Athens in Flux:
Re-envisioning the Third space

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Abstract:

During the past few decades urbanization has been occurring at a very fast pace, claiming new territories by spatial expansion and occupying the last precious open spaces that are left. Urban growth, in combination with rapid climate change and the neglect of ecological processes, has had severe negative effects on the environment. Therefore, improving the quality of life in urban environments and transforming them into resilient cities has never been more relevant.

At the same time, as current practices of urban development are failing to cope with the existing conditions, new opportunities are occurring. One of these opportunities are the unused and forgotten areas generated by urban growth that occupy large parts of the urban web. Despite their derelict appearance, these spaces provide a haven for spontaneous vegetation - the (so called) Third spaces.

The Third space is a concept forged by the theories of Ignasi de Solà-Morales and Gilles Clément and refers to all types of places that constitute a territory of refuge for biological diversity. As a result of their abandonment, the Third spaces evolve into secondary landscapes that are colonized by pioneer species and perform ecological services.

With Athens as the context of the proposal, this thesis aims to explore the potentialities of the Third spaces in the new processes of urbanization and re-envision their role as support for new ecological, morphological and cultural interrelations within the urban landscape. In order to do that, the area of Eleonas is chosen for intervention, as a characteristic example of an agglomeration of Third spaces among the post-industrial remnants and empty spaces found in the heart of Athens metropolitan area.

Keywords: Third spaces, urban transformation, resilient environments, ruderal landscapes, ruderal refugia, urban agriculture

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Part I: INTRODUCTION

A. Posed problem & Fascination

Current practices of urban development -by processes of spatial expansion- are being challenged due to the immense pressure that the built environment exerts on the landscape qualities and on the natural resources. In such urban contexts, events of urban change have unintentionally generated a series of wastelands, voids and post-industrial landscapes, with seemingly unremarkable manifestations of ruderal nature. Due to their physical, spatial and cultural characteristics, these sites are currently regarded as spaces of opportunity which can significantly contribute to the processes of transforming densely built urban environments into resilient cities.

Such areas came to their present state unintentionally, either as a result of reckless urbanization and neglect, or due to wartime (or natural) destructions and geopolitical tensions. Either way, they are a product of the dynamic processes of urban environments.

In addition, despite the fact that they are living testimonies of a specific time, they are not considered to have a cultural value that needs to be safeguarded and preserved. According to the established "cultural predisposition", they have no age and historical value, since they are not necessarily fragile and they do not reflect the contrast between impermanence and timelessness[1]. That is due to the fact that they belong to a recent past (20th century) that we can still remember.

However, changes on scholarship and practices about heritage during the 2nd half of the 20th century encourage the use of such spaces in new spatial, social and cultural developments within cities. That is based on the idea that, during their transformation, the existing and new elements of these spaces can create multiple meanings and present opportunities for the creation of something new. In that context, they need to be studied in the duration of their life span through the lens of their palimpsest.

1. That comes in contrast to buildings or spaces that have age and historical value and that have resisted urban development to a certain extent. According to Ellen Braae, due to their age, such spaces appear to be fragile and transient, but at the same time, they reflect permanence and timelessness (Braae 2015).

Figure 1: Urbanization claiming the hills of the Athenian plain | Lycabettus Hill
Source: Archisearch.gr

Furthermore, these spaces are changing through time, moving towards a gradual equilibrium ("Robert Smithson, the Collected Writings" 1996). This condition, referred to as entropy by Robert Smithson, is irreversible since the spaces mentioned above continually change from one situation to the next without being able to recover their original form and context. In addition, this gradual change, this wearing down of structures and open spaces reflects the transformative power of nature on the built environment.

Indeed, the moment a building or an open space is left to decay, natural processes take over and remnants and nature create something new, both man-made and natural. This transformation is manifested on a small scale by the patina of materials (metal, wood, ivory, marble etc.). A new "skin" is formed through chemical processes thus covering up the original material. On the other hand, on a larger scale the transformation is manifested by the presence of spontaneous nature, including both vegetation and animal life.

This association with natural and cultural processes is what renders the Third spaces of cities full of potential for new practices of urban development that focus on identifying, transforming and reusing existing areas of the urban web.

In particular, it challenges the conventional way of valuing these spaces, the build and natural elements present. In fact, it promotes approaches through various different lenses. For the purpose of this study I will approach Third spaces through two lenses: the lens of the Palimpsest of each site and the lens of Urban Biotopes.

According to the Oxford dictionary, in textual studies, a Palimpsest is *"a parchment or tablet, reused after earlier writing has been erased"*. Usually a pergamene made of lamb skin that has been scratched repeatedly over the years and bears traces of the previous texts. In the fields of Urbanism and Landscape architecture, the term of Palimpsest was introduced in 1983 by André Corboz in his essay *The land as palimpsest*, in which he supports that *"The land, so heavily charged with traces and with past readings, seems very similar to a palimpsest."* (Corboz 2001). According to the above, the reading of the Palimpsest of Athens and Eleonas will not only refer to the reading of the spatial configurations of the landscape. It will also study the evolution of both the culture and the nature of the site through time. In addition, it will pay particular attention to the stories of individuals experiencing the sites as well as the underlying concepts of nature through time.

Urban ecology is a field of study that looks into cities as biotopes. That is, as *"places (τόποι) where humans, non-human animals and other organisms live together while also creating and sustaining their own life worlds (βίος)"* (Kolen, 2018, p. 72,73). In this context, the residual spaces of urban environments can be approached and valued as biotopes that compose the larger ecosystems of the city. These biotopes consist of biological (species and products), social (social institutions and forms), physical (soil, water, rain) and built (buildings and infrastructure) components which are codependent and cannot be separated (Lefebvre, 1991; Pickett, Cadenasso, & McGrath, 2013, p.10). Furthermore, they can be different from one another, in terms of spatial patterns, hospitability to other organisms, levels of nutrients, soil permeability, amount of ruins, etc.

These notions suggest that factors like;

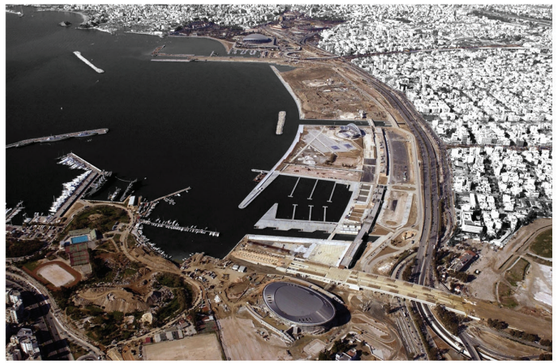
-The materials of both the natural and built environment (presence and quality of ruderal vegetation, presence and quality of ruins/ activities).

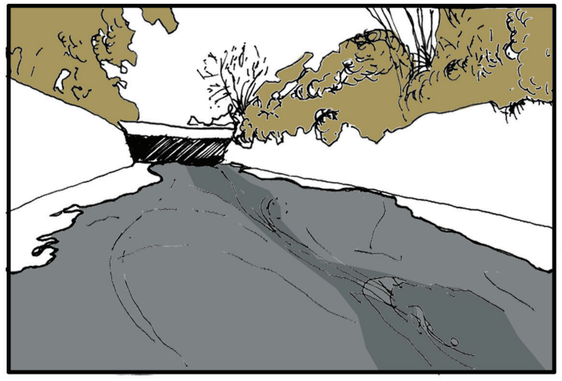
-The configuration of neighborhoods (density of urban web, heights of buildings etc.)

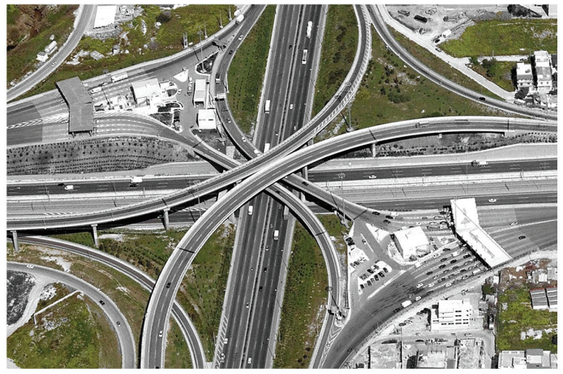
-The environmental qualities (air quality/heat, presence of water, etc.)

play an important role in the creation of different biotopes, attributing a level of complexity to urban environments.

Figure 2: The Third spaces of Athens (Next page)
(Source: Author)







B. Definitions:

Urban environment and its growth | Urban development practices

Urban environments are constantly evolving, progressing through time, as a result of both natural and man-made changes. As James Corner suggests, they are in flux, with *"various forces and activities preparing the field for new activities and patterns"* (Corner 2012). One aspect of this constant change is the spatial expansion of cities; that is the way in which urban settlements claim spaces from the physical environment and occupy them. According to Svava Riesto, until the first half of the 20th century, urban growth followed a concentric pattern of expansion: cities grew from the (often historical) city centre outwards, as new elements were added on the existing mass and, in combination with it, created new configurations.
However, this form of city development was challenged in the decades after 1950 and is still being challenged, since it is no longer an applicable practice in the case of most cities.

That is due to two main reasons. To begin with, the boundaries of cities are already defined by specific elements; the topography, the infrastructure or even the built environment surrounding most cities does not allow further expansion (Riesto 2018). In addition, we have now come to realize that the immense pressure that the built environment exerts on nature and its resources (which are in short supply) has a negative effect on human health, the quality of life within the cities and even the environment outside them.

For the reasons mentioned above, approaches towards urban development are gradually changing. Especially in the western part of the world, ***urban growth focuses on identifying, transforming and reusing existing areas of the urban web rather than expanding the cities. This practice of transformation challenges the concepts of urbanism, ecology and heritage that we know so far.***

Resilient Cities

The negative effects of urbanization on natural resources are mainly associated with the rapid increase in population over the past few decade. They are a result of human action and they came into existence because past and present practices of urbanization did not take into account natural processes during the expansion of cities. The impact of over-exploitation of natural resources as well as the waste that is being discarded into the urban environment has had profound effects on heavily populated regions and generated severe biophysical changes. Greenhouse gas emissions, increased temperatures caused by the urban heat island effect, sea level rise and high occurrences of extreme weather phenomena like flush floods and storms are becoming increasingly common and undermine the quality of life in cities. In addition, they are creating the new environmental conditions to which cities will inevitably need to adapt to ensure their survival in the future.

According to Walker and Salt (Walker BH, Salt D (2006), in order for cities to become adaptable to both chronic and sudden changes, they need to be able to withstand unforeseen disturbances by being more diverse and flexible. In other words, they need to be resilient. Picket et al. argue that applying the principles of ecological resilience in urban and landscape design can change the foundations of these fields by resulting in design methods that prioritize diversity, variability and flexibility (Pickett, Cadenasso, & McGrath, 2013).

These design practices will lead to ***"Resilient Cities"*** that, according to Walker and Salt, w***ill promote diversity in all aspects, understand and work with ecological variability and embrace change, experimentation and innovation. More importantly, they will provide a plethora of ecosystem services, such as regulating floods and droughts, improving soil, water and air quality and offering recreational, mental and other immaterial benefits to societies(Wu & Wu, 2014).***

Urban biotopes

According to Kolen, biotopes are *"places (τόποι) where humans, non-human animals and other organisms live together while also creating and sustaining their own life worlds (βίος)"* (Kolen, 2018, p. 72,73). Similarly to Kinji Imanishi's world of living things (seibutsu no sekei) in which *"[…] humans animals, plants rocks, water etc. are all parts of a dynamic web of relations"* (Prominski 2014), the foundation of the milieu of urban biotopes depends greatly upon the sociality between all living things. The distinction between what is manmade and what is not of importance in urban biotopes. What is important is how the organisms of the biotopes interact in complex and dynamic relationships.

This approach of the living world challenges the established westernized idea of the dualistic relation between nature (as described by Aristotle) and culture. In the field of landscape architectonic design, the challenging of the traditional views on nature and culture allows designers to explore other ways of approaching a site. Once the conventional distinction is no longer important, the "reading" of a biotope is achieved by addressing site specific elements, conditions and flows of the site. By doing so, the study and interpretation of a space becomes more precise and the design proposal based on that process adaptive and resilient.

For the reasons mentioned above, in this graduation project I will be approaching urban environments as biotopes in my attempt to create a design proposal that will improve living conditions in densely built metropolitan areas.

Third Spaces: Wastelands & Terrains Vague

Spaces unintentionally produced by current practices of urban development and left over by man to the influence of landscape processes. As Michel de Certeau contends, they give the impression of inertia, when, in fact, they are always in a flux, "[…] in temporary suspension between former and future speculative developments."(Barron, 2013, p. 12).

This ephemeral and suspenseful character allows the temporary – and most often illegal- appropriation of such spaces for informal and unplanned activities. In some cases, such activities are creative and cultivate forms of collectivity and solidarity. In others, they facilitate forms of marginality, thus attributing the image of a dangerous, uncared for, uninviting and dysfunctional space.

Scholarship has produced a plethora of terms in order to describe the specific spatial characteristics of such spaces. However, the majority of these terms have, by default, a negative connotation. Terminology includes the "drosscapes" and wastelands of abandoned and contaminated industrial sites, the empty and unused "vacant lands" of cities, "urban voids" such as parking lots and infrastructure buffer zones, urban areas of ambiguous status (unattended archaeological sites or abandoned public transport facilities), "superfluous landscapes" etc. (Barron, 2013, p. 3).

Each term is slightly different from the others, however, none of the above express the fascination such spaces exert and the potential for re-interpretation, as Ignasi de Solà-Morales argues. As a result, he denotes these spaces by the term "terrains vague". The complexity and flexibility of the term is derived from the multiple meanings of its composing words. The French term "terrain" describes not just a plot of land (urban or rural) but also the soil and the ground. The French term "vague" stands for three different meanings: instability and fluctuation, vacancy and at the same time availability, uncertainty and vagueness.

Consequently, the term can be used for the representation of a large array of Third spaces, as it contains multiple connotations (De Solà-Morales, 2013, p. 26).

However, this term does not explicitly refer to the one characteristic that connects all the sub-categories of "terrains vague": The fact that they are all spaces previously controlled and exploited by man and are now left unattended under the influence of landscape evolution. Various species of spontaneous vegetation are found in these sites, both common and rare. The same applies for animal species that adapt to the conditions of urban environments (Del Tredici 2014, 243-244).

In order to impress upon the importance of the ecological value of these spaces, Gilles Clément used the term "Third Landscape" in his "Manifeste du Tiers Paysage" to describe all types of places that constitute a territory of refuge for biological diversity. According to Clement, neglected spaces (délaissés) result from the abandonment of an activity and they evolve into secondary landscapes that are colonized by pioneer species (Clément 2004). They are remarkable, as they are able to grow in relatively infertile, dry and compacted soils and perform ecological services (Del Tredici 2014, 243-244). The secondary landscapes are usually heterogeneous and chaotic. Soon, pioneer species give way to more stable species until a balance is achieved.

For the purpose of this study, in order to refer to the wastelands, drosscapes, vacant lands and urban voids of a metropolitan area, i will be using the term "Third Spaces" as a reference to Gilles Clément's "Third landscapes".

Third Spaces | Own Definition

All types of places that constitute a territory of **refuge for biological diversity**. As a result of their abandonment, the Third spaces evolve into secondary landscapes that are colonized by pioneer species and perform ecological services.

Spaces of aesthetic variety. The wild, untended vegetation comes in contrast with the maintained vegetation of urban green spaces, thus attributing aesthetic variety to the urban setting

Spaces of cultural value due to the above mentioned characteristics.

Figure 3: Third space of Eleonas
(Source: Author)

C. Hypothesis

In order to address the environmental challenges caused by the established practices of urbanization, we must prioritize the treatment of cities as Biotopes.

In particular, we must treat urban settings as complex systems in which environmental, urban, cultural processes and legacies and spatial forms interact over time, thus creating conditions for new activities and patterns.

Figure 4: Athens | The site
(Source: Google Earth)

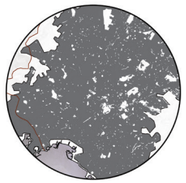
D. Existing Conditions of Athens

In order to look into the ways in which existing, abandoned areas can be used in the processes of transformation in densely built cities, I will use the city of Athens as a case, Athens being an example of a dense, built-up settlement with a series of factors that threaten the quality of life of its inhabitants.

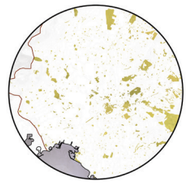
Situated in central Greece, in the regional area of Attica, the city of Athens is built on a 534 km2 area surrounded by mountains. In particular, Penteli (1109 m) and Parnitha (1413 m) mountains confine the city to the North, while Egaleo (468 m) and Hymettus (1026 m) are natural boundaries to the West and East. Morphologically, Athens is a basin shaped by the topography created by the mountains and the water system of two rivers, Kifisos and Ilisos, the sources of which are found in Mount Parnitha and Mount Hymettus respectively. These rivers cross the Athenian plane and discharge in the Saronic Gulf to the south of the city (Diakakis 2014).

As an urban environment, Athens is quite compact with very few green spaces scattered in its web. According to the Ministry for the Environment, Physical planning and public works, Athens has the lowest green space availability per inhabitant, which is approximately 2,55 m2/inhabitant (Polyzos, 2006). The rapid and arbitrary spatial expansion of the city, a process that resulted from a series of geopolitical tensions in Greece primarily in the 20th century, was the main factor that led to this situation. Currently, approximately 68% of the Attica basin has been urbanized, in which roughly 4 million people reside (Diakakis 2014).

In this environment, the non-sustainable use of natural resources and the constant production of pollutants has led to a series of chronic stresses and acute shocks that are afflicting the city.



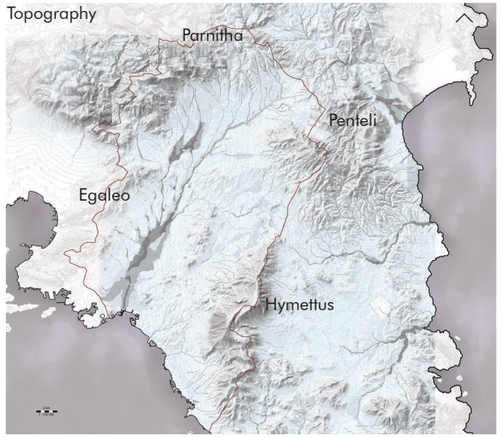
Spatial imbalance
of built and green spaces

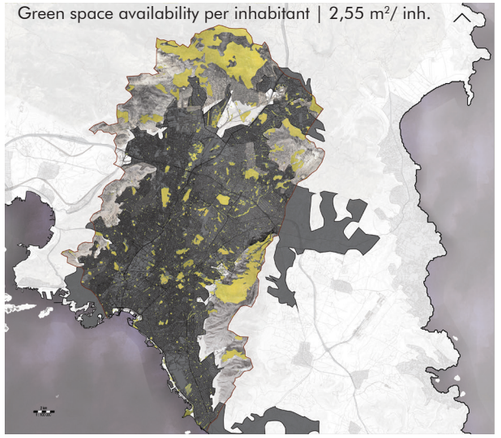


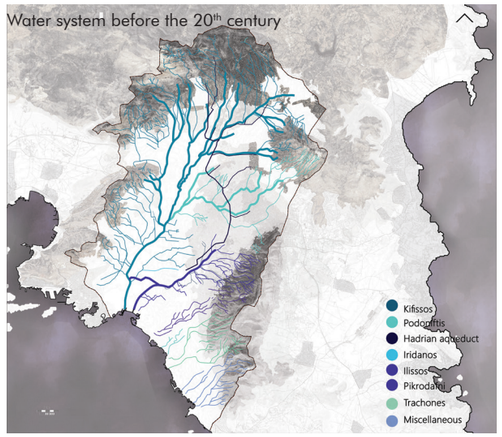
Uncontrolled
Urban Growth

Climate change

Soil, water, air
contamination







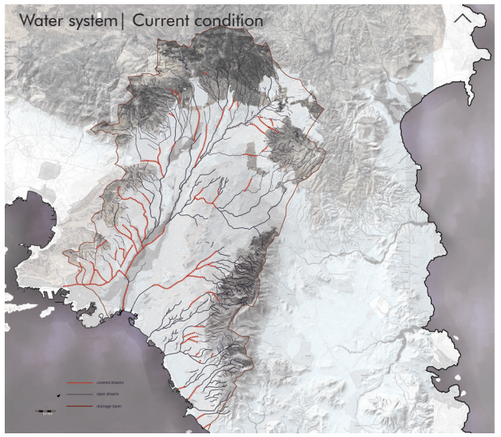


Figure 5: Environmental challenges of Athens (Left page)
(Source: Author)
Figure 6: Existing conditions. By author.

E. Research Question

For the reasons mentioned above, I will attempt to investigate the following research questions:

How can the cultural and physical remnants of post-industrial era (Third spaces) be re-interpreted, re-valued and transformed in the process of improving living conditions and transforming cities into resilient environments?

Investigative Questions

1) What are the existing Third spaces of Athens?

2) What are the existing, distinct biotopes of the city of Athens that these spaces are a part of? What are their physical, spatial and cultural characteristics?

3) What are the design strategies and instruments that can turn these spaces from residual into spaces that enhance the existing biotopes and promote urban transformation towards a resilient city in the future?

Figure 7: Eleonas | An agglomeration of Third spaces (Source: Author)

Part II: METHODOLOGY

Methodology: Research by design | Design by research

A. Design by Research:Theoretical Framework

The design framework consists of both research by design and design by research practices.

Design by research practices will be used to investigate theoretical frameworks that will contribute to the development of the design principles related to the research goal. Literature study on theoretical treatises on three specific fields of study regarding urban transformation, wastelands and urban ecology:

- To understand the issues caused by current practices of urban transformation and to comprehend the concept of resilience.
- To understand the essence of Third spaces, their characteristics, their value and their influence on our way of living.
- To familiarize myself with the concept of urban biotopes and the alternative mapping of cities as mosaics of ecosystems.
- To create a framework to value cultural/historical elements from different periods in time.
- To understand how to combine cultural and ecological values in one project and what are the possibilities to generate new aesthetic values while tackling environmental issues(degradation)

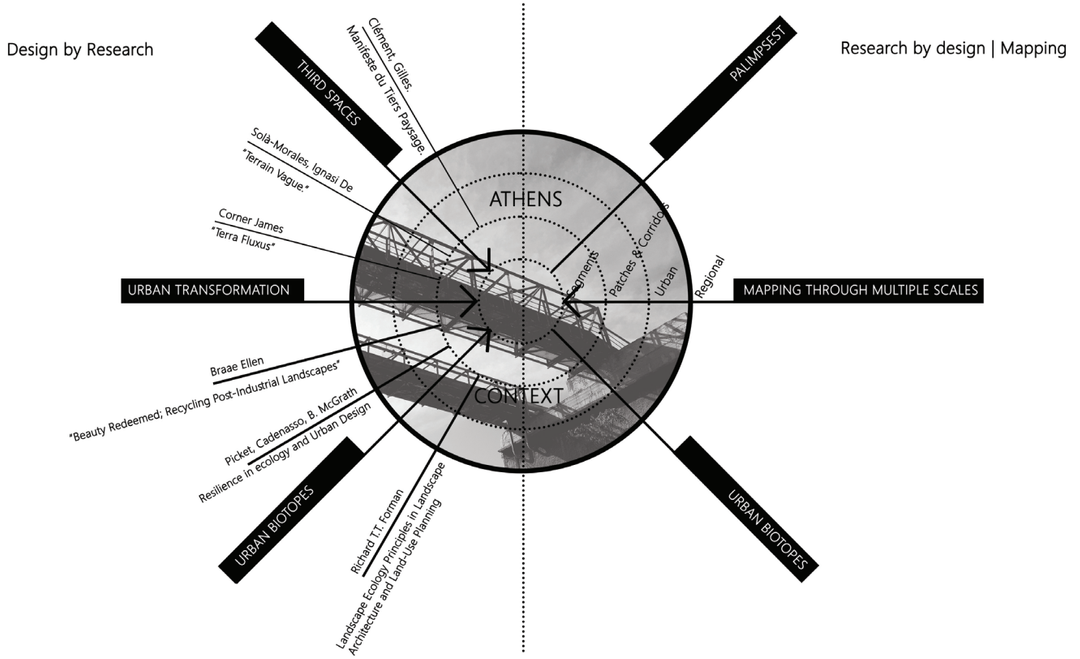
Reference to the writings of Ellen Braae, Robert Smithson, Svava Riesto, Anne Whinston Spirn, James Corner, Picket, Cadenasso and McGrath, Gilles Clément, Elisabeth Meyer, George F. Thomson, Frederick R. Steiner and others to find their reflections on the cultural and ecological values of Third spaces and the possibilities of creating interrelations between them.

The literature study is narrowed down by the context of the chosen site in order to be able to relate and test the relevance and applicability of the theory on the given example of Athens.

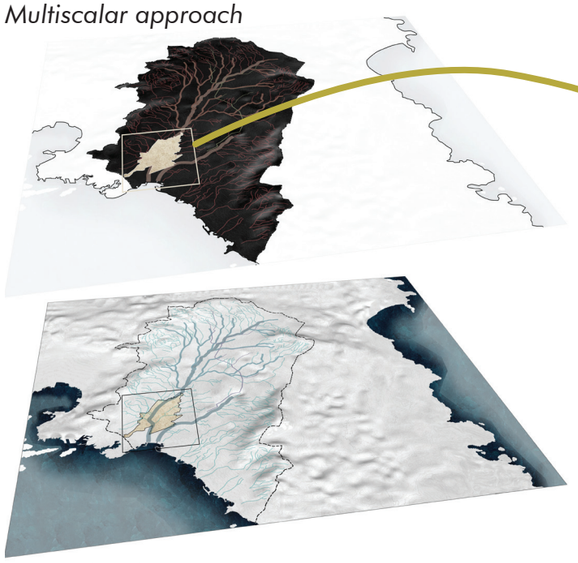
B. Research by Design

Multiscalar approach

Research by design tools, such as mapping methods and the study of archive material (images) are considered for the documentation of the existing ruderal landscapes and their specific physical, spatial and cultural characteristics. This thesis is organized in four different scales of analysis and intervention (Regional Scale, Urban Scale, Patches and Corridors, Segments) according to landscape morphology, urban morphology ((configuration of built space) and territorial processes. The theoretical framework also follows this organization. In particular, the scales are as follow.



