Post Pandemic Osi-Ghia

Re-activation of a former industrial area with post pandemic design principles.

Politecnico di Torino

Master of Science in
Architecture for Sustainable Design

M.Sc. Thesis

Post Pandemic Osi-Ghia:
Re-activation of a former industrial area with post-pandemic design principles.

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Abstract

COVID-19 pandemic has impacted the world immensely. With the spread of the COVID-19 virus all over the world, Cities and countries had to implement serious precautions. Cities have gone into quarantine, closed restaurants, cafes, theaters and in some cities, people had to stay in their homes. People have longed for open spaces and green areas. After the quarantines people filled the parks and open public spaces. With this pandemic the needs of cities for the future have become clearer. This study aims to examine how the COVID-19 pandemic have affected the daily lives of the people, what current cities are lacking and implement these to find a new way to reuse the industrial sites in Turin. Specifically, in the former industrial Osi-Ghia Area. The re-use of industrial buildings has to change because, it has become clearer that the cities today need open spaces more than closed buildings. These former industrial buildings have a great industrial, technological and architectural value and have the potential to become a part of the urban environment with the change of their functions and necessary additions. Former Osi-Ghia factory area in Turin is one of these areas that has potential to become a part of its environment.

Key Words: COVID-19, Pandemic, Urban Design, Social Distancing, Re-use, Osi-Ghia

Introduction

In the last century, large production companies in the city had to abandon their factories due to various reasons such as economic crisis and the loss of jobs, causing these large areas to decay over time to break the integrity of the urban texture of the city. Industrial buildings that contain the traces of the past have a great potential to benefit the cities culture by repurposing them with a different function. In recent years, the city of Turin has been working to renew and reconnect them to Turin's urban fabric in order to make better use of these large areas.

Turin has an important industrial past which shaped the city to become the cultural city that it is today. Although the major transformation process was started in 1995 to reconnect these industrial areas to the city, we still see decaying abandoned areas today. We need to consider these unused areas at the city scale first, and then go in to the neighborhood scale and adapt them by considering the needs of the people living in the environment. It is important to consider the potential contribution of these areas to the urban context. When we examine Turin's masterplan, one of the most striking abandoned industrial areas is undoubtedly the ex Osi-Ghia factory area. Despite being so close to the city center, this unused large area is surrounded by a large limit due to the train tracks and is in a difficult location in terms of accessibility. This area waits for integration with the city through reuse proposals and interventions.

The main focus of this thesis is how the Covid-19 pandemic, which spread all over the world, affected urban planning strategies. After this pandemic, urban designers had to query old design strategies and allowed cities to look at their future needs from a different perspective. In this study, how the COVID-19 affects people's daily lives and the parts where existing city plans are lacking against the pandemic will be examined, and finally, a design proposal will be presented to reuse the abandoned industrial area Osi Ghia with an innovative design that connects the old area with its surroundings in an attempt to make it a part of the urban fabric again.

For the reuse of industrial buildings, the needs that emerged after Covid-19 should be considered in the context of the neighborhood. After the pandemic, it has been seen that cities need more open spaces than closed buildings and people feel safer in these areas. While ensuring that people are outside, it is aimed to create areas where they can maintain their social distances and feel safe through design, and at the same time, to make a design that coincides with the future goals of Turin.

This thesis study consists of 4 chapters. In the first part, the main objectives of this thesis are explained. As the site includes a large industrial area, the emphasis was primarily on the reuse of industrial areas. It was discussed how these areas should be

designed in the future in line with the needs after the pandemic. Then, strategies to create healthier cities are proposed and supported by current examples. The second chapter contains the urban background in Torino and its history about how it became the city that it is right now from being a former highly industrial city to a cultural city. While it was emphasized that historical events affected the development of the city considerably, the effects of the pandemic on Turin were also examined. After the Covid-19 pandemic, our lives may not be the same again; our priorities, lifestyles, and habits can change. The possible effects of this and the design proposal for the Osi-Ghia site are found in the next chapters.

Chapter-3 focuses deeply on the site area and includes the historical background and analysis of the site. A design approach has been developed in the focus of these researches and in line with the post-pandemic strategies. The fourth chapter begins with urban and neighborhood-based design strategies and includes a design proposal for the Osi-Ghia area. It was aimed to transform this area into a more open public space and to increase the access and connection of the area to the surroundings. New design ideas were implemented on the site to ensure social distancing, digitalization and increasing open spaces. By reducing the amount of closed indoor space, it is desired to create more outdoor spaces integrated with nature for more healthy and distanced environments. In the final part, we explained the purpose of our research and the reasons that led us to this research. This section, which is the summary of the whole research, reveals the connection of all research sections.

As a result, as architects, we need to change our perspective on design and set our priorities according to the needs of the future, possible scenarios and focus on transforming urban cities into more adaptable and responsive places.

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Chapter 1:
Industrial Buildings to Post Pandemic Design

"An old building is like a show. You smell the soul of a building. And the building tells you how to redo it."

- Cameron Mackintosh
(British theatrical producer)

Fig. 1 Former FIAT Lingotto Factory
Source: Mammao2008 @ Flickr

Industrial City Heritage

Concept of Industrial Heritage

The knowledge, traditions and beliefs of diverse communities are represented through historic environments, while giving distinctiveness, meaning and quality to the living environments and provides a sense of identity (Drury 2008). Therefore it is important to preserve these environments to sustain the sense of identity and continuity. The preservation of industrial heritage buildings should also bbe done withing context of historic environments. According to TICCIH, "Every territory should identify, record and protect the industrial remains that it wants to preserve for future generations" (TICCIH 2003).

Fig. 2 Zollverein Coal Mine Industrial Complex
Location: Essen, Germany
Source: Jochen Tack / Zollverein Foundation

The concept of Industrial heritage was introduced in mid-20th century when the industrial areas were being destroyed. Since then people tried to define what needs to be considered as industrial heritage (Loures 2008). The industrial heritage is the areas, and structures that are integrated with the fabric of the city, which are important in terms of urban identity that reflect the city's past history. According to Nyzhny Tagil Charter "Industrial heritage are those that have historical, technological, social, rchitectural, scientific value" and "The historical period of principal interest extends forward from the beginning of the Industrial Revolution in the second half of the eighteenth century up to and including the present day, while also examining its earlier pre-industrial and proto-industrial roots." (TICCIH 2003).

Fig. 3 Zollverein Coal Mine Industrial Complex, Ice Rink
Location: Essen, Germany
Source: Jochen Tack / Zollverein Foundation

Communities had to find new ways to sustain the structures of industrial cities with the decline of industrial sectors. With the decline, these structures, which were mostly of great architectural quality, were abandoned and there was a need to maintain them (De Magistris and Bonifazio 2014). These industrial heritage buildings lose their original functions and become abandoned in time. It is possible to bring these buildings back to life by preserving and reusing them while providing them with a new function. In the past years, historical buildings are given new functions to keep them alive and used (Hoşkara and Günçe 2009).

Abandonment of Industrial Buildings

It is not always ideal to preserve the industrial heritage buildings as it is not always possible and profitable. Therefore it is more ideal to re-use the building rather than preserving it. This can be done by discontinuing the original function of the building and replacing it with a more suitable function that fits the condiotions of its surroundings and time. Possible future of the industrial heritage buildings can be shown as such;

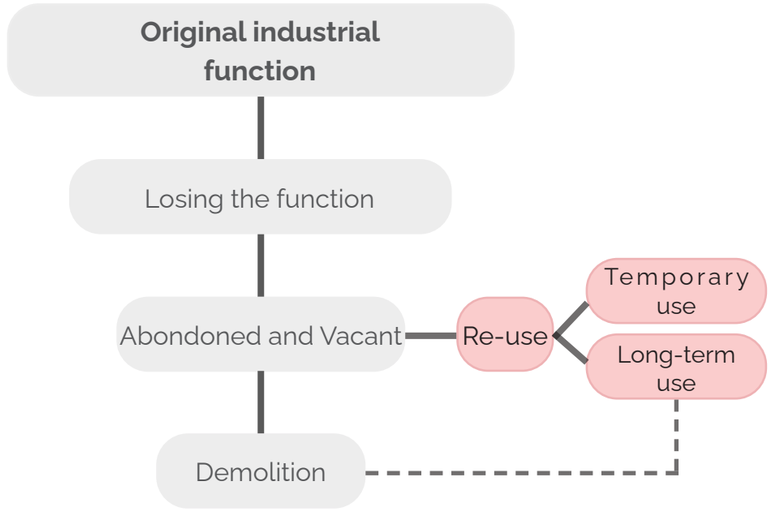

Fig. 4 Industrial building life cycle process
Source: Redrawn from Amiri,2020

In their life-cycle, Industrial heritage buildings may lose their original functions for various reasons as such (Lepell 2006);

- The building location may not be sufficient for the industrial or technological purposes.
- Production may be expanded and the current size and form of the building may not be sufficient enough.
- For various economic reasons the close down of the company or factory.

After these industrial heritage buildings loses their functions, the building may be abandoned and after this abandonement said building may be used unofficially and illegally without the knowledge of the owner. This may happen due to the neglectance of maintainance and may cause the condition of the building to decrease greatly in time (Lepell 2006).

With the abandonment of such buildings, they start to decay and as time passes their conditions become lower and lower and cause them to become unuseable therefore needing for them to be renovated to become functional again.

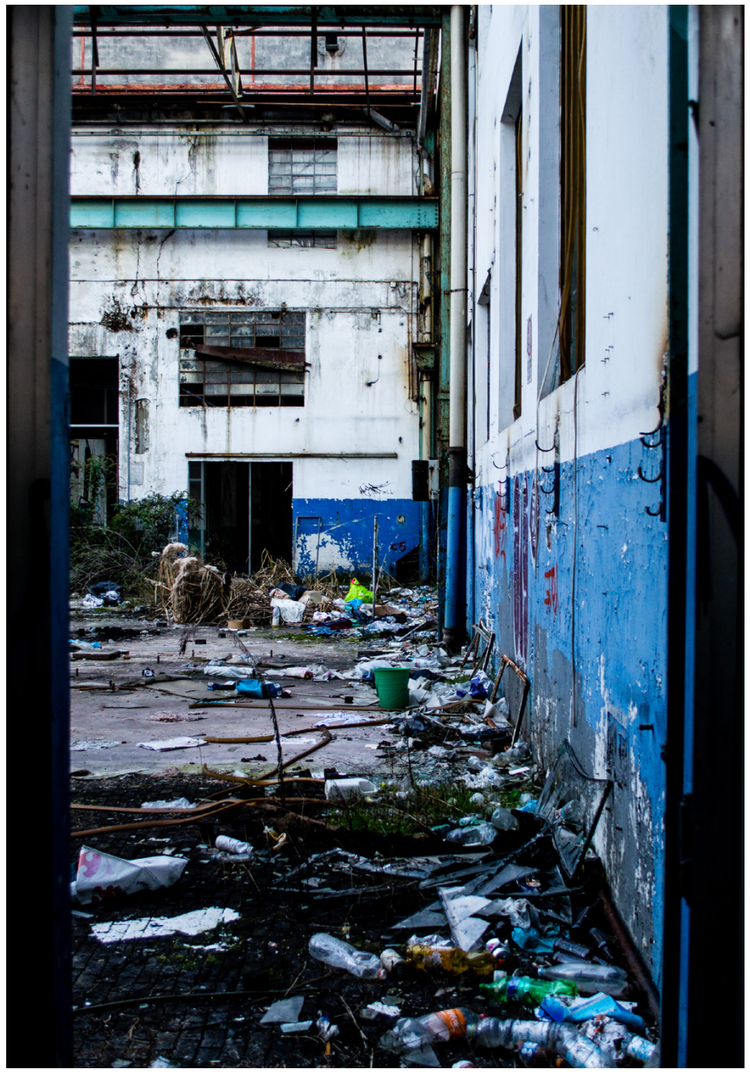

Fig. 5 Abandoned Osi Factory
Interior of the abandoned Osi factories state. Because of the abandonement of the factory and the poor management, the building has been decaying for a while and got filled wwith waste and became unuseable.

Source: Marco Bonadonna

Industrial Buildings

With the beginning of the industrial revolution, urbanization has changed dramatically with the implementation of railway systems and large factories in the cities. This greatly affected the concept of urbanization of the cities in a large scale. Industrial cities have been formed around the idea of a production city with lots of factories and around those factories large scale housing areas for the workers. These cities were constructed with the highest production efficiency in mind so all the mobility system and zoning of the city has been planned for this high efficiency in mind. For this reason, industrial buildings provide information about the period they were built with their economic, technological and architectural characteristics.

Industrial buildings are structures that were constructed for the industrial purposes such as production and manufacturing. Construction of these buildings rose with the industrial revolution and since than the typologies and characteristics of these buildings have changed with the advancements in technology.

Fig. 6 Halle Pajol, The reuse of a former depot of the railway
Architects: Jourda Architectes
Location: Paris, France, 2013

Source: Jeanne Menjoulet @ Flickr

Industrial Building Typologies

The most important typological feature of industrial buildings is that they have large areas that can contain large-sized machines and necessary technological systems. These types of buildings are designed to support heavy loads and activities and are aimed to be used at the highest level of space efficiency. In addition, these buildings, which have natural lighting thanks to their large glass surfaces, also have a natural ventilation system. Industrial buildings are highly adaptable, allowing different solutions and functions, thanks to these characteristics. Some functions require a specific form of space and allow them to be easily adapted. It is possible to show these buildings with some typical plan shapes. (Fig. 7.) Analysis of these building scenarios helps us to create the functional and architectural program of the building to be designed. Considering all these factors, it is seen that there are high potential buildings suitable for highly efficient and flexible design.

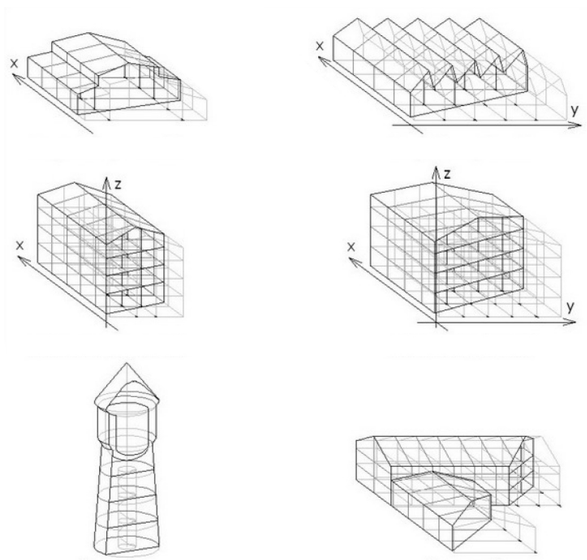

Fig. 7 Industrial Building Typologies

Source: Lepel, 2006

Adaptive Reuse

Concept of Adaptive Reuse

"Old ideas can sometimes use new buildings. New Ideas must use old buildings"

- Jane Jacobs (Journalist)

Adaptive reuse is defined as "any intervention to change a buildings capacity, function or performance to adjust, reuse or upgrade it to better suit new conditions or requirements" (Douglas 2006). The adaptive reuse of industrial buildings is an urban regeneration strategy that is particularly important for sustainability. We shouldn't think of adaptive reuse as just buildings or small spaces. These areas should be considered as a part of the urban fabric and a successful strategy for urban development. When these forgotten areas are combined with today's technology, the quality of the environment is increased and new business opportunities are created with new functions.

Fig. 8 St. Ann's Warehouse
Arhitect: Marvel Architects
Location: New York, USA

Source: Archdaily - David Sundberg / Esto

According to Robiglio, A good adaptive reuse project balances the design adaptation between use, users and spaces (Robiglio 2016). To create a successful reuse project, these focal points must be considered more comprehensively. Its relationship with the urban fabric should be especially evaluated. A good adaptive reuse projects should be able to answer these questions;

- Who are the users of this space?
- What are the biggest needs of the urban environment?
- Which functions can this space respond to?
- Is it permanent or temporary?
- Is the space being a part of the urban network with the design intervention?

Fig. 9 St. Ann's Warehouse
Architect: Marvel Architects
Location: New York, USA

Source: Archdaily - David Sundberg / Esto

From a social perspective, industrial heritage is part of the urban fabric. These industrial buildings, which were previously a part of this social environment, wait to adapt to the neighborhood where they are located. These structures reflect the identity of the city and are open to innovative activities with their extremely flexible building characteristics. Therefore, adaptive reuse has a positive effect on the local culture and helps industrial buildings integrate with the city. It provides a great renewal process and responds to new needs with cheap and strong infrastructure, while at the same time enhance the sense of society between the past and the future (Robiglio 2016).

Advantages of Adaptive Reuse

Less environmental impact than new buildings.

First of all, it requires less material and saves energy associated with the production of a building, such as the production and transportation of materials. In this way, the embodied energy of the building is retained and it is ensured that it is much more environmentally sustainable than new buildings (Department of the Environment and Heritage 2004). Building reuse almost always has less environmental impact, according to the report by Preservation Green Lab (2011) based on the LCA results (comparing same size and functionality).

In the planning of low carbon cities some major issues need to be considered: efficiency of new and existing buildings, resource management. In that regard, adaptive reuse of existing buildings to satisfy the needs of the future generations, in the meantime avoiding demolition and reconstruction is one of the most sustainable solution for urban development (Esther H.K. Yung 2011).

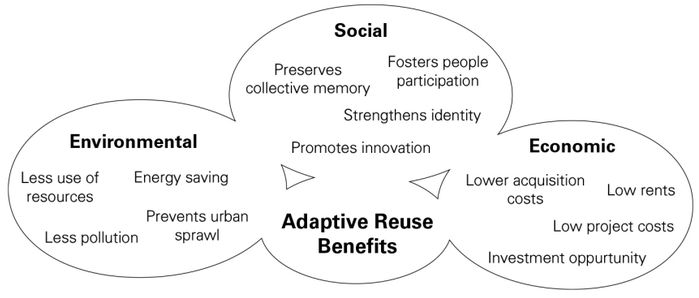

Fig. 10 Adaptive Reuse Benefits

Source: Juan Felipe Manrique Sanchez

It is possible to reduce the material, transport, energy consumption and pollution by reuse of an existing building making a contribution to sustainable development and reducing the carbon emissions of a city (Esther H.K. Yung 2011). By the green adaptive reuse of heritage buildings it is not only possible to increase its life expectancy, reduce its carbon emissions and increase efficiency, but it is also possible to preserve the buildings heritage values (Langston 2011). But the adaptive reuse process of historic buildings is more complex compared to ordinary buildings. It should have a minimal impact on the heritage value of the structure while being able to add a contemporary layer that is valuable for the future (Department of the Environment and Heritage 2004).

Fig. 11 NDSM
Location: Amsterdam, The Netherlands

Source: _futurelandscapes_ @ Flickr

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"Change is the only constant in life. One's ability to adapt to those changes will determine your success in life."

-Benjamin Franklin
(Founding Father of the United States)

Pandemics & Design

The pandemic is an outbreak of infectious diseases that has a high prevalence and affects a significant portion of the world's population (Rogers 2020). Throughout history, pandemics have always been major health issues that have a significant impact on shaping cities (Eltarabily and Elghezanwy 2020). The world today faces a public health crisis, the COVID-19 pandemic.

COVID- 19

"At the end of January 2020, the new coronavirus disease was declared a global emergency by the World Health Organization (WHO)" (Luca 2020). The most important feature of this declaration is that it is a pandemic that has the potential to spread to the world. This situation has drastically changed the daily lives of people all over the world and caused them to be faced with major restrictions. The main strategies that WHO has announced to the public to reduce the spread of the epidemic are; quarantine, social distancing and self-isolation (Luca 2020). Countries have determined the terms of implementation of these strategies depending on the number of cases.

Fig. 12 Stores closed during pandemic restrictions

Source: Shvetz, Anna @Pexels

How Previous Pandemics Effected Urban Design

When we look at the history of humankind, we can see that all throughout the history, it has faced many issues related to human's well-beings (LePan ve Routley 2020). These issues have been reflected and shaped the design and planning of our cities that we live in today and it still is. Today, we have been facing with one of the biggest public health crises maybe of the century, named COVID-19. This pandemic has caused a public health crisis all throughout the world resulting cities to take drastic measures. To be able to understand and predict how this crisis will affect the way we look at urban environments, how we socialize and how the urban planning will change, we first need to examine the previous examples to get a better understanding of how it effects the world in the past.

COVID-19 is not the first pandemic that humankind had to suffer through, there have been many other examples of other pandemics in the history of mankind that had taken millions of people's lives (LePan ve Routley 2020). These past pandemics have had great impacts on urban planning and city infrastructures. A pandemic is an epidemic that breaks through the borders of countries and spreads throughout the world. Respiratory health crises such as COVID-19 causes countries to take precautionary actions such as quarantines and closure of public spaces and sometimes closing of borders. During these crisis situations, public spaces turn into empty spaces. After these kinds of situation, a change in the way we think and look at the cities, communities, how we socialize and urban design emerges.

Post Pandemic Osi-Ghia

Historical Pandemics and the Transformation of City's Shape

When we look back into the timeline of the humankind and look deeper into other big pandemics that have affect the world such as the Black Plague in Europe in the 14th century or the Spanish Flu. It gets clearer how they affect the design of cities and the consequences of the previous design solutions and how they contributed to the spread of the pandemic in urban environments. During the Black Plague in Europe for example, caused an immense change in the urban planning of cities and showed people the importance of open large public spaces that provides a connection with nature and reduces the claustrophobia caused by the narrow urban environments (Mahoney 2017).

Cholera outbreak hit the world in the early 19th century. When we examine WHO's data, it is clear that the reason for the outbreak was that the wastewater was mixing with the clean drinking water causing it to be contaminated resulting in the spread of the outbreak (WHO 2019). This has led to the improvements in the urban infrastructure and led to improvements in the waste management processes in the cities. Also led to the need to have proper ventilation and daylight in open spaces (Hays 2006).

With the spread of the industrial revolution in the 19th century, life started to shift from outer cities to inner cities, as the job opportunities in the cities exploded causing an immense increase in the urbanization. Cities become dense with lots of tall residential buildings, large factories and railways and stations. Population have increased exponentially. Between 1918-1919, when the deadliest respiratory virus in the history of hu-

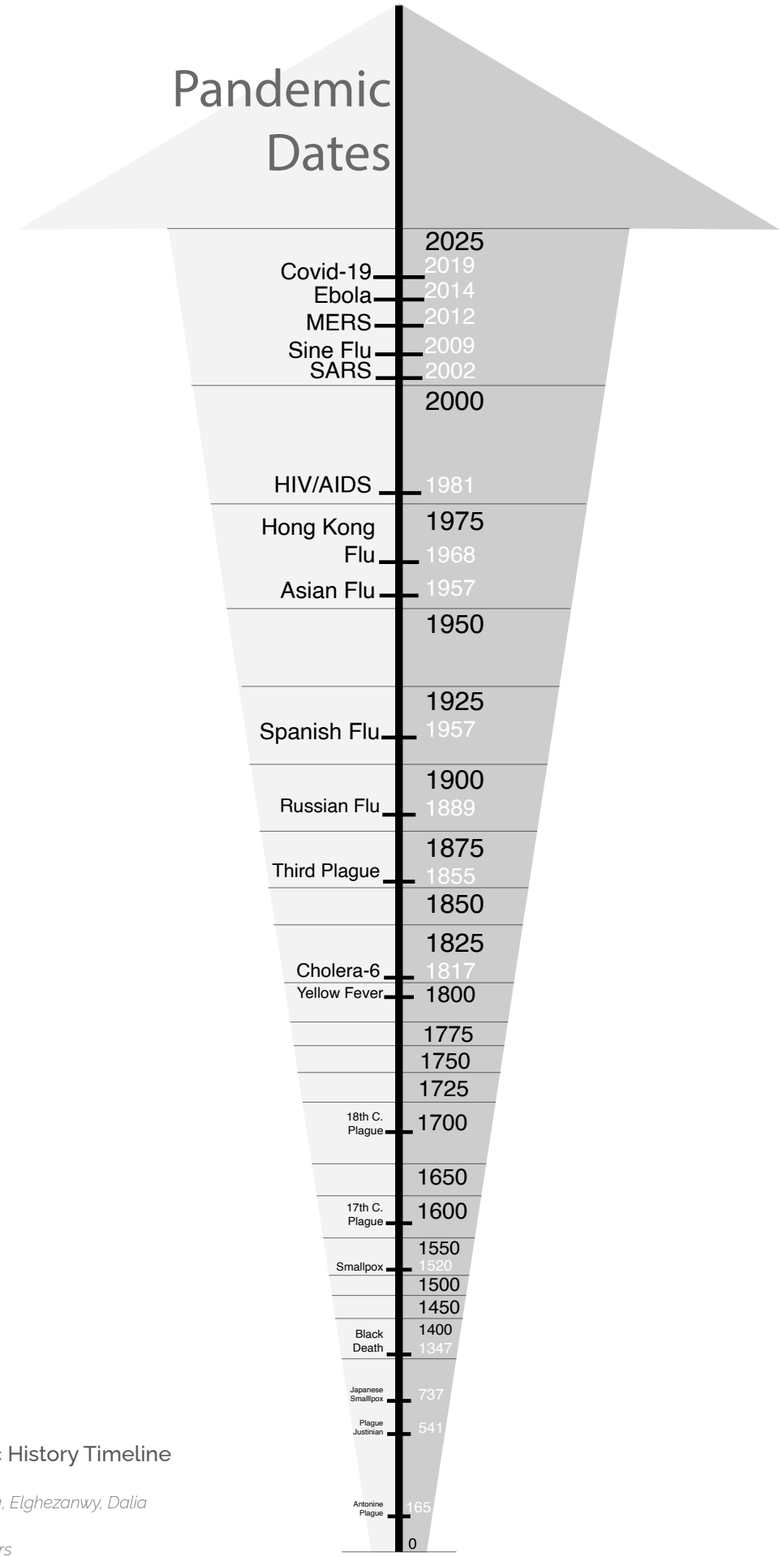

Fig. 13 Pandemic History Timeline

Source: Eltarably, Sara, Elghezanwy, Dalia 2020
Redrawn by the authors

mankind according to the recorded documents has struck "The Spanish Flu". It has killed over 50 million people worldwide. This pandemic has decreased the speed of urbanism and limited the daily lives of the people back than similar but more serious compared to the situation what we have today. During this period walking have been the predominant way of traveling as opposed to the public transportation. People were scared and didn't wanted to leave the safety and comfort of their homes. Public spaces became empty deserted environments. Now when we look at the situation back then, it is clear how similar the situation was back than compared to the situation we are living through right now (Eltarabily and Elghezanwy 2020).

In conclusion, City development is a never-ending continuous process and it will remain as is as long as there are humans around to develop it. One of the biggest factors that pushes urban planning to go forward is human health and well-being. Previous public health crises show us how they affected and pushed forward urban planning, architecture and even socialization of people. COVID-19 pandemic will mark its place in the history books as one of these factors that pushes urban planning forward for healthier cities. It will give urban planners the chance to evaluate what is wrong with the current system and ways to improve it.

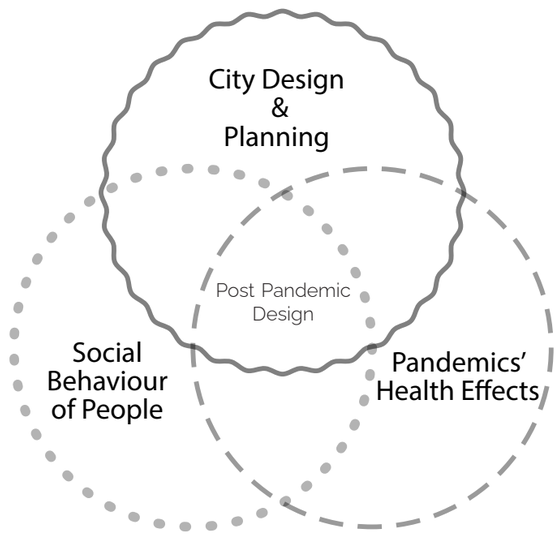

Fig. 14 Design principles after the pandemic

Source: Eltarably, Sara, Elghezanwy, Dalia 2020
Redrawn by the authors

Reuse Design After COVID-19 Pandemic

In the last century, large production companies in the city had to abandon their factories in the city due to various reasons such as economic crisis and unemployment, and this caused urban gaps and breaking the integrity of the city. Because of the abandonment of the factories, the buildings decay for a while and become unusable with waste. The reuse of buildings gains great importance at this point in order to be a part of the urban fabric again. However, today we are facing a new difficult period like Covid-19, which causes us to query our old design strategies. There are new needs and priorities that emerged after Covid-19, and for this reason, abandoned areas have a great opportunity to add these functions to the neighborhoods. But, in a dense neighborhood, maybe this can be quite difficult to achieve.

The pandemic period has changed our working, socializing, and modes of living considerably. Although the lockdown period was a necessity, people's awareness has caused everything to change. Some non-essential activities were shut down for a while but even after they re-opened there were still some restrictions. In this pandemic uncertainty, the best thing to do is to react quickly to urban needs and offer flexible design solutions. Although flexible designs are not a new concept, they have become an issue that needs to be questioned and thoroughly reviewed today. Architects have focused on this issue in order to adapt to this period and to create future-oriented results with new designs and innovations.

When industrial buildings are evaluated in terms of reuse, it is necessary to focus on more open and flexible areas instead of creating closed areas. By preserving the structure of the buildings, the industrial texture of the areas can be preserved, thus providing areas that can be easily adapted to future scenarios. The uses of areas should be optimally evaluated according to their size. While open and enclosed spaces can be together, it is necessary to design them with more innovative approaches. Service areas can be designed as enclosed areas, but the areas where people spend time should be open or semi-open.

Before designing, the neighborhood should be analyzed well and the adequacy of open and green areas should be taken into account. People wanted to stay away from the crowded environments and tend toward more open public spaces rather than enclosed indoor areas after the pandemic. For this reason, open spaces will not be sufficient for the neighborhoods, and new design strategies should be taken into account while increasing them as much as possible. While enabling people to be outside, creating areas where social distance can be achieved through design will make people feel safe.

Fig. 15 Socially distanced - Hudson River Park, New York City

Source: Andreas Komodromos @ Flicker

Adaptive Reuse Practices During a Health Crisis

Current & Previous experiences has showed us that during a health crisis. Hospital capacities may not be sufficient enough to be able to handle the number of patients. In these situations, cities can utilize suitable buildings and spaces as provisional medical centers for non-critical patients to stay in. These "provisional medical centers" can either be assembled on an empty space that is suitable for such purposes or large suitable buildings such as industrial buildings, convention centers can be transformed into these areas by using partition inside.

Fig. 16 Kansas Hospital Spanish Flu in 1918

Source: National Museum of Health and Medicine

Fig. 17 Provisional hospital installed in Gijón (COVID-19)
Location: Gijon, Spain

Source Administración del Principado de Asturias

COVID-19 has showed us how quickly hospitals can become overcrowded in a health crisis. Therefore, every city and a hospital should have a backup plan to be able to place the remaining patients to a suitable location for their well-being and other critical patient's well-being. This pandemic proved us that the world was not ready for such an incident. It is clear that for future incidents it is important to be prepared beforehand.

During situations like these patients will be stressed, therefore it is important to provide them a comfortable space even during a crisis time. Without proper pre-planning it is difficult to provide them with such places causing stress levels to rise and affect patients' well-beings. Keeping the stress level to a minimum in a crisis situation for people to not panic.

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Pre-Planning for Emergencies

One of the most important and essential prevention and damage control method is to planning beforehand. Preplanning for disasters and other emergency situations helps governments recover from the situations faster while spending less money on the measurements and ultimately prevent the disaster from ever happening. It is important to start planning as soon as possible. Disaster situations such as COVID-19 often presents opportunities to governments for urban improvements, it is easier to get into action and start the planning process while the impacts of the disaster are fresh.

A comprehensive disaster prevention plan and a response plan are both important in the process, because while the prevention is ultimately the better solution it won't always be an option, therefore it is essential to give both plans equal attention for the better of the communities.

For the prevention of disasters, while the impacts are fresh it is essential to examine the faults in the current urban fabric of the city and improve the necessary elements. Improvements in the necessary facilities and buffer areas would help such disasters to occur in the future as well as the creation of a resilient community. A prevention plan may need the city to change its organizational behavior and reorganize some of the aspects of the city.

Even if everything has been done correctly, some disasters will be inevitable, it that case it is essential to have a fast response plan to hastily start the recovery process, a fast response could dramatically change the outcome of the emergency and help a city to recover faster and more economically stable.

One of the things that needs to be added on the response plan is the use and distribution of the buffer areas and medical facilities and their logistics planning and strategies of medical supplies. A temporary use masterplan for several different scenarios could be added into the response plan. It is always better to start early and increase the number of scenarios for better responses.

Abandoned buildings offers great possibilities for such temporary use cases. Strategically located abandoned buildings could be located and an emergency use plan could be formed to reduce the economic impacts of last-minute planning and application. These buildings could act as medical facilities in emergency situations and help the recovery process.

The importance of pre-planning as well as organizational changes to the current city is non the less evident. Our cities today have suffered disaster caused by the previous urban planning mistakes of the governments caused by economic reasons. Ironically enough, this has led to bigger economic impacts in the long run.

Fig. 18 South Korean soldiers disinfect the sidewalks in Seoul during the COVID-19.

Source: SeongJoon Cho @ Bloomberg

Post-Covid Urbanism

For almost a year a lot of big cities have been under the influence of a global pandemic caused by the new type of coronavirus. Cities have been trying to decrease the economical and sociological affects of the virus. Since then, a lot has changed in the daily life of people. Cities has gone into lockdowns and curfews that lasted almost 6 months in some cases and people had to adjust their daily lives according to these changes. People started to work remotely, restaurants have been closed and only did deliveries, use of public transport vehicles have been decreased greatly etc... People wanted to stay away from the crowded environments in general and tend toward more open public spaces rather than enclosed indoor areas. During the curfew, generally in urban cities, people's desire for green spaces increased and expectedly the use of green public spaces increased. People started to spent most of their time in parks rather then cafes, restaurants and bars.

"When lockdown began, I realized just how crucial my local park was to me as a place to access open, green space," Michon, managing editor of Monocle magazine, told Dezeen (Ravenscroft 2020).

For over centuries, Earth has prevailed through several crises. These have always forced urban planning and design to evolve and push forward for the creation of better healthier cities. Through these epidemics' cities have realized their faulty parts and missing elements and developed new ways to overcome these issues. These developments in urban planning and regulations has not been just because of the illnesses but because of some major changes such as industrialization. These major factors have led to the implementation of modern urban sanitation systems to the creation of city regions. A city is an ever-evolving organism that needs to adapt to the changes and issues that it encounters, but sometimes like the situation with the COVID-19 pandemic now, the cities may be forced to change and evolve in a quick manner to not reduce the harms it may cause to urban life and its citizens.

The COVID-19 pandemic has already greatly changed urban life. The use of public transport has reduced immensely, Remote working has become the new normal, but for those who cannot afford to work remotely such as, small businesses and workers have been hit economically the most. This rapid transformation of the urban life has kindled an important debate about how cities should be built to better respond to current and future crises (Berg 2020).

Expectedly, Cities quickly started to adapt themselves to the new crisis situation and social distancing became the new norm. Restaurants, cafes and shops started to decrease their customer intakes into indoors, put sterilization gels in front of the entrances, started to check customers temperatures and put bandages in the floor to control the space between people that are waiting on a line. Cities also started to find new ways to make public spaces safer for the citizens. New designs have emerged for known urban public areas such as parks and squares. For example, a new design for Piazza Giotto by Caret studio used grid-like squares to measure the safe social distancing in the square between the visitors or New York' High Line's new design installation by Paula Scher that uses green dots to encourage social distancing.

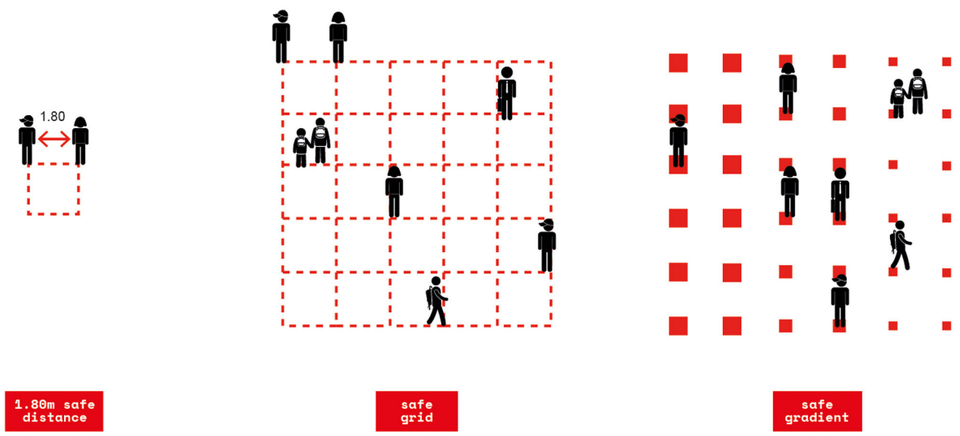
Fig. 19 Green dots to encourage social distancing
Designer: Paula Scher
Location: New York, USA

Source: dezeen - Eleanor Gibson

Fig 20 Source: Jeffrey Czum @ Pexels

Fig. 21 Social distance in the square
Architects: Caret Studio
Location: Piazza Giotto Florence, Italy

Source: dezeen - Natashah Hitti



The use of public transportation has decreased greatly in crowded urban cities. Unfortunately, for highly populated metropolitan cities maintaining social distance in public transportation vehicles were not possible and most people were scared of getting the virus so alternatively people who can afford it started to use single transportation methods such as, bicycles and cars. Some cities had efficient infrastructure to support such a high-level of bicycle usage with their bicycle highways, but some cities were unfortunate enough to not have a sufficient infrastructure for a lot of peoples use. In cities like these people preferred personal cars over bicycles for better road infrastructures, which caused high-levels of traffic. Which tells us that for future sustainability and traffic development of the cities it is a priority to develop the bicycle infrastructure to promote the use of bicycles over personal cars. On a more encouraging note, cities around the world are having a hard time to the infrastructure needs caused by the upsurge in cyclists and walkers. If cities manage to get over these obstacles, it is possible that this COVID-19 pandemic will trigger a long-term shift towards a more sustainable active solo transportation modes in cities (Mcsharry 2020).

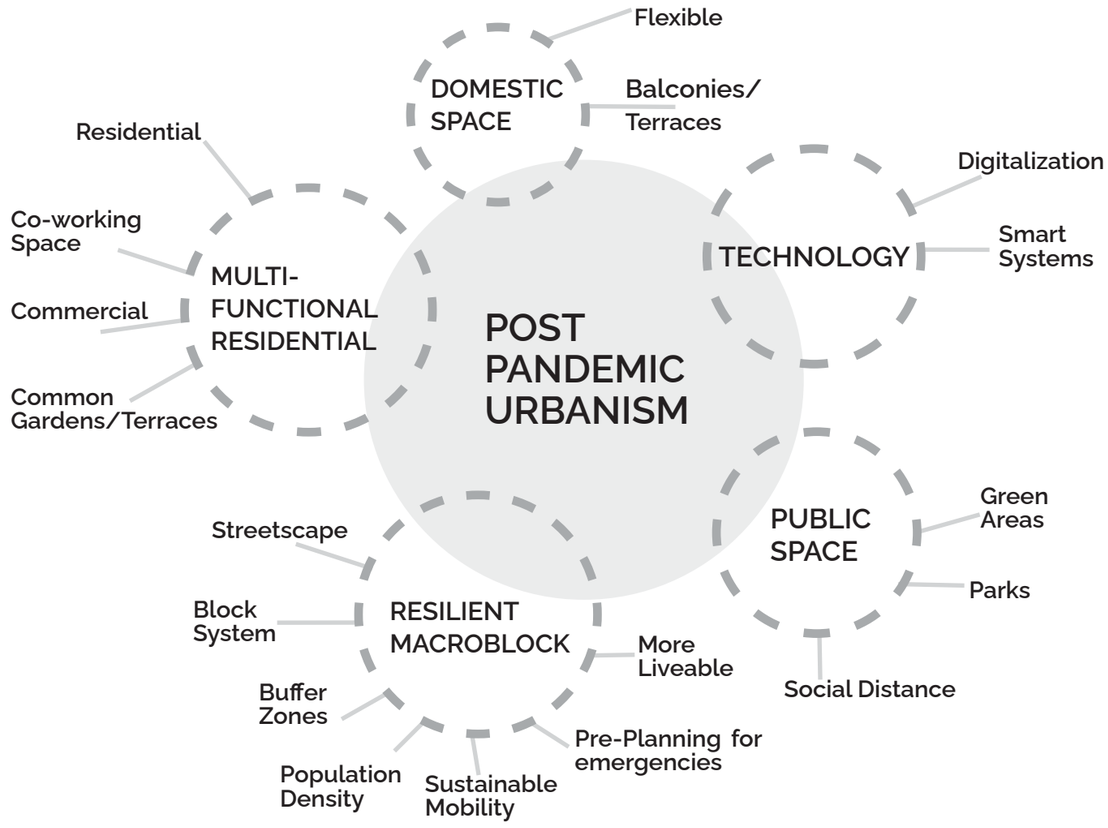
Fig.22 New cycle path in Milan

Source: Boston Globe / CLAUDIO FURLAN/ LAPRESSE/ASSOCIATED PRESS

History shows us that cities have a way of bouncing back from the crises and evolve. This path may be a bitter and cause urban planners to question existing strategies and systems. Modern cities today have a problem of over population, which is a wall sitting in between cities and sustainability. Dues to this growth in population, many major cities had to adapt and grow unsustainably. Current pandemic taught how urban planners and especially citizens how wrong this was. If governments support public infrastructure and green spaces, and if cities invest in sustainable urban design of local neighborhoods, our cities might rise up from the current situation more resilient, livable and dynamic than before (Mcsharry 2020).

Fig. 23 Social Distancing in Park
Location: Dolores Park West Pathway, San Francisco

Source: Unsplash
Photograph: Sand Crain

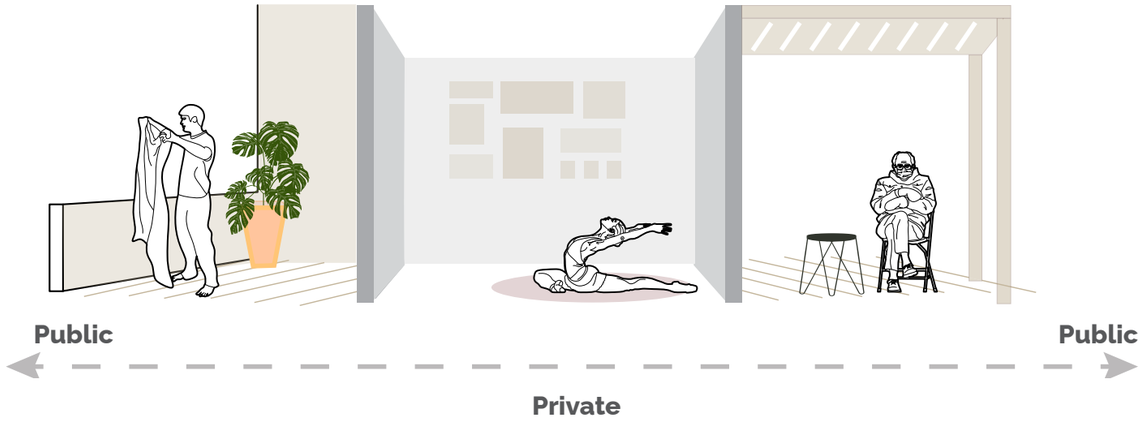


Flexible Domestic Space

Forms of Living During the Pandemic

With the spread of the COVID-19 and as the pandemic became more real and measurements getting stricter, some questions have been raised in the architectural community in terms of urban and domestic living and forms of the house and urban living. People have been forced to isolate themselves in the confined spaces of their domestic living areas. Since the pandemic, as the people realized that their homes are more than just a living space, it has become apparent the need of flexible/multi-functional domestic spaces, and not just for the emergency situations. Providing flexible domestic spaces for the users can open up a so many opportunities for the benefit of the user. However, the design of the modern flats has been restricting this, with the over-urbanization and the over-population. Modern cities become denser and the domestic living areas got smaller and smaller as the space for flexibility become a luxury.

One of the most difficult issues for humans has been the desire for external space and socialization. Our formerly digitalized world has become bored of this digitalization with the cut of the face-to-face interactions. People looked for other ways to interact with others in a socially distant way, since it became the new element of the newly realized world under the pandemic. Although the house is a family's private space, balconies and terraces have become the only way to communicate with the outside world during the isolation period. Especially, the use of balconies has increased during the pandemic period and has gained a more important place in people's lives. Balconies, which make people feel outside without going out on the street, have become the center of socialization. This situation has led the architects to think more about the necessity of balconies and terraces.



Breaking the boundaries of private space

As the functions that have been taken inside grew each day, the spaces inside the house got narrower. Modern domestic spaces have been designed to become a place of living and a place of living only, therefore trying to accommodate other functions such as, work, workouts etc. tired out these spaces since they need to have their own space in our homes.

Fig. 24 Public and Private Areas of Domestic Space (First Image)

Breaking the boundaries of private space with balconies (Second Image)

Fig. 25 Life between home and office became blurred during the pandemic period

Source:BBC
Image Credit : Emmanuel Lafont

In a domestic space such as a home, every individual has their own needs and space, for example; during the isolation/quarantine period, children needed a space to study and participate on online courses, while parents needed a space to work online, participate on online meetings, and elders needed a quite space while all these other activities were happening. So, the domestic environment became a mixed space and didn't properly serve anyone since the space was not designed for such mixed usage purposes. This causes conflicts between the inhabitants; however, it is possible to overcome this by the distribution of the spaces. In the world we live in however, it is not feasible to allocate a space for each and every person. So, the best possible solution to this problem is to distribute communal areas all over the domestic building. This way it is possible to limit movement and social interaction with the outside. Distributing functions such as a park like terrace, working space, gym, market, and coffee shop etc. will somewhat give their inhabitants the feeling that they are looking for in an isolation period.

The lockdown period has caused the activities such as work, education to change online, and these areas were required to combine at a single point (in the house). Some companies are planning to move to flexible workspaces after having positive experiences with remote work during the pandemic. This will reduce the overall space they need and reduce the number of workers going to the office. As noted by the Polytechnic University of Milan's Remote Working Observatory, remote working experience has become the preferred option for many companies afterwards due to the pandemic (Gironi 2020). While working from home mostly made workers happy, it also raised questions about private work areas at home. The concept of home has gained a new role in our lives as a working space.

More people working remotely means fewer people commuting or traveling on a daily basis for work. First of all, the unnecessary mobility of the city is decreasing. This has economic consequences as well as improving effects for the city. For instance, as tech companies announced their permanent remote work plans, this has a huge impact on city center rental prices and the occupancy rate of homes. According to McKinsey, the average price of a one-bedroom rental in San Francisco dropped 24.2 percent from a year ago, while New York City, which has around 28,000 residents in every square mile, has 15,000 empty apartments in September (McKinsey 2020). This flexibility that comes with working from home also allows people to live away from the city center at more affordable prices. If we consider it differently, it creates job opportunities for people living far from the city center in rural areas.

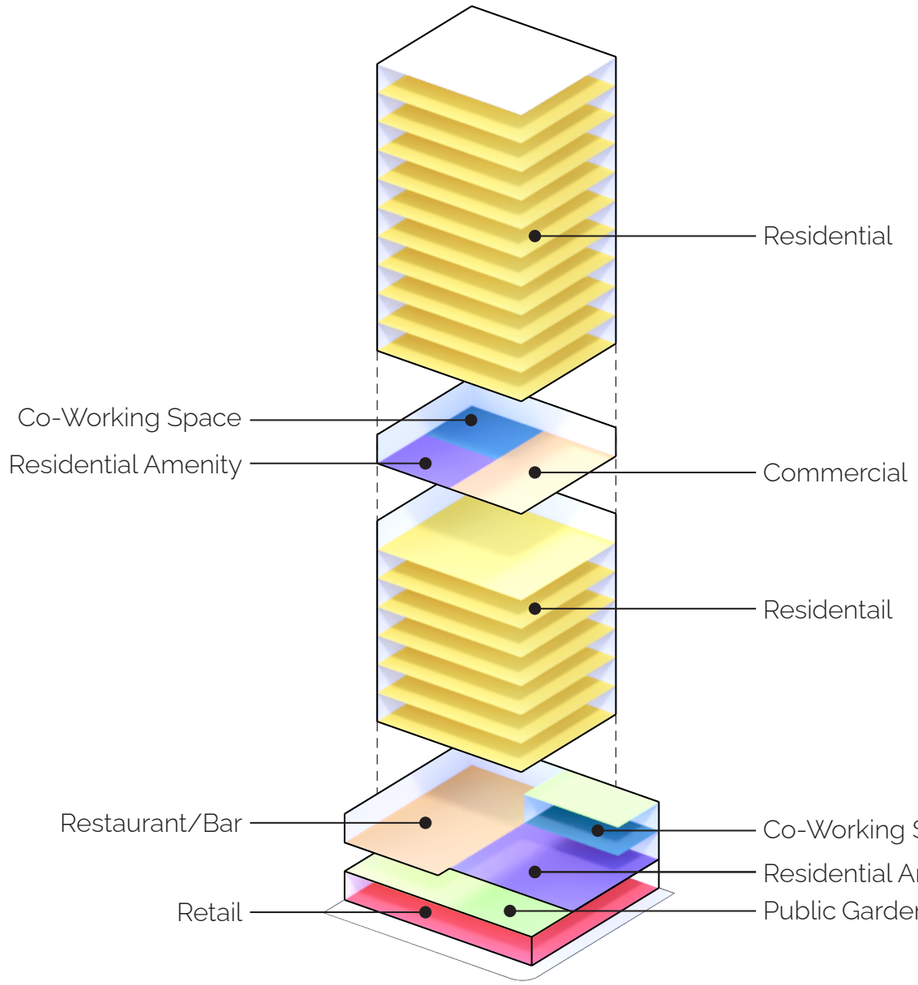
In the near future, some companies will adopt a system where employees come to work alternately on certain days. They will use a smart system with in-office and remote programs to ensure connection and equity. In some companies, it will completely switch to remote working system by providing video communication to employees. Both models will have increased productivity and the ability to attract a diverse workforce. Of course, it is not possible to achieve this for some professions.

However, when there are hundreds of people in the same office every day, it concentrates the risk in one place. A good solution would be a system where as few or necessary people come to the office as possible.

Flexible Housing

The first concept that gained importance with the pandemic was the flexibility of the domestic space, in other words, designing spaces as easily adaptable without giving a specific function. Even pre-COVID-19, in the architectural community, the ideas of designing more flexible houses were experimented and applied, but these designs were mainly was a solution for small-sized dwellings and how it is possible to make the maximum use of space. Now, instead of the previous approach on flexibility in the domestic spaces, there is a need to expand the flexibility into all types and sizes of domestic spaces, since the needs are starting to change. On top of this, it is necessary to add the new element of social distancing the new designs and possibly giving each and every person their own portion of space, their own air pocket (Zammerini 2020). But with this new element of deign a new problem rises since social distancing is hard in a small communal living spaces, such as social housing units. However rather than taking the economically unfeasible option it is possible to change the distribution of the dwelling spaces to more used the brand-new needs of the society and the users.

The lockdown showed that spatial organization is more important in a domestic building. These should include areas that may include functions such as courtyards, common open spaces where it is possible to meet and play, and open-air cinemas. We can examine Richard Sennett's concept of porosity, which can be found horizontally or vertically, on a residential scale. One of the best examples of this concept is undoubtedly the Waldorf Astoria residence. Operating in New York in the first thirty years of the 20th century, the building simultaneously has many functions for citizens, including hotels, theaters,



restaurants, panoramic terraces and private homes (Marchese ve Ciarniello 2020). This spatial organization will lead to a more resilient, sustainable community in a domestic building. A community can be created within the building by creating various internal social areas such as sports areas, common working areas for working and livable balconies. Thanks to these different rules, it is quite possible for us to meet today's needs in shared living. In this way, people do not feel lonely while being alone in social distance.

Fig. 26 Vertical Porosity
Diagram of a Residential Tower with mixed-use functions creating vertical porosity

Resilient Macroblocks

Reason of the Pandemic in an Urban Perspective and the Results

If we look at the time when the pandemic has started to expand it is possible to understand the reason why the virus spread this rapidly, especially on dense urban environments. In the past, a lot of time have been spent underestimating and ignoring the complications caused by the rapid urbanization of the cities after the industrial revolution. Urban planners and governments acted as if social and environmental problems caused by this expansion could be easily managed and controlled causing the urban space to become crowded and hard to manage (Li Bao 2020). This time spent ignoring has pushed the cities into a pit where the acceptance has set in and eventually resulting in the rapid spread of the COVID-19 virus throughout the cities (Comi 2020).

One of the main complications that caused the pandemic was the lack of the architectural voids in the modern cities. Cities have so rapidly grown, unorganized and disorderly, the dynamic balance of the city has been thrown into the trash. Cities tend toward private space rather than public urban spaces cause of the economic reasons has been the start of this spiraling down. Cities have failed to plan long-term and set their eyes on the short-term economic gains. Architectural voids in an urban sense keeps the dynamic balance in the city by allowing the city itself to breath and becomes an organic element of the city. It represents the space between the buildings and the importance of this space lies in the adaptability of the emptiness in any situations. These areas act as buffer zones all throughout the city and binds the places together crating a relationship between different parts of the city (Soleti 2020).

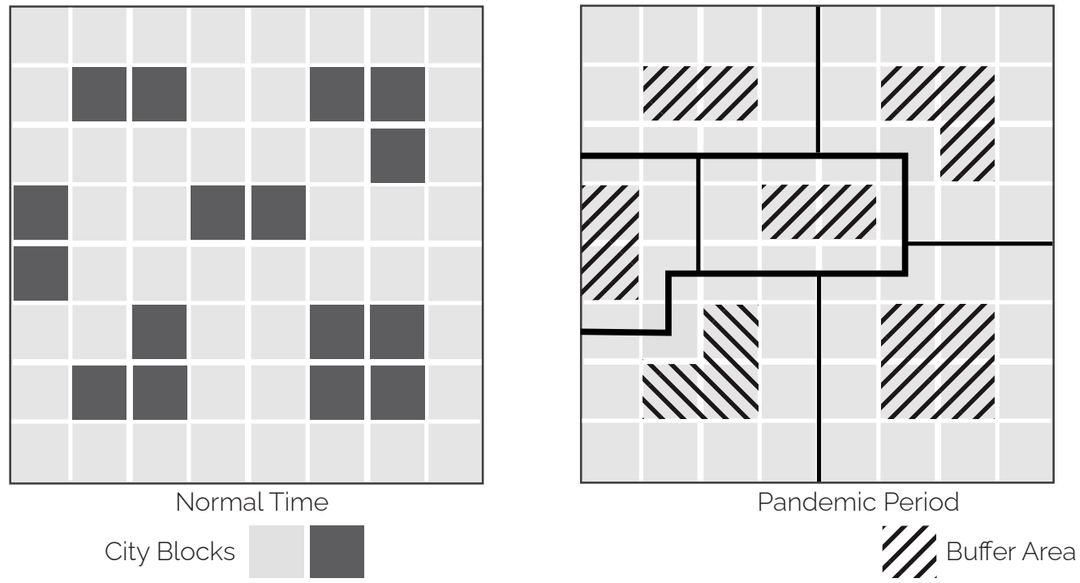


Fig. 27 Buffer areas in normal time and the Pandemic Period
Source:Bao, Li, Hu, Die 2020
Redrawn by the authors

As well as the neglecting of the urban environmental and social problems, the lack of pre-planning caused an uneven distribution of medical facilities and urban public facilities combined with the physical, functional and social organization of the city accelerated the spread of the virus (Li Bao 2020).

All these factors combined resulted in the virus more lethal and contagious especially in dense urban environments more than it should have been and caused some significant measurements to be put in place such as, complete lockdown.

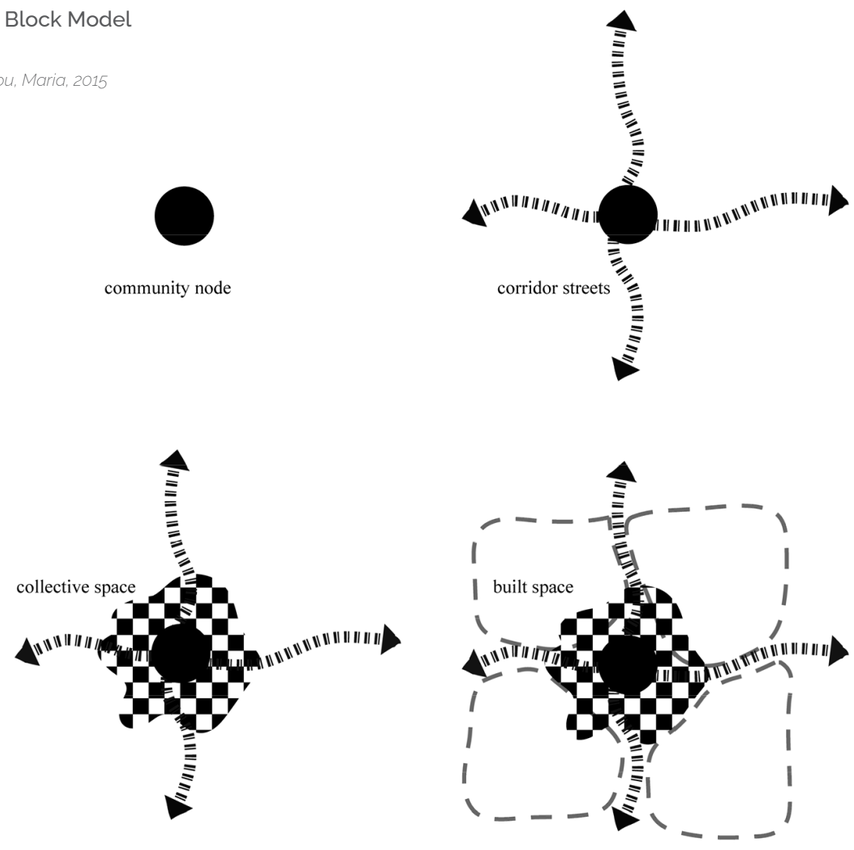
Facing the harsh measurements taken to prevent the spread of the virus, cities became ghost towns and were no longer available and the public spaces were denied. Inhabitants of these places were forced to domestic enclosure in their modern-day homes that were designed with the minimum standards on mind and not more. The desire to experience the urban and natura dimension grew larger and balconies, terraces and courtyards acts as projections of these dimensions. However, by restructuring the fabric of the city and sufficient pre-planning to make cities, societies and communities more resilient and prevent future complications that the modern city can face.

