of the larger Kharkiv concept Masterplan project, which brings together the Norman Foster Foundation, Kharkiv City Council, the United Nations Economic Commission for Europe, Arup, Kharkiv Architects Group, and the UN4UkrainianCities initiative.

The competition focused on Northern Saltivka, the most affected district of Kharkiv after February 24, 2022. Given the similarity of residential areas in Kharkiv, the larger ambition of this project is to extrapolate the winning designs to other residential areas throughout the city.

259 projects were submitted for the competition, including 27 works from Ukrainian architects. The jury selected the 20 best projects, which “envisage the restoration of damaged apartment buildings, taking into account the improvement of their safety and energy efficiency, as well as the creation of a comfortable public space around them.” The jury meeting for the competition was held online on October 9. The jury was headed by British architect Norman Foster, and also included Kharkiv City Mayor Igor Terekhov, representatives of international and local companies and organizations etc.

The competition called on architects and designers to develop modular systems to retrofit existing concrete housing blocks and revitalize public areas. Proposals were evaluated based on their modularity and innovation, adaptability and scalability, sustainability and environmental considerations, design for community engagement and empowerment, as well as their economic viability and potential to be realized. Winning proposals got offered opportunities to move into detailed development, with the potential for teams to collaborate with local communities.

Most of the winners projects focus on reinforcing damaged buildings or replacing modules individually, enhancing security, accessibility, and thermal insulation while expanding living spaces. They also integrate sustainability by considering material reuse, water collection, and energy efficiency, with modular solutions that allow for flexibility based on the terrain. With great focus towards sustainability and detailed construction solutions - this contest's goal lacks more broad scale approach which would rethink the urban layout and public spaces between the buildings.



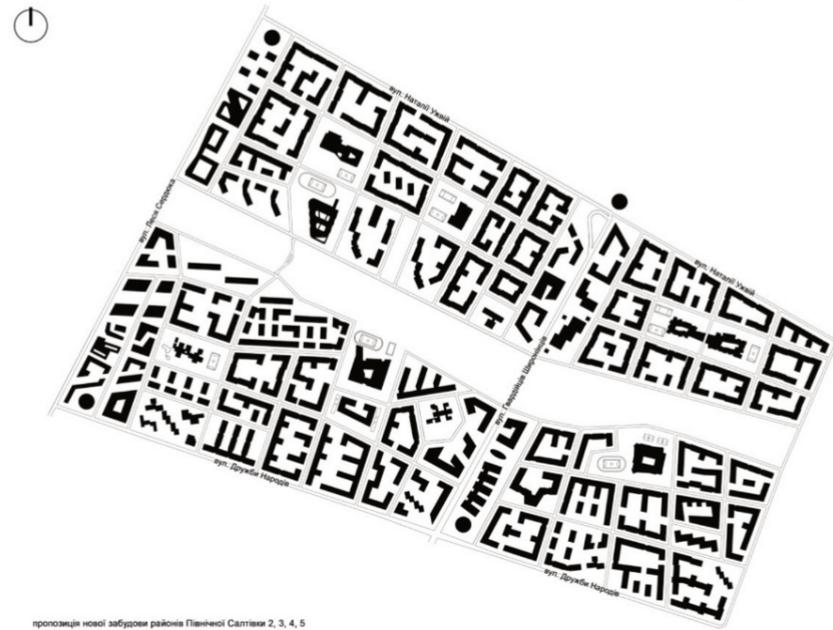
NORTHERN SALTIVKA - EGO HOUSE

The main idea is to implement a block-based residential development with mixed-use public buildings, which include retail and office spaces. This will help solve a number of important problems, in particular, the uncomfortably high height of buildings, the lack of normal public spaces, the “emptiness” of courtyards, and the socialization of the population.

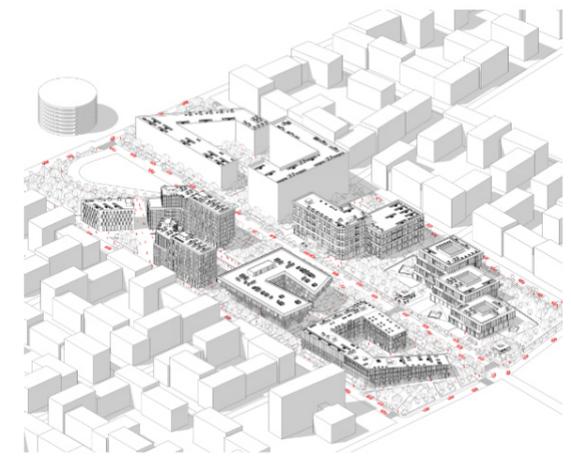
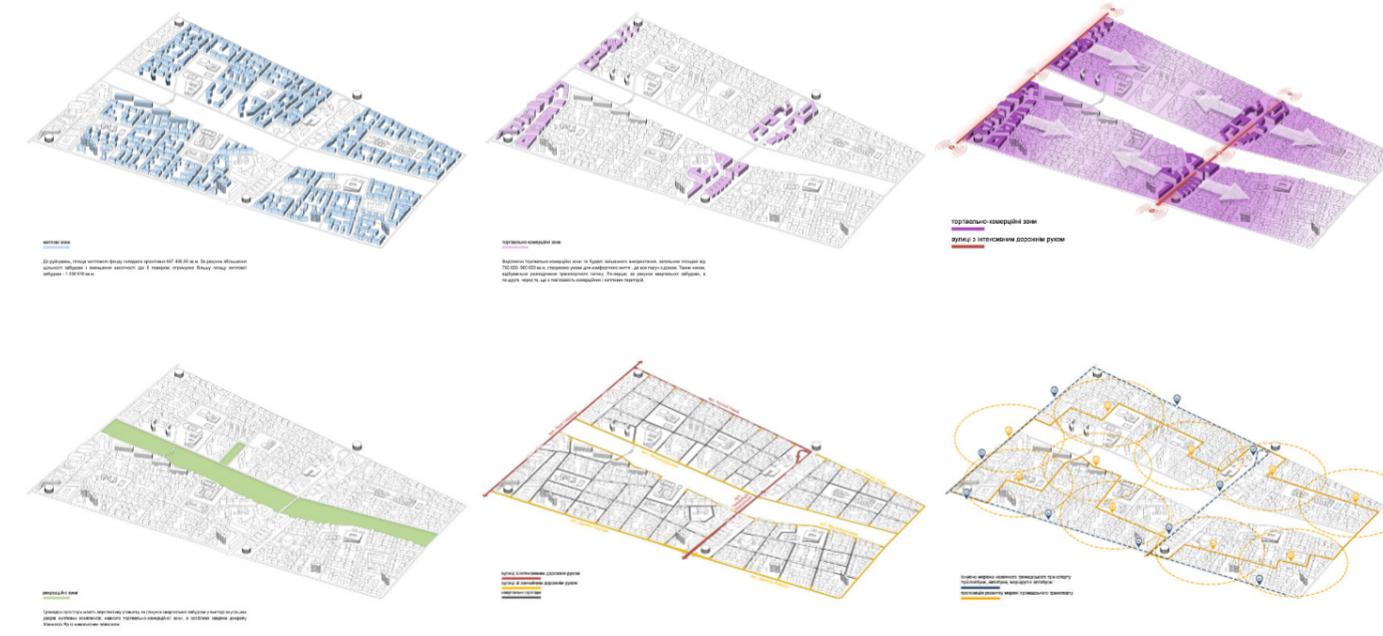
Special attention is paid to the organization of internal courtyard spaces - temporary parking areas are provided, in addition, the projects of residential complexes have parking lots on the first floors, as well as a hidden garbage collection system. Bomb shelters are designed in the blocks. For the surviving existing residential buildings, a method of integrating them into new development is provided, thanks to curtain wall systems. Also, to reduce traffic and improve transportation logistics, they propose to develop a public transport network, with a separate lane for trolleybuses and buses. To reduce the use of personal cars, a safe and comfortable network of bicycle paths has been designed.



існуюча забудова району Північної Салтівки 2, 3, 4, 5



пропозиція нової забудови району Північної Салтівки 2, 3, 4, 5



REFERENCE PROJECTS

REVITALIZATION OF HOUSING ESTATE FOR NEW NEEDS - EXAMPLE MODRANY

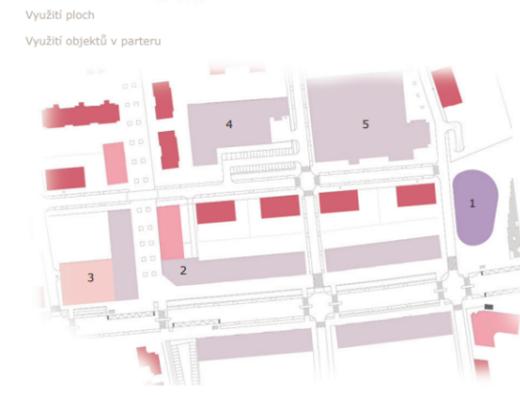
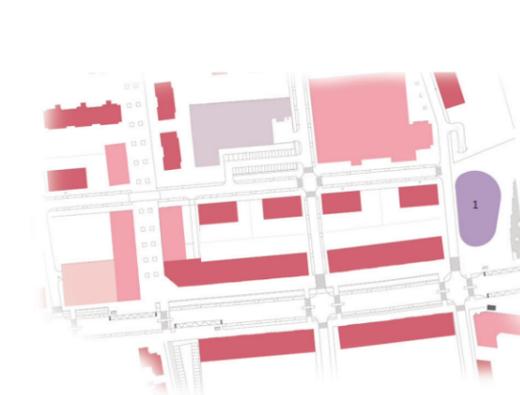
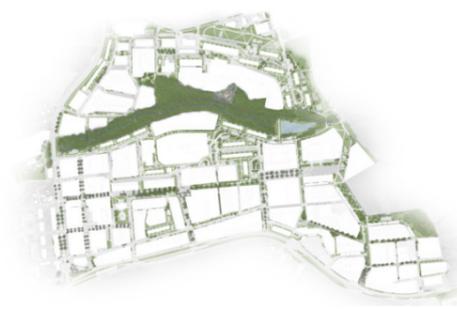
Kateřina Pšeničková, Architecture and Urbanism, MA Diploma Project, SS 2012

This Master's project explores the possibilities of renovating and revitalizing prefabricated housing estates through both not very invasive interventions, like changing the use of the public spaces, greenery, reducing or restricting parking in certain areas, and more drastical changes like creating a new local multifunctional centre.

The Modřany – Komořany housing estate was built on the outskirts of Prague according to the project of J. Kalous in the years 1980 – 1986. Its capacity is 9015 apartments for 28500 inhabitants. But Prague has numerous estates of the same nature - ŘEPY, JIŽNÍ MĚSTO, JIHOZÁPADNÍ MĚSTO etc - therefore the principles of this project can be applied throughout whole Prague.

The greenery in this estate is mostly all public, with rare exceptions of fenced territories, like school areas. This creates a lot of problems with lacking of function, ownership, money and resources to take care of it. The project proposes more private and semi-private green areas, that can be used to create „Garden Communities“ which will positively affect social relations in the neighborhood and give new activities to the residents.

In one of the districts of Modrany estate is introduced a parking-free zone as a blueprint for potential transformation of the whole estate. It allows for more quiet public spaces with less cars taking place. To reduce the need of commuting to the center of Prague for leisure and activities the new local centre is introduced on the border between Old and New Modrany - it will include new housing, administraron, offices and shops.