Multiscalar approach

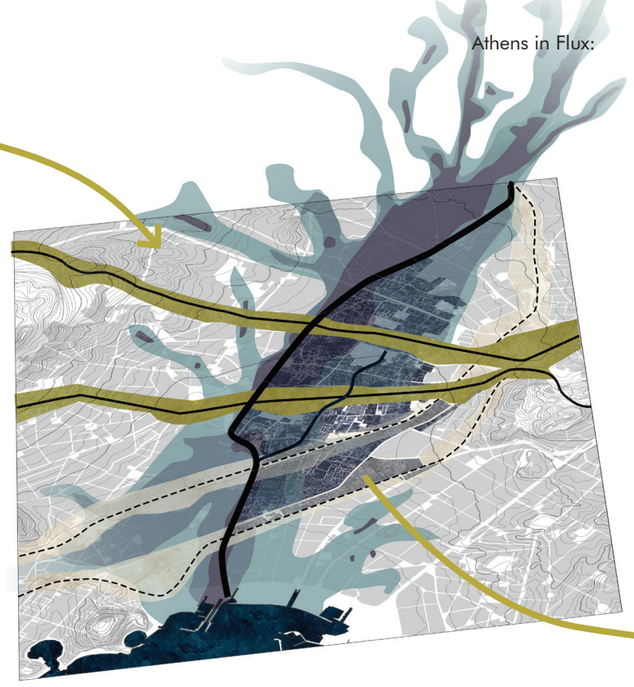


Regional scale: Attica Basin

The Attica basin is the part of the Metropolitan area of Athens that is defined by the drainage basin of the rivers Kifisos, Ilisos and the streams running through the area.

On this scale, I will be analyzing the existing physical elements and conditions of the Attica basin (morphology, ecology, infrastructure, water system, land use etc.), that are a part of more spatially extensive systems, like geomorphology and water cycles. In addition, i will be looking into the environmental challenges the Attica basin is currently facing.

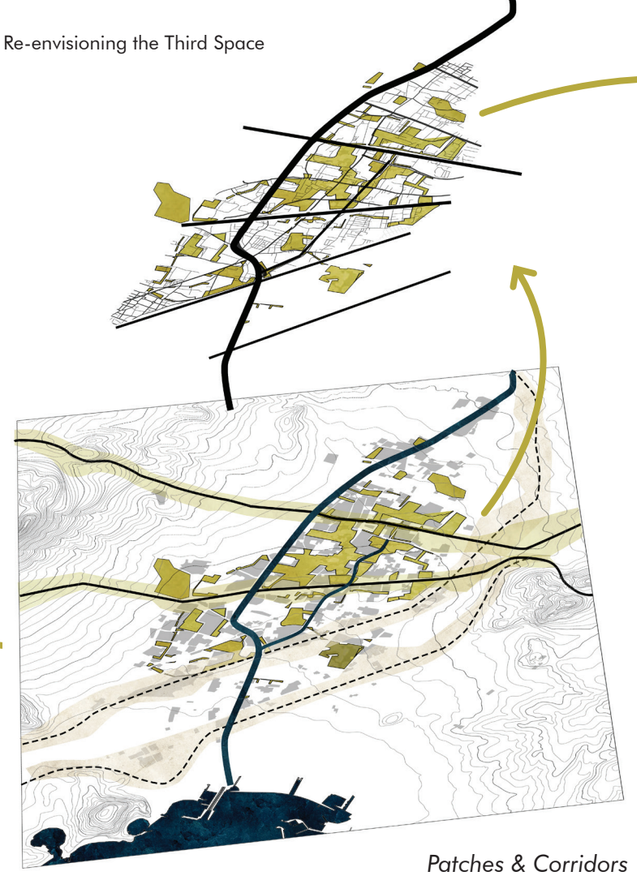
This scale of analysis will provide essential information for the understanding of the forces acting on the site. In addition, it will provide the *area of effect*, the regional context that will be influenced by the design actions implemented in the ensuing scales. As a result, the product of the regional scale will be a vision of how the design practices and instruments applied on the smaller scales will affect the whole basin and contribute to its transformation into a resilient environment.



Urban scale: Eleonas

Eleonas is an area in stark morphological contrast to the urban web surrounding it. The large, low rise configurations in it are delimited by the surrounding compact mid and low rise urban web of the "Polykatoikia" system. This contrast is the reason why, despite the fact that it belongs to four different municipalities (Peristeri, Egaleo, Athens, Moschato-Tavros), Eleonas is dealt with as an entity in terms of urban (and landscape)design.

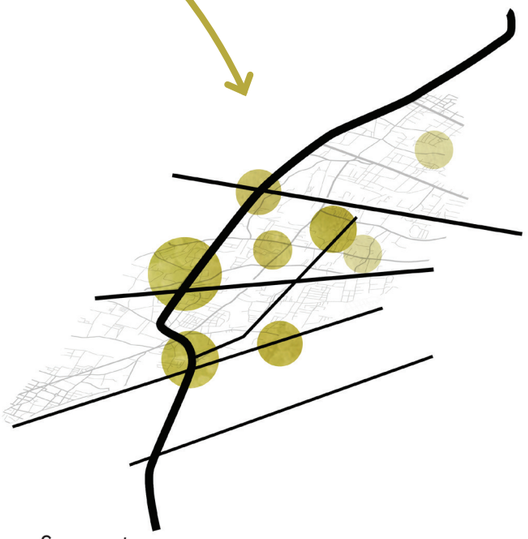
On this scale, I will be analyzing the roles of topography, water system, soil quality, built environment and infrastructure in the creation of the complexity of the area. By examining the forces that act upon Eleonas without being confined in it and by defining the areas these forces affect, i will be dealing with it as the *area of influence* in the design process.



Patches & Corridors

On this scale, the project will be addressing the patches and corridors of Eleonas that were defined by the superimposition of the landscape categories of Eleonas, the areas available for appropriation and private and public spaces. These create patterns of different ecosystems, each with specific spatial and physical characteristics, different functions and different levels of ability to change.

These areas anticipate design actions that are related to the wider processes taking place in Eleonas. At the same time, further analysis of the patches and corridors will lead to the identification and extraction of specific sites (segments) for a more in depth analysis and design practices. Therefore, the patches and corridors are *areas of design*.



Segments

The segments are the last scale of analysis and the actual sites of design. They resulted from the mapping of the ecological conditions and challenges found in the urban scale and the experiential mapping of the patches and corridors. The criteria for the selection of the segments are the ecological conditions these areas have, the challenges they are facing, their level of accessibility and their cultural significance.

On this scale, i intend to extract the segments from their original context, study the forces within them that anticipate design actions and propose design practices that create interrelations between them and between the segments and their context, that is the patches and corridors they belong to.

The mapping methods that are used are divided into top-down and bottom-up approaches, depending on the material used for the mapping process and the scale of analysis and intervention. The top down approach relates to the mapping of the Regional and Urban scales, which use existing maps, aerial photographs and archive material.

By contrast, the bottom-up approach relates to the exploratory and experiential mapping of the Patches and Corridors and the Segments, in which I proceed to an experiential approach of Eleonas by visiting the site several times and experiencing its spaces from an eye level point of view.

Product: Plans, sections, 3D representations. Interventions in specific places

In every scale, I approach the given site through two lenses:

The Palimpsest of the site: Reading the spatial configuration of the landscape. Study of the evolution of both the culture and the nature of the site through time. Attention is given to the stories of individuals experiencing the sites as well as the underlying concepts of nature through time.

The lens of Urban Biotopes: Approaching densely built environments as complex biotopes, consisting of biological, physical, built and cultural components which are interacting with each other.

The final proposal will be a product of the combination of the frameworks mentioned above. By prioritizing landscape morphology and ecology as the main features of the design process, it promotes a new approach of urban planning.

The project will consist of two dimensional plans and sections, as well as three dimensional representations of the produced designs in which the aspect of time will also be represented.

In particular, it will consist of a vision on a regional scale for Athens and for Eleonas, including a vision for the development of the area in time. In addition, the project will include the design of a masterplan of patches and corridors, as well as a more elaborate design of segments in which culture and ecology are intertwined thus forming very specific spaces.

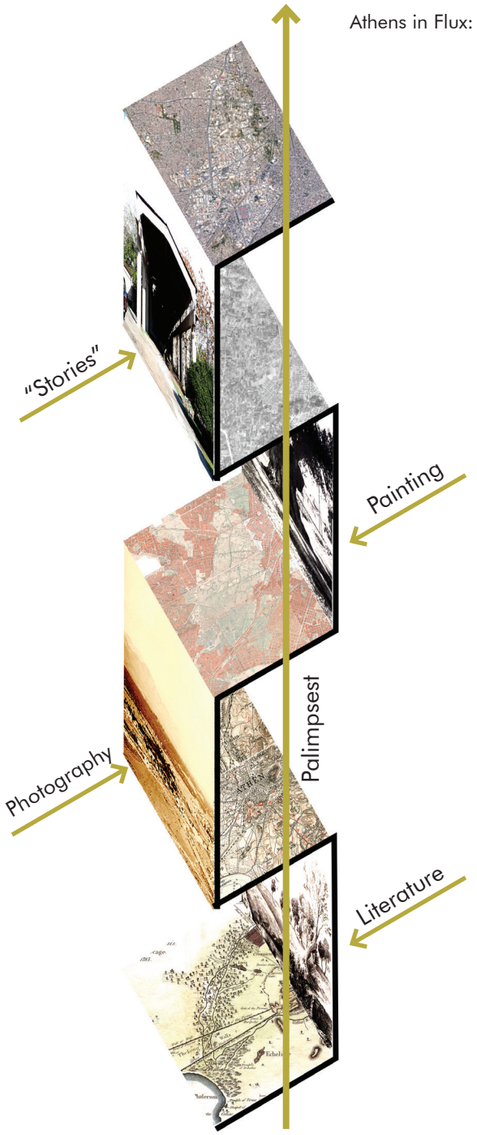


Figure 8: Palimpsest as a lens of analysis
By author

Figure 9: Eleonas as a mosaic of biotopes. By author.
(Source: Prominski, M. 2014)

Part III: LOCATION ANALYSIS

A. Analyzing the Attica Basin

The primitive geological events that shaped the morphology and soil composition of the Greek landmass and consequently the Attica basin were the sea floor deposits in the ancient pre-Mediterranean sea (Tethys) and the action of the African tectonic plate.

Throughout the Miocene and Pleiocene epochs, a significant part of the Attica basin was, in fact, an ocean floor. *"Sand broken down from continental rock, and mud from flatlands and marshes surged with floodwater or drifted offshore on the wind."* (McGregor 2014, 10). In this environment, calcium rich shells of mollusks and Crustacea piled up through the years, consolidated and petrified thus producing layers of limestone.

At the same time, the African tectonic plate, in the process of narrowing the gap between the plates that carry Europe and Asia, has been steadily thrusting the area of Greece for millions of years. This action has both raised and compacted the ocean floor of Tethys by pushing petrified mud and lime stone above sea level (McGregor 2014, 10).

In this context, during the Middle Pleiocene epoch (800.000 to 500.000 million years) the Attica basin had more or less shaped into the morphology that we see today; the mountains surrounding the basin had acquired their present form and the coastline had reached its current position. Through the erosion of the mountains in the northwest part of the basin, new waterways were created, allowing water that had accumulated in lakes to the north to flow towards the sea, thus forming the system of Kifisos and its floodplain (Papanikolaou, et al. 2004). In the years to follow, the process of sedimentation created a very fertile river plain of alluvian deposits, ideal for agricultural purposes.

That was the image of the Athenian plain when the first settlers arrived in 6500 BCE.

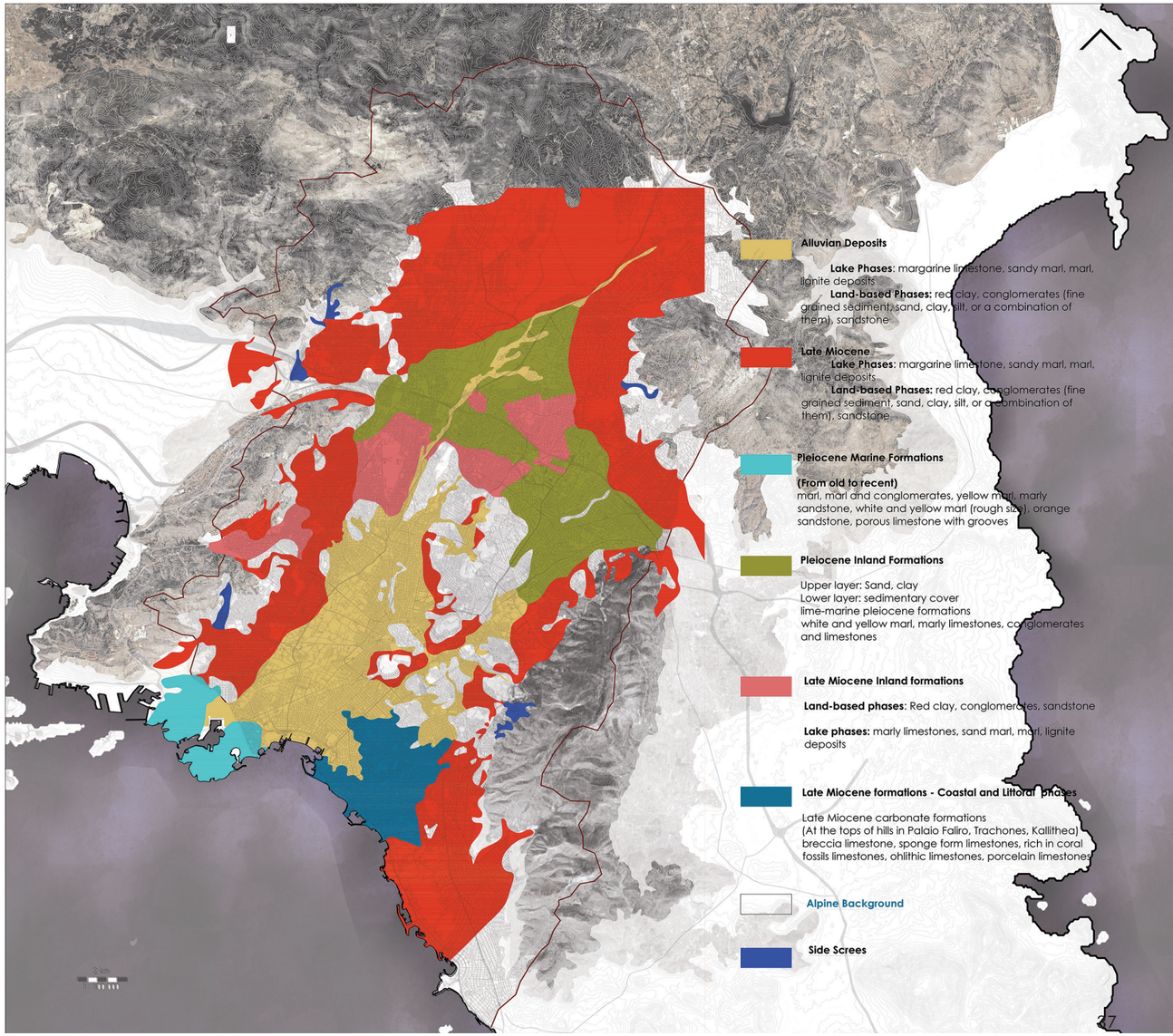


Figure 10: Geological - tectonic map of the Athenian Plane. By author. (Source: Papanikolaou I. et al., 2002)

Brief History of Athens

Both the geology and climate conditions were factors that shaped Athens and its evolution through time. The cluster of hills that rose in the middle of the Attica basin, *" […] Shattered remnants of one eroded limestone ridge, a bit of Tethys pushed up by the African plate and eroded by a million years of storm and wind."* (McGregor 2014, 17) played an important role in the history of the city. Among them, Acropolis and its foothills became a regional stronghold in the 8th century BCE as well as a sacred place due to its prominent position in the landscape. Its northern slope became the site of recurring settlements as it provided protection and relief from the summer sun (McGregor 2014, 107).

Although settlements had already been established in the area during the Neolithic period, the first significant traces of occupation found in Acropolis belong to the Mycenaean Era (1600-1100 BCE) during which Athens was not significant in terms of trade and politics. Attica was primarily an agricultural region and the city depended upon its productivity for its survival. Olive oil, wine, wool and pottery were some of Athens's biggest commodities, the primary source of which was Eleonas, an olive grove to the west of the settlement that extended along the edges of Kifisos River, taking advantage of its seasonal floods (McGregor 2014).

In the 5th century BCE, Athens reaches the pinnacle of autonomy and success, due to its prominent role in the defeat of invaders during the Persian wars. In the years 479-350 BCE, the city flourishes culturally and politically and within its society the foundations of Democracy are formed. At that time, two cities dominated the Attica basin; Athens and Piraeus, the port that functioned as *"the manufacturing and maritime appendage of Athens"* (Dicks 1968). The cities were connected by a 4 km long road (Pireos Street) that was protected by the Long Walls fortifications on either side of it. Physical traces of the walls are still found today within the city and along Pireos Street.

In the centuries that followed, a series of geopolitical events affected and determined the development of Athens. The city was attacked and conquered by a number of invaders; Macedonian forces, troops of the Roman Empire and Heluri tribes caused great damage to the urban web. Nevertheless until the 4th century CE, Athens (while under Roman occupation) still remained a destination for philosophy, rhetoric, music, literature and art.

When the Emperor Justinian closed the philosophical schools and banned the teaching of ancient philosophy in his attempt to convert the Empire into Christianity, Athens changed from a centre of education and enlightenment to a mere village of the Byzantine Empire. By that time, the city had been bombed and ruined several times, however, it had not expanded beyond the late Roman Walls (McGregor 2014) .

The same applied when Ottoman invaders conquered Athens in 1456. During the Turkish reign (1456-1821), the web of the city expanded to the northwest beyond the walls, almost reaching the Themistoclean Walls. However, this spatial development was not significant enough to affect the landscape of Attica.

The most radical changes in terms of urbanization took place after the War of Greek Deliberation (1821-1830). The main historical events that shaped Athens and determined its urban growth will be briefly presented in the following pages.

Figure 11: Plan of the castle and the suburbs of Athens.1826.Unknown.
(Source: HAT 946.40721, Başbakanlık Ottoman Archives, Istanbul)

1834 | Athens as the Capitol of Greece

The independence of Greece from Ottoman rule was officially declared by the London protocol of the 3rd of February 1830 (Leontidou 1990). When Athens was nominated as the capitol of the Greek kingdom in 1834, the city was ruined by warfare and considerably degraded. Nevertheless, it was chosen due to its fame and radiance as the centre of the classical civilization (Petropoulos I., Koumarianou A., 58) and it was transformed into the administrative centre of Greece. People from all over the country, as well as from other areas beyond the Greek borders, stormed to live in the capitol (Petropoulos I., Koumarianou A., 19).

In its present state, Athens could not provide space neither for the administrative services, nor for its new residents. As a result, urban development commenced at a rapid pace. While several plans were drawn up for the new city by both Greek and foreign designers (Stamatios Kleanthis & Edward Schaubert, Leo von Klenze) the final plan was a result of recurring alterations of Klenze's plan (Traulos I., Kokkou A., 517). However, as the population of Athens rose rapidly (from 26.237 inhabitants in 1834 to 149.000 in 1889 (Tsoukalas K., 10), the demand of urban land led to an **excessive urban sprawl that was unplanned** (Leontidou 1990, 53).

In the context of this arbitrary, sectoral urban sprawl, the need for a modernized tecno-economic infrastructure led the government under the presidency of Charilaos Trikoupis (1882-1885) to fund the construction of a series of ambitious infrastructural projects, like the railway that connected Piraeus, Athens and Corinth (1875) and the Corinth Canal (Tsoukalas K., 50-52). The creation of a strong infrastructural system would form the basis for the new economic and industrial activities in Athens. **Indeed, the railway connection between Piraeus and Athens created the conditions for the accumulation of the first industrial facilities along the axes of the railway and Pireos Street.**

Figure 12: Map of Athens and its suburbs. 1860. Emm. Kallergis.

(Source: Biris K., 1966)

1919-1922 | Athens after the Asia Minor Catastrophe

In the first half of the 20th century a series of geopolitical tensions (Balkan Wars (1912-1913), WW1 (1914-1918), Graeco-Turkish War (1912-1922)) affected indirectly the development and growth of big cities in Greece. The end of the Balkan Wars was the starting point of a series of systematic persecutions and deportations of Greeks living in Turkey that lasted for almost 10 years and culminated with the mass immigration wave that was a result of the Asia Minor catastrophe in 1922 (Allamani E., Panagiotopoulou C., 99). Following the devastating events of the Graeco-Turkish War, the signing of the Treaty of Lausanne in 1923 signified, among other things, the beginning of a mandatory population exchange between Turkey and Greece (Gianoulopoulos I., 266).

In this context, approximately 1.3 million Greeks from Asia Minor and the Balkans came to Greece and settled in big cities such as Athens and Thessaloniki. This immigration wave almost doubled the population of Athens from 1920 to 1928 and created several issues regarding the housing and social integration of refugees. In order to manage the settling of the incoming populations, an international committee for the rehabilitation of refugees was formed. The Refugee Settlement Commission (R.S.C.) promoted the creation of settlements *"on the urban fringe rather that within the city"* (Leontidou 1990, 77). During the 1920's and the 1930's approximately 36 settlements were formed as satellite communities away from the 1922 built area. Nevertheless, the pace of the city's expansion was beyond the control of the R.S.C. Spontaneous colonization around the settlements gradually led to the expansion of the urban web towards the feet of Mount Egaleo, Mount Hymettus and the Penteli monastery. In addition, it also led to the joining of Athens and Piraeus into one urban agglomeration. (Leontidou 1990, 70–77).

By contrast, urban development for the higher social classes took place in two different ways. On the one hand, the first typical building blocks of the Polykatoikia typology appeared in the city centre, addressing only the upper classes (Μαρμαράς, 1991, 194). On the other, the need for the separation of the wealthy from the working classes and for better residential areas led to the emergence of variants of the garden city in the north and east parts of Athens like Psychico, Ekali and Kifisia (Kotsikou E. 2010, 37).

In addition, the industrial axis that connected Athens and the port of Piraeus was reinforced with manufacturing industries and factories and expanded towards the northwest. (Leontidou 1990, 78).

In this context, until 1940, when Greece entered WW2, the city developed through retrospective legalizations of areas that had already been urbanized. The main policy of urban development was the passive acceptance of arbitrary settlements that were later included into the city plan (Leontidou 1990, 84).

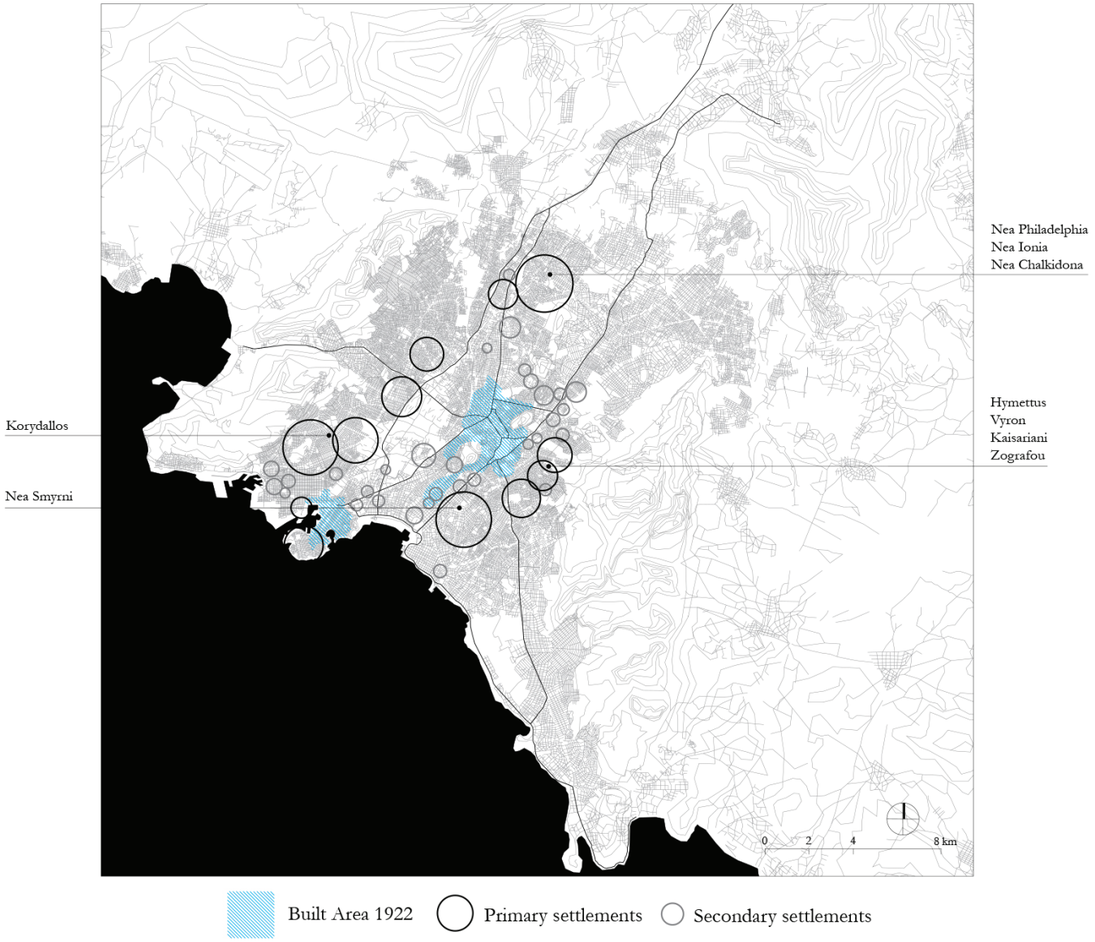


Figure 13: Refugee settlements in Athens of 1930. Platon Issaias (Source: Issaias P., 2014)

1949-1985 | Post-War Athens

In the first three decades after the events of WW2 (1940-1945) and the Civil War (1946-1949), Athens continued its arbitrary expansion as massive waves of internal migrants came to live in the capitol and work in the industry that became the centre of the country's economy (Aesopos, Y., Simeoforidis, Y. 2001, 21). As Greece exited the Civil War almost in ruins, it became obvious that, apart from damage restoration, the main priority of the state would have to be the reconstruction of its economy. Returning to past practices was no longer an option. By contrast, the key towards development was the industrialization of a fundamentally agriculture-based economy (I.E.E. P. 223).

Already in 1953 the bases for light industry were created with the ratification of the N2687/53 law. The latter, provided a legal framework of favorable regulations for industrial development in Greece. Very few restrictions were imposed regarding the location and environmental impact of new industries which led to an industrial boom in the following two decades (Boudouraki, G. Gitzias, A. 2008). In addition, in the decade between1957-1967, new infrastructural projects like the highways that connected Athens to the North and South contributed to this industrial development. In particular, the highway that ran parallel to Kifisos River not only connected Athens to the north of Greece (as it changed into the National Highway) but also articulated all the industrial areas of the country (Aesopos, Y., Simeoforidis, Y. 2001, 21).