Resilient Macroblocks

During the pandemic a lot of architects and inhabitants focused on making the home more flexible, adaptable to an isolation situation, but in reality, interventions on individual dwellings are not feasible and often gets into our daily habits in a domestic environment. In these situations, it is more beneficial and suitable to think about a larger living environment, "a large house" per se. Interventions done in-between housing units could be used to eliminate the functional and spatial deficiencies of individual housing units to complete the functional organization and expanding the domestic sphere (Verterame 2020). Houses of the future should exceed the single function units and needs to expand into the urban realm to be able to make them more resilient.

Fig. 28 Urban Block Model

Source: Oikonomou, Maria, 2015



As a solution to this, smaller blocks could be connected together to create a one large block called a "macroblock". These macroblocks could act as one large body to manage and organize with the addition of sufficient and necessary supporting facilities and structures to create a resilient community even in the time of an emergency caused isolation. The organization of macroblocks helps to establish a new model for urban community that is able to self-govern and become self-sufficient even during emergency situations (Verterame 2020). This way, with sufficient facilities and social infrastructure, urban micro stations can be established that has high living conditions that offers spaces for sociality and reimagines soft mobility to reduce the general mobility of the city.

The research done by the UN DESA (United Department of Economy and Social Policies) established that in Italy the population of the densely urban areas will increase from 55% to %81 in the upcoming years. This statistic shows us the need for reconfiguration in densely populated cities to reduce the future risks for another pandemic (Verterame 2020).

Fortunately, there is a working example for the idea. Barcelona, for several years have been establishing "superblocks" in the city. The aim of the project was to improve the urban ecosystem, increase public spaces, decrease the road surface, Improve air quality and environmental resilience of the city.

Fig. 29 Superblock Model in Barcelona

Photograph: Upmanis, Kaspars, 2019

Macroblocks redefines the scale of the area and the community with respect to the urban fabric continuity of the surroundings and the citizens. The way macroblocks acts are beneficial to the inhabitants of the block during and isolation period. They can be isolated separately and by supporting them with the necessary facilities and spaces, they can be made resilient and could allow inhabitants to enjoy the urban environment and primary services they need even during a quarantine period. Also, during an emergency situation smaller unit are easier to be managed and controlled.

Resilient macroblock is a macroblock that could sustain itself on its own during difficult conditions so it can recover from the situation more quickly. To be able to achieve a resilient macroblock some organization is needed in urban level. It is necessary to improve necessary facilities that helps inhabitants to maintain their everyday lives. Some addition of co-working areas would also help people during quarantine periods to have an area to work close to their homes with 100-200m walking distance. This would also benefit the city if firms decided to continue remote working. An observation done by PoliMi suggests that after the pandemic many companies will consider remote working preferable to an office. Addition of co-working spaces could potentially decrease the unnecessary mobility throughout the city in the long run. During an isolation inhabitants' lives depend on the commerce areas in the community increasingly. Improving and increasing these commerce areas in the block could potentially make up for the shortage during the isolation period and improve the lives of inhabitants (Li Bao 2020). In the macroblock some buffer areas need to be left out to enhance the dynamic adaptability of the area during an emergency situation. This way buffer areas can be adapted to the situation and could benefit the recovery of the community. During non-emergency situations. These areas could be used by the community and can be adapted to their needs as a community. It is also essential for these communities to be able to self-govern and participate in the decision-making process for it to be able to be as resilient as possible during emergencies.

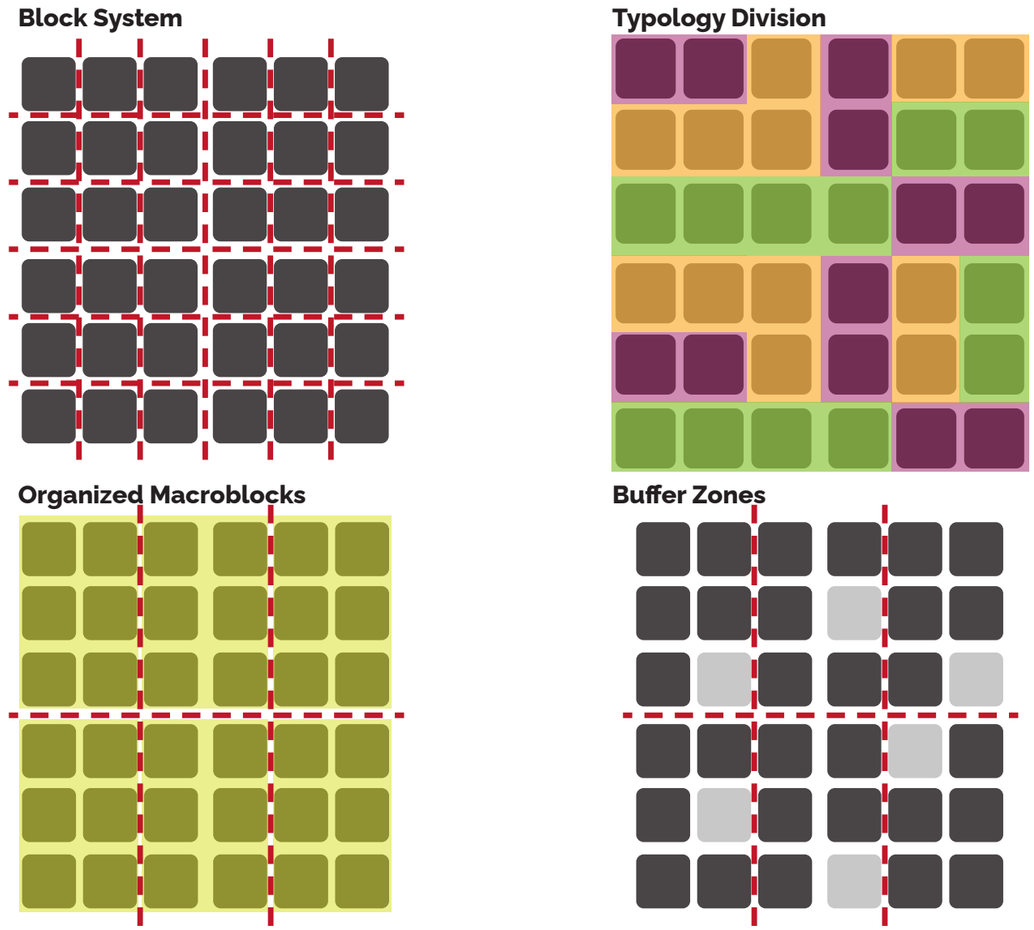


Fig. 30 Steps of Macroblock's Creation

With the help of macroblock system, cities can be divided into smaller sections that can be easily managed and controlled; Large open blocks (macroblocks), medium controlled units (residential blocks), small isolated units (individual houses). Even though large open blocks would help make smaller units more sustainable and efficient, smaller units still needs to have some adaptability to some extend and needs to accommodate some essential facilities as much as their space allows to be used if more severe isolation measurements are ever needed. This can be achieved by vertical distribution of functions if there is no space horizontally. Macroblocks are a way to help communities become resilient to bad conditions and become more sustainable and self-sufficient. It is a way to bring people together to create strong community bonds and make a healthier city.

Possible Future Strategies for better, healthier cities

After the Covid-19 pandemic, our lives may not be the same again; our priorities, lives, and habits will definitely change. We suddenly had to adapt ourselves to this life, and this is now our new normal. With these in mind, it is very important to make people feel safe and healthy again by creating better and healthier cities in urban designs.

Closing some nonessential activities will not be a solution on the urban scale. These may be temporary solutions in emergencies, but we cannot restrict the architecture itself. Future of urban design also seeks solutions to strengthen the local communities and neighborhoods that have access to transport and local green spaces. It may take a long time for people to feel safe and be able to visit shopping malls, bookstores, cafes, and similar crowded areas again. To overcome this, it is important to create local communities including these functions were people are familiar with, therefore feel safer (Mcsharry 2020). In this case, we can follow some strategies such as;

- If it is possible to move the functions that are usually taken indoors to outdoor spaces and implement them within the public spaces and reducing the amount of closed indoor spaces and creating more outdoor areas integrated with the nature for more healthy and distanced environments
- It should be able to use places such as bars, restaurants, and offices as flexible as possible and all these should be supported by a digital infrastructure.
- Making goods and food distribution services accessible to everyone, supported by a digital interface that can replace traditional service delivery methods when necessary (Stantec 2020).

Post Pandemic Osi-Ghia

Fig. 31 Social Distancing
Location: Elbląg, Poland

Photograph: Łukasz Kotyński 2020

Do we have enough green space in the city?

One of the biggest transformation challenges of Covid-19 has been in digitalization. Paper-based progressive transactions, face-to-face meetings, courses, and all other daily work had to go through a sudden digitalization process. Although the places that cannot meet these requirements are going through a very difficult process, digitalization has gained great importance in our lives. It should try to adapt digitalization to all functions of the city and innovative solutions should be sought. The future communities, especially offices, will probably progress within the digital environment. According to a recent Gartner survey, 74% of companies plan to continue working remotely permanently. This will lead to a decrease in commercial real estate demand (Stantec 2020).

Population Density

One of the most important reasons for the high spread of a respiratory disease and turn into an epidemic is the increased population density in urban environments and cities. So, to decrease the spread of the future viruses and prevent epidemics, the first things that needs to be done is to tackle the population density problem. This is not only important in a health point of view but also important in terms of social justice point of view.

During the cholera outbreak, urban planners have reduced the high population density to prevent the spread. To decrease the population density in cities, in some neighborhoods, public spaces have been widened and supported with the implementation of sewage systems in an attempt to decrease the spread of cholera by decreasing the population density. This has been proven effective and taught future urban planners how to design healthy public spaces (Reyes, et al. 2012).

Streetscape

One of the biggest problems that we our facing in the cities today is air pollution caused by the excessive use of cars. Street design plays a big role in prevention of diseases and creating

heathier more sustainable cities, with proper streetscape design it is possible to tackle this issue in some manner. Adding extra lanes for cyclists and pedestrians would be an easy and good first step that the cities should take in 21st century to develop better cities.

We have learned that social distancing doesn't only apply to indoor environments but also outdoor spaces as well. Wider streets and public spaces are a good and easy way to achieve this goal. With growing population in cities, public spaces will get more crowded. To prevent further health crises, cities should take precautionary actions and widen the pedestrian streets for better social distancing. Current situation is a good opportunity for city planners to rethink their street design and promote more sustainable, healthier approaches to urban design. This way it is also possible to transform the city into a low carbon city with a reduced impact on the habitat that humans live in.

Several cities all around the world have been experimenting with these ideas and evolving their cities to achieve a more sustainable city. For example; Barcelona's superblocks have been a great example for it (Zografos, et al. 2020). During the pandemic several other cities have experimented with this idea and closed some roads. This increased the area that pedestrians and bicycle users can use (Eltarabily and Elghezanwy 2020).

Green Areas & Public Parks

During the COVID-19 pandemic quarantines, green areas and public parks has showed their importance. They have proved that they are a necessary human need for people in the cities to reduce stress and improve their physical condition as well as their psychological well-being. Lack of these spaces and decreased access to these areas in urban environments during quarantines increased people's anxiety and stress. It is important to have places such as these in every neighborhood for better, easier access. Everyone in the city, no matter where they are should be able to access these areas.

Fig. 32 Usage of green areas during the COVID-19 pandemic
Designer: Paul Cocksedge
Social distancing picnic blanket
Source: Dezeen

Post Pandemic Osi-Ghia

Public Spaces

Public spaces such as city squares and parks are more accessible and places where social distance can be maintained, making people feel healthier and people prefer to spend time here, even if it is just for walking. Ensuring that a good quality public space is available for each neighborhood should be one of the first steps in design at the urban scale, especially the high-density neighborhoods (Stantec 2020).

Smart Cities

Cities can turn to digital data to create and monitor environments to ensure their safety. In a world where everything is becoming digitalized, it is not hard to think how the cities will digitalize and use the new technologies to create healthier environments.

Mark J. Nieuwenhuijsen points out that the time has come to rethink urban models and says twentieth-century cities were designed for cars (Nieuwenhuijsen 2020). The Covid-19 epidemic, which is also experienced in the twenty-first century, completely turns the focus on humans. It should be aware that the epidemic will not end in the short term and necessary precautions should be taken accordingly. Also, even if it ends, cities need to be made healthier and not affected by other disasters in the future. The great awareness of these problems at the urban scale will transform cities and the use of urban areas will not be the same as before. It is necessary to create smart, sustainable, flexible, more livable, and future-oriented cities that contain more green spaces.

Post Pandemic Osi-Ghia

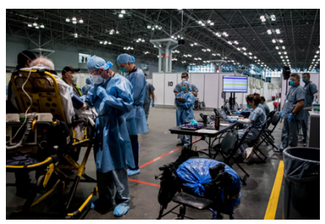
Case Studies

1 - Foundaries Garden,
Nantes, France

4 - Pop-up Schools
London, UK

New York Cases

3 - Domino Park,
New York, USA

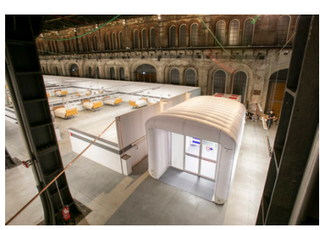


5 - Emergency Reuse of
Jacob Javit's Convention Center
New York, USA

Turin Cases

2 - Parco Dora,
Turin, Italy

6 - Valentino Temporary Hospital,
Turin, Italy



7 - CURA Pods,
Turin, Italy

1 - Foundaries Garden

Architects: *Doazan + Hirschberger & Associés*
Area: *3500 sqm*
Year: *2007-2009*
Location: *Nantes, France*

Foundries' Garden is located in the "Ile de Nantes" area, which is one the largest urban project in France. The project approaches are to preserve the structure of the existing building as much as possible and to make a design by considering the social environment and history of the area. They created a public space with the concept of "garden under a roof" and targeted the general use of people in the neighborhood. This area, which has great advantages in terms of usage due to its structure, is also important in terms of the historical background of the district. It was a place where many local citizens worked in the old industrial activity period and they wanted to reflect this in the project design. Industrial ovens, rails, and three pits show traces of old industrial activity in the area.

"Le jardin des fours" part is a garden where green columns are formed by graminaceae, bamboo and arundos next to the water tanks. This garden looks like a kind of "machine gallery".

Fig. 33 Foundaries Garden

Source: Mypouss @ Flickr

Fig. 34 Foundaries Garden Interior

Source: Marc Lacoste

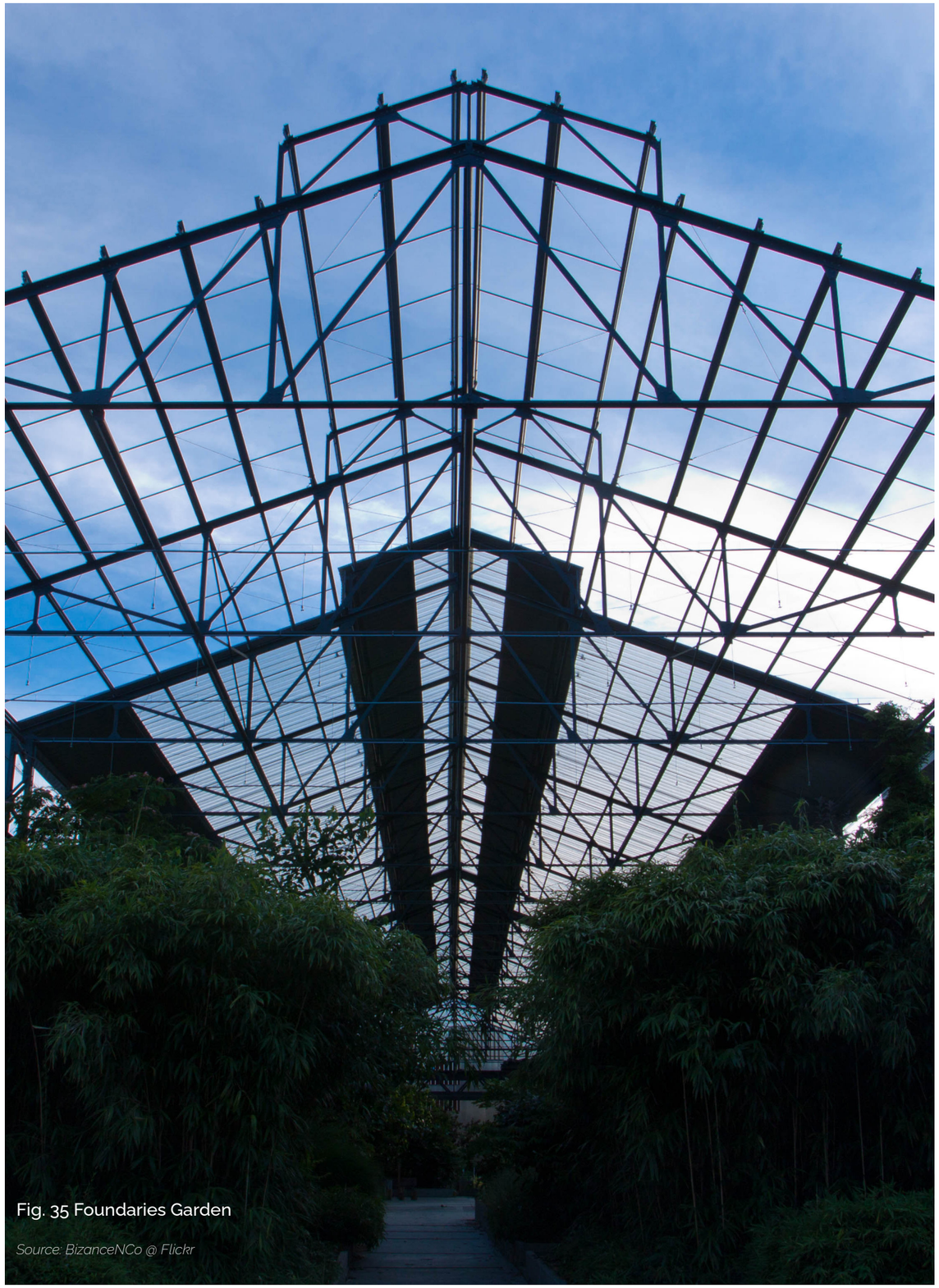


Fig. 35 Foundaries Garden

Source: BizanceNCo @ Flickr

The structures of the project area have been repaired and painted. The roof has been replaced by a mix of full and transparent polycarbonate tiles (Doazan+Hirschberger 2009). Roof covering and surrounding buildings protect the area from the wind and ensure the temperature of the area is higher than outside. This area, which was designed considering many factors, turned the factory area, which has not been used for a long time, into a public space suitable for daily use and social activities.

Fig. 36 Foundaries Garden

Source: Marc Lacoste

2 - Parco Dora

Team: *Latz + Partner (lead design);*
STS S.p.A., Bologna (steering);
CMC Studio Ingegneri Associato, Turin (structural analysis);
Studio Pession Associato, Turin (architecture);
U. Marano; Cetara (artist);
Pfarré Lighting Design,
Area: *456000 sqm (37 hectares)*
Year: *2004-2012*
Location: *Turin, Italy*

"From Turin's largest intra-urban industrial wasteland emerges a park near the city center."

- Latz + Partner

Parco Dora is a post-industrial park located in former industrial are of city of Turin called Spina 3. Until the 90s the area was home for large factories for the companies such as Fiat and Michelin. Spina 3 has been characterized by a strong industrialization until the 90s, during the 90s the industrialization in the city of Turin started to decrease and these areas started to get abandoned as the companies started to move out of the city. With this abandonment the industrial heart of Turin was wiped out. In an attempt to redevelop these abandoned industrial sites an urban renewal program was launched in 1998. The program aimed to enhance the individual industrial characteristics of each area and strengthen them with modern elements to design and create a new unified park in the city (Society of Garden Designers 2018). With the implementation of the program and the new design. Today, Parco Dora represents the urban transformation of Turin and Spina 3. It has become one of the largest green spaces in the city.

Post Pandemic Osi-Ghia

Fig. 37 Parco Dora

Photographer: Fulvio Spada @Flickr

The Park is divided into 5 areas: Ingest, Michelin, Valdocco, Vitali, Mortara. These 5 areas all have their distinct industrial characteristics. Latz + Partners new design for the area uses industrial remains combining them with the new modern elements and integrate them into a new green area of the park. The better the industrial remains of these sites, the better the aesthetic quality and the functionality of the final design (Landezine 2014). One of the main themes of the project is the connection to the adjacent quarters and the development of the waterfront. These areas are connected by bridges ramps and other different structures (Latz = Partner 2012).

Post Pandemic Osi-Ghia

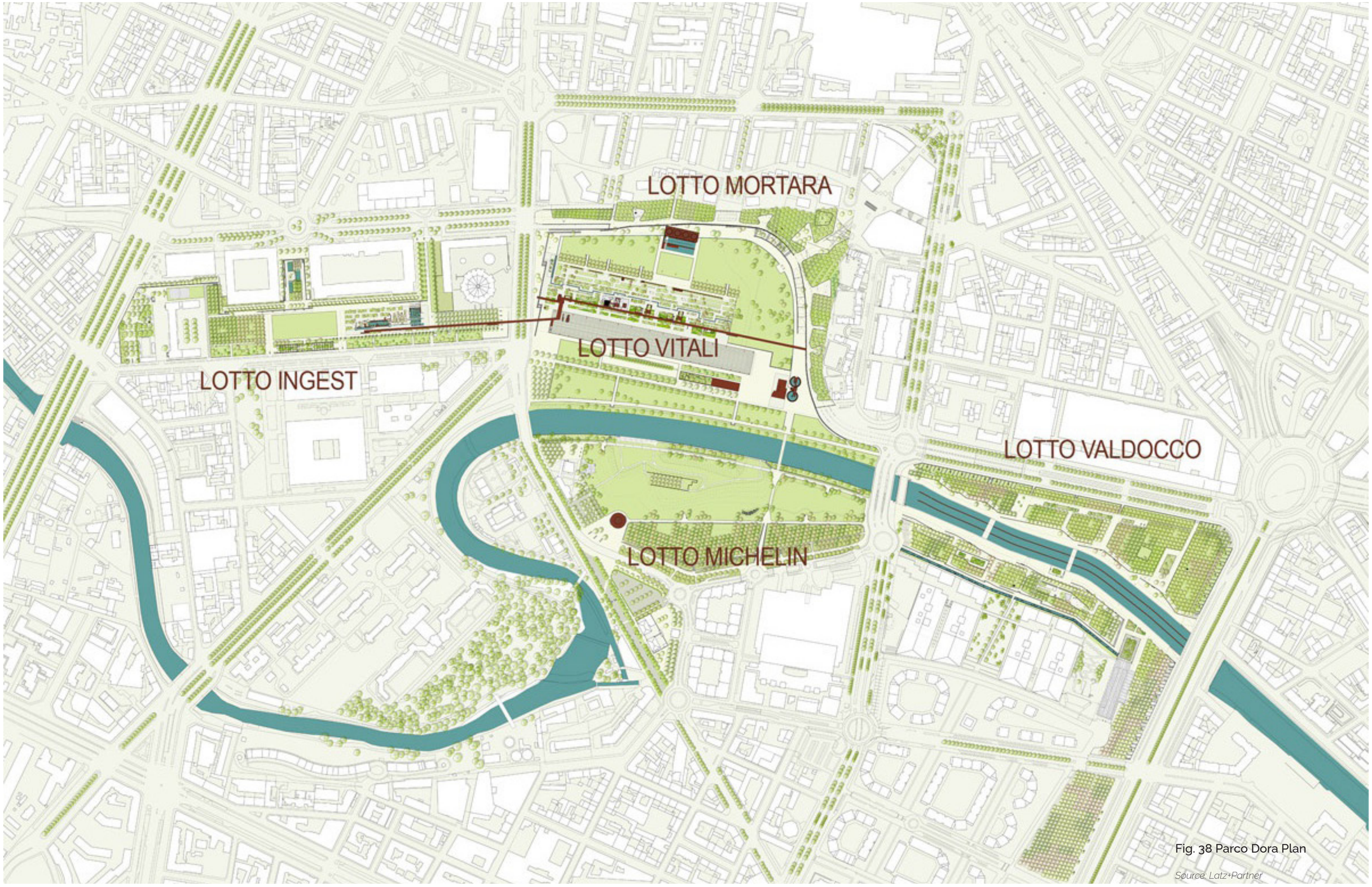


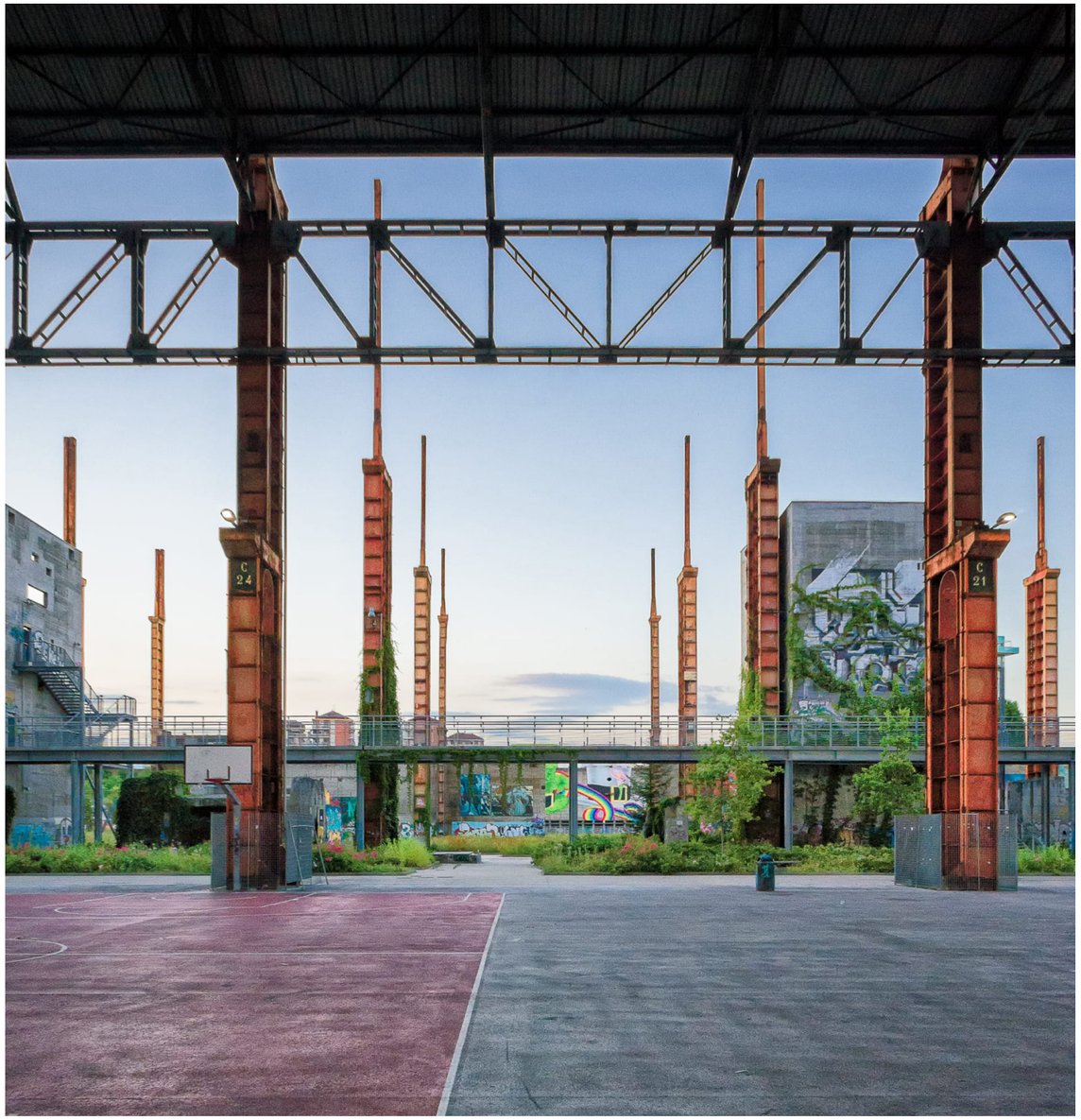
Fig. 38 Parco Dora Plan

Source: Latz+Partner

Vitali are was highly dominated by industrial remains. Designers removed the outer skin of one of the industrial buildings to integrate the remaining structures with the newly added green elements to create an industrial jungle. There are 30m high red steel columns standing in the area integrated with the new green elements of the park that will be covered with further greenery. On the area one section was left with the roof on top to preserve a sheltered space inside the park for the use of cultural events and leisure. Designers used the existing Michelin cooling towers to create a landmark in the park. These cooling towers have been re-functionalized to be used as sustainable water management systems that store and use rainwater for irrigation and other water features (Society of Garden Designers 2018). Another very important feature of the park is the Dora River. The waterfront of the park has been redeveloped to increase the accessibility of the park. It was the part of a project called "Torino Citta d'Acque" that involves the additions of cycle and pedestrian paths that will connect to the existing paths on the Spina 3 (Recycled Landscapes 2017).

Fig. 39 Parco Dora

Source: Latz+Partner



In conclusion, the area was heavily industrialized abandoned area that served no purpose for the city. In an attempt to change these new plans have been made to redevelop the area while keeping the industrial heritage of the site. To make it possible, designers analyzed the remains and keep the remains that could be integrated in the new design. With the implementation of the new design the park became one of the largest greens are in the city of Turin.

Fig. 40 Parco Dora

Photographer: Alessandro Guida
Source: Divisare

3 - Domino Park

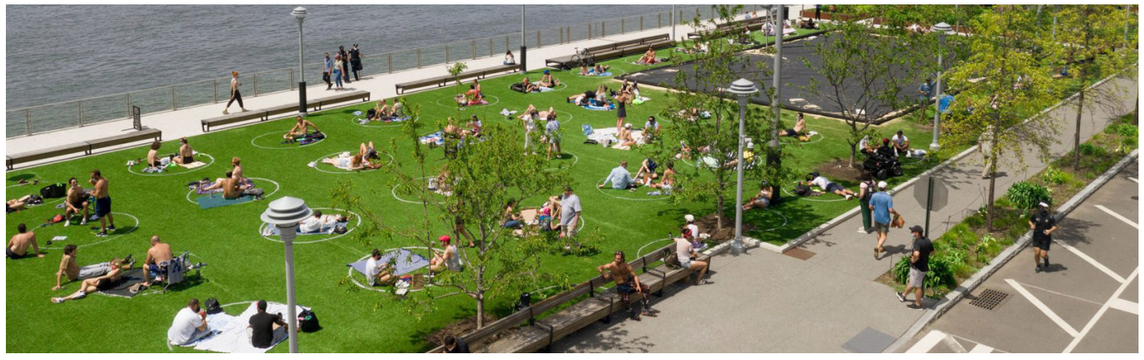
Architects of the Park: *James Corner Field Operations*
Area: *40468 sqm*
Year: *2018*
New Design Solution: *Domino Park's Staff /2020*
Location: *Domino Park, New York*
Photographs: *Marcella Winograd*
Source: *dezeen*

After the Covid-19 pandemic, people tend toward large open public spaces rather than closed indoor areas. In order to prevent these areas from being too busy and crowded, a solution was quickly developed by Domino Park's staff. This design, which keeps people safe during the pandemic and supports social distance, includes white circles drawn on green grass with chalk paint. There are approx. 30 circles arranged in rows and symmetrically, each measuring 2.4 meters in diameter.

Domino Park, one of the first parks aiming to keep the social distance at 1.8m, aims to reduce the spread rate of the coronavirus. According to Domino Park's staff, people adapted easily and started to use them correctly (Cogley 2020). In addition, there are signs of the obligation to wear a mask and social distance rules in the park.

Fig. 41 Domino Park

Photographer: Marcella Winograd



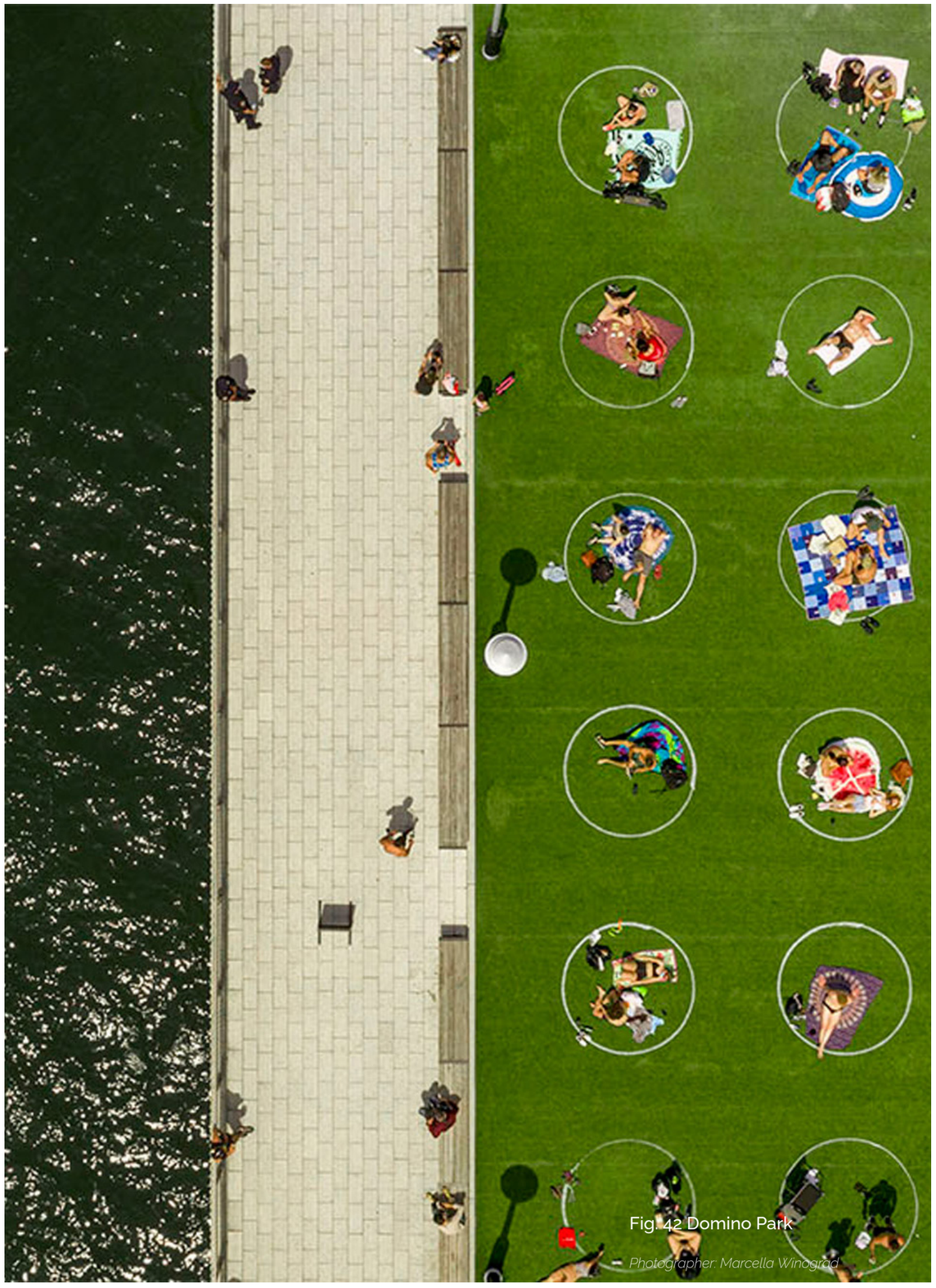


Fig. 42 Domino Park

Photographer: Marcella Winograd

4 - Pop-up Schools by CLTH

Architects: *Curl la Tourelle Head Architecture*
Year: *2020*

After the UK government announced its plan to allow some primary schools to reopen for certain age groups, Curl la Tourelle Head Architecture developed a project to provide the necessary social distance for both students and teachers. Their general approach is a tent-like structure that follows the social distance and can be easily adapted to different classroom setups (CLTH 2020).

Starting from the idea of outdoor learning, CLTH was also influenced by the idea of using such tent-like structures in classrooms in Denmark. This innovative design offers the idea of reducing the circulation load in existing school buildings and using more outdoor spaces. With this project, they also wanted to emphasize the need to rethink how schools should be designed after the Covid-19 pandemic.

Fig. 43 Proposed Design

Source: Curl la Tourelle Head

Post Pandemic Osi-Ghia

Fig. 44 Proposed Design

Source: Curl la Tourelle Head

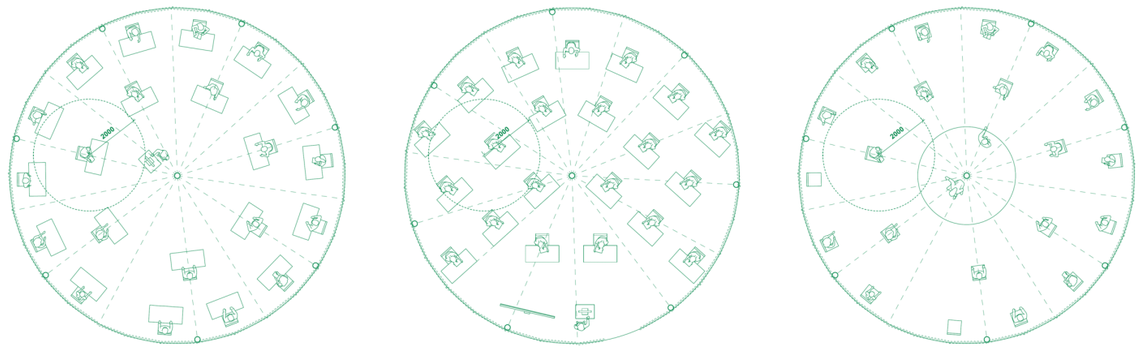
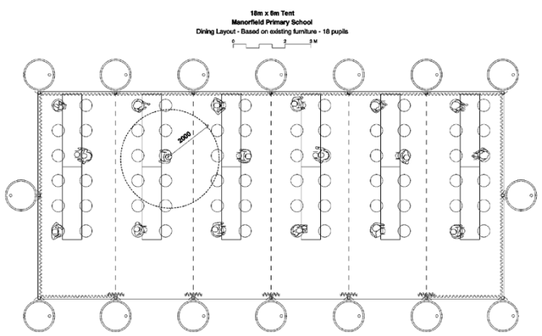


Fig. 45 Assambly of the Design

Source: Kilian O'Sullivan



Source: Curl dla Tourelle Head

Fig. 46 Pop-up School by CLTH

Source: Kilian O'Sullivan

They have built the first of their social distance tent concepts at Manor field Primary School in Tower Hamlets, London. This temporary structure was built to provide classrooms and lunch space with a tent of 6m x 18m. In this way, they were able to offer 25% more social distanced capacity than the school normally offers (Harrouk 2020). According to Paul Jackson, Headteacher, with the Manor field Primary School, these additional pop-up areas have been highly supportive to ensure that their children meet their needs and return to school safely (CLTH 2020). This design concept has attracted a lot of attention both in the country and abroad.

5 - Emergency Reuse of New York Jacob Javit's Convention Center

Application: *Army Corps of Engineers, Civilian Staff & Members of New York National Guard.*
Year: *2020*

In cases where hospitals are not sufficient during the pandemic period, buildings with the potential to turn into hospitals gain great importance. Depending on the condition of the building, a decision is made to transform it into a hospital or emergency quarantine building. The preparation of these buildings for use is very fast. Considering the buildings converted into the first hospital, the process from cleaning the area to selecting personnel was only 10 days.

The Jacob Javits Convention Center in New York has been transformed into a temporary emergency hospital for the pandemic situation. This area, where more than 1000 patients have been treated, has supported the better management of this process (Eyewitness News 2020). In another example, an empty hospital, St. Vincent Medical Center, in Westlake District was rented by California for the outbreak (Mortice 2020). Since it was previously used as a hospital, it became easier to adapt to the new order. However, it is not always possible to find buildings with similar use available. Thanks to the expertise of architects, engineers, scientists, and healthcare professionals, it is possible to identify the right areas. (Mortice 2020).

Fig. 47 New York Jacob Javit's Convention Center During Pandemic

Source: US Navy/Barry Riley

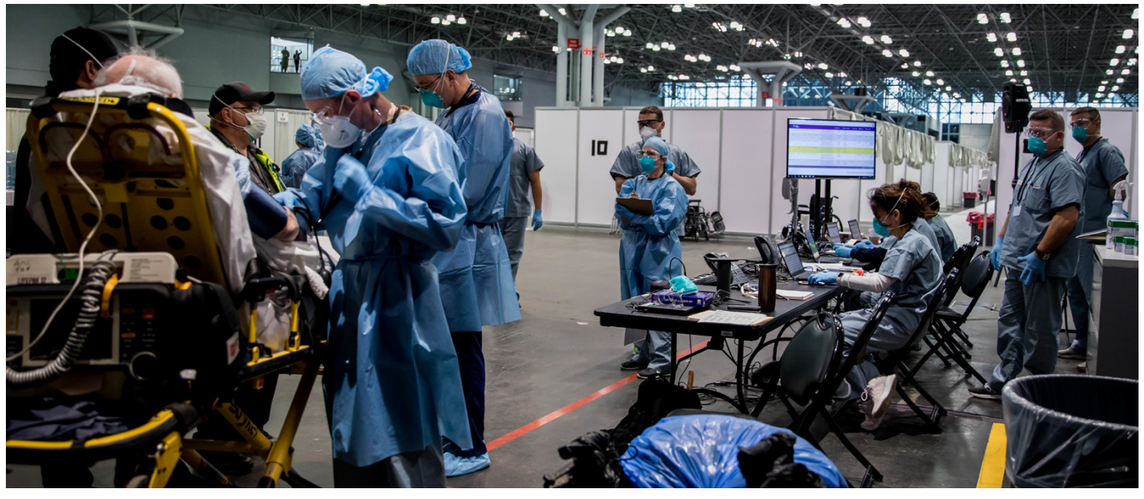


Fig. 48 New York Jacob Javit's Convention Center During Pandemic

Source: New York National Guard @ Flickr

6 - Valentino Temporary Hospital

Architect of the building: *Riccardo Morandi*
Year: *2020*
New Design Solution: *Temporary Hospital /2020*
Area: *8000 sqm*
Location: *Valentino Park / Turin*

Due to the increase in the number of Covid patients, Torino Esposizioni Pavilion 5 in Valentino Park has been transformed into a temporary hospital by the Municipality of Turin. This area is designed for patients with low care intensity to reduce the density of hospitals.

Fig. 49 Valentino Temporary Hospital

Source: Ansa

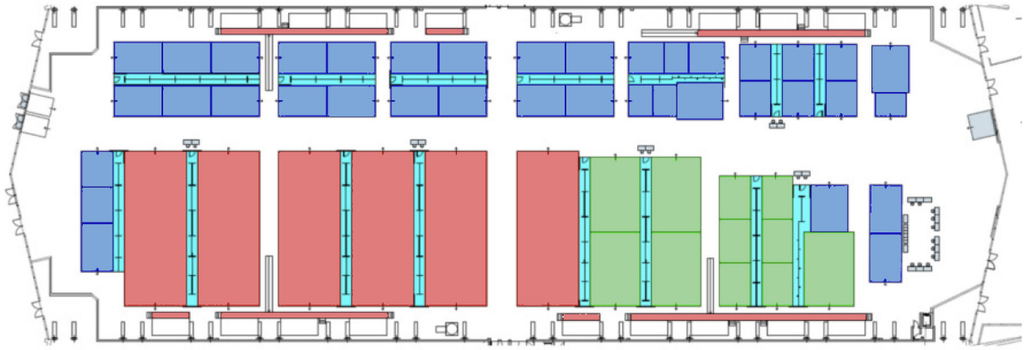


Fig. 50 Red Zone Layout in Valentino Temporary Hospital

Source:Telecitynews24

For Covid-19 patients, 55 tents were set up in the building, including hospital rooms, intensive care and sub-intensive care.

- **BLUE** : 38 Tents EMT 2 (Emergency Medical Team) / Piedmont Region
- **RED** : 6 Tents Italian Red Cross (Croce Rossa Italiana)
- **GREEN** : 11 Tents Autonomous Province of Trento

18 bathroom and shower modules
80 WC, 32 Showers

The transformation of the area into a temporary hospital was completed in 11 days with the participation of more than 500 volunteers. The project was coordinated by the general commissioner of the Crisis Unit of the Piedmont Region, also supported by legal-administrative area Antonio Rinaudo and the 118 Max emergency Manager Mario Raviolo (Gennaro 2020). This hospital, which started accepting its first patients on 22 November 2020, was opened to service with 100 beds in the first phase. (Urso 2020)

How does the hospital work?

This temporary hospital, managed in integration with Aou Città della Salute and Asl Città di Torino. The structure consists of 55 tents that contain 455 ordinary care places, plus two for intensive care and six for sub-intensive care.

350 are equipped with a fixed socket for oxygen distribution, while portable cylinders will be used for the remainder. Each tent is equipped with smoke detectors, oxygen concentration sensors and a visual and audible alarm bell. To keep the area sterile, machines that provide air exchange twice an hour have been installed. (Gennaro 2020).

Fig. 51 Valentino Temporary Hospital

Source:Torinoggi

The use of the temporary hospital has been planned in 2 phases. In the first phase, 15-20 doctors, 24 nurses, 48 healthcare professionals, one laboratory technician and two managers were planned to work. In the second phase, it was determined to maximize the use of beds and increase the number of healthcare professionals. These were determined as 40 doctors, 90 nurses, 200 social and health workers, as well as laboratory technicians and managers.

This hospital is not expected to be short-term because it is also planned to store anti-covid vaccine in this area. President of the Region Alberto Cirio said that this temporary hospital will continue to operate until the region is completely recovered from the pandemic. (Gennaro 2020) The cost of setting up the hospital was 1.5 million euros and was granted by the Intesa San Paolo charity fund.

Fig. 52 Valentino Temporary Hospital

Photographer: A. Di Marco/Ansa
Source:Corriere Torino

7 - CURA Pod

Designers: *Carlo Ratti Associati with Italo Rota, engineers at Jacobs, and health technology company Philips*
Year: *2020*
New Design Solution: *Temporary Hospital /2020*
Location: *Former OGR Industrial Complex / Turin*

CURA ('Connected Units for Respiratory Ailments' and also 'Cure' in latin)
The purpose of the CURA design is to expand the emergency facilities in the city and reduce the pressure in the healthcare sector due to the increasing covid-19 patients. The first CURA pod has been installed on April 19th, 2020 within the temporary hospital framework in the former OGR (Officine Grandi Riparazioni) industrial complex in Turin (Carlo Ratti Associati 2020).

Fig. 53 CURA pod at the OGR temporary hospital in Turin

Photographer: Tomasinelli, Max
Source:Carlo Ratti Associati

Fig. 54 CURA pod in Turin

Photographer: Tomasinelli, Max
Source:Carlo Ratti Associati

CURA provides intensive care units with approximately 90 beds in the hospital for coronavirus patients. The pod is designed to contain all the equipment that may be needed for two intensive care patients. The unit is connected to the entire hospital with an inflatable structure that serves as storage and changing room. The inflatable unit can be used to connect more than one pod to each other. It is possible for a nearby hospital or to create a stand-alone field hospital (Carlo Ratti Associati 2020).

CURA was designed in four weeks, among the others, designers at Carlo Ratti Associati with Italo Rota, engineers from Jacobs and health technology company Philips for medical equipment supply. In addition, CURA was developed as an open-source project to provide the purpose of testing new methods. The technical specifications, drawings and design materials of this project, which allows international design cooperation, are published on the website in a way that everyone can access. Thus, more than 2000 people contacted the CURA team to make suggestions on technical issues and contributed to the development of the project.

Through the glass windows opening on both sides of the pods, doctors can quickly get a sense of the condition of the patients inside the pods. In addition, it was aimed to create a healthier and safer environment for patient relatives due to the pandemic. Thanks to the independent operation of each pod, it can be adapted according to the need and can be used in any location in the world.

Fig. 55 CURA pod in Turin

Photographer: Tomasinelli, Max
Source:Carlo Ratti Associati

Fig. 56 CURA pod in Turin

Photographer: Tomasinelli, Max
Source:Carlo Ratti Associati

Chapter 2:
City of Turin

"Turin is a beautiful city. Its space goes beyond anything that has ever been imagined before."

-Mark Twain
(American Writer)

Fig. 57 Torino - The National Museum of Cinema

Photographer: Joris Visser @Unsplash

Background

Turin is a former industrial city and the capital of Piemonte. The Region of Piemonte is one of Italy's richest regions and recognized for its fertile lands. Turin is located in the Piemonte region of North-West Italy, South of the Western Alps on the plains of the river Po It is Italy's fourth-largest city and has a population of 872,316 and covers an area of 130 km2, with a population density of 6,248 persons per km2 (ISTAT 2019). Turin has European-humid subtropical climate (Köppen: Cfa). According to this classification, the climate in Turin is warm and temperate. There is significant rainfall during the year, even in the driest month (Dell'Anna, et al. 2019).

[1]**Cfa:** *C - warm temperature, f - fully humid, a - hot summer*

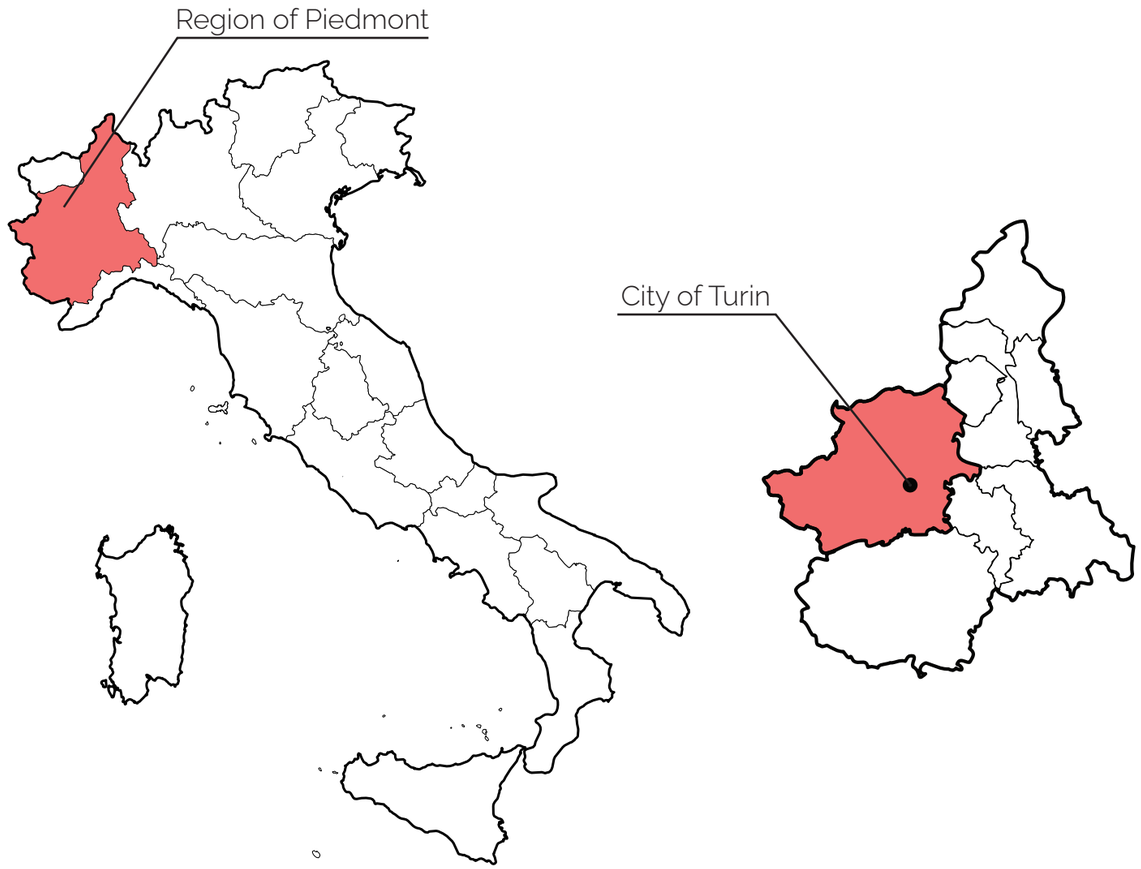


Fig. 58 Map of Italy
Left Image: Map of Italy showing the location of the Piedmont Region.
Right Image: Map of the Piedmont Region showing the location of the Metropolitan City of Turin and the City of Turin

Throughout its long history from the roman ages to the present day, the city of Turin has been through countless changes. It has become the capital of Italy, then the biggest industrial city of Italy, and seen a vast flow of immigration, been through several economic crises, and finally managed to become a city of culture and tourists.

Fig. 59 Torino Pizza Vittorio

Source: Splitshire

To be able to understand Turin's urban development and environmental context, we first need to examine the two major factors that affected its developmenwt. The first of these is that the central city that we see today was improved from the mid-1500s to the 1800s. While developing the city, they tried to improve the infrastructure while maintaining the Baroque style and adapting this historical character to modern challenges. Secondly, the reason why the city developed in the 20th century and expanded towards the city limits we know it today is the centrality of the industry. Turin has a strong background in industrialism and due to this a history of vast immigration. Turin is an underrated city due to its strong industrial background. For most of its industrial history, the city of Turin was dominated by the well-known car industry, Fiat. Turin experienced a period of intensified economic, population, and physical growth from the early 20th century to the 1970s, and the city quickly began to urbanize to accommodate industrial growth and a large flow of immigration from southern Italy.

Through the 19th century, Turin's industries began to thrive. In the mid-19th century, the government of the Piemonte region started to work to increase economic development and encourage private investment in the region. This has resulted in the creation of the extensive railway network system. City's early industries made it a rich city. Its early implementation of a railway system also benefits the city to grow as an industrial city. In 1861 Turin became the capital of united Italy and the Italian reunification movement. It stayed as a capital for 3 years, then the capital moved to Florence and Turin had to make up for the status, investment, and functions loss. With the problem of unemplWoyment the population of the city fell and the city leaders, private and public sectors collaborated to rebuild the city's reputation and economy on a strong industrial base.

Today Turin is known for its technological advancement, design and manufacturing businesses, engineering legacy, higher-education quality, and cultural heritage, and growing tourism industry. Turin has an extensive infrastructure system with an international airport, and a high-speed railway system connecting the city with Milan, Turin, and other regions of Italy.

Fig. 60 Piazza Castello - Torino

Source: Wikiloc

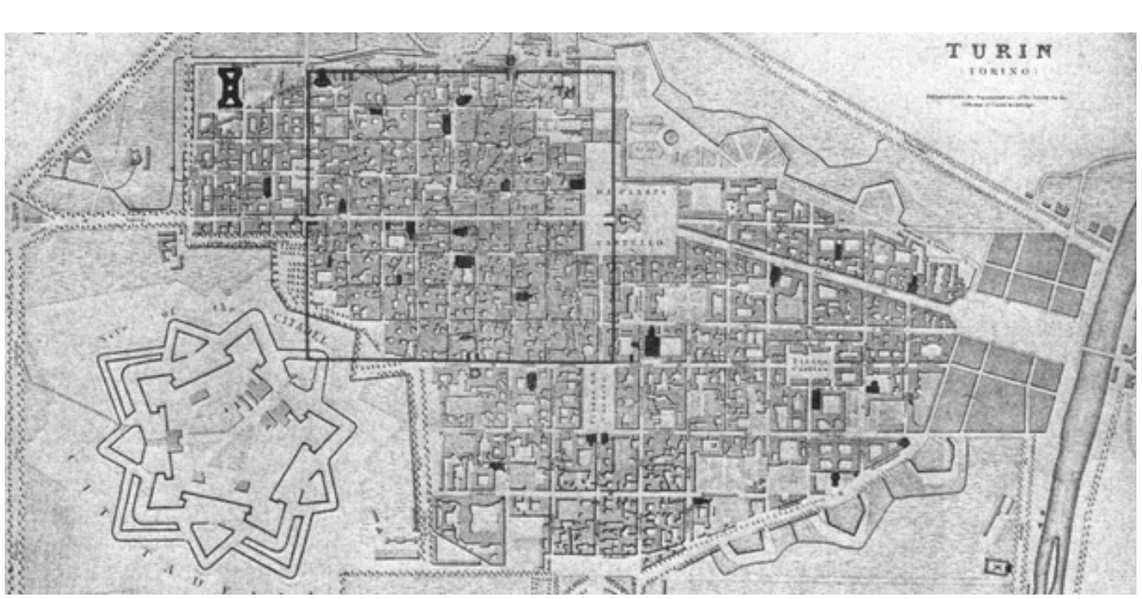
History

Early Urban Planning History

Turin's urban history dates back to the Roman ages. Even when we examine the layout of the city center today, we can observe the remains of the Roman grid system. Augustus found the early colony to pacify the Alps during the military and diplomatic operations around 25 B.C. The city was built with an orthogonal layout scheme and a wall as a sign of a new structured urban life. However, the implementation of the architectural and urban planning project was a long and complex process. It involved the construction of the city gates, a simple structure for a theater, and few houses, which were probably in wood and earth.