- SCHÉMA VYUŽITÍ OBJEKTŮ
- BYDLENÍ
 - ADMINISTRATIVNÍ OBJEKTY
 - KRYTÉ GARÁŽE
 - OBČANSKÁ VYBAVENOST
 - OBČANSKÁ VYBAVENOST
 - OBCHODY A SLUŽBY

- SCHÉMA VEŘEJNÉ ZELENĚ
- PLOCHY TRAVNATÉ
 - PLOCHY ZALESNĚNÉ
 - STROMOVÉ ALJEJE

- BYDLENÍ
- ADMINISTRATIVNÍ OBJEKTY
- KRYTÉ GARÁŽE
- OBČANSKÁ VYBAVENOST
- OBCHODY A SLUŽBY

- Modřanská promenáda A
 Modřanský bulvár B
 Posezení před radnicí C
- 1 radnice
 - 2 restaurace
 - 3 garáž 448 míst
 - 4 Billa
 - 5 pasáž Sofie

- 1 NOVÉ CENTRUM MODŘAN
- 2 KRYTÝ PLAVECKÝ BAZÉN
- 3 PARKING-FREE KONCEPT
- 4 NOVÁ VODNÍ PLOCHA
- 5 PODPORA LOKÁLNÍHO CENTRA
- 6 REVITALIZACE STÁVAJÍCÍHO LESOPARKU
- 7 OKRUH PRO BRUSLAŘE 620m
- 8 PŘÍRODOVĚDECKÉ CENTRUM S KAVÁRNOU
- 9 MULTIFUNKČNÍ SPORTOVNÍ PARK
- 10 DOMOV SENIŮRŮ

BIJLMERMEER MASTERPLAN

Bijlmermeer, Amsterdam, Netherlands, 2002

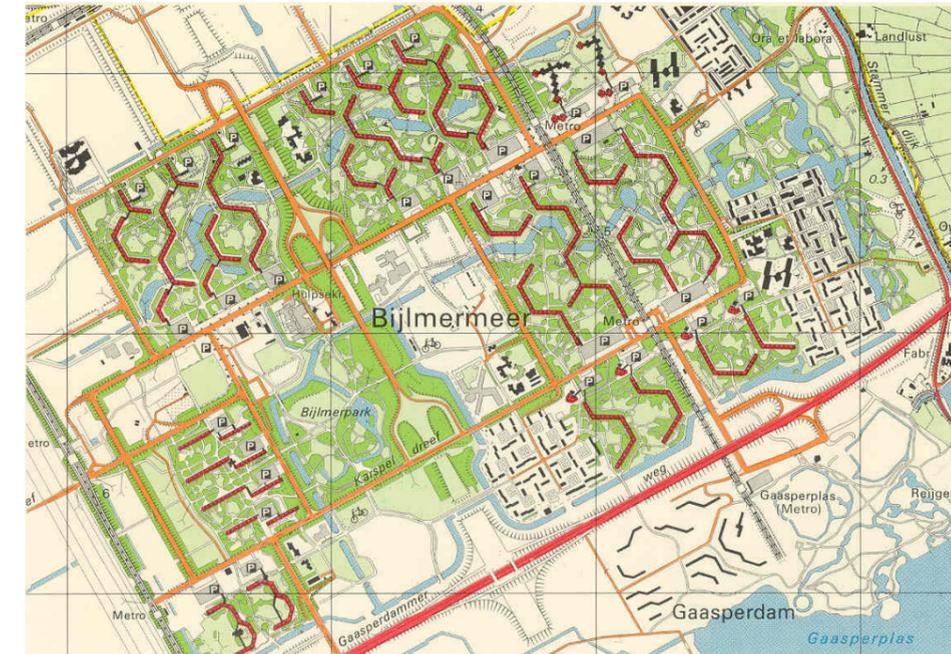
Begun in 1966, the Bijlmermeer was an ambitious housing experiment built in vacant farmland south-east of the city. It was envisioned as a secondary centre for the region, and planned for 40 000 dwellings as well as 60 000 new jobs. It was promoted as Western Europe's most completely functional satellite community. However the plan was never fully realized. The jobs and amenities never came and it remained in a gradual process of decline for nearly 30 years. It was quickly dismissed as a planning and social failure.

Yet in the 1990's the area garnered renewed interest. The City of Amsterdam designated the Bijlmermeer as a priority investment zone and began a process of implementing the original mixed-use intentions. This began with providing rapid transit, and promoting a large commercial and entertainment district adjacent to the housing. Since this time, the aging housing development itself has undergone rapid and remarkable transformation, consisting of mixed-use intensification, and selected replacement and refurbishment of the existing stock.

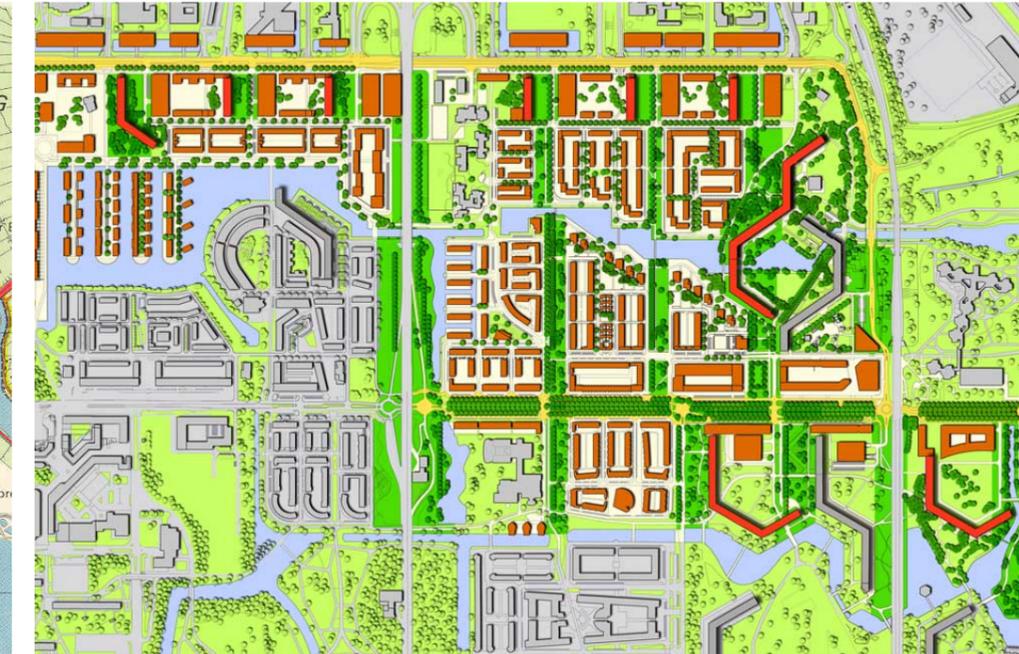


A master plan, completed in 2002, set the framework for massive changes within the housing district. The master plan conforms to these key principles: establishing varied zones of uses, encouraging a differentiation of building types, maintaining a cohesive 'district'.

Once noted for its homogeneity, the Bijlmermeer has been transformed into a series of neighbourhoods and commercial areas of vibrancy, diverse use and unique character. Basic zones include mixed use commercial, market and housing zones positioned near Metro stops, as well as residential areas of 'historic zones' of refurbished slabs, and new high, mid and low density housing. A cohesive public realm programme including wayfinding, pedestrian and cycling paths, paving patterns and street furniture provides continuity within the sprawling district. New building arrangements frame boulevards, courts and plazas, creating a series of human scaled spaces. New amenities and improved access to services has improved quality of life for current residents while attracting new ones, making the Bijlmermeer one of the most culturally diverse areas in Europe.



Original masterplan, 1966



New masterplan, 1993-ongoing



LACATON & VASSAL - RENOVATION OF A BORDEAUX HOUSING ESTATE

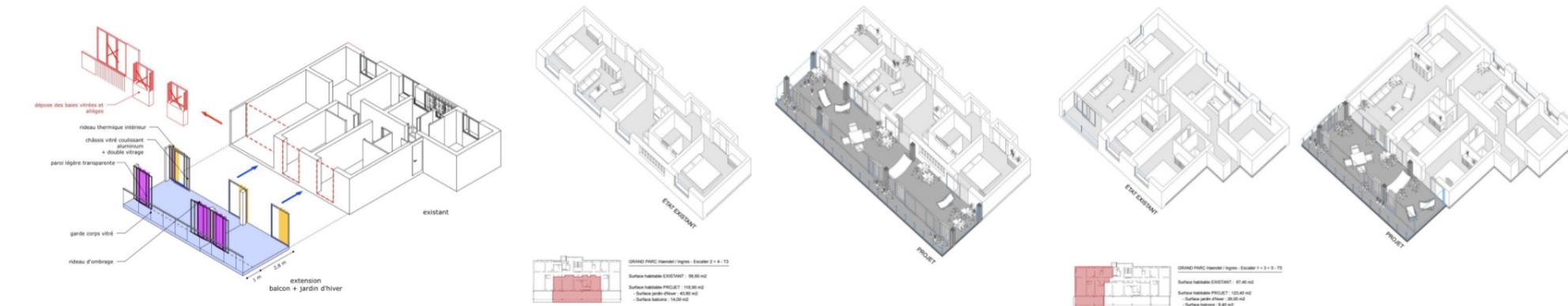
Bordeaux, France, 2016

Lacaton & Vassal, with Frédéric Druot Architecture and Christophe Hutin Architecture, won the 2019 Mies van der Rohe Award with their renovation of three blocks of a 1960s slab estate in Bordeaux with the addition of an outer skin of winter gardens.

The project consists in the transformation of 3 modernist social housing's buildings, fully occupied. It is part of the renovation program of the 'Cité du Grand Parc' in Bordeaux. Built from the early '60s, this modernist district counts more than 4000 dwellings. The 3 buildings G, H and I, 10 to 15 floors high, gather 530 dwellings and needed a renovation after the question of their demolition has been ruled out.

The general economy of the project is based on the choice of transforming the existing building without doing important interventions on the existing: the structure, the stairs or the floors and of proceeding by additions and extensions. This approach on the economy makes possible to concentrate the resources on generous extensions that are, for us, the key point to improve in a significant and sustainable way the quality and the dimension of the dwellings. These extensions widen the space of use and the mobility inside the dwelling and give the opportunity, as in a house, to have a private outdoor space. The apartments open on to large winter gardens and balconies, and offer pleasant outdoor spaces, large enough to be fully used : 3,80m deep on the South facades for the buildings H and I buildings and the 2 façades of the building G, only composed by the mono-orientated dwellings. The existing windows are replaced by large glassed sliding doors, which connect every room of the dwelling to the winter garden.

Interior works are also planned in every dwelling as well as the renovation of the bathrooms and new electrical installation. In every staircase of 45 dwellings The 2 former elevators serving every staircase of 45 dwellings are replaced by a new bigger one and supplemented by a new elevator built to improve the vertical circulation. On ground floor, new access halls are done, more opened and transparent, and the gardens in front of the buildings are improved. The global performance of the building envelope is also improved by the addition of winter gardens and by the insulation of the North facade.