In this process of modernization, factors like post-war conditions, shortage of capital etc., led to the emergence of a new system of urban development, the system of **"antiparochi"**. Essentially, "antiparochi" was a "quid-pro-quo" exchange of land for built space.

"The builder in exchange for the site, cedes an agreed number of finished apartments to its former owner"
(Papamichos, N. 2001, 84).

This system provided financial security to both land owners and contractors in the unstable and insecure post-war period. For that reason it was generalized in Greece and widely applied throughout the second half of the 20th century. The result of the "antiparochi" system was the typical Greek city in which *"[…] public buildings are a rarity and public space is sparse, limited and shapeless […]"* (Papamichos, N. 2001, 82). The main composing elements of the city became the building blocks of the Polykatoikia typology which massively spread after the war.

The military dictatorship of 1967-1974 put an end to this modernization process and initiated a period of financial instability which ended during the 90's. After 1975, the process of de-industrialization commences, as industrial activities begin to close down or move their facilities abroad. This was a slow process that only became evident in 2000.

"A concrete frame and staircase and elevator shaft. A building type that offers construction simplicity, economy and durability, a prototype to be repeated to infinity, a basis for a new vernacular architecture."

(Aesopos, Y., Simeoforidis, Y. 2001)

Figure 14: Typical View of Athens, 2000, Dimitris Philippidis
(Source: Philippidis D., 2001)

1985-2020 | Olympic Games Athens

In the end of the 20th century, the stabilization process of the post-dictatorship era was followed by a second wave of modernization. In 1985, the first Master Plan of Athens was created which determined the structure, organization and development of the Attica basin (Aravantinos 2007, 249).

Following that, throughout the 90's and the beginning of the 21st century, an extensive program of infrastructural projects changed the image of the city in preparation for the 2004 Olympic Games. The new Athens International Airport replaced Ellinikon Airport as the latter could no longer cover the transportation needs of the city and had already been surrounded by the urban web. The new Metro of Athens introduced a new means of public transport whereas the highway of Attiki Odos provided a peri-urban connection between Athens and the airport (Aesopos, Y., Simeoforidis, Y. 2001, 23).

In addition, the organization committee "Athens 2004 S.A." undertook the task of developing major sports facilities scattered within the Attica basin, infrastructural projects (like the concrete encasement of Kifisos River below the highway) and other strategic interventions relating not only to the Games but also to urban development (Romanos A.G., 2004).

In the post-Olympic Games period, new regulatory Master Plans were created for the broader area of Attica. The 2009 Master Plan included transformation strategies regarding the arbitrary sprawl of the urban web. These, dealt with open space as a crucial factor for sustainability. In addition, it promoted the removal of industrial uses from Athens and the urban regeneration of degraded areas with the recycling of land and built stock (ORSA/ YPEKA, 2009). Last but not least, the 2021 Master Plan of Attica-Athens, maintained the same goals and included more specialized ones regarding strategies for social cohesion, establishing ecological connections, strengthening sustainable mobility etc. (ORSA/YPEKA, 2011).

Throughout the 20th century and the beginning of the 21st, several dynamic processes produced the Third spaces of Athens. The arbitrary, sectoral urban sprawl (that prevailed until the 80's) in combination with a series of recurring infrastructural projects produced clusters of industrial facilities along the axes of Pireos Street and Kifisos Highway. The same happened in Eleonas, the area defined between those axes in the south part of Attica. Through the process of de-industrialization in the last decades of the 20th century, these facilities were gradually abandoned and transformed into Third spaces.

In addition, the main event that changed the image of the city and produced a new set of Third spaces in the 21st century were the 2004 Olympic Games. The projects that were developed in preparation for the Games included transformation of existing Third spaces (Ellinikon Airport, Faliro Bay), construction of new facilities, residential areas and infrastructural projects. After the Games, the majority of these spaces were abandoned thereby producing the Third spaces of the more recent past. These also include the buffer zones running parallel to the highways of the infrastructural network and, on a smaller scale, any empty construction site, parking lot or degraded building produced by urbanization.

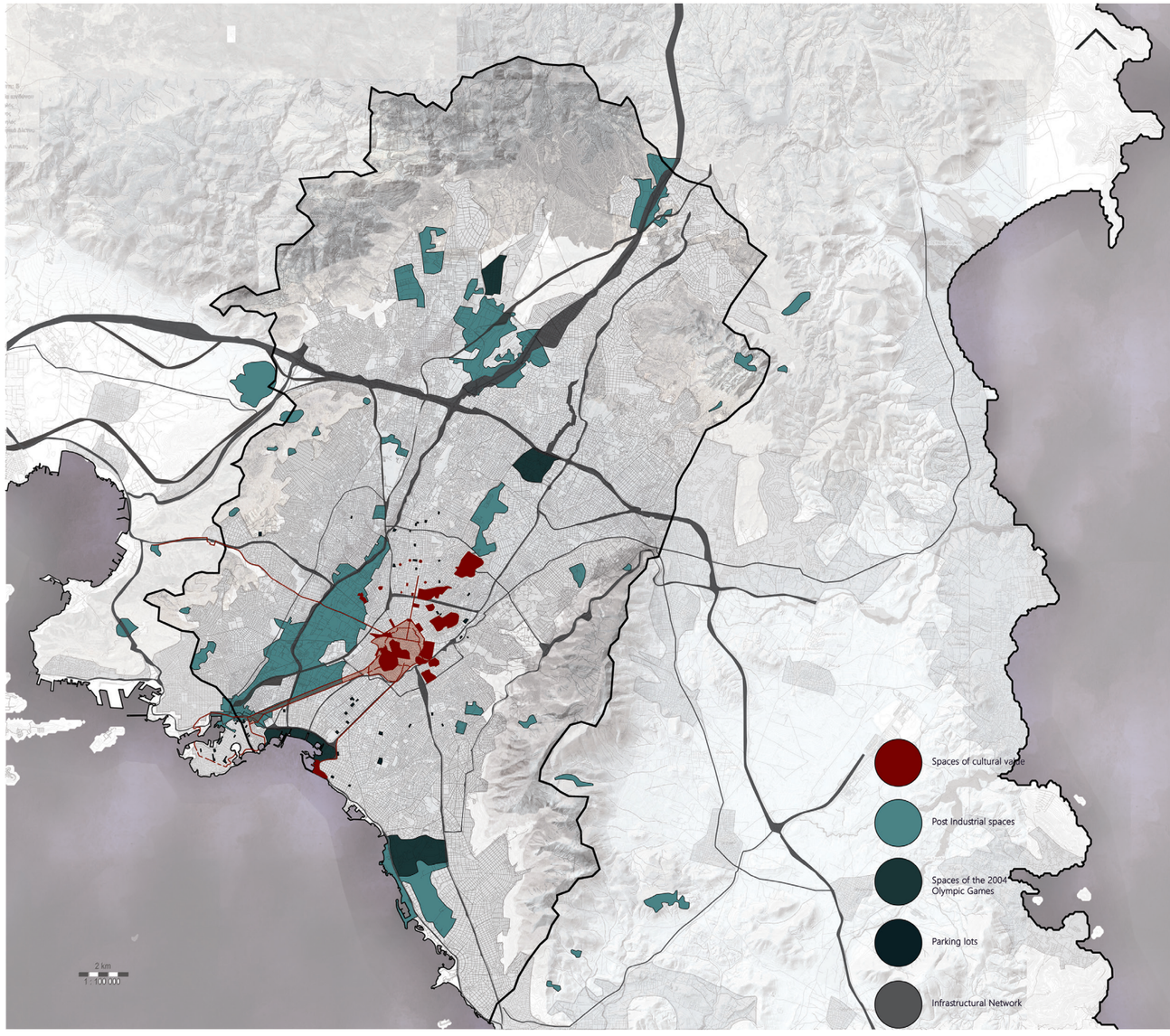


Figure 15: Third spaces produced by urban processes. By author.

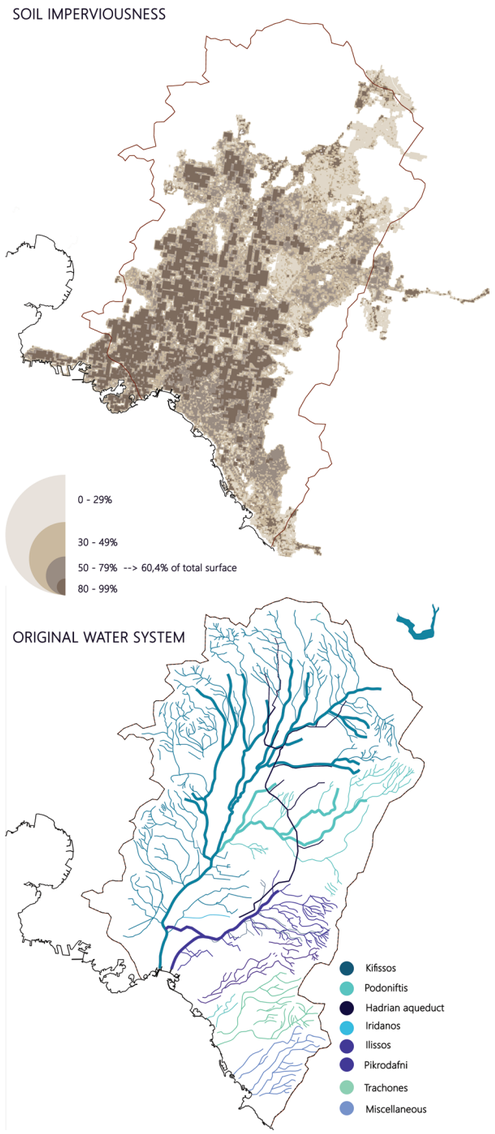
Environmental Challenges Of Athens

Flood Risk

Due to the topography and the natural springs in the area, approximately 700 streams were formed in the Attica basin, of which only 70 (10%) can be identified today (Hadjibiros 2013, 121).

From sacred sites, sanctuaries and recreational areas of the distant past to the residual spaces of the 21st century, the streams and rivers of Attica transformed as the city of Athens developed and expanded through time. As the transformation process intensified in the 20th century, the number of natural streams in the area decreased by 2/3 from 1893 to 2000 (Redefining the City: Athens Resilience Strategy for 2030 n.d.). Currently, the greater part of the water system is either covered by buildings, incorporated in the sewage system (underground) or in the transportation network at ground level.

Uncontrolled urban growth, a result of the system of "antiparochi" and poor land use planning resulted to building very close to the streams and rivers of the original water system, therefore significantly decreasing their drainage capacity. As more that 80% of the surfaces in Athens are impermeable, the amount of drainage water has increased. That combined with the inadequate size of the pipelines of the existing drainage system has contributed to the increase of flash flood events during the last decades, causing great damage to the built environment (Diakakis 2014).



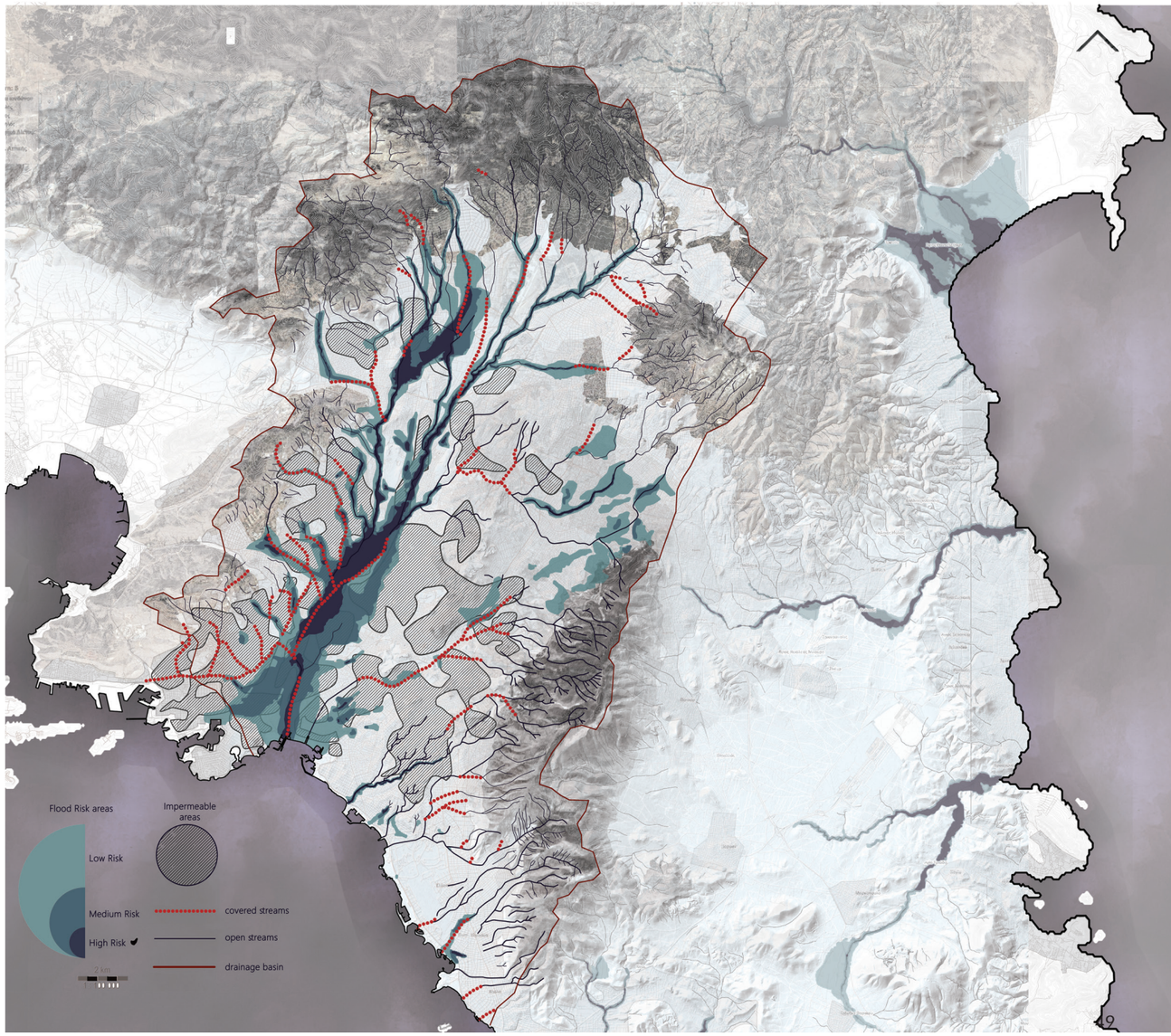
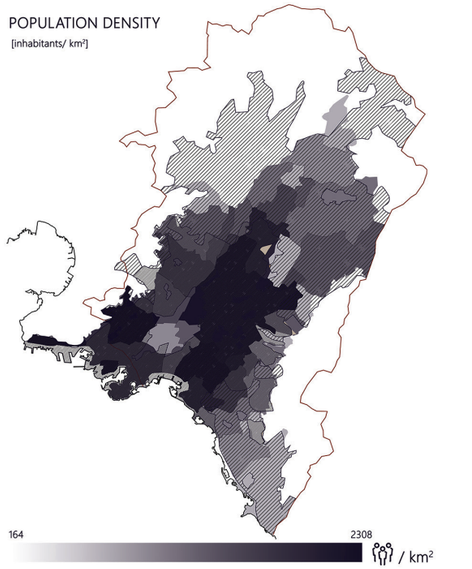


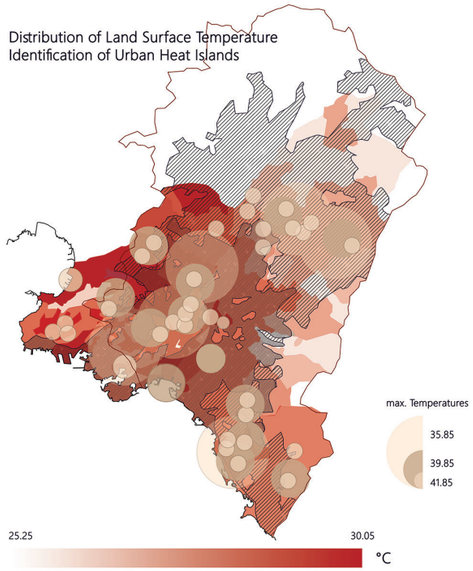
Figure 16: Flood Risk areas. By author.

(Map Sources:
For the water network: Bathrellos et al. 2016
For imperviousness: CORINE Land Cover system. 2015
For the flood risk areas: Lekkas et al. 2018)

Heat Island Effect

Extreme heat events are becoming a common phenomenon, and they are increasing in frequency and intensity. Temperatures are predicted to rise by 2°C between 2021 and 2050 and by 4°C in the following 50 years, in a city that during the summer months reaches temperatures of up to 40°C. Another issue relating to temperature is the Athenian Urban Heat Island, caused by the density, anarchy and bad quality of the urban fabric in combination with the lack of green open spaces. The result is temperature differences reaching 6°C, 7°C and even 10°C between the city centre and the suburbs. (Redefining the City: Athens Resilience Strategy for 2030 n.d.).





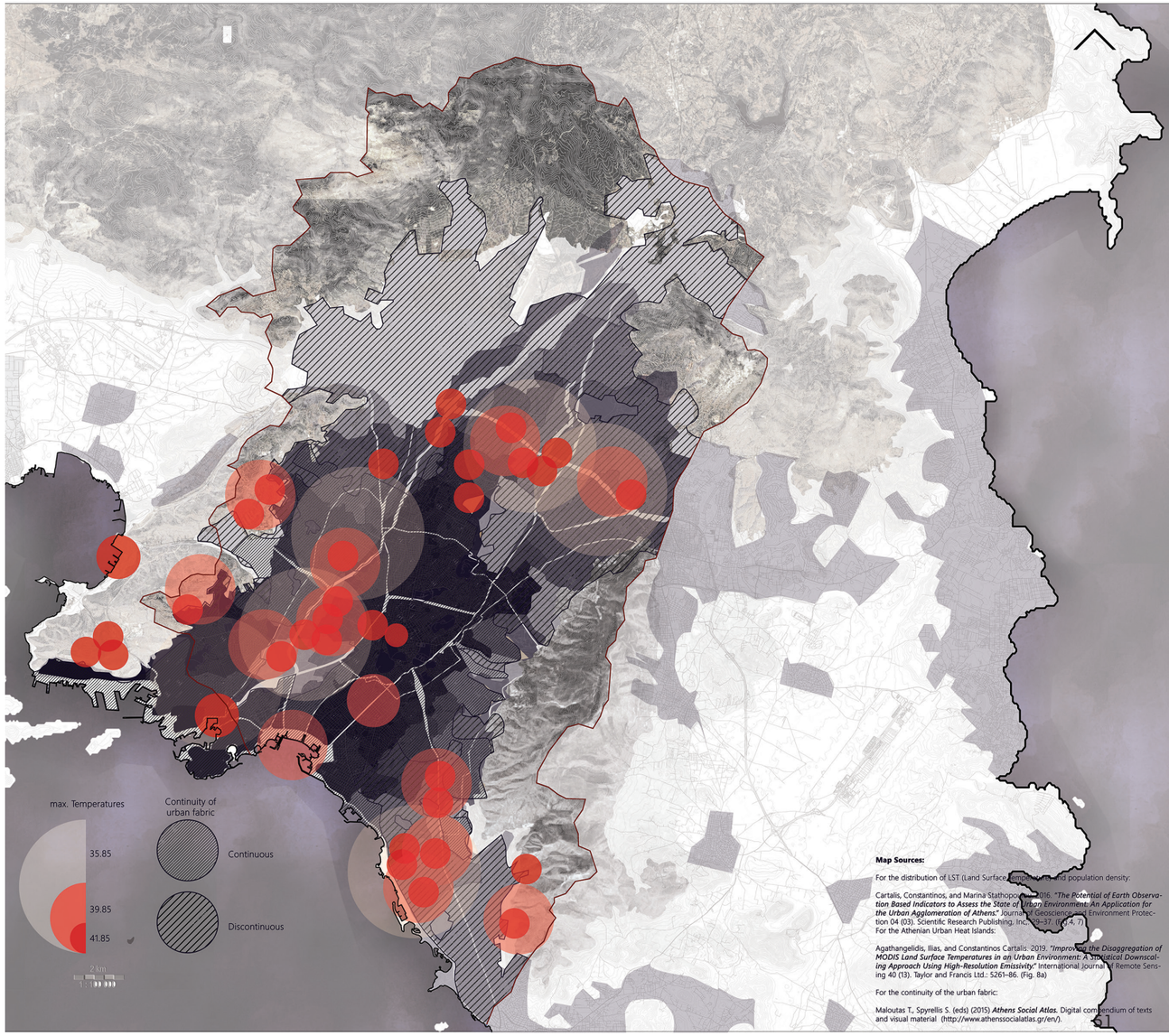


Figure 17: Heat Island Effect. By author.

(Map Sources:
For the distribution of LST and population density:
Cartalis C., Stathopoulou M. 2016.
For the Athenian Urban Heat Islands:
Agathangelidis I., Cartalis C. 2019.
For the continuity of the urban fabric:
Maloutas T., Spyrellis S. (eds) (2015) Athens Social Atlas.)

Medium to low quality of ecosystems within the city

According to Hatziiordanou et al., the various ecosystems of the mountains surrounding the Attica basin are nationally designated areas under different levels of protection. From the strictly protected areas of Parnitha Park and Lake Vouliagmeni to the moderately protected aesthetic forest and nature reserves of Mount Hymettus, these areas are valued due to the significant ecological services they provide to the environment (Hatziiordanou et al. 2019).

By contrast, the green spaces of the inner part of the basin are considered to have little or no ecological value since they have been significantly restricted by urban growth and affected by human activities (Hatziiordanou et al. 2019).

Nevertheless, the fact that they are scattered throughout the basin allows them to create a network of small ecosystems which allows species to "jump" from one ecosystem to the other. Therefore, the ecological flow within the urban setting still exists, albeit fragile, and can be enhanced in several ways.

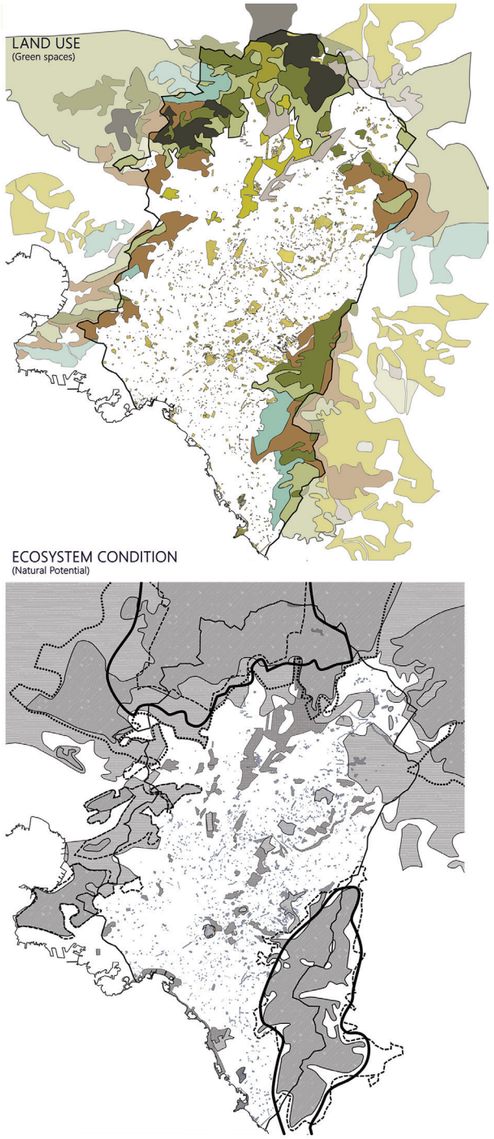
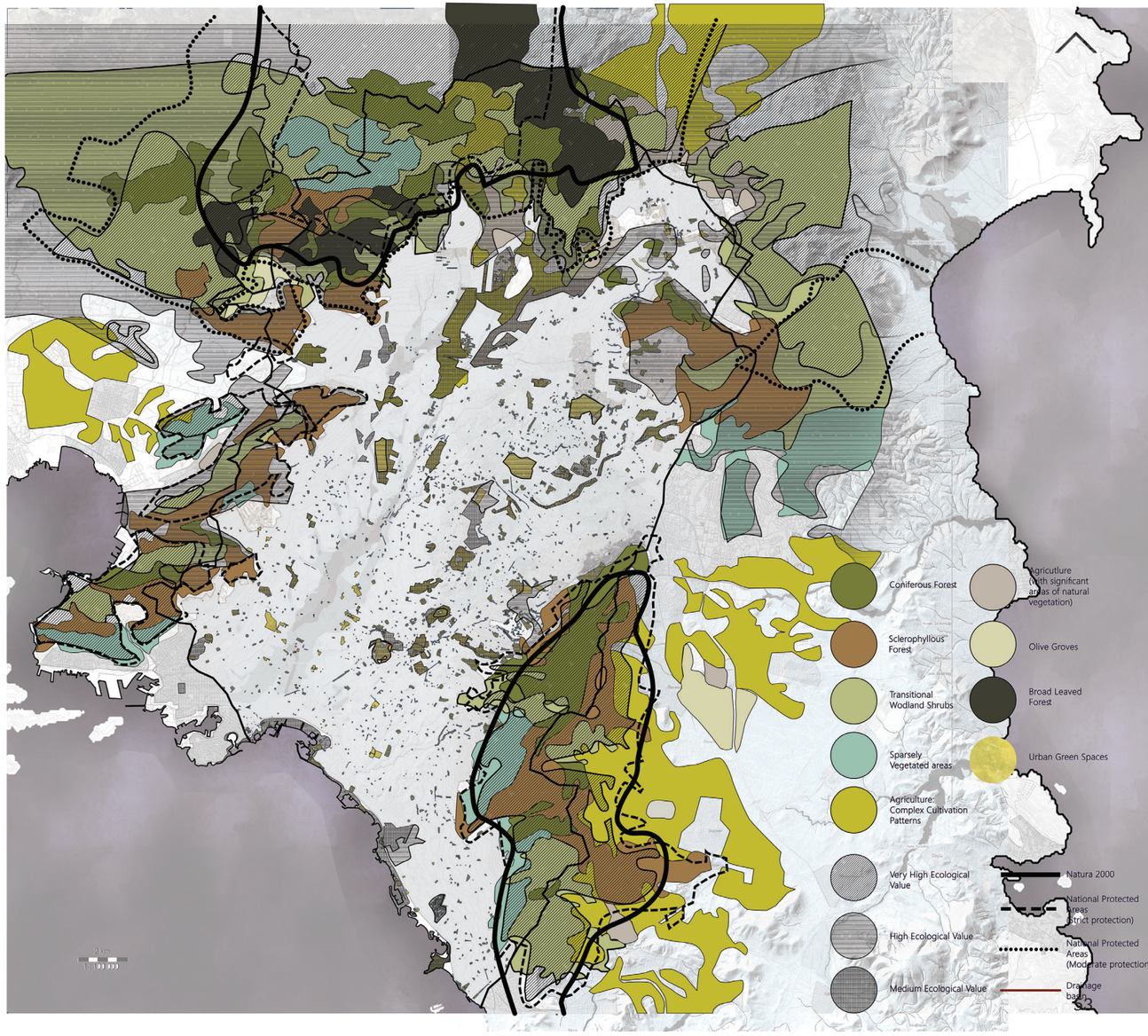


Figure 18: Ecosystem conditions. By author.