Fig. 61 - The old Roman city layout in Turin (Italy) , 1844

Source: Marten Kuilman @Flickr



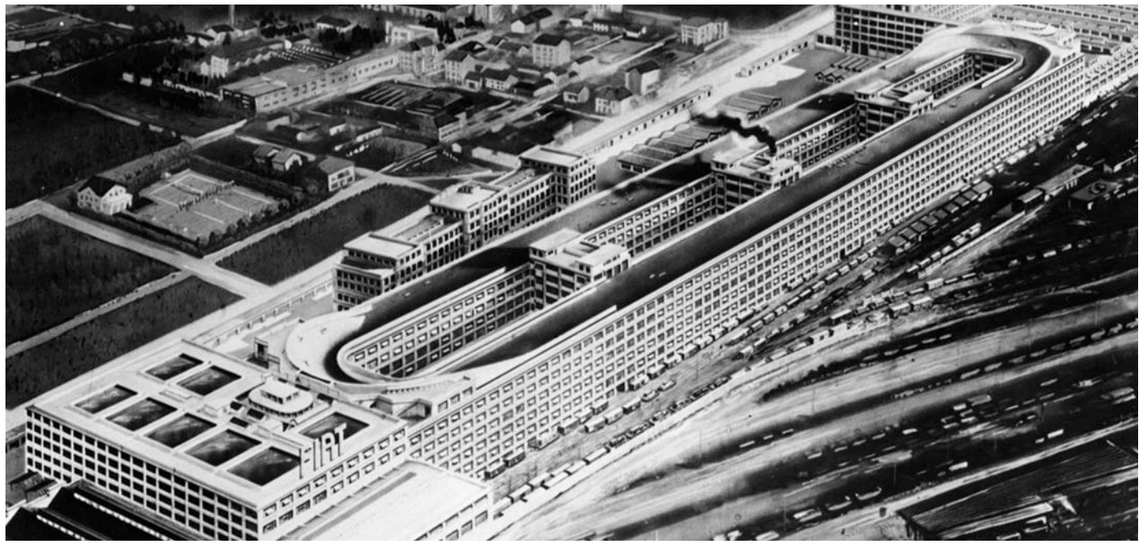
The city of Turin is located in a strategical position, at the foot of Alpine passes that leads to Central and Western Europe with a crossing over the river Po. This has long been the reason for the city to come into existence. Its straight roads with a geometrical grid are evidence of Roman military camps.

Industrial and Economic Growth

For over a hundred years Turin was the most important industrial city in Italy. Turin lost its role as the capital that they won for their strategic position in the unification of Italy in 1861, to Florence four years later. For this reason, Turin lost its political status as well as many wealthy families with a political orientation. This situation caused the city to enter a difficult period in terms of the economy and forced the city to create a new image.

Fig. 62 FIAT Lingotto Factory, 1916

Source: FIAT



A vast transformation has been underway since the beginning of the 1880s with the beginning of the industrial revolution. The city gained experience in the field of industrial design and engineering, which has contributed to generate a new and fertile environment. Due to their local engineering skills, they focused on developing the automobile industry. In 1899, local investors and entrepreneurs combined their resources to establish Fabbrica Italiana Automobili Turin (FIAT) (Power 2016).

The auto industry was at a pivotal point in Turin's industrial boom, and by 1911, the automobile industry employed a third of the city's extending work force (Winkler 2007). FIAT quickly became a leader in this field, and in 1914 the company was producing parts for ships, airplanes, trucks, and trains, as well as half the cars in Italy.

Fig. 63 FIAT Cars, 1957

Source: FIAT

CEO Giovanni Agnelli quickly expanded Fiat by combining his local engineering knowledge and opinions that he received during visits to Henry Ford's factories in Detroit. Turin has been regarded as a typical industry-town. It has been seen as the Italian equivalent of Detroit (Pizzolato 2013). Inspired by Henry Ford's Detroit model, the factory caused the city's population to grow by about 50 percent over the next 15 years, while the working population in Fiat factories increased fivefold and people were stuck in slums (Vanolo 2015). Most of the first immigrants came from the countryside surrounding Turin, but after the Second World War, the immigrants came mainly from Southern Italy and Sicily (Power 2016).

Crisis and Rebirth

The presence of FIAT has been a major factor for the city to become a key industrialization site for Italy in the past century. Turin is seen as the classic Italian Fordist city. Therefore with the crisis of Fordism, in the last decade, local institutions started to diversify the city's economic industries through the embracement of a culturally strong approach to urban regeneration.

With the beginning of the Fordist crisis in the 1970s, local economic shock struck Turin. The crisis forced the city to a large industrial reorganization of FIAT and a change of industrial relations, both ob national and international levels. These transformations have had immense effects on Turin. The population growth stopped, and the service sector's popularity started to rise. The city continued to remain an industrial city, but the city became a part of a wider productive system. Industrial relations were not limited to the metropolitan area.

Fig. 64 Strike at Fiat's Mirafiori factory

Source: Winkler, Astrid 2007

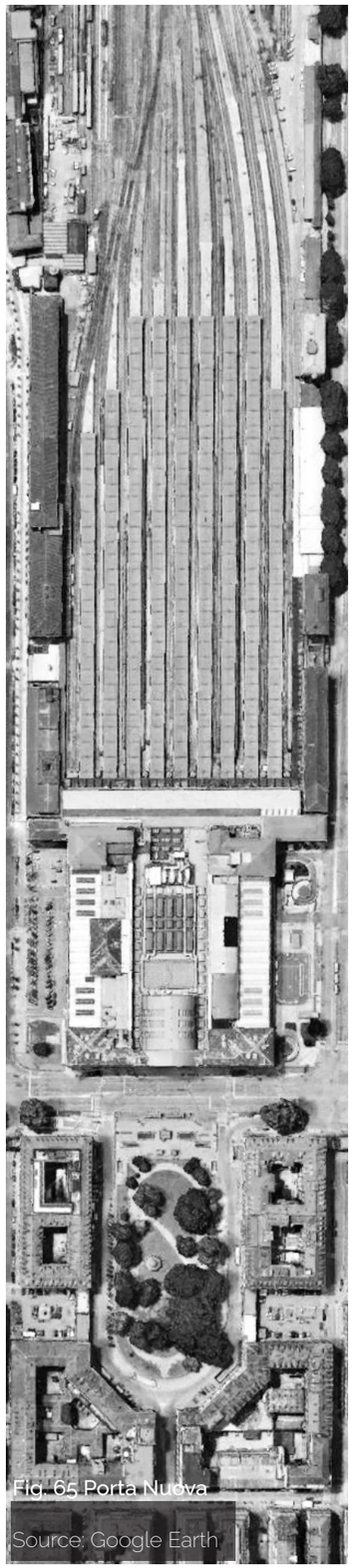


Fig. 65 Porta Nuova

Source: Google Earth

Urban Masterplan

The Piano Regolatore Generale (PRG), the main urban planning document that allows municipalities to regulate land use for a ten-year term, enabled Turin to enter a major transformation development process. Torino's last approved urban master plan was in 1959 and approval of the new one was continually delayed because of the absence of political agreement, so Torino did not have an urban master plan for a long time.

One of the biggest problems of the city was the disused large industrial zones formed as a result of the industrial crisis. The strategic location of these areas was also very significant for both workers and factories. Industrial areas were located around the railway that divides the city from North to South and working-class neighborhoods are formed around these parts of the city. Demand for petrol-based cars declined as the oil crisis of the early 1970s affected energy prices. Fiat had to lay off 30,000 workers by 1980 due to a decline in manufacturing jobs, and the situation got worse and 50,000 more lost their jobs in 1990 (Power, 2016). With the loss of jobs and the decline in manufacturing jobs, people moved to the suburbs, where homes were more affordable. Large abandoned industrial areas emerged with the massive increase in production prices and the deterioration of conditions. There were connectivity problems in some parts of the city with the lack of an urban planning strategy.

In 1993, Valentino Castellani became the first elected mayor of Turin. He quickly started the processes to transform the city and started the work on a masterplan. In the master plan approved by the new administration in 1995, they wanted to ensure the renewal of the city by re-zoning industrial lands within the framework of the city's guidelines for land use.

Firstly, these disused areas were determined (Fig. 44) and ZUT[1] (Zone Urbane di Transformazione), and ATS[2] (Aree per Terziario e Servizi) were prepared to determine how this would be transformed. the northern and southern areas of the city.This identification process was especially important for the transformation of the city to determine the areas that are problematic, unused or needed improvement. It was aimed to unify the city by transforming all these areas into mixed-use neighborhoods. This new redeveloped area should be supported by improvements of infrastructure and modern public transportation systems for a well-connected city. Castellani, aimed to create a denser city by reducing traffic and air pollution while providing a single infrastructure to the northern and southern areas of the city.

[1]**ZUT:** Urban zones of transformation
[2]**ATS:** Areas for the Tertiary Sector and Services

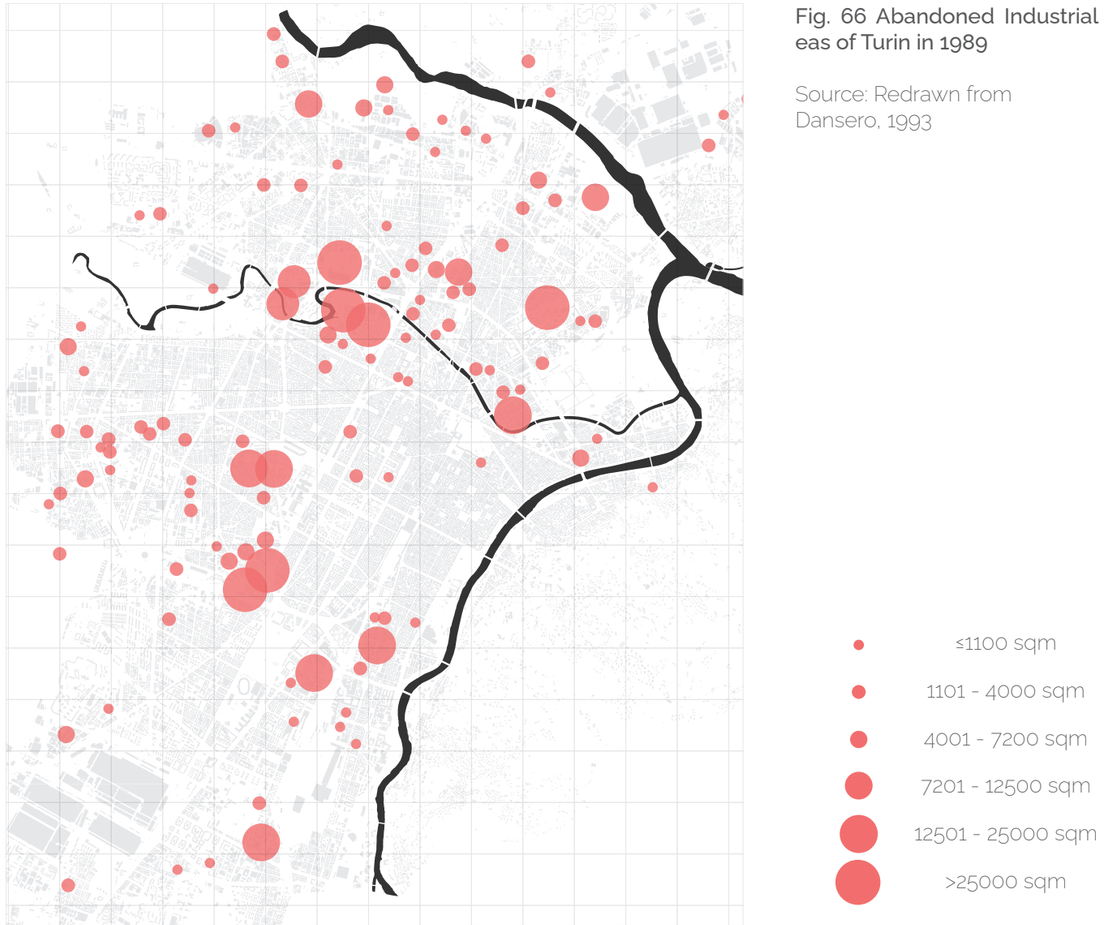


Fig. 66 Abandoned Industrial Areas of Turin in 1989

Source: Redrawn from Dansero, 1993

In order to organize the city's infrastructure, it was decided to increase fourfold its capacity with the burying of the central railway and to transform the area into a 12 km, the six-lane road to the city center. This route, connected to the city's main industrial zones, is described as Torino's new 'Central Spine' (Spina Centrale). Along the central spine of the city, four main zones have been proposed for a redevelopment to be built a mixed-use neighborhood. These mixed-use areas are planned with half of the area as residential and other half containing parks and commercial activities. For the sake of connecting these abandoned areas to the urban environment, Torino's first metro line (15 km) was completed, thus connecting the old industrial areas in the North and South to the main transport network.

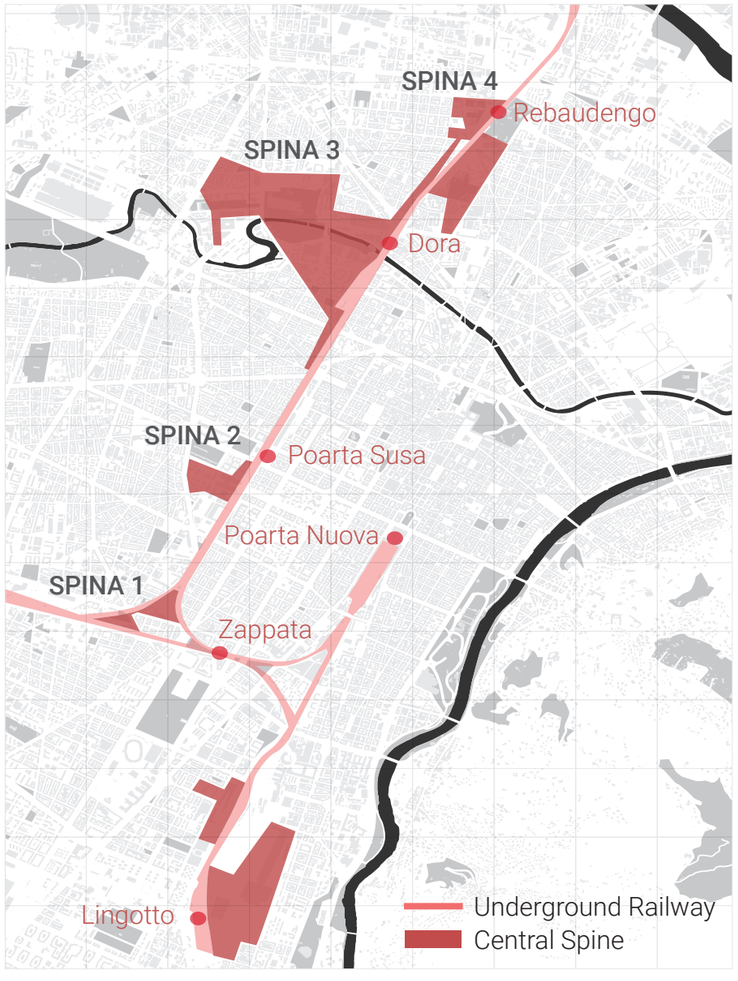


Fig. 67 Central Spine of Torino (Spina Centrale) and Underground Railway (Passante Ferroviraio)

Source: Redrawn from Winkler, 2007

Winter Olympic Games

Turin applied to become the city to host the 2006 Winter Olympic Games and one year after the Strategic Plan debate of Turin, the city was awarded the 2006 Winter Olympic Games. This was a unique opportunity for the city after the debate of the Strategic Plan as they were looking for a tourism strategy. The Olympic games become essential for the Strategic Plan's tourism strategy. They got a chance to promote the city to increase its attractiveness for the tourist and potentially transform the city into a cultural and touristic city, putting behind its previous industrial city image. They promoted Turin's transformation from an industrial city to a 'post-industrial', cultural, a touristic city internationally and locally. Locals were an important aspect of the transformation of the city if they wanted to accomplish a successful transformation. Before this event, locals never thought of Turin as a tourist destination, but the Olympic Games gave them hope and brought them together, and gave them a reason to be proud of their city.

This was a decisive event in the evolution of Turin's economy. After the awarding of the Olympic Games in 1998, Turin wanted to show the world its new image and launched a branding campaign to show that the city was no longer an industrial city, and is now a dynamic, cultural city. They quickly start transformation projects all through-out the city. They built new infrastructures such as the metro line. This was an important step in the history of the city as the seen is seen by many as the city of cars. They constructed new buildings designed by famous architects and improved the cultural infrastructure of the city by building new local museums and organizing events and public art installations.

Global Crisis of 2007-08

After the implementation of the strategic plan done in the 90s with the efforts to transform the city into a more attractive, dynamic, socially, and environmentally governed city, saving it from its prior industrial Fordist image, the city got stuck with a new global economic crisis of 2007-08. With the crisis, the unemployment rate increased immensely hitting 11.4% in 2016 and 46.4% among young people. Both the building and industrial sectors got struck and there was a loss of around 20,000 jobs in the industrial sector and 5,000 in the building sector. Compared to other Italian regions, Piemonte lost more jobs and the city of Turin was gravely affected. The reason being for Turin to be affected so badly was the large investment loans they received from the European Investment Bank for the renewal of the infrastructure in the city to improve its image for the Winter Olympic Games. In other words, Turin's actions to transform the city into a more attractive, cultural environment by reclamation of the former industrial areas and the burying of the railway lines backfired with the hit of a global economic crisis. This can be merely seen as a timing error by the municipality of Turin and with a rush to transform the city for the Winter Olympic Games, they had to receive large loans to accomplish their goals for the city. This way Turin was under a large burden of debt.

Fig. 68 Via Roma, Turin
Source: Atlante di Torino

Analysis

Overview

"Torino is a city that can surprise the world."
- New York Times

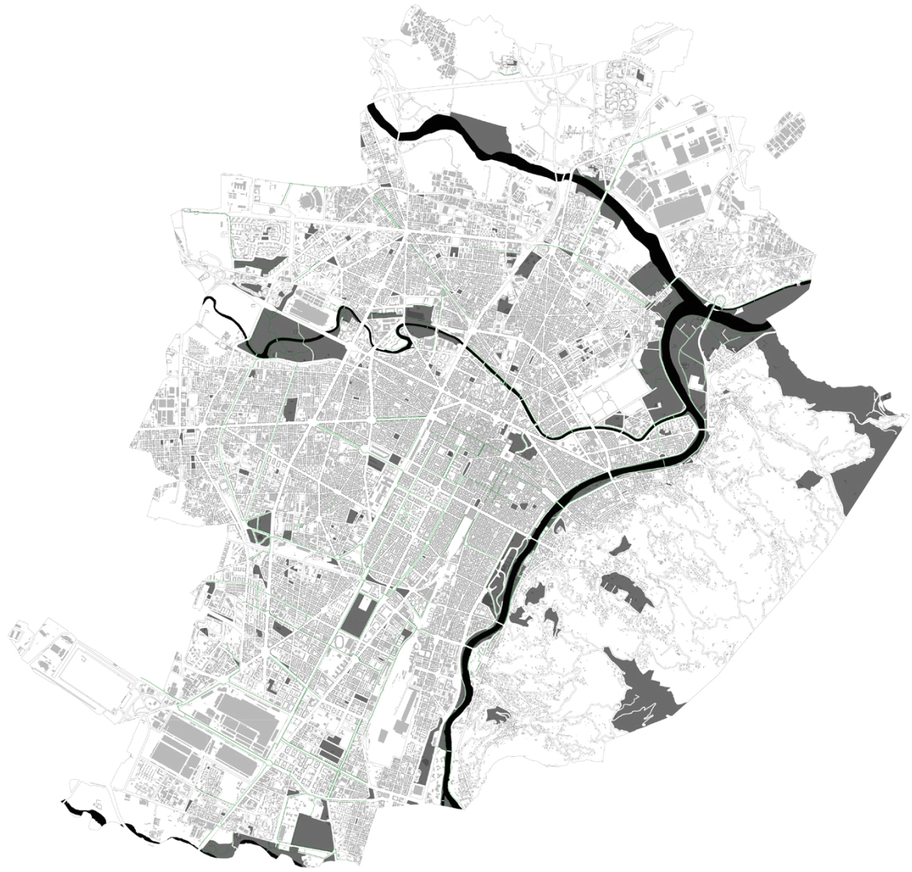
Although there have been losses when we examine the transformations in Turin's historical past, today's identity of the city has strengthened thanks to these. Turin, a cultural and commercial city today, is the point of interaction for many people. According to the 2020 data, the city population of Turin is 870,952 and the metropolitan level is 1,792,163 (ISTAT 2020). Turin has reduced its population loss due to the financial crisis to almost zero. Thanks to the great development of the city, it has been able to stabilize the population to around 900,000 in the last 10 years. The great level of tourism is also an example for us to understand how much the city has developed.

While developing the city, they have always preserved the unique texture of the city. The road structure of the city is based on the grid system of the camps of the ancient Roman camps. As the city expanded from year to year, new problems arose that they had to deal with. While trying to solve these problems, they aimed to create a self-sustaining city by creating more livable urban areas and neighborhoods in the long term by giving importance to sustainable solutions. The City of Turin was included in the smart city project in 2011, with the Smart Cities and Communities initiative launched by the European Commission. In this context, Turin started an initiative called SMILE. This project focuses on 5 main points: Smart Mobility, Inclusion, Life & Health, and Energy. Turin became a candidate to become a "smart city". A smart city that respects the environment, reduces energy consumption in buildings, promotes sustainable mobility, and improves citizen's quality of life. Torino SMILE involves local stakeholders such as PoliTo and its goals include designing a model of development that is social, economic, and credible.

Turin has developed the city's infrastructure to increase the city's mobility and green spaces to reduce CO_2 emissions and improve public spaces. Turin's work on this issue is progressing positively. Turin's has reduced CO_2 emissions by 44.52%, from 6.27 million tons in 1991 to 3.48 million tons in 2017. Turin's medium-term goal is to reduce CO_2 emissions by 60% and achieve net carbon neutrality in the long term (Turin European Green Capital 2022 2019).

To understand these studies of the city more clearly, it is necessary to examine urban mobility, green infrastructure starting from the city expansion. In addition, the Covid-19 pandemic that emerged in December 2019 is also expected to affect the urban design. The situation of the city from the past to the present and its future goals will be examined, and solutions will be proposed in the next chapter, considering the situation of Turin in the Covid-19 pandemic.

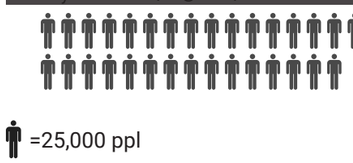
Fig. 69 City Texture of Turin



Post Pandemic Osi-Ghia

Industrial Growth

Year: 1950
Population:
Metropolitan Level: 1,010,676
City Level: 725,667



=25,000 ppl

In 1950s Fiat, which produced 95% of the cars in post-war Italy, increased its workforce by double. This industrial growth caused an economic boom in the city. Thus, the creation of a large number of job opportunities, This caused the start of high migration flow to the city level. The population of the city started to increase significantly after these years.

Year: 1980
Population:
Metropolitan Level: 1,860,498
City Level: 1,117,154

Industrial Crisis

The population of the city reached its peak in the 1980s. The oil crisis of the early 1970s led to a decline in demand for petrol-based cars. With the loss of jobs and the decline in manufacturing jobs, people moved to the suburbs. Thus, it caused a massive population reduction at the city level.

Transformation of the City

Year: 2000
Population:
Metropolitan Level: 1,694,198
City Level: 864.671

With the approval of the 1995 Urban Master Plan, the city has entered a process of transformation. This ensured the stabilization of the variable population ratio in the city level.

Year: 2019
Population:
Metropolitan Level: 1,792,163
City Level: 872.316

Today

The city has been transformed into a cultural city and tourism became one of its most successful sectors. Thanks to the great development of the city, it has been able to stabilize the population.

Covid-19 Pandemic

City Expansion

In 1861, Turin became the first capital of united Italy. At that time Turin was consisted of only the city center as we know it right now. Turin had a growing reputation and status and with it becoming a capital its status grow even more but several years after the unification of Italy, Turin lost the capital status to Florence. Which led to Turin losing its reputation for sometime.

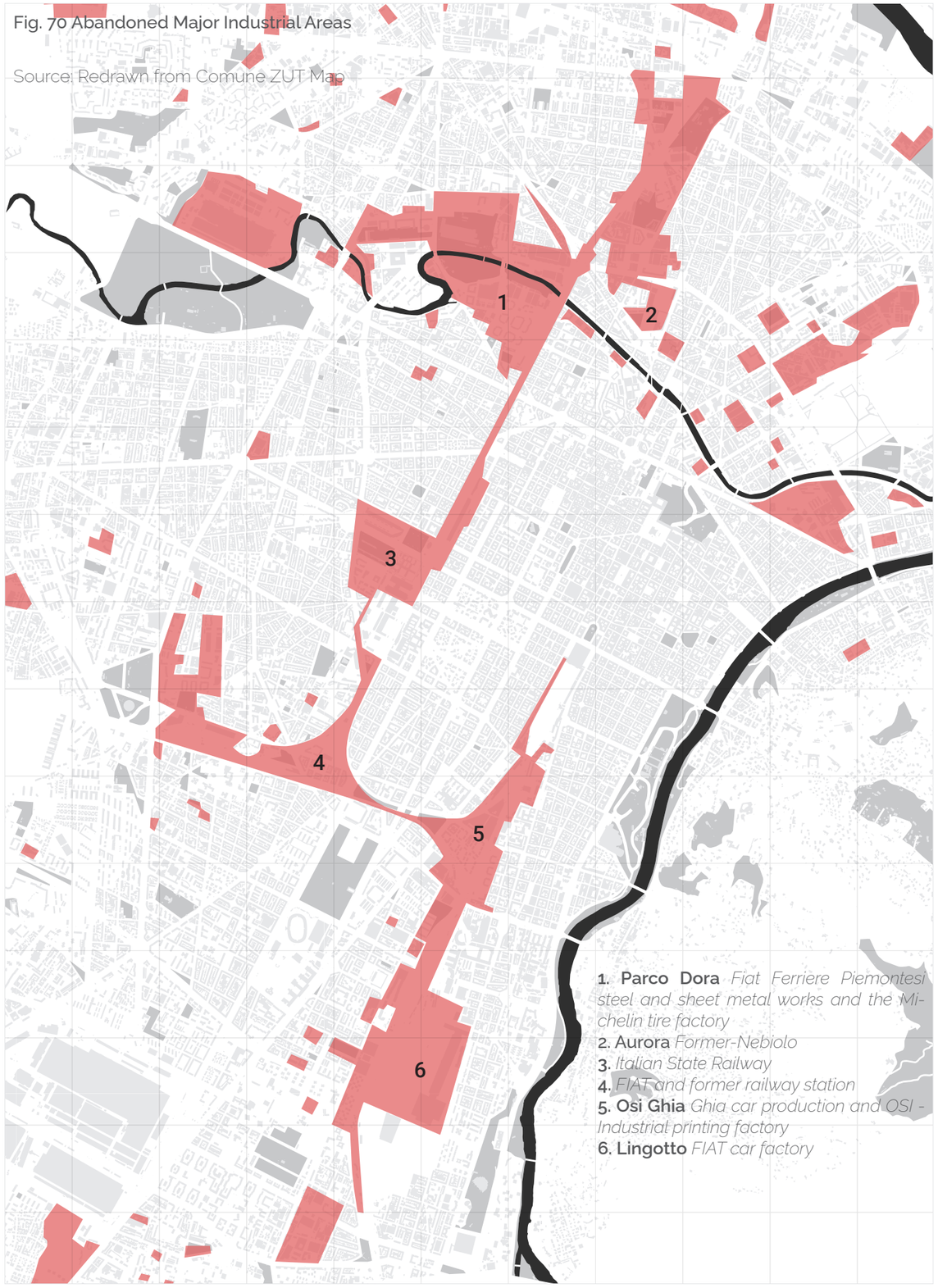
The industrial growth started in the late-19th century created an economic boom in the city. Thus creating a lot of job opportunities, causing high inflow of immigration to the city. The city adopted the Fordist movement of Henry Ford and transformed the city into an industrial city and based its economy highly onto manufacturing businesses. Companies built factories and around those factories residential areas for the workers have been built. This inflow of immigration and the increase in the population of the city, the city had to expand.

After the industrialization of the city and the collapse of the Fordist movement, city of Turin had to recreate its immage and with the election of its first elected mayor, Turin started to work on its first urban masterplan. Turin seized a opportunity with the Winter Olympic Games to recreate and image for the city. The city has been transformed into a cultural city and tourisim become one of its most sucessful sector. With this new image Turin regained its reputation causing the city to expand and grow in population.

Post Pandemic Osi-Ghia

Fig. 70 Abandoned Major Industrial Areas

Source: Redrawn from Comune ZUT Map



Urban Mobility

"Transportation infrastructure has played a crucial role in the recent transformation of Turin and its metropolitan area."

-Torino. The Evolving City

[TO]BIKE

[To]BIKE is the bike-sharing service in Torino, chosen in 2013 by about 25,000 Torino inhabitants and visitors as a mode of travel, for a total of usages amounting to over 2 million (with daily peaks of 10,000). The service includes 162 stations located throughout the city and 950 bicycles.

Source: www.tobike.it

B.U.N.E.T.

B.U.N.E.T. (Bike's Urban Network in Torino) is a portal that allows you to quickly calculate and plan your cycling route through a point and click system, through the use of open source technologies (Open Street Map and Open Trip Planner) integrated with the stations' maps of the bike sharing of [TO]BIKE.

Source: www.bunet.torino.it

Turin has expanded its mobility system in the past decade and still working on extending its urban mobility system and promote public transport, as well as bicycles, use an electric car and scooter sharing system to reduce the city's overall CO_2 emissions and create a more sustainable urban environment. The city has an extensive urban mobility system that includes; bus, train, metro, tram, electric mobility, bicycle paths, and pedestrian paths. Turin also has adopted the European Commissions The Sustainable Urban Mobility Plan(PUMS) and has become a forerunner in the area. SUMP promoted a more sustainable transportation system that encourages the creation of people-centric spaces.

The Sustainable Urban Mobility Plan(PUMS) has several goals including;

- Increasing transport services,
- guaranteeing universal accessibility,
- improving air quality,
- ensuring public safety.

The pedestrian walkways in Turin have been expanded and now includes 400,000 sqm of streets and squares, linked with a system of cycling routes expanding over 175 km. One of the objectives of The Sustainable Urban Mobility Plan (Citta di Torino 2019) is to promote the use of public transport. The Municipality of Turin has been working on several projects to promote the use of bicycles in the city as well as improving the bicycle mobility infrastructure in the city. There is Biciplan or Bike Mobility Plan, approved in 2013, is a plan that promotes the use of bikes.

Fig. 71 Turin Mobility System

Mobility System of the city of Turin, Showing the bike routes and bike sharing locations as well as the car sharing locations and metro line with stops.

Source: Redrawn from Citta di Torino

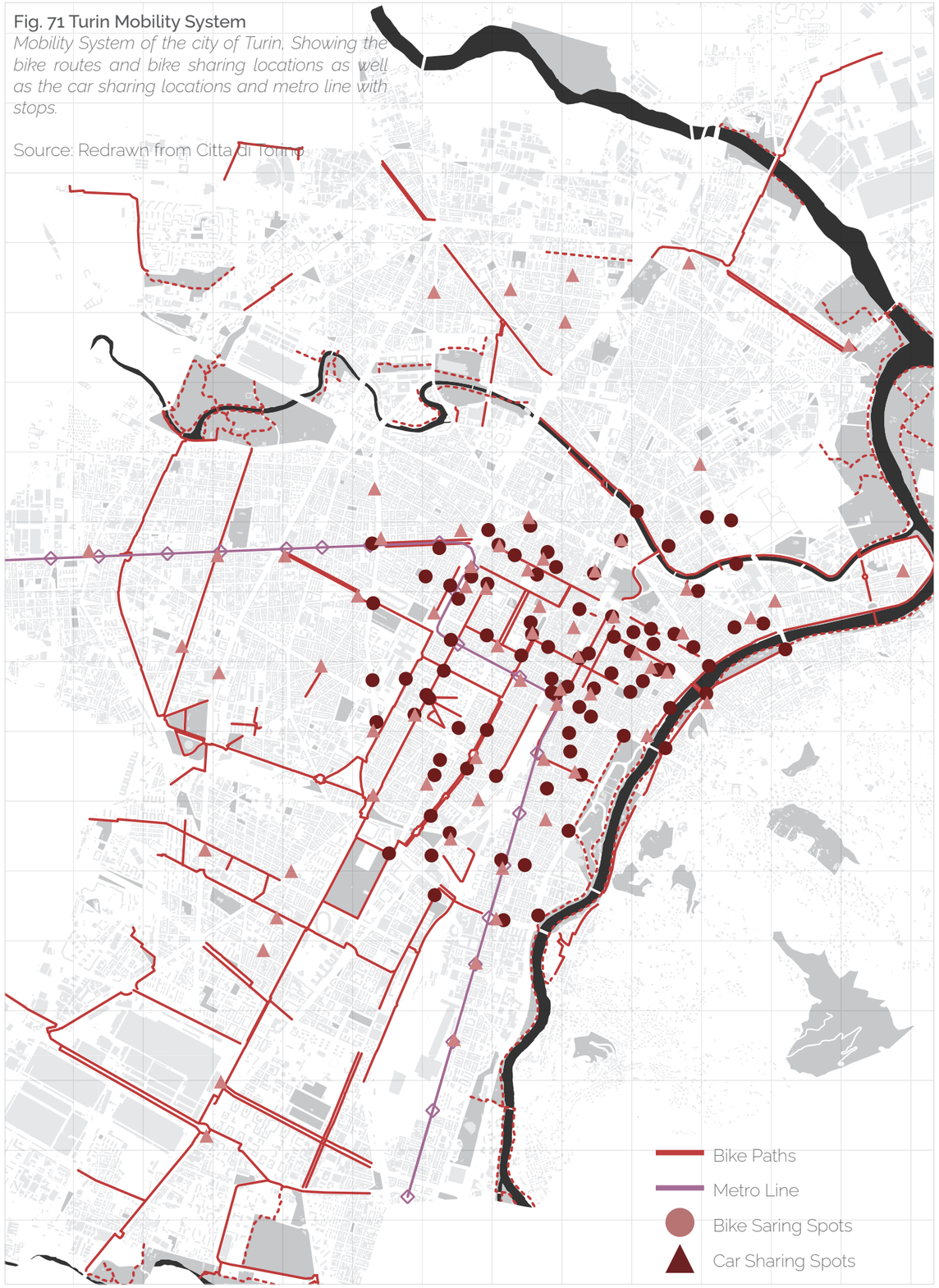


Fig. 72 Turin Metro Station

Source: Angelo L. Montenegro
Architect: Bernard Kohn

Since 28 February 2019, Electric micro-mobility started in Turin, and since that lots of private companies started their business in the city. In the city, the use of these electric scooters is easy with just a registration from the smartphone apps. These scooters are an important step especially for the implementation of a sustainable urban mobility system.

In the past two decades, Turin has been in a transformation period starting with The Master Plan of 1995, and transportation infrastructure has played an important role in this plan. This master plan sets the structuring axis of Turin on a Central Spine. This Central Spine has been created by the burying of the existing railway system and making space and making it possible to connect the city. Before this transformation, the city was cut into two by the railway. Many former industrial areas are also located around this railway system as predicted. These areas are going through a regenerative process since the implementation of the master plan. With this master plan, Turin has started several projects concerning the urban mobility system of the city and the surrounding area and connecting the districts in the city by reorganization by the implementation of different forms of mobility: train, subway, bus, tram, up to bike-sharing and extension of pedestrian areas.

To improve the public transportation system in Turin, a metro line has been implemented and opened in 2006 from Fermi to XVIII Dicembre and then extended to Lingotto. Metro Line 1 is one of the key elements of the program to improve the transportation system. Metro line has plans to further extend its stations up to Benghazi square. This has been an important step to further connect the mobility of the city while promoting the use of public transport thus decreasing the overall CO_2 emissions caused by the vehicles in the city. Turin is dedicated to developing a sustainable city starting with the implementation and development of a sustainable mobility system.

Turin is prioritized on short to medium-length sustainable transformation and building an infrastructure network to support

support public transportation, bike paths, and pedestrian paths to decrease CO_2 emissions in the city and improve public spaces. For the future, Turin is planning to expand its metro system by implanting a second line and redeveloping the former abandoned industrial areas and new public spaces such as; parks and facilities near public transport nodes to effectively improve the quality and reduce the use of private transformation methods. The Metropolitan Railway System (SFM) has already realized some of its reorganization plans of the railway system by upgrading the nodes.

Fig. 73 Tram in the city center of Turin

Source: Italy Magazine

For the past decade, Turin has been working to improve its urban mobility network and create a new sustainable urban mobility system and promote a more public-centric transportation system to reduce CO_2 emissions. Over the years to achieve a more sustainable city Turin has implemented alternative transportation methods such as bikes, electric cars, and scooter sharing to decrease the use of private vehicles in the city. They have been also working to improve the connections of the districts in the city to increase the efficiency of the mobility system. Turin has realized some of its plans and still working to further improve its mobility system.

Green Infrastructure

Turin has given great importance to green infrastructure in order to increase the quality of life and adapt to climate changes for the long term. Green areas, which play a very important role in the integration of people in the city, have many benefits in terms of the social, economic, and tourism sectors. While they are ideal places for social meeting zones, cultural events, they also increase the value of that area in economic terms. Despite its former image as an industrial city, today Turin is one of Italy's most green cities with its public and private green spaces. There are larger green areas along the riverside of the city that provide recreational areas such as jogging, walking, cycling. The green infrastructure forms approximately 35% of Turin's total area. (Fig. 52)

The green infrastructure of the city is based on large parks and green spaces from the baroque period. The total green areas of the city showed a positive increase in line with the needs of the residents during the development of the city. Especially in the 1990s, while the abandoned industrial areas were redeveloped, increasing the green areas was one of the main objectives. When we examine the green space statistics of Turin today, 93% of the city population has a recreational green area that can be reached from a maximum distance of 300 meters. Turin's green space goal is to increase this rate to 100% in 2030. Another objective of the city is to further develop green infrastructure for areas at high risk of urban heat island effect and local flood events (Turin European Green Capital 2022 2019).

Post Pandemic Osi-Ghia

Fig. 74 Green Infrastructre of the City

Source: EGCA Turin 2022, 2019

COVID-19 in Italy & Turin

Start and spread of Covid in Italy

First Covid case reported in Italy was in Rome. 2 Chinese tourists were hospitalized in Rome and governments response to these cases were rapid. Government stopped flights from and to China and declared a state of emergency on 31 January 2020. This was before WHO announced that Covid-19 a pandemic. In February first secondary transmission case was identified in Lombardy region. Governments Response for it came in 8 March 2020 and put Northern Italian regions into quarantine and restricted regional movements (BBC 2020). On 9 March 2020 one day after the Northern Italy restrictions, governments rapidly decided to implement a national lockdown and restricted general movements except for health and work reasons. 2 days after on 11 March 2020 all commercial activities has been stopped except for the necessary ones such as markets and pharmacy (Eric Sylvers 2020). Followed by the closing of non-essential businesses and industries. Although Italy has responded quickly responded the pandemic and resulted in a decrease in case numbers, early removal of restrictions resulted in a second wave of pandemic in October 2020 and Government has been forced to reimplement the severe restrictions that caused Italian citizens to protest the measurements.

As a response and better manage all the different regions in Italy government came up with a three-tier system that divided the regions by risk level. Risk levels have been divided into red, orange and yellow zones, respectively with a decreasing risk order (John Follain 2020).

Yellow Zones
Curfew from 10 p.m. to 5 a.m.
Museums, betting shops, gyms, swimming pools closed
Restaurants and bars close at 6 p.m.
Schools open; online classes for grade 9 and above

Orange Zones (medium risk)
All yellow-zone curbs
No travel outside region except for work, health, emergencies
Bars and restaurants closed

Red Zones (high risk)
All orange-zone curbs
No travel outside own city except for work, health, emergencies
All shops closed except for food, pharmacies, essentials
Online classes for grade 7 and above

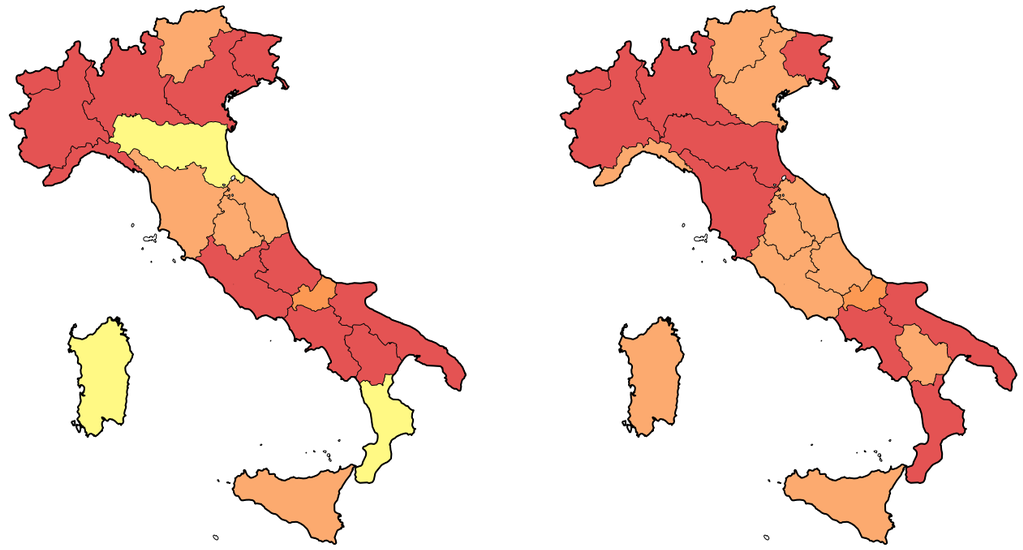


Fig. 75 Italy Covid-19 measurements tier color by region on 24 November 2020 (Left) in comparison with 8 April 2021 (Right)

Source: Italian Government

Fig. 76 Turin during the the Phase 1 after the lockdown COVID-19

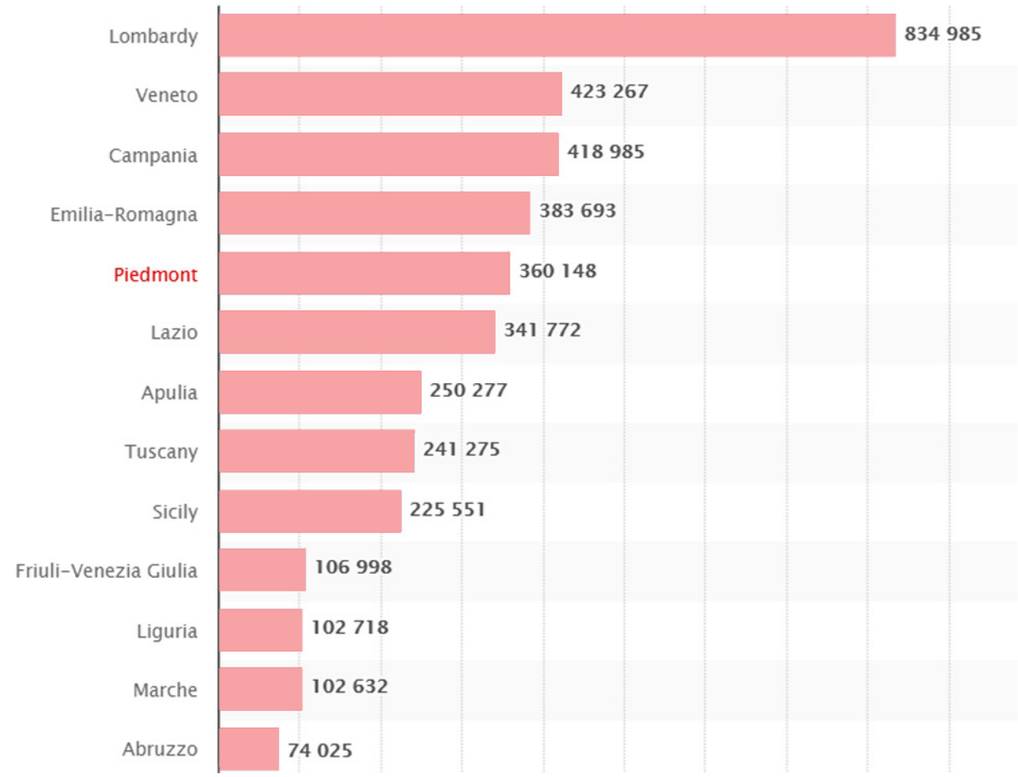
Photographer : Elisabetta Riccio

Although Lombardia is the region with the highest percentage of cases according to the swab tests applied, Piemonte follows it with a high number. On May 30, 2021, the total number of cases was recorded as 360 148 in Piedmont. The total number of cases in Turin is 193 236 (Statista 2021). Although great efforts have been made to reduce the increase in the number of cases, it has been one of the most affected regions of Northern Italy during the pandemic period.

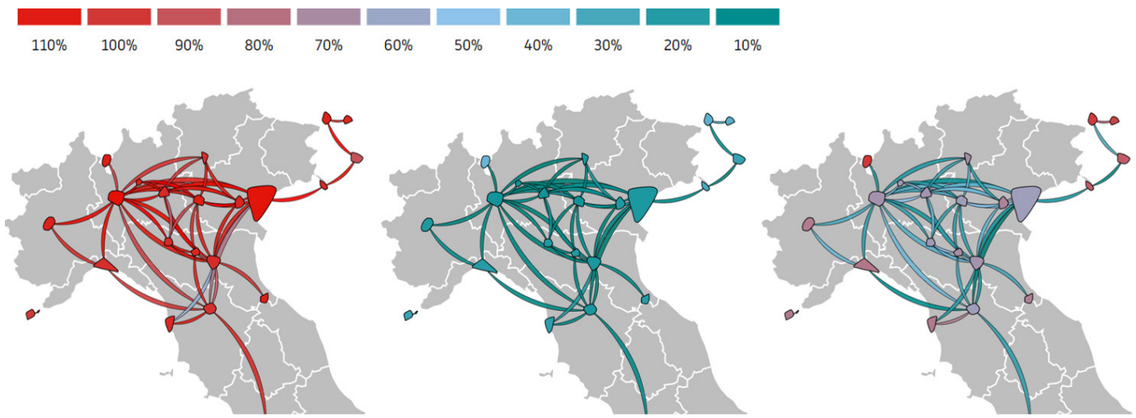
Intensive Care Units are of great importance for health systems, especially in this severe pandemic. Piemonte has more than doubled the intensive care units. During the pandemic, 500 more were added to the number of intensive care units, which was normally 327 (Rubino 2020). In addition, temporary hospitals were set up in various parts of the city, and the CURA Pods project, on which Carlo Ratti and a large team worked, was installed inside a temporary hospital in Turin for the first time. It is examined in more detail in the Case Study section.

Fig. 77 COVID-19 cases in Italy as of May 30, 2021, by region

Source: Statistica, 2021



The pandemic period has also caused a decrease in inter-city and intra-city traffic density. The map below shows the traffic activity of the selected weeks based on January traffic levels. The lower the percentage value shows the lower the traffic activity. When we examine the percentage of traffic in Turin after the pandemic, it has never reached its first level, although some periods are quite low and some periods are high.



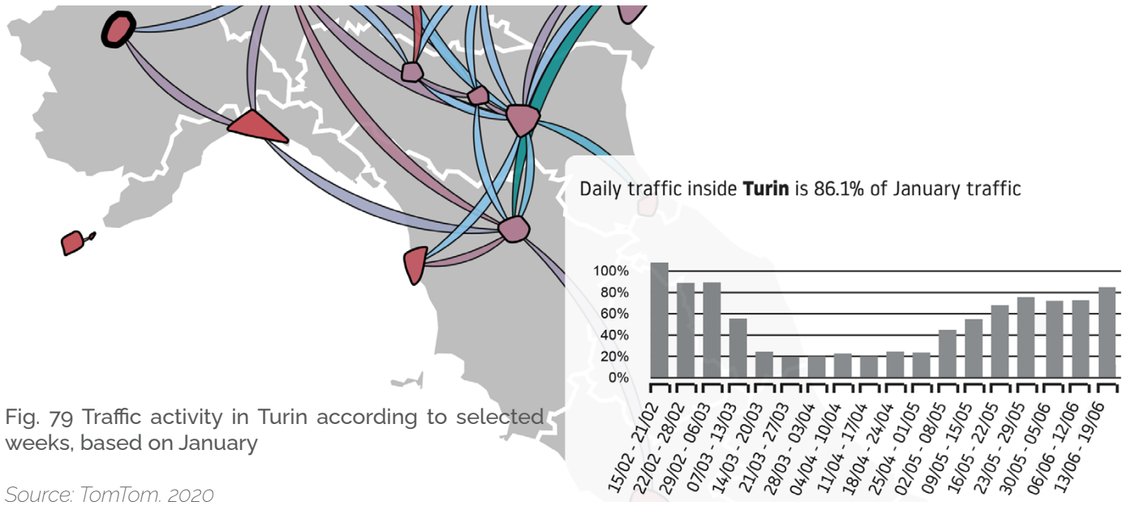


Fig. 78 Traffic activity in the selected weeks based on percentage of January 2020 traffic

Source: Rubino, Lorenzo, 2020

Fig. 79 Traffic activity in Turin according to selected weeks, based on January

Source: TomTom. 2020

Fig. 80 Cycling in Turin during coronavirus restrictions

Source: Local.it
Photograph: Miguel Medina/AFP

The north of Italy is one of the most populated area in Europe. It has also suffered severely by the Covid-19 pandemic. Since the start of the pandemic, Italy has gone into several nationwide lockdown, resulting car mobility to decrease by approx. 60%. This decrease in car mobility has helped the air pollution to decrease. After the pandemic, governments fear that the public transportation use will be decreased and people will stay away from enclosed spaces. With this reduced car mobility in place Italian government wanted to seize this opportunity by improving the bicycle and pedestrian mobility to prevent the increase in private motorized mobility. (Pechin 2020)

Northern Italian cities, where the Italian air pollution peak, such as Milan and Turin, announced their plans on improving bicycle and pedestrian mobility. As of now Torino has high number of car sharing, bike sharing and electrical scooter sharing. Torino is looking to increase the bicycle paths from 190km to 310km by investing in them.

Pandemic in Turin

While the Covid-19 pandemic has created permanent marks all over the world, it has deeply affected the city of Turin in this duration. Turin has gone into lockdowns and curfews that lasted for almost 5 months and people tried to adapt their daily lives according to this situation. During this period, priorities of the city changed and the use of urban areas underwent a transformation.

While there was a socially difficult period during the curfew, people tried to give each other moral support from balconies and windows. At the end of this difficult period, people were very far away from the idea of going enclosed spaces. People mostly started to spend time in green areas in parks and to feel good by walking as alone or two people. The use of public transport has also decreased, people no longer want to go to crowded places unless necessary. This led them to use more walking or cycling.

People's daily activities have also changed a lot. People started to work remotely, restaurants have been closed and only did deliveries. The arrangement of the closed areas also had to be changed, it was not possible to use them as before. Restaurants, markets started to decrease their customers intake indoors and started to check customers' temperatures and put sterilization gels in front of the entrances. They also had to transfer their cultural needs to more online environments. Education and working life were also carried out with online applications and continued quite successfully. Before this period happens, online meetings wouldn't be attractive, but now they have become a part of our lives.

Post Pandemic Osi-Ghia

Fig. 81 "Eco" sculpture in Turin during the second lockdown

Source: Nextjournal - David Schmudde

Fig. 82 Turin in Covid-19 restrictions

Photograph: David Salamanca @Unsplash

Post Pandemic Osi-Ghia

Public spaces such as city squares and parks make people feel healthier because they are open spaces where social distance can be maintained more easily. After the restrictions, people in Turin prefer these areas more, even if it is just for walking.

In Turin, like other cities going through this difficult period, some habits will probably need to change permanently. It is necessary to consider these situations when planning the city. People's priorities, ideas and use of urban areas may not be the same again. People living in Turin already liked spending time in public spaces such as green areas and parks. However, when the quarantine period was over, the use of green spaces moved to a different dimension and these areas made people feel very good spiritually and they understood the great value of these areas in their lives.

Chapter 3:
Study Area

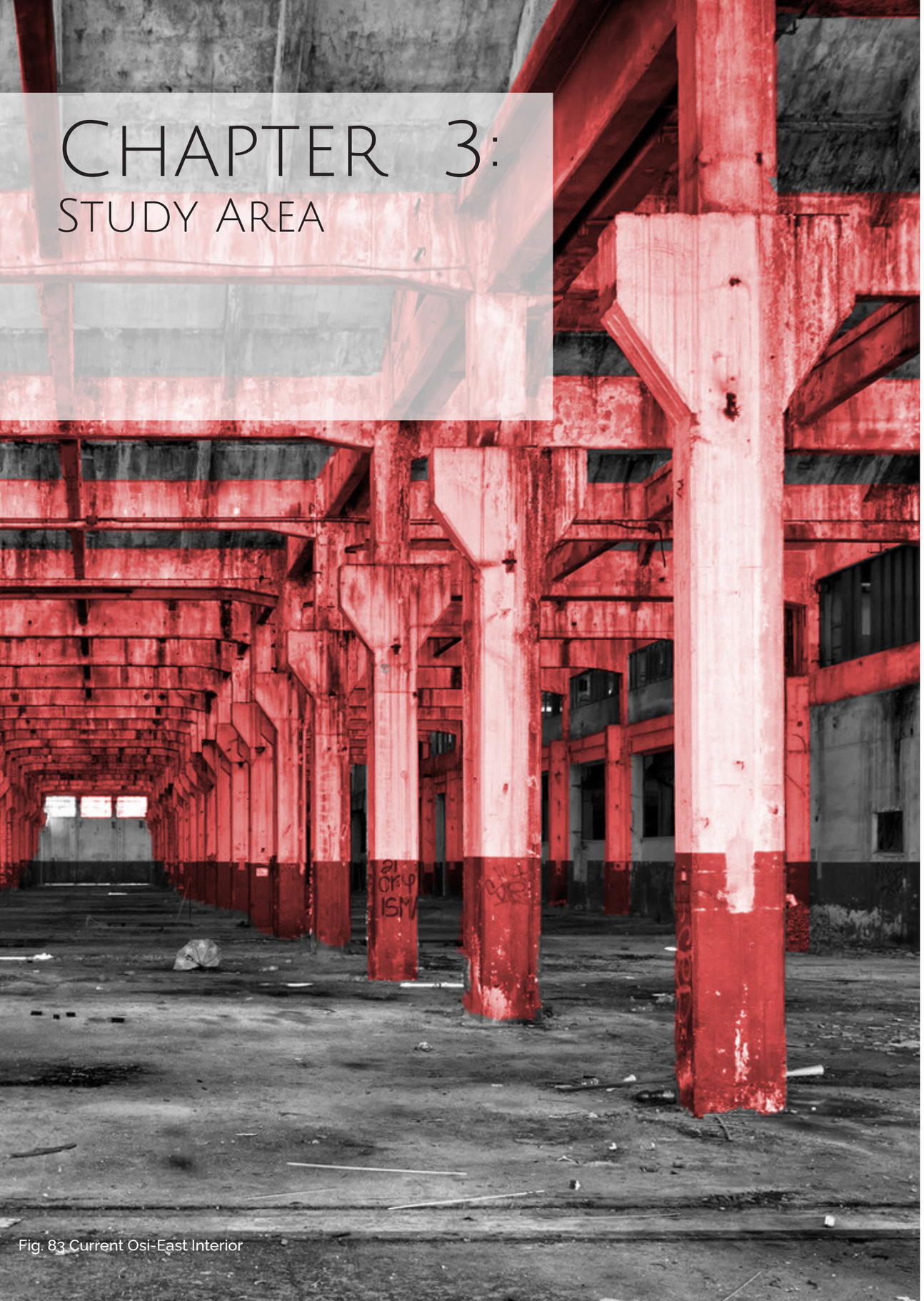


Fig. 83 Current Osi-East Interior

Overview

Study Area

After analyzing Turin's historical and contemporary development, this study focuses on an in-depth study of the Osi-Ghia factory site and its surroundings, one of the most striking abandoned industrial areas in the city.

Fig. 84 Study Area

This triangular-shaped block between the Crocetta and San Salvario districts is surrounded by a large limit due to the train tracks. The site is in a strategic point to connect two important districts.

It is important to examine not only this block but also the urban context it brings with it. These blocks, which were used as factories in the past, were important places in terms of the industrial identity of the region. In addition to the workforce provided by the factories, these areas, which have transformed into neighborhoods where employees and their families live, have created many services. However, Osi Ghia factory area was abandoned in time and this area became a shelter for the homeless and even a haunt for drug dealers. Despite its strategic location so close to the city center, this unused large area has a great potential to be a part of the neighborhood again. Although the Toolbox buildings are actively used, the rest is abandoned and waits to be planned for reuse in the future. In addition to all this, the limit caused by the railway and the bridge is a big problem in terms of the accessibility of Osi-Ghia. The site area and its surroundings will be examined in more detail later.