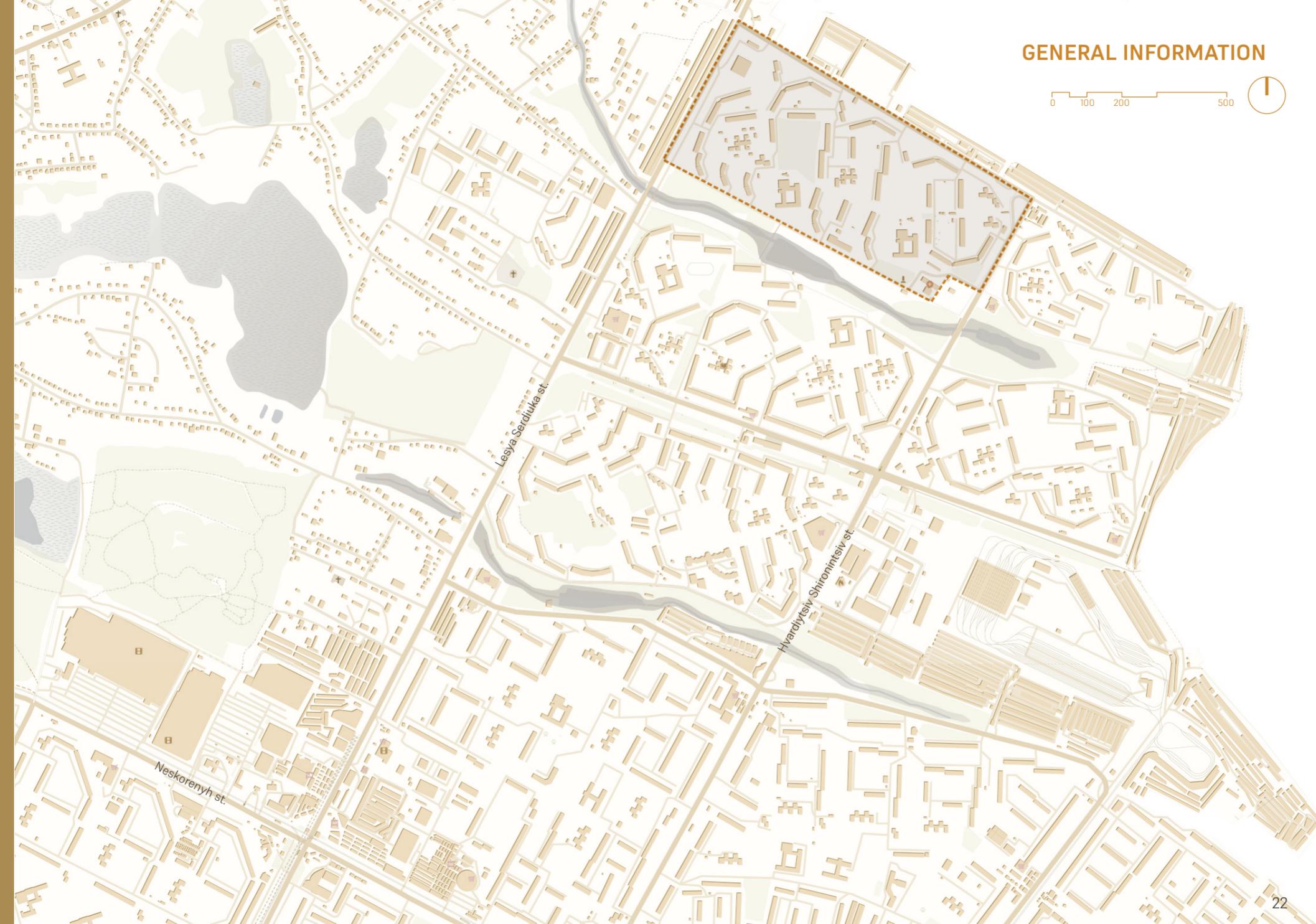


SITUATION ANALYSIS

Project site is surrounded by similar monofunctional housing estates, that are planned using the same urban principles and use the same typical floor plans and of similar height.

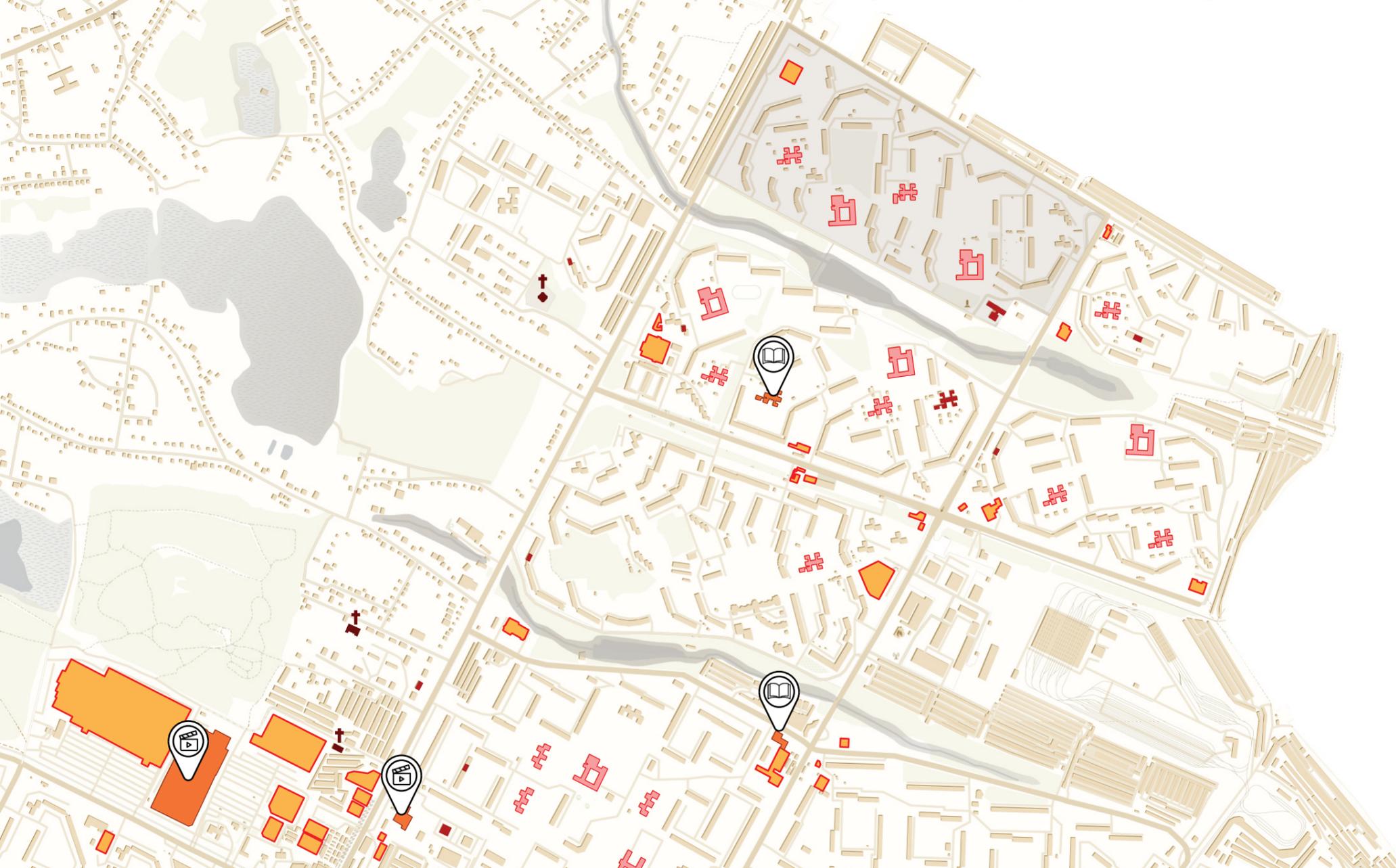
The area has a lot of water resources, with streams running between residential neighborhoods and swampy lakes to the North-East. It also has an abundance of wild greenery, but very little park areas.

Most of the services and commercial buildings are located alongside main streets - Lesya Serdiuka, Neskorenyh and Hvardiytsiv Shironintsiv. Most amenities can be found near „Saltivska“ metro station.



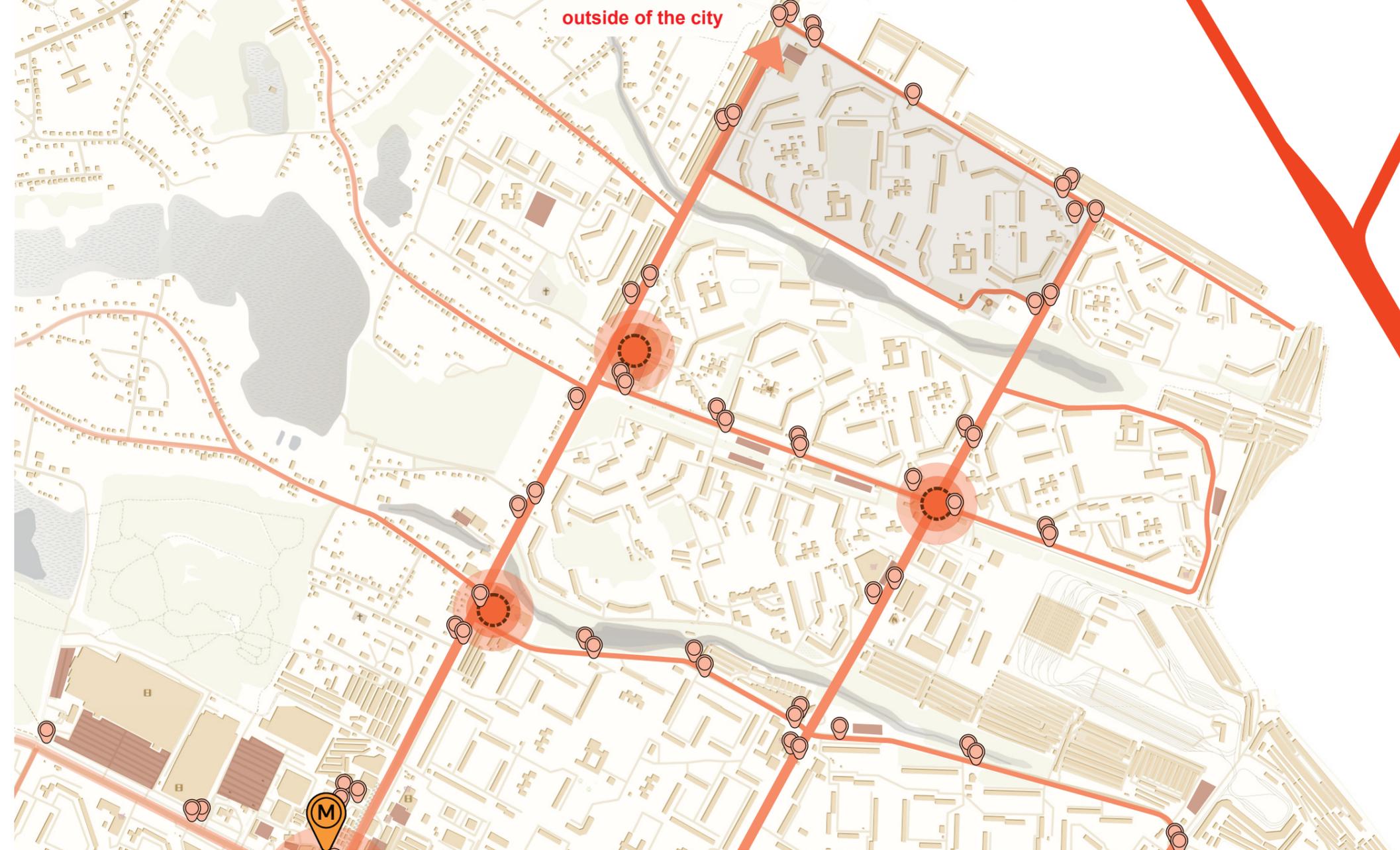
GENERAL INFORMATION





- education
- commerce
- culture and entertainment
- medical
- religious

AMENITIES



- city ring road
- main roads
- secondary roads
- parking areas
- public transport stops
- „Saltivska“ metro station
- local centers