(Map Sources:

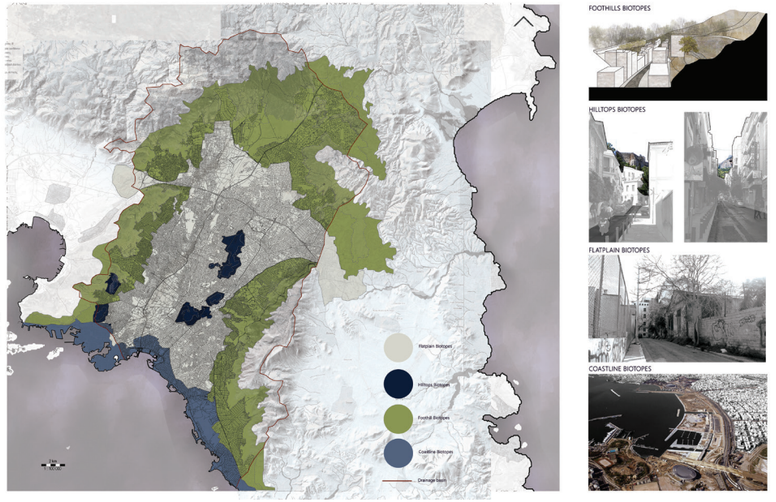
For the Land Use (Green spaces):
CORINE Land Cover system. 2015

For the ecosystem conditions
(Natural potential to provide ecosystem services):
Hatziiordanou et al. 2019.)



Looking at Athens through Biotope lenses

Biotopes according to morphology



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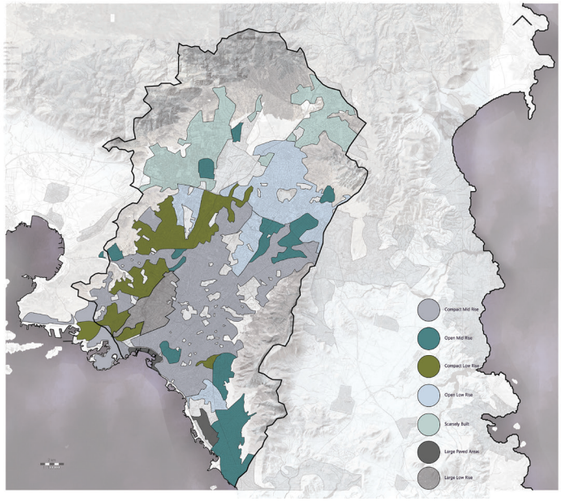
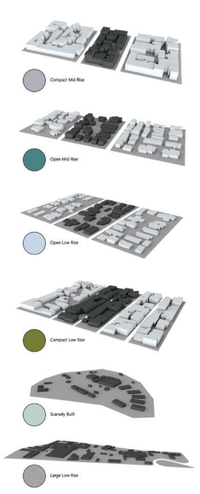
Biotopes according to neighborhood configurations





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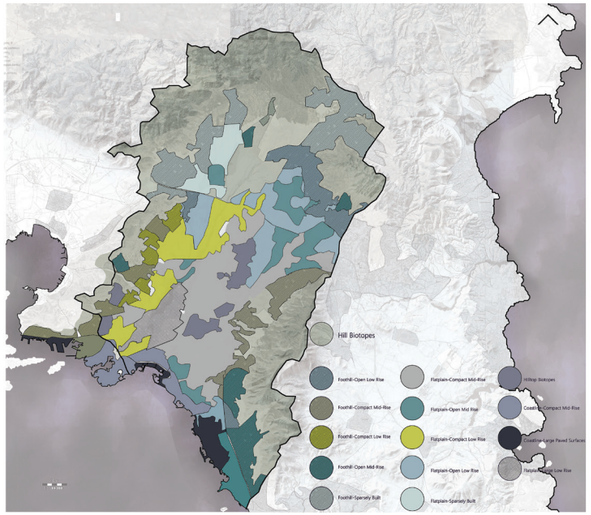
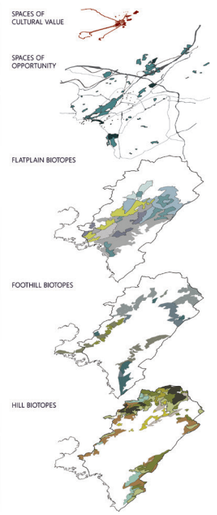
Biotopes according to morphology & neighborhood configurations





While the analysis presented previously provides a sound basis for the understanding of the current conditions of metropolitan Athens, it is still based on the traditional dualistic approach of a site (Nature-culture).

In my initial attempts to escape from convention and discover the potential provided by studying Athens as an agglomeration of biotopes, I experimented by mapping the biotopes of the city according the morphological characteristics of the basin and the neighborhood configurations of the built environment. Nevertheless, despite the fact that this categorization provided some insight, I quickly realized that it was very general and rather random.

Neighborhood configuration refers to:

1. Building block typologies
2. Building heights
3. Road widths
4. The ratio between the heights of buildings and the width of streets

In order to understand how the different ecosystems of the basin function, I had to include several other parameters that render the mapping of the Athenian biotopes a very complex procedure.

REGIONAL SCALE | CONCLUSIONS

The analysis of the regional scale provided valuable insights on the processes that generated the Third spaces of Athens. Through the brief historic analysis four categories of Third spaces were extracted; post-industrial sites, post-Olympic Games facilities, buffer zones of infrastructure and small scale residual spaces produced by urbanization. Characteristic examples of the first three categories are the Third spaces of Eleonas, Ellinikon Airport and the infrastructural node of Athens-Lamia highway respectively.

In addition, the regional analysis provided essential information regarding the existing conditions and environmental challenges the Attica basin is currently facing. Needless to say, flash flood events, extreme temperatures, water, soil and air pollution appear to affect every part of the Metropolis to a different extend. For example, the western part of the city is affected severely by floods in time of extreme rainfall, due to the fact that the main waterways (Kifisos River and its drainage system) have been covered by the urban web. On the other hand, extreme temperatures and the urban heat island effect afflict mostly open spaces with exposed hard surfaces and no possibility of shade. Clusters of such areas are formed along the highways of the infrastructural system as well as in postindustrial sites dominated by low rise buildings and open plots.

According to the above, throughout the process of analyzing the regional scale, one specific area of the urban web attracted my attention. Eleonas, a cluster of post-industrial spaces situated in the “heart” of the city, is not only severely affected by flood events, but also by the urban heat island effect and complete lack of green spaces.
For the reasons mentioned above, this highly challenged area will become the subject of study of the urban scale.

Eleonas

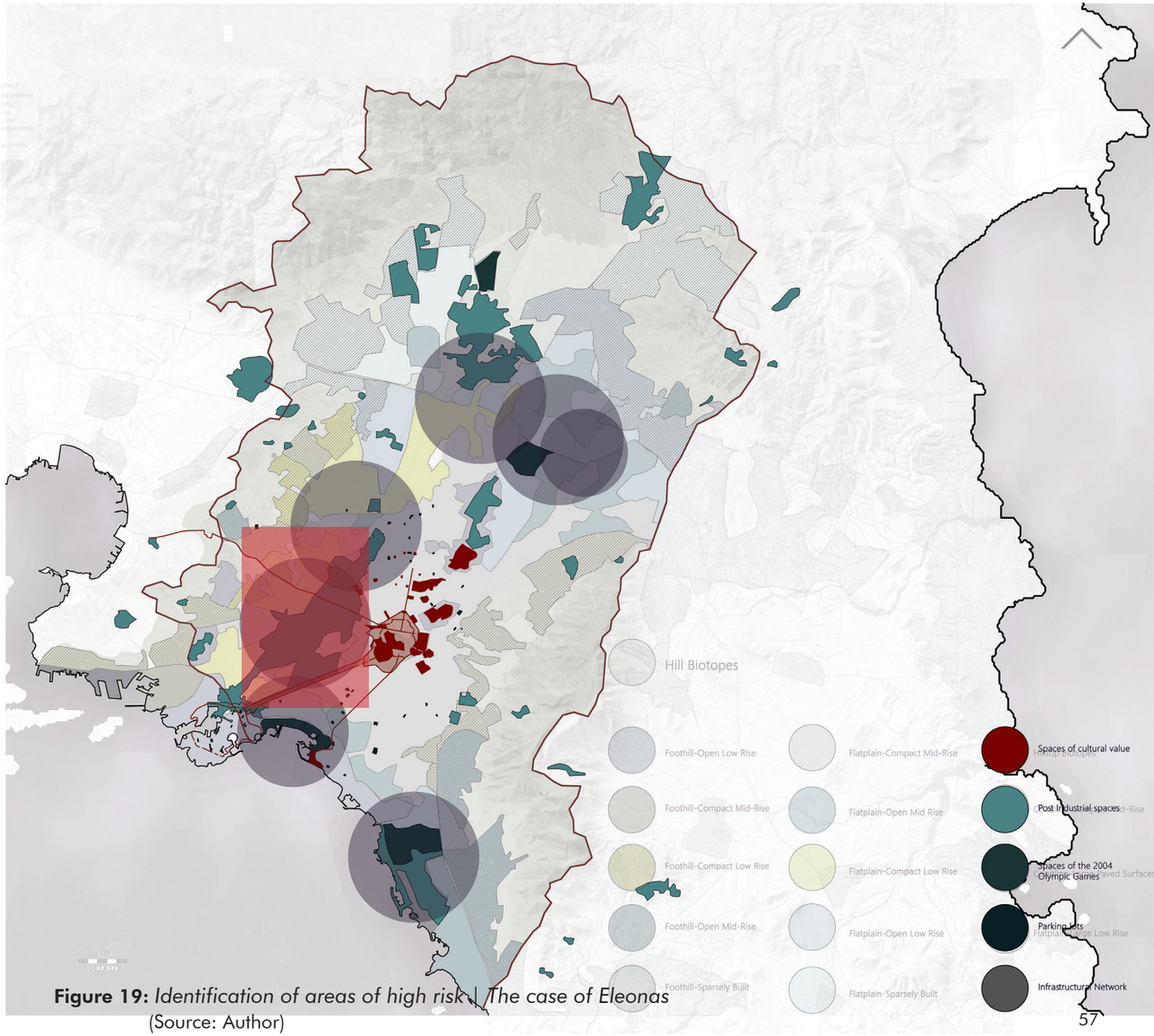


Figure 19: *Identification of areas of high risk | The case of Eleonas*
(Source: Author)

URBAN SCALE | Eleonas | Ελαιώνας | **ἐλαιών**

1. A preliminary introduction to the Third Space of Eleonas
2. Experiencing the spatial qualities of Eleonas
3. Social challenges
4. A historical overview
5. Accessibility
6. Environmenta issues
7. Researching the biotopes of Eleonas

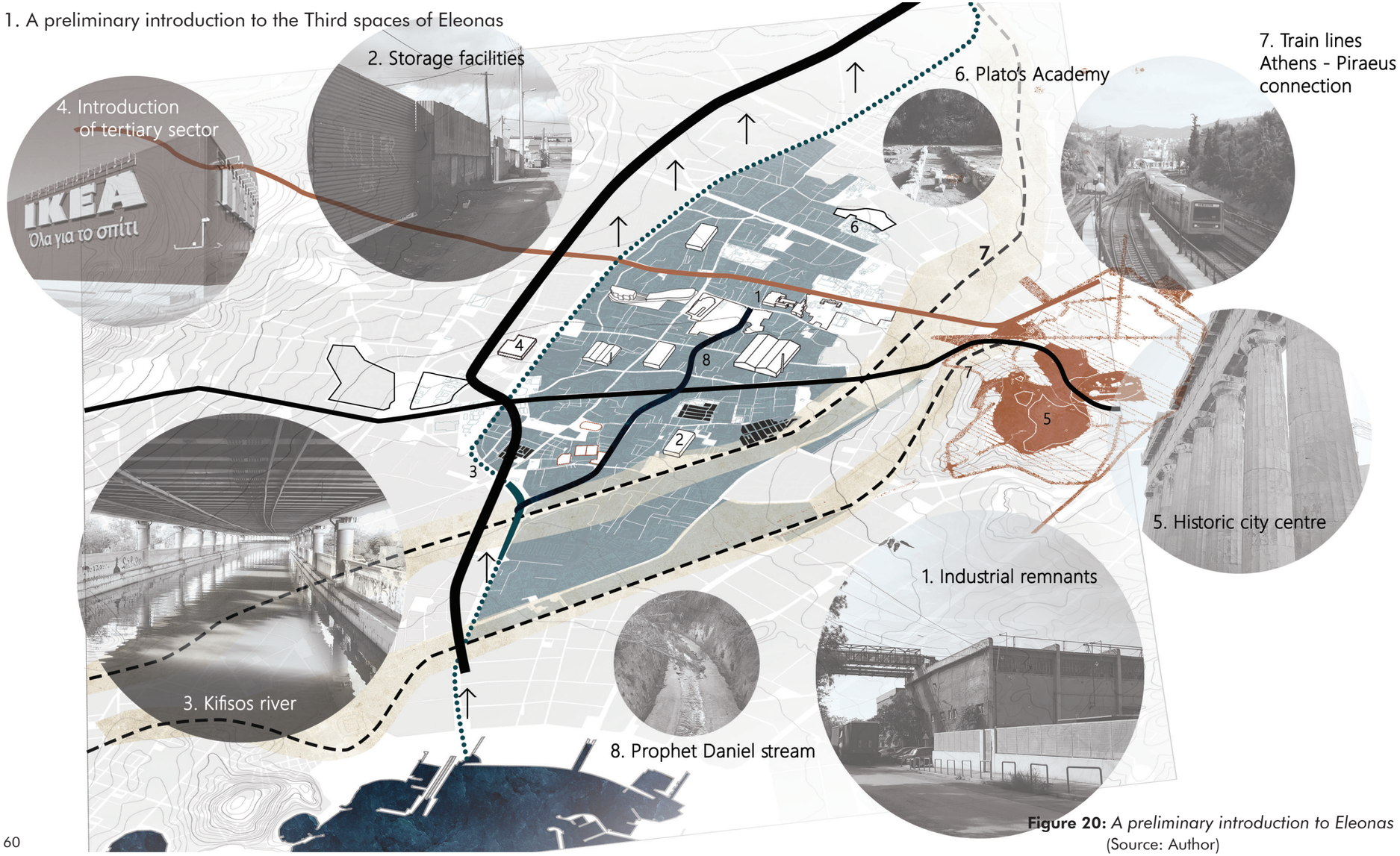


Figure 20: *A preliminary introduction to Eleonas*
(Source: Author)

Eleonas is one of the largest Third spaces in the Attica basin, situated between the historic city centre of Athens and Mount Egaleo in the East-West axis and between Kolonos and the city of Piraeus in the North-South axis. Occupying roughly 9 km^2 of space, Eleonas is an enclave of post-industrial remnants surrounded by a compact urban web divided into four municipalities (Athens, Egaleo, Peristeri, Moschato-Tavros).

The area is characterized by a stark morphological contrast between the post-industrial and residential areas which is clearly visible both on a regional and urban level. Spatially, Eleonas is defined by Kifisos Highway to the west (below which flows the main waterway of the Attica Basin, Kifisos River) whereas the railway lines connecting Piraeus to the city centre and Pireos street create boundaries to the East. Dominant elements in the East to West axis are Iera Odos (a road of great historic significance), Athinon Avenue and Petrou Ralli Avenue. The built environment of Eleonas primarily consists of industrial buildings (most of which are abandoned), storage facilities and large scale buildings of the tertiary sector. Last but not least, one of the last remaining open streams in the Attica basin, Prophet Daniel flows through Eleonas from the North to the South and discharges in Kifisos River.

As mentioned above, the area is dominated by environmental degradation caused by the remaining industrial and other arbitrary uses. Poor soil quality due to contamination, flood risk areas due to the insufficient drainage system and social unrest are among the issues the site faces.

Despite the environmental degradation, the presence of pioneer vegetation in the majority of the area signifies that natural processes are still taking place.

2. Experiencing the spatial qualities of Eleonas

By wandering in the area and experiencing its spatial and physical qualities, one can identify different landscapes in the vacant plots of "inner" Eleonas. Empty plots waiting for future construction in which the freshly excavated soil is a fertile ground for spontaneous vegetation, parking lots and abandoned construction sites, already overtaken by ruderal species, are common sights in Eleonas.

However, the most dominant elements in the area are the plots of the former industry (in which a large, monolithic building is surrounded by a considerably big empty space) and Prophet Daniel, the last remaining open stream in the area.

In all the Third spaces mentioned above, ruderal vegetation is ever present and dominant. Even on a micro scale, elements of the built environment like concrete and stone walls, chain fences and cracks on paved areas constitute ecosystems of a certain, albeit degraded, ecological value.

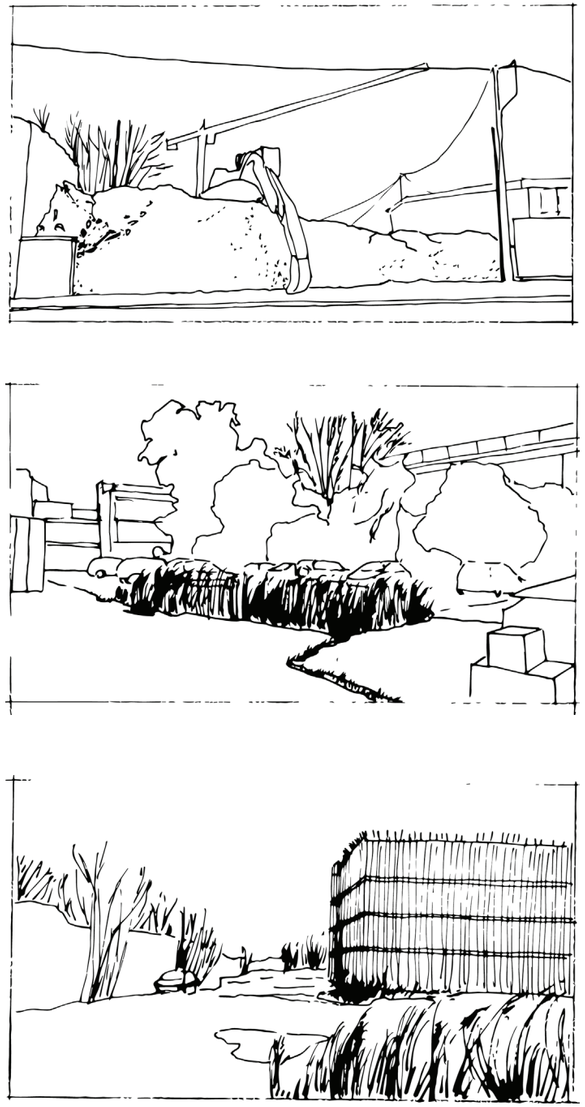
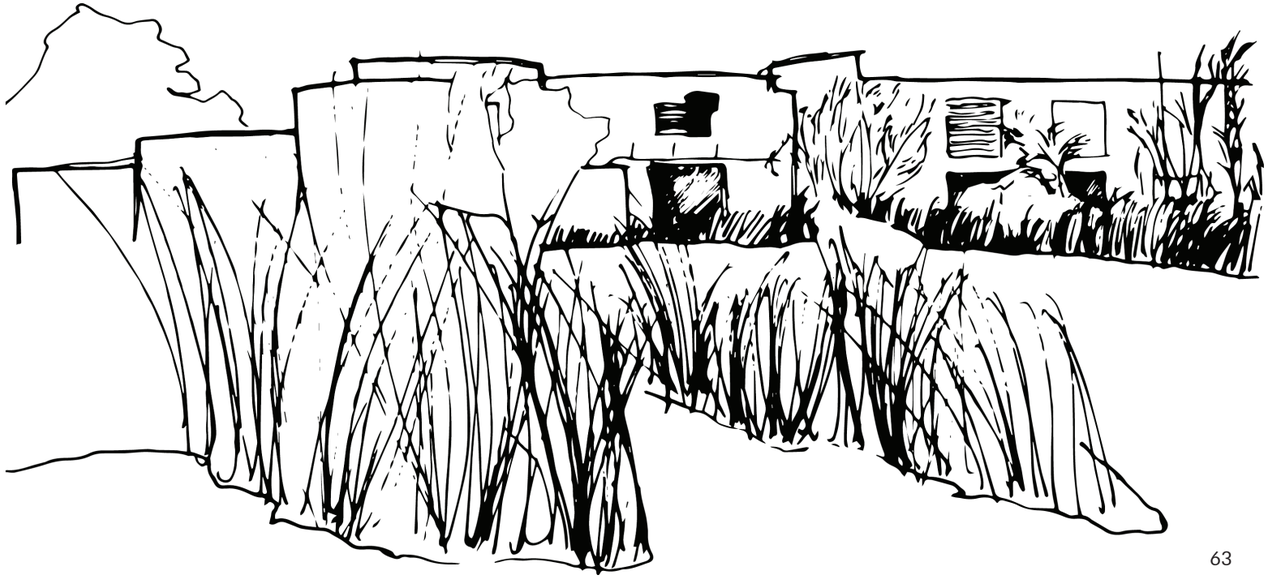


Figure 21: *The Third spaces of Eleonas*
(Source: Author)

Figure 22: *Materiality of the Third spaces*
(Source: Author)



3. Social challenges

The social milieu of Eleonas consists of people of low incomes and various nationalities, refugees and Romani groups. The permanent population of the area amounts to 14.097 inhabitants (according to the 2011 Census)[1] and lives in residential clusters scattered in the site that are either social housing, building blocks of the Polykatoikia typology or single family homes. By contrast, the Romani population tend to move around constantly, changing the site of their camps and arbitrarily occupying both open areas and abandoned buildings of the Third spaces.

Since August 2015, another social group was introduced in the area of Votanikos with the opening of a temporary accommodation centre for asylum seekers in Greece. The refugee camp houses 1470 refugees from Afghanistan, Syria, Iran, Iraq and other countries in prefabricated housing units (Containers) (UNHCR 14/9/2018).

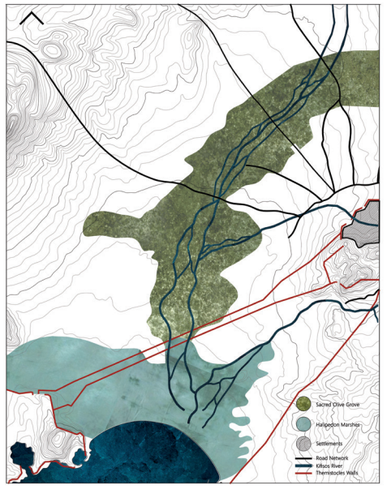
The co-existence of such diverse ethnicities in a very poor post-industrial environment has inevitably led to social unrest. Therefore I believe it is important to address these challenges in my design proposal.

1. As there is no administratively defined are of Eleonas, the permanent population was a result the sum of the permanent residents of the sectors of the four municipalities whose parts constitute Eleonas. The date were retrieved from the 2011 census.