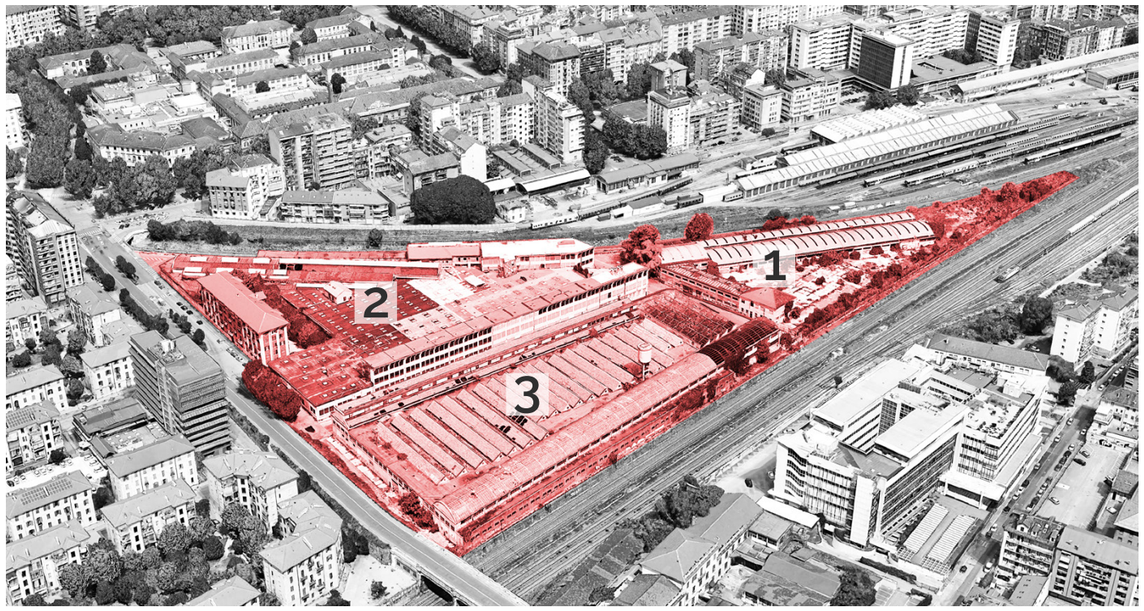


Fig. 85 Ex Osi-Ghia Factory
1.Ghia
2.Osi-West
3.Osi East
Source: Google Earth

Post Pandemic Osi-Ghia

Fig. 86 Osi West
Photographer :Stefano Borghi
Source: Toolbox Coworking Website

Analysis

Physical Tissue

Fill/Void Analysis

Fill/Void analysis gives us some ideas about the relationship between different sections of the neigborhood and different typologies. When we look at the general study area, we can see that the area is relatively dense with some gaps for public and semi-private spaces. In contrast, ex Osi-Ghia area is different than the rest of the neighborhood. The area is highly dense with few open spaces with 3 large buildings and with the examination of the surroundings, it is possible to realise that the close surrounding of the building is empty leaving the building alone in a closed area.

Fig. 87 Fill/Void - Site Area

Fig. 88 Fill/Void - Site Area
1.Ghia
2.Osi-West
3.Osi East

Fig. 89 Osi-Ghia

Lynch Analysis

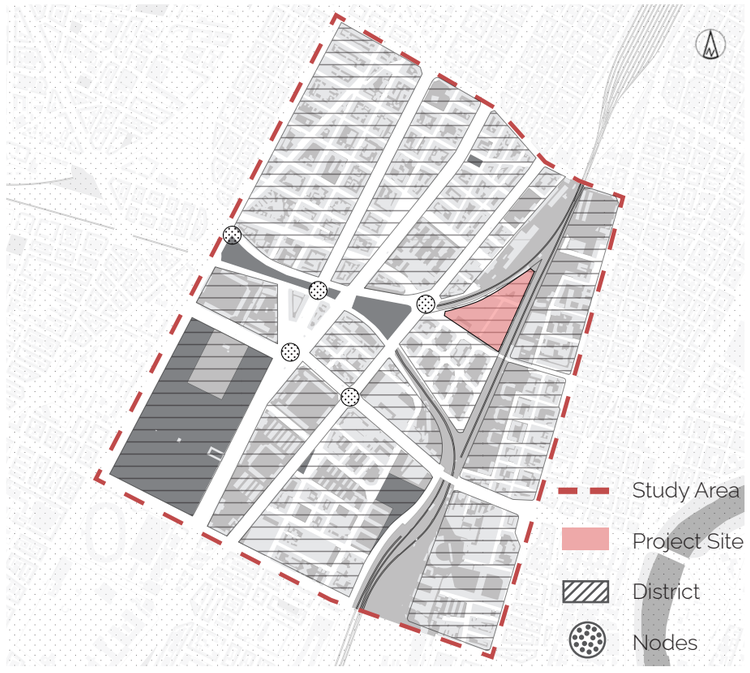
Lynch map helps us to generally understand the area and grasp its limitations as well as its strengths. The neighborhood is supported with wide roads mostly connecting the area from north to south and with few main roads from west to east creating a nodes layout in an horizontal direction. It is possible to deduct that this is due to the one big limitation, which is the railway that exists in the west central and east border area.

Fig. 90 Lynch Analysis Study Area

Nodes & Paths

Fig. 91 View of the project site from the node point

Fig. 92 Nodes - Study Area

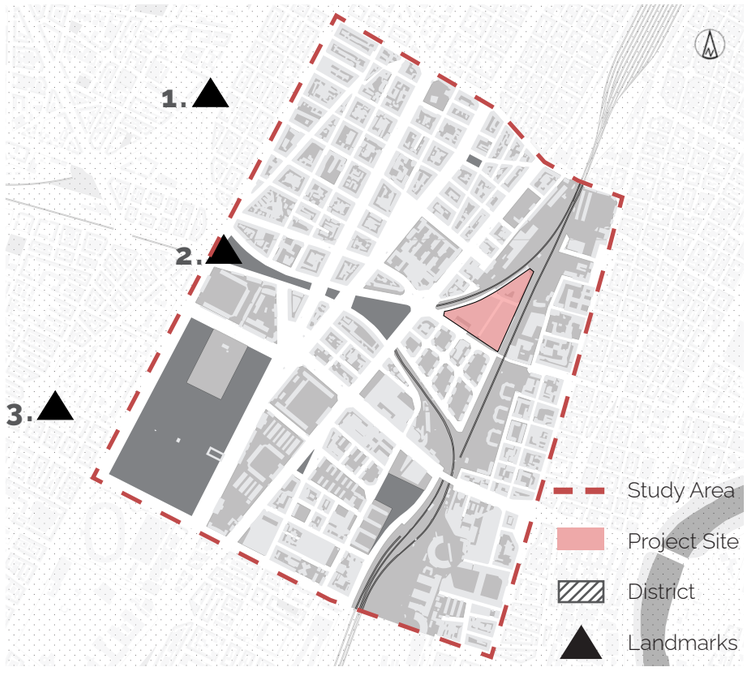


In the Osi Ghia district, there are main nodes that form a strategic focus. It is possible to provide information about the characteristics of the neighborhood by examining the node and path points in the district.

Landmarks

Fig. 93 Landmarks

Fig. 94 Landmarks - Study Area



From the analysis, we can conclude that there are few landmarks that are important in the district. However, all landmarks are located in one area and in a vertical direction. The project site has great potential to create a landmark in the neighborhood and can make this area more active.

Districts & Edges

There are 2 large limitations in the neighborhood. One is on the western side of area and other one is on the eastern part. Both limititations are caused by the existence of the railway. Years ago municipality of Turin tried to eliminate this obstacles and buried some of them underground but they had to stop due to the economic crisis. The railway on the west divides the northern and southern part of the neighborhood causing the road structure to focus on the center of the area and railways on the east seperates and defines a clear boundary between the adjacent district. Also this railway highly limits the accessibility of the Osi-Ghia and creates a virtual urban island which is only connected to other areas va bridges and a small gap. There is also a minor gap in the area caused by the bridge further decreasing the accesibility of the area.

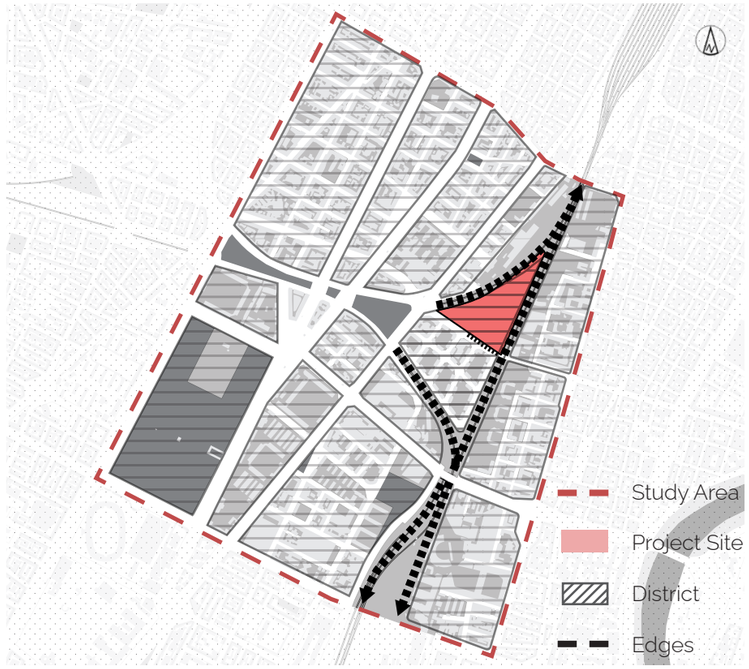
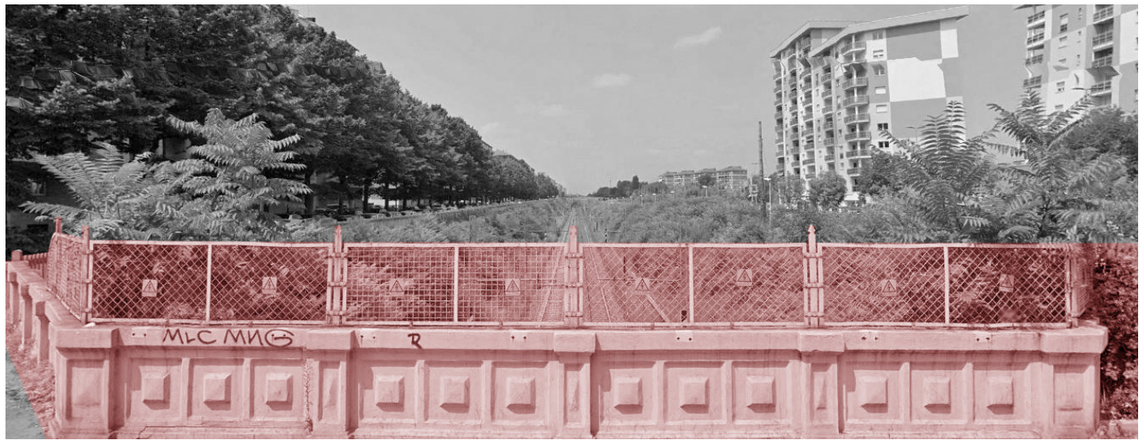


Fig. 95 Districts - Study Area

Post Pandemic Osi-Ghia

Fig. 96 Edges - Osi Ghia



Post Pandemic Osi-Ghia

Fig. 97 Limitation because of the railways from the project site

Source : Imgur - Marco Bonadonna

Green Spaces

After the Covid-19 pandemic, people tend to stay away from crowded enclosed spaces and spend most of their time in large open spaces. Therefore, green spaces have become the most important part of our urban scale designs and in this section, they are examined in 3 groups as public, private, and left-over green. There is no green area on the project site and it needs to be discussed in detail during the design phase. While attracting people to these areas, public green areas should be designed where they can maintain their social distance through design.

Fig. 98 Green Spaces
Map of the Study area showing the green spaces

When the study area is examined, three public green areas are remarkably large. Two of them are Clessidra and Cavalieri park in the south-west and the other is Muratori park in the south-east. However, these areas contain a lot of non-maintained public green spaces that limit the use of local people and cause them to spend more time in private areas.

In addition, there are green areas around the project area and the railway, which affect the integrity of the urban area and do not have access and availability. People's desire to spend time in green spaces increased considerably after the curfews. For this reason, considering the need for public space, these areas, which are left-over green, have great potential in terms of our new urban design strategies.

Fig. 99 Public Space in Via Mario Pagano
Source: Google Earth - Max Enrico

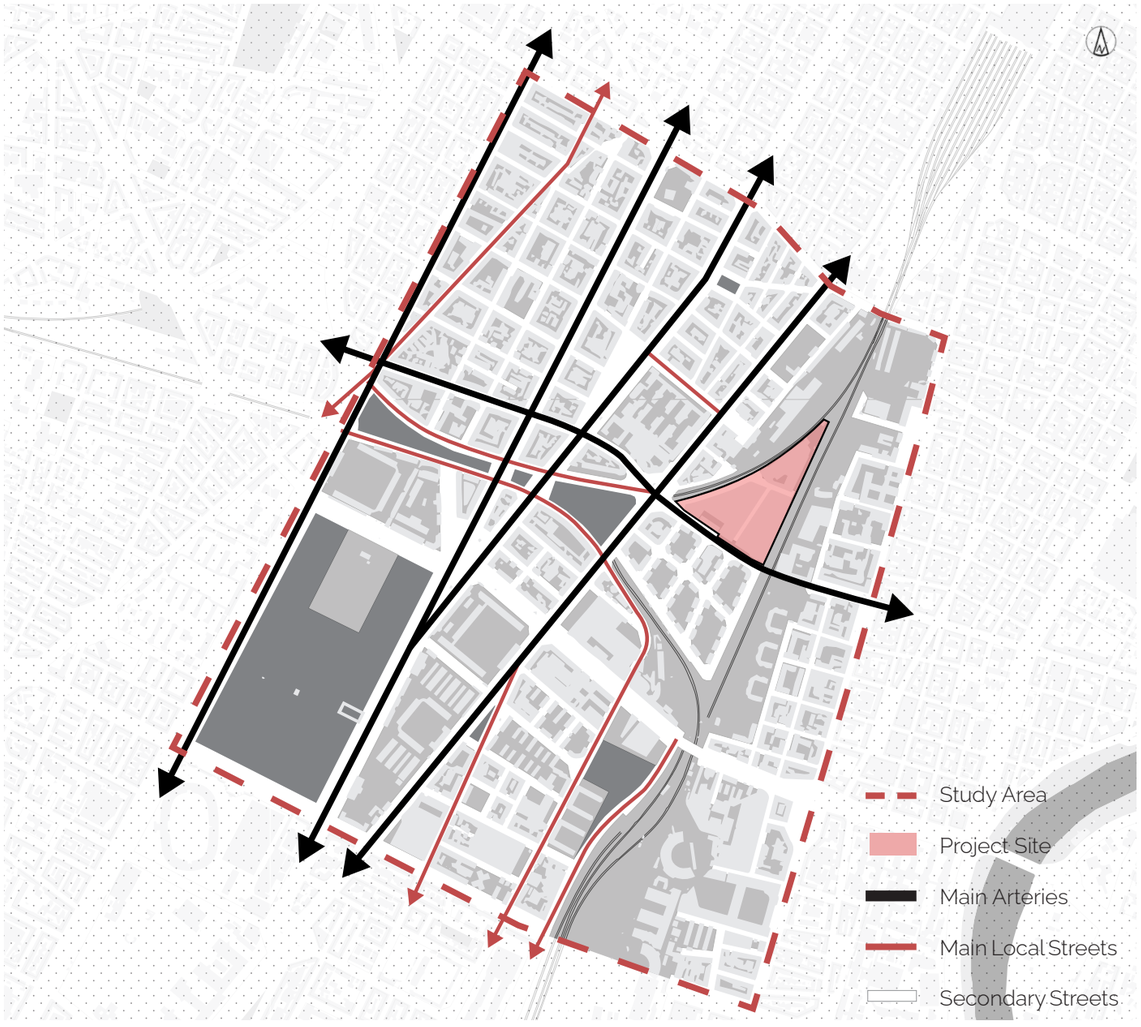
Fig. 100 Cesare Valperga Garden
Source: Google Earth - Antonio Watson

Mobility Infrastructure

Road Infrastructure

When the Osi Ghia area and its surroundings are examined, it is seen that the transportation network is developed. However, there are connection problems in the north of the site due to the railways. There are 2 main arteries and also main local roads around the site. A solution proposal and connections with the surrounding are expected, especially in the northern points of the site.

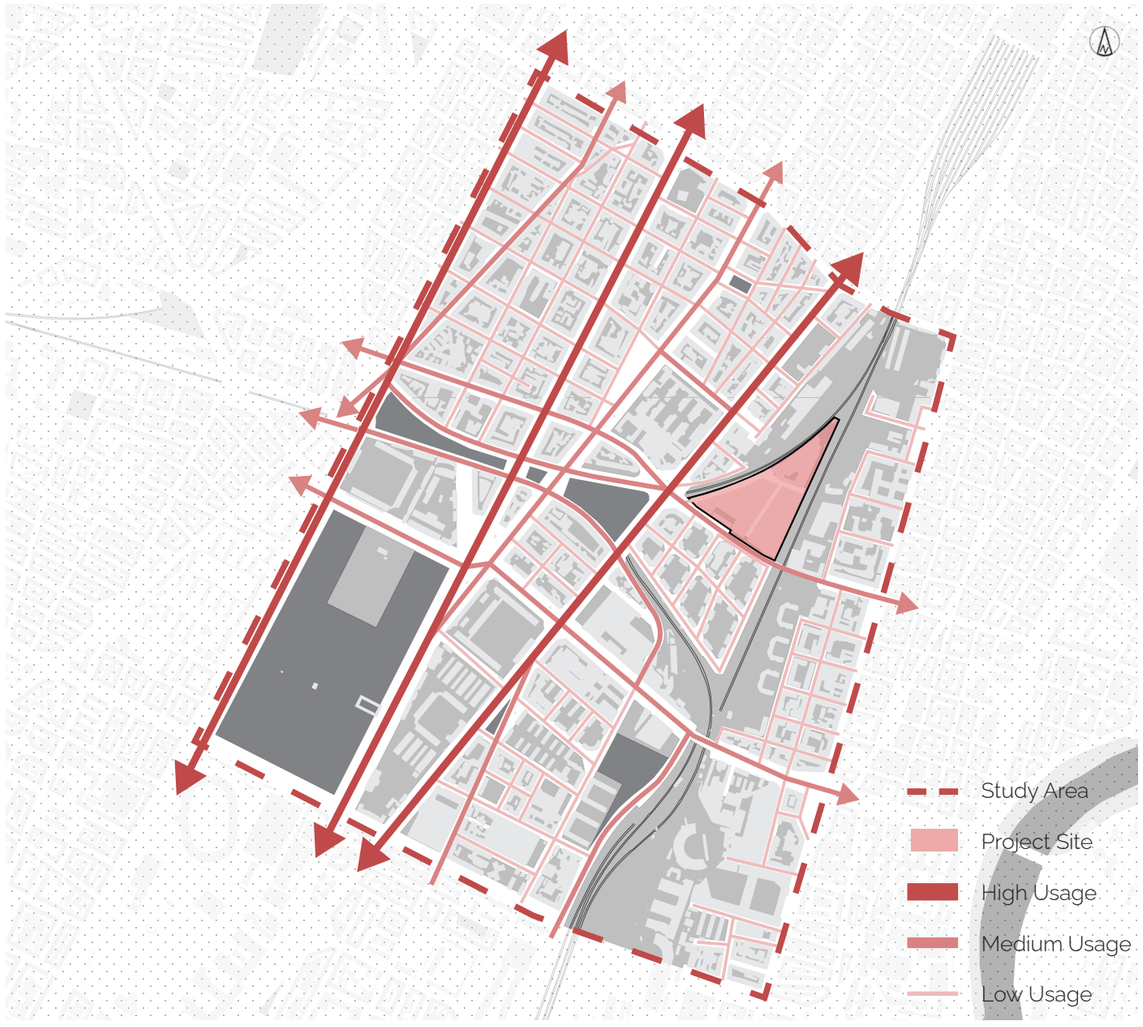
Fig. 101 Road Infrastructure
Map of the Study area showing the main arteries and main local roads.



Traffic Flows

The traffic flow around the area is seen as heavy and medium. Although the site area is large, there is no road flow in it. This subject will be examined in the design part and a new private mobility solution will be made within the site while ensuring the connection of the area with the surrounding.

Fig. 102 Traffic Flows
Map of the Study area dividing the roads by usage.



Public Transportation Infrastructure

As seen on the map, the mobility of system of the neighborhood is extensive and diverse enough with a lot of stops inside the neighborhood and its bus and tram routes for the citizens and somewhat eliminates the disadvantageous situations caused by the limitations due to the railway that cuts through the area. There is also a metro route on the other side of the eastern bridge. This transportation system connects the area with the rest of the city with lots of different bus lines.

Even though there is an extensive public transportation system in the area, there is still a lack of sustainable public transportation methods in a large scale.

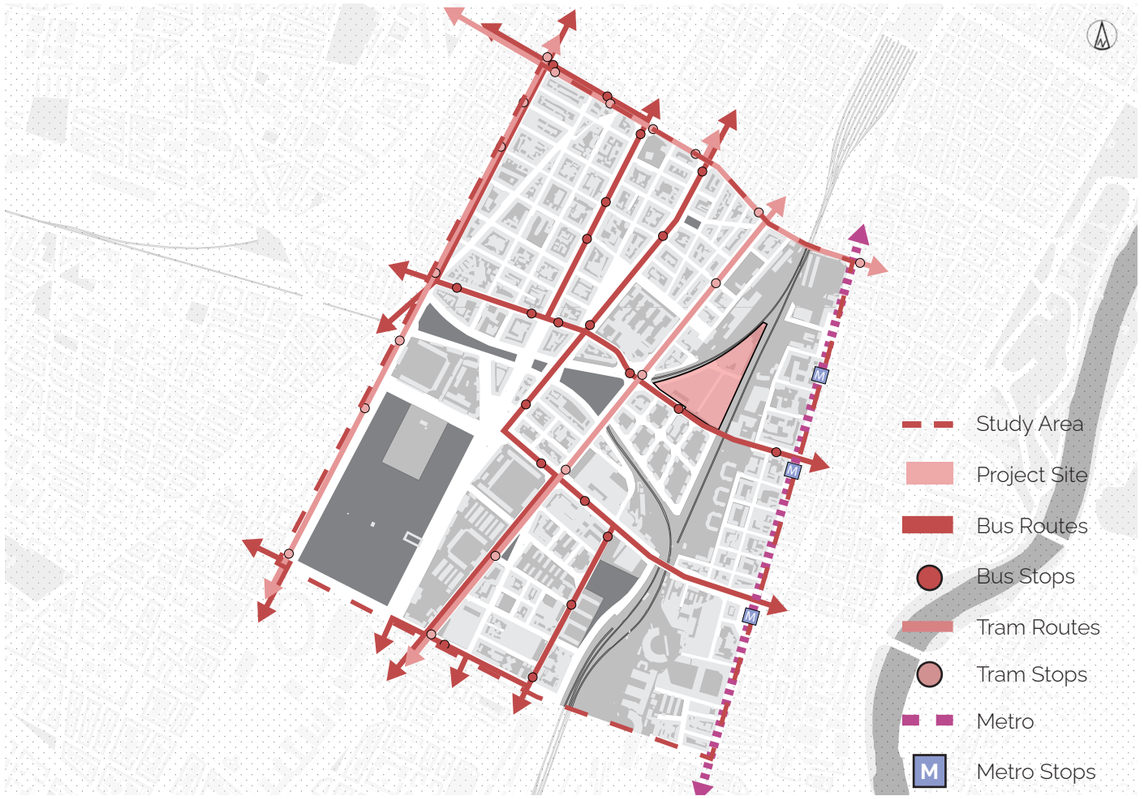


Fig. 103 Public Transportation - Study Area

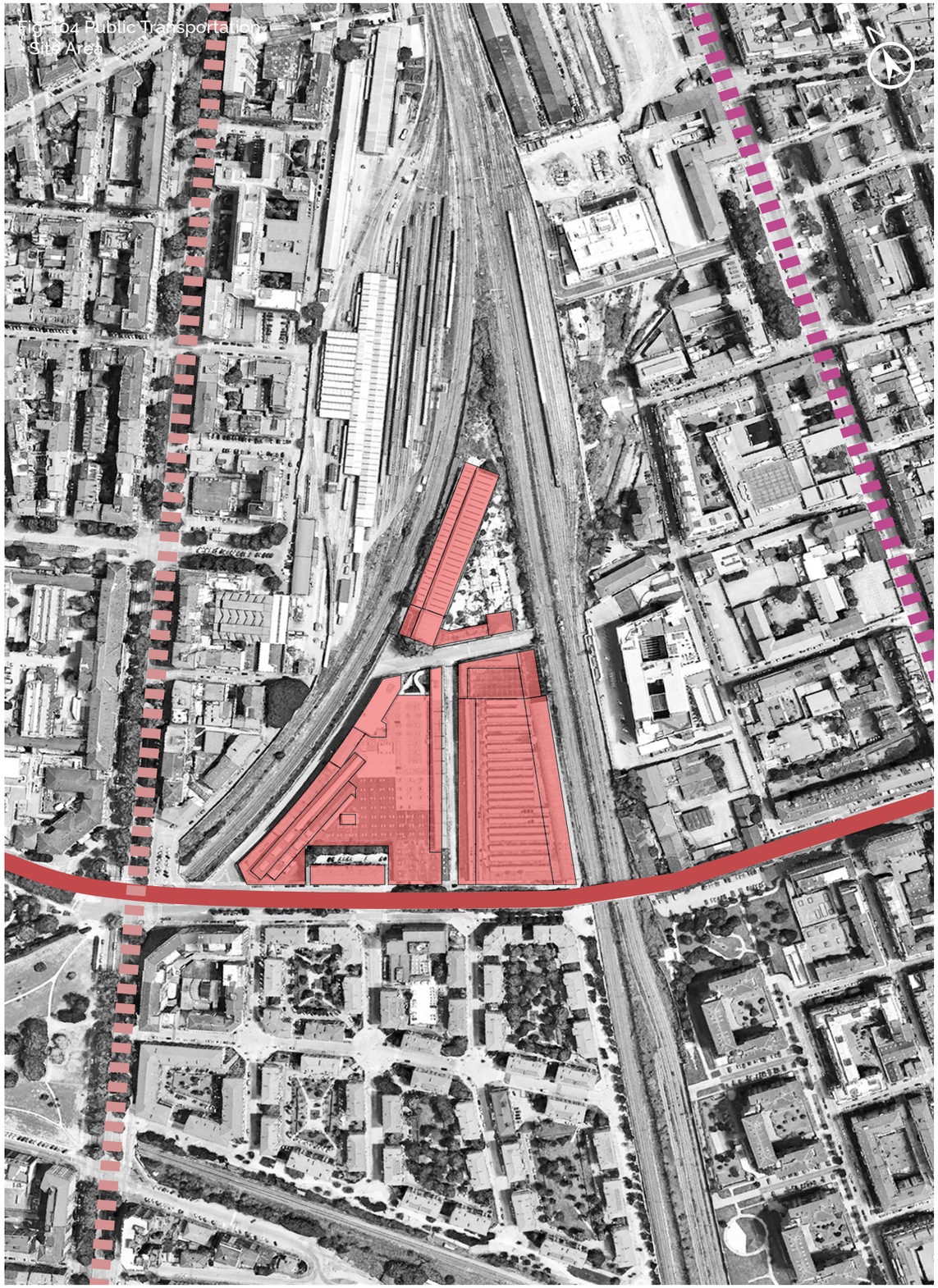


Fig. 104 Public Transportation - Site Area

Sustainable Mobility Infrastructure

Bicycle Paths

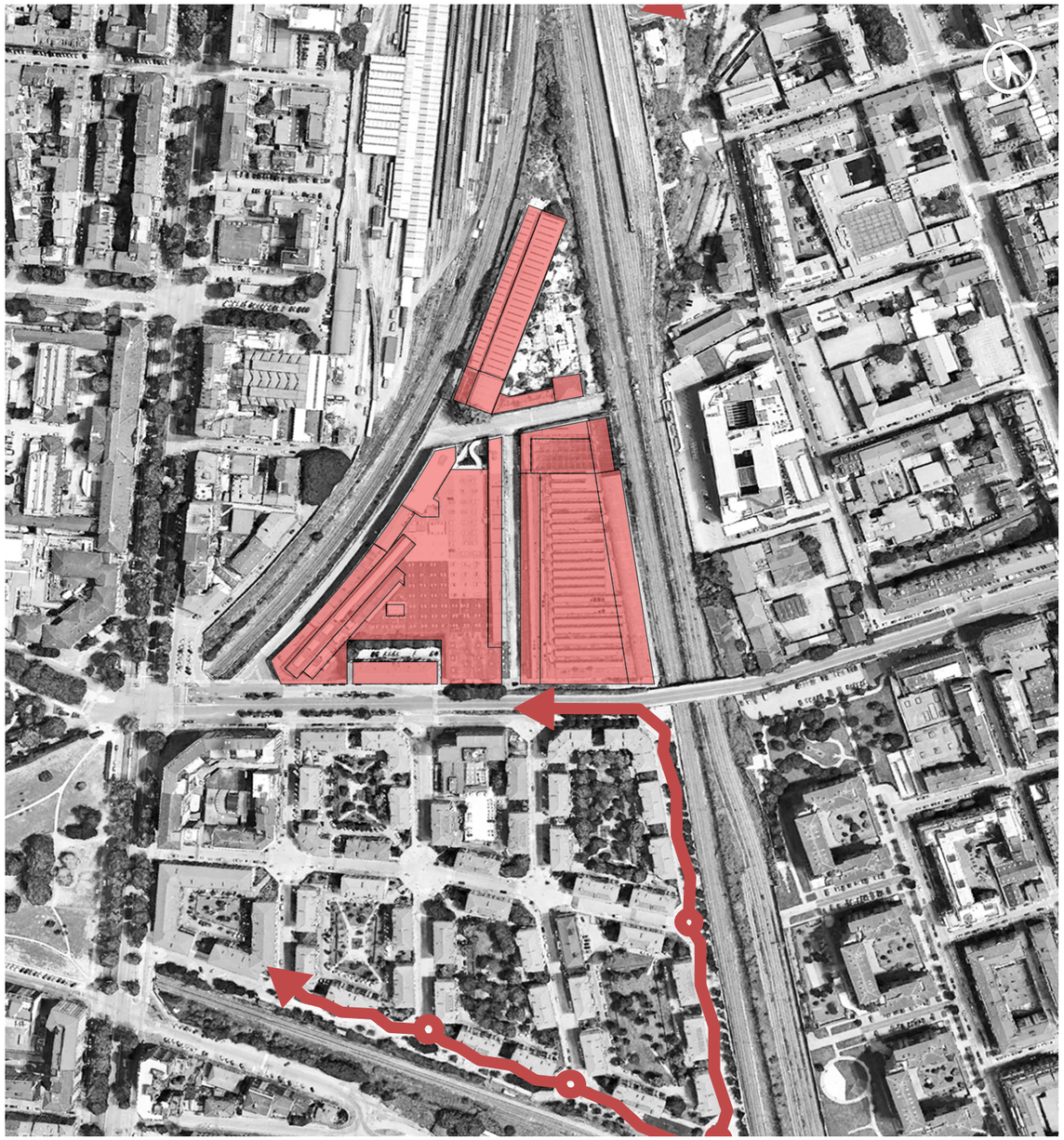
As seen on the map, Bicycle paths on the neighborhood are mostly located on the main roads and rarely on the secondary roads causing a lack of connection between areas. Also, the existing connections of the paths are lacking only connecting on several locations in one direction creating long vertical bicycle paths. There are also some bicycle paths are lacking connection with the main bicycle paths leaving them stranded and breaks the accessibility.

Existing Bicycle paths are low quality and generally not wide enough and needs maintenance. In some rare cases there are bicycle paths that are only for one small street. After the Covid-19 pandemic, people turned to pedestrians or bicycles for transportation. At the urban scale, it is necessary to increase and regulate the accessibility of pedestrian and bicycle paths.

Fig. 105 Bicycle Paths - Study Area

In the Site area, bicycle paths are scarce and there is no way to get out of the site using a designated bicycle path while using a bike, leaving bicycle riders no choice to ride on the street. The area can be backed up with new bicycle paths and bike sharing spots to promote more sustainable transportation solutions.

Fig. 106 Bicycle Paths - Site Area



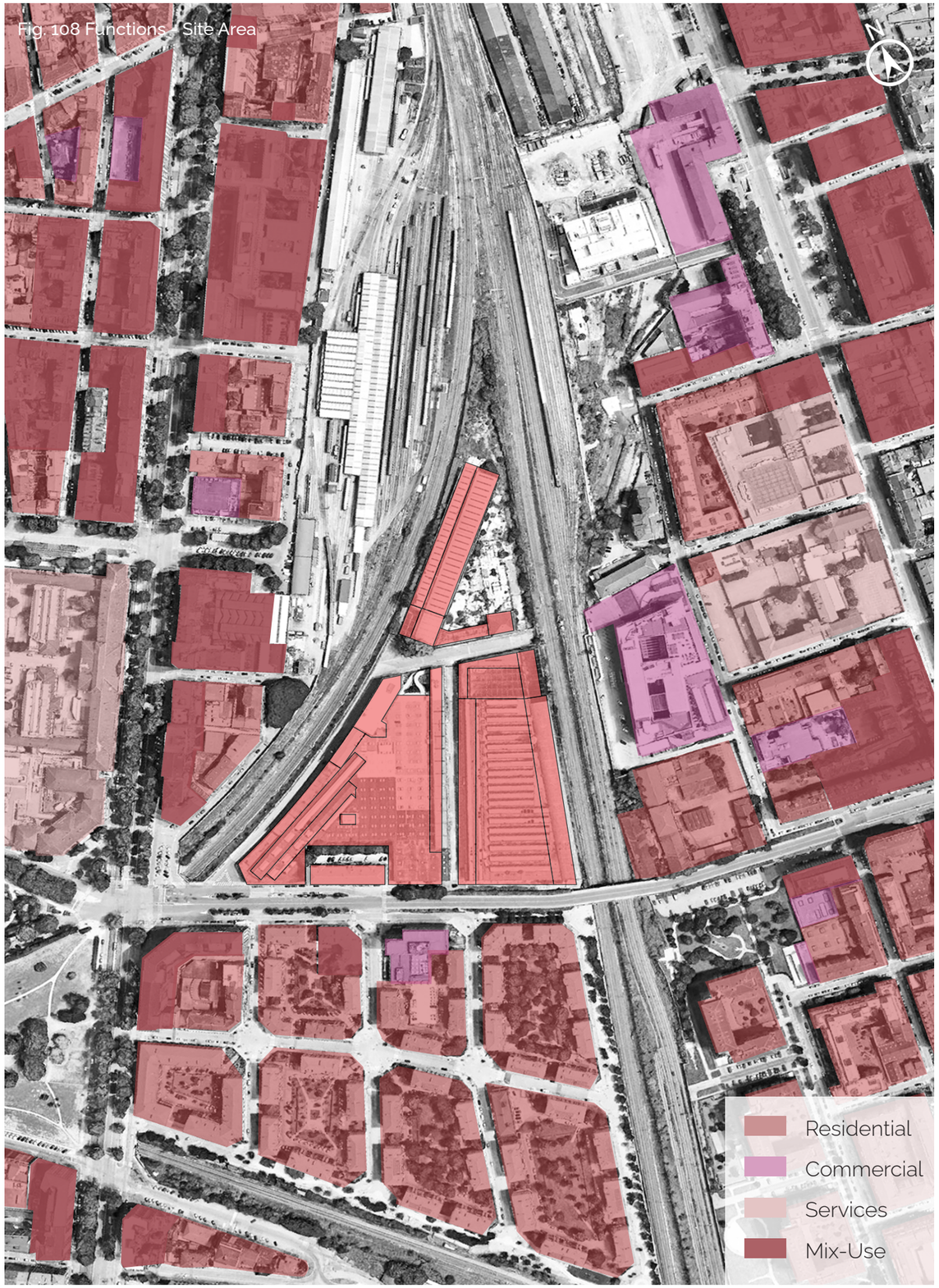
Functions

When the area is examined in detail, the mono-functional structure of the neighborhood can be seen and its interaction with the environment is in a difficult position due to its connection problems. Osi Ghia and its surroundings are generally residential buildings and some of them have commercial spaces on their ground floors. By designing large public spaces that will reactivate this abandoned area, it is possible to transform it into a multi-functional area.

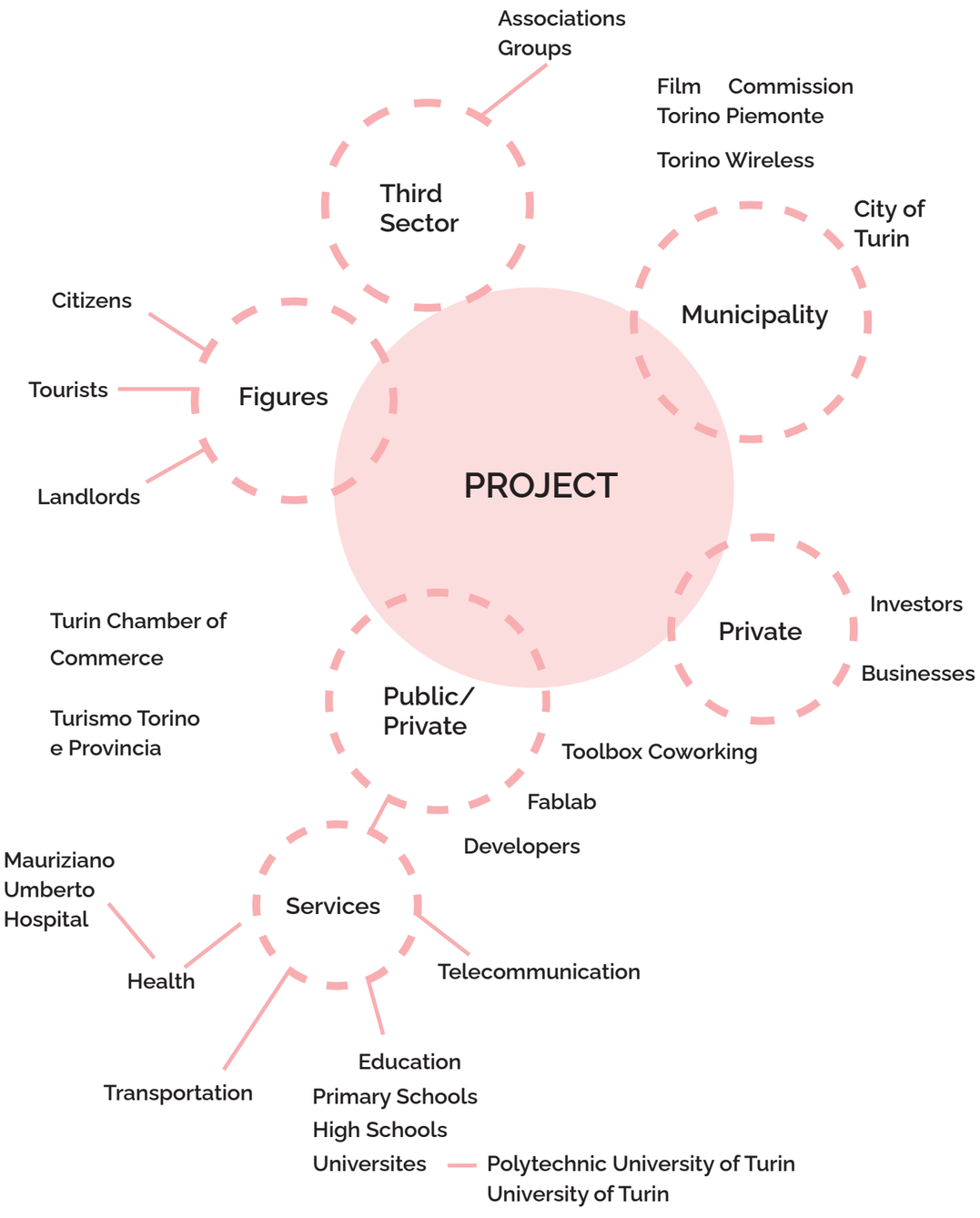
Considering the surroundings of the area, the Mauriziano Hospital building is located on the Corso Dante road and within 4 minutes walking distance. It is possible to propose a solution that can support the hospital in emergency situations is also expected.

Fig. 107 View of the project site from the surrounding buildings

Fig. 108 Functions - Site Area



Stakeholder Map



SWOT

S

- Near to the city center of Turin
- Strategic location between two neighborhoods
- Industrial buildings with historical identity
- The great potential to reuse the structure of the buildings
- Compatibility with Turin's future strategic plan

W

- Accessibility to the area is highly limited due to railways
- Abandoned former industrial area
- Highly dense and closed buildings
- Mono-functional surroundings
- Lack of open and active urban space
- Lack of green areas on the site
- Lack of digitalization in the use of urban areas

O

- Large areas that can be easily adapted
- The potential to be a landmark for the neighborhood
- Mix of uses integration
- Creation of public spaces and squares
- New and innovative design
- More sustainable solutions for the site and the city

T

- Economic reasons
- General uncertainty due to COVID-19
- The impact of COVID-19 on people's daily life and urban environmental habits
- Ensuring social distancing for health

Post Pandemic Osi-Ghia

Survey

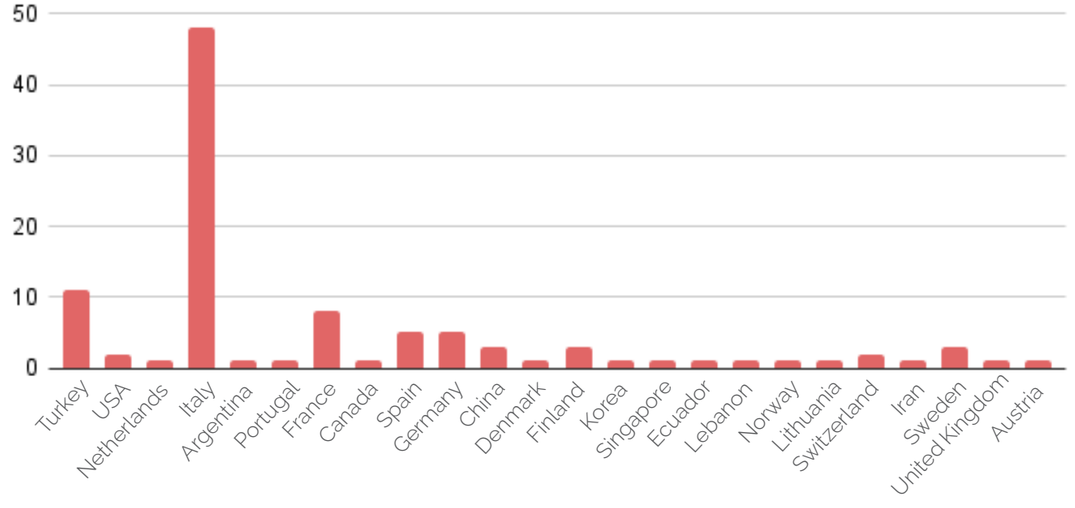
During the pandemic we have seen the way we live our lives and the way we perceive space have been changed. The difficult times that we have all been throughout during this pandemic and the questions that have been thrown around about the transformation of design pushed us to do a research about this topic. In order to guide this research more accurately, we prepared a digital survey and shared it via social media pages. This survey, which was conducted anonymously in order for people to share their ideas more freely, reached 104 people around the world. The purpose of this survey is to capture how the pandemic has effected our daily lives and habits.

Respondents, 53% female and 47% male, also posted comments on our questionnaire and increased the depth of our research. Participants were generally uneasy about the uncertainty of the pandemic period and reported that they had difficulties due to the change in their daily lives. Although 46% of the participants were from Italy, the overall distress of the participants was similar. 82% of the participants stated that their going out habits have changed, and this very high percentage shows that the pandemic has deeply affected people's daily lives. There are participants who leave comments stating that they prefer to go to the places closest to their homes and stay away from crowded environments. Although the effect of the pandemic in each country is different, the thoughts and concerns of the participants are similar. 88% of the participants stated that they prefer more open space. This supports the fact that closed areas feel unhealthier during the pandemic period.

Another important issue is transportation. Providing transportation methods in line with people's needs is one of the key points of urban design. 76% of the participants stated that the frequency of their use of public transportation has changed. Although there are situations where public transportation is required to reach a distant place, it is concluded in the next question that people prefer public transportation less in unnecessary situations. Although walking is the transportation method with the highest percentage, this rate is followed by bicycles & scooters and personal vehicles with a close percentage. While it is aimed to increase the spread rate of these transportation methods in the design, a new sustainable transportation vehicle proposal is also considered. Especially for Italy, a country with a very high elderly population, electric-powered autonomous transportation pods will be designed to provide an easier transportation opportunity within the area.

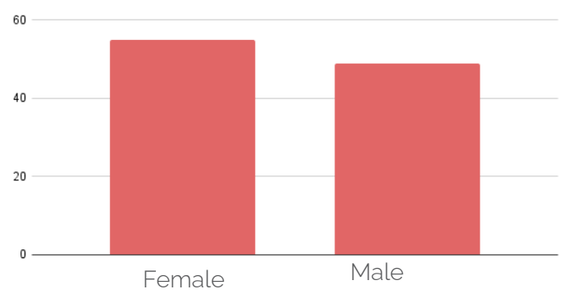
Since our design area is in Turin/Italy, the survey was mostly shared on pages that has higher Italian demographics. However, it was still important to reach people all around the world to gather different perspectives about the pandemic and its effects. Survey is consists of 8 questions that help to identify changes in peoples daily lives caused by the pandemic.

Where were you during the pandemic?

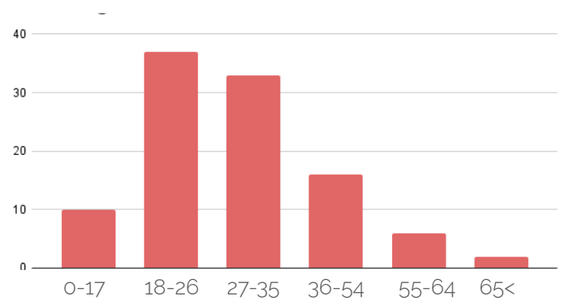


Survey Questions & Answers

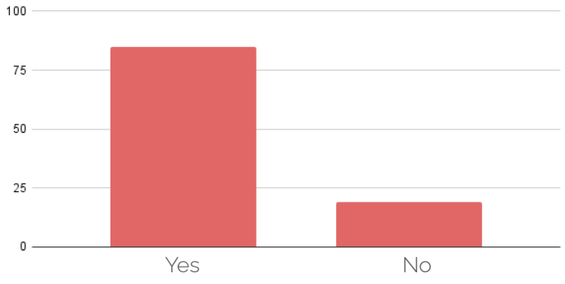
1. Gender



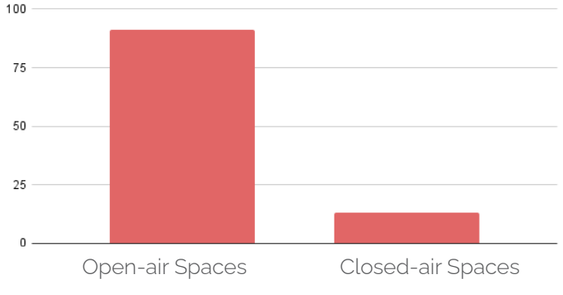
2. Age

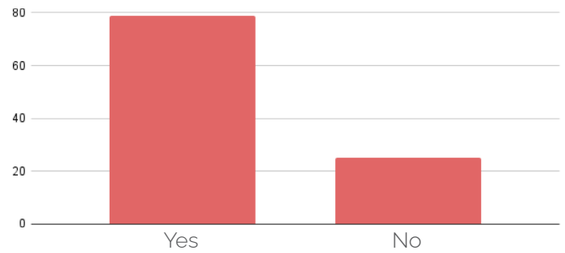


3. Did the pandemic changed your going out habits?

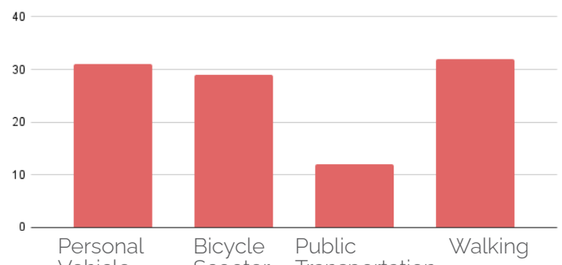


4. Do you prefer open spaces or closed spaces?

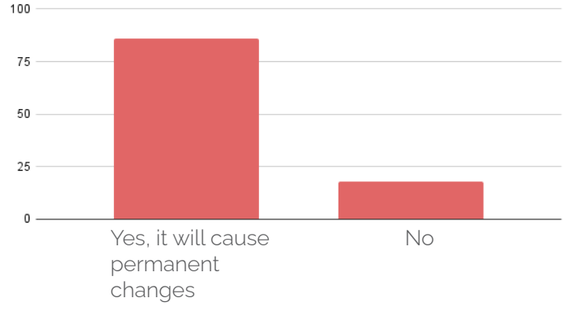




5. Did your public transportation use frequency changed during the pandemic?



6. What was your prefered transportation method during the pandemic?



7. Do you think the effects of the pandemic will cause a permanent change on the way people live their lives?

83% of respondents believe that the pandemic will cause permanent changes in people's lives. This is a result of the uncertainties brought by the pandemic period and its spread over a long period of time. The survey results are quite overlapping in our research and support each other. The survey helped us determine the design principles of our project, as it allowed us to see the personal thoughts of the participants.

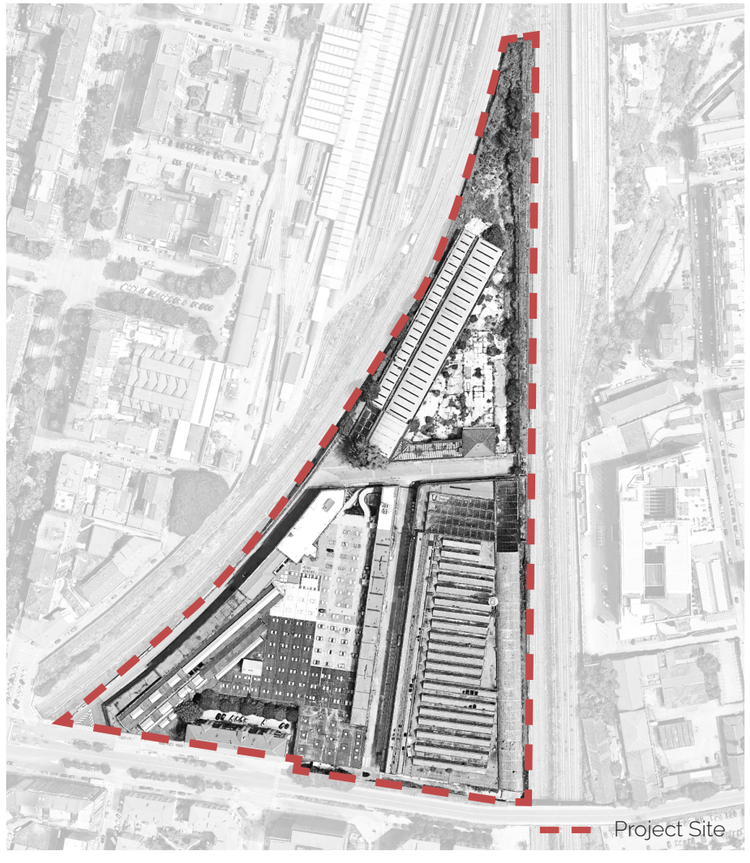
Former Osi-Ghia Factory

Former Osi-Ghia Factory area sits in between two railway lines which limits the areas accessibility greatly. It has 1 access point that is located on the south-west side of the plot. Area consists of 3 large buildings, which were primarily used as factories in the past, Two of them are Osi factories, located on the south side and Ghia factory which is located on the north side of the plot. These factories are mostly abandoned at the moment with the exception of Osi-west factory used partly as a co-working space.

Fig. 109 Former Osi-Ghia Factory
1.Ghia:
2.Osi-West:
3.Osi East:

Source: Google Earth

Total Sqm of Project Site: 56,803 sqm



Post Pandemic Osi-Ghia

Former Osi-Ghia Factory area is divided into 3 massive production factories and one residential building on the southern-west border of the plot. These buildings are Ghia, Osi-West and Osi-East factories. Most of these buildings are abandoned and used mostly by intentions out of their intended functions illegally, which also forms problems for their surrounding areas. However, there is still a used part on one of these buildings, Toolbox Coworking area located on the north side of the Osi-West factory. Thus, for the purposes of design, it is best to keep a working function in its place and adapt the design according to these factors. Area has 2 entrances, one located on the west side of the Osi-West factory and the other one is located in the middle of the plot at the point where the Bertini street, which cuts the Osi factories into two form the middle of the plot, is connected to the main street, but currently this entrance is closed by a locked gate. The plot is highly limited in terms of accessibility.

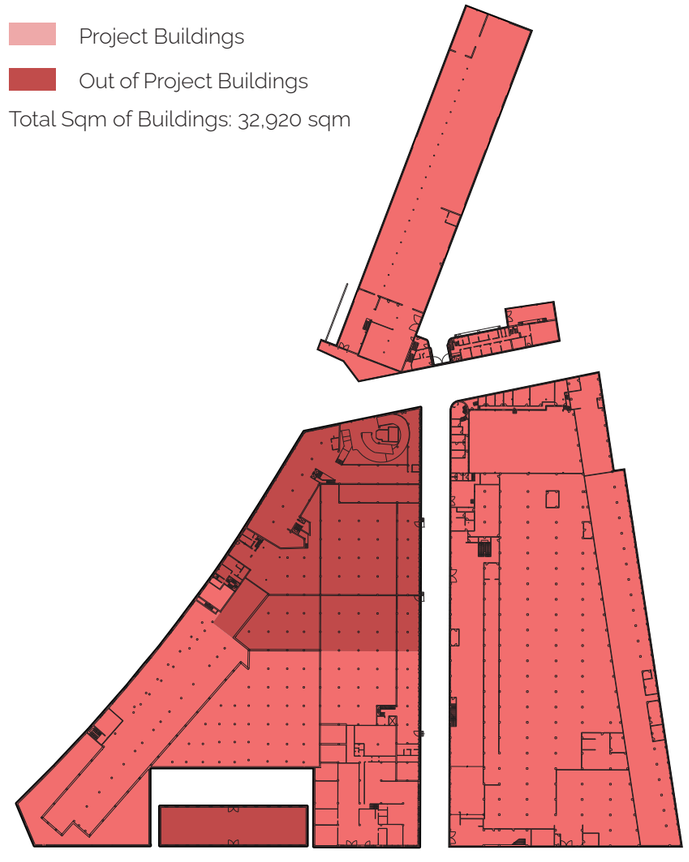
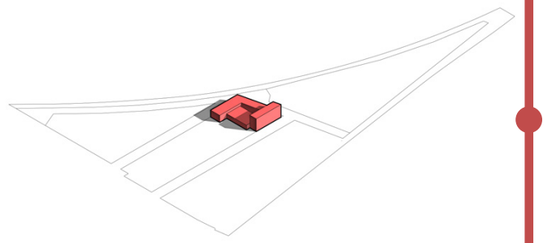


Fig. 110 Osi Ghia Area Current Fuctionality

Timeline

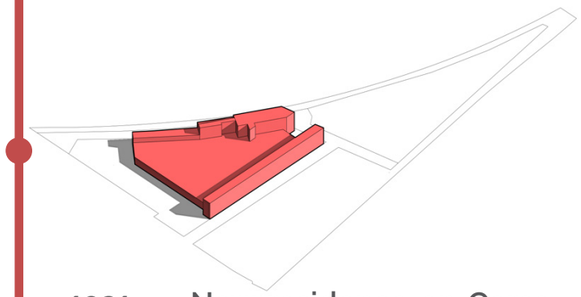


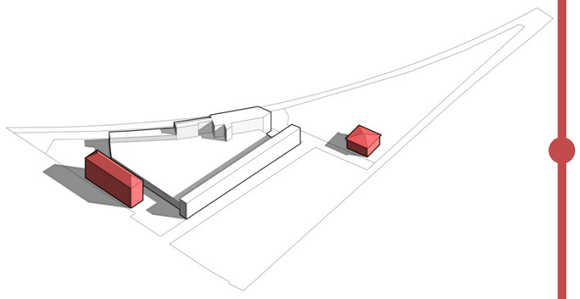
1915 - Garrone foundry

In 1912 a low building was built in the direction of Bertini Street and in 1915 these foundry buildings were expanded. The increase in industrial production caused the Garrone foundry area to be insufficient and they aimed to expand the area.

1923 - Expansion of the foundry

The Via Roccabruna road was included in the expansion of the Garrone foundry and thus closed. It was the largest expansion for this area and was carried out by engineer Porcheddu.



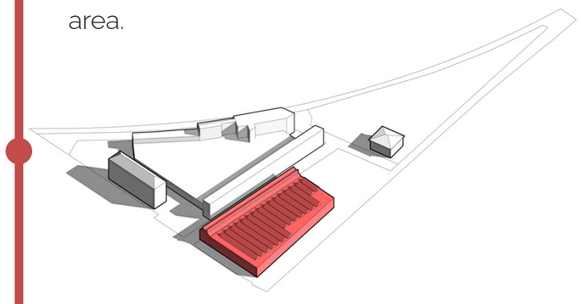


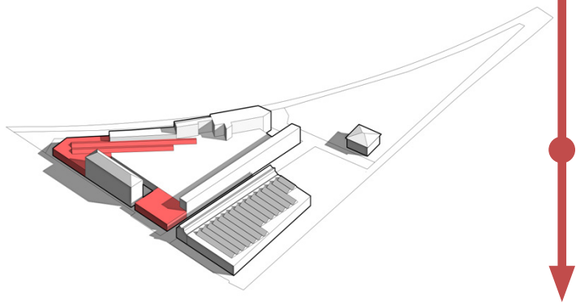
1931 - New residence on Corso Dante

In 1931, a 5-story residence belonging to the State Railways was built and still preserves its original form today. Also, the office building, which also includes an industrial warehouse of the Miroglio brothers, is located in the northern part of the area.