STREET INFRASTRUCTURE AND LOCAL CENTERS



outside of the city

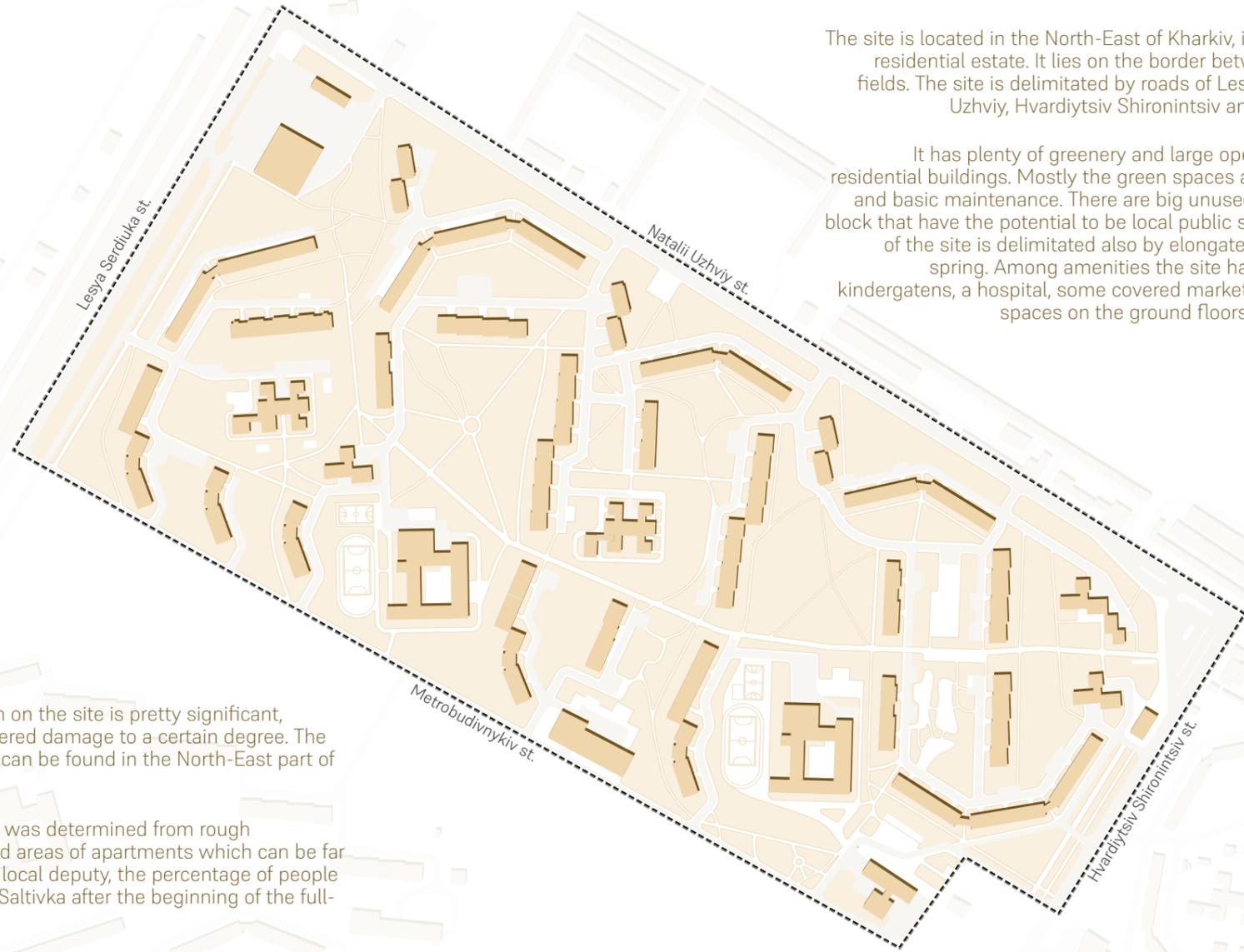
PROJECT SITE ANALYSIS

The site is located in the North-East of Kharkiv, in Northern Saltivka residential estate. It lies on the border between city and open fields. The site is delimited by roads of Lesya Serdiuka, Natalii Uzhviy, Hvardiytsiv Shironintsiv and Metrobudivnykiv.

It has plenty of greenery and large open spaces between residential buildings. Mostly the green spaces are lacking function and basic maintenance. There are big unused spaces inside the block that have the potential to be local public spaces. South-West of the site is delimited also by elongated park with a small spring. Among amenities the site has two schools, two kindergatens, a hospital, some covered market stalls, commercial spaces on the ground floors of some buildings.

The severity of destruction on the site is pretty significant, around 70% buildings suffered damage to a certain degree. The most damaged buildings can be found in the North-East part of the site.

The population of this site was determined from rough calculations of number and areas of apartments which can be far from truth. According to a local deputy, the percentage of people that returned to Northern Saltivka after the beginning of the full-scale war is 23%.



■ project site area	42.55 ha
■ built-up area	5.15 ha
■ greenery area	22.36 ha
■ paved area	15.04 ha

GENERAL INFORMATION



■ cemetery	■ family houses (existing)	■ apartment buildings (existing)	■
■ healthcare facilities	■ transport infrastructure	■ apartment buildings (planned)	■
■ markets	■ public greenery	■ family houses (planned)	■

LAND USE MAP







FUNCTIONS MAP

- residential
- commercial
- kindergartens
- schools
- hospitals
- technical



DESTRUCTION MAP

- no damage
- minimal damage
- medium damage
- severe damage
- restored
- demolished



DESTRUCTION ANALYSIS

Northern Saltivka may be one of the most war-damaged residential areas in the whole Kharkiv, but even with that severe level of destruction we can identify what building still can be saved and what cannot serve its purpose anymore.

In post-war reconstruction of Ukraine, when developing new proposals, we need to be considerate about the fact that we won't have infinite budgets to fulfill all the best solution and more likely we will have to compromise between the most desired and the most affordable solution. Following this thought I carried a destruction analysis of the site, photographing and mapping out every building to determine its level of damage and then divided them into 3 categories: minimal, medium and severe. According to this division only ones that have severe level of destruction need to be demolished and replaced by new ones.

Eventually, of course, all panel buildings will have to be replaced or undergo serious reconstruction works - but for now, with current economic state of Ukraine it allows to get visible results with less money spent.

MINIMAL

- insignificant damage of outer layers of facade without structural damage
- broken windows and balcony doors
- minimal structural damage on balconies



- mass replacing of destroyed windows and balconies
- removing the burned layer of facade
- covering the facade imperfections with the mortar using crushed concrete from demolished buildings
- repainting the facade

MEDIUM

- facade that was burning for not prolonged period of time and no significant structural damage is visible
- some sections are missing but are possible to replace as the rest of the building is intact
- holes in the facade that are possible to fix



- replacing fire damaged facade panels with the new ones using steel reinforcement
- fixing holes in the facade with the mortar using crushed concrete from demolished buildings

SEVERE

- missing whole upper floors, missing large areas in the middle of the building
- big areas of prefab panels that are no longer functioning as a load-bearing elements
- facade that was burning for prolonged period of time and is showing signs of structural damage from the fire



- cannot serve their purpose anymore therefore have to be demolished

MINIMAL



MEDIUM



SEVERE



PHOTOS

EVOLUTION OF THE SITE



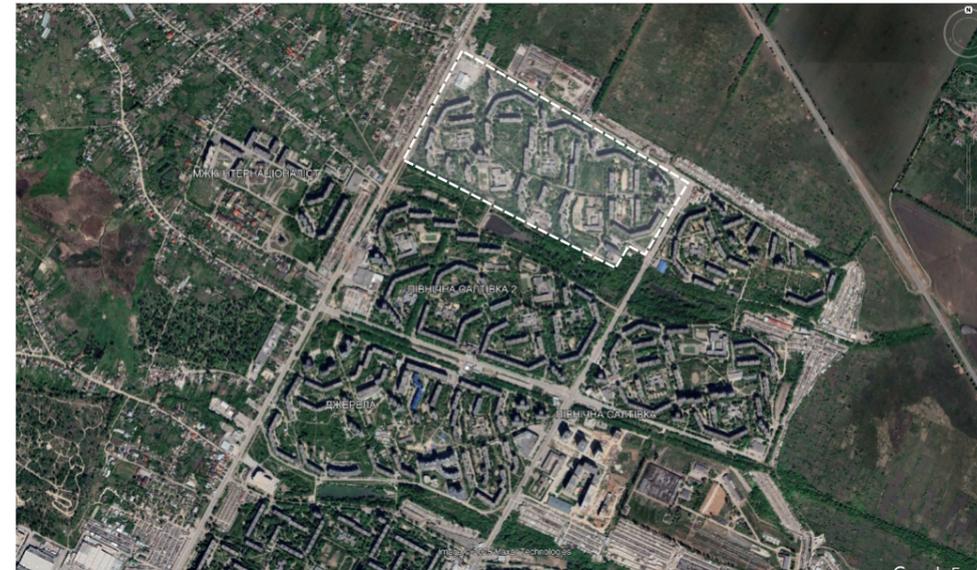
1985



2008



2018



2025

STREET PHOTOS OF THE SITE



NUMBERS

AREAS (BUILDINGS)

residential (total) =	229941 m2
residential (apartments only) =	167338 m2
commercial =	2467 m2
schools =	19632 m2
kindergartens =	0 m2
hospitals =	6685 m2
technical =	3542 m2

Total amount of residents =
(calculated from m2 per person) 8366 residents

AREAS (URBAN)

total site area =	42.55 ha
parks =	1.98 ha
other greenery =	20.38 ha
built-up area =	5.15 ha
roads =	8.31 ha
pavement =	5.79 ha
sport fields and playgrounds =	1.42 ha

EXPECTED NUMBER OF RETURNED RESIDENTS

To understand the scope of design we need to understand not only the pre-war demographic state but to make prediction for its potential change. We can assume the current demographic state from percentage of returned people to Kharkiv total since 2022:

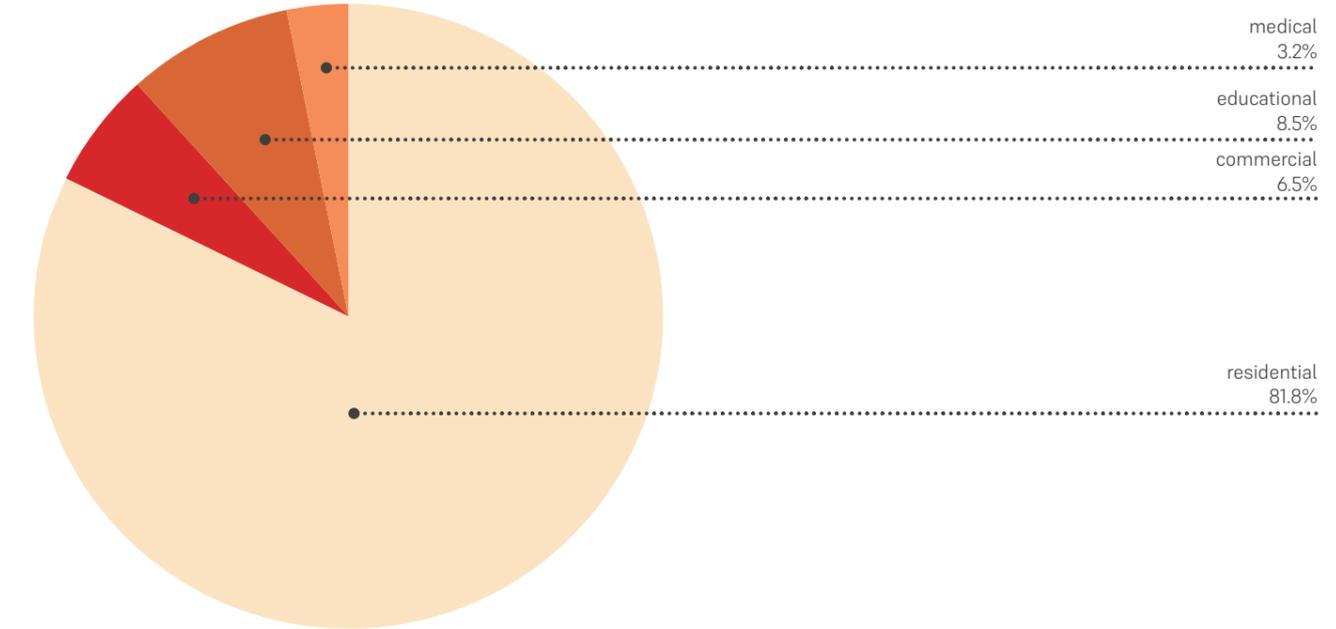
84.5% - the percentage of returned residents of Kharkiv Northern Saltivka: $8366 * 0.845 = 7723$ **returned residents**

The real numbers can vary significantly from expected numbers, depending on multiple factors such as:

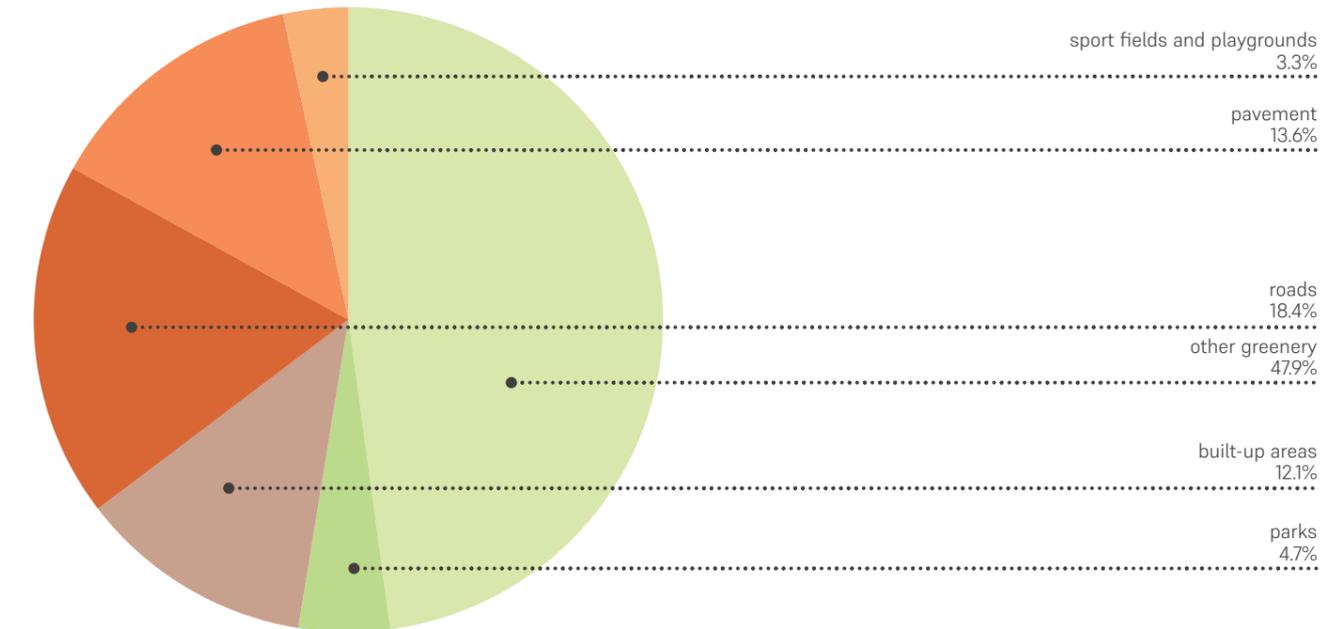
- How soon the war will end
- The economic state of Ukraine after the war
- The amount of foreign help for rebuilding the country
- The number of working places in the area
- Overall level of safety in Kharkiv

Because we cannot predict the exact scenario of how many people will decide to return to Northern Saltivka the design has to be flexible and adaptable to the current demands.

buildings



urban



DESIGN

CONCEPT



MASTERPLAN



MASTERPLAN DIAGRAMS



AXONOMETRY



STREET SECTIONS



PERSPECTIVE VIEWS



NUMBERS



LINKS

CONCEPT

When developing a concept for this project my key goal was to enhance the quality of living and bring life back into this war-scarred neighborhood, but also take into account financial limitations of my country, be sensitive to the context and create simple and pragmatic solutions, that can be used beyond Saltivka and applied to any neighborhood of similar urban layout.

On top of objective damage from missiles and explosions, places like Northern Saltivka are generally lacking quality in public spaces, are predominantly monofunctional and have plenty of unused or poorly used space. Apart from abundance of greenery - neighborhoods like these usually have nothing attractive to offer.

The number of current residents is unknown and it's hard to make prediction for how the numbers will change further in the future - some may never want to return, some are dreaming for it but their house is in ruins or without water supply, some have their house intact but no working place anymore which forces them to find better life elsewhere. Taking this into account, the design has to be adaptable for all possible scenarios. No matter if 50% of the people would return or 200% - it should be able to satisfy the needs of those who chose to return and create a vibrant, active, multifunctional environment for them.

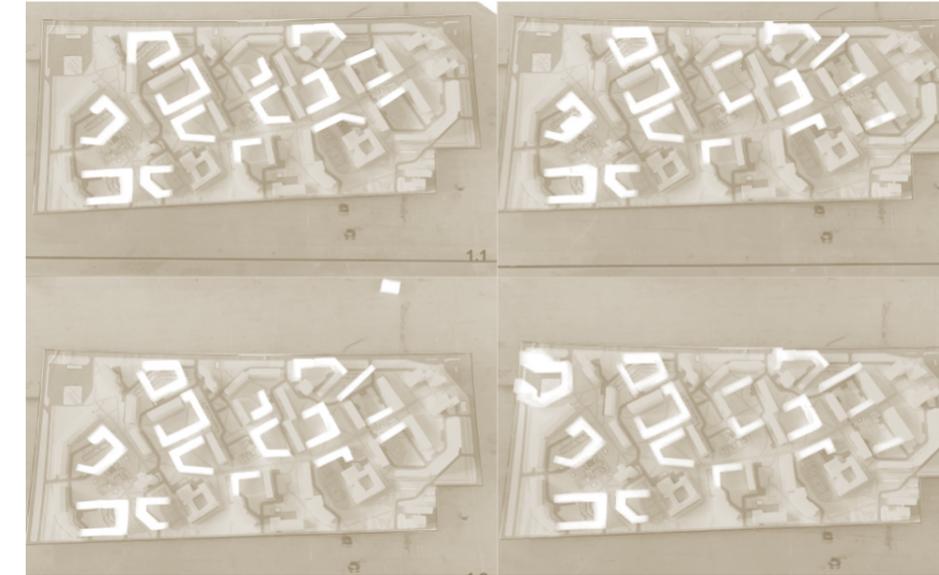
URBAN LAYOUT RESEARCH

After setting my goals the question was - what urban layout would be optimal? The need for densification was clear, so through iterative research on a physical model i tried different typological approaches and evaluated each of them - what are their strengths and weaknesses.

Through this research i found enhancing the main axis to be most optimal for my goals. It allows to gradually densify and rebuild the area in accordance with the demand and financial support. As time will pass and the neighborhood will generate more money and more working spaces - more people will want to move in there which will create reasons for outward expansion.

Area that is too densified, like in „urban blocks“ option can create additional problems of too much space designated for car parking and loss of existing greenery. On top of that i believe it is important to preserve the character of the area more or less and be respectful to the surrounding to not create something too „superficial“.

1. URBAN BLOCKS



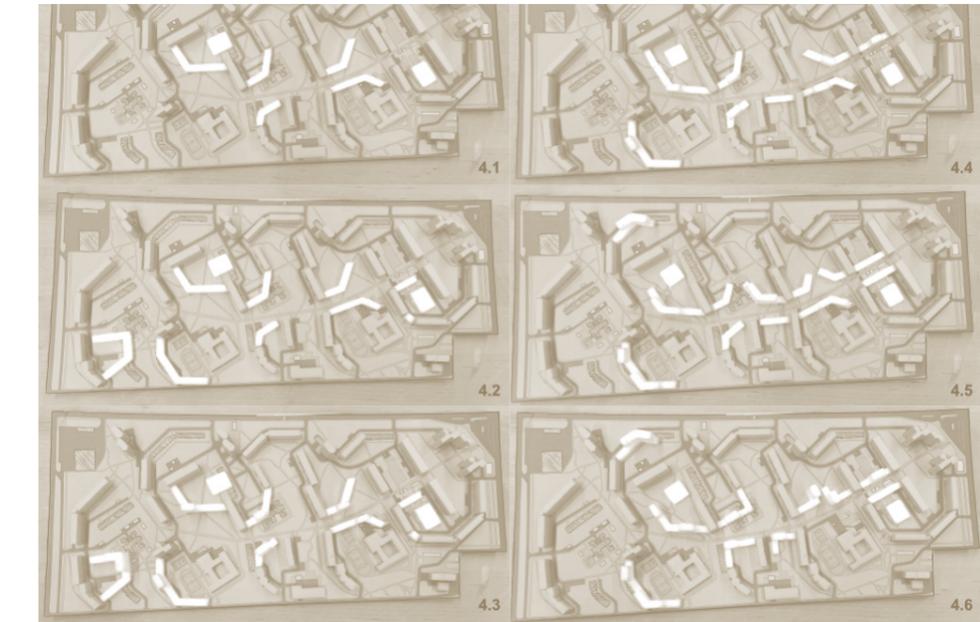
2. ENHANCING THE MAIN AXIS



3. POINTS



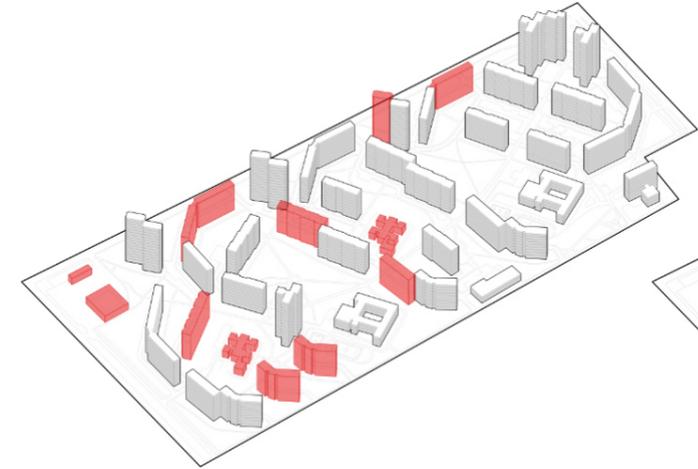
4. LOW-RISE CONNECTIONS



How do you proceed with a war-damaged neighborhood?

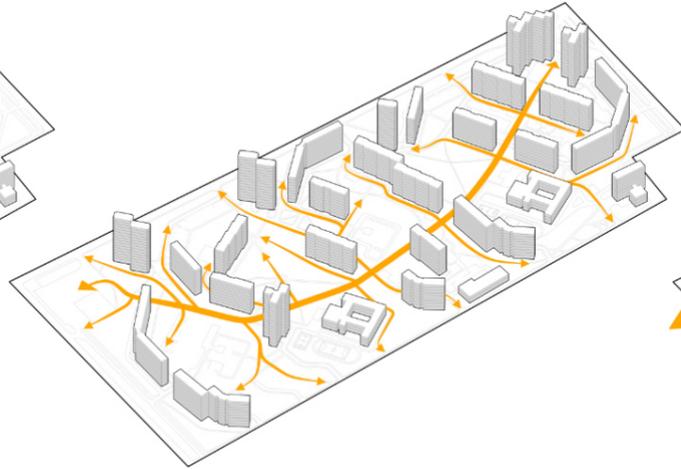
1.

Analyze destruction levels of the site. Preserve buildings that can be restored with minimal financial losses and demolish only what is absolutely necessary.



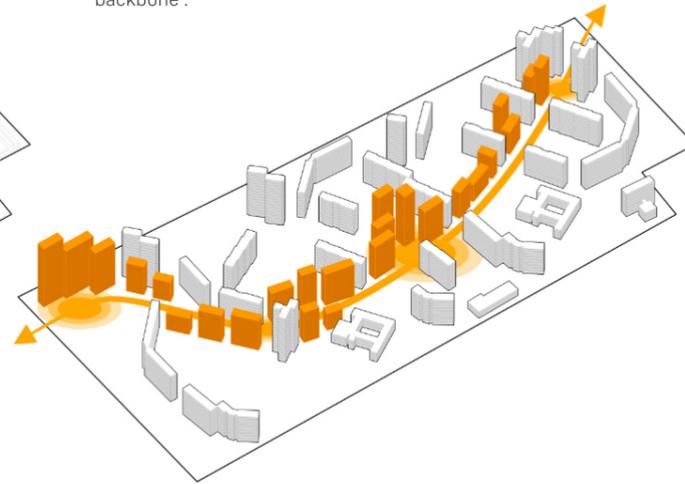
2.