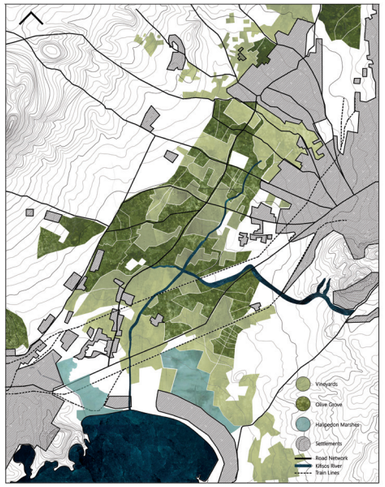
Figure 23: Palimpsest as a lens of analysis
(Source: Author)

Figure 24: The people of Eleonas | Residential clusters and arbitrary use of the Third spaces (Source: Author)

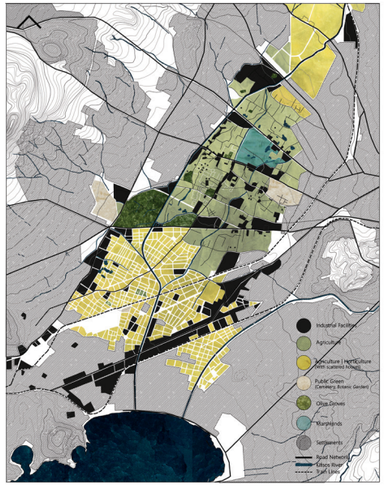
4. A historical overview



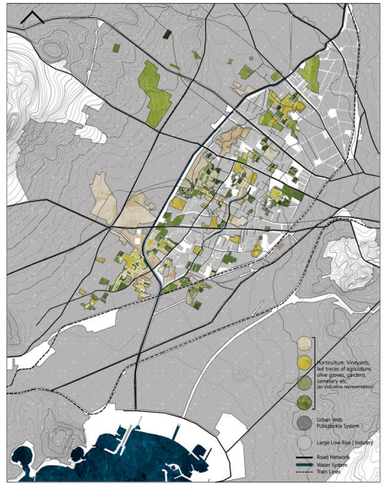
Athens before 1834



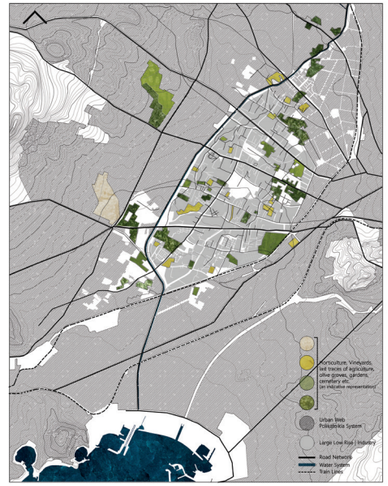
1834 - 1921



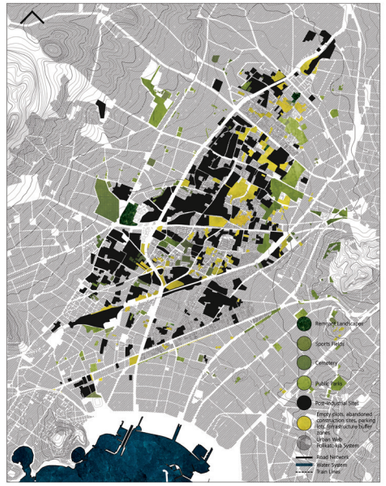
1922 - 1965



1966 - 1974



1975 - 1995



1995 - 2020

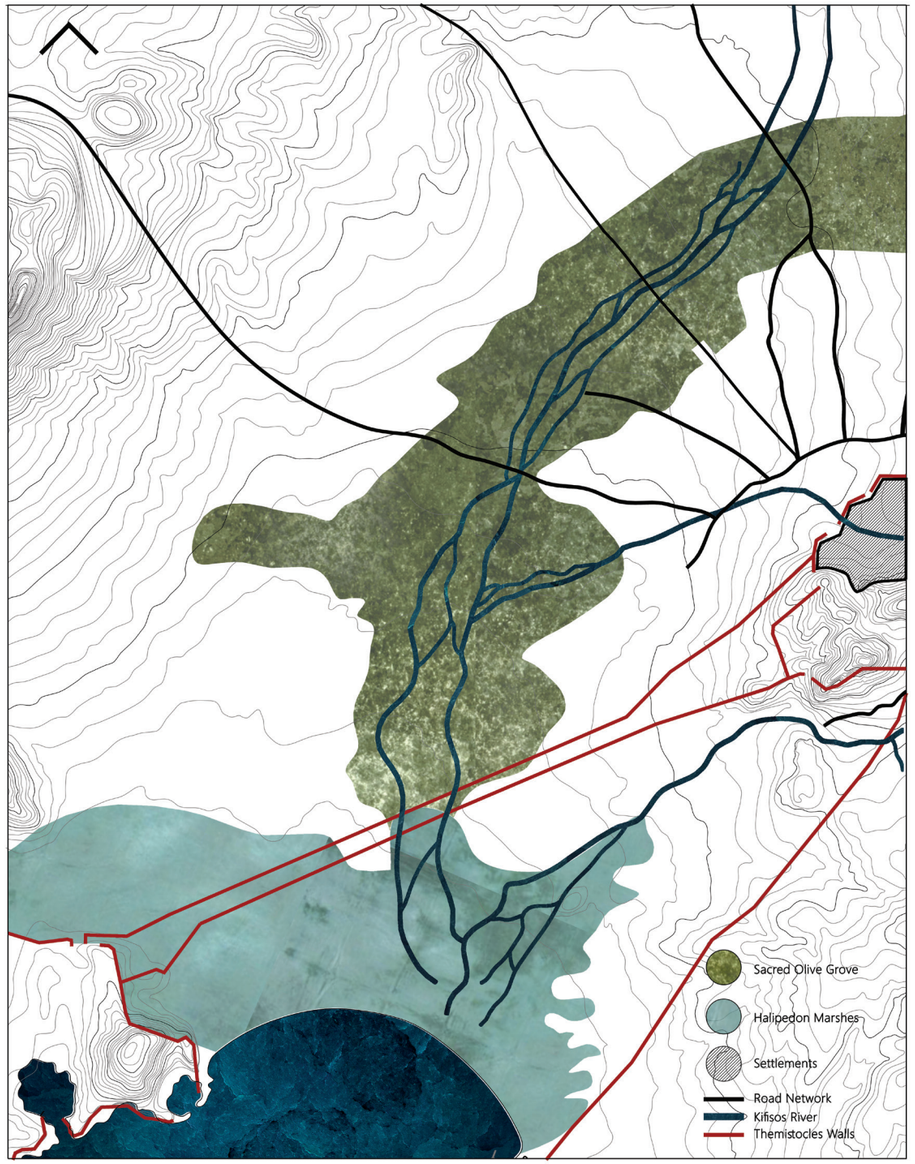


Figure 25:
The Sacred Olive Grove in the 18th century. 1:25000.

Map Source:

Barthélemy, Jean Jacques. 1832. *Voyage du jeune Anacharsis en Grèce, vers le milieu du quatrième siècle avant l'ère vulgaire*. Atlas, Paris, Abel Ledoux fils

Source: http://eng.travelogues.gr/item.php?view=32188

7th century B.C. – 1834
Main agricultural land of Attica

While the city of Athens developed on the foothills of Acropolis taking advantage of the topography that provided protection from invaders and natural phenomena, Eleonas developed in the west, on the floodplains of Kifisos River, taking advantage of the fertile alluvian soil and the seasonal floods.

As the name states, Eleonas (Ελαιών) was an olive grove; a man-made agricultural landscape that extended from the foothills of Mount Parnitha in the north to the marshes of Alipedon in the south. It was the main provider of olive oil, wine and pottery that ensured the survival and prosperity of the people of Athens and for that reason it was protected by law.

Outside the north-west walls of Athens was the neighborhood of Kerameikos (Κεραμεικός) the quarters of pottery workers. Its houses, shops and ceramic workshops gave the city one of its most dynamic industries for local consumption as well as widespread export (McGregor 2014, 103). Another significant element of Eleonas was Plato's Academy, the most important philosophical school founded in 387 BCE by Plato in Academy, a suburb 1.5 km north of the Dipylon Gate (Boudouraki and Gitzias 2008).

Apart from being the main agricultural land of the city, Eleonas was also a sacred place. According to legend, the creation of the olive grove was closely connected to the dispute between the gods Athena and Poseidon regarding who would become the protector of the city. As Athena forced the rock of Acropolis to accept the first olive tree (giving the people the valuable commodities of olives and olive oil) she earned the love of the people who named the city Athens (Αθήνα) to honor the goddess. From seedlings of the sacred tree that grew on Acropolis, 12 olive trees were planted by the tyrant Peisistratos in Eleonas that formed the first sacred grove in the area.

Figure : Athens from the site of Plato's Academy. 1841. Stademann, August Ferdinand.

(Source: Hellenic Library - Alexander S. Onassis Public Benefit Foundation)

From these trees the rest of the forest was then materialized (Ropaitou-Tsapareli 2006).

The holy character of the grove is also manifested in ancient Greek literature. Sophocles in Oedipus in Colonus describes Colonus (an area in Eleonas) as a holy ground dedicated to Poseidon, Athena Hippia and the deities Eumenides (Bonnechere 2002, 17-42). The lush vegetation of olive trees, laurels and vines created a mystifying atmosphere and attributed a holiness to the space that was so sacred, access was forbidden to it. Colonus was therefore an alsos (άλσος).

"As for this place, it is clearly a holy one
Shady with vines and olive trees and laurel;
A covert for the song and hush of nightingales
In their snug wings"

"-What ground is this? What god is honored here?
-It is not to be touched, no one may live upon it;
Most dreadful are its divinities, most feared.
Daughters of darkness and mysterious earth."

Sophocles, *Oedipus at Colonus*

An alsos, according to mythology, is a grove of trees sacred to the gods in which green foliage, cool shade and fresh water created a mysterious atmosphere. Alse were often explained as the natural manifestations of a median place between the worlds of the living and the dead. Nevertheless, they were also often spaces open to the public for education (Plato's Academy), athletic training, for pleasure or religious acts (Bonnechere 2002).

Another element that attributed a holy character to Eleonas was the Sacred Road (Iera Odos: Ιερά Οδός). The Sacred Road started from the Agora at the foothills of Acropolis, led towards the north-west city walls and passed through Kerameikos. There, the Dipylon Gate and the nearby sacred gate showed the road that led to the important shrine of Eleusis, at the Western part of Attica, after Mount Egaleo.

Throughout the classical and post-classical eras, until the Roman occupation, parts of Eleonas were destroyed by invaders, however, they quickly recovered the damage. It was not until the 4th century that a major shift occurred in Eleonas; When Justinian closed Plato's Academy, Eleonas lost its sacred connotation and was reduced only to an agricultural landscape.

In the centuries that followed until the Greek deliberation, the olive grove maintained its size and land use. Mostly poor people (Xotarides) and lower social classes lived in the outskirts of the city and worked in the fields of Eleonas, owned primarily by Turks (Moschonas n.d.). Extensive canal works along Kifisos River allowed the use of its water for the watering of the groves in the winter and vegetable gardens in the summer.

"A rich variety of gardens which luxuriantly supplied with figs, pomegranates, mulberries, service trees and vines. Its fertility is owing to the stream from which Cephissia took its name."

Dodwell Ed, A classical and topographical toor of Greece, 1819

Figure 26: Eleonas, Piraeus and Salamis in the background. 1841.Stademann, August Ferdinand

(Source: Hellenic Library - Alexander S. Onassis Public Benefit Foundation)

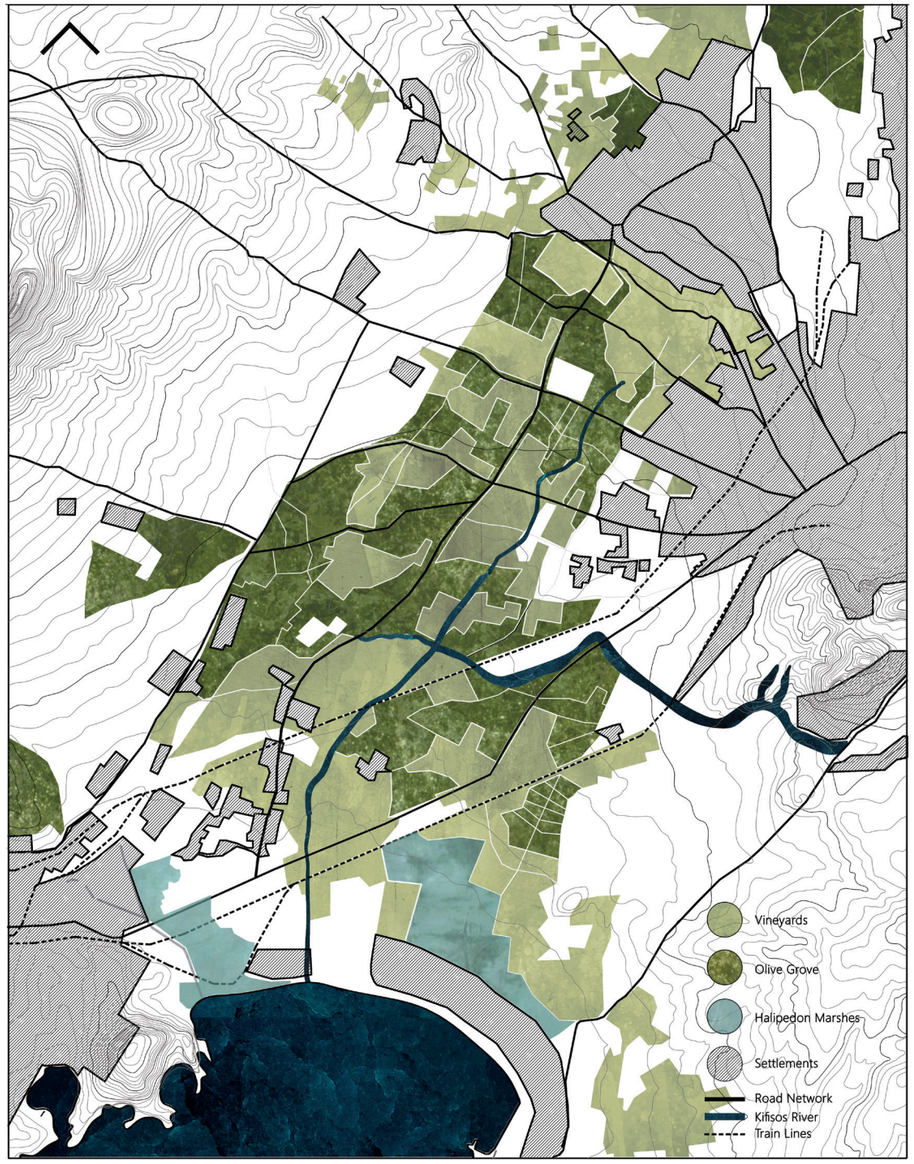


Figure 27:
Athens in 1900.
1:25000.
Map Source:

E. Curtius, J. A. Kaupert. 1895-1903. *Karten von Attika: Karten - Berlin*. gesellschaft der Freunde Universitat Heidelberg e.V

Source: https://digi.ub.uni-heidelberg.de/diglit/curtius1895a/0006

1834 - 1921: Introduction of industry

After the Greek deliberation, the large properties previously owned by Turks in Eleonas were fragmented into smaller plots of land and sold to the people who came to live in the new capital. *"Landowners outside the limits of the city drafted rough plans and sold part of their lands as small plots, keeping the rest to themselves to sell after appreciation."* (Leontidou 1990, 53)

While Eleonas was being fragmented into small properties, the first design of the city was realized. According to the new plan, the western suburb of Kerameikos (where poor social groups lived) was further developed as an industrial hub. In the process of creating a modernized infrastructure that would facilitate industrial activities, approximately 30000 trees were removed for the construction of the first railway lines in 1875 on the southern part of Eleonas. Along this axis, the first industrial facilities of textiles, flour mills and gun powder were constructed. The most characteristic of these industries were the chemical industry CHROPEI (ΧΡΩΠΕΙ, 1883), the beverage factory IVI (ΗΒΗ, 1884) the municipal abattoirs in Tavros (1914) and the oil industry of ELAIS (1920) (Boudouraki and Gitzias 2008).

Figure 28: Panoramic view of Pireos Street.1870.Unknown.
(Source: Library of Congress)

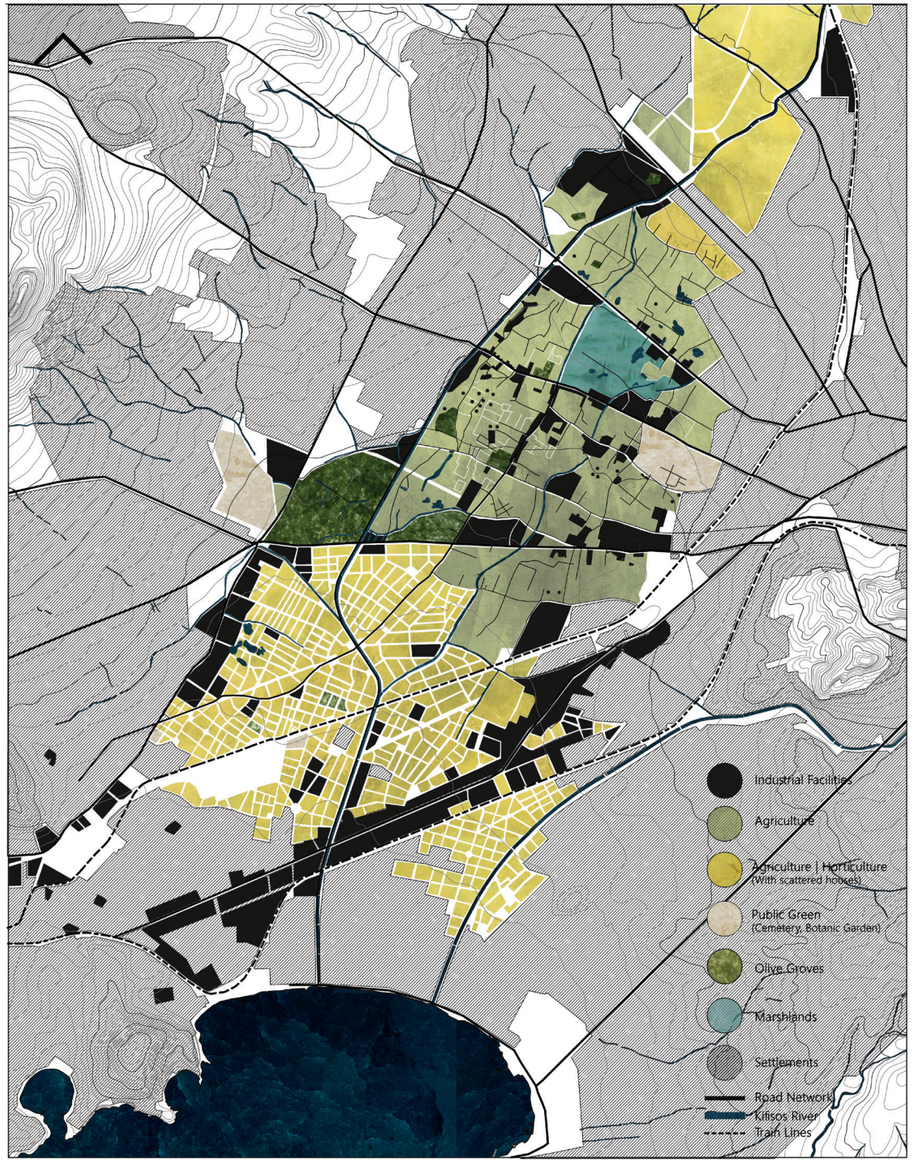


Figure 29:
Athens in 1955.
1:25000.

Map Source:

Diamantopoulos D. 1955. *Land Use Map of the Attica Basin*. 1:5000 scale, Greek Chartography Publications, Athens

Source: Historic Archive of city of Athens https://www.cityofathens.gr/istorikoarxeio/content/1955

1922 - 1965: From Agriculture to Industry

The first industrialization boom in combination with the mass immigration wave of 1922 and 1923 respectively, resulted to a great population inflow in the city. The built environment expanded rapidly and arbitrarily, whereas Eleonas was gradually fragmented into even smaller olive groves, crops, vineyards and horticultural gardens. The creation of slums on the outskirts of the city and around the designed refugee settlements occupied pieces of agricultural land thereby contributing to this fragmentation process. Some of these arbitrary settlements like Nikaia and Tavros that grew on the outskirts of Eleonas attracted industrial units to them since "In most cases industry followed urbanization." (Leontidou 1990, 78). Very few residential clusters were formed in the inner part of Eleonas.

The influx of refugees led to the creation of small sized industries most of which accumulated along the axes of Pireos Street and Iera Odos and in few other areas of inner Eleonas.
In addition, horticulture activities mostly developed in the southern part of Eleonas (in Agios Ioannis Rentis). During the Nazi occupation in 1944-1945 the horticultural gardens of Eleonas played an important role for the survival of the people of Athens (Kanetakis G., Beneki E., Sarigiannis G., 2002). The products cultivated in these gardens were sold to markets both in Athens and Piraeus. The process of industrialization and modernization that was halted during WW2 (1940-1945) and the civil war (1946-1949) continued in the post-war decades as the city spread and its population grew. In this context, the industry along Pireos street and Iera Odos started to exert pressure on the agricultural land and to expand to the interior of Eleonas.

Figure 30: Industry
(Source: Library of Congress)

Figure 31: Horticulture gardens in Agios Ioannis Rentis
(Source: archive of the municipality of Nikaia-Agios Ioannis Rentis)

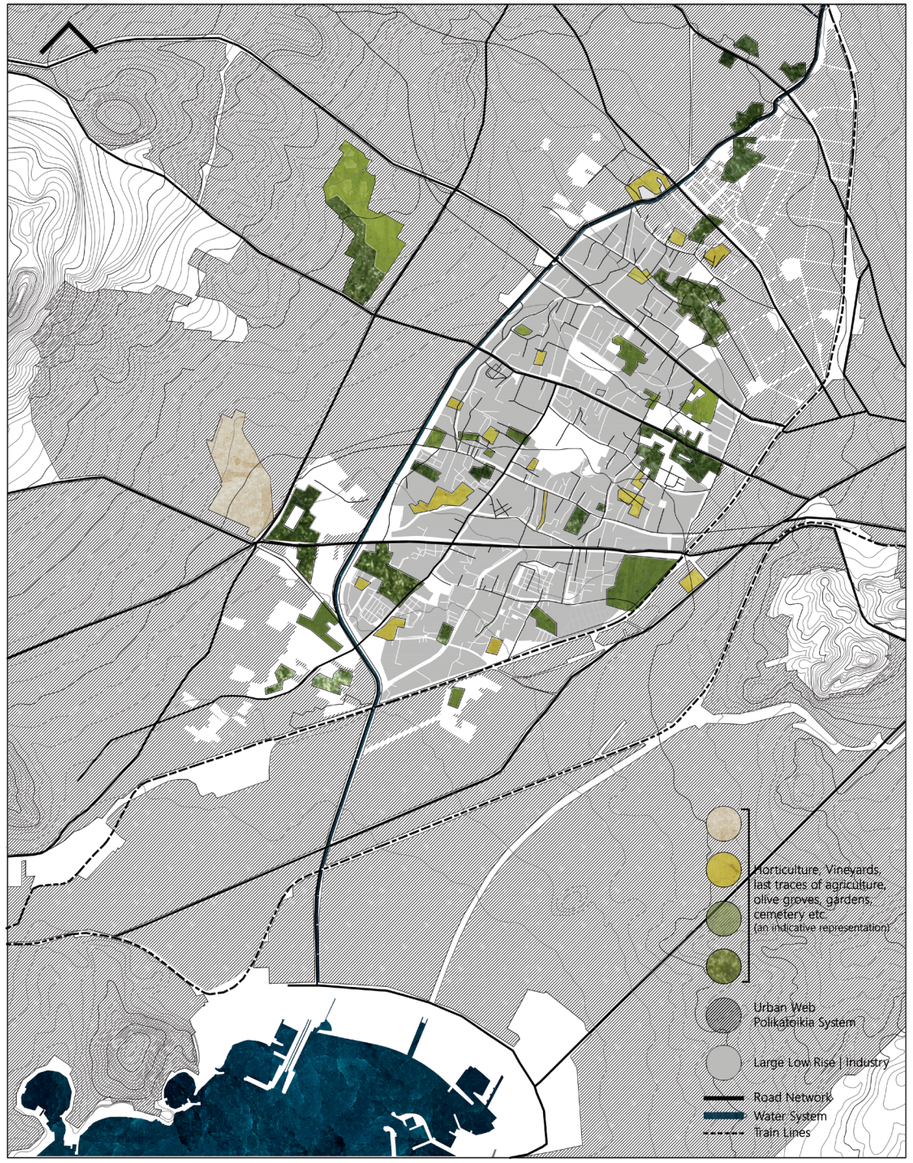


Figure 32:
Athens in 1987.
1:25000.

Map Source:

Aerophotography
Hellenic Military
Geographical Service
& Enveco SA.

Source: Fotakis A. 2013, *Eleonas: An Enclave in Athens*, EPFL, p. 84

1966- 1995: De-industrialization Era

The infrastructural works in the decades between 1957 and 1967 created the conditions for the transformation of Eleonas into a significant hub of road transportation activities. Kifisou Highway that connected Piraeus to Athens and Athens to the north of Greece run parallel to Eleonas from the south to the north. In addition, Athinon Avenue that connected Athens to the south of Greece run through Eleonas in the east to west direction. This advantageous position created the conditions for the emergence of another activity, that of haulage (transportation and storage of goods) (Enveco 2012).

Already during the 60's the first storage yards were introduced in the area by the National Telecommunications Company (OTE) as well as the National Electricity Company (ΔΕΗ). In addition, the de-industrialization process that begun in 1975 contributed to the creation of more similar facilities that later on were used for haulage purposes (Boudouraki and Gitzias 2008).

During that time, the urban web had already reached the borders of Eleonas and transformed it into an industrial enclave that was very close to the city centre. This proximity to the polluting activities of industry was no longer desirable, therefore production units were gradually pushed either in the peri-urban areas of the Attica basin (along the Athinon-Lamias Highway) or even in other countries were production costs were significantly lower. Most industrial facilities in Eleonas closed down or transformed into small businesses. As a result, large and cheap plots were available for appropriation. That, in combination with the lack of a legal framework regarding construction and development in Eleonas, led to the accumulation of seemingly inactive open areas of significant dimensions that were either storage facilities, parking lots or depots.

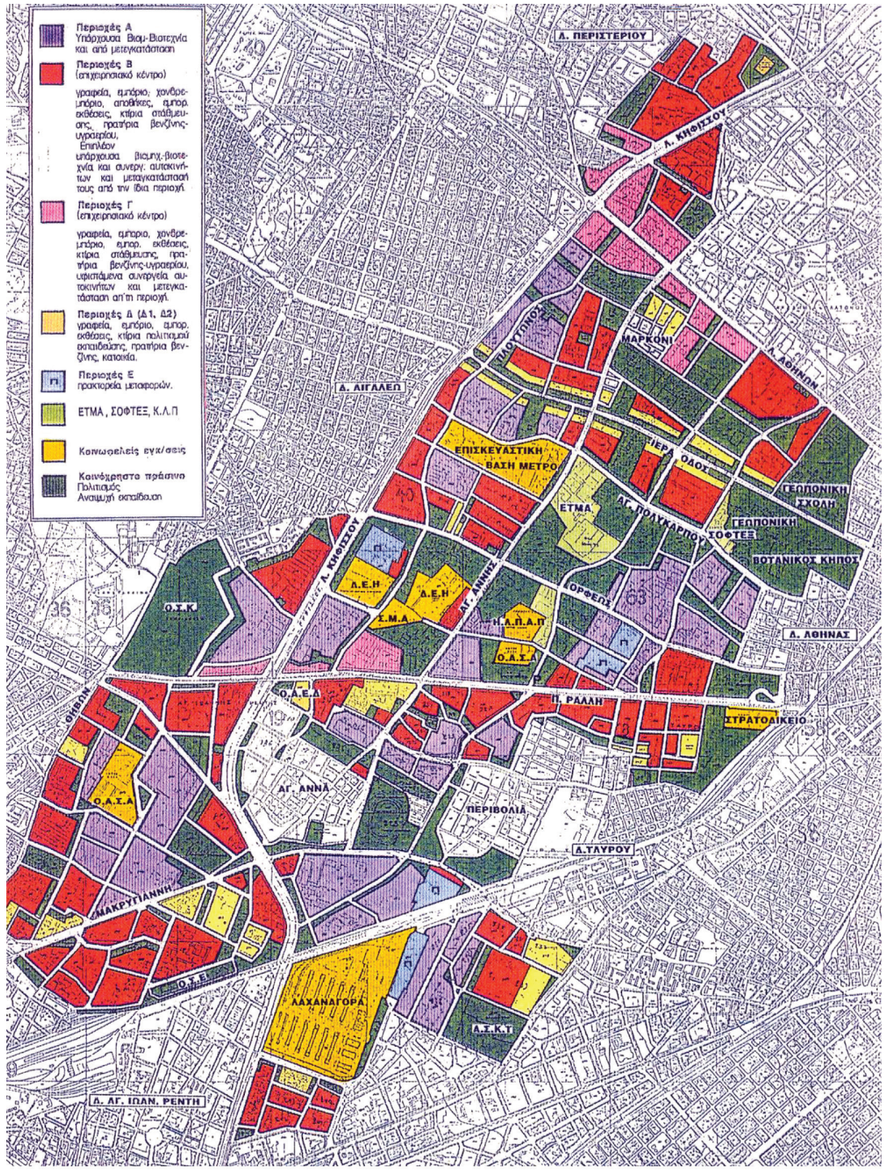


Figure 33:
Eleonas, inclusion in the city plan, 1995.