1936 - Societa Anonima Trafilati

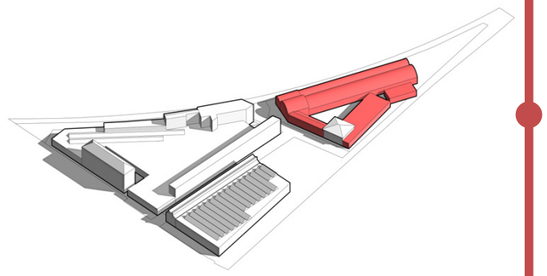
In 1936, the company name of the former Garrone foundry was changed to Societa Anonima Trafilati S.p.a and a new factory was built in the Osi-East section.





1947 - Construction of the forges

After the Second World War, the industrial production of Osi Ghia increased and there was a transition period in terms of industry. In 1947, the last two expansions of the Osi West area of Anonima Trafilati S.p.a Company were completed.

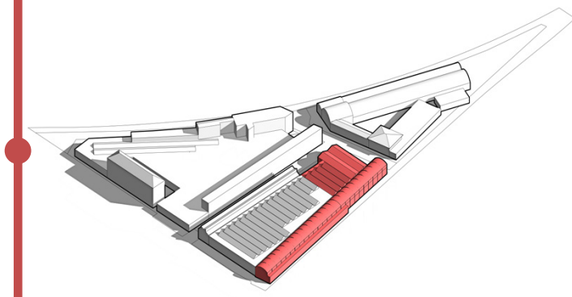


1958 - Foundation of the Ghia

The industrial complex built in the Ghia area, designed by architect Nicola Diulgheroff in 1958; It has a barrel vault roof and 2 floors. In addition, this area is expanded with low buildings and covers a large space.

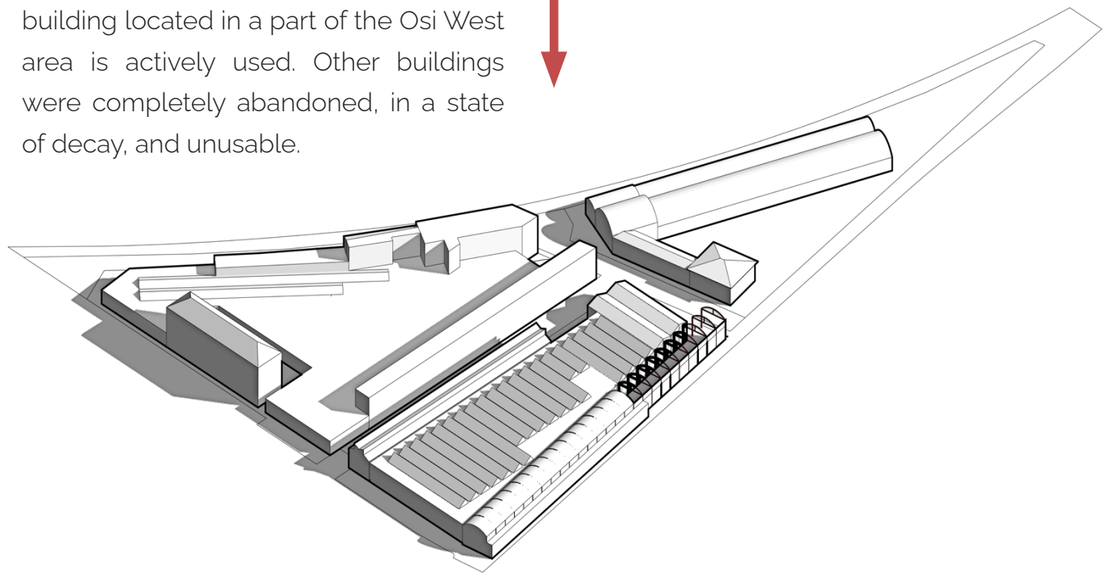
1961 - O.S.I. Building Expansion

In 1960 Ghia and O.S.I merged. The OSI East building was expanded and renovated between Via Montefeltro and Corso Dante. These areas were used as Osi-Ghia Office and warehouse.



Present - Osi-Ghia's current situation

In the current situation, only the Toolbox building located in a part of the Osi West area is actively used. Other buildings were completely abandoned, in a state of decay, and unusable.



Post Pandemic Osi-Ghia

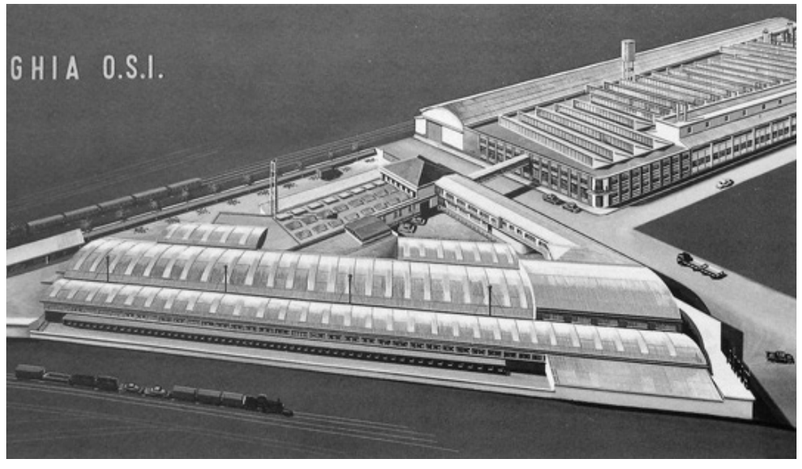
A - Ghia

Fig. 111 Ex Ghia Factory

Source: OSI 20M TS

Fig. 112 Preliminary study of the GHIA-OSI

Source: Osicar.de



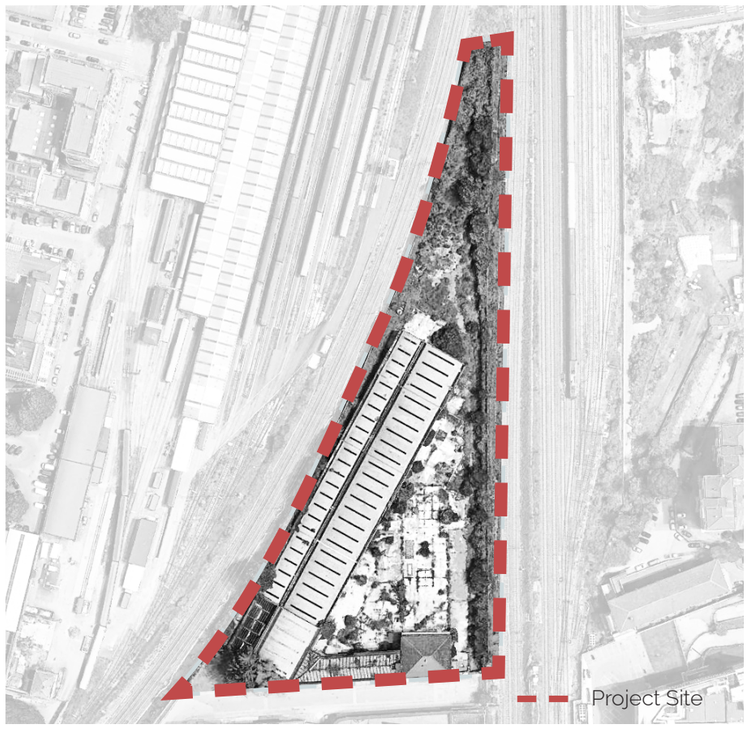


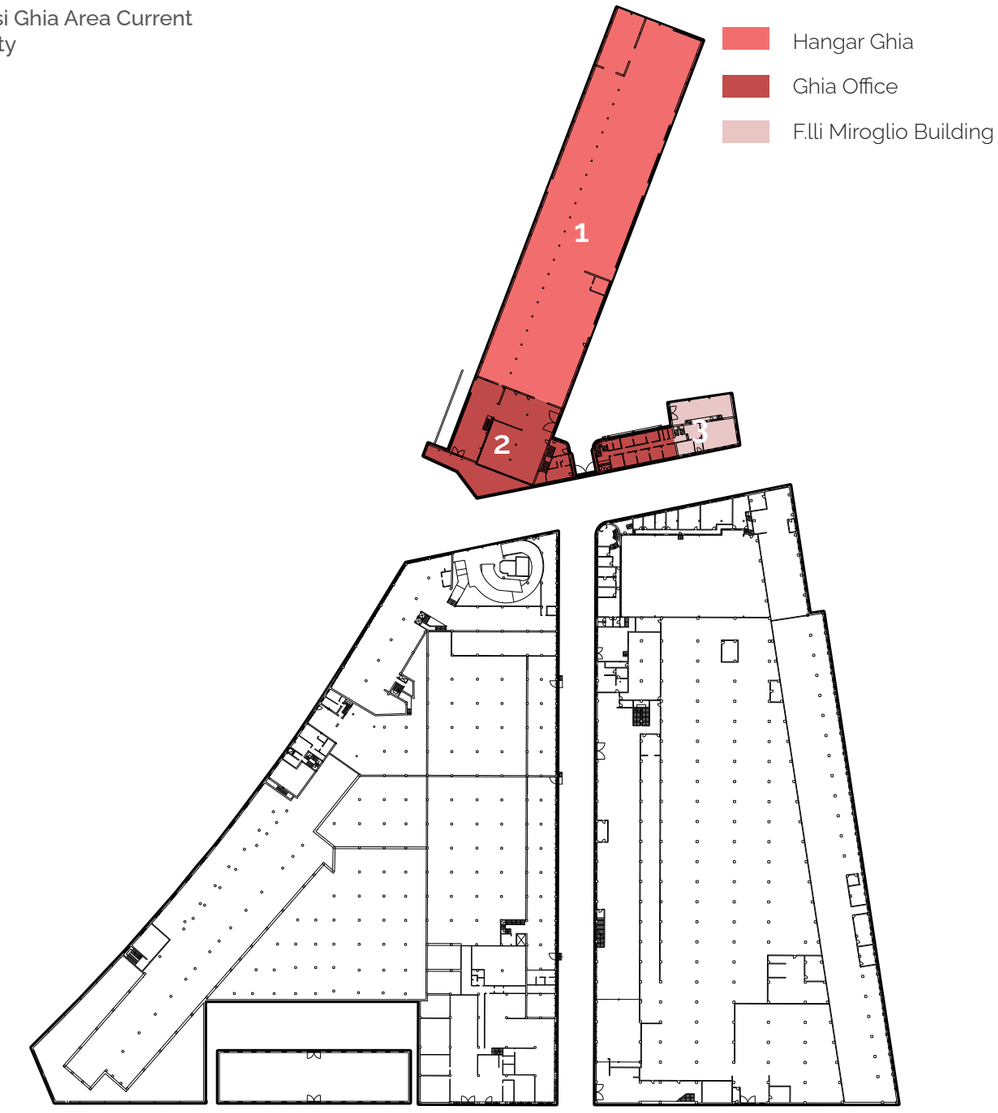
Fig. 113 Ex Ghia Factory

Source: Google Earth

Former Ghia factory is located on the north-side of the plot and it can be considered as the most isolated part of the plot sitting in-between 2 railway tracks with no ways to cross. Due to these railway tracks the area is formed as a narrow triangle. So, the buildings on the plot are shaped according to this with being long and narrow. Buildings are separated into 2 functions, therefore 2 typologies. One of them being a hangar/factory typology and other one being an office typology. Due to the unusual shape of the plot, the area has a lot of unused outdoor space that has a lot of potential to be a part of an urban public environment.

Post Pandemic Osi-Ghia

Fig. 114 Osi Ghia Area Current Fuctionality



1. Hangar Ghia

Year of construction: 1958
Designer: Arch. N. Diulgheroff
Covered area: 3968 m2
Previous use: Offices, Conference Room, Laboratories of design and warehouses
Current intended use: Out of order

2. Ghia Office:

Year of construction: 1958
Designer: Arch. Diulgheroff
Covered area: 407 m2
Previous use: Ghia Offices
Current intended use: Out of order

3. F.lli Miroglio Building:

Year of construction: 1936
Designer: N/A
Covered area: 304 m2
Previous use: Ghia Offices
Current intended use: Out of order

Source: Ianetti, Morino 2019

Fig. 115 Interior Picture in Ghia

Photographer: Lorusso Nicola

The Ghia building complex, which previously included a conference hall, laboratory, warehouses and Ghia offices, has been unused for many years and is in a state of decay. Although a project was designed for the Ghia factory in 2008 by Mario Cucinella Architects, it has not been implemented.

Fig. 116 Ghia

Photographer: Lorusso Nicola

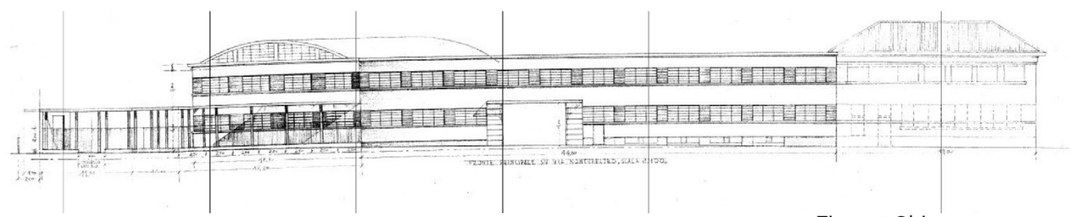


Fig. 117 Ghia

Source: Ianetti, Morino 2019

Post Pandemic Osi-Ghia

Current Situation

Fig. 118 Current Situation of Ghia

Photographer: Marco Bonadonna

Post Pandemic Osi-Ghia

B - Osi West

Fig. 119 An old interior photo of the Toolbox coworking

Source: Balestra A., Ferrero M., 2016

Fig. 120 Interior of The Toolbox
Photographer :Stefano Borghi

Source: Toolbox Coworking website

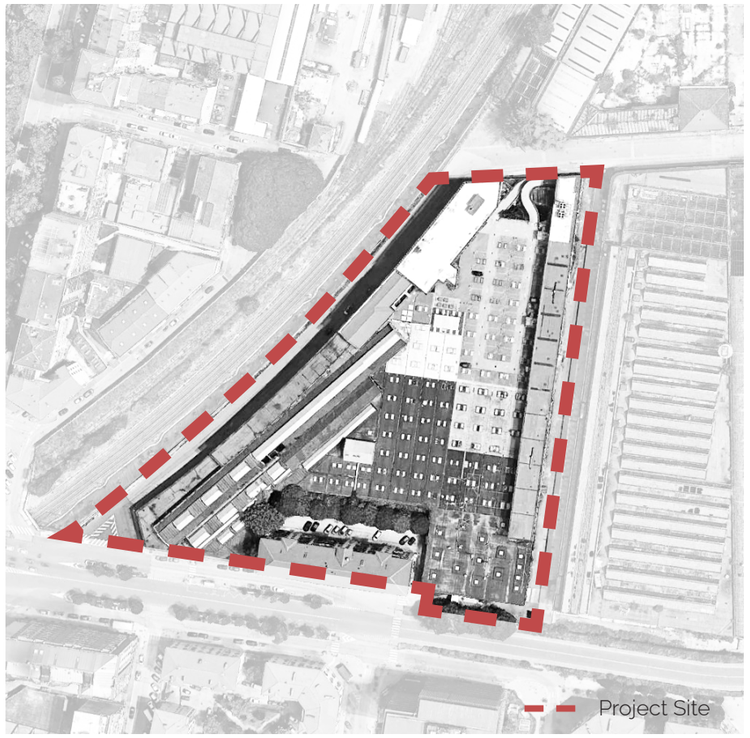


Fig. 121 Ex Osi-West Factory

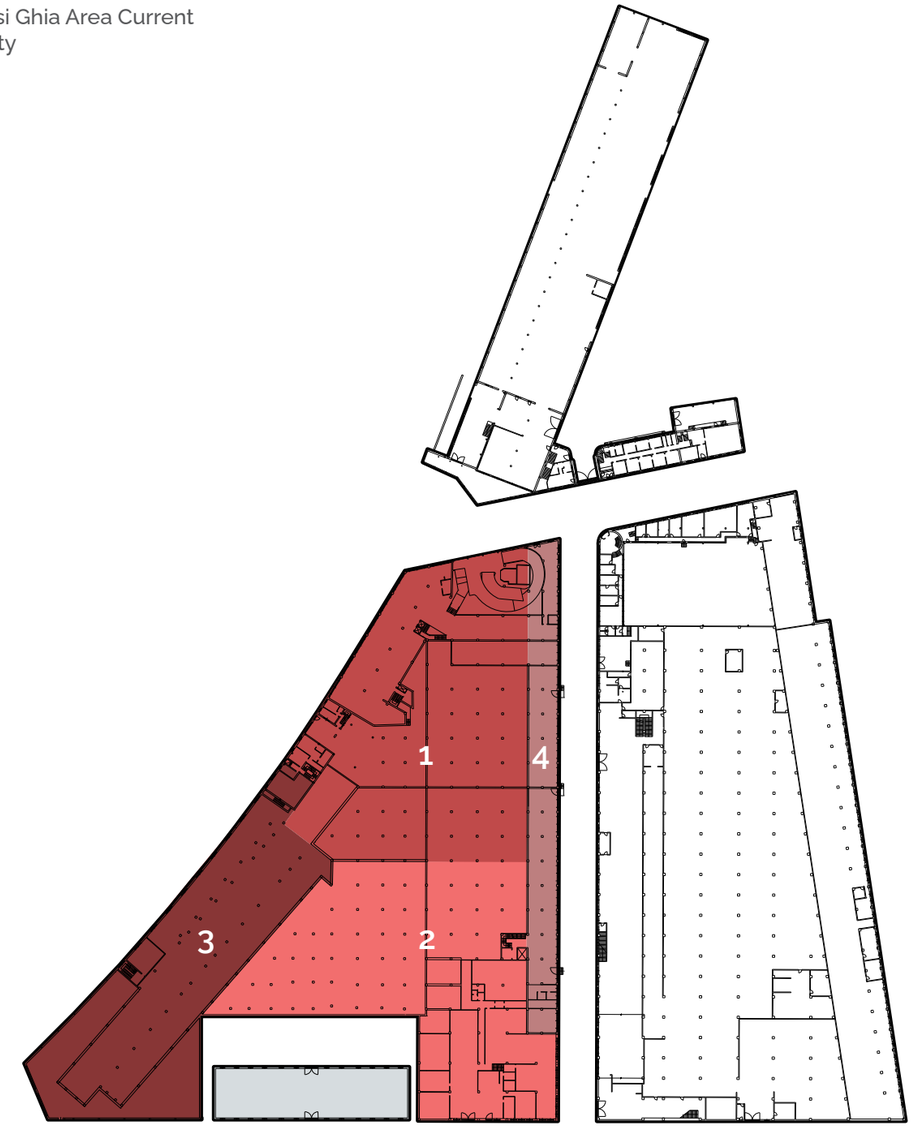
Source: Google Earth

Former Osi-West factory that is located on the west side of the plot. This former factory building is a one massive building which is divided into several functions for the use of industrial purposes. The building has an unusual triangular shape with a void on the south part that erupts the shape of the building for the residential building that resides there.

Most of the building today is abandoned and unused, except for the northern part of the building which is used by the Toolbox Coworking as a coworking space. It also has a rooftop parking space which can be accessed on the north part of the building via ramp.

Post Pandemic Osi-Ghia

Fig. 122 Osi Ghia Area Current Fuctionality



1. Wokshop Lab/Offices

Year of construction: 1920 - 1923
Designer: Ing.Porcheddu
Covered area: 4988 m2
Previous use: Laboratory /Management Offices
Current intended use: Co-working Toolbox / Casa Jasmina

2. Factory

Year of construction: 1915-1919-1923
Designer: Ing.Porcheddu
Covered area: 4575 m2
Previous use: Steel mill
Current intended use: Out of Order

3. Refectories + The Forges

Year of construction: 1920-1923=1947
Architect : Ing.Porcheddu
Covered area: 600 m2 + 2995 m2
Previous use: Refectories industrial changing rooms, industrial forges
Current intended use: Out of order

4. Bernini West

Year of construction: 1915-1919-1923
Architect : Ing.Porcheddu
Covered area: 1290 m2
Previous use: Administrative Offices, Warehouses, Dance club
Current intended use: Toolbox SRL

Source: Ianetti, Morino 2019

Fig. 123 Interior of the Toolbox

Photographer: Andrea Guermani

The Toolbox building was formed in 2010 and has a very convenient function in terms of the new identity for the post-industrial areas. Toolbox, which contains many initiatives, has turned a functionless structure into an area full of innovations and has become an important point that attracts people not only from the district but from the whole city. (POLYÁK, 2018) Currently, only the Toolbox is used in the district and the surrounding areas are completely abandoned, full of waste, and unusable.

Fig. 124 Toolbox Aerial

Photographer: Matteo Graccone

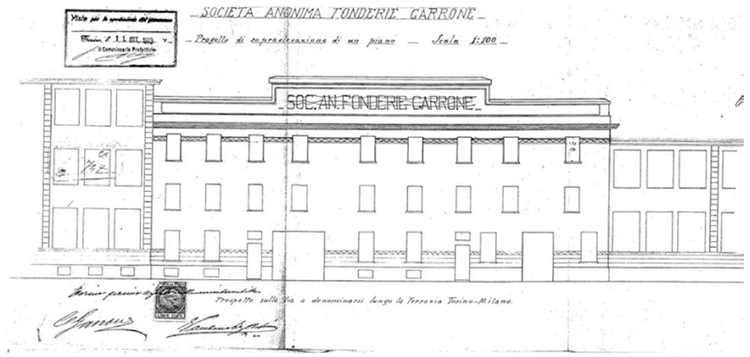


Fig. 125 First extension of 1923, Osi West

Source: Balestra, Aurelio and Marco Ferrero, 2016

C - Osi East

Fig. 126 OSI in 1960
The Production of Cars
Source: Osicar.de

Fig. 127 OSI in 1965
Source: Osicar.de

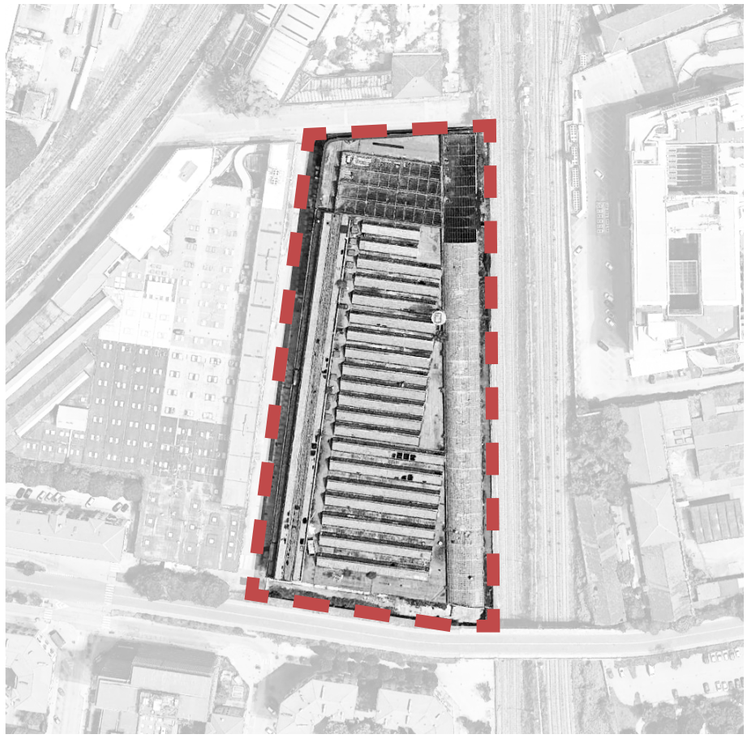
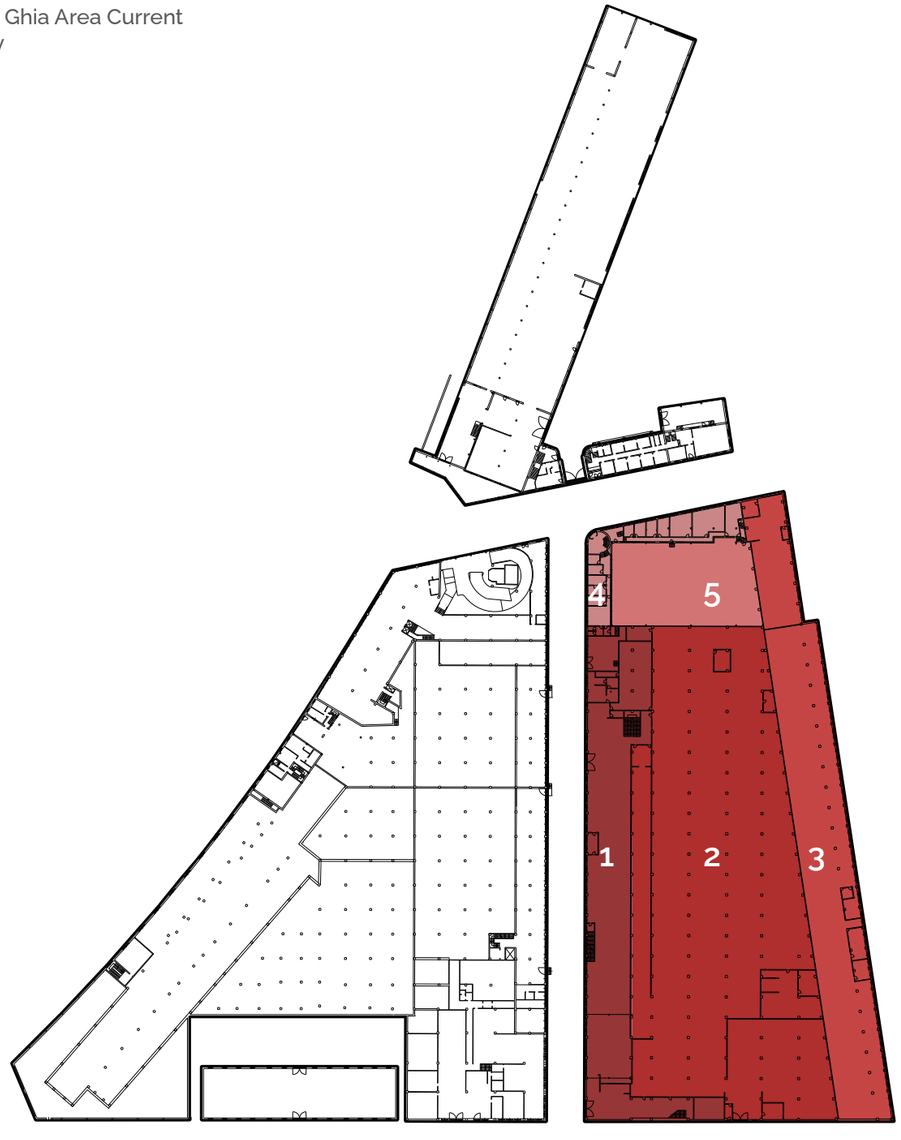


Fig. 128 Osi East Sattelite View
Source: Google Earth

Former Osi-East Factory is located on the east side of the plot. Like the Osi-West this factory building is also a one massive building consisting different functions. Currently the building is completely abandoned. Most part of the buildings former function is production factory, which means that it has a lot of tall spacious areas. It has 2 long and slim spaces on the sides of the building and 1 large spacious area in the middle part of the building.

Post Pandemic Osi-Ghia

Fig. 129 Osi Ghia Area Current Fuctionality



1. Bernini East

Year of construction: 1940
Architect: Ing. Jacazio
Covered area: 1982 m2
Previous use: Thermal power plant, warehouses, spo rooms
Current intended use: Out of order

2. Osi Factory

Year of construction: 1936
Architect: Ing. Jacazio
Covered area: 7148 m2
Previous use: Automotive production line
Current intended use: Out of order

3. Press Departmant

Year of construction: 1940
Architect : Ing. Jacazio
Covered area: 3111 m2
Previous use: Press department and Accessory compartments
Current intended use: Out of order

4. Osi Office

Year of construction: 1961
Architect : Arch.N.Diulgheroff
Covered area: 541 m2
Previous use: O.S.I-GHIA offices
Current intended use: Out of order

5. Courtyard

Year of construction: 1980
Covered area: 1007 m2
Previous use: Warehouses
Current intended use: Out of order

Source: Ianetti, Morino 2019

Fig. 130 Current Situation of Osi-East

Photographer: Marco Bonadonna

On top of the building the production area has lots of openings to take opportunity of the natural light, which has a lot of potential for the future sustainability of the building. For the most part the structure of the building is present, except for some of the roof elements on the north-east side and the middle openings. The current structure of the building can be utilized for the future function and this would be beneficial in terms of the sustainability of the design.

Fig. 131 Current Situation of Ghia

Photographer: Marco Bonadonna

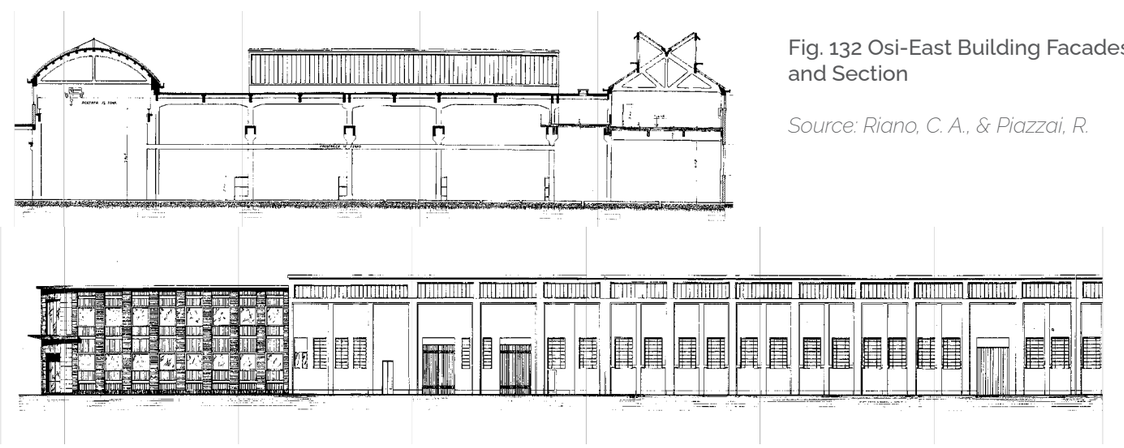


Fig. 132 Osi-East Building Facades and Section

Source: Riano, C. A., & Piazzai, R.

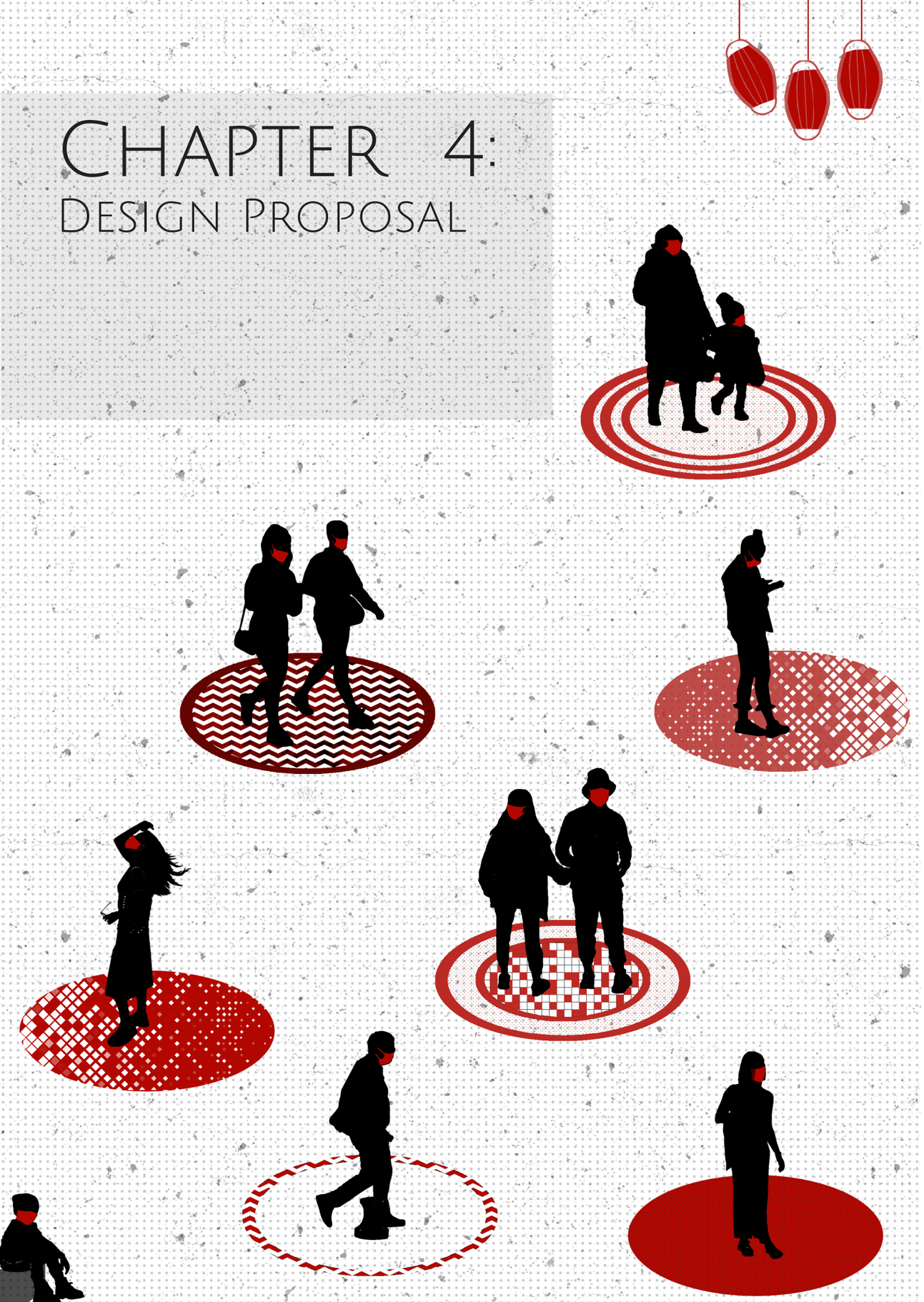
Post Pandemic Osi-Ghia

Current Situation

Fig. 133 Current Situation of Osi-East

Photographer: Marco Bonadonna

Chapter 4:
Design Proposal



Vision

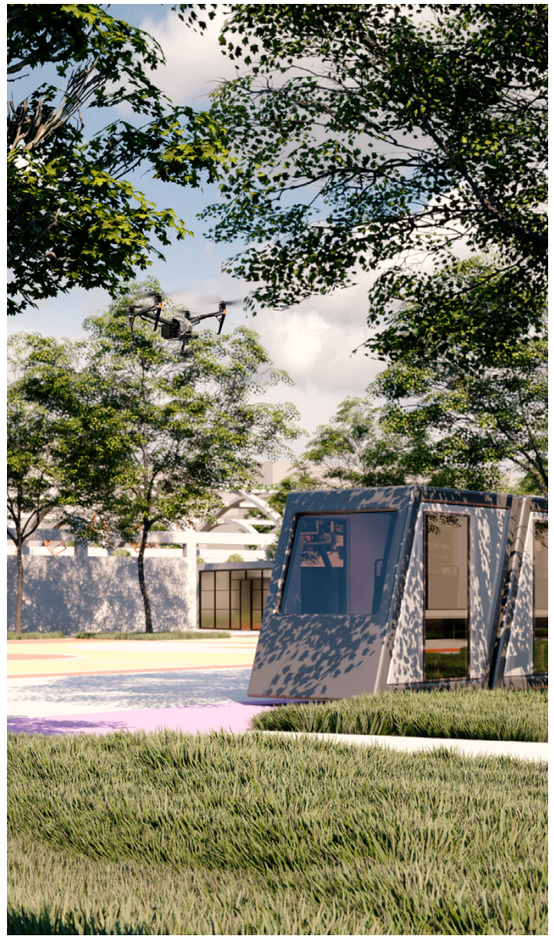
Post-Pandemic Urban Revival

Our proposal for Former Osi-Ghia area comes from the combination of history and the new norms brought by current pandemic situation. The vision for Osi-Ghia, a former industrial area, is to transform it to a multifunctional area from a mono-functional one by diversification of spaces and functions on the site to serve its future users. Increasing the accessibility of the area to ensure its future usage and maintenance while creating diverse and inclusive spaces for people to become a part of the environment. Digitally connecting every-aspect of the site with the city itself to increase feedback, participation, efficiency and health of the future Osi-Ghia.

... INDUSTRIAL BUILDINGS CONNECTED WITH NATURE

... HEALTHY AND LIVEABLE ENVIRONMENTS

... OPEN AND ACTIVE URBAN ATMOSPHERE

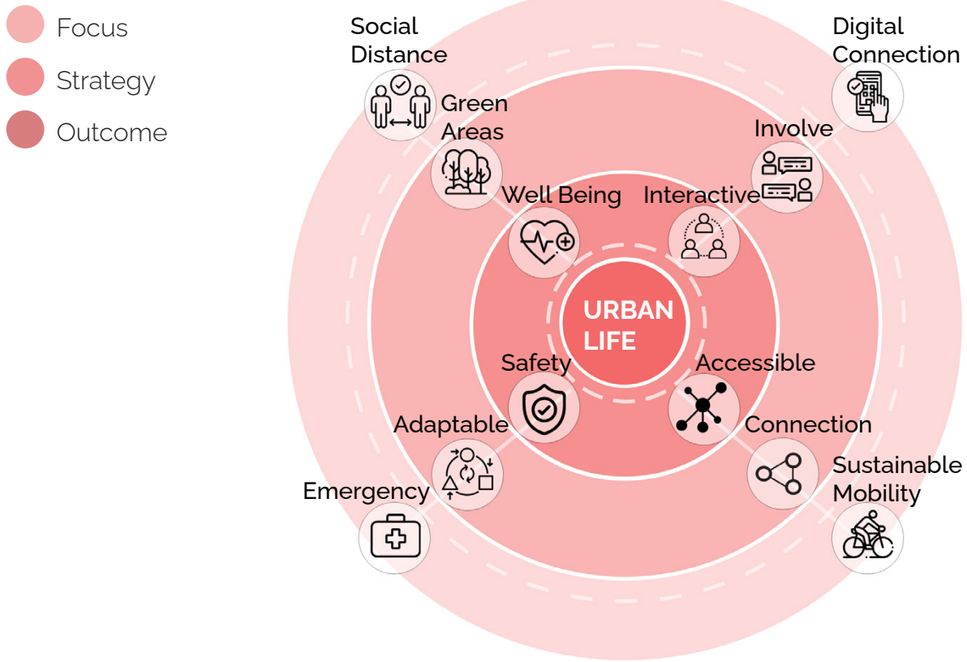


... SMART AND INNOVATIVE FUTURE

Strategy

Possibilities of the Future

With the changes that the pandemic brought to our world, the way we look at the world is also shifting. People's priorities towards cities, urban spaces, and transportation changes. People's priorities towards cities, urban spaces, and transportation changes. Since humans are social creatures, naturally people still want to socialize, but in the meantime, they want to feel safe. We as designers have to change the way we look at architectural and urban design and change out the perspective and adjust our priorities according to the future possible scenarios to help urban cities to become more adaptable places.

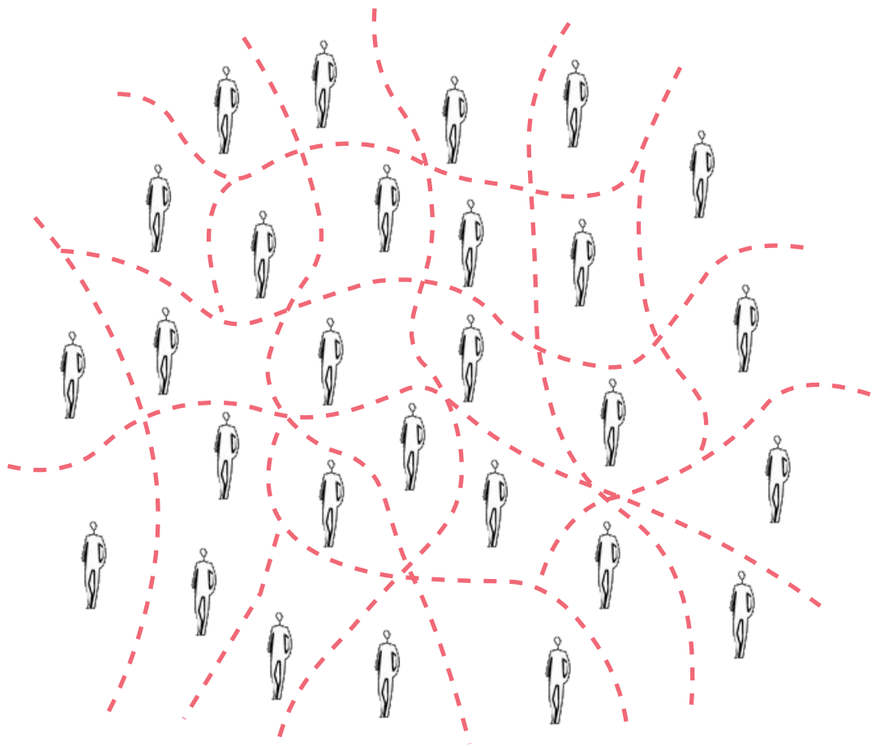


URBAN LIFE

POST-PANDEMIC: THE NEW NORMAL

To be able to do this we have to look at the current needs that came with the pandemic and build on them. Our approach to the project should be more holistic and we need to examine the existing urban dynamics well. It is necessary to make meaningful designs that will contribute to the transformation of the city with the right strategies by determining our focal points against possible problems today and in the future.

Citv Users



Children

Age : 7-13
Social Network
■■□
Mainly Mobility
Walking,Bicycle
Towards digitalization
■■□

Teenagers

Age : 14-20
Social Network
■■■
Mainly Mobility
Walking,Bicycle
Towards digitalization
■■■

Singles

Social Network
■■■
Mainly Mobility
Walking,Bicycle
Towards digitalization
■■■

Families

Social Network
■■□
Mainly Mobility
Walking,Private Mobility
Towards digitalization
■■□

Elders

Age : 65<
Social Network
■□□
Mainly Mobility
Walking,Public Mobility
Towards digitalization
■□□

Tourists

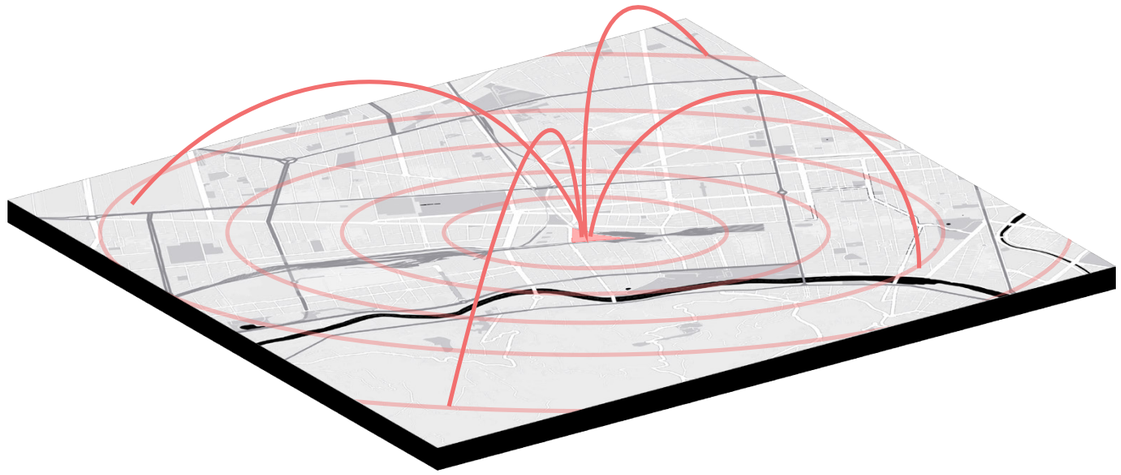
Social Network
■■■
Mainly Mobility
Walking,Bicycle
Towards digitalization
■■■

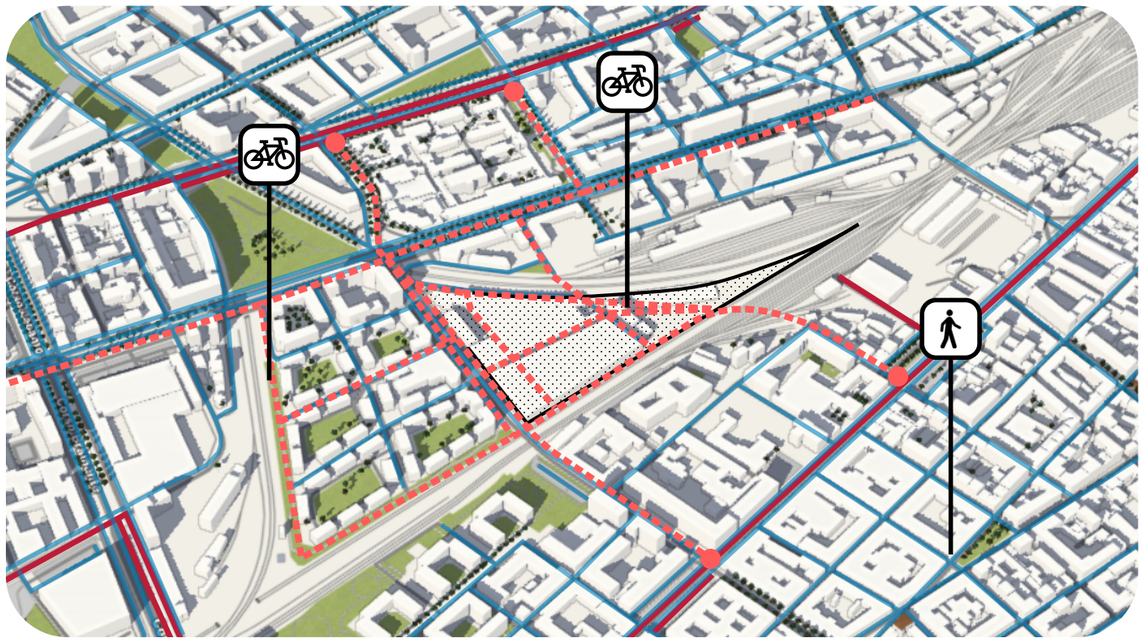
Post Pandemic Osi-Ghia

Urban Strategies

Urban Scale Connection

A design in an urban scale should be able to connect all the surrounding neighborhoods together as well as fostering an open, diverse and innovative engagement through urban and social policies. Osi-Ghia being an abandoned former industrial area, is disconnected from the city. The proposed design should be inclusive and inviting, allowing anyone from the city to be part of the space.



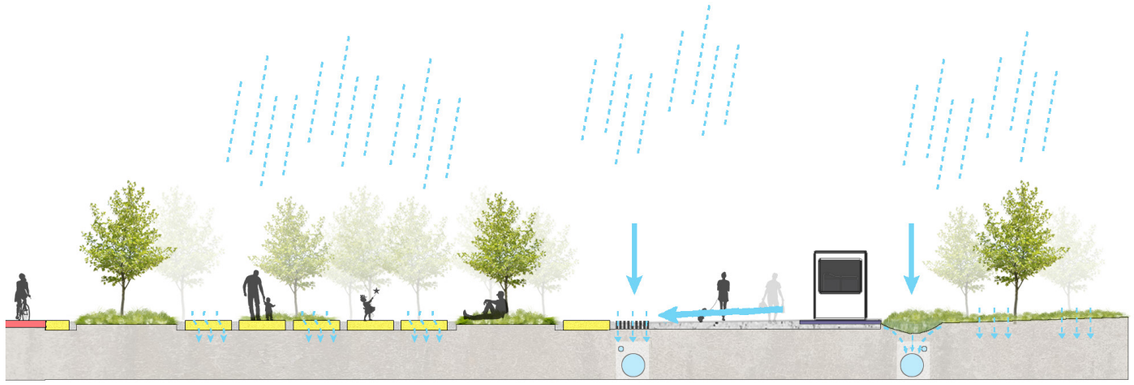


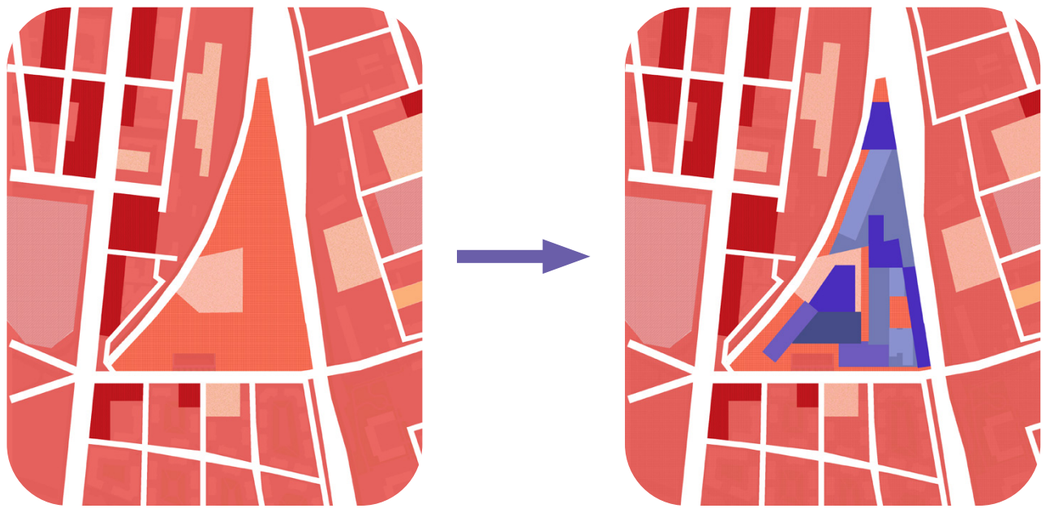
Mobility Infrastructure Upgrade

Since the site is restricted by the railways, mobility is the key to re-activating the former industrial area into a more active, friendly, accessible environment. It is important to improve the public transport system, but most importantly it is essential to improve the bike lanes in the surrounding area and connect them to this area enabling its potential to be gained. It is also important to increase the walkability of the area.

Increased Permeability

Since Osi-Ghia is a former Industrail area, it has a lot of hard ground, preventing stormwater to drain. Improving the permeability has a big impact on water cycle. Additions of permeable areas and stormwater drainage systems could reduce the impacts of heavy rain and improve safety.





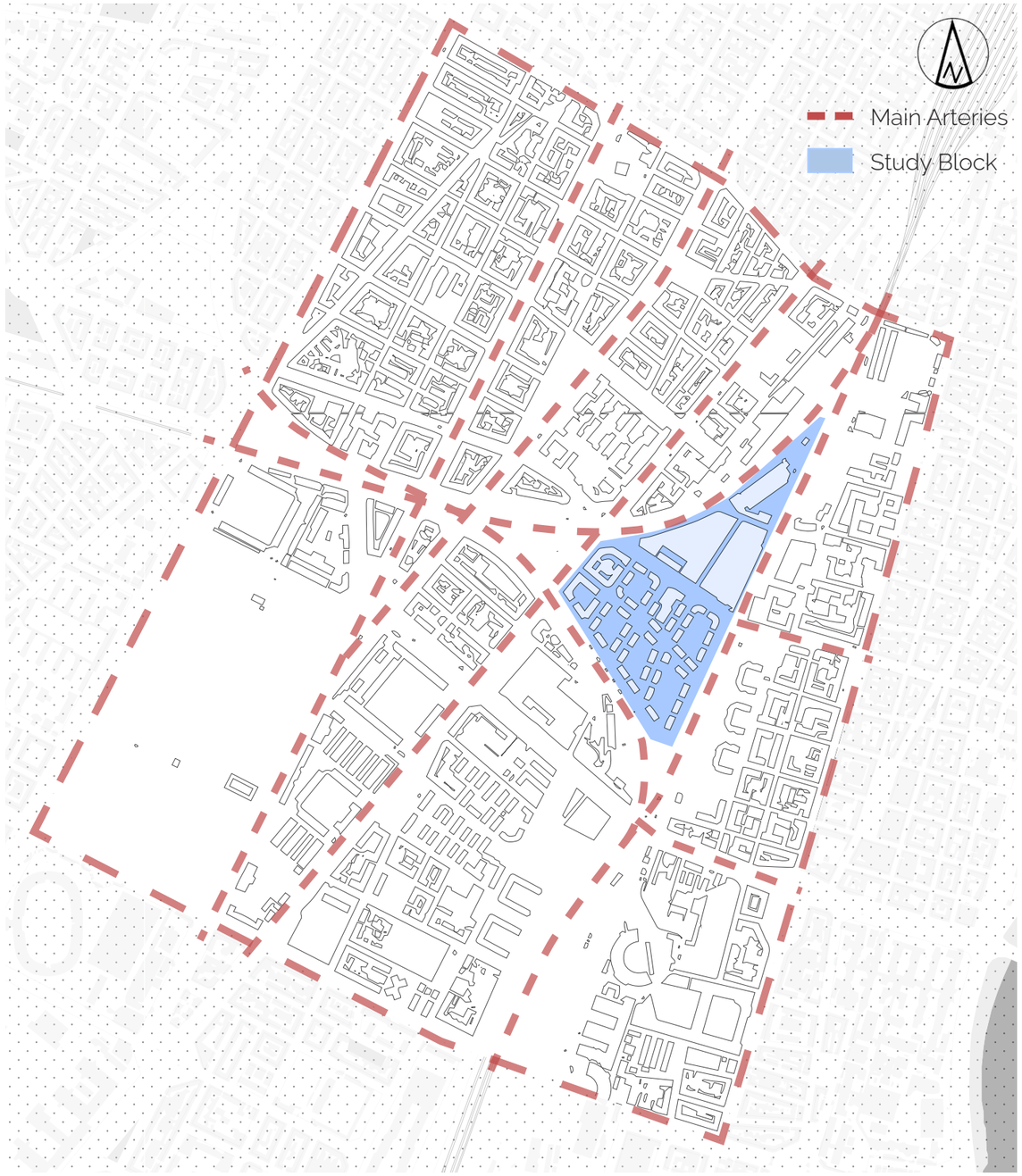
Increased Function Diversity

Currenty Osi-Ghia and its surroundings are mostly mono-functional, failing to serve to the neighbourhood and the city that it is in. It is essential to foster a more diverse environment to activate the abandoned area and attract people. The variety of functions and uses will increase the quality of the area attracting people from all around the city.

Post Pandemic Osi-Ghia

Post Pandemic Osi-Ghia

Macroblock Division

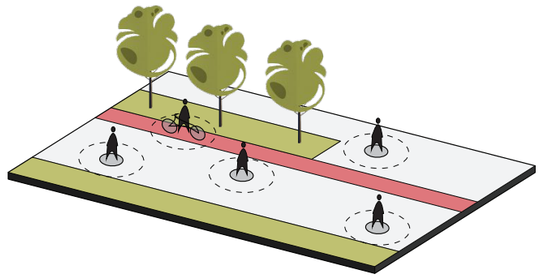


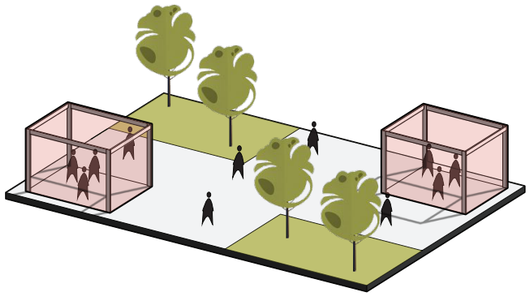
To be able to create more resilient communities and balance the function diversity in areas, study area has been divided into macroblocks with the urban typologies and main arteries of the city in mind. Site area has been divided so that one part of the area is reserved for existing residential areas while the other part is reserved for commercial and service facilities as well as for the creation of buffer zones for easier and faster emergency responses. This diversification of functions and social infrastructure creates a high living condition for the residents even during the emergency situations. Finally, by using this method it is possible to increase the public spaces and decrease the road surfaces in the city.

Design Strategies

Social Distancing

With the pandemic we have learned that the distancing between people is important for health. It is important to blend these measures into the project while maintaining the nature of the design itself.



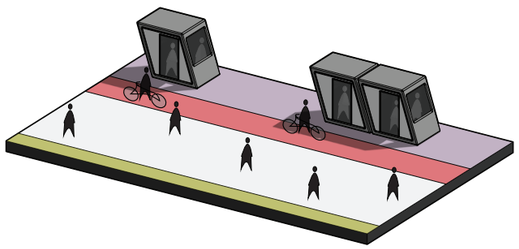


Private Bubbles

For groups of people and singular individuals it is important to create private, safe environments. With the addition of private bubbles in the design accomplishes this.