Analyze the existing paths and roads network. Find the main existing artery that goes through the site - it can be a pedestrian path, a road or a sequence of nodes with higher social activity.



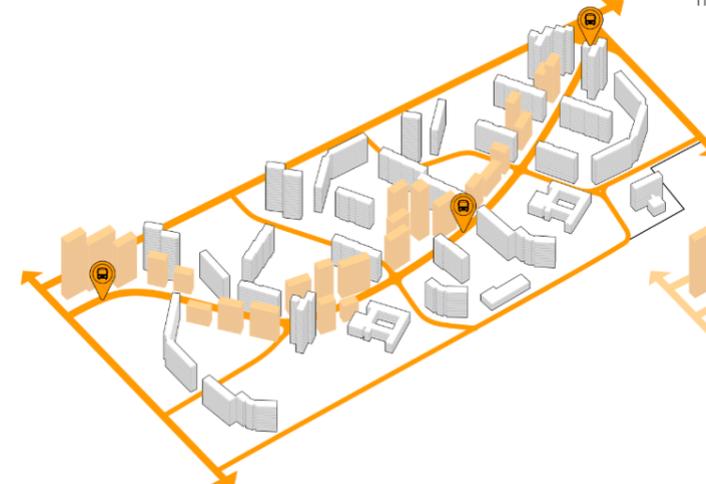
3.

Locate the main city-forming functions and amenities along this artery - by this you are creating the urban „backbone“ that is providing everything necessary for successful neighborhood functioning. Create local centers alongside the backbone .



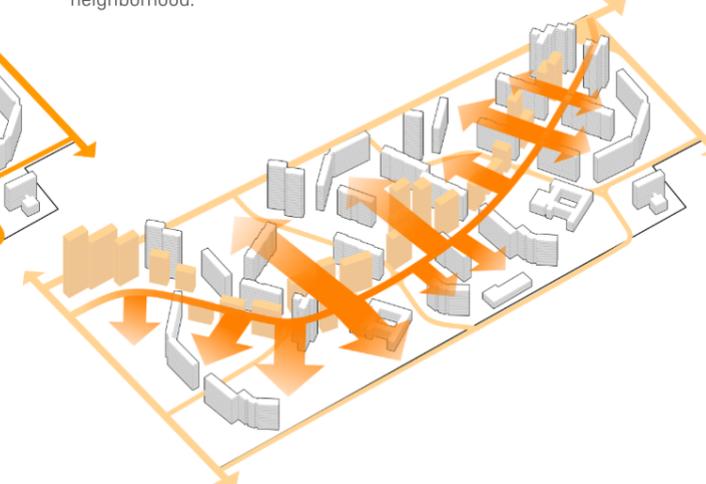
4.

Providing sufficient road and public transport network that will cover the needs of the neighborhood. Remove the cars from courtyards and building entrances areas.



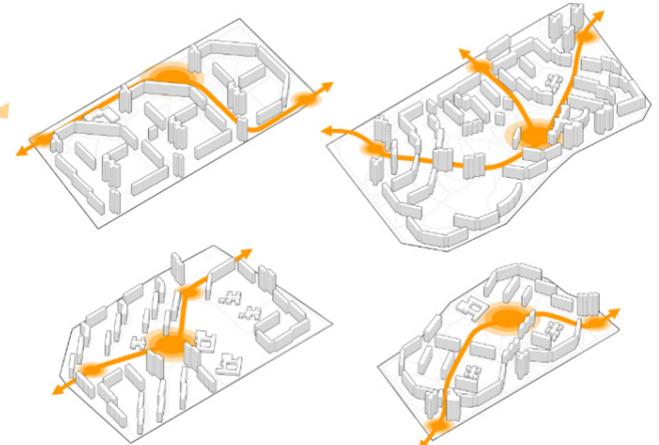
5.

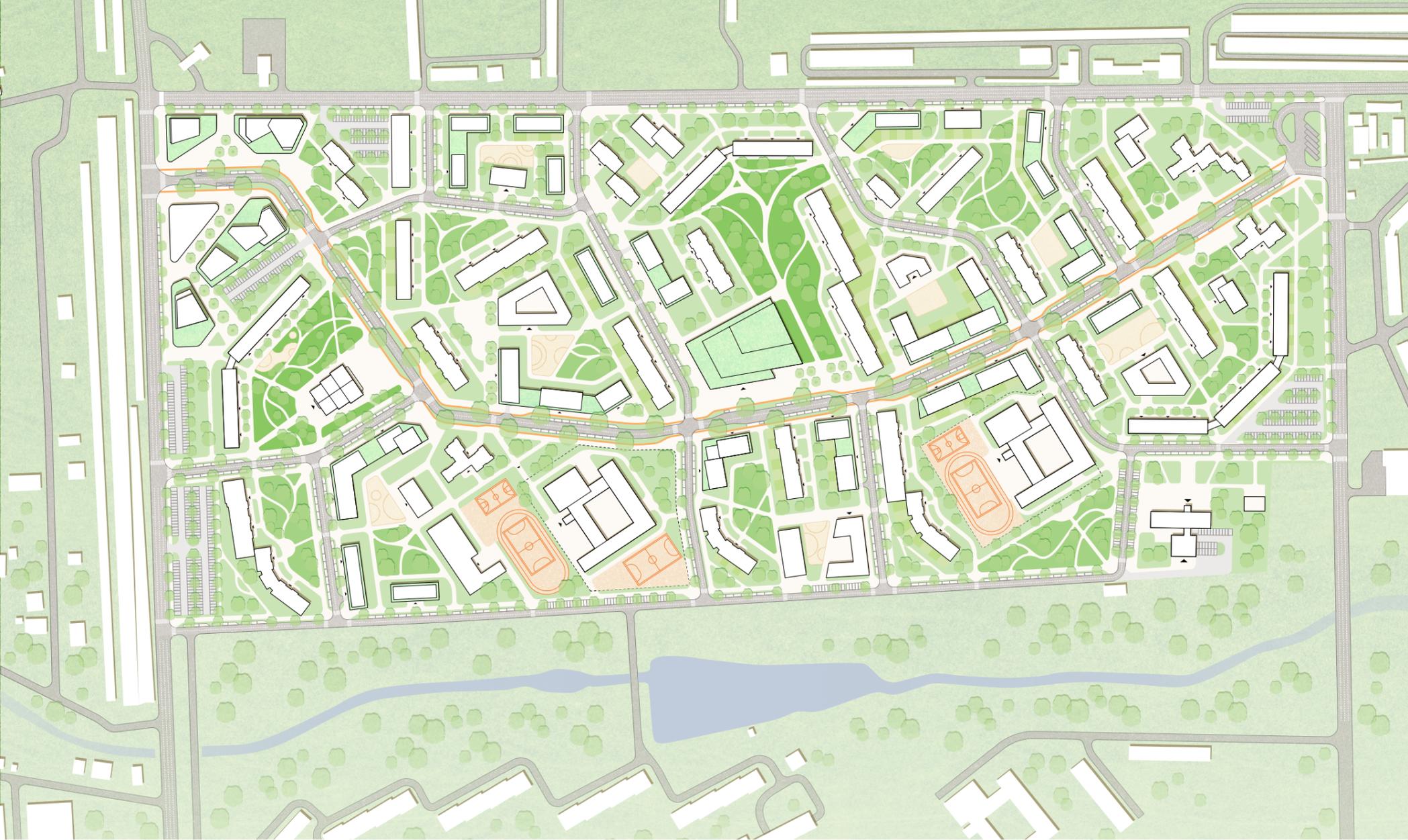
Depending on the available budget and post-war demand for apartments and workplaces the site can grow outwards from the backbone. The main idea is that regardless of the demand or budget we can achieve a denser, more vibrant mixed-use neighborhood.



6.

This approach can be used on any site in Ukraine of similar urban pattern and proportions, and with any level of destruction.





- existing buildings
- designed buildings
- building entrances
- courtyard and border greenery
- local park areas
- main public park
- rooftop greenery
- private gardens
- water bodies
- pavement
- sport grounds
- playgrounds
- cyclist lane
- roads
- paving for shared use

0 20 50 100 150



MASTERPLAN

AREAS (BUILDINGS)

residential (total) =	(+151932)	381873 m2
residential (apartments only) =	(+129142)	296480 m2
commercial =	(+33545)	36012 m2
office =		28955 m2
schools =		19632 m2
kindergartens =		16078 m2
sport =		4929 m2
hospitals =		6685 m2
cultural =		7953 m2
church =		1131 m2
technical =		2150 m2

Total capacity of residents = 14823 residents
(calculated from m2 per person)

Parking places:	
needed =	2270
(calculated from the number of apartments)	
Total created =	2660
on-ground =	1200
underground =	1460

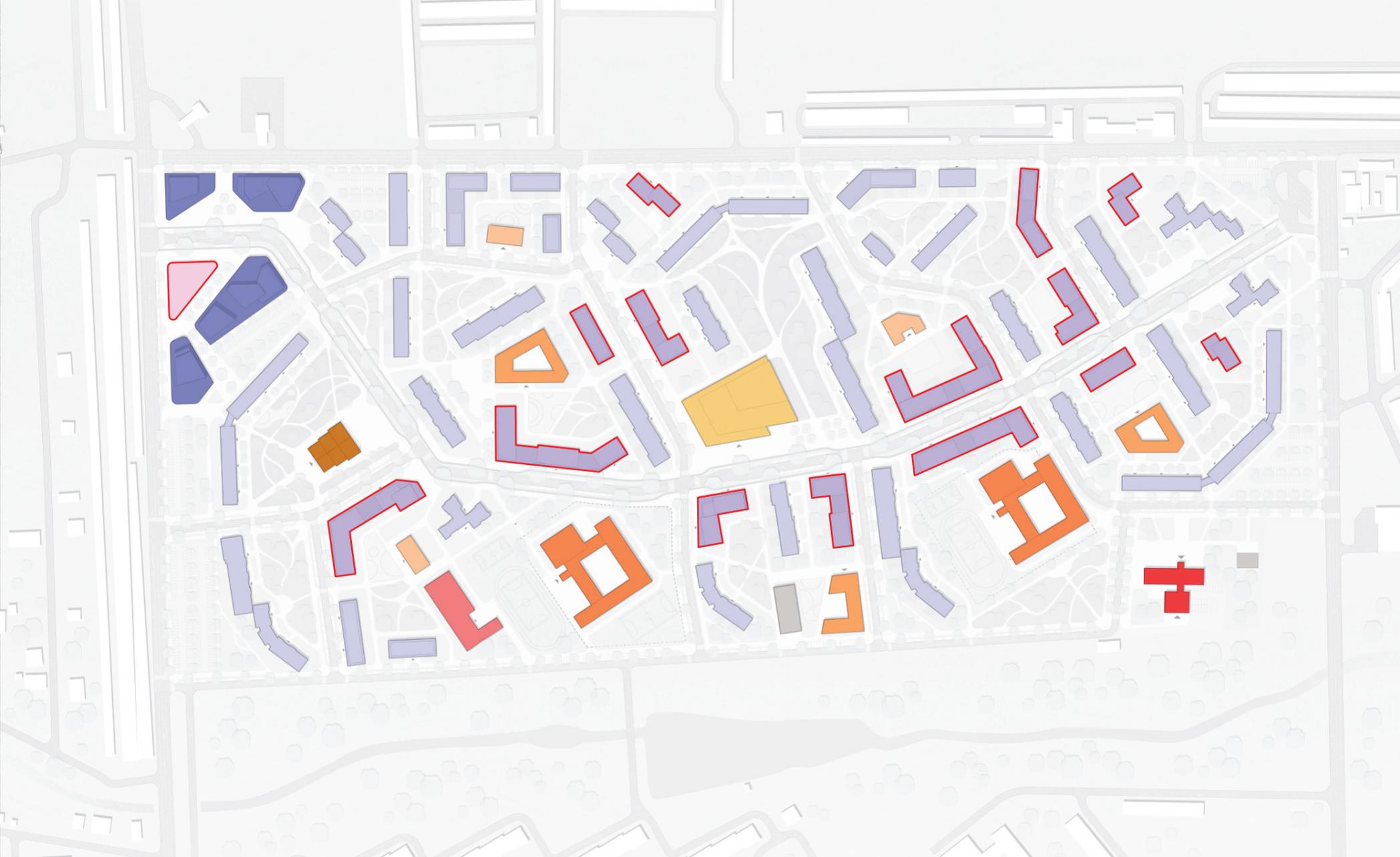
APARTMENTS (CREATED)