Map source:
ΟΡΣΑ, 1998

Following a series of attempts to create a regulatory legal framework regarding the development of Eleonas, the first presidential decree for urban planning in the area was promoted in 1995 (Π.Δ. 1049/95) and is still valid today (with a series of modifications and regulations). The decree organizes Eleonas into zones of different land uses and promotes the image of an area with an extensive green structure, a few small production units and activities of the tertiary sector. In particular, it promotes:

- The removal of all polluting industrial activities. At the same time, it proposes the creation of small clusters of light industry in the form of workshops and small businesses (14% of the area).

- The creation of an extensive network of green spaces that incorporates and activates archaeological sites of the area. Included in this network will be educational and recreational facilities that will keep the area functional and active.

- The removal of a large percentage of the existing haulage businesses.

- The introduction of a business centre (24% of the area) with low building rules and the preservation of public services in the area.

- The strengthening of existing residential clusters, like the Markoni neighborhood, and the creation of mixed used development zones. (Kontarou 2008)

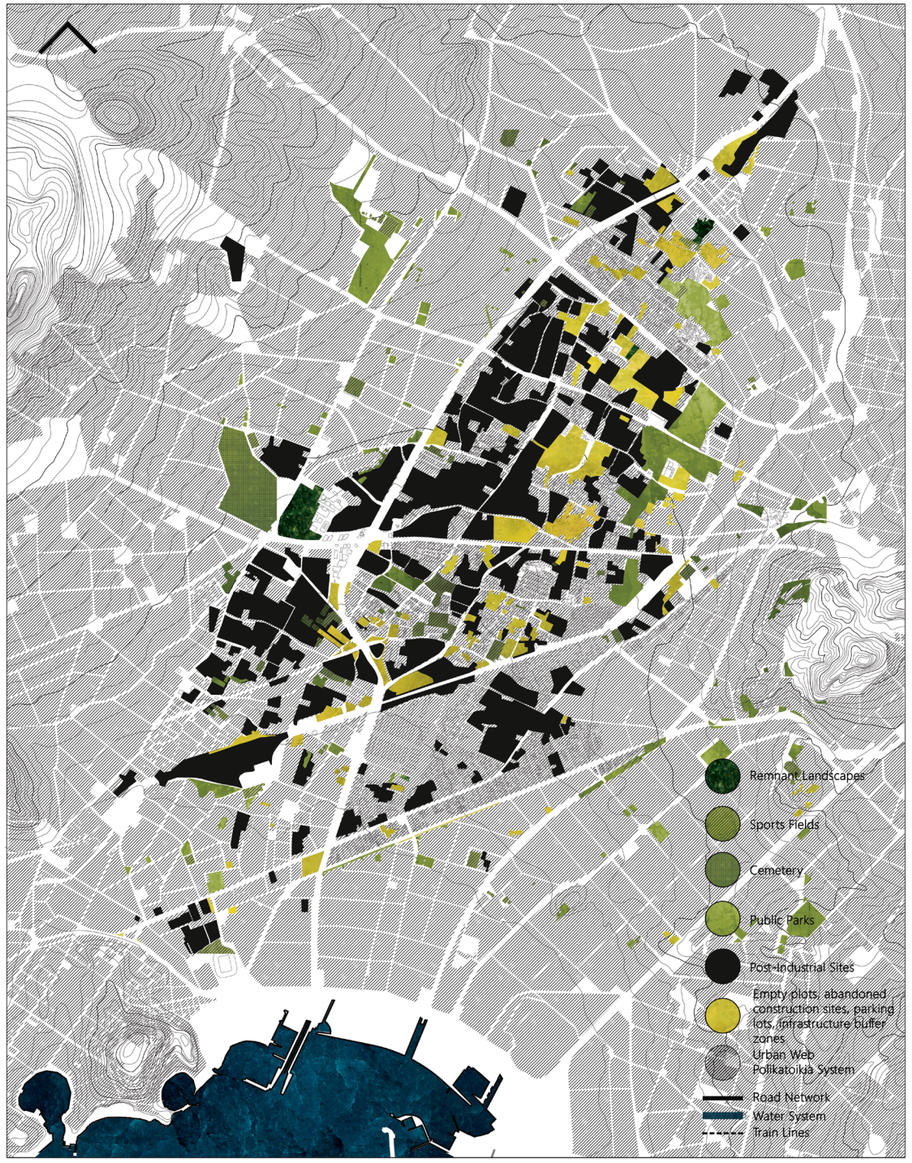


Figure 34:
Athens in 2020.
1:25000.

Map Source:
OpenstreetMap.
On site documentation.

1995- 2020: Eleonas, current situation

Today, the dominant land uses in Eleonas are the storage and transportation of goods (haulage) as well as small scale activities like car repair services, gas stations etc. However, in the last few decades, another land use emerged and is gradually gaining ground by taking advantage of the opportunities provided by the infrastructural network. Supra local shopping centers, recreational complexes and large scale office buildings are gradually taking over, slowly transforming Eleonas into a hub of the tertiary sector.

Figure 35: Eleonas, current situation. By author.

A historical overview of Eleonas | Conclusions

Through the analysis of the history of Eleonas three categories of landscapes were identified and extracted in order to be used in the proposed landscape architectonic design.

Remnant landscapes

Spaces, buildings even parts of infrastructure that have resisted urban development to a certain extent. Such spaces are a living testimony of a specific time or event and, at times, they are suggestive of collective memory and identity (Halbwachs 1992). They are part of the cultural heritage of a people, since they were inherited from the past and identified as reflections of their convictions, knowledge and traditions (Riesto 2018). The remnant landscapes of an area are ***anchors***, fragments of the existing urban web, that when combined with new elements, they could create new meanings and present possibilities for new actions.

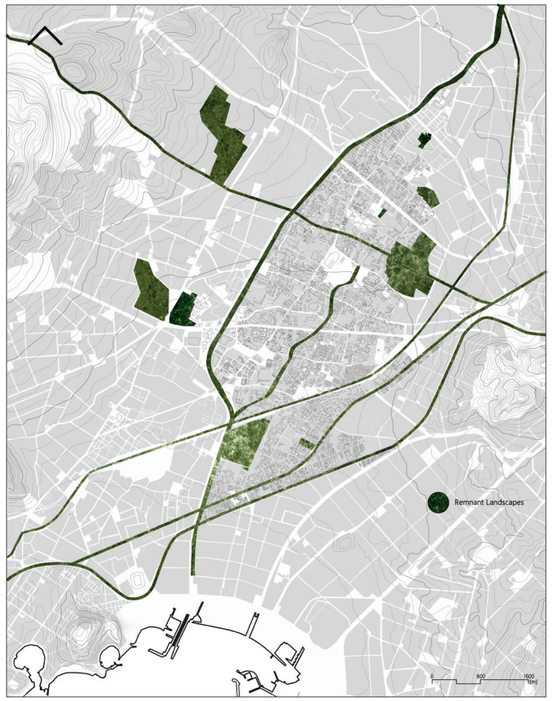
Ruderal Landscapes | Third Spaces

Remnants of the industrial era, as well as empty plots, abandoned construction sites, parking lots and infrastructure buffer zones. Despite the fact that they are a living testimony of a specific time –the flourishing of industry in the case of industrial spaces- that time is not considered valued enough to be safeguarded and preserved. That is due to the fact that they belong to a recent past that we can still remember.

Nevertheless, they are spaces of high ecological diversity since spontaneous vegetation grows rapidly in their contaminated and compacted soils.

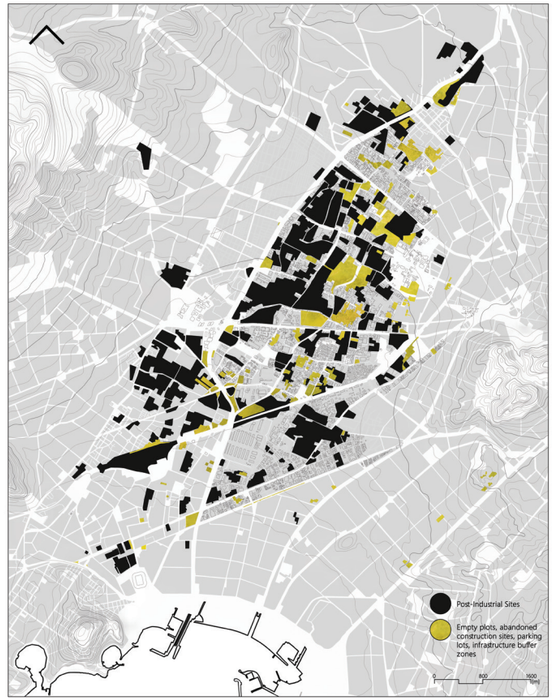
Landscapes of appropriation | 1995 Master Plan

Areas that according to the 1995 Master Plan will be transformed into a network of green spaces that will include educational and recreational facilities and clusters of public services.



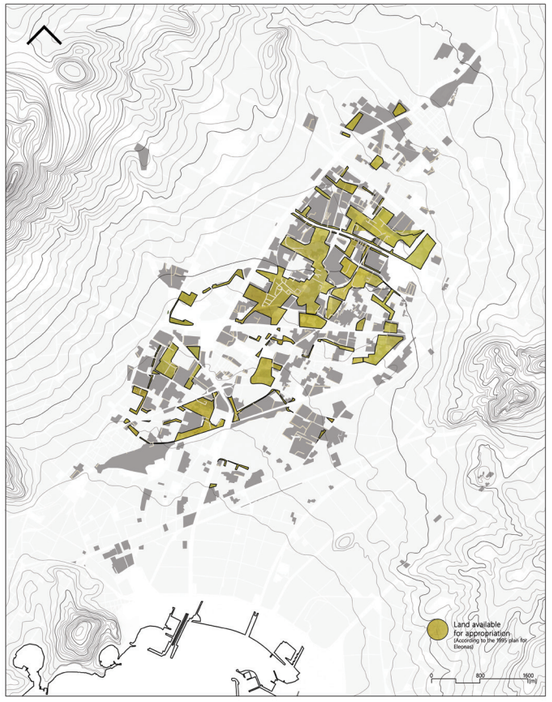
Remnant landscapes

In the case of Eleonas, the remnant landscapes found in the area cover a wide range of spaces. The archaeological site of Plato's Academy, the last remaining pockets of the ancient olive grove, the Sacred Road (Iera Odos) and remnants of the Long Walls along Pireos street are a living testimony of the Classical and post-Classical eras. The corridors of Kifisos River and Prophet Daniel stream are traces of the water system that existed before the 20th century. Last but not least, the A. Tritsis Metropolitan Park, the 3rd cemetery and the first railway lines that connect Piraeus and Athens are remnants of the more recent past of the city.



Ruderal Landscapes | Third Spaces

Due to the fact that these landscapes occupy the majority of Eleonas, they present ample opportunity for practices of urban transformation. For the reasons mentioned above, the study of their spatial and physical characteristics is imperative.



Landscapes of appropriation | 1995 Master Plan

Since the 1995 Master Plan is still valid, these areas are currently available for appropriation. As a result, they could become the starting points for the urban transformation of Eleonas.

Figure 36: The three landscapes extracted from Eleonas: Remnant landscapes, Ruderal Landscapes (Third spaces) and landscapes of appropriation.
(Source: Author)

7. Researching the biotopes of Eleonas

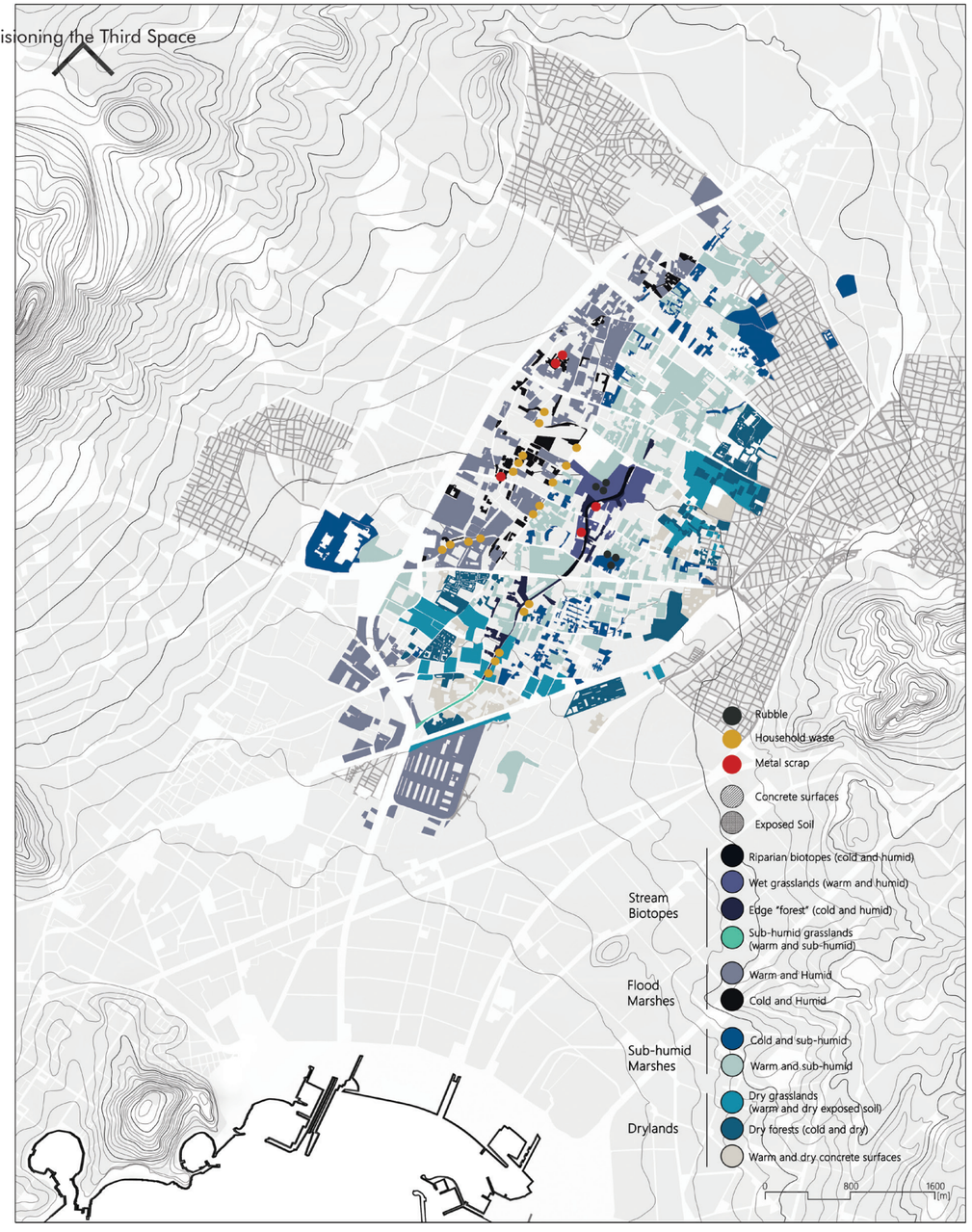
Following the study of the Palimpsest, the approach of the current situation will address Eleonas as a landscape, that is as *"[…] a mosaic over which particular local ecosystems and land uses recur"* (Dramstad et al. 1996). As such, Eleonas is composed of specific biotopes, it has a specific structure and is able to change through time. Changing the configuration of one biotope means that the flows of animals, vegetation and water will change, not only in the biotope but also within the whole mosaic. In addition, rearranging, adding or removing elements can change how the biotopes of the mosaic work (Dramstad et al. 1996). This intrinsic potential for change gives ample opportunity for design and planning in Eleonas.

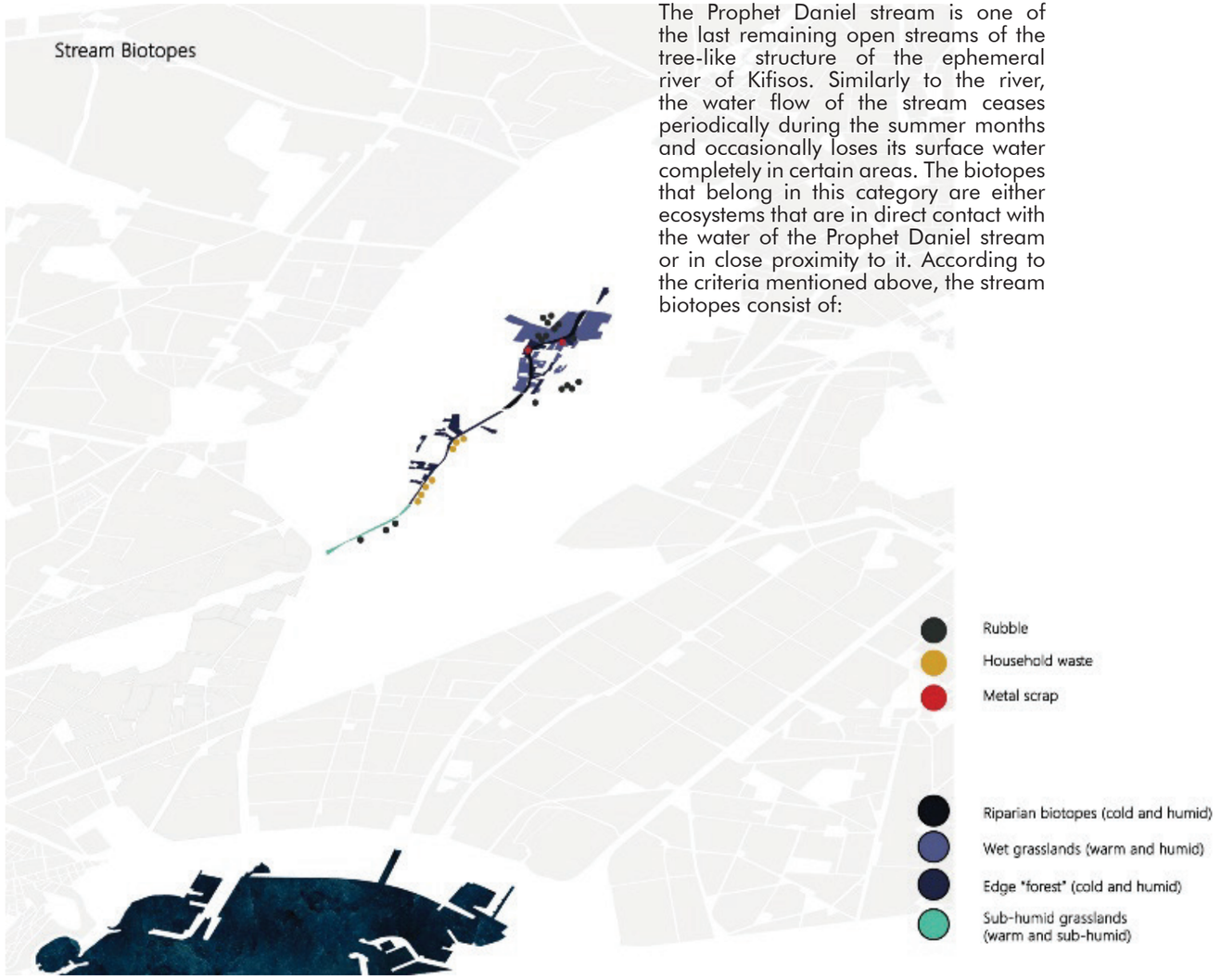
In this context, in order to identify and extract the biotopes of the area and thereby understand Eleonas as a complex mosaic, a detailed study of its physical elements and the conditions created by its spatial components (buildings, trees, fences, walls etc.) was imperative. That was achieved through a series of site visits in the area. During these visits, site specific elements like the presence/absence of water, temperature, shade, materiality etc. were observed and mapped in a detailed map.

As a result of this research, four main categories of biotopes were identified in Eleonas based on the presence/absence of water:

- The Stream Biotopes: biotopes along the Prophet Daniel stream (humid)
- The Flood marshes (intermittently humid)
- The Sub-humid biotopes (sub-humid)
- The Drylands (dry)

Each of these categories consists of even more specialized biotopes with different spatial and physical characteristics. The presence/absence of shade, temperature and materiality were the main criteria for this sub-categorization. Included in this complex mosaic are also mounds of excavated soil, garbage and rubble that provide a safe haven for rodents and reptiles (lizards) in the area. A detailed analysis of each group will be presented below.





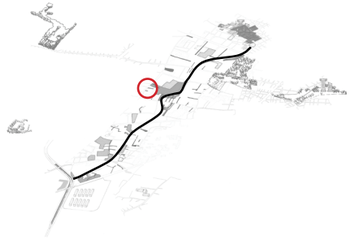
The Prophet Daniel stream is one of the last remaining open streams of the tree-like structure of the ephemeral river of Kifisos. Similarly to the river, the water flow of the stream ceases periodically during the summer months and occasionally loses its surface water completely in certain areas. The biotopes that belong in this category are either ecosystems that are in direct contact with the water of the Prophet Daniel stream or in close proximity to it. According to the criteria mentioned above, the stream biotopes consist of:

Riparian Biotopes
Ecosystems of organisms inhabiting the fresh water of the stream or growing along its edges. Depending on the dimensions of its concrete encasement, the presence of fauna and flora varies. In the northern part of Prophet Daniel for example, where the profile of the stream is steep and narrow, cold and humid conditions are created by its hard edges. As a result, lush riparian vegetation grows spontaneously thus casting more shade on the stream. In these biotopes the water flow is constant during the winter and significantly reduced during the summer months. Vegetation in the riparian biotopes varies from reeds (Arundo donax l., Phragmites australis) to fig trees (Ficus carica L.) and tree of heaven (Ailanthus altissima Mill.).

Edge forests
Patches of high vegetation scattered along the edges of the stream. The shade they cast on the ground creates cold and humid conditions for fauna and flora. The species that are mostly found in these biotopes are poplars (Populus nigra), pines (Pinus halepensis) and tree of heaven (Ailanthus altissima Mill.).

Grasslands
Patches of land that do not get in direct contact with the water of the stream. As a result, they are dryer than the edge forests and the riparian biotopes. The vegetation that grows in these areas primarily consists of low grasses and herbs like Cheeseweed (Malva parviflora L.), Scutch grass (Cynodon dactylon) and Vulpia myuros.

Sub-humid grasslands
Areas along the southern part of the stream, where it discharges to Kifisos River. In this part of the stream, the flow of the water is significantly reduced in the winter while it ceases completely in the summer months. As the profile of the stream is wide and there is no shade provided by either vegetation or buildings, low grasses and herbs grow on its edges.



Contaminants

Materiality

Existing flora

Ruderal species

Warm & humid

Ruderal species

Warm & humid

Riparian species

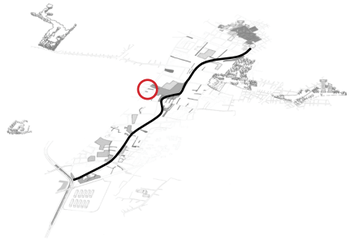
Cold & humid

Warm & Humid

The main element that defines the biotopes of this category is the presence of excess surface water that accumulates in puddles on the ground during the winter months. Due to the fact that the majority of the surfaces in the area are made of impenetrable materials (concrete, asphalt etc.), rainwater fails to seep through the ground at a fast rate. As a result, two categories of biotopes are found in the area:

Warm & Humid Flood Marshes
Storage facilities, empty parking lots, depots and open spaces of large dimensions with hard surfaces that are constantly exposed to the sun. Since there are very few spatial elements to provide shade and cooling, the temperatures in these biotopes are quite high, especially in the summer months. The presence of excess surface water during the "wetest" months of the year creates warm and humid conditions, whereas the complete lack of water in the summer transforms these spaces into dry biotopes.

Cold & Humid Flood Marshes
Small storage facilities and empty plots, scattered in the western part of Eleonas, in which elements of the built environment (buildings, walls, fences etc.) or trees provide shade and therefore cooling. That, combined with the presence of water creates cold and humid conditions. Such spaces could be ideal areas for the collection and storage of rainwater.



Existing fauna

C. ocellatus ocellatus

Hemidactylus turcicus, Linnaeus

Muscicapa striata

Culex pipiens

Contaminants
Surface runoff

Road salt

Phosphorus

Nitrate

Coal

Nickel

Lead

Cadmium

Copper

Materiality

Existing flora

Brassica oleracea L.

Rumex acetosa L.

Nicotiana glauca Graham

Cucurbita maxima Duchesne

Malva parviflora L.

Lantana camara L.

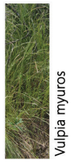
Ailanthus altissima (Mill.) Swingle

Phoenix dactylifera

Olea europaea

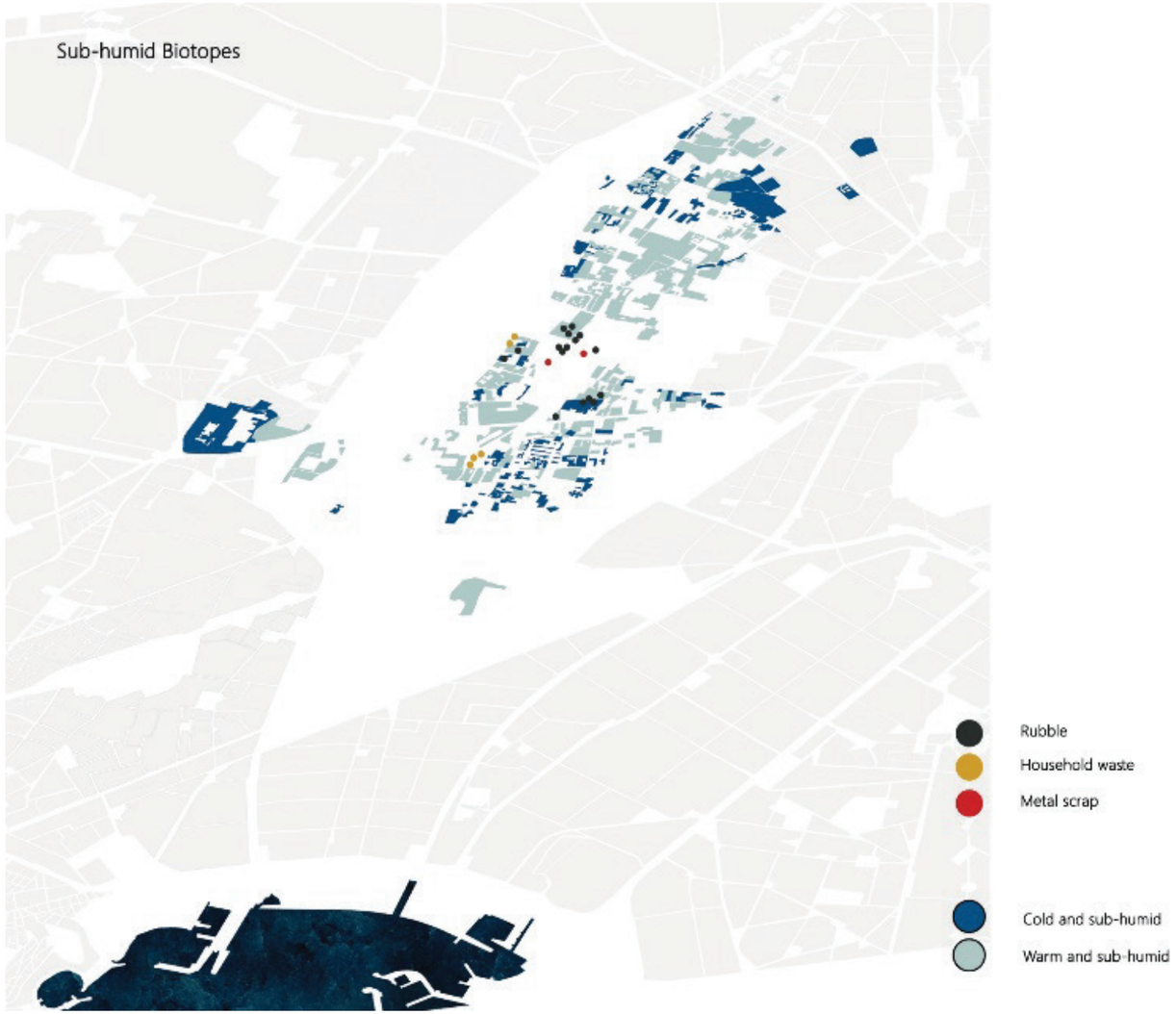
Eucalyptus globulus

Cynodon dactylon

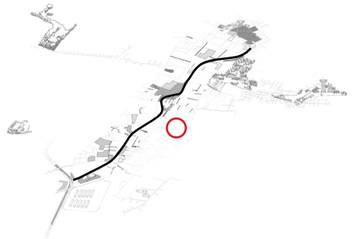


Vulpia myuros

"Wall" plants



Biotopes belonging to the inner parts of Eleonas that are not affected by the Prophet Daniel stream and do not accumulate as much excess surface water as the flood marshes. Depending on the presence of shade and temperature in these spaces they are into cold and warm sub-humid biotopes.