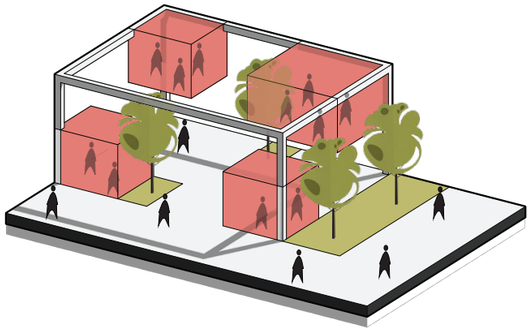
Sustainable Private Mobility

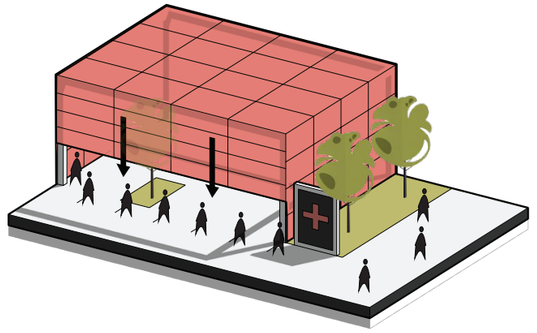
With busses being crowded, people started to prefer private transportation methods such as, scooters, bicycles, walking or cars. To eliminate the use of cars, road infrastructure has been changed to a new model that is able to sustain more sustainable solutions, such as bicycle lanes, larger walking area and electric powered autonomous transportation pods.



Open Buildings

Enclosed spaces have become the signature of unhealthy environments, escpecially the ones with insufficient ventilation. With Osi-Ghia being such a larg building, it would be inefficient and impractical to ventilate the whole environment. Rather than that, it is possible to implement some of the functions to outdoor environments, where there is no ventilation problem, therefore is healthier.





Adaptable Emergency Spaces

During the emergency situations, it is essential to be prepared before-hand to be able to maintain the situation with minimal loss. Therefore it is important to create flexible spaces that can be used in various emergency situations.

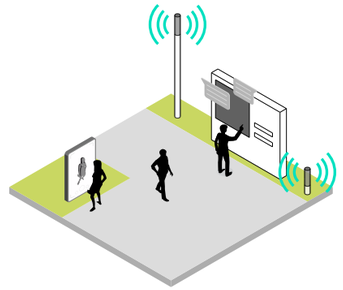
Digitally Connected Environments

In todays world, everything is being digitalized. This digitalization opens up opportunities in public spaces for people to more actively become a part of the environment. Giving feedback, visualizing the environment and control it with their fingertips. Therefore it is essential that everything and everyone is connected to eachother through this digital webs.

Digital Connections

The Vision of digitally connected area where users can participate and help improve the area, access the services in an easy innovative way can be achieved by the use of the adaptation of current technologies such as; sensors, controllers, mobile apps...

In today's world, adding a digital layer to the environment helps people understand their environment more easily and makes it easier for them to access to any information they want easily.

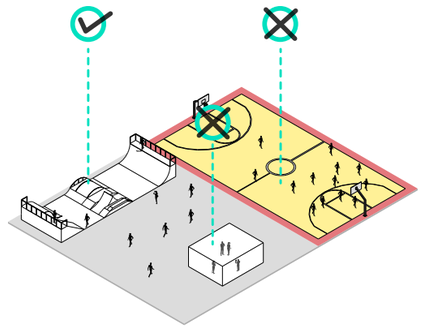


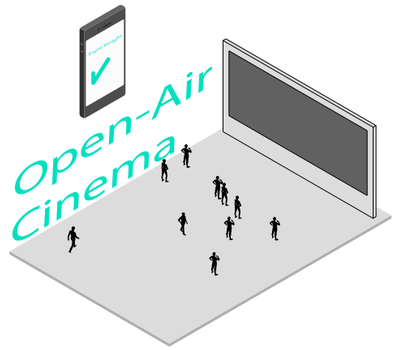
Connect & Recharge

Wi-Fi enabled elements distributed throughout the site helps people to connect with the site, have access to services and information.

Booking

Possible to book and reserves spaces all around the site such as; courts, sports fields, rooms, transportation vehicles...



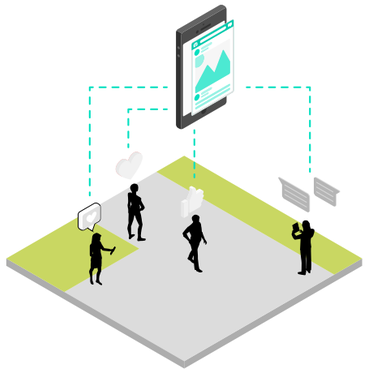


Events

Get notifications for all the events organized in the site and attend them. Through the app people can also register for the events.

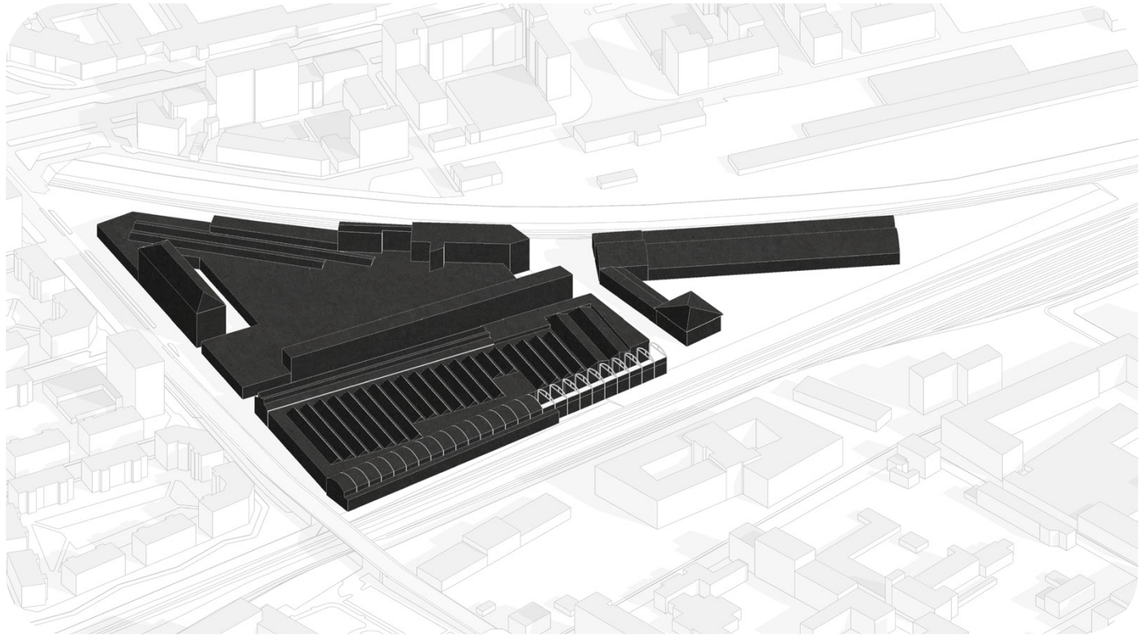
Participation

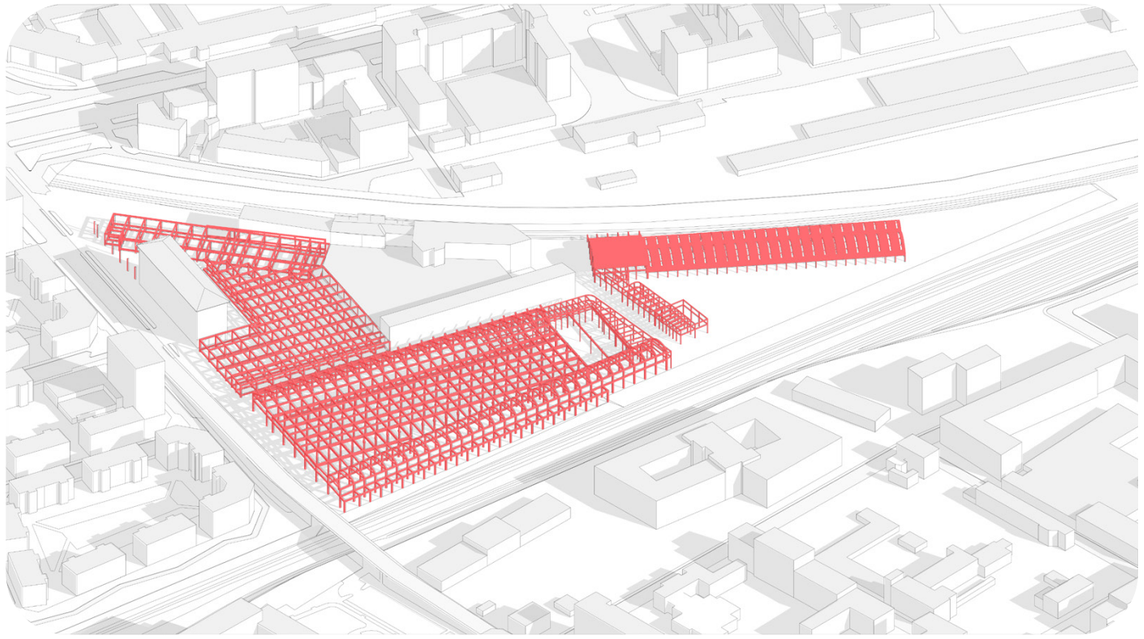
Users can publish their suggestions, pictures, start votes, polls as well as view and participate in other users polls and comment on their posts.



Post Pandemic Osi-Ghia

Design Concept



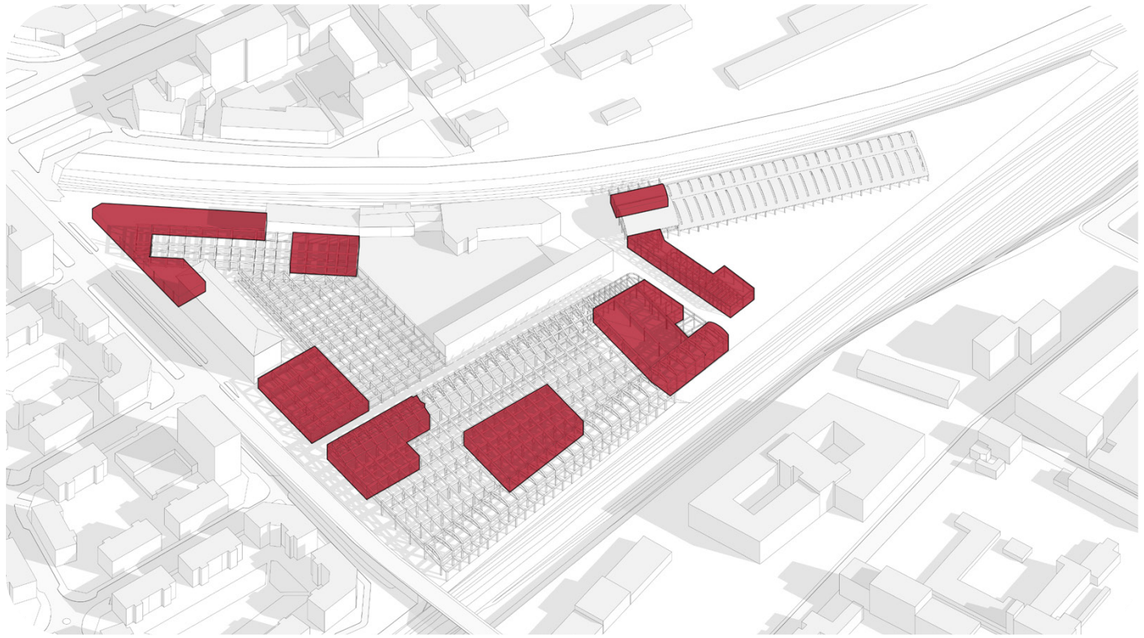


Existing Site

The project area consists of 3 large closed industrial buildings with few open spaces. The buildings have no connection with the surrounding and are very densely spread over to the whole area. After emphasizing that closed spaces are less healthy environments during the pandemic, using functions in open areas as much as possible while designing will make people feel better.

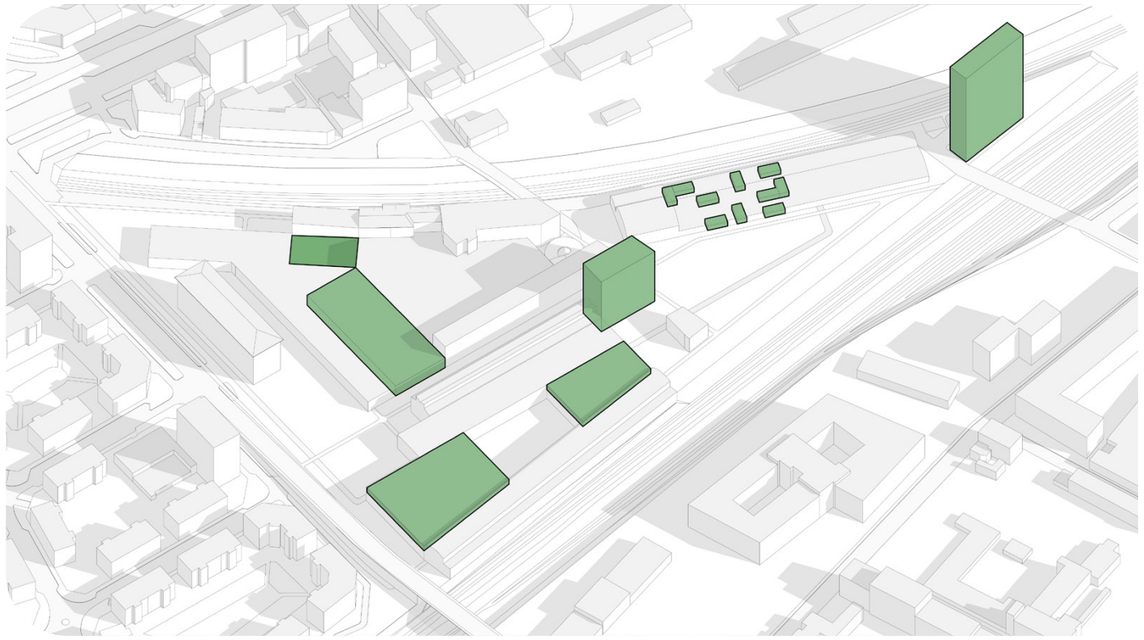
Structure

The design strategy of the proposal is to add new functions while preserving the structure and heritage of the existing industrial structure as much as possible. This way it is possible to preserve the industrial identity of the site and reflects its past. With this in mind it is possible to use the existing structure of the former industrial buildings for the creation of healthier spaces.



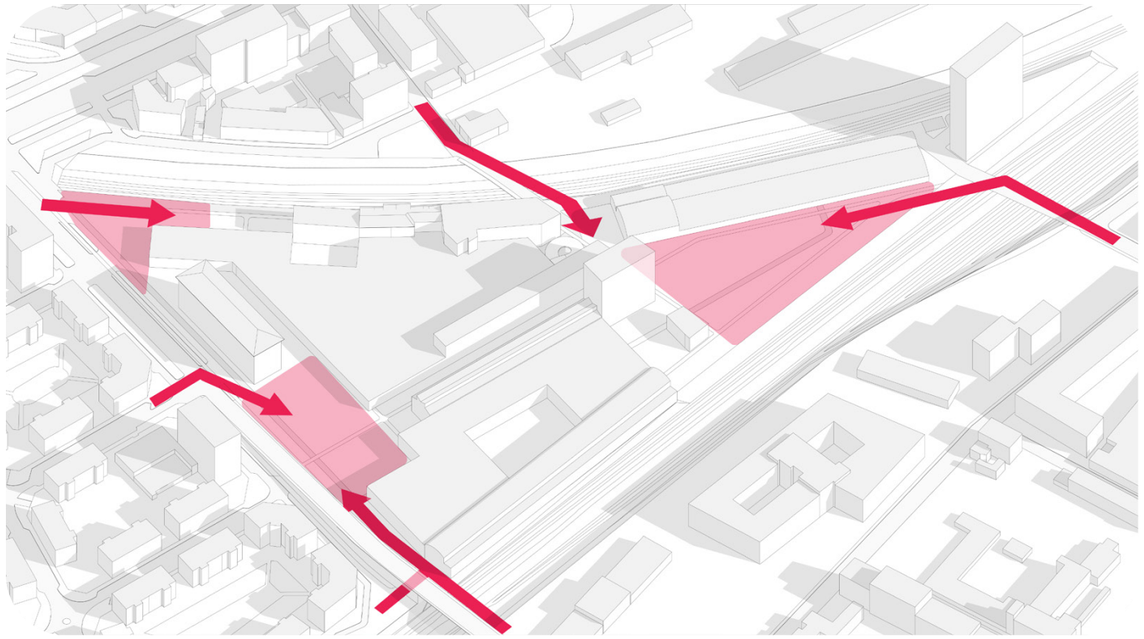
Subtractions

Most of the building have been stripped of from its enclosing elements such as walls and roof. Some parts of the roof and walls have been left for further use. Some parts of the buildings structure have been demolished on strategical locations to make space for the creation of nodes and necessary elements and passages throughout the design. These demolishes were necessary to increase the accessibility of the site



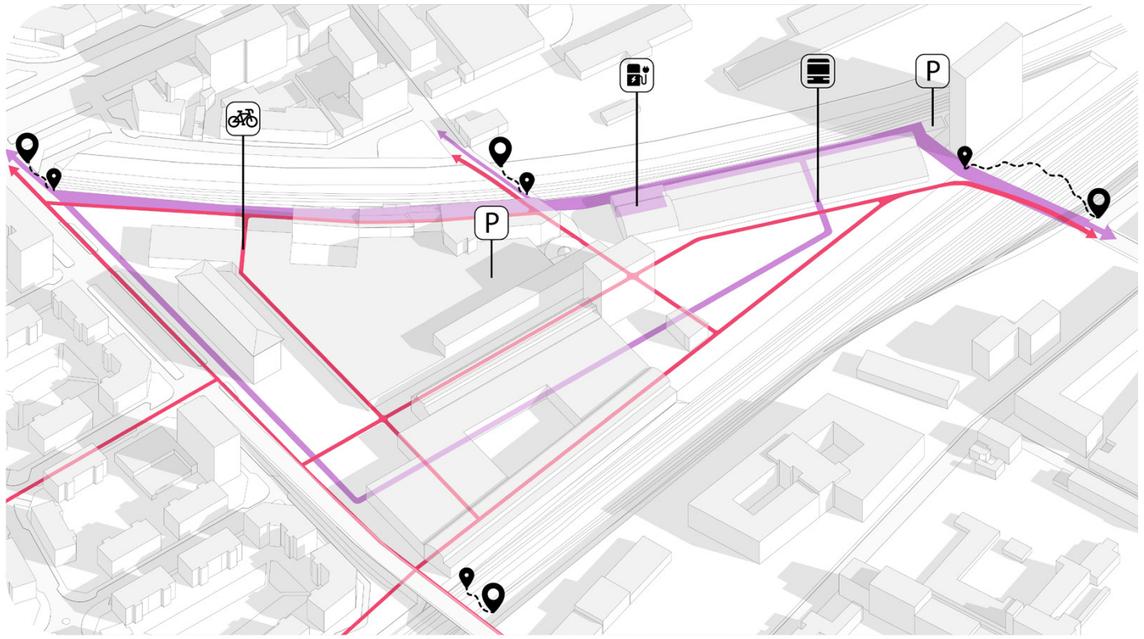
Additions

While the new functions are determined according to the needs of the district, they were based on the creation of healthier areas after the pandemic. Newly added areas are designed with the open space concept in mind. In addition, new residences and dormitories have been designed as multi-functional to meet today's needs.



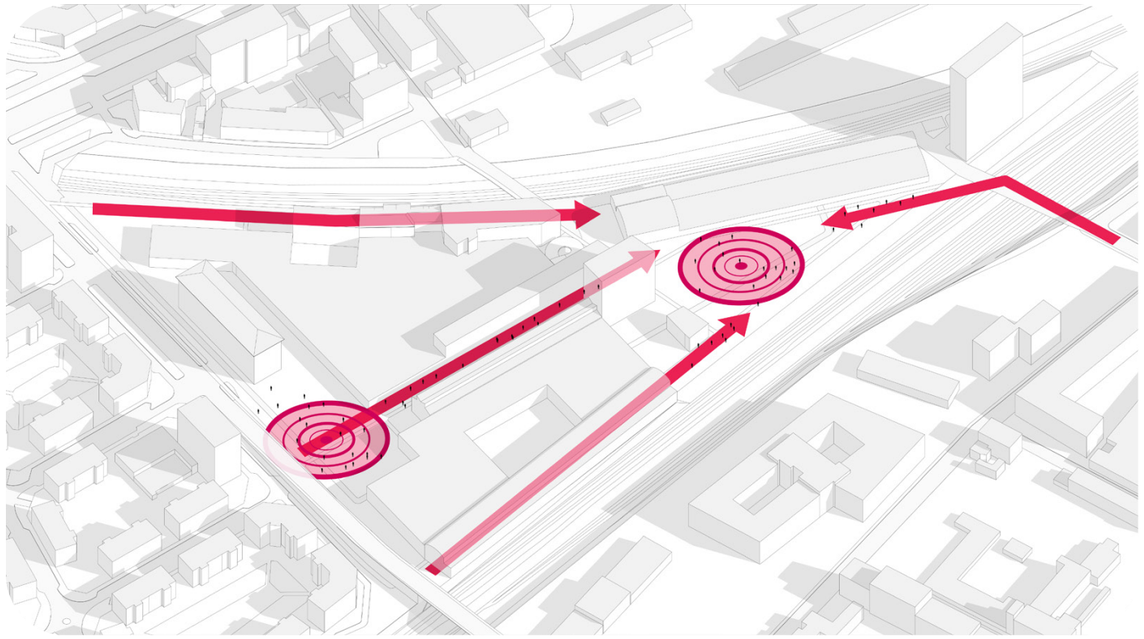
Accessibility

The site is located between two railway lines that considerably limit access to the areas. It creates an urban island effect due to its few connections with its surroundings. For this reason, accessibility is the most important key point when turning the old industrial area into a more active area. In order to increase the accessibility of the area, 4 main points were determined.



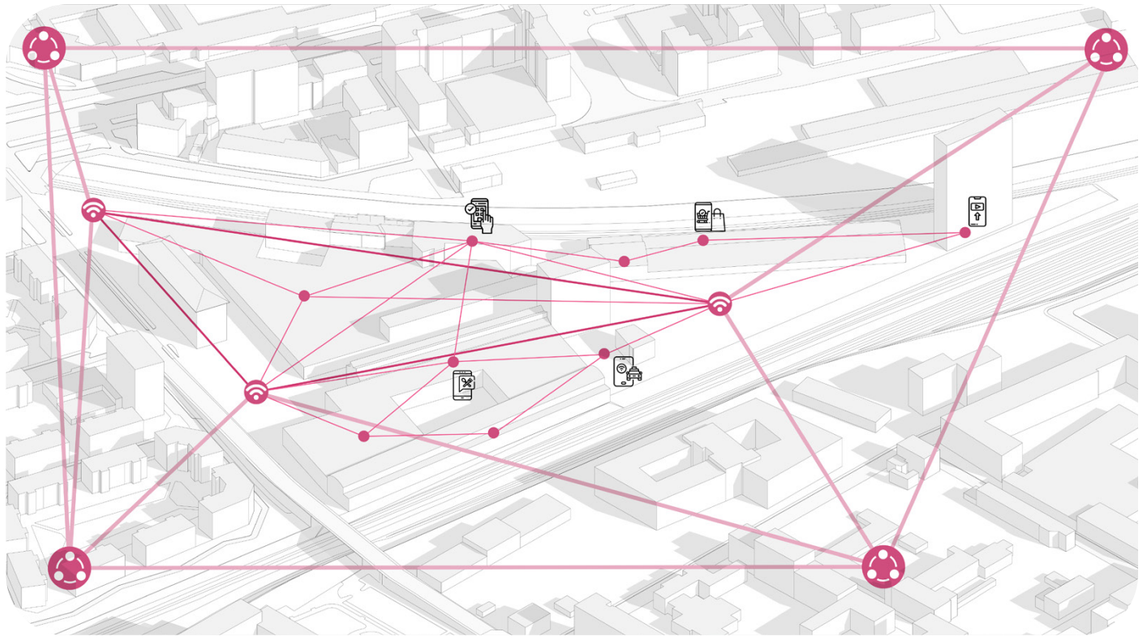
Mobility

In order to increase the urban quality of the design, the connection of the area with its surrounding was primarily improved. As people prefer private transportation after the pandemic, our priority has been to focus more on transportation options such as scooters, bicycles, walking. However, in case this type of transportation is not suitable for everyone, electric-powered autonomous transportation pods. have been added to the site.



Paths & Nodes

There are 2 large public squares in the area to create more free open spaces for people. These node points are supported by paths with a wide variety of atmospheres that can be accessed from all over the site area. These areas, which are of great importance for cultural activities and meetings, are the heart of the project. It helps people feel that they are in a more free, healthier, and happier environment.



Digital Connection Network

It is aimed to enable people to interact with each other digitally and to become part of the environment. With digitalization being a great necessity, everything on the site is connected to each other through digital networks. In these areas, information can be obtained, interacted or everything can be controlled. Users can reserve areas according to their needs and create their own private areas whenever they want.

Multi-Functional Environment

The Osi-Ghia area consists mostly of residences and does not contain public spaces that can serve the area on a neighborhood scale. It is aimed to reactivate the abandoned area and attract people at the neighborhood and city scale. The design, which includes multifunctional and flexible areas in terms of usage, will significantly increase the urban quality.

Thematic Spaces

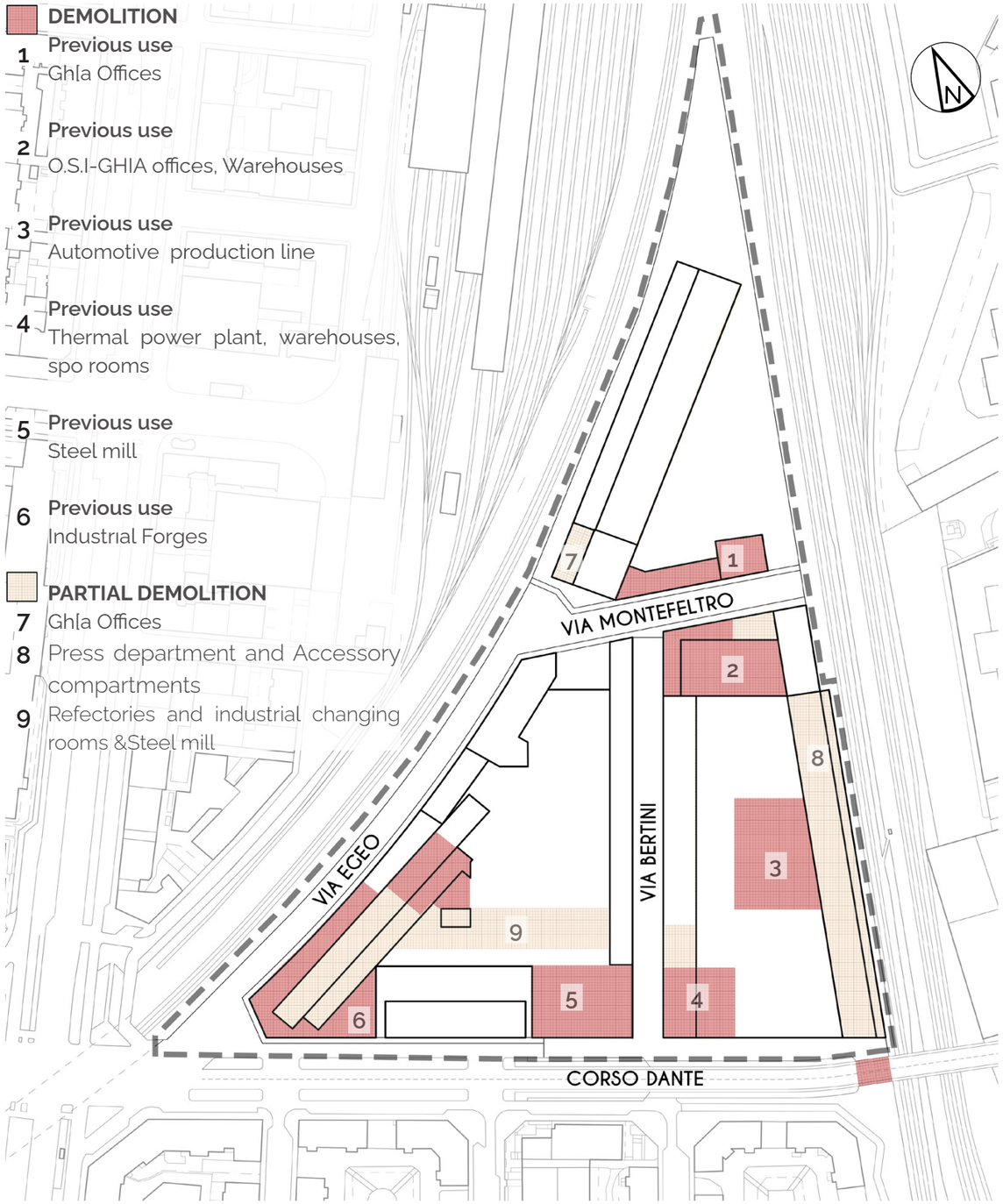
The multifunctional areas within the site are characterized by different atmospheres and themes. Although each of them has a unique character, they are integral in the urban sense. In addition, due to the pandemic, the flexibility of the areas has been considered and has the ability to easily adapt to a new function in emergency situations.

Post Pandemic Osi-Ghia

URBAN LAYOUT

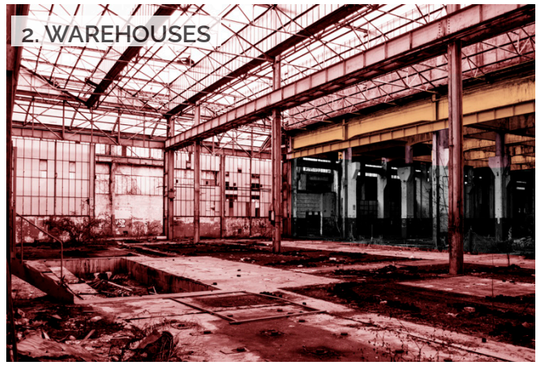
NEW VISION FOR OSI-GHIA

Demolished Areas

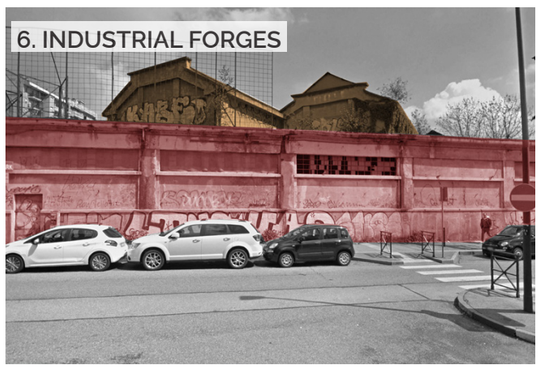


As a post-pandemic design strategy, it is to create healthier public spaces by designing new functions in open spaces. Some buildings were stripped from their walls and floors to create a healthier public space for people. Also, some parts of the buildings structure have been demolished in order to increase the accessibility of the project area and to create more active areas.

These buildings, which were formerly used as Ghia offices, are now out of use and in a bad condition. It has been demolished to design a large active square with various sports activities on it. In this way, the accessibility potential of the site has been increased.

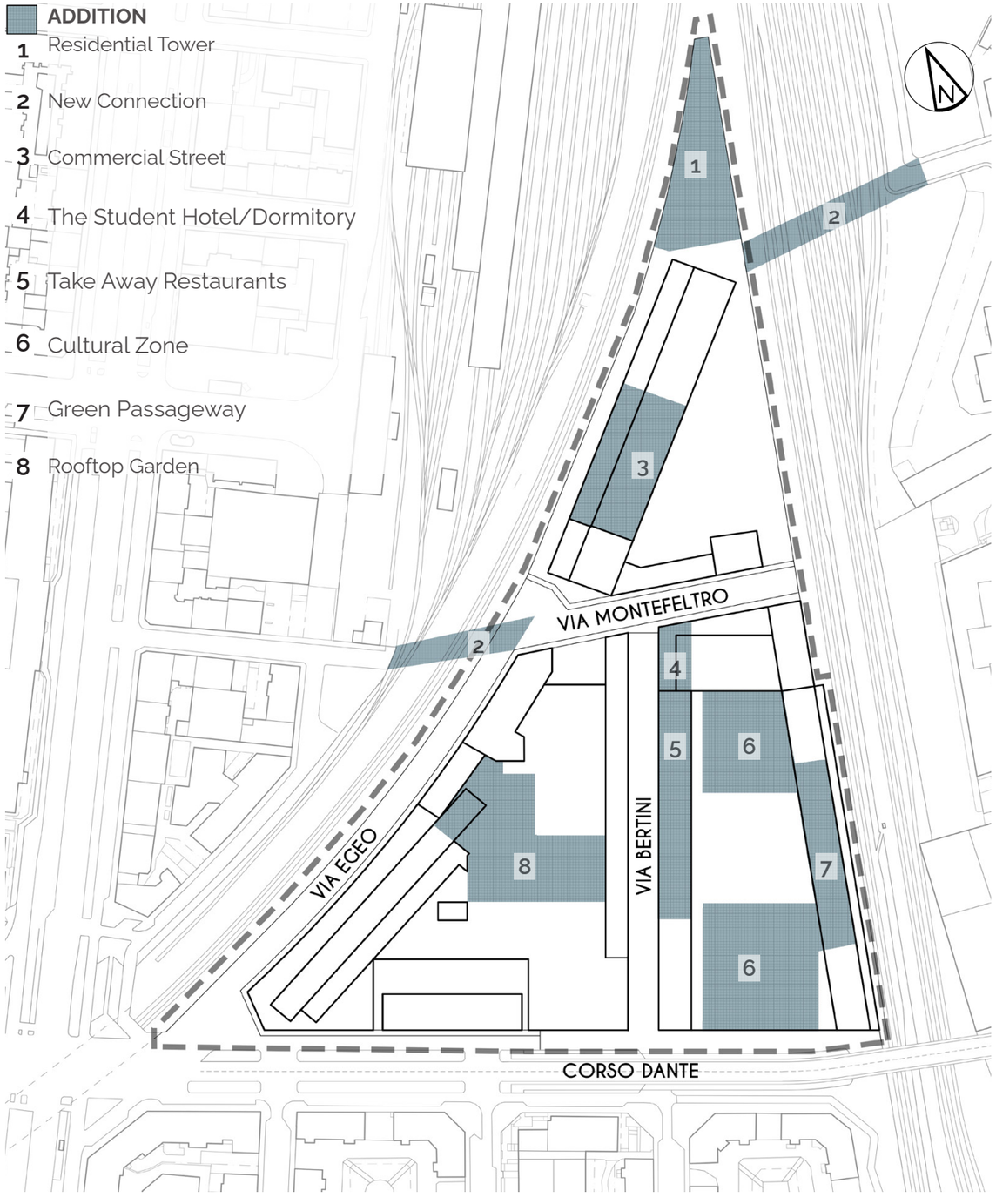


Compared to the surrounding buildings, this area was added later to be used as a warehouse, but is now out of use. It is in a strategically important position as it is connected to many functions. It would be a better solution to use this section as an open space to meet the green space needs of people after Covid-19.



This building, formerly used as an industrial forge, is currently out of use. The situation of the building restricts access to the area and makes it an isolated place. For this reason, it is desired to increase the visibility and accessibility potential of the site by demolishing the part shown in red and preserving the structure in the parts shown in orange.

Additions



As a post-pandemic design strategy, it is desired to reduce the amount of closed indoor spaces and to create more outdoor spaces integrated with nature for healthier and more distant environments. New areas have been designed in line with this design focus.

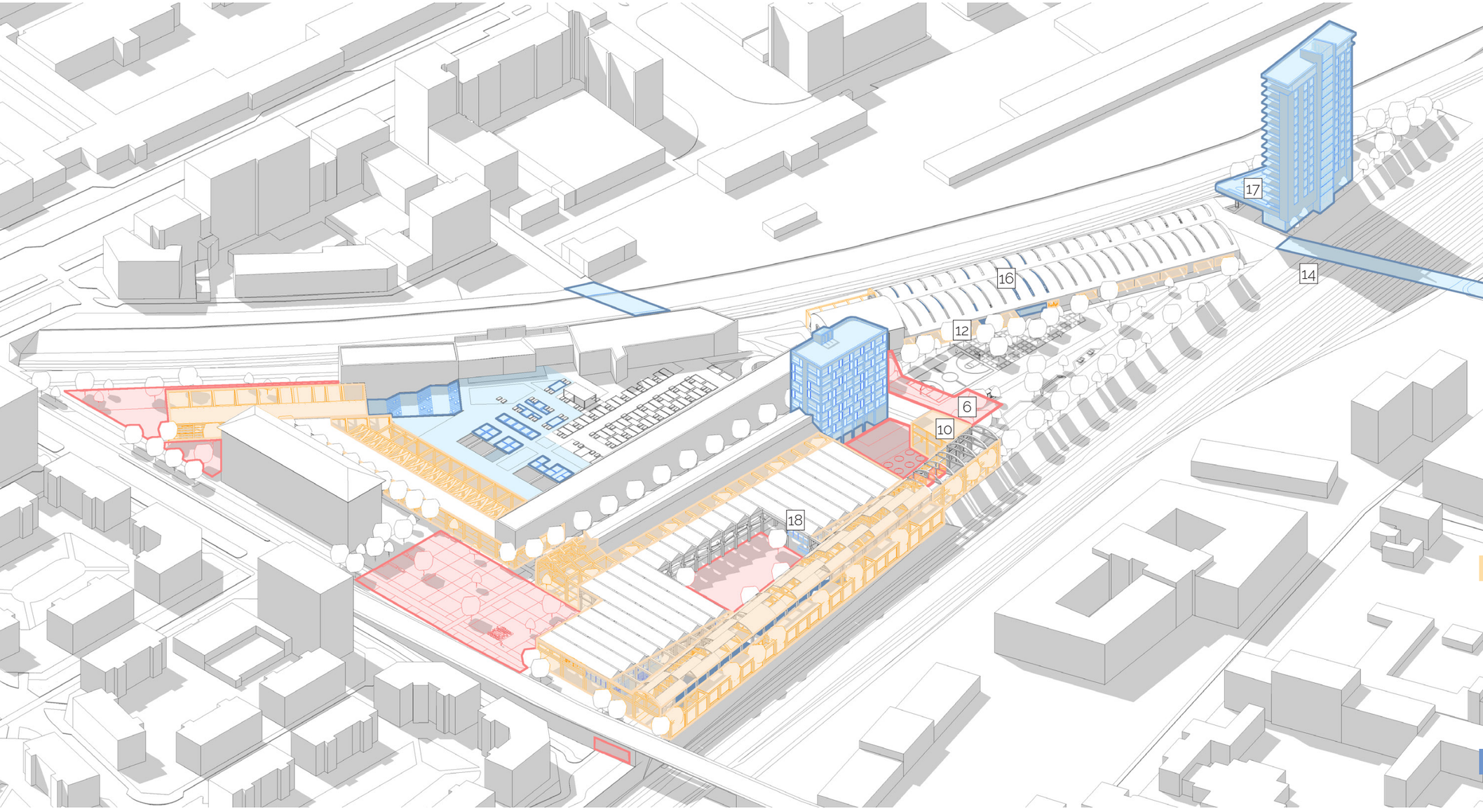
Ghia building was preserved by making minor changes to the exterior walls to create healthier environments after the pandemic. Shops have been added to create a new commercial area within the building.

The building has been stripped away from its walls to create a healthier public space for the people. This area, determined as a cultural zone, is designed to generate activities that would attract people from neighboring districts in order to enrich and increase the cultural value of the area.

In order to enable people to walk in a healthier street environment, the outer walls were demolished and openings were made in some places in the roof. Additions of some attractions have been added to the area to increase the usage of the space. With the design of a green passageway, it welcomes people with a green habitat in the city.

Post Pandemic Osi-Ghia

Additions & Subtractions



DEMOLITION

1 **Previous use**
Refectories and industrial changing rooms
New use Leisure Passageway

2 **Previous use**
Steel mill &Thermal power plant, warehouses, spo rooms
New use Main Square

3 **New Connection**

4 **Previous use**
Automotive production line
New use Courtyard

5 **Previous use**
O.S.I-GHIA offices, Warehouses
New use Active Square

6 **Previous use**
Ghla Offices
New use Active Square

PARTIAL DEMOLITION

7 Leisure Passageway
8 Cultural Passageway
9 Green Passageway
10 Playground
11 Transport Pods Charging Zone
12 Commercial Street

ADDITIONS

13 Rooftop Garden
14 Connections
15 The Student Hotel/Dormitory
16 Commercial Street
17 Residential Tower
18 Cultural Space

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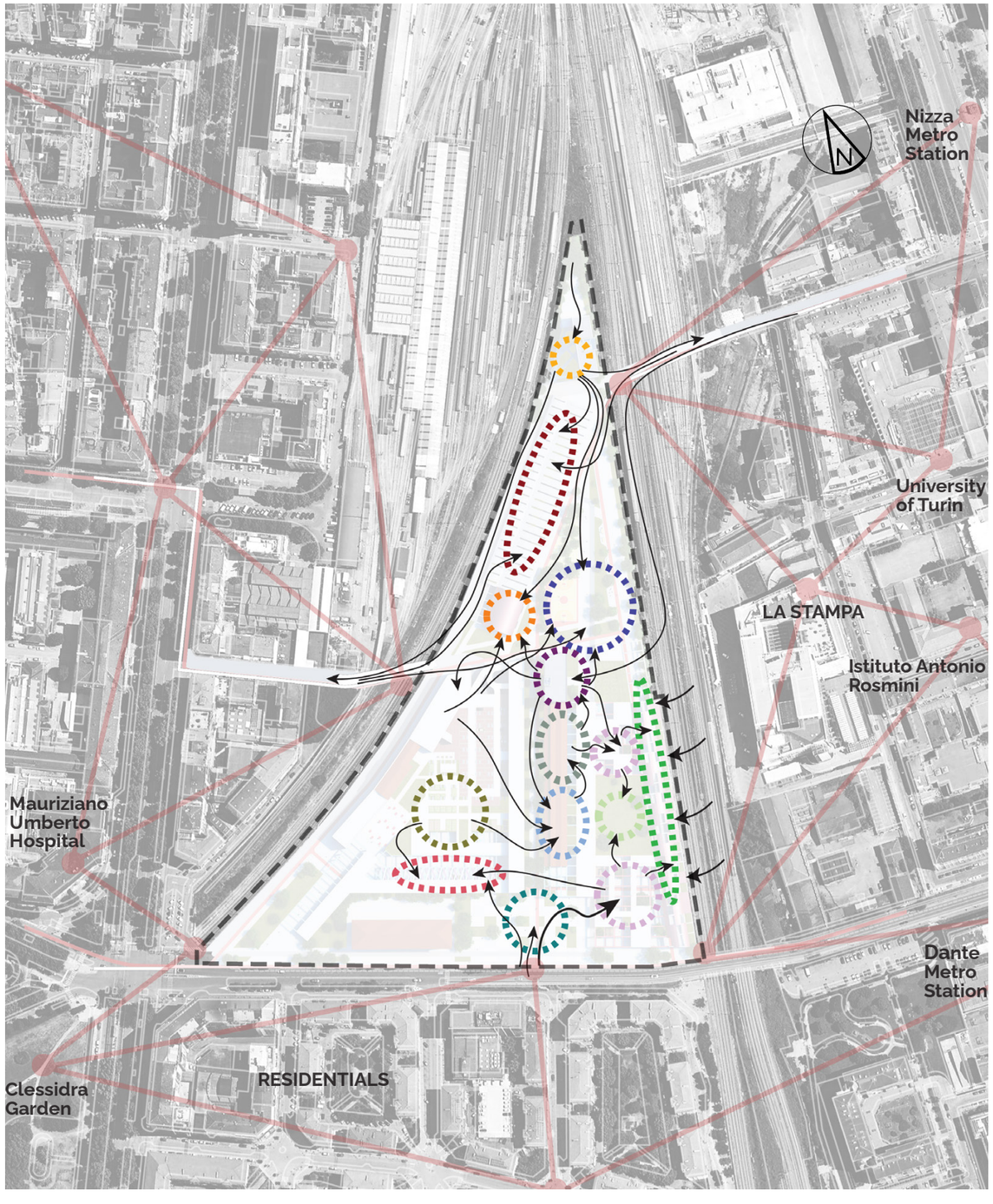
Functions Strategy



LEISURE MARKET
Leisure Market is located close to the main square. This area has been strategically chosen with the thought that people coming from Corso Dante Street will prefer the main square more.

CULTURAL ZONES
The cultural area, which is divided into two sections by the courtyard, strategically serves the whole project area. The cultural area close to Corse Dante Street provides integrity and connection with the main square. The cultural area in the other part aims to serve takeaway restaurants and student dormitory.

COURTYARD
The courtyard is aimed to be in the middle of the cultural zones in order to meet the green space needs of people, especially after Covid-19, and to create a more peaceful and healthier space.

SUPERMARKET
The supermarket is in a strategic location that can be easily accessed from all road axes in order to serve both the area within the project area and the surrounding buildings.

TAKE-AWAY RESTAURANTS
This area consists of restaurants where orders are delivered with a smart and fast system. In especially, it is aimed to be located at the closest point to the student dormitory, Toolbox building and cultural area.

STUDENT HOTEL/DORM
Due to the proximity of the University of Turin, we decided to place the dormitory building as close as possible to ensure easy accessibility for students. Thanks to the new road connection we have added to our design, the dormitory is a 5-minute walk from the university and is centrally located.

MAIN SQUARE
A large open square was designed to increase the visibility and accessibility potential of the project site.

GREEN PASSAGEWAY
It is designed to allow people to walk in a more comfortable and peaceful street environment with a green passageway. In addition, the feeling of limitation created by the train tracks is prevented.

ACTIVE SQUARE
Active Square is strategically located at a central point, aiming to serve not only the project area but the whole neighborhood. The active square consists of a combination of sports activities such as sports fields, playgrounds and basket court.

LIBRARY
We have located this building closest to the dormitory and Toolbox building to ensure easy access for students.

COMMERCIAL STREET
The semi-open commercial area is located close to the residence with a street concept. Thanks to the bridge connections, it is approximately 2 minutes walking distance from the surrounding buildings.

RESIDENCE TOWER
The building is located at the end of the project site to provide a large and private common area. This building, which contains many functions, is within walking distance to the whole project site.

ROOFTOP GARDEN
Rooftop Garden is designed to transform the unused space on the roof of the Toolbox building into a more useful area.

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Pedestrian & Bicycle Mobility

The proposed project removes the unnecessary road surfaces on the area and relocates them to create a better mobility road system. While minimizing the road surfaces in the site area, the proposed masterplan also solves the connection issue of the area by connecting it to the adjacent areas in the necessary locations. By this reduction of the road surfaces, it becomes possible to give that space back to the citizens by increasing the public space and creating pedestrian paths, essentially increasing the walkability of the site area. In the site area the site has been connected by pedestrian paths all-throughout making it easier for a pedestrian to navigate.

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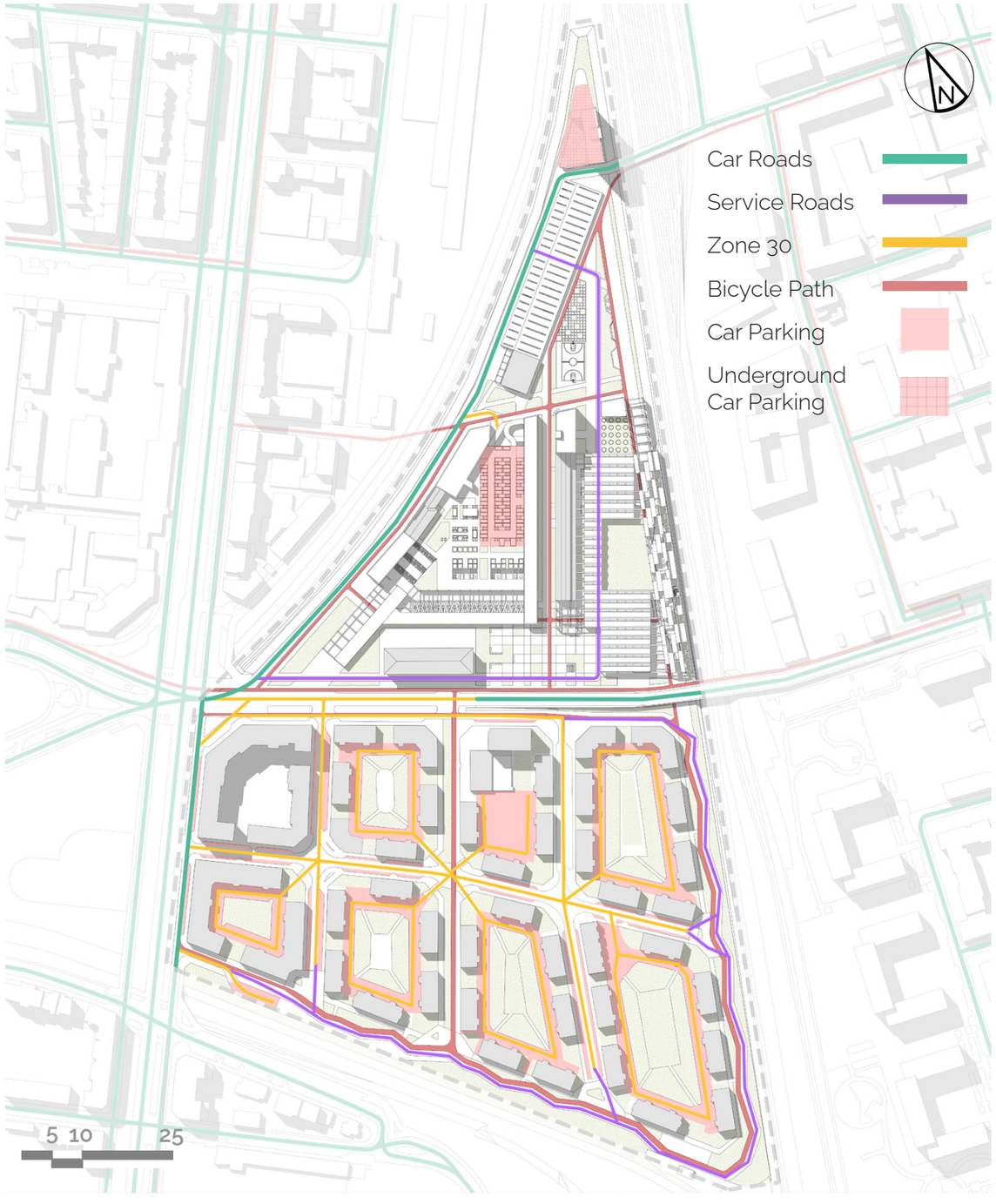
Vehicular Mobility



The proposed project reduces the road structure on the unnecessary areas of the projects and with addition of some new roads connects the area with adjacent areas. Most new road additions to the area are bicycle paths to increase the sustainable mobility system of the area. Bicycle paths circulate all around the area and gives access to all parts of the area while connecting it to adjacent areas. There are 3 kinds of vehicular roads on the area. These are public roads, service/transportation roads and bicycle paths. Service/Transformation roads are restricted to services and transportation pods only. There are 2 parking areas on the site, one is a public one located on a central location on top of the Toolbox roof and other one is private located under the residential building. There is also an electric charging station located also on a central location. For bicycles, parking areas are located all around the site for easy access to all parts of the area.

Osi-Ghia Macroblock

Site are has been combined with the adjacent resdential area located on the south of the site to create a larger “macroblock” that works to combined diverse functions both areas offer to develop a resilient block that can operate on its own even during most severe emergency response measurements such as complete lockdowns. The idea of a macroblock changes the idea of a complete lockdown and isolation. During a lockdown these “macroblocks” could isolate themselves rather then a more private isolation and community strength can be preserved inside the macroblock reducing the economical and psychological impacts of these severe measurements. These blocks could be supported by a temporary medical facility and necessary service and public facilities. This way any contact between other parts of the city could be minimized and a self-sustaining community could be managed to decrease the possiblity of spreading a virus or any other infectious diseases and potentially lower the duration of emergency situation. These kinds of self-sufficient areas also helps cities to develop plans and response faster.