1-bedroom apt. (50%, 35 m2) =	1419 apt (49665 m2)
2-bedroom apt. (35%, 50 m2) =	993 apt (49650 m2)
3-bedroom apt. (15%, 70 m2) =	426 apt (29820 m2)

Total number of new apartments = 2838 apt

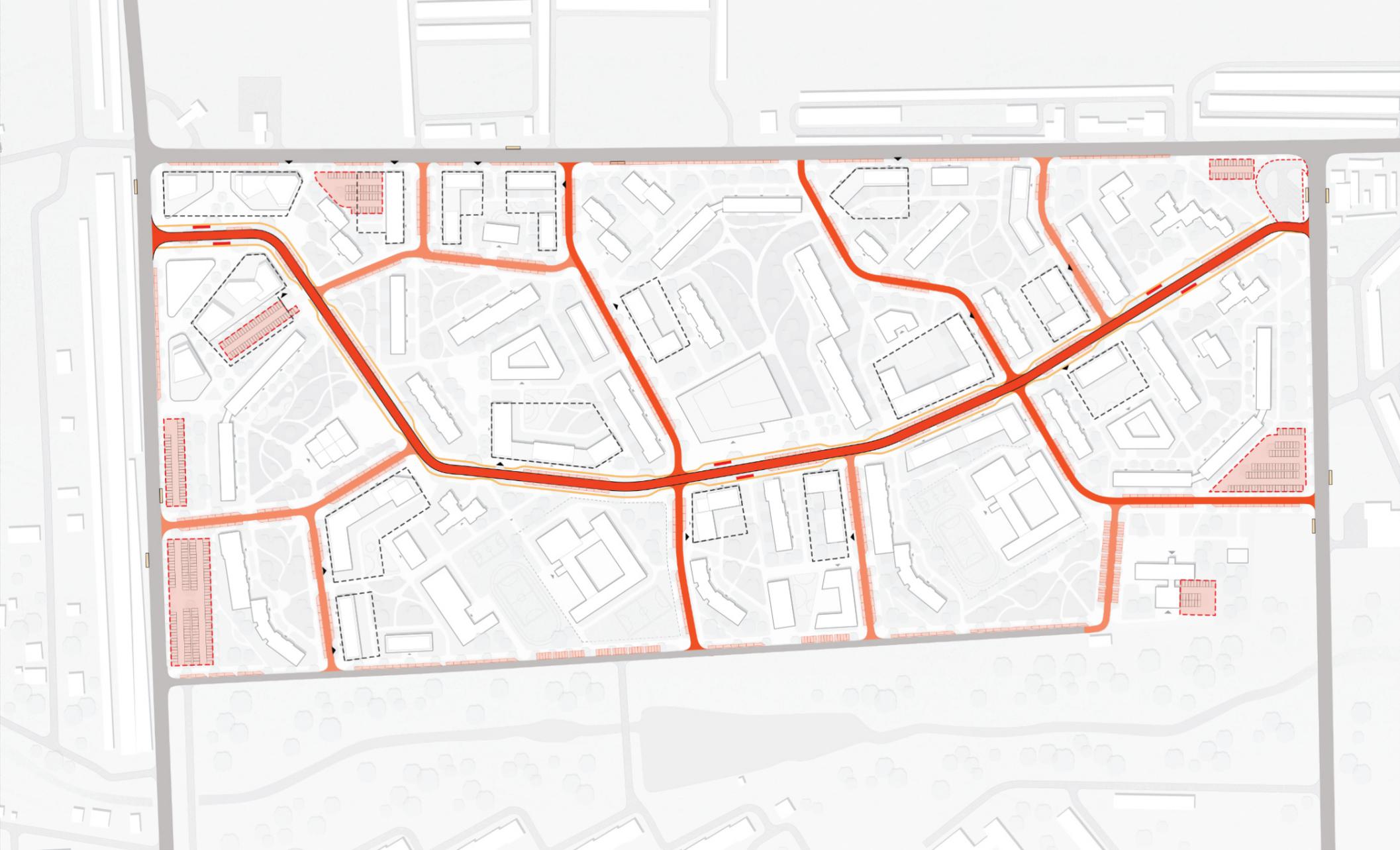
AREAS (URBAN)

total site area =	42.55 ha
public parks =	40510 m2
private gardens =	12026 m2
other greenery =	98079 m2
built-up area =	81739 m2
roads =	75903 m2
pavement =	98204 m2
sport fields and playgrounds =	18380 m2



- | | | | |
|-------------------------------|----------------------|-------------------------------|-------------------------|
| residential buildings | commercial buildings | secondary+high schools | cultural centre |
| mix-use residential buildings | sport buildings | kindergartens+primary schools | church+community centre |
| mix-use office buildings | hospitals | kindergartens | technical buildings |

FUNCTIONS



- | | | | |
|---------------------------------|--------------------|------------------------------|--------------------------------------|
| main street connecting the area | existing streets | bus turning and parking area | temporary parking |
| transverse streets | bus stops | on-ground parking | one-way bike lane |
| additional connective streets | existing bus stops | underground parking | entrances to the underground parking |

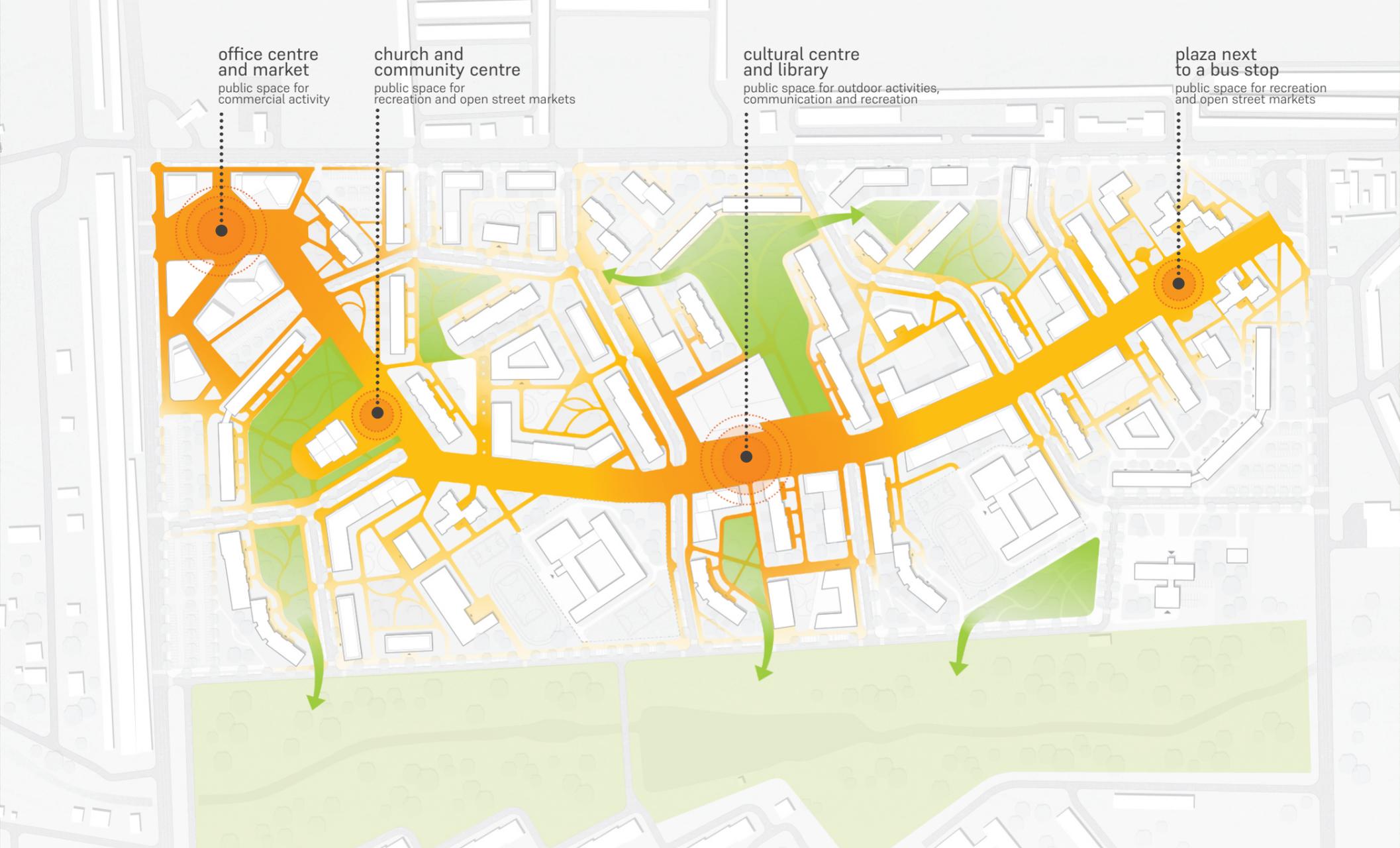


STREET NETWORK



- existing buildings
- designed buildings (1 phase)
- designed buildings (2 phase)
- designed buildings (3 phase)
- designed buildings (4 phase)

BUILDING STAGES



- public space with higher activity
- public space with regular activity
- public space with lower activity
- important public greenery within the area
- important public greenery outside the area
- connections of public greenery