Existing fauna

Columba livia

Streptopelia decaocto

Testudo marginata

Sturnus vulgaris

Erinaceus roumanicus

Materiality

Existing flora

Ailanthus altissima (Mill.) Swingle

Cynodon dactylon

Dittrichia viscosa (L.) Greuter

Platanus orientalis

"Interior" plants

Sisymbrium officinale (L.)

Ecballium elaterium

Solanum elaegnifolium Cav.

Malva parviflora L.

"Border" plants

Areas found primarily to the eastern and southern parts of Eleonas that are higher than the stream and the groundwater level. Depending on their spatial characteristics, their materiality and temperature, they are divided into three sub-categories:

Dry grasslands

Empty plots with exposed soil and low vegetation, primarily grasses.

Dry forests

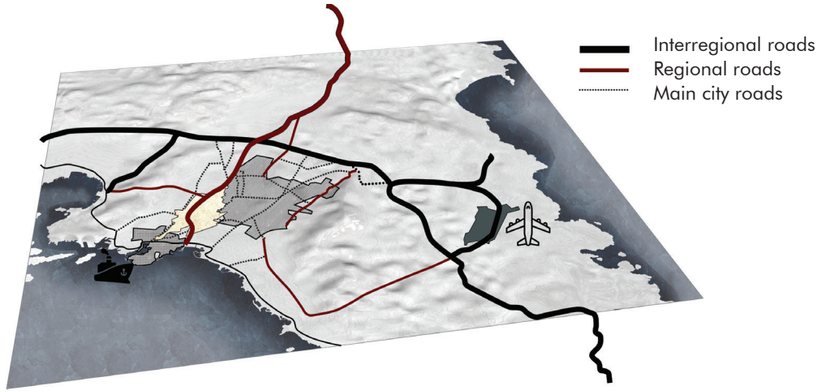
Empty plots with exposed soil and high vegetation that provides shade and cooling. The predominant ruderal species found in these forests is the tree of heaven (Ailanthus altissima Mill.). Included in these biotopes are the gardens of the Agricultural School of Athens in which vineyards, olive groves and crops of fruit bearing trees are cultivated.

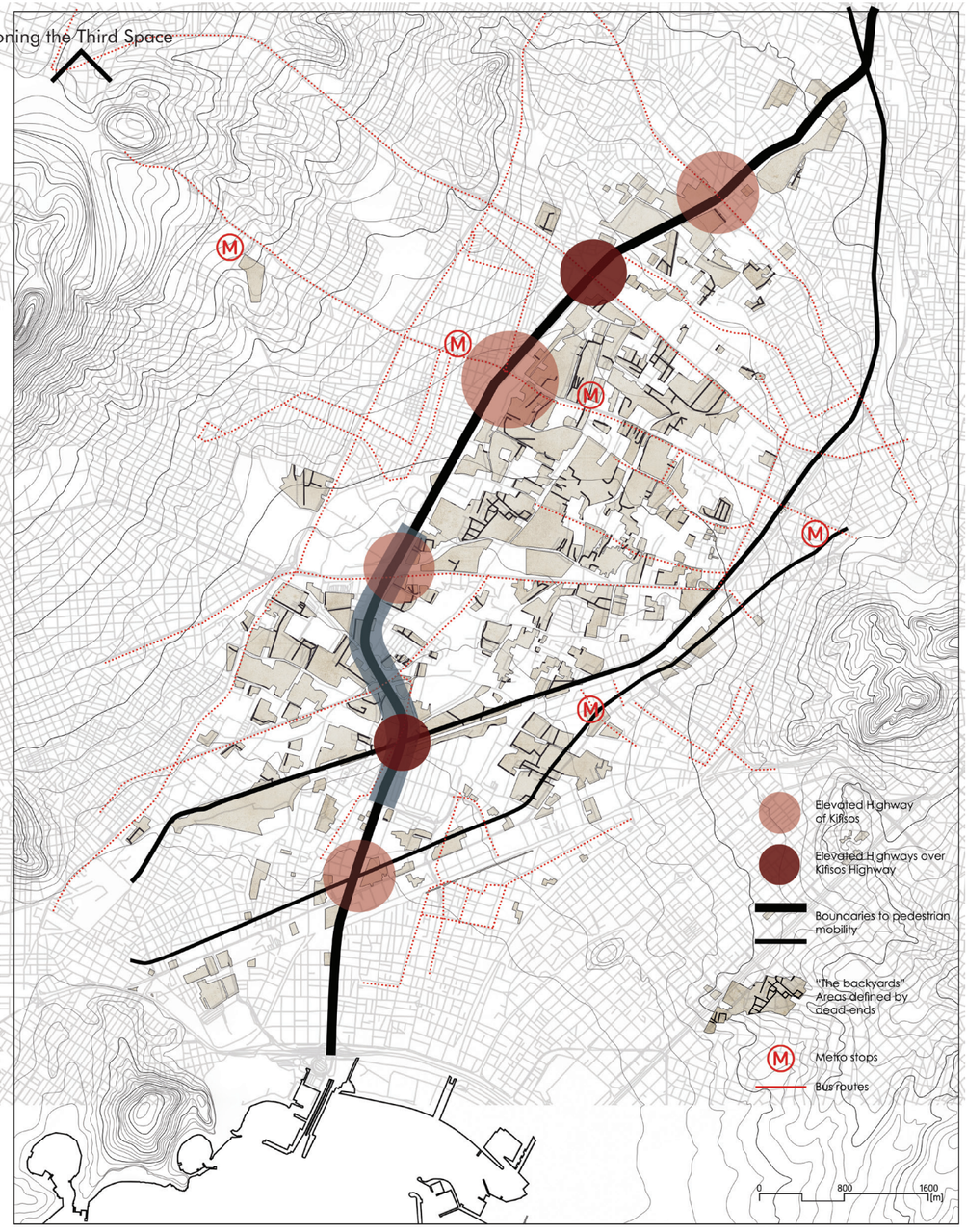
5. Accessibility

In terms of accessibility, the current situation of Eleonas presents a contradiction. While the area is easily accessible on the regional and urban scale, on a neighborhood level access in its inner areas is hindered by a series of factors.

The regional road of Kifisos Highway that runs through Eleonas is an axis of local and supra-local significance, as it connects the port to the city centre and the metropolitan area of Athens to the Greek mainland. At the same time, by connecting to the interregional road of the peri-urban area it creates a connection to the airport of the city.

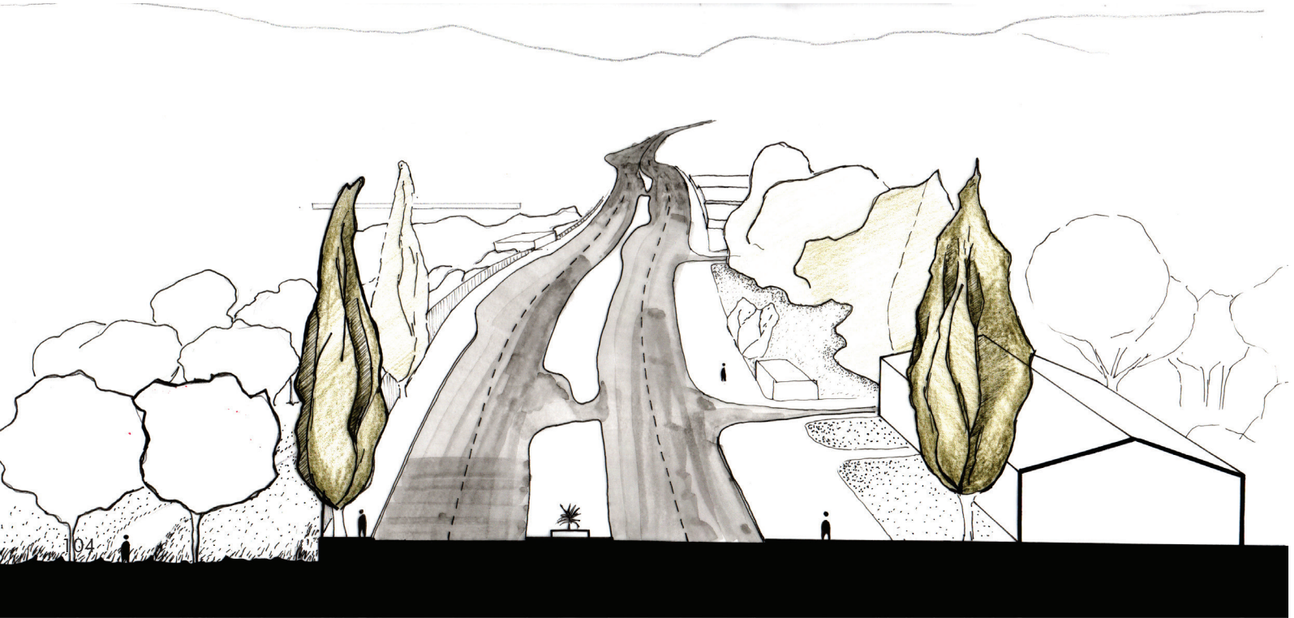
On an urban level, the position of the site between the port of Piraeus and the municipality of Athens renders it easily accessible by both, through Pireos Street and the railway system. In addition, connections in the East to West axis are achieved by three avenues; Athinon Avenue to the north, Iera Odos and Petrou Ralli Avenue to the south.

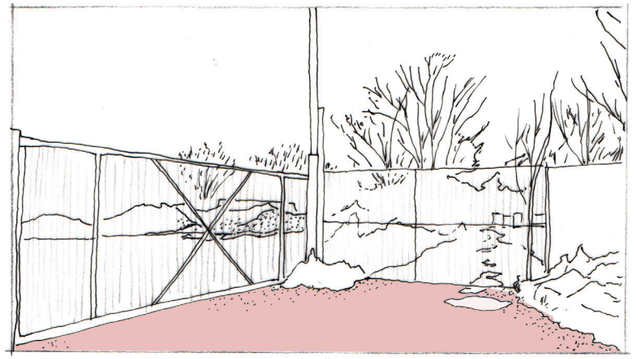


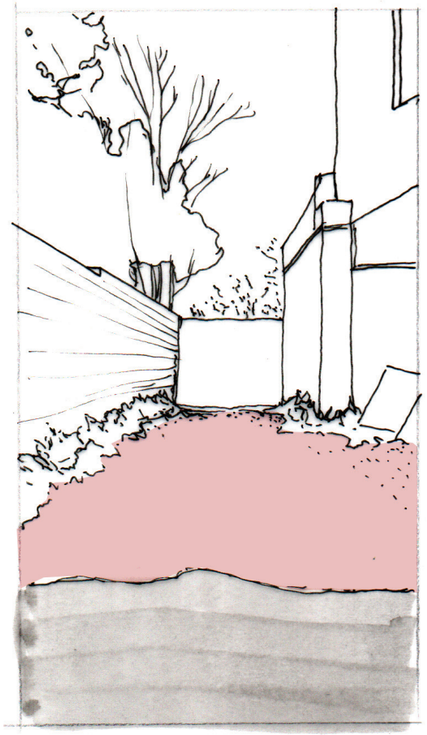


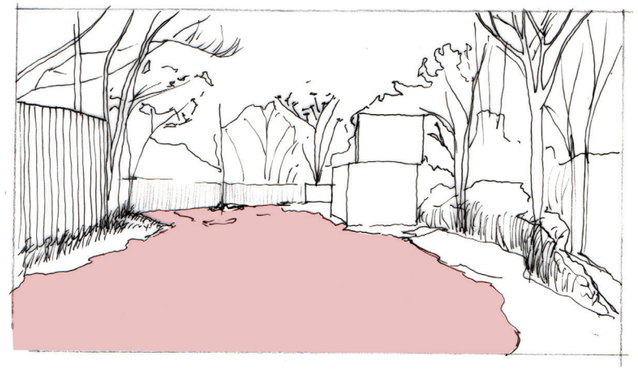
By contrast, the inner middle scale and local networks of Eleonas are defective, as the roads composing them are not wide enough to facilitate everyday traffic. Furthermore, while the highways, avenues and railway lines mentioned above facilitate access in Eleonas on a regional and urban level, on a neighborhood scale they become boundaries for pedestrian access in Eleonas.

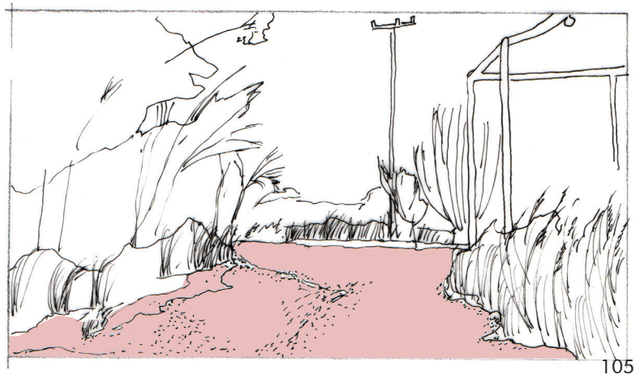
Last but not least, one of the most striking elements of the infrastructural system of inner Eleonas, that hinders pedestrian access and attributes a sense of mystery and complexity to the area are the dead ends that were formed by the arbitrary development of the site. Most of the dead ends lead to the entrance of a private property or a Third space. Others are defined by multiple private properties and form a common space that is shared by them. In any case, the dead ends create boundaries to the Third spaces of Eleonas but they also present the possibility to be used in the process of inverting its introvert character.











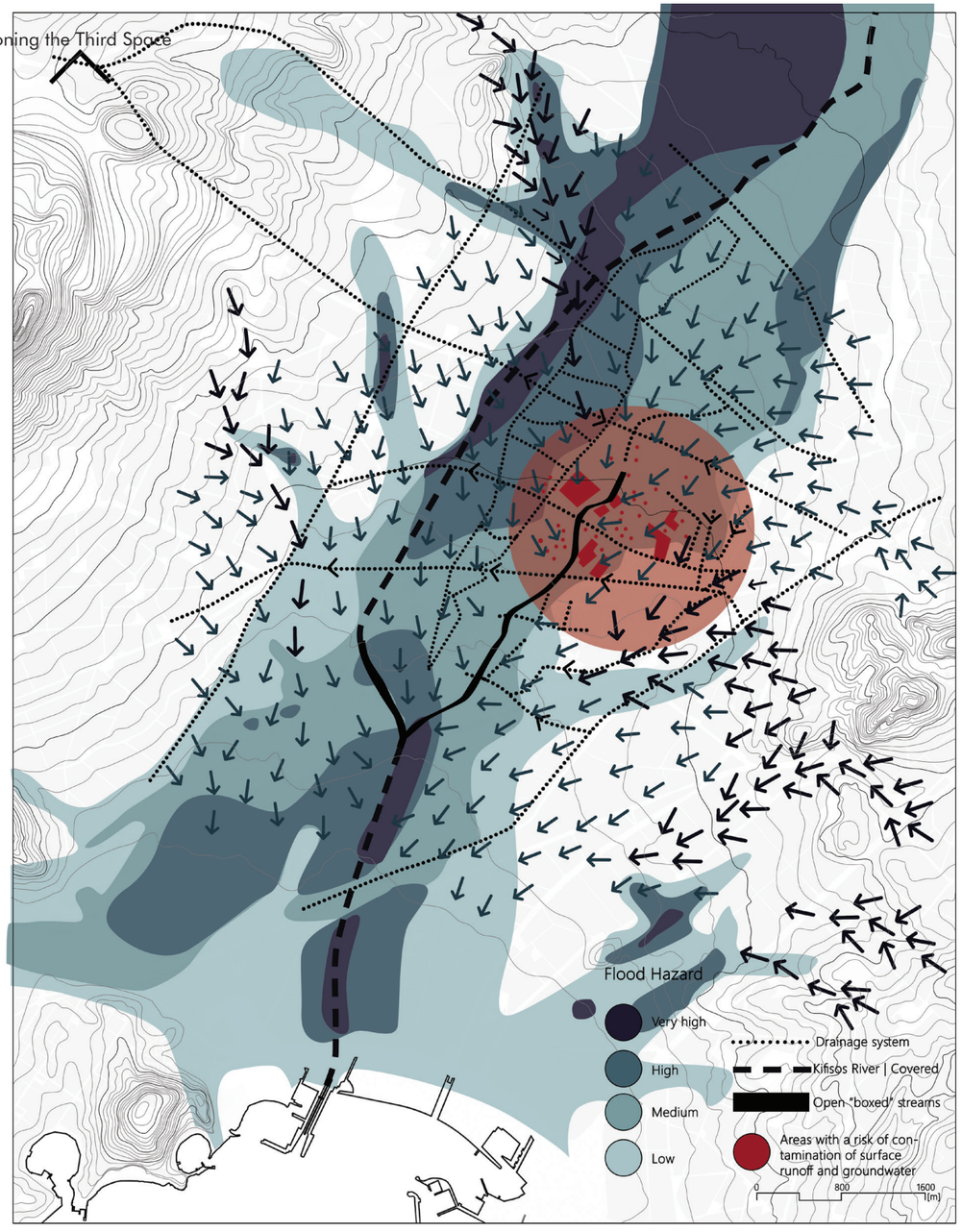
6. Environmental issues

According to the regional analysis, the area of Eleonas is very vulnerable to flood events due its proximity to Kifisos River. In particular, the parts that are more susceptible to flooding are found in the northwest and south of Eleonas.

In these parts of the urban web, the density of the built environment covering the natural waterways, in combination with the inadequate drainage system that cannot receive, distribute and discharge excess surface water during extreme rainfall, have caused many severe flood events in Eleonas.

Meanwhile, in the inner parts of the site, elements of the built environment like walls and fences, impermeable materials and irregularities of the ground create boundaries and “trap” the water in puddles thus flooding certain areas during the rain season.

Furthermore, the industrial activities that took place in the area during the 20th century have contaminated the physical resources of the Eleonas. More specifically, the most affected parts of the site are the area of Votanikos and the stream of Prophet Daniel, which was used by the industries as a dumpsite for toxic waste.



Urban analysis conclusions

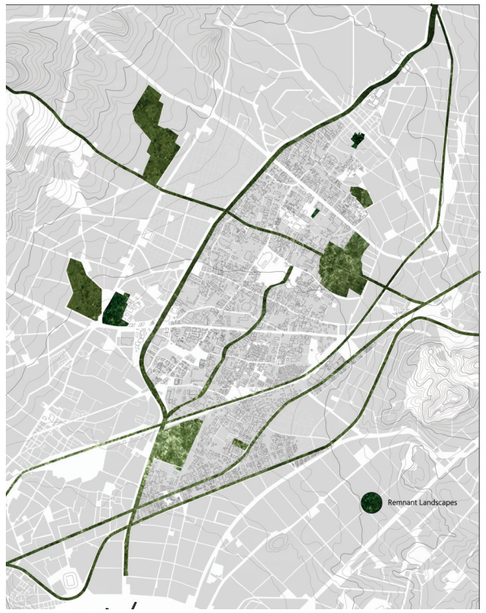
The historical overview and the site specific analysis of the biotopes of Eleonas provided a series of elements that can be used for the transformation of the Third spaces in the area.

In particular, the extraction of the remnant landscapes, the Third spaces and the areas available for appropriation according to the 1995 city plan, provided three very important groups of spaces that can become the starting point of the transformation process in Eleonas.

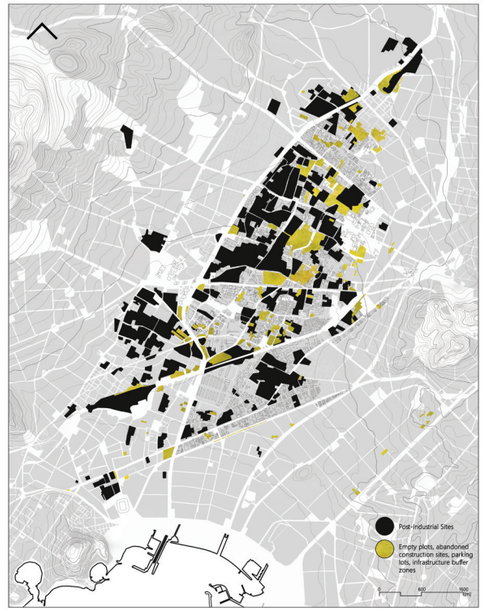
In addition, the analysis of the area as a mosaic of ecosystems revealed that Eleonas is an environment of great ecological diversity that presents the possibility of enhancing the ecological flow between urban green and areas of ecological value surrounding the Attica basin. In addition, it led to the conclusion that the Third spaces are areas that provide aesthetic variety in Eleonas. From the highly maintained areas of the archaeological space of Plato's Academy and the gardens of the School of Agriculture, to the completely abandoned Prophet Daniel stream, each biotope of Eleonas has a certain aesthetic value.

Furthermore, the analysis of spatial elements, infrastructure, environmental challenges and social issues in Eleonas, provided even more elements that present opportunity for urban transformation processes in the Third spaces. Despite the fact that the dead ends in the area are currently boundaries, they also present the possibility to be used in the process of inverting its introvert character. The environmental challenges Eleonas is currently facing reveal natural processes that can be used in the landscape architectonic design. Last but not least, the social issues the area is facing, is a matter that needs to be addressed in this transformation process.

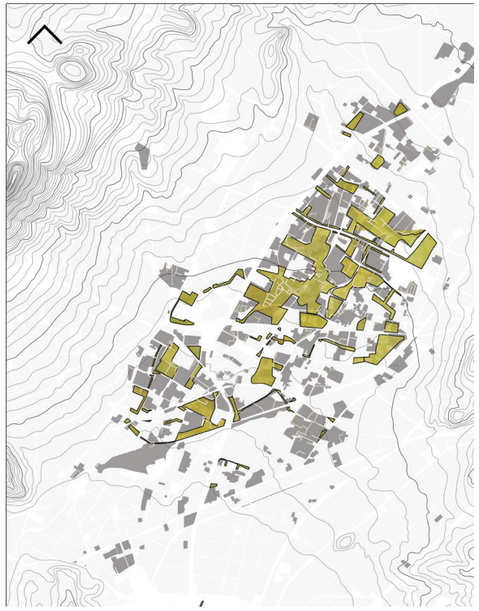
According to these concluding observations, the design process begins with the formulation of three basic design strategies which will become the main directions of the proposed landscape architectonic design. These are the activation of the existing anchors on the area, the creation of connections with the surrounding urban web in order to invert the introvert character of Eleonas and the use of natural elements and processes in the landscape architectonic design.