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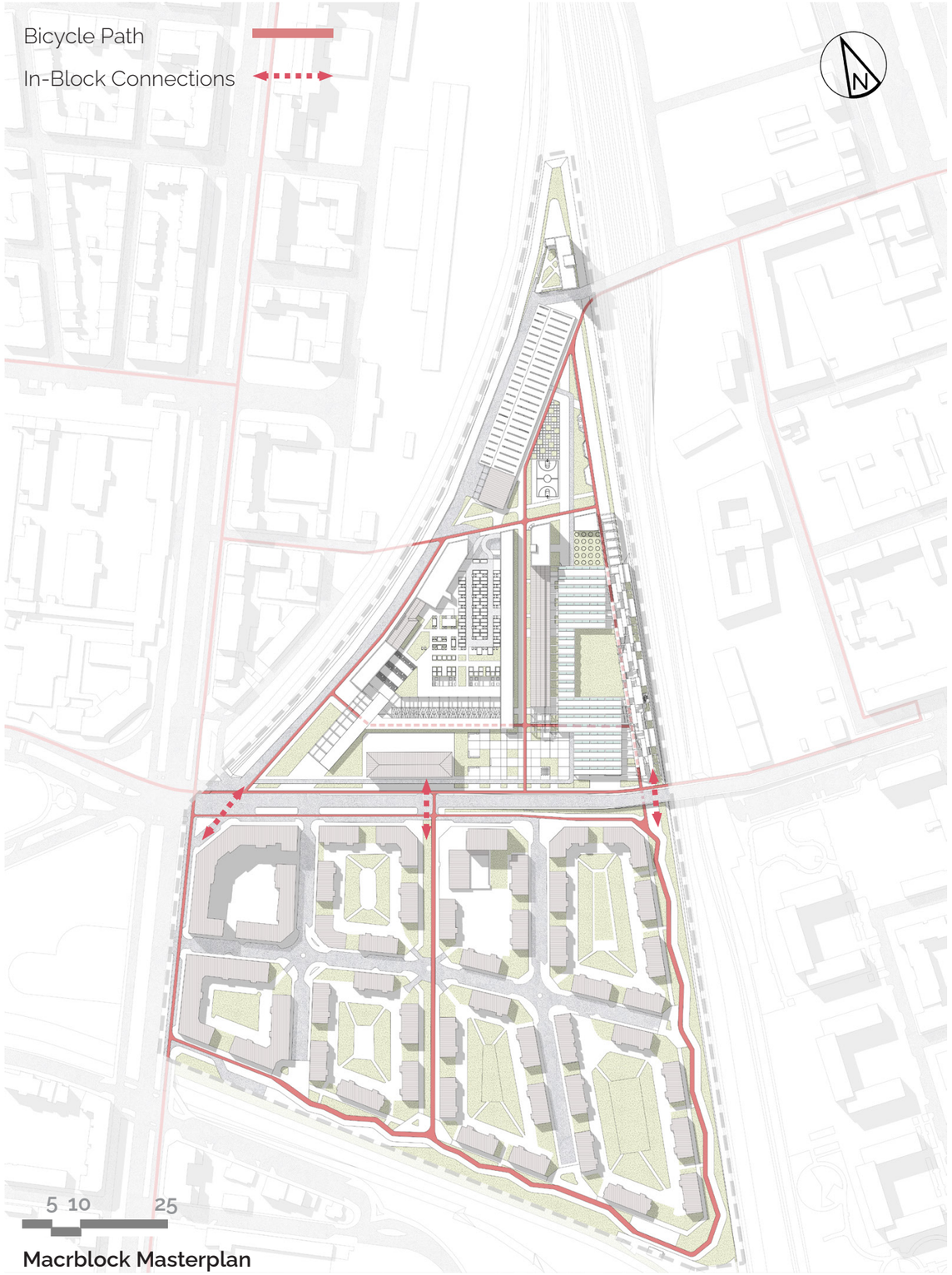

Macrblock Masterplan

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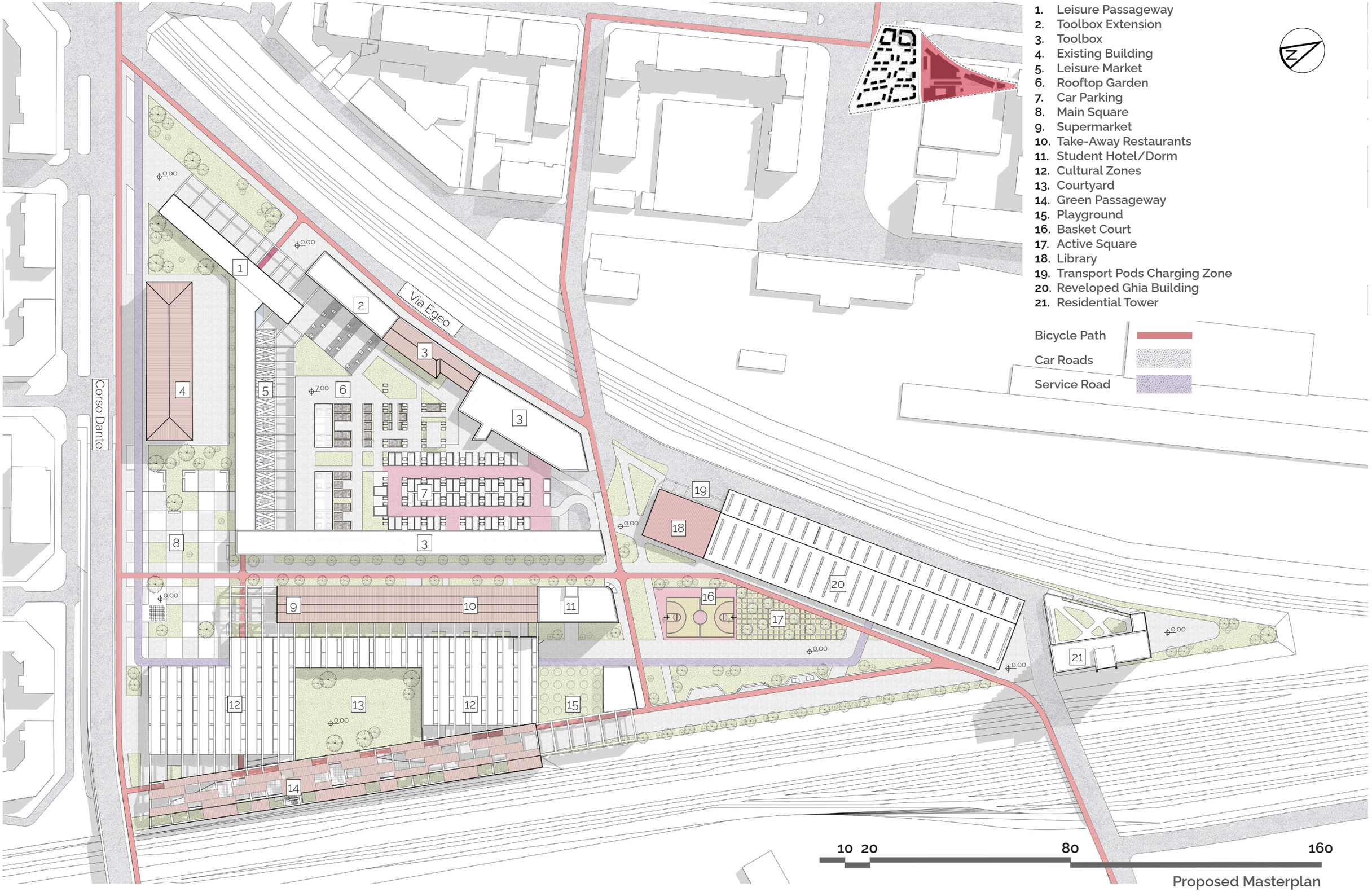

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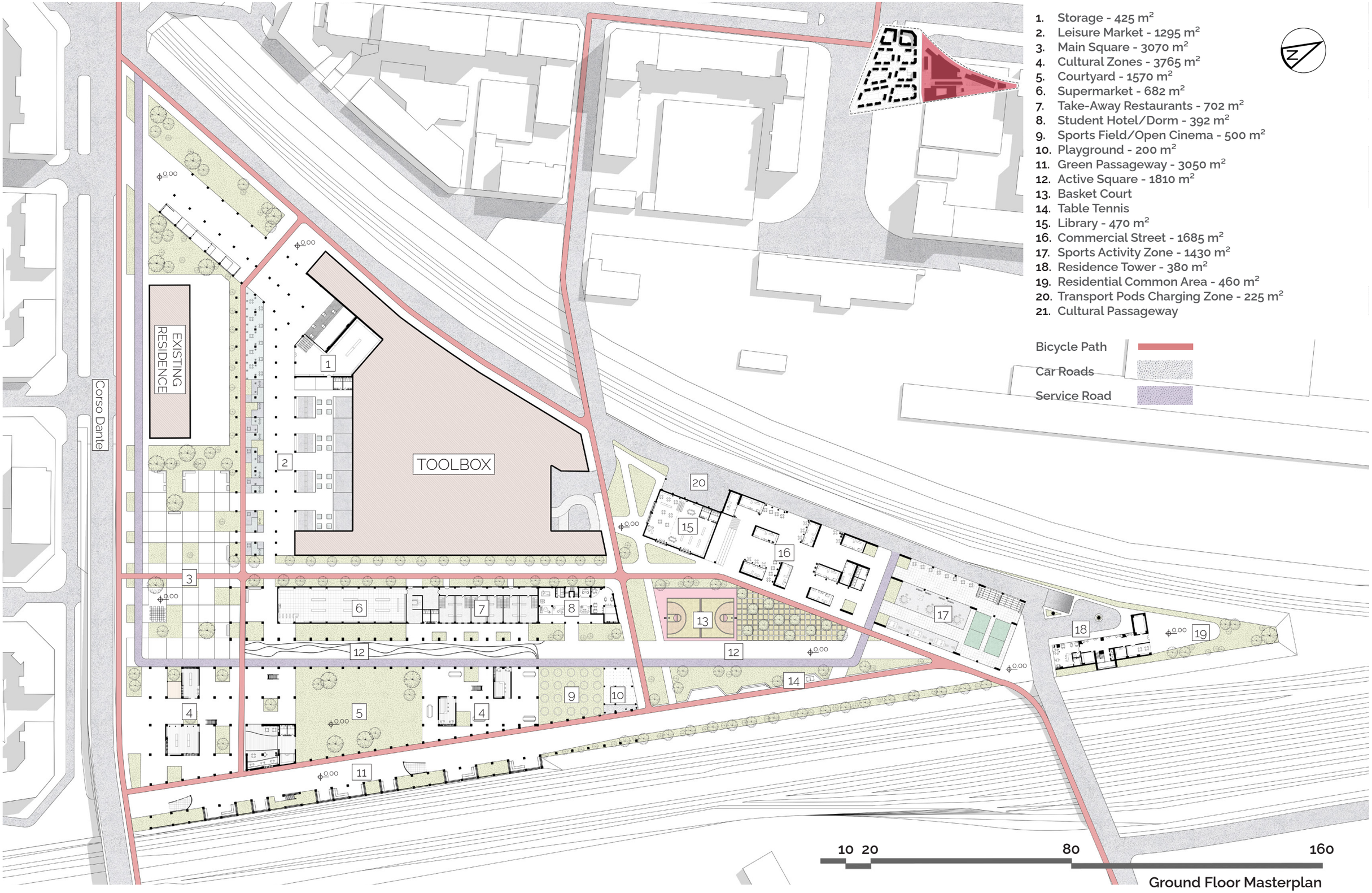
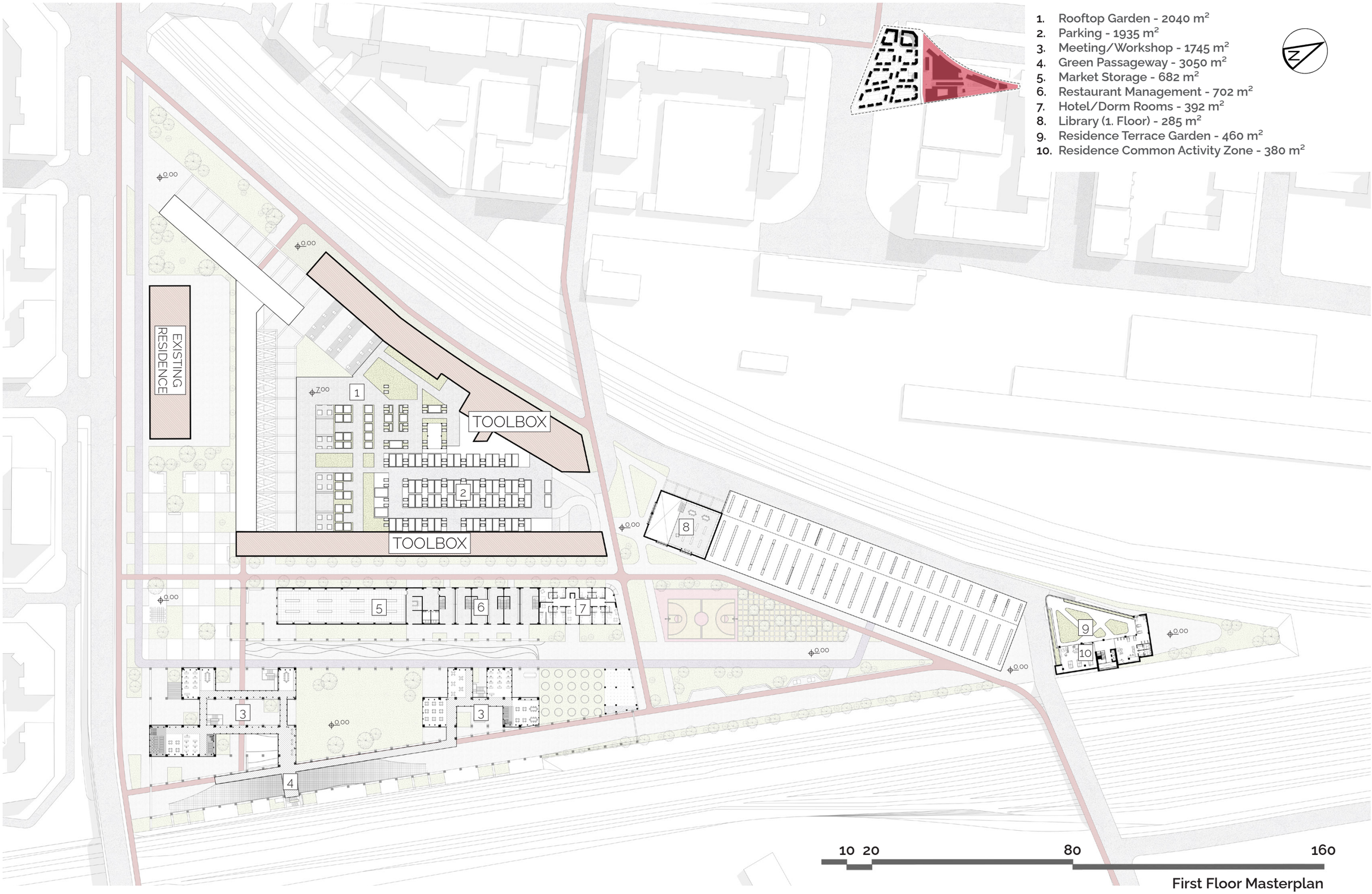


Ground Floor Masterplan

Post Pandemic Osi-Ghia



First Floor Masterplan

Chapter 4 - Design Proposal URBAN LAYOUT 233

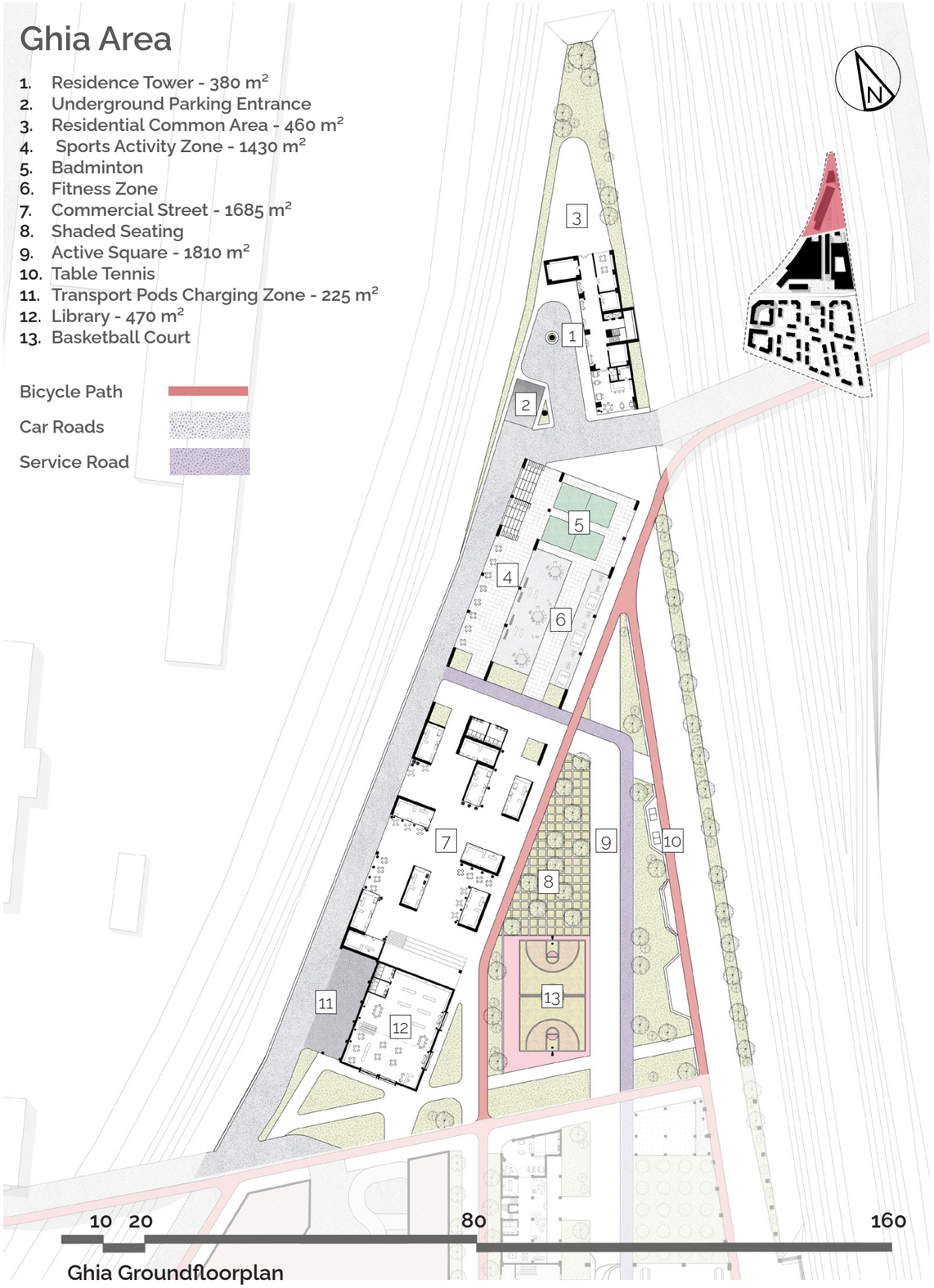
Ghia Area

1. Residence Tower - 380 m²
2. Underground Parking Entrance
3. Residential Common Area - 460 m²
4. Sports Activity Zone - 1430 m²
5. Badminton
6. Fitness Zone
7. Commercial Street - 1685 m²
8. Shaded Seating
9. Active Square - 1810 m²
10. Table Tennis
11. Transport Pods Charging Zone - 225 m²
12. Library - 470 m²
13. Basketball Court

Bicycle Path

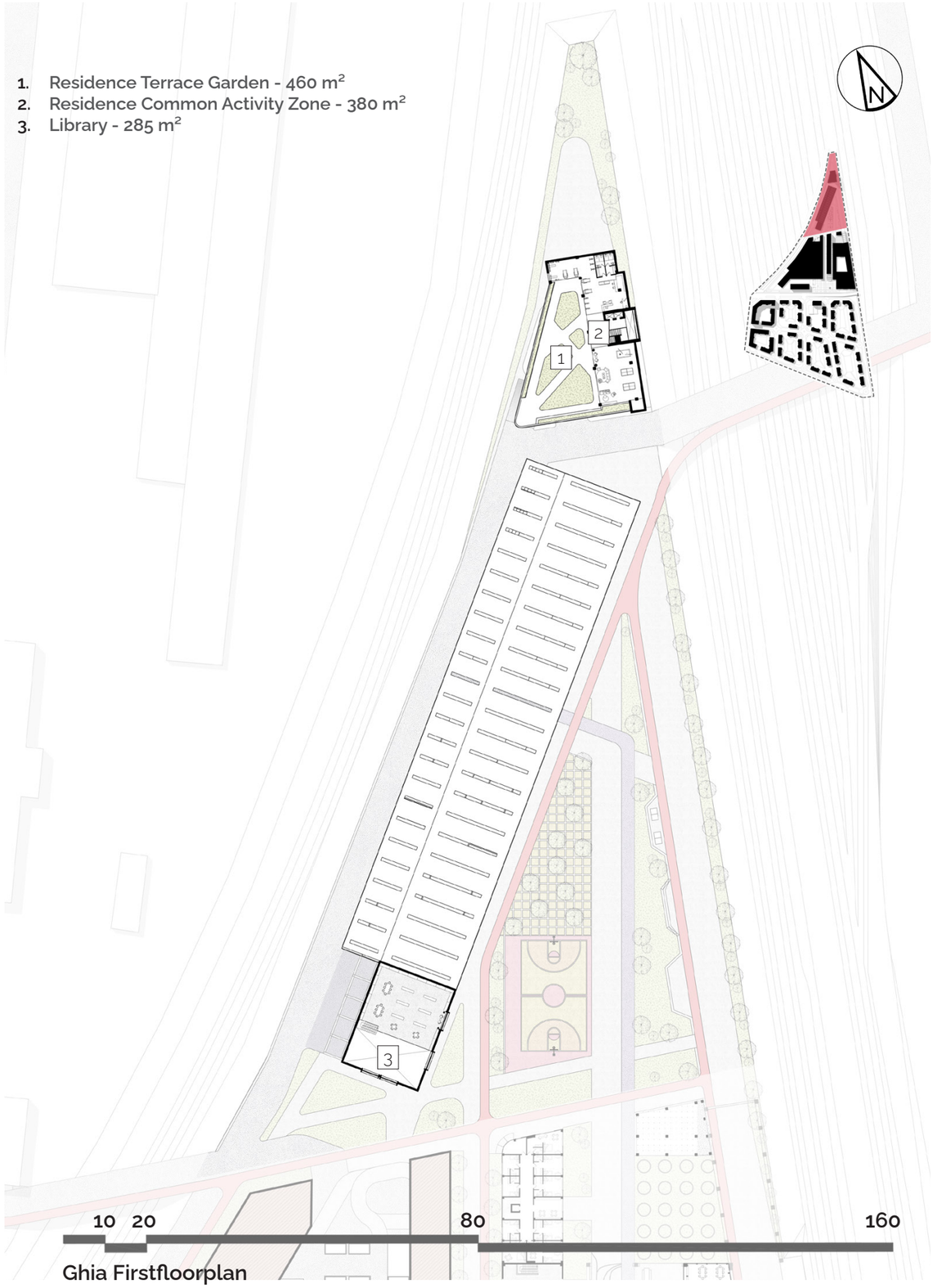
Car Roads

Service Road



Ghia Groundfloorplan

1. Residence Terrace Garden - 460 m²
2. Residence Common Activity Zone - 380 m²
3. Library - 285 m²



Ghia Firstfloorplan

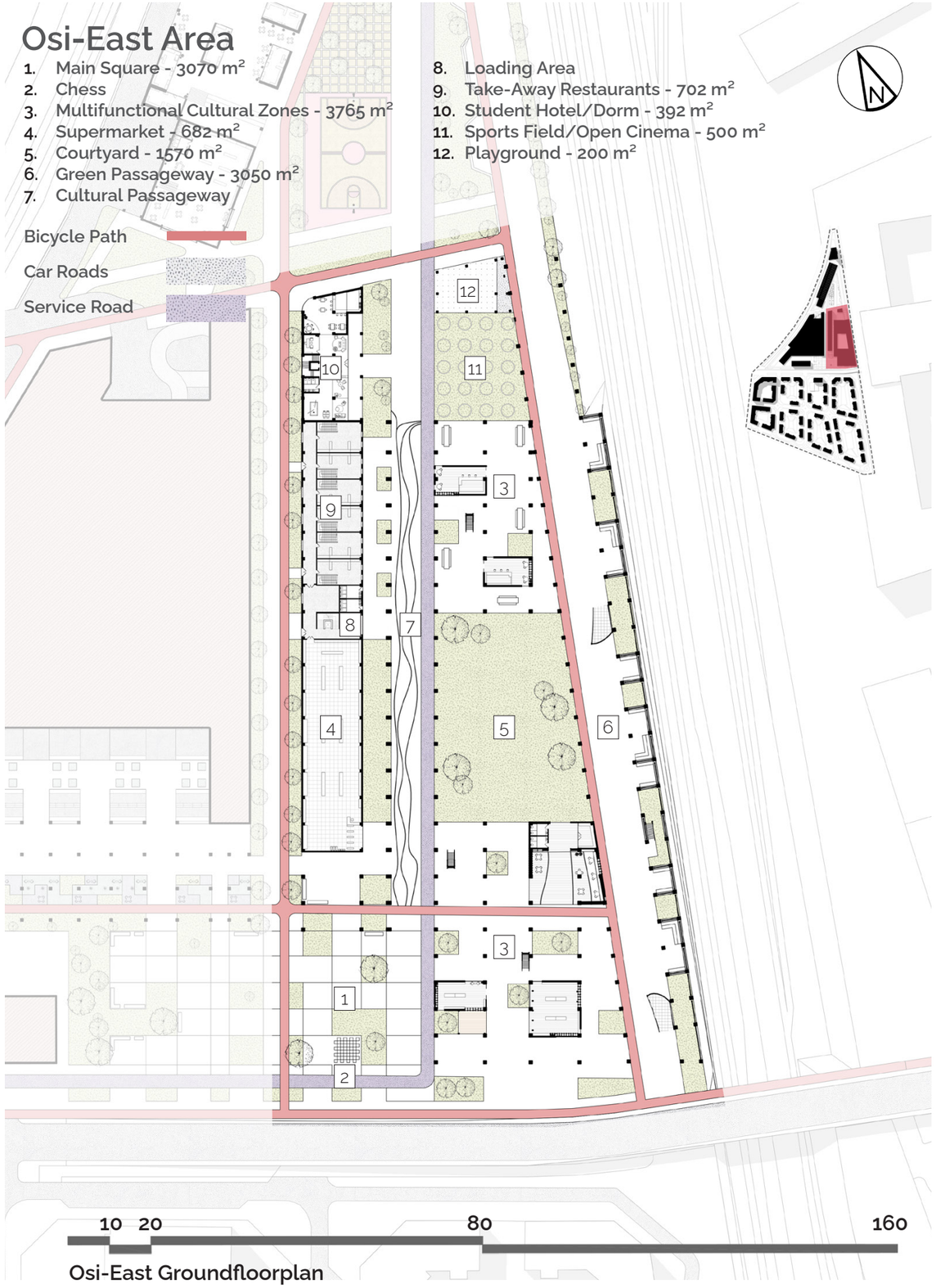
Osi-East Area

1. Main Square - 3070 m²
2. Chess
3. Multifunctional Cultural Zones - 3765 m²
4. Supermarket - 682 m²
5. Courtyard - 1570 m²
6. Green Passageway - 3050 m²
7. Cultural Passageway
8. Loading Area
9. Take-Away Restaurants - 702 m²
10. Student Hotel/Dorm - 392 m²
11. Sports Field/Open Cinema - 500 m²
12. Playground - 200 m²

Bicycle Path

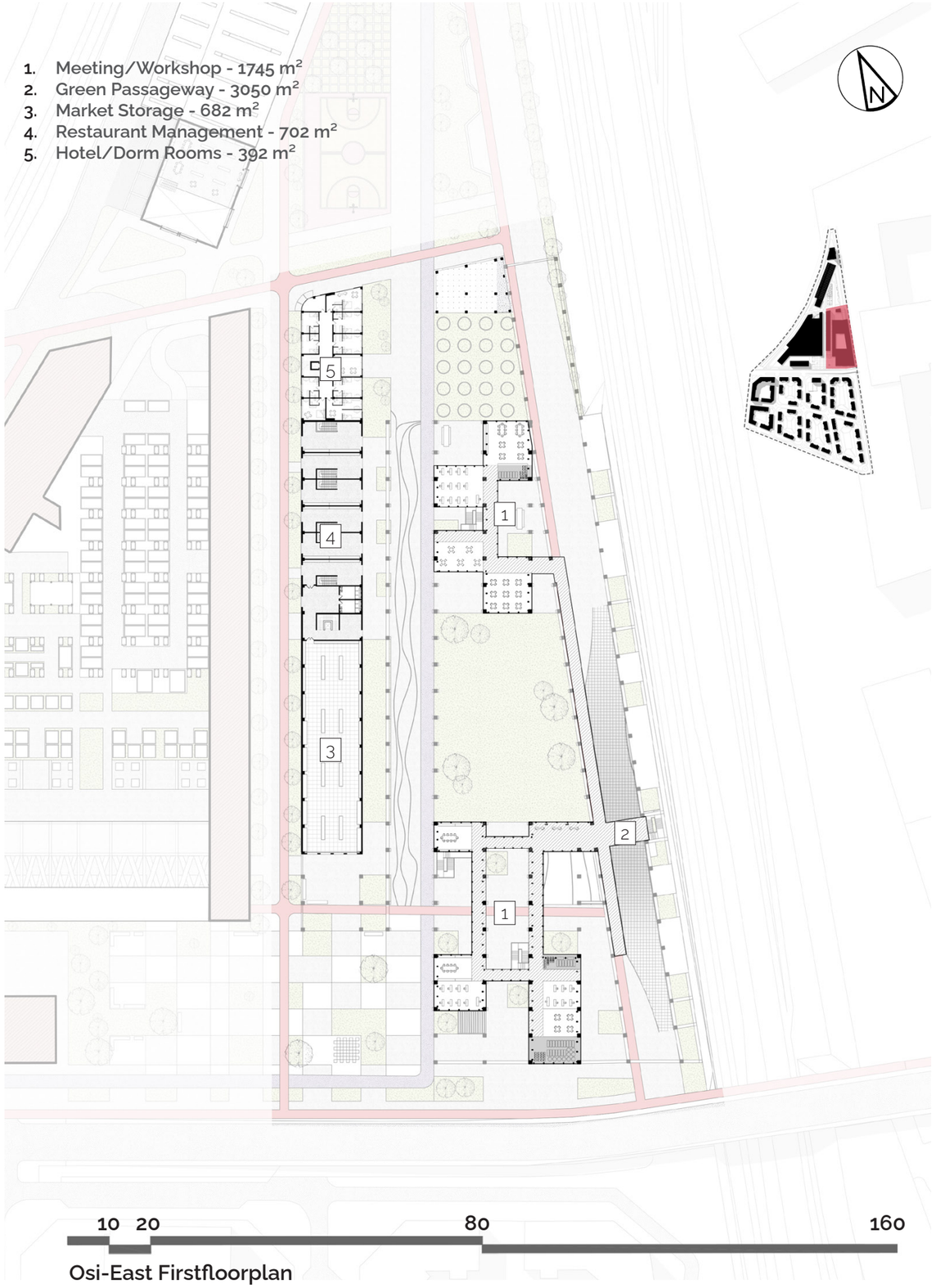
Car Roads

Service Road



Osi-East Groundfloorplan

1. Meeting/Workshop - 1745 m²
2. Green Passageway - 3050 m²
3. Market Storage - 682 m²
4. Restaurant Management - 702 m²
5. Hotel/Dorm Rooms - 392 m²



Osi-East Firstfloorplan

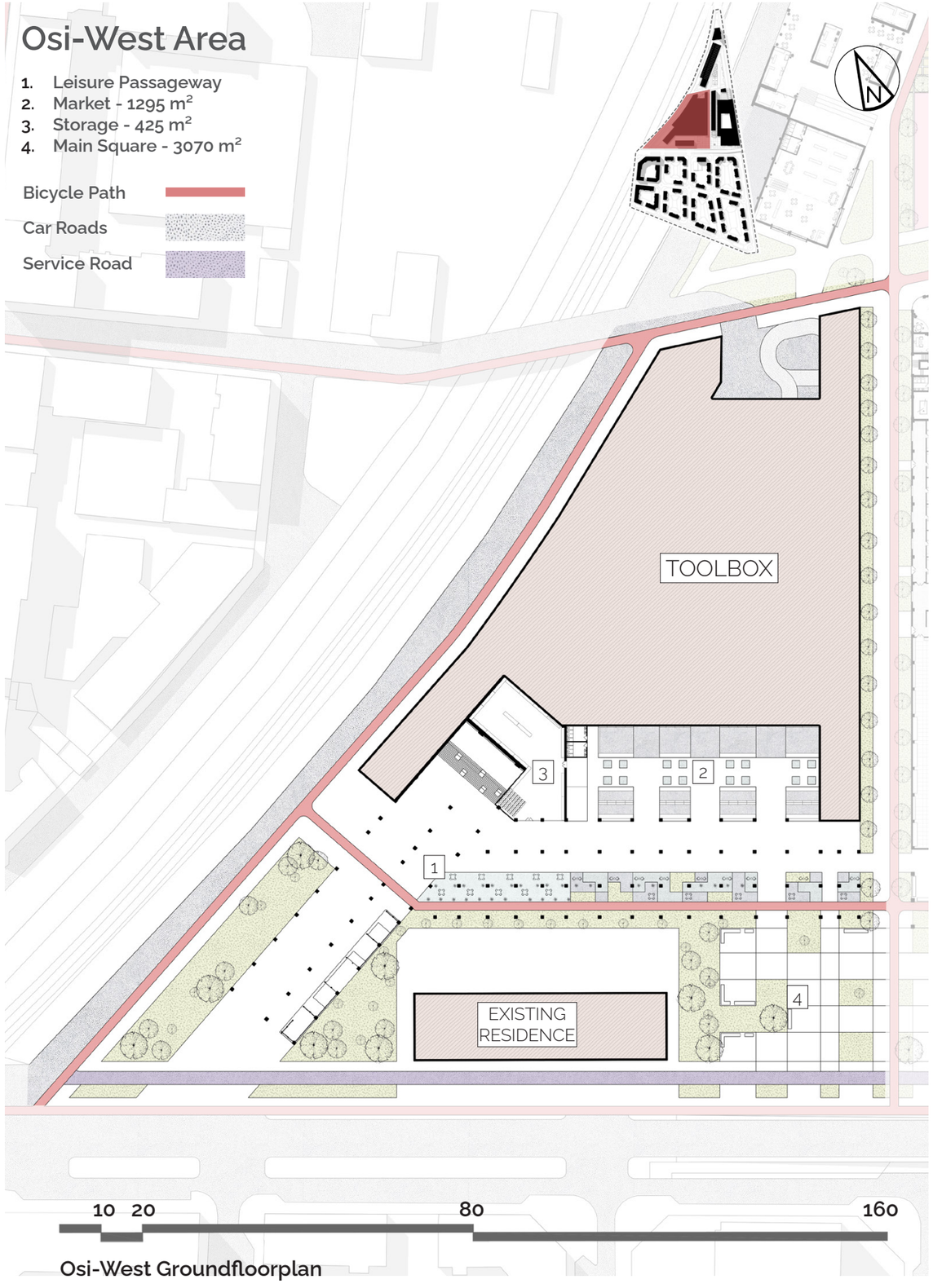
Osi-West Area

1. Leisure Passageway
2. Market - 1295 m²
3. Storage - 425 m²
4. Main Square - 3070 m²

Bicycle Path

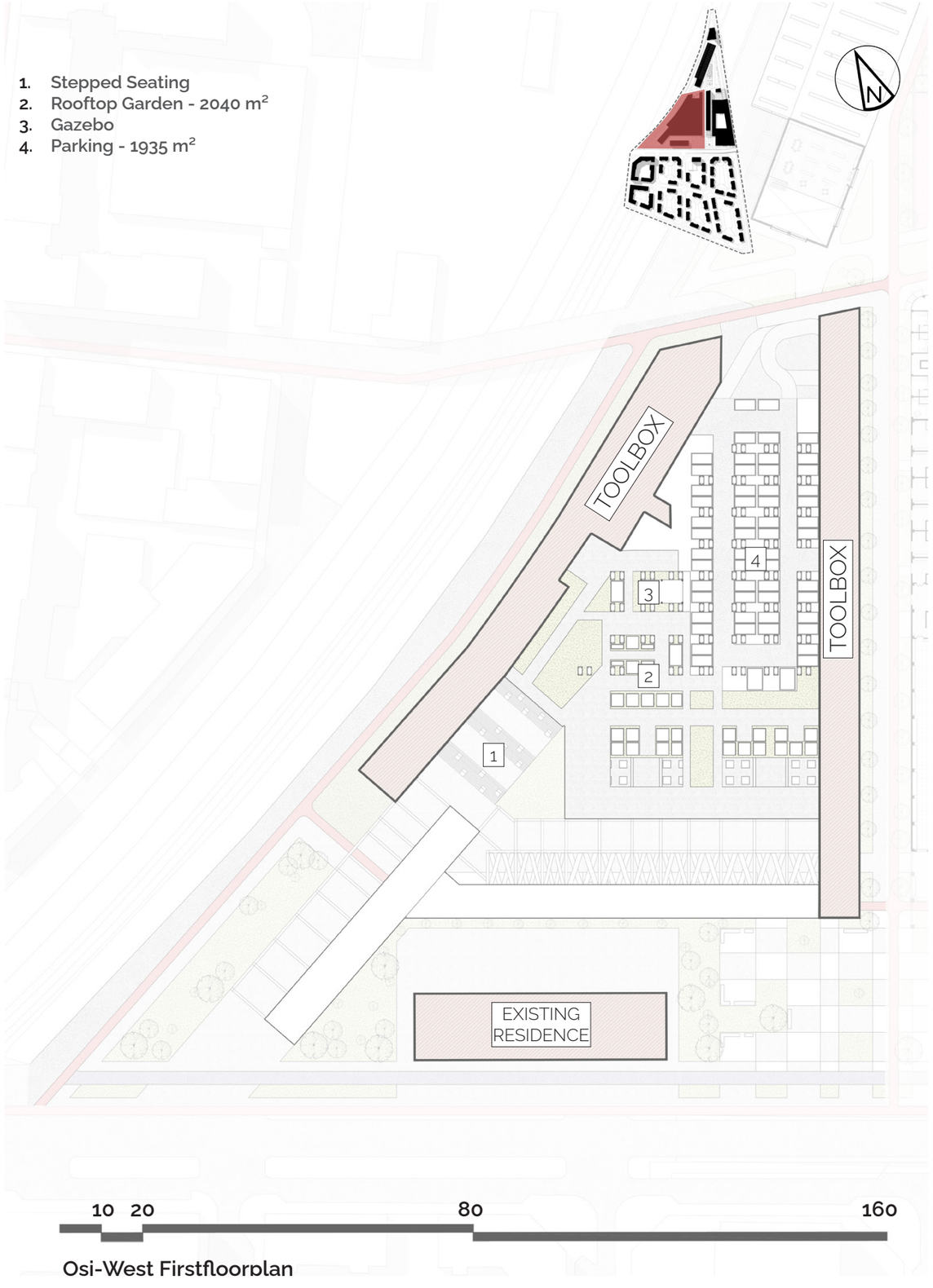
Car Roads

Service Road



Osi-West Groundfloorplan

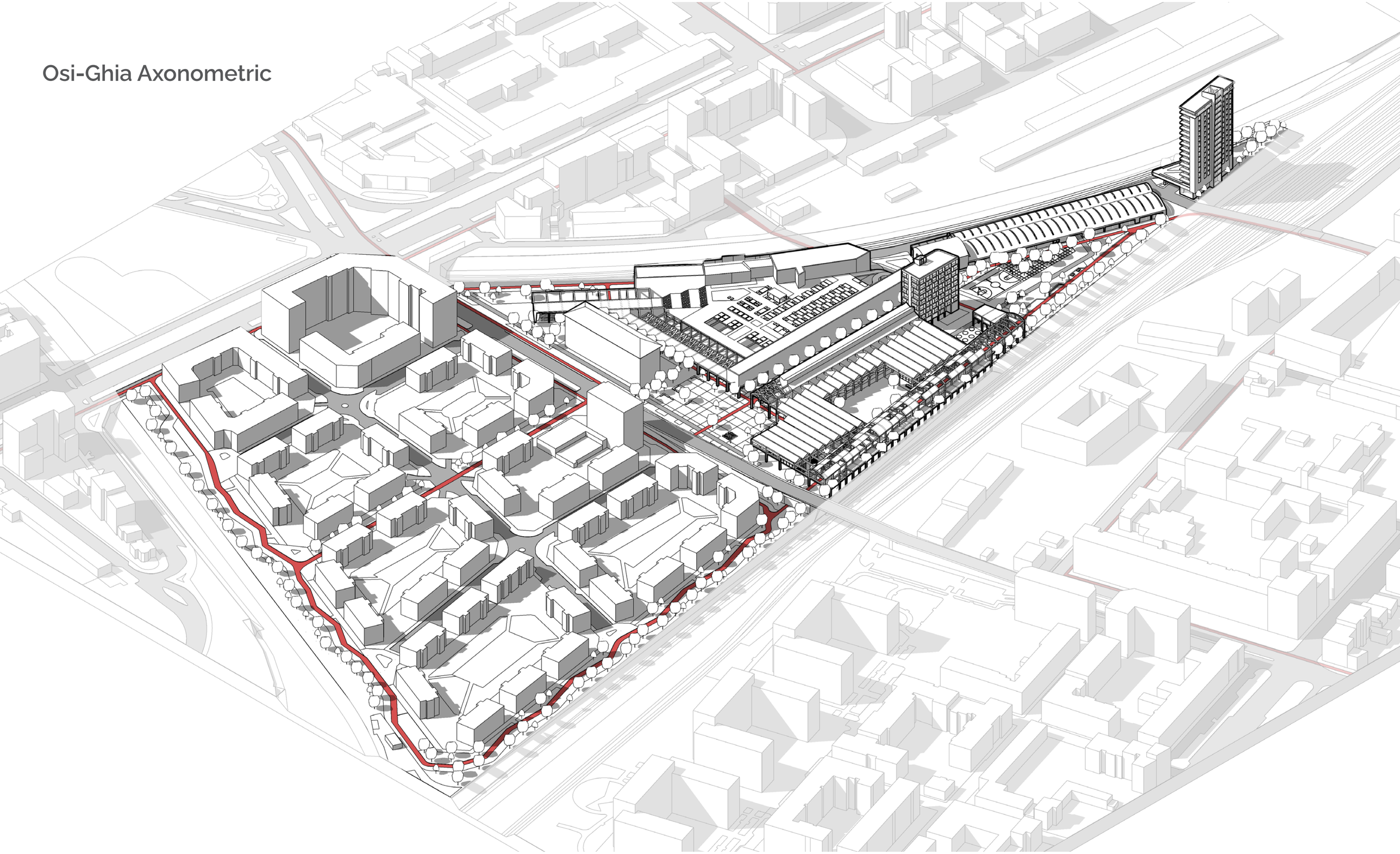
1. Stepped Seating
2. Rooftop Garden - 2040 m²
3. Gazebo
4. Parking - 1935 m²



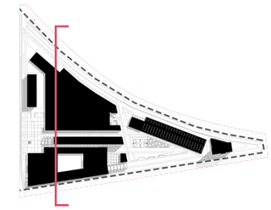
Osi-West Firstfloorplan

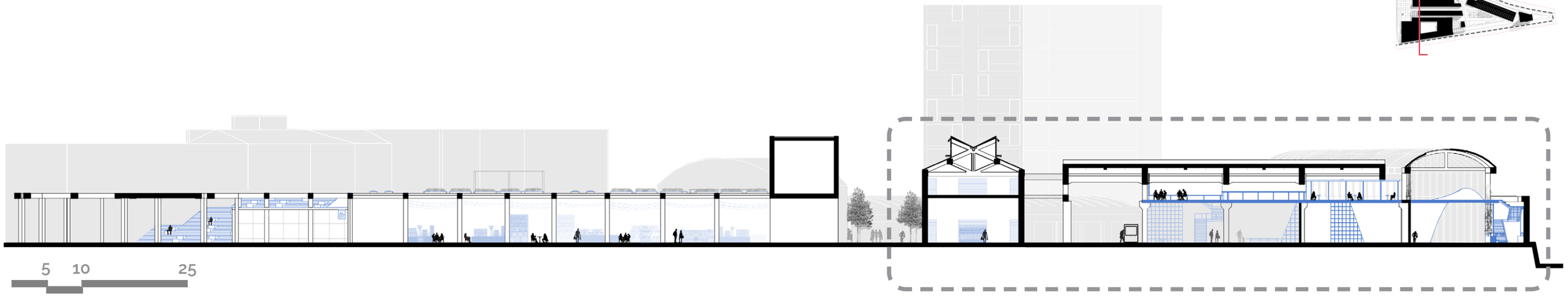
Post Pandemic Osi-Ghia

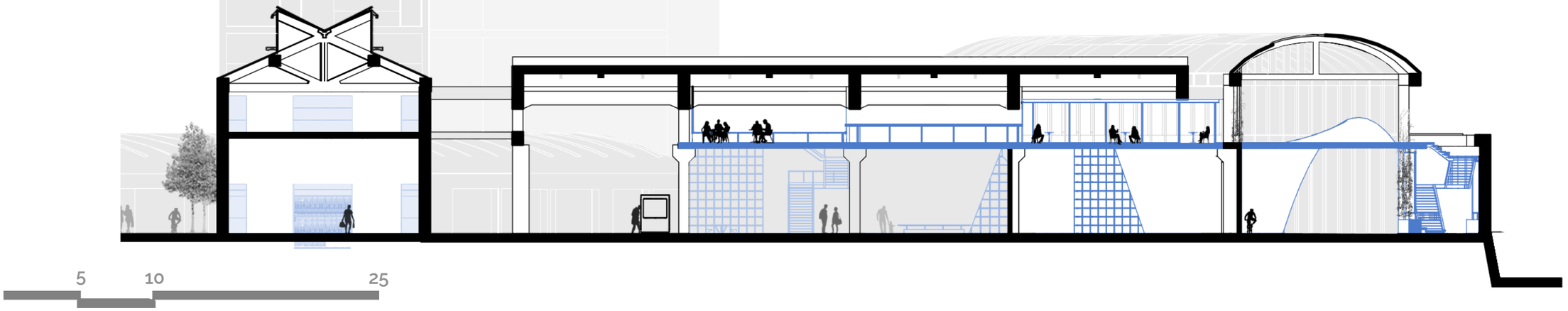
Osi-Ghia Axonometric



Post Pandemic Osi-Ghia







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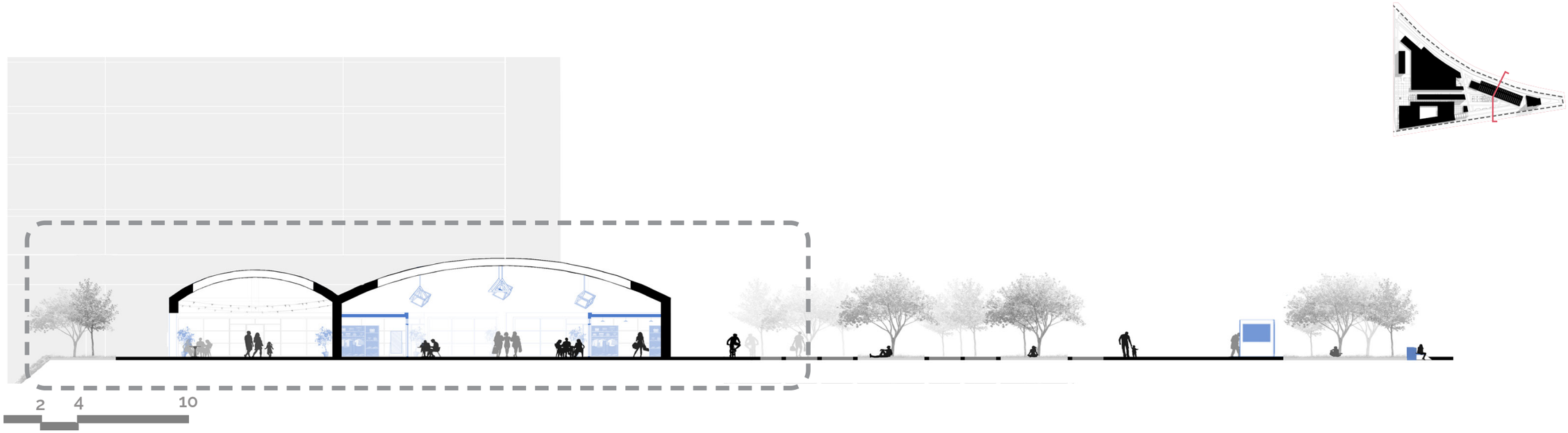
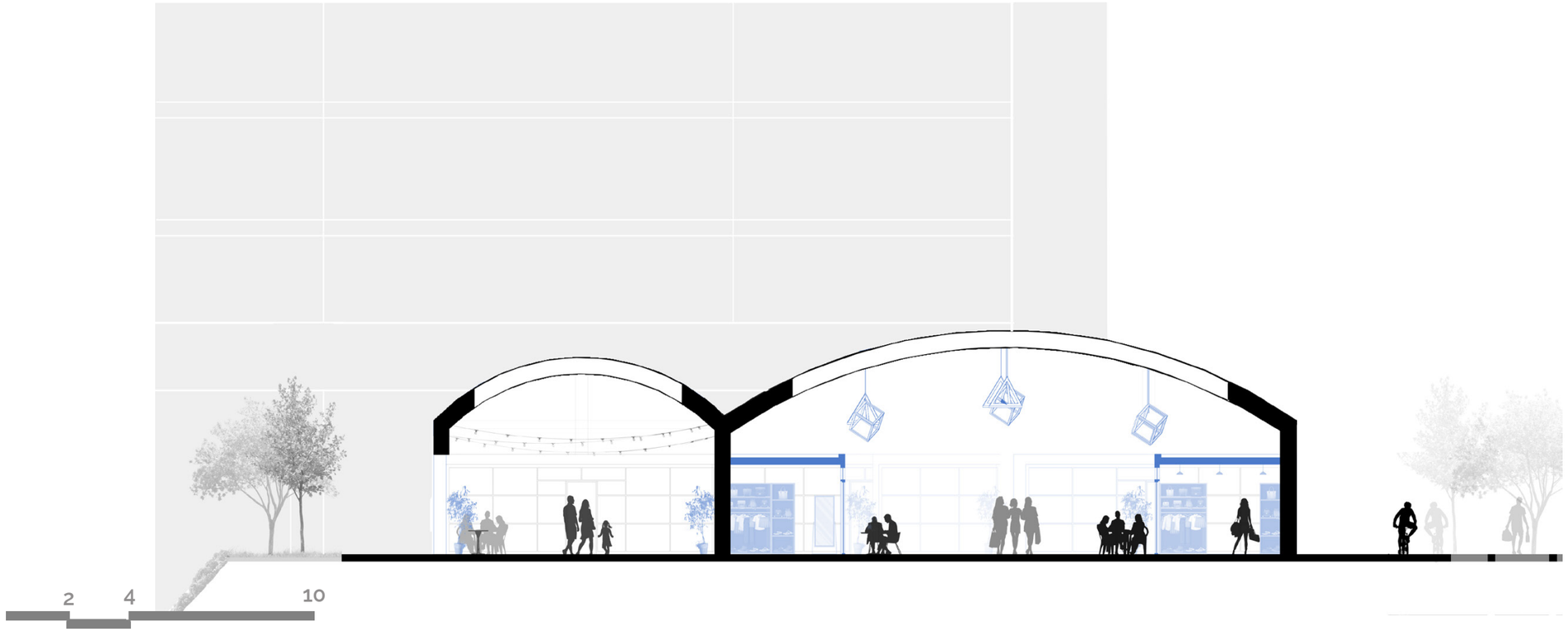




Program

Squares

Passageways

Commercial Streets

Residential

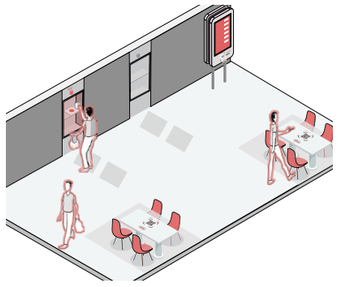
Urban Farming
& Market

Multi Use
Cultural Space

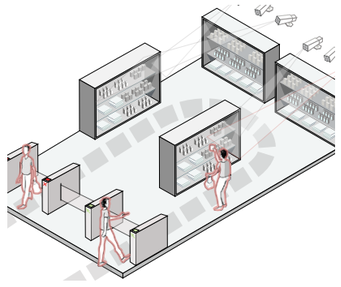
Student Hotel
&Dorm

Active Grounds

Bicycle Paths

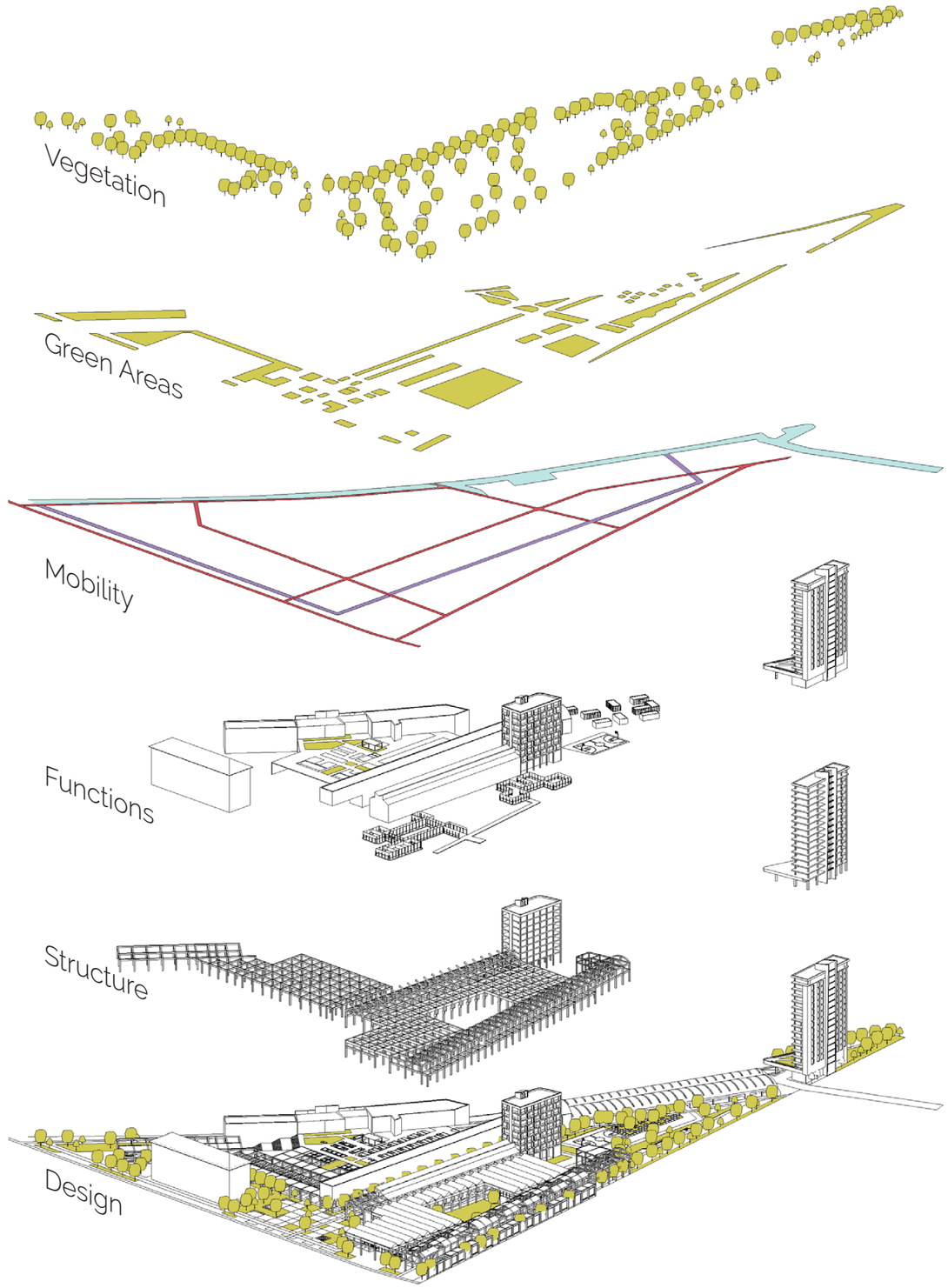


Take Away Restaurants



Pay & Go Supermarket

Temporary Emergency
Situation



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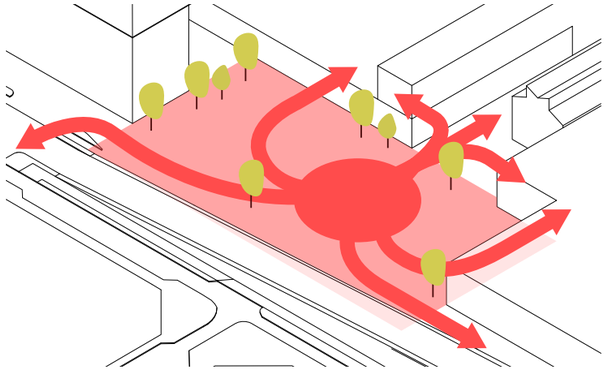
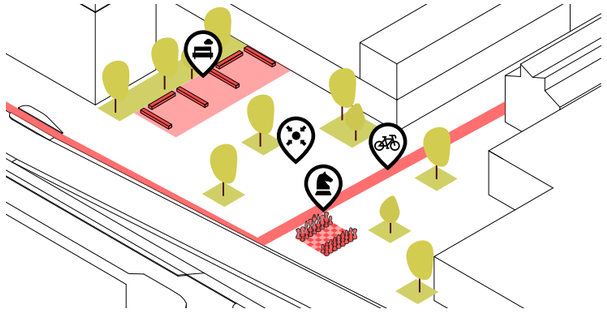
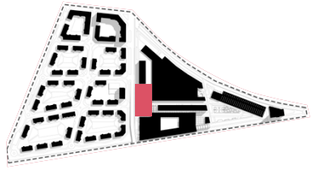
Cultural Spaces

Squares



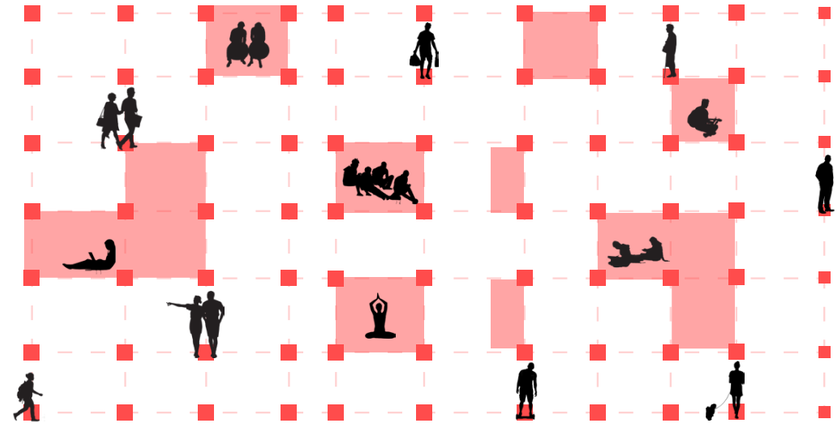


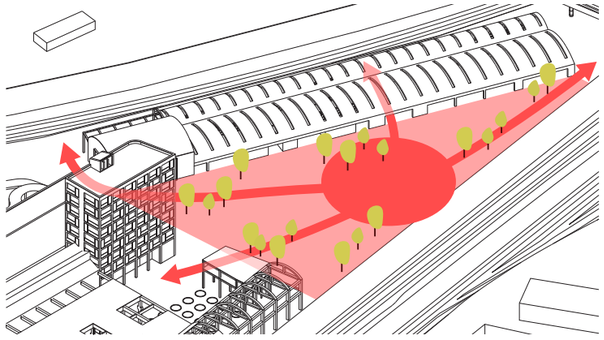
Main Square

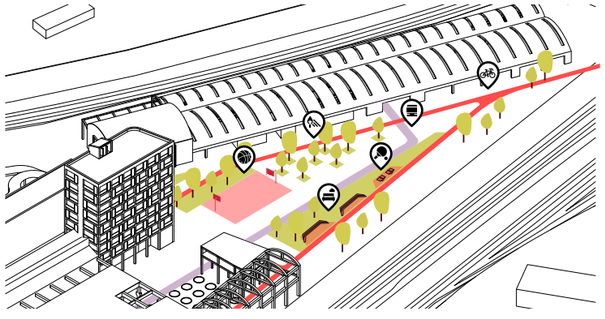


The addition of a main square on the design proposal was essential since the previous situation of the site restricted access to the area. By adding a large open square on a strategical location, site's visibility and accessibility potential has been used. Additions of some attractions have been added to the area to increase the usage of the space.

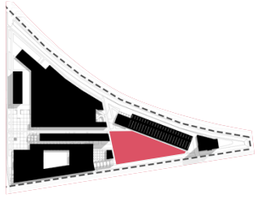
Main squares located on a central location to the macroblock for creating a connection between the newly built services and commercial side of the macroblock with the residential part. The concept of the main square has been designed to uphold social distancing. Green areas on the square have been distributed to promote social distancing and allow a distanced circulation on the square. The location of the square also resurrects a former unused and closed to the street area, by opening up the new area to the street and create a welcoming environment. With its design, it helps pedestrians on the street to view an interesting part of the design to create greater attraction.





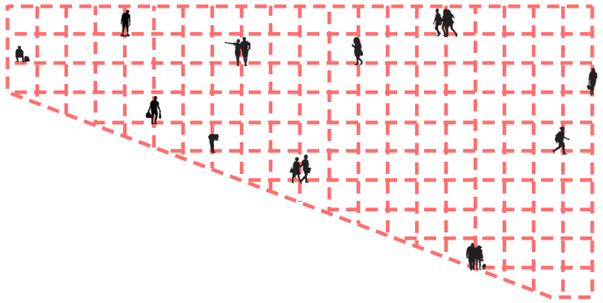


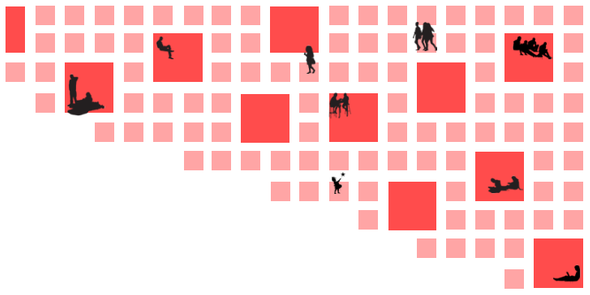
Active Square



To create a more active and healthier environment and promote people to be more active, a square has been designed on the second node of the site. The square itself has several sports activities on it and connects other active spaces together to create a one large active passageway.