PUBLIC SPACE NETWORK



AXONOMETRY



STREET SECTIONS



PERSPECTIVE VIEWS





View towards the church



View towards the cultural centre



View on the church from the main street

Current state



Aerial view 1

Current state



Design proposal



Design proposal



View towards the office centre

Current state



Aerial view 2

Current state



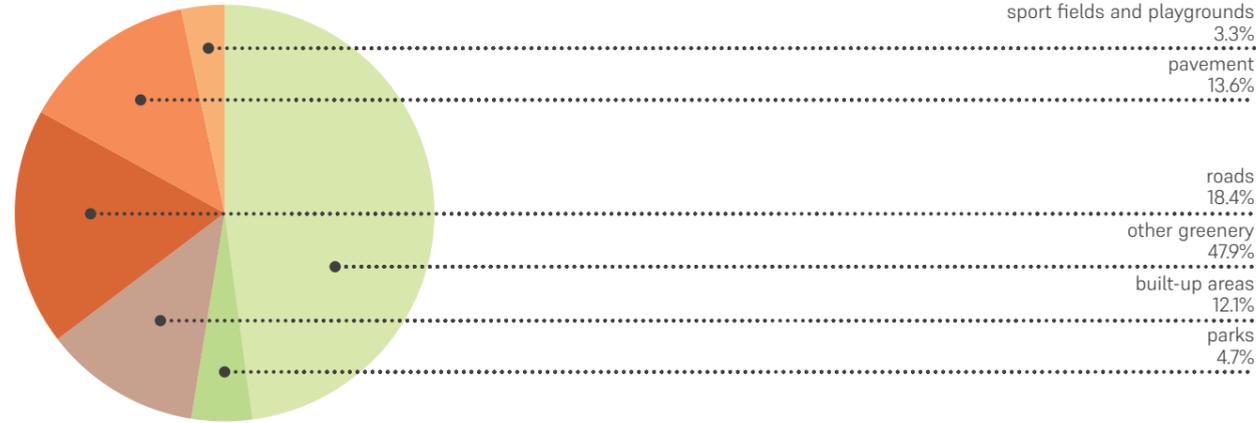
Design proposal



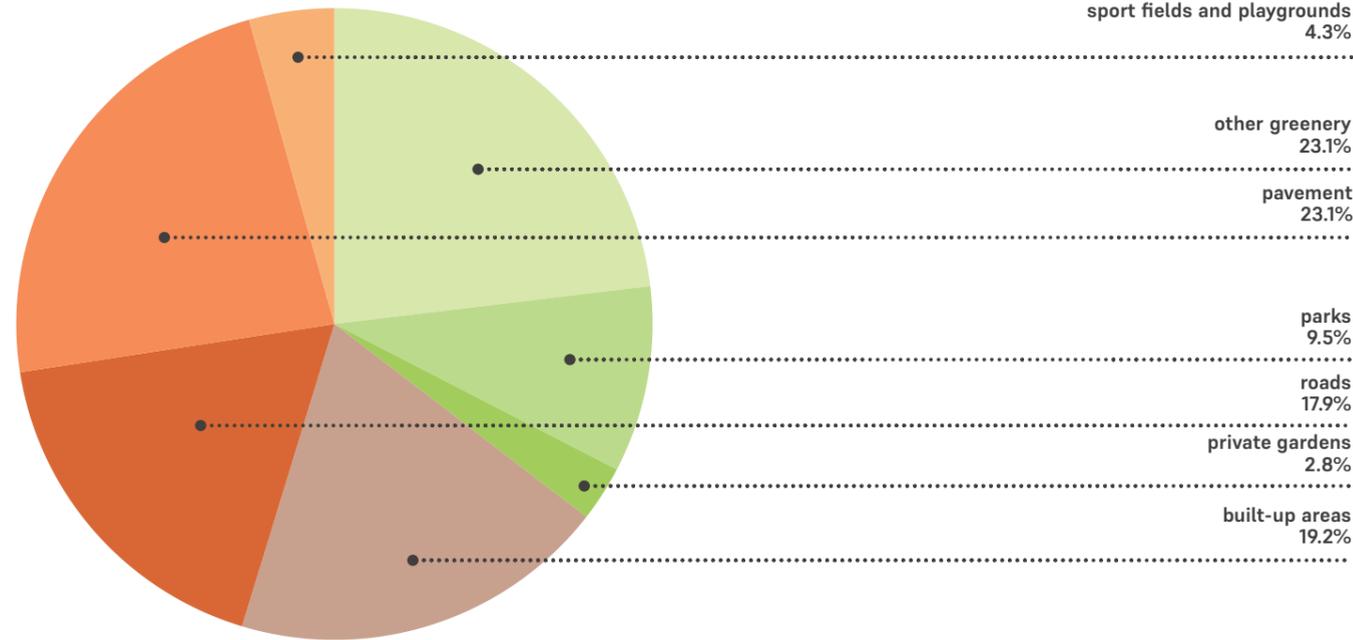
Design proposal

NUMBERS

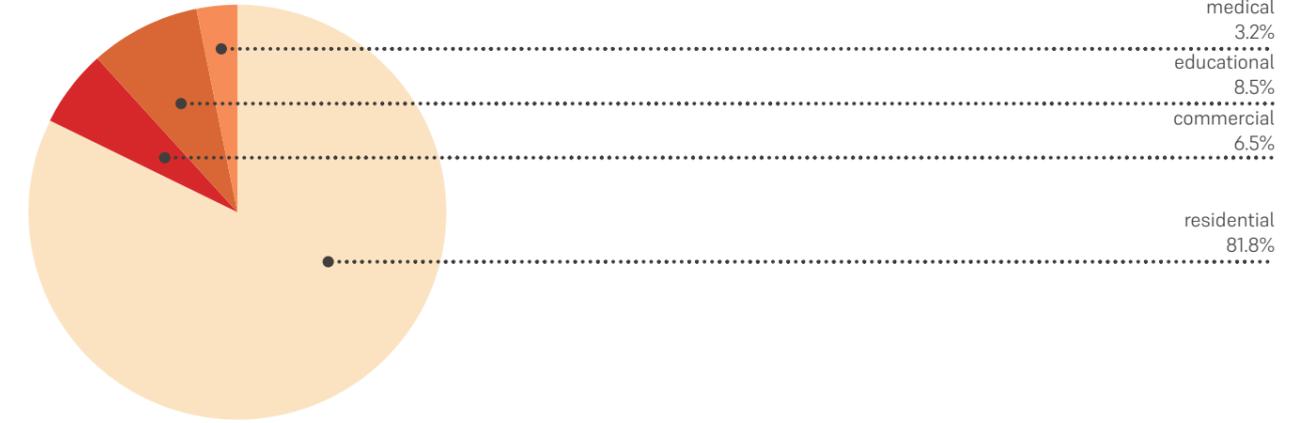
urban before



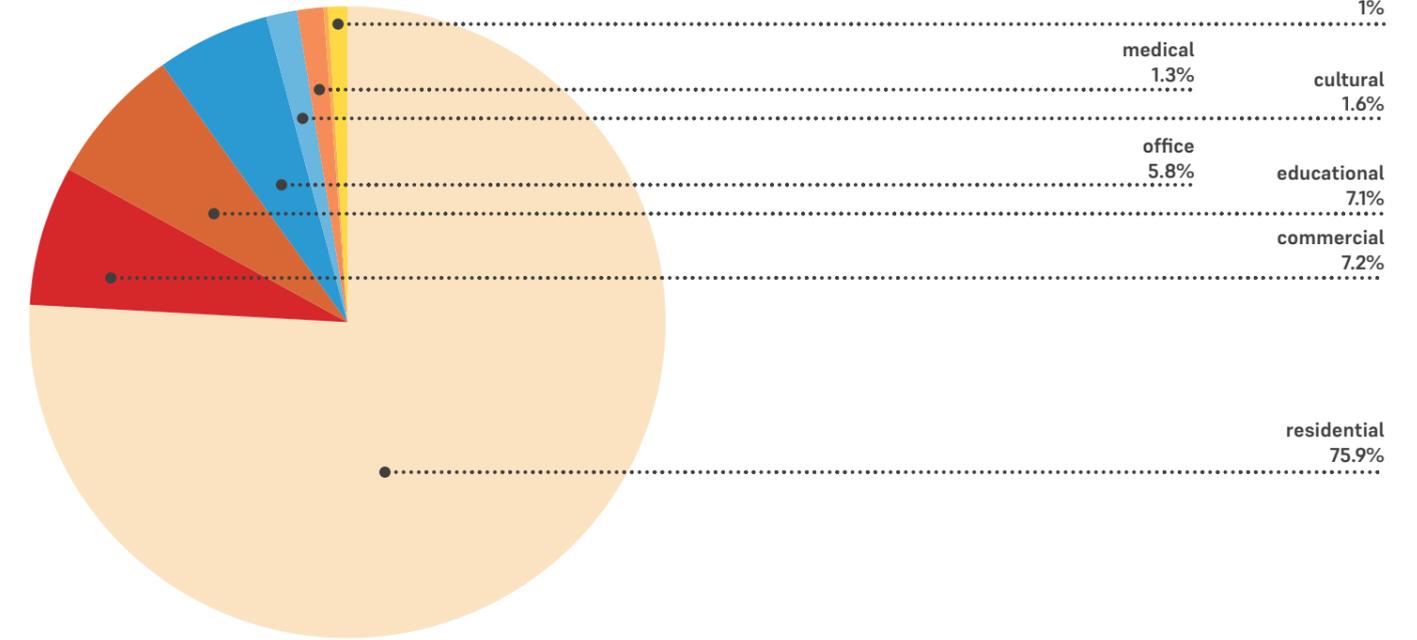
urban after



buildings before



buildings after



LINKS

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Czech Technical University in Prague, Faculty of Architecture
DIPLOMA PROJECT APPLICATION FORM

Name and Surname: Kateryna Natalchuk

Date of Birth: 06.08.2001

Academic Year / Semester: SS 2025

Department Number / Name: Architecture and Urbanism

Diploma Work / Diploma Project Supervisor: Achten Henri Hubertus

Diploma Work / Diploma Project Theme – title in English language:

Reconstruction strategy and design for Northern Saltivka, Kharkiv

Signature of the Diploma Work / Diploma Project Supervisor:

The Student's Declaration:
I declare that I have fulfilled all the diploma work / diploma project initiation requirements stipulated by the "Study Plan" and "Study Rules" at the Faculty of Architecture, CTU in Prague.

In Prague on 20.02.2025

Signature of the Student



Czech Technical University in Prague, Faculty of Architecture
ASSIGNMENT of the Diploma project

Master degree

Kateryna Natalchuk

Date of Birth: **06.08.2001**

Academic Year / Semester: **SS 2025**

Department Number / Name: **Architecture and Urbanism**

Diploma Project Tutor: **Achten Henri Hubertus**

Diploma Project Theme:

Reconstruction strategy and design for Northern Saltivka, Kharkiv

Assignment of the Diploma Project:

Northern Saltivka district in Kharkiv, Ukraine, is heavily damaged after the Russian invasion of Ukraine. The goal of this diploma project is investigation of urban and architectural intervention how to revitalize the district in post-war condition as well as develop methods that can be applicable to similar sites in post-war reconstruction of other cities in Ukraine.

Expected results:

- Urban research of current state of Saltivka (maps, scale 1:2500 / 1:5000)
- Development scenarios of Saltivka post-war (maps, scale 1:2500 / 1:5000)
- Scenario analysis of Saltivka post-war (maps, scale 1:2500 / 1:5000)
- Urban proposal based on one scenario (maps, scale 1:2500 / 1:5000)
- Masterplan of the key public space (maps, scale 1:200 / 1:500)
- Architectural plans, sections, facades of key elements of the urban proposal (1:200 / 1:500)
- 3D urban model of Saltivka (1:1000)

Date and Signature of the Student: 20.02.2025

Date and Signature of the Diploma Project Tutor:

Date and Signature of the Dean of FA CTU:



CZECH TECHNICAL UNIVERSITY IN PRAGUE FACULTY OF ARCHITECTURE	
AUTOR, DIPLOMANT: AUTHOR OF THE DIPLOMA WORK / DIPLOMA PROJECT Academic Year <u>2024</u> / <u>2025</u> Semester	
TITLE OF THE DIPLOMA WORK / DIPLOMA PROJECT (IN CZECH LANGUAGE)	
TITLE OF THE DIPLOMA WORK / DIPLOMA PROJECT <i>Reconstruction strategy</i> (IN ENGLISH LANGUAGE) <i>and design for Northern Saltivka, Kharkiv</i>	
LANGUAGE OF THE DIPLOMA WORK / DIPLOMA PROJECT: <i>English</i>	
Diploma Work / Diploma Project Supervisor	<i>Ústav: Department of Architectural Design III Achten Henri H., prof. dr. and Pavlíček Jiří, Ing. Arch. Ph.D.</i>
Diploma Work / Diploma Project Opponent	<i>Rozálie Kašparová</i>
Key Words (Czech)	
Annotation (Czech)	
Annotation (English)	<i>Northern Saltivka is one of the most war-damaged neighborhoods in Kharkiv, Ukraine. In my diploma project I was looking for an optimal approach on how to rebuild Ukrainian cities in the future on the example of this locality.</i>

The Author's Declaration
I declare that I have elaborated the submitted diploma work / diploma project independently and that I have stated all the used information sources in coherence with the "Methodological Instruction for Ethical Preparation of University Final Works".
(The complete text of the methodological instruction is available for download on <http://www.fa.cvut.cz/En>)

In Prague on 25.05.2025  Signature of the Diploma Project Author

This document is an essential and obligatory part of the diploma project / portfolio / CD.

Special thanks to my advisors Prof. Dr. Henri Achten H. and Ing. Arch, Ph.D. Jiří Pavlíček for their valuable input and guidance and to every Ukrainian and international soldier for defending my country and allowing me to continue on my educational and professional development.