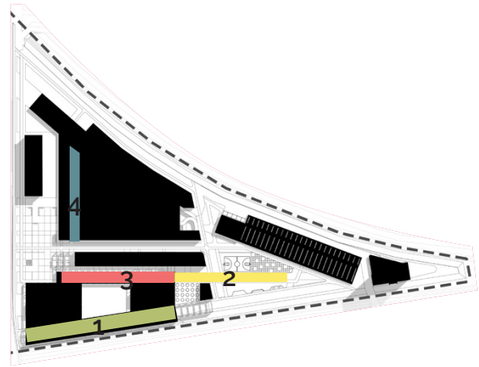
The active square is located in a central location that can be easily reached and aims for people to socialize in a safe environment. This area, which contains many functions, was designed with squares to maintain social distance. While the area is expected to increase the interest in this area with its colorful design, it also allows to spend time in a healthy environment. Considering people's interest in parks and green spaces during the pandemic period, green areas have been created at many points for people to spend time.



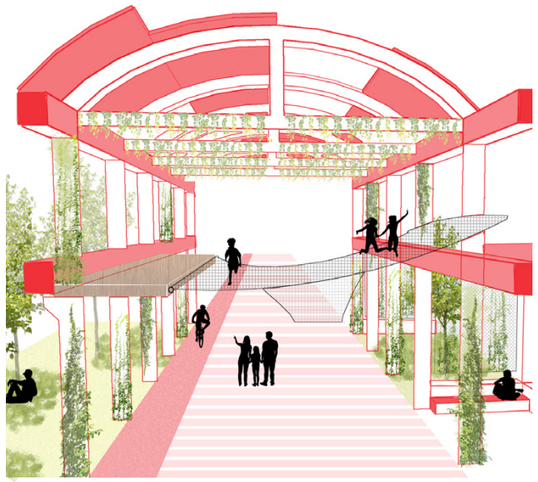


Post Pandemic Osi-Ghia

Thematic Passageways



1 - Green Passageway

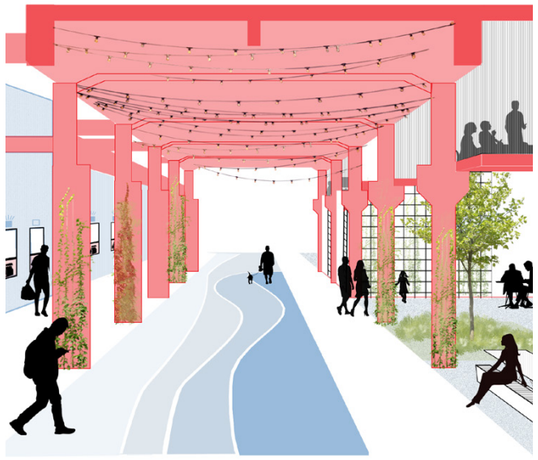


The design of a green passageway enables people to walk in a more comfortable and peaceful street environment and welcomes them with a green habitat in the city.

2 - Active Passageway

An active passageway, which has many functions, makes people more active while ensuring them to be healthy, happy, and in a good weather environment.

3 - Cultural Passageway



This passageway, which includes many cultural activities, is very suitable for exhibitions, workshops, lectures etc... and also everything is supported by digital infrastructure.

4 - Leisure Passageway

This passageway contains many different concepts and is a place to spend time where you can have a drink, eat, meet with your friends or even dance.

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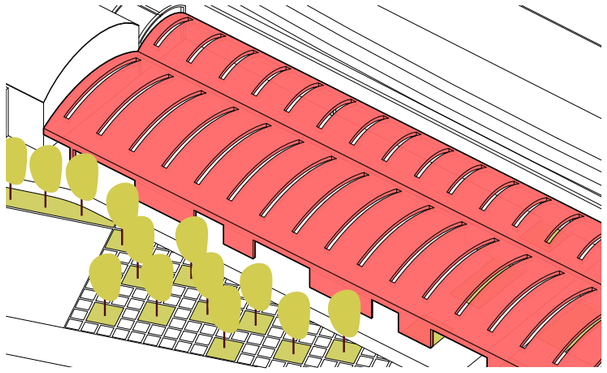
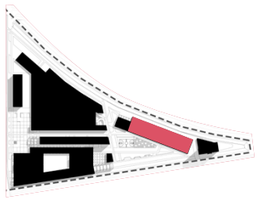
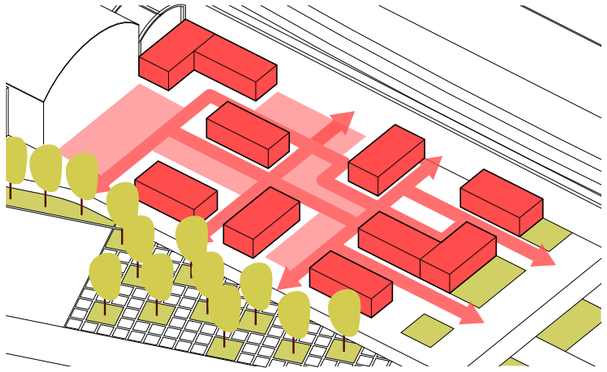
Green Passageway

Commercial Street

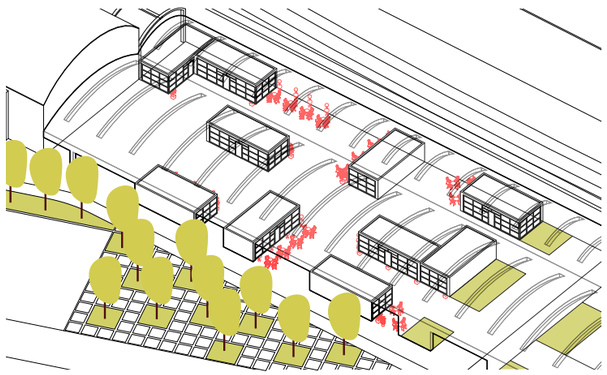




Former Ghia factory has an interesting structure, due to this the structure has been preserved with minor changes on the walls to increase the access. The reimaging structure has been used to enclose a perimeter for the new commercial area.

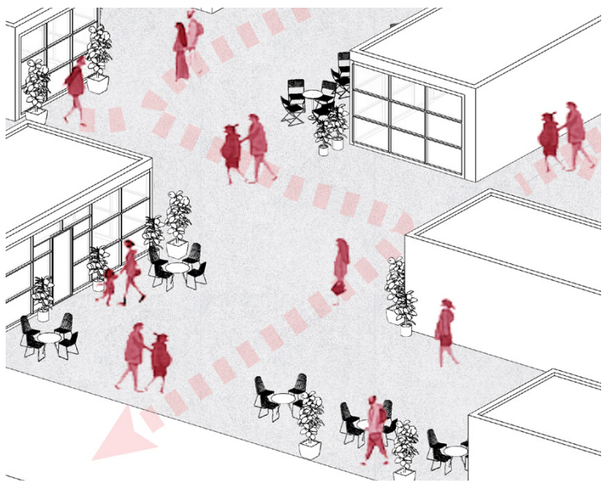


Shops have been distributed around the area to create a functional and flowing layout. Keeping it open rather than closed have opened up the opportunity for it to have multiple entrances.



The structure provides an invisible shelter and a perimeter for the commercial streets and separates them from the surroundings and lets the space create its own atmosphere with the help of the existing roof creating shading and providing interesting lighting feature.

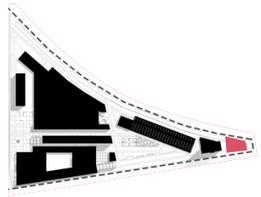
The new layout designed under the former Ghia building creates a natural flowing internal layout with large open space and spaces for seating and circulation. Large open space with continuous natural air ventilation reduces the risk of transmission and helps people maintain a social distance.

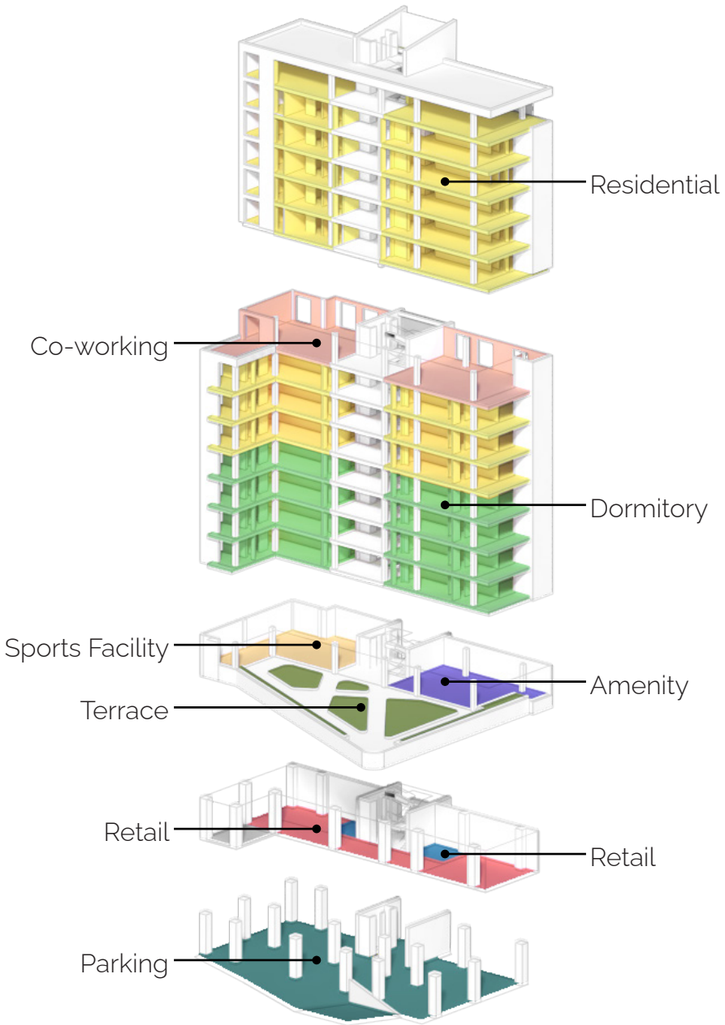


Post Pandemic Osi-Ghia

Cultural Passageway

Mixed-Use Residential Building

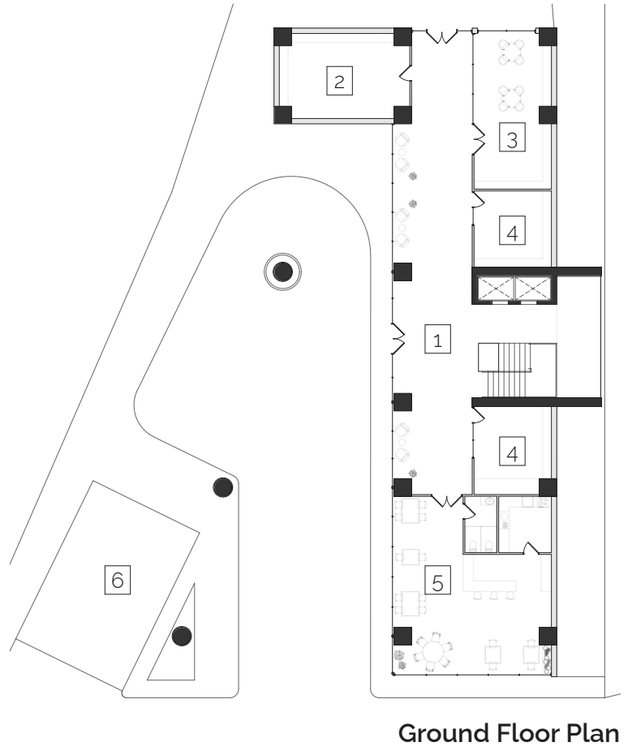




A new type of a residential building has been implemented in the macroblock. This macroblock acts as a small community for its users. Like the macroblock idea, this type of residence mixes diverse functions to increase the user's quality of life, especially during an emergency situation.

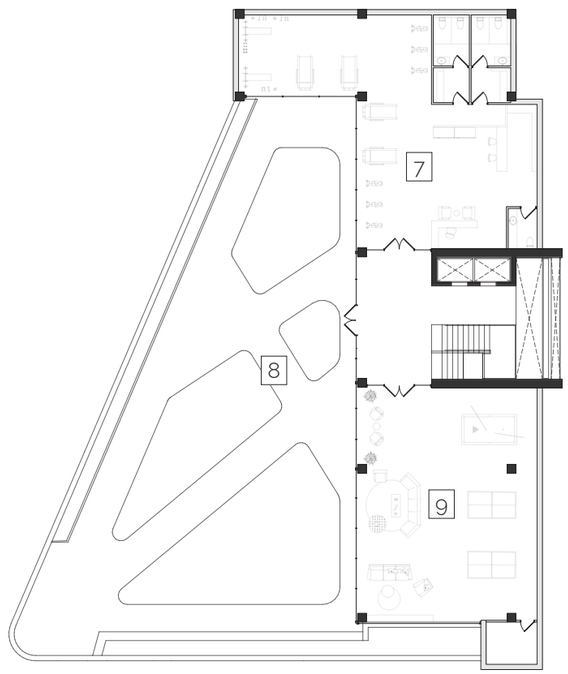
Implementation of different functions and creating an adaptable individual housing unit is too costly and unfeasible. To be able to get around this, on this building these functions have been distributed around the building for its users to benefit.

After the pandemic, a lot of companies thinking about continuing remote working. For this purpose, the building has a floor reserved as a working space. During the lockdown people got stuck in their homes without essential amenities. For this, a gym and a terrace has been located on the building.



1. Entrance Hall
2. Storage
3. Retail
4. Cafe
5. Restaurant
6. Parking Entrance
7. Gym
8. Terrace
9. Gameroom

Ground Floor Plan



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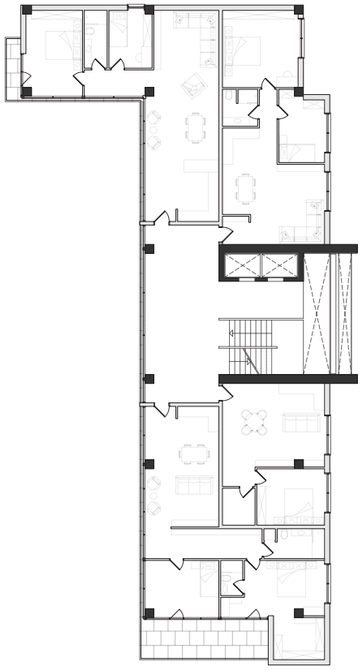
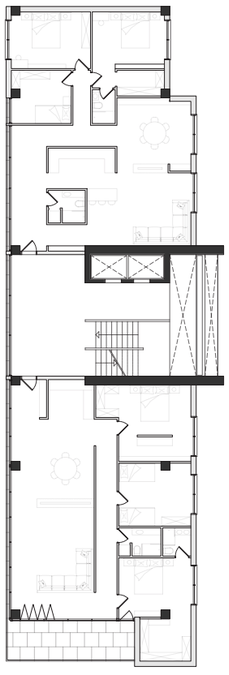
First Floor Plan / Amenities Floor



6-8 Floors Plan



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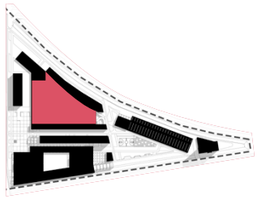
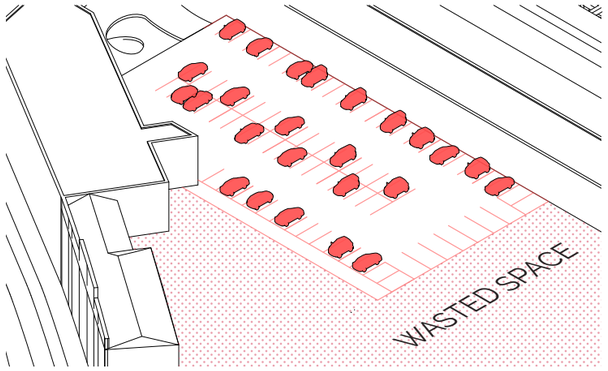
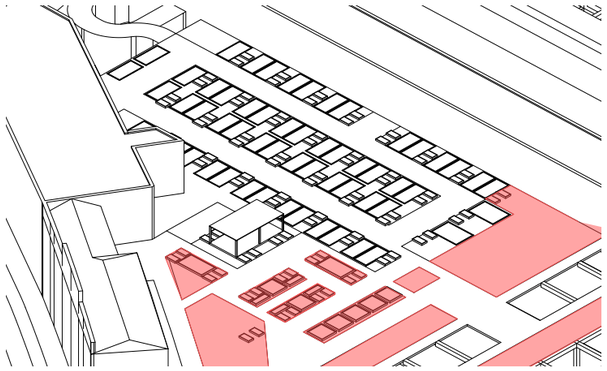
10-15 Floors Plan

Farming & Market

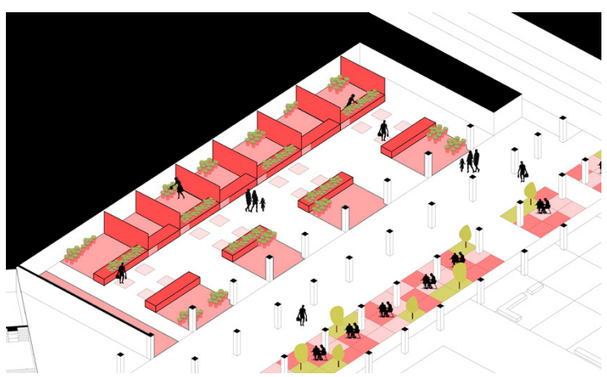




The roof of the Toolbox has been previously used as a parking space but next to it there were a lot of wasted space. To promote more sustainable and ecological use of environments, an urban garden has been added to the area.

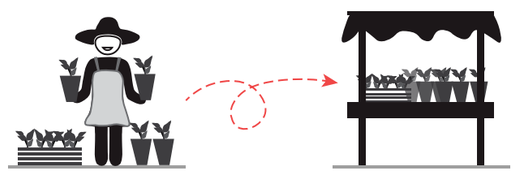


New Design for the roof of the Toolbox has transformed the wasted space into an urban farming area and a garden that is more sustainable from before. This way the roof is also contributing to the environment by reducing the urban heat island effect.



Below the farming area is located a market, where individuals can sell their products that they grew on the garden. They can either sell raw items or sell food to the customers for them to enjoy next to the market on the seating areas.

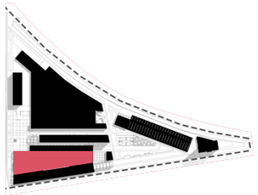
The new rooftop garden is especially important for the new resilient macroblock idea. A garden helps a community to come closer as they can participate in farming together to create a strong bond. An urban farm could increase access to healthy food for the community and increases citizens quality of life. While an urban farm helps create a community, it also reduces heat island effect in the area.

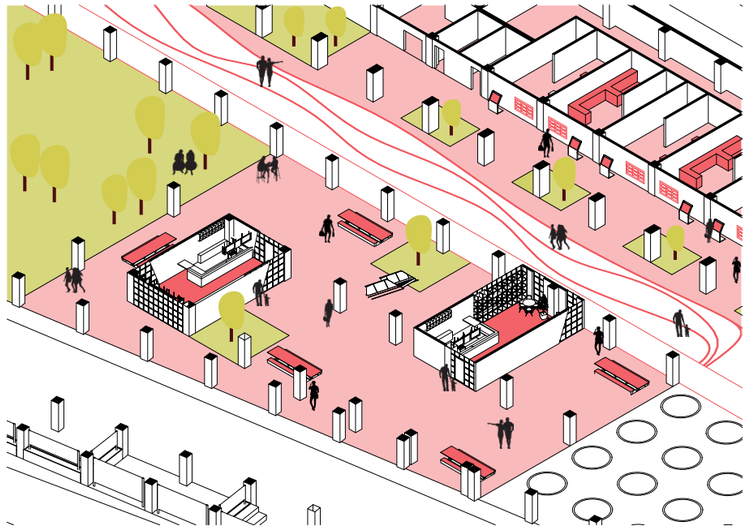


Post Pandemic Osi-Ghia

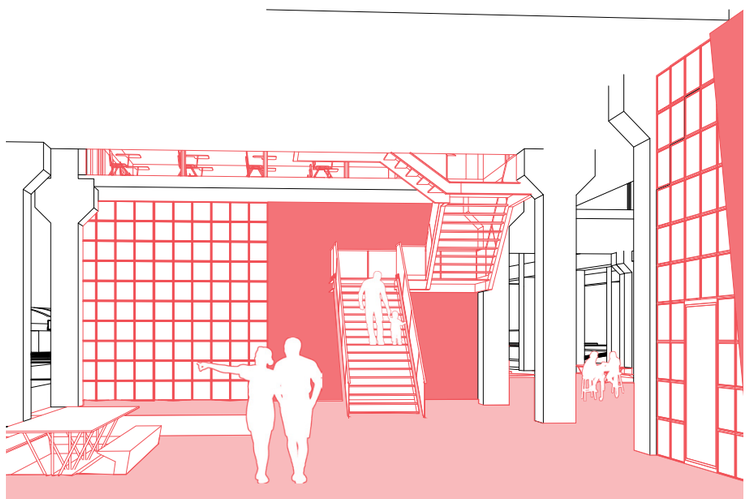
Leisure Passageway

Multi-Use Cultural Space



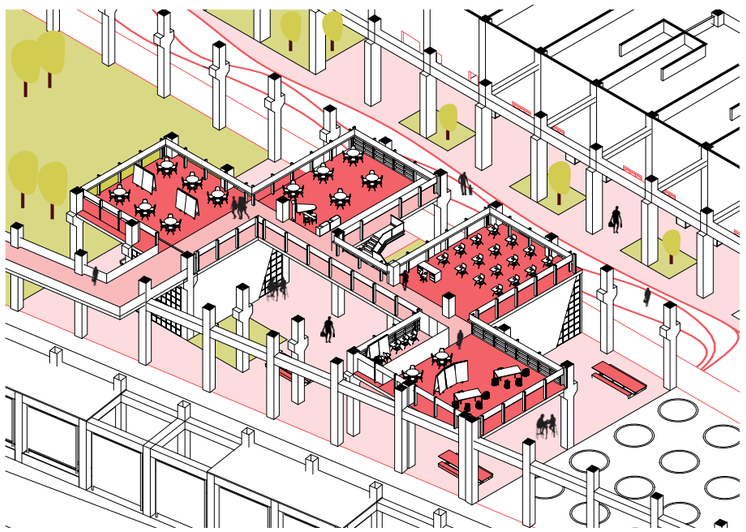


The Osi-east building was formerly a large building, which was unhealthy and restricted proper natural ventilation due to its large size. The building has been stripped away from its walls and floors to create a healthier public space for the people. Some parts of the building have been completely demolished to create a courtyard.

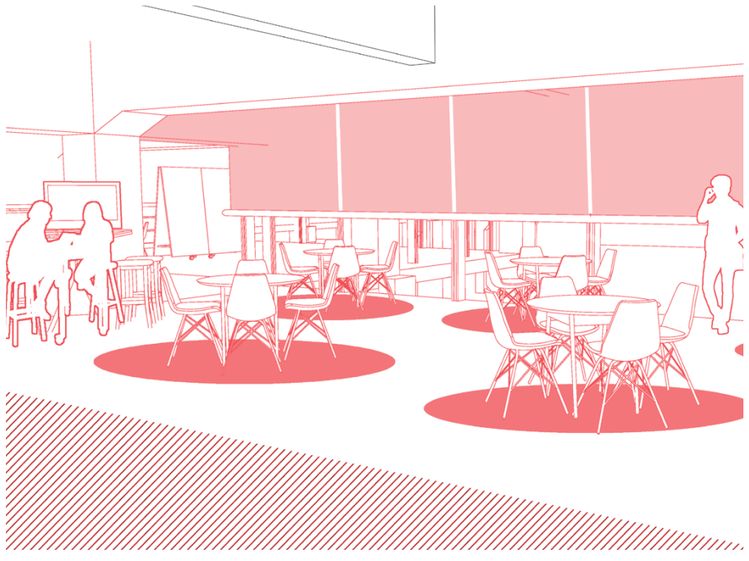


The space is designed to generate activities that would attract people from neighboring districts to enrich the cultural value of the area and increase the cultural value. Place can be adapted to arrange Festivals, meetings, conventions and fairs.

The area has both open spaces and partially enclosed spaces to be repurposed according to different situations and needs. While there are no activities held, they can be used by public as meeting, seating areas and then repurposed while there is a festival being held.

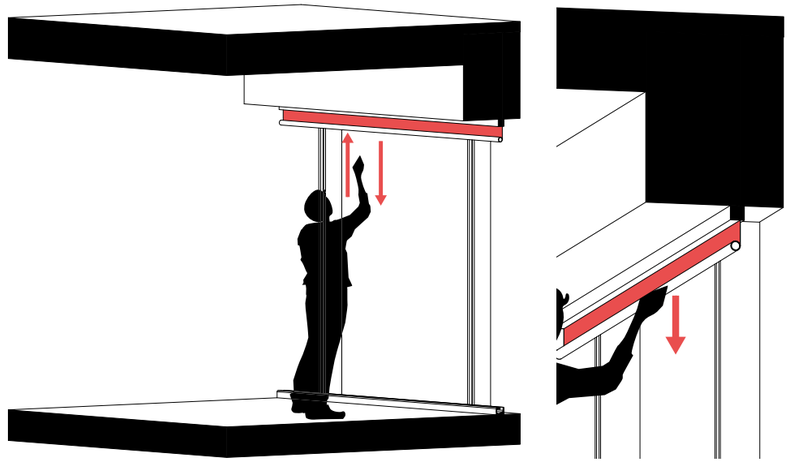


Multifunctional Cultural space have been designed as a two story open public area. On the ground floor there is an open layout which connects the two newly built areas together and in-between there is a courtyard. The first floor however has been reserved for special functions such as; meetings, classes, workshops etc. These places can be reserved through an app that connects all the parts of the site together.

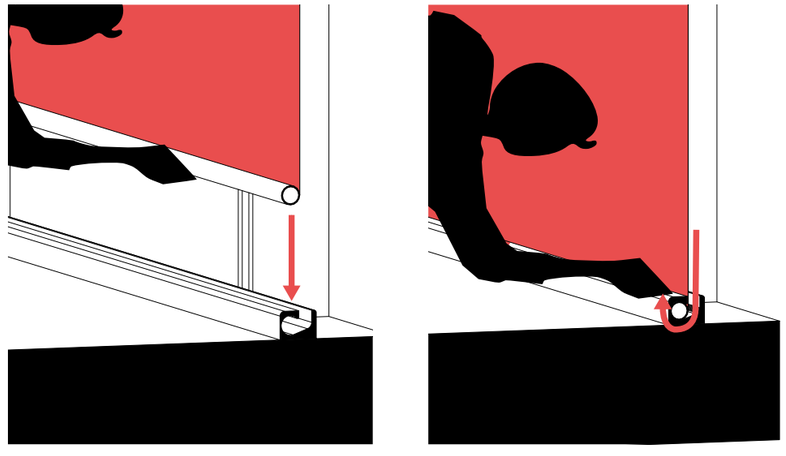


The upper floor of the cultural spaces could serve as a more semi-private spaces that could serve several different functions dependent on the user's needs. A storage has been located to further increase the irrefrangibility and adaptability of the area.

Partition Design



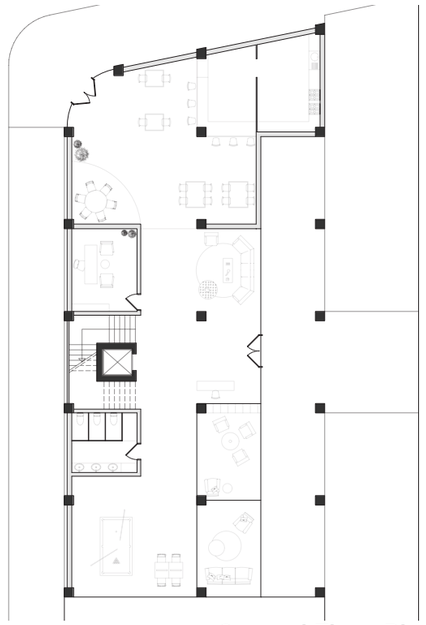
Partition design in the multi-functional rooms helps them to become flexible in a sense that they can become a part of the exterior environment as well as the interior. The rooms can be broken up to create smaller rooms increasing the number of the them for more people to use, while achieving the privacy needed. The design itself is easy to use and easy to assemble.`1



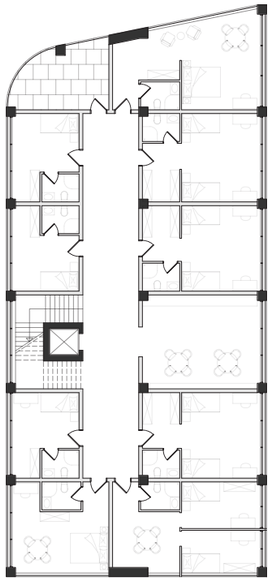
Post Pandemic Osi-Ghia

Cultural Spaces

Student Hotel/Dorm



Ground Floor Plan



Typical Floor Plan

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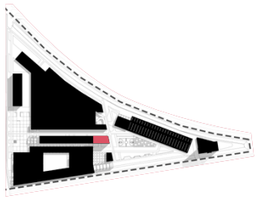
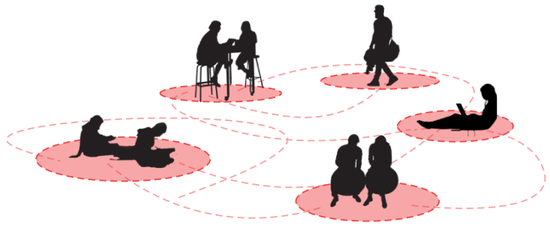


Due to the close proximity of a university campus to the site, a dorm has been located on the site. The location of the Student Hotel/Dorm has been selected for the availability of cultural and sports facilities near the selected location. The nearby active zone that can be used as an open cinema in-front of the building increases the value of the building while helping students socialize.

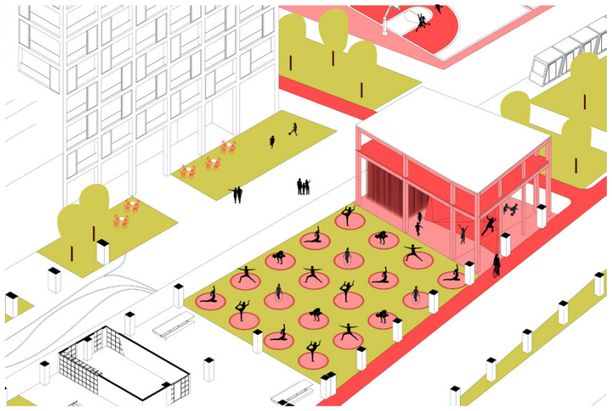
The building is purposed both as a dorm and a hotel. There are several examples of this concept all around the world. Empty rooms can be repurposed as hotel rooms for non-student guest to elevate the touristic value of the neighboring areas and helps tourists and students to socialize generating a social and cultural bond. Also due to the proximity of the multifunctional space, where conventions could be held, the hotel could attract business people and help students to generate their professional network benefiting young generations professional growth.

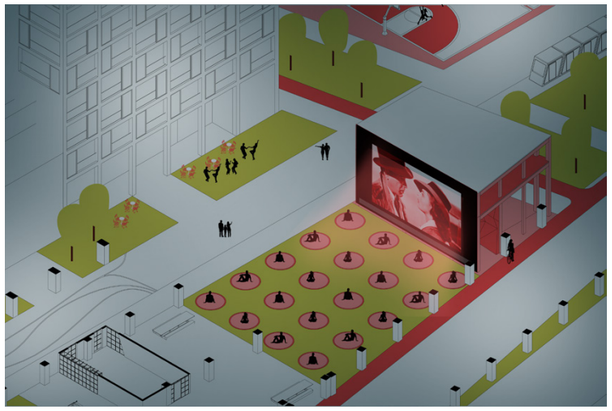
Post Pandemic Osi-Ghia

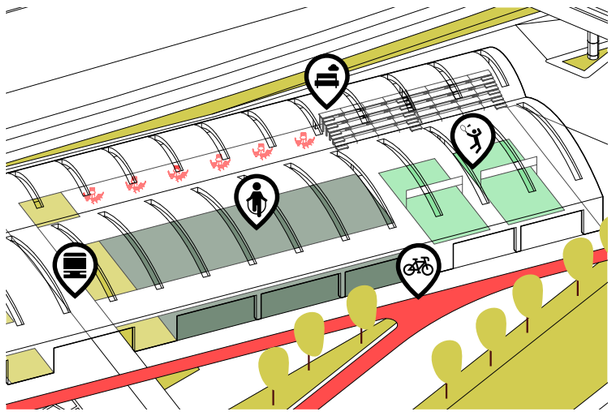
The dormitory/hotel is centrally located, integrated with the active square around it. With the large open space surrounding the building, it allows students and tourists to socialize in a healthier, happier and safer environment.

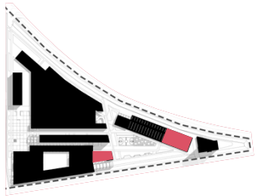


Active Grounds







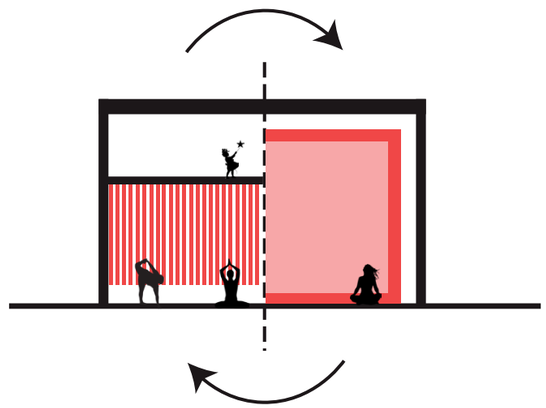


Between the cultural space and the active square, is located the multi-functional playground. Former structure has been stripped out from is walls and floors and transformed into a playground with a climbing wall.

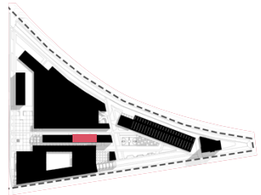
Since it is located in-between the two different functional spaces it is designed as a multi-functional space. Through-out the day it can be used as a playground and group-sports area and at night it can transform into a cultural area with an open cinema.

A part of the newly designed sports facilities has been reserved for the seniors and designed according to their activity needs and places to rest.

It is designed to create a healthier environment and encourage people to be more active while maintaining social distancing. This area, which is integrated with nature, contains many functions that allow to do sports and socialize freely.

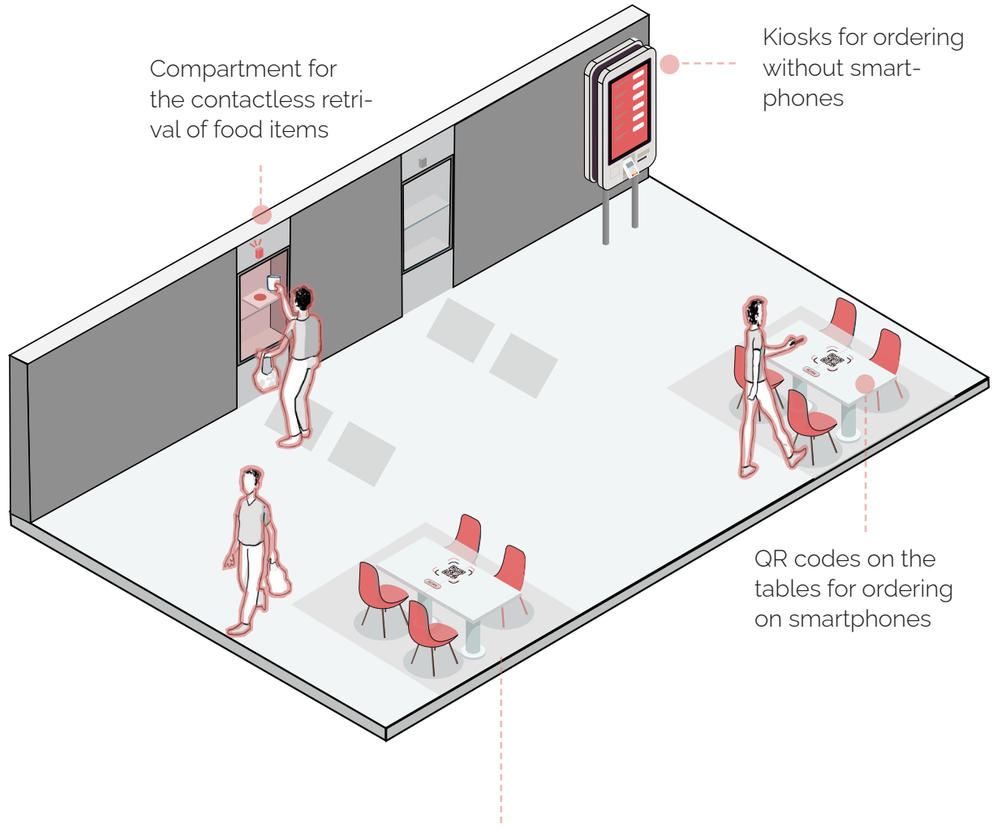


Take-Away Restaurants



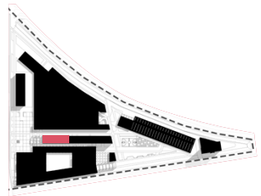
A new smart system implemented on the site enables users to order and take their food without the requirement of face-to-face contact. Food or any other items can be ordered using the designated kiosks or by scanning the QR codes on their phones. After the foods have been order, a number is given to the customer and when their turn arrives and their foods are ready, they can collect their food from the compartment on the wall. The restaurants put the food inside the compartment from the other side of the wall. The compartments are locked and can be unlocked via the code that arrives on the user's smartphone after ordering or from the printed receipt that has been given out by the kiosks.

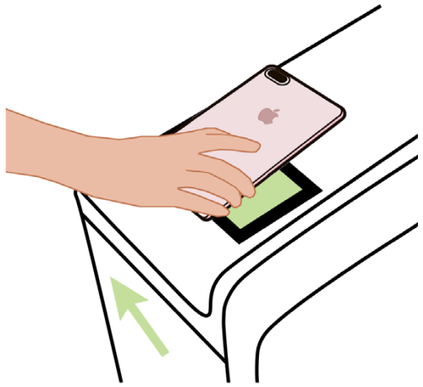
This smart system allows people to seamlessly order and takes their food with minimal interaction and reduces the risk of transmitting a possible disease. The way of controlling their own order by using a kiosk or their smartphones that helps customers to order more accurately. By using personal

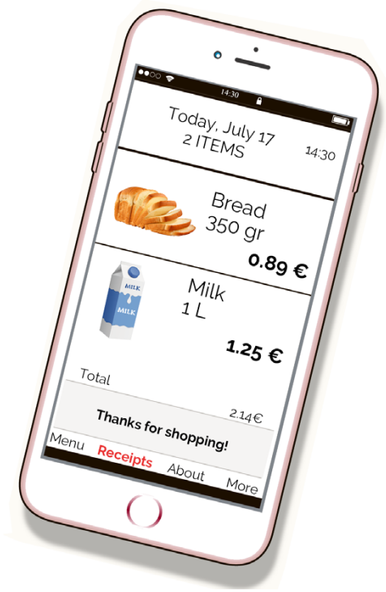


smartphones as an ordering device, it is possible to reduce queuing. After getting their food nearby designated eating places, tables can be used by the users to enjoy their meal.

Pay & Go Supermarket

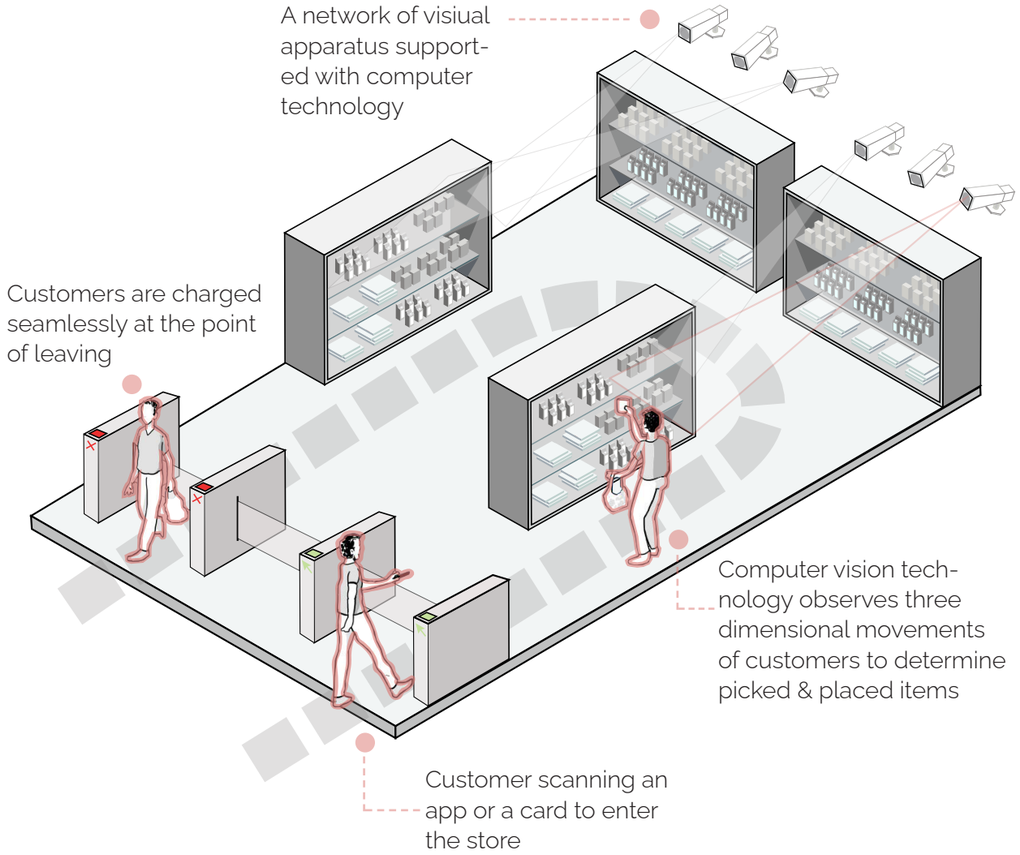






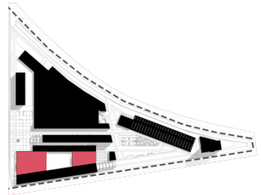
With the pandemic essential services such as supermarkets became important more than ever and while everywhere else was closed due to strict prevention measurements such as; quarantines, supermarkets stayed open for the use of the general public. They become crowded and become a place for the spread of the virus due to the long queues and narrow interiors.

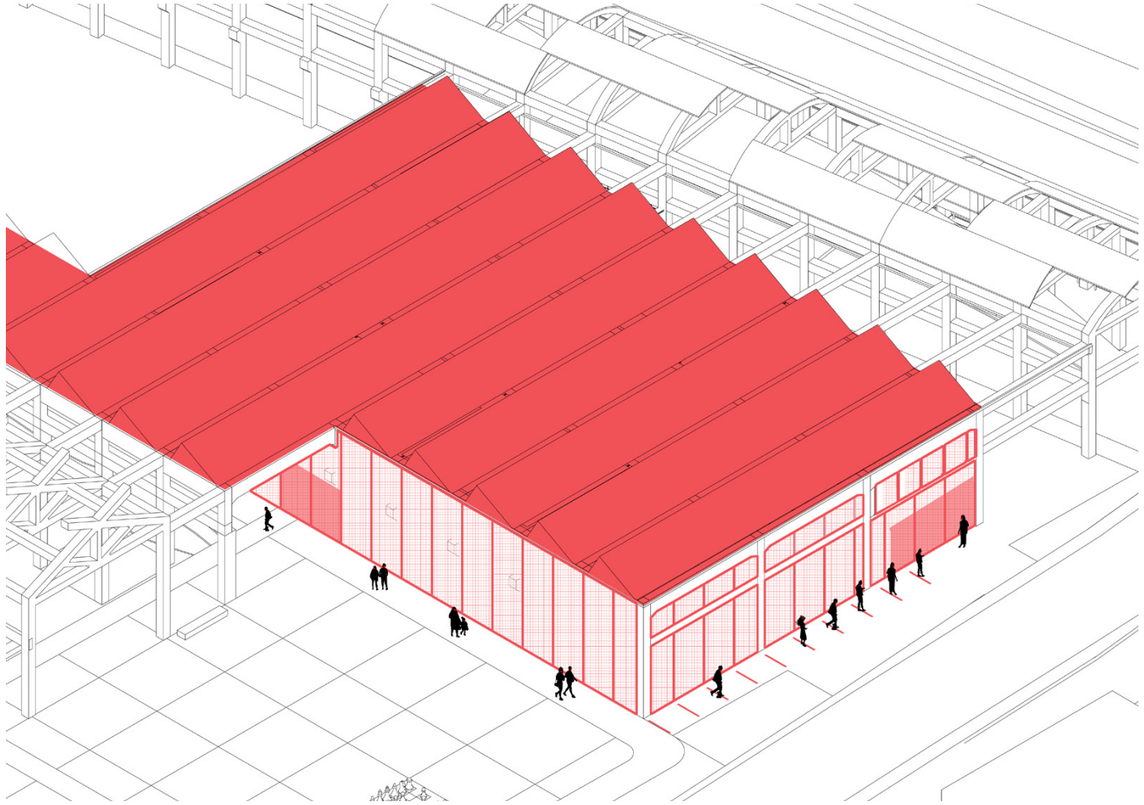
Pay & Go system with non-existing checkout counters, highly reduces the risk of spread of airborne viruses such as COVID-19 due to its seamless payment system technology. The elimination of in-person payments there is a significant reduction of transmission risk. Amazon has open up a store back in 2018 called “Amazon Go”. The concept of the store allows customers to enter the store by scanning a QR code and walking in and picking-up what they need and walk-out without queuing to pay. These stores use computer vision technologies to track customers purchases.



Supermarket is an essential service needed for the daily lives of the citizens. It has been added on the site to support the residential area on the south part of the macroblock. The addition of supermarket further increases the resilience of the macroblock and further supports the concept of 15min city.

Temporary Emergency Building





The new cultural space's structure has had some additional elements constructed on to it, which can be used to transform the space into an enclosed building used as an extension of the hospital nearby if needed. During an emergency situation where the hospital's capacity is reaching to its limits, the compartments added to the new design can be opened up to reveal the flexible material, such as clear tarpaulin, that can be used to wrap around the building to transform it in to an enclosed hospital.

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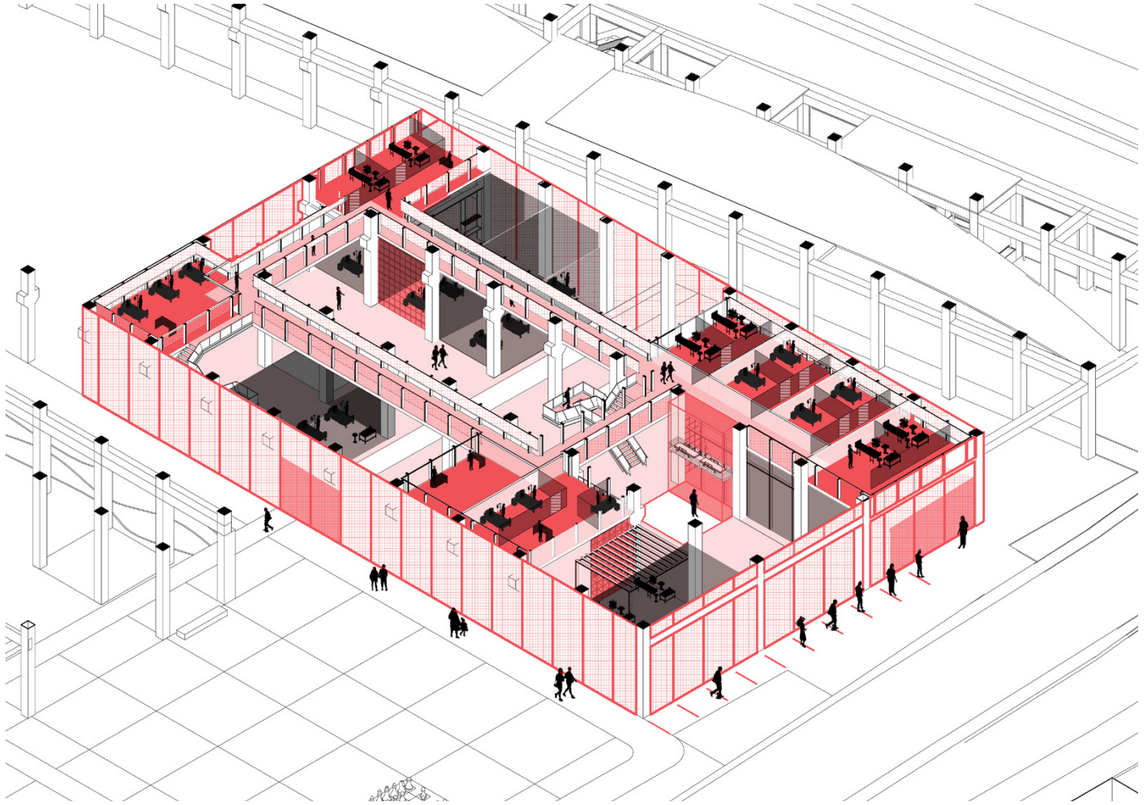
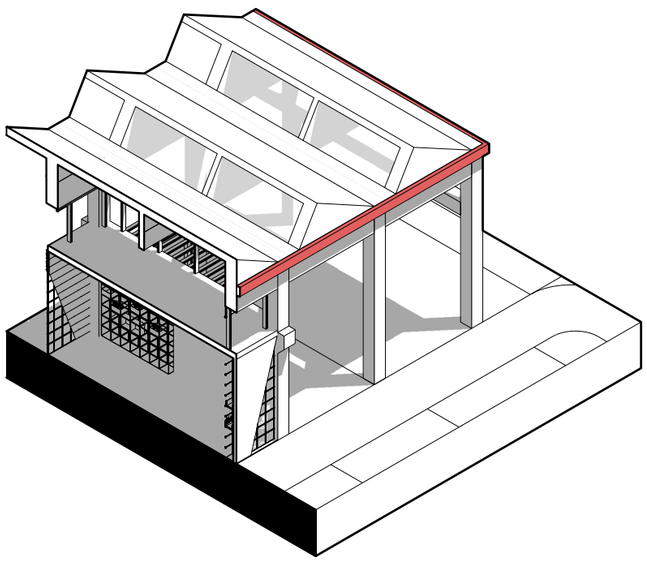
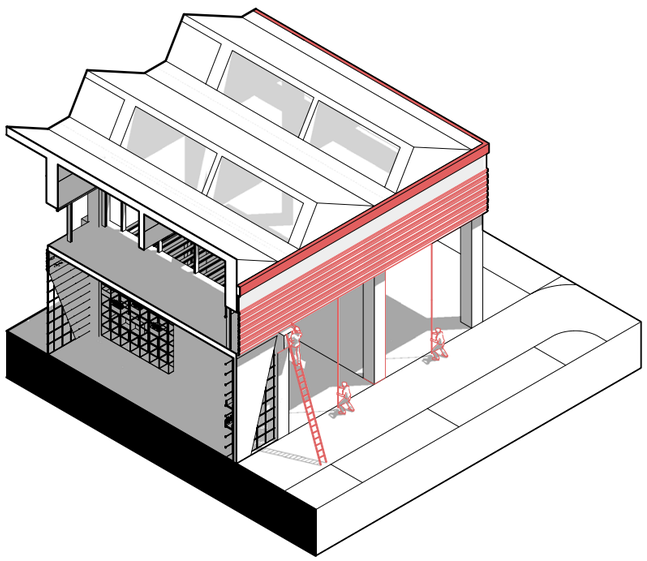
In an emergency situation the whole building can be used as an open patient room and partitions can be added to separate and create a more private space for the patients and health workers. A lift can be attached to the existing columns to lift the stretchers to the upper floor. Upper floor can be used for patients that needs more private attention since the upper floor rooms can be divided with the existing partitions.



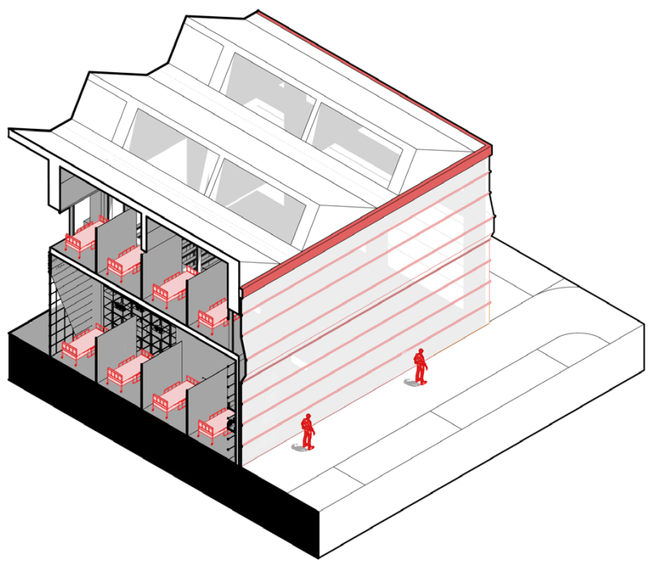
Temporary Emergency Building Rapid Deployment System



An equipment has been installed outside of the structure that lets the structure to quickly transform into an enclosed building. The Compartment stores all the equipment inside that can be assembled easily for a quick response



Thanks to the lightweight materials like carbon-hybrid fiber and carbon alloy frames, building can be enclosed quickly with least amount of people needed. The design folding design combined with lightweight elastic materials lets the equipment be compact when not used.



After the equipment have been installed properly and the needed equipment have been brought into the building, the temporary emergency building can be up and running in less than a day, increasing the chances of successfully overcome the emergency situation. Due to the adaptability and flexibility of the space it can be used for any purpose possible and not just emergency situations.

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Conclusion

Throughout the history, pandemics have shaped human life-style and transformed urban design. Like all other pandemics, Covid-19 pandemic that emerged in 2019 also transformed many aspects of people`s daily lives. It made designers think from how individual homes needs to be designed to office design and even on urban scale design. Designers started to think about how spaces need to be designed, how did people's needs have been affected? Pandemic taking a long time and the uncertainty made people more stressful. To overcome this stress people started to spend more and more time on green, open spaces and the demand rose. If we look at the problem from the macroblock scale, people needed public spaces that are in close proximity to their homes. The idea that every function that a person needs have to be as close as 15m away become stronger and stronger.

The difficult times that we have all been throughout during this pandemic and the questions that have been thrown around about the transformation of design pushed us to do a research about this topic. What kind of effects will this pandemic left behind? How can we open up spaces in a highly built dense city using abandoned industrial sites and how it can benefit the new needs that are born during the pandemic? Living through all this, by observing and researching about new ideas, we have completed and intensive research. Repurposing an abandoned industrial site with the new modalities that Covid-19 has brought while trying to preserve the industrial heritage of the site was our main objective. The site that we have chosen has a great production background and consists of 3 large abandoned factories called Osi-Ghia. One of the biggest difficulties of the site was the accessibility caused by the railroads that are on both sides of the site, which created a very isolated area and turn it into a deserted urban island. Rather than designing on an empty plot, reusing what is left behind and repurposing that to connect them to the existing city is important and beneficial to the future of the city and its citizens.

On our design preservation of Osi-Ghia`s and its surrounding`s urban identity, transforming the area into a multifunctional diverse place from a mono-functional one and solve the issue of connection and accessibility were essentially our goals. But what about what could have been added for post-pandemic lifestyles? That being the case new design ideas have been implemented on the site to ensure social distancing, digitalization and to increase the open spaces. Turin is a city that supports sustainable mobilities such as; bicycles, electric scooters and after the pandemic municipality is planning on increasing the roads for these kinds of mobilities. In consequence in our design, we have made the bicycle mobility our primary focus and expanded the pedestrian and bicycle paths on the site connecting them to the adjacent areas. Also, we have developed and implemented an autonomous electric transportation mo-

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bility pod system on the site that enhances the sustainable accessibility of the area especially for senior citizens.

A lot of cities have been caught unprepared for the pandemic, because most of them did not have an emergency response plan ready and hospitals filled up and extreme measures had to be taken causing major difficulties. Henceforth, the design has been made with adaptability and emergency usage in mind and with an emergency response plan. Cultural zone that is located on the area can be transformed into an emergency medical facility, shelter or an emergency assembly area in the time of emergencies and can support the city. Just by having a rapid response plan, it is possible to minimize the health, sociological, psychological and economic effects of these kinds of events.

As architects, we need to change our perspective on design and set our priorities according to the needs of the future, possible scenarios and focus on transforming urban cities into more adaptable and responsive places. The new design for Osi-Ghia area aims to shine light to the future for possible emergency scenarios with fast response programs and new strategies. With our design we have brought a new perspective, technological and healthy spaces into the area where social distancing is subtle but effective. New design also has a potential to become a new landmark of the city with its social and cultural values. In the proposal we have taken the problems caused by the pandemic and combined them with Torino's future objectives to come up with a combined solution. It was essential to put the research on pandemics for our basis of the thesis, because it is important to draw conclusion from catastrophic events such as the COVID-19 pandemic. Events like these can bring light to aspects social, economic factors of design that was not important in the past.

With the help of the medical and pharmaceutical system, COVID-19 will become a thing of the past, but what about the next big pandemic? What lays in the future for the humanity? Will the old design ideas and perspective be enough for the future? It is possible to say, especially for architects and designers, that there is a new form of design. It has become essential to design spaces where people can be free in healthy, safe environments. Smarter, sustainable, projected towards the future cities with more green spaces are humanities need for the future.

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Post Pandemic Osi-Ghia

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Re-activation of a former industrial area with post-pandemic design principles.

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