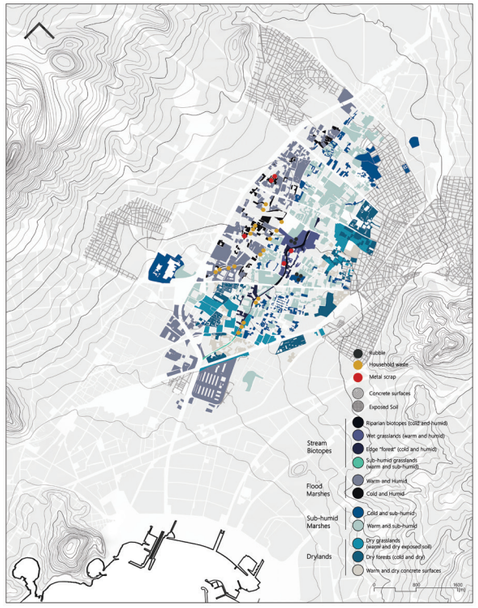
Remnant Landscapes



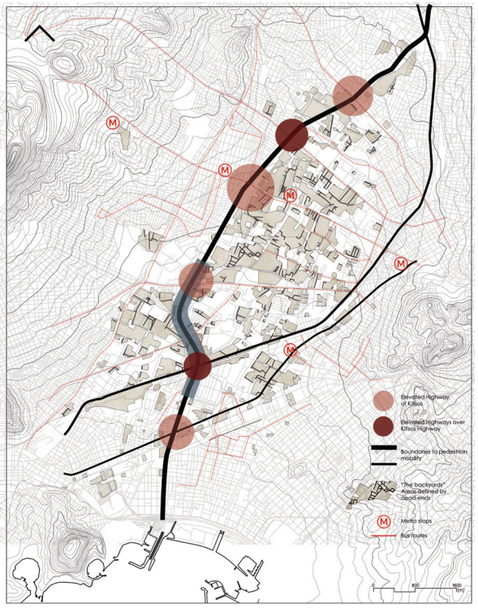
Third spaces



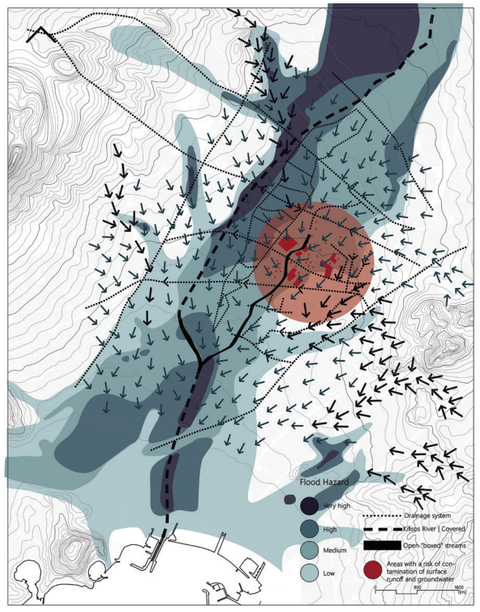
Areas of appropriation (1995 city plan)



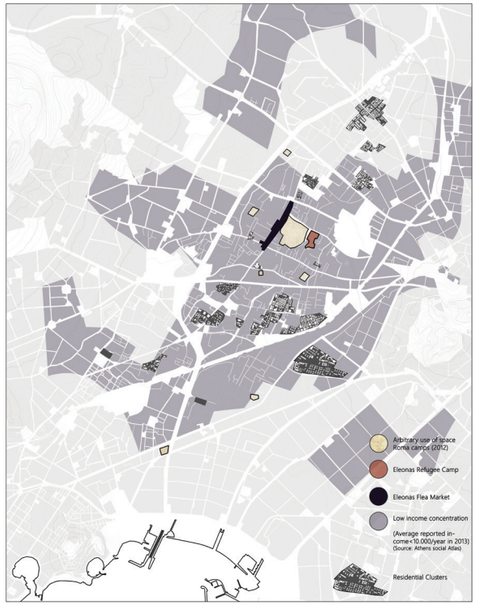
Biotopes



Dead ends



Areas presenting opportunity for working with natural processes



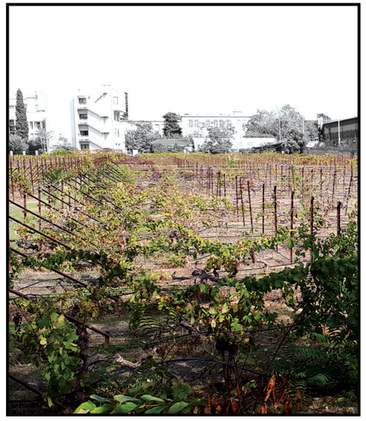
Social Challenges

Conclusions | Aesthetic variety

1. Plato's Academy

2. Ancient Olive Grove
(University of West Attica Campus)

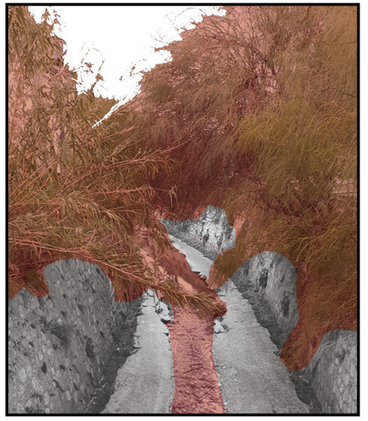
3. School of Agriculture



4. Remnants of the built environment

5. Parking lots

6. Prophet Daniel Stream



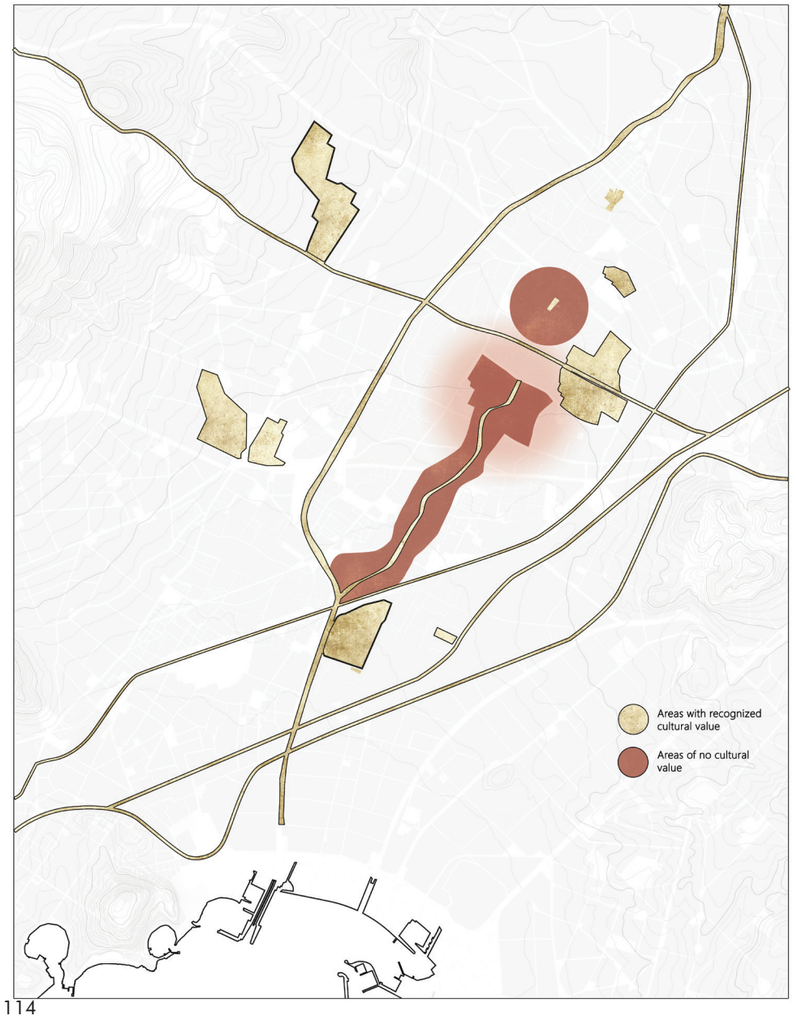
Constant Maintenance — Zero Maintenance

Materiality

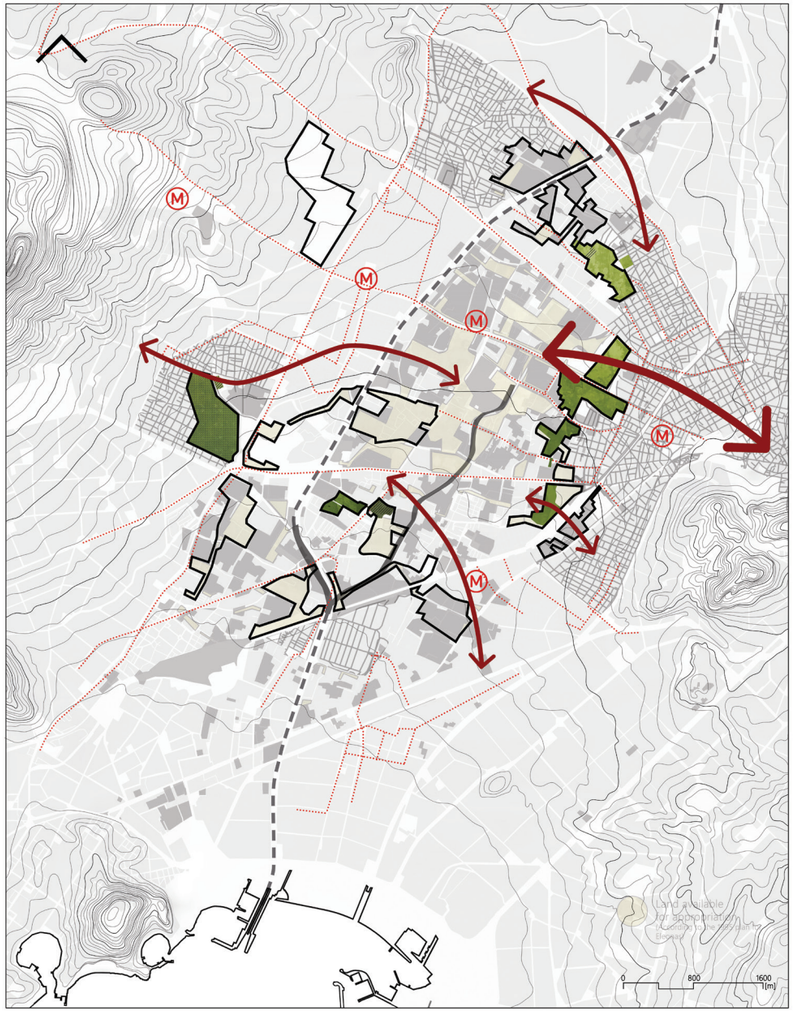
Vegetation

Formulating the design strategies

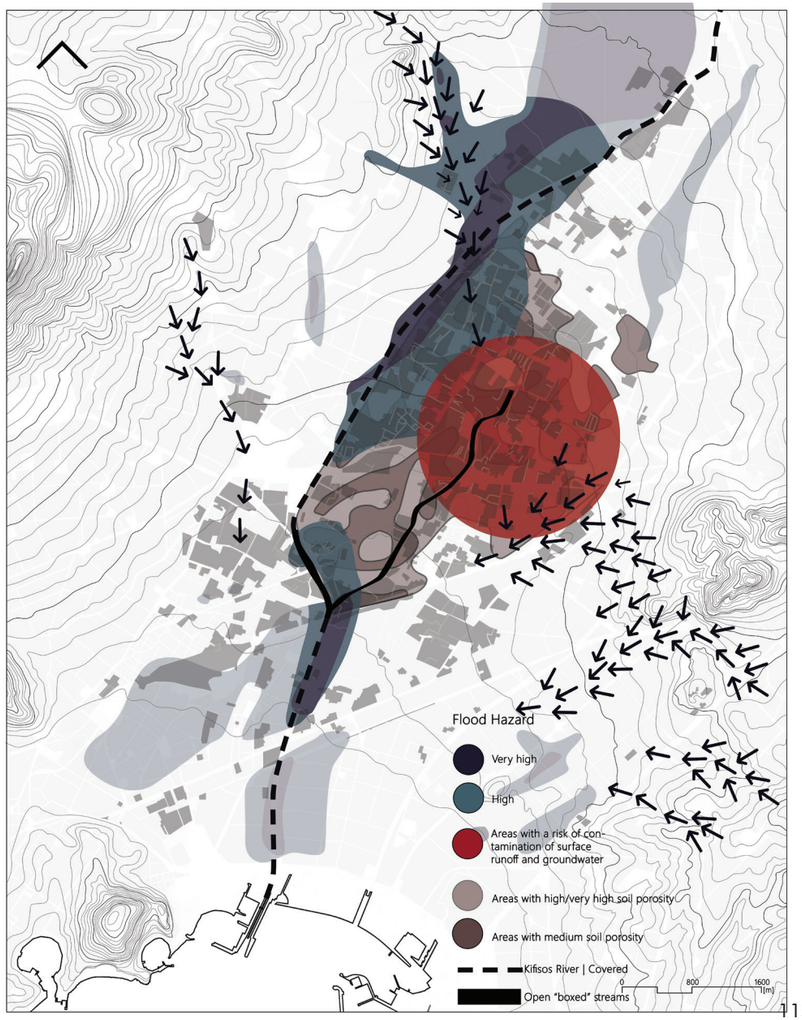
Activating existing anchors



Creating connections



Working with natural processes

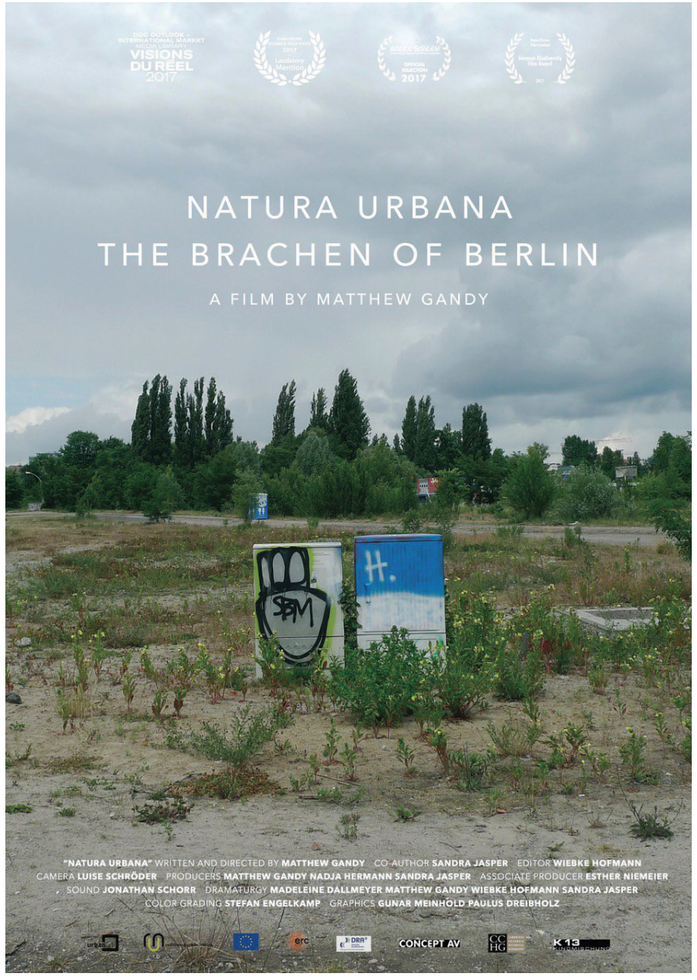


References

In order to proceed to a more detailed design approach for Eleonas, a series of projects regarding the ecological and cultural value of Third spaces and processes of urban transformation were used as reference.

"Natura Urbana-The Brachen of Berlin" by Matthew Gandy and Sandra Jasper.

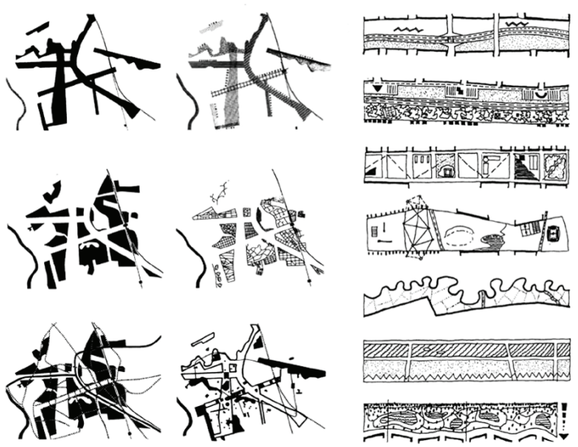
The project Natura Urbana is a study on the landscapes of the Third spaces in Berlin that were created either by geopolitical tensions or other processes of urban transformation. The Brachen, as these spaces are called in the film, are approached as "an array of unusual or unexpected biotopes" in which ruderal vegetation takes over through the cracks of pavements in empty parking lots, abandoned buildings and post-industrial spaces. On a broader level, this documentary attempts to obtain an in-depth understanding of the interplay between the "cultural and scientific" aspects of urban nature. A similar approach will be attempted in this project in the context of the Third spaces of Athens.



Duisburg Nord.
Transformation of concrete bunkers into enclosed gardens.
(Source: Latz+Partner, Landschafsarchitekten)

Landschaftspark Duisburg-Nord, Ruhr, Germany
Peter Latz & Partner, 1989-1999

Landschaftspark Duisburg-Nord is a 230 hectare landscape park created as part of the International Building Exhibition Emscher Park initiative to restructure the extensive industrial facilities along the Emscher River. Specifically, in the project of Duisburg-Nord, the derelict Thyssen steelworks plant is transformed into an area of recreation for the people of Duisburg. The main design principle applied by the designers in this project was the detailed reading and interpretation of the physical and spatial characteristics of this post-industrial landscape. Elements of past uses were preserved and new layers of activities and levels of human intervention were introduced. Old and new elements are combined into one landscape architectonic design. In addition, this project embraces the ruderal vegetation that emerged in several places of the factory by preserving it. (Weilacher, Syntax of Landscape, The Landscape Architecture of Peter Latz and Partners 1986).



Ville Nouvelle Melun-Sénart/France, 1987, the system of Bands and their layering, structure, and designation. Rem Koolhaas/OMA,
(Source: Lucan, OMA, Rem Koolhaas, 116–117 © 2015 OMA)

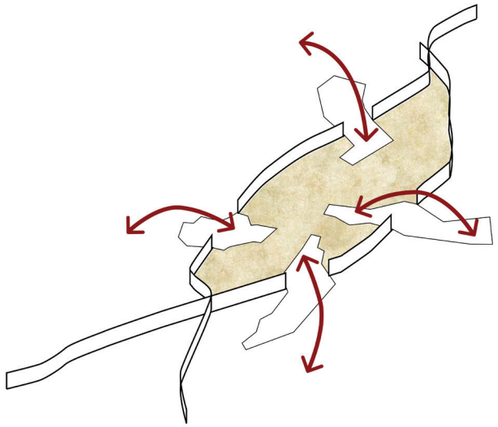
Ville Nouvelle Melun-Sénart, OMA, Paris, 1987

A proposal for the new city of Melun-Sénart in the north part of Paris. In this scheme, Rem Koolhaas proposes that the voids of the city, the left-out areas are essential parts of the design. The project consists of Bands of linear void areas that are areas of opportunity for activities that are not related to architecture. Between these bands, islands of urban web will develop according to the current practices of chaotic urban development. This method of "non-planning" influenced the design process of the Third spaces of Eleonas (Böck 2015, 91).

Design principles

The analysis presented above also led to the formulation of a set of design principles that can be applied for the transformation of the Third spaces of any city that has similar geographical, morphological and cultural backgrounds with Athens.

Creating connections



Based on the observation that most Third spaces in urban environments are isolated from the urban web either by infrastructure (highways, railway lines etc.) or by other spatial elements (walls, fences, natural boundaries etc.) the first design principle attempts the inversion of the introvert character of the Third spaces and their transformation into accessible and permeable spaces.

Identifying and utilizing the voids

Initiation of the landscape architectonic design from the open spaces. The buildings found in the site are in the background, playing a secondary role in the design.

The design is determined by what should not be built.

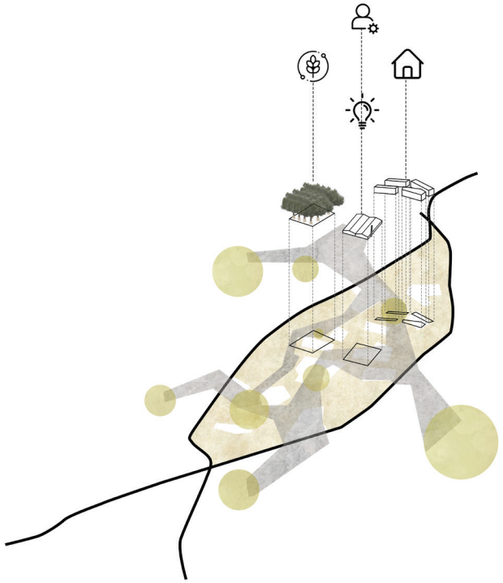
Activating existing “anchors”

Appreciation and creative interpretation of existing elements of cultural importance and integration in the new landscape architectonic design. Such elements (both recognized monuments and Third spaces) manifest the historical evolution of Eleonas and have contributed to the shaping of the existing situation. The use of dynamic materials such as plants in the reactivation process allows the design to mutate and change constantly.

Creating networks

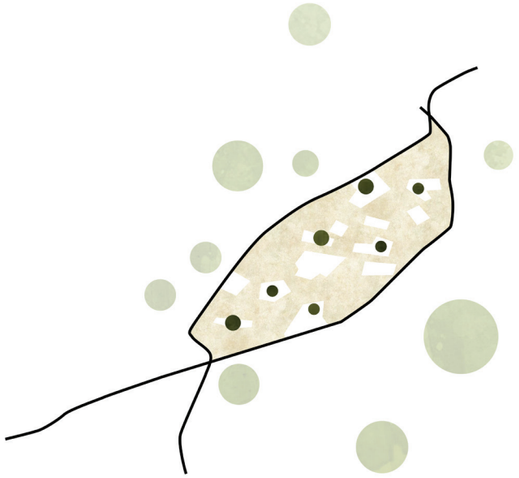
Creation of new networks of connections between the anchors and the context. Use of the Third spaces as the connecting element.

Introducing new layers & activities



In order to transform the Third spaces into areas of public life it is imperative to introduce new land uses and activities that will attract people in both a local and supra-local level. In order to do that, existing components can be re-purposed and recycled (for example the existing building stock) and new elements can be introduced. By doing so, different levels of human intervention are introduced.

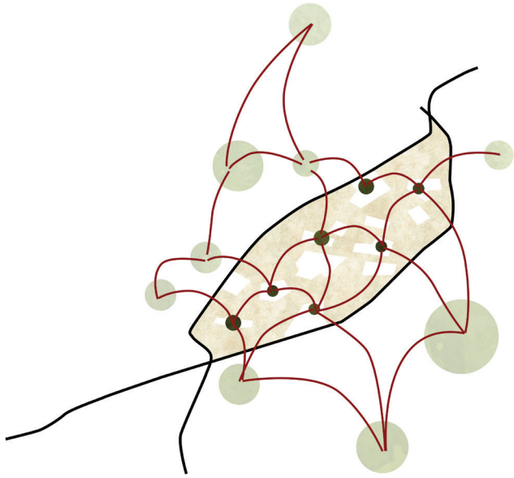
Enhancing Ruderal Refugia



Transformation of ecological patches in the existing Third spaces into Ruderal Refugia in order to enhance the ecological continuum and observe the succession processes of each biotope. Such spaces are introduced for Scientific observation & aesthetic variety.

Third spaces with exposed soil and a strong presence of spontaneous vegetation. Patches that present the opportunity to enhance the ecological continuum of Eleonas.

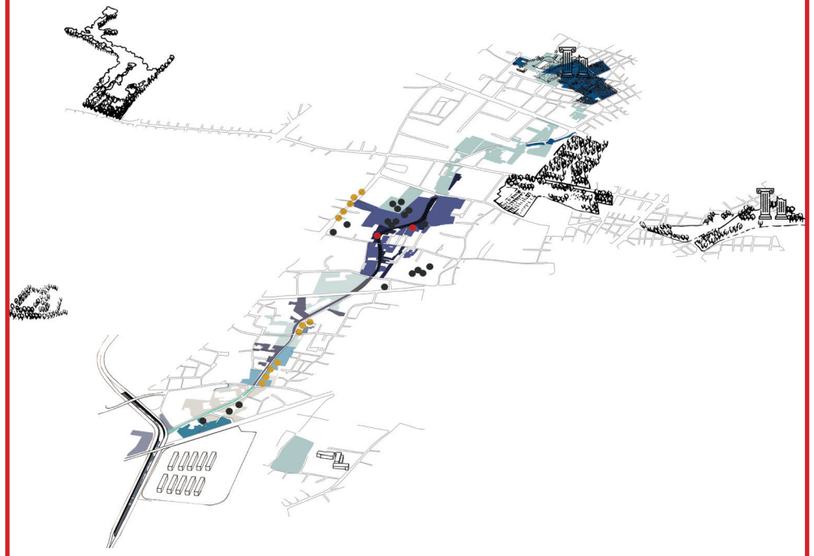
Creating stepping stone connectivity between biotopes



Part IV: DESIGN

PROPOSED PROJECTS

A. THE STREAM PROJECT



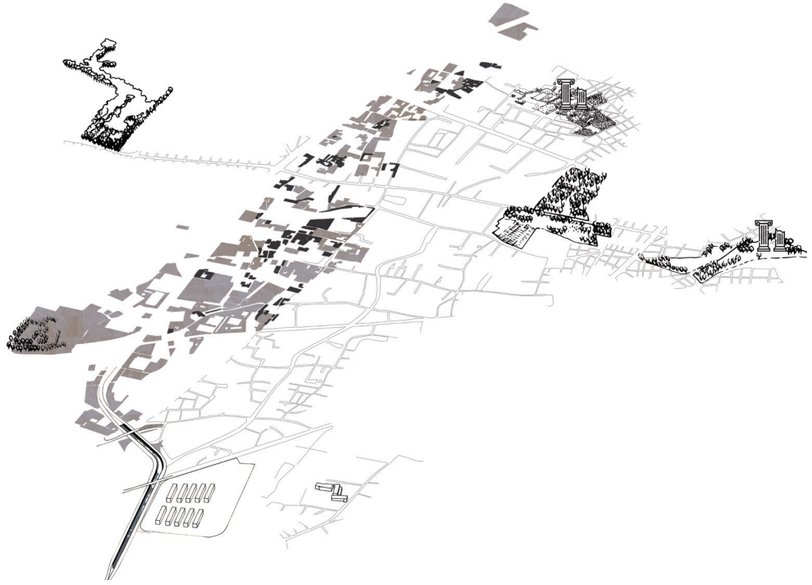
Inversion of the “introvert” character of the stream by accessing the post-industrial remnants through the dead ends.

Transformation into a spine of public spaces that connect Plato’s Academy from the north to the open part of Kifisos river in the south.

Focus on pedestrian circulation

Attached to the spine will be activities related to ecology, education and recreation.

B. THE FLOOD MARSHES

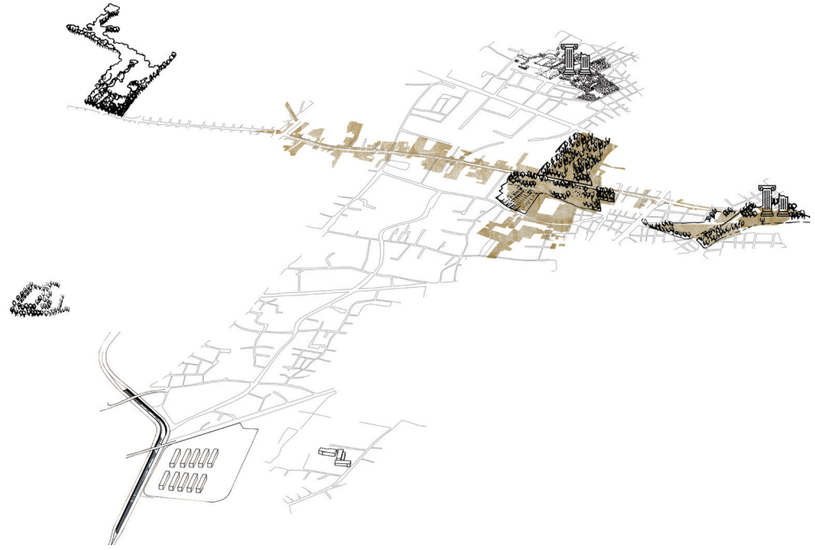


Use of dead ends and post-industrial remnants to dissolve the “labyrinth” sense of the space

Use of flood events to hold and recycle rainwater and/or delay it from reaching the undergournd drainage system.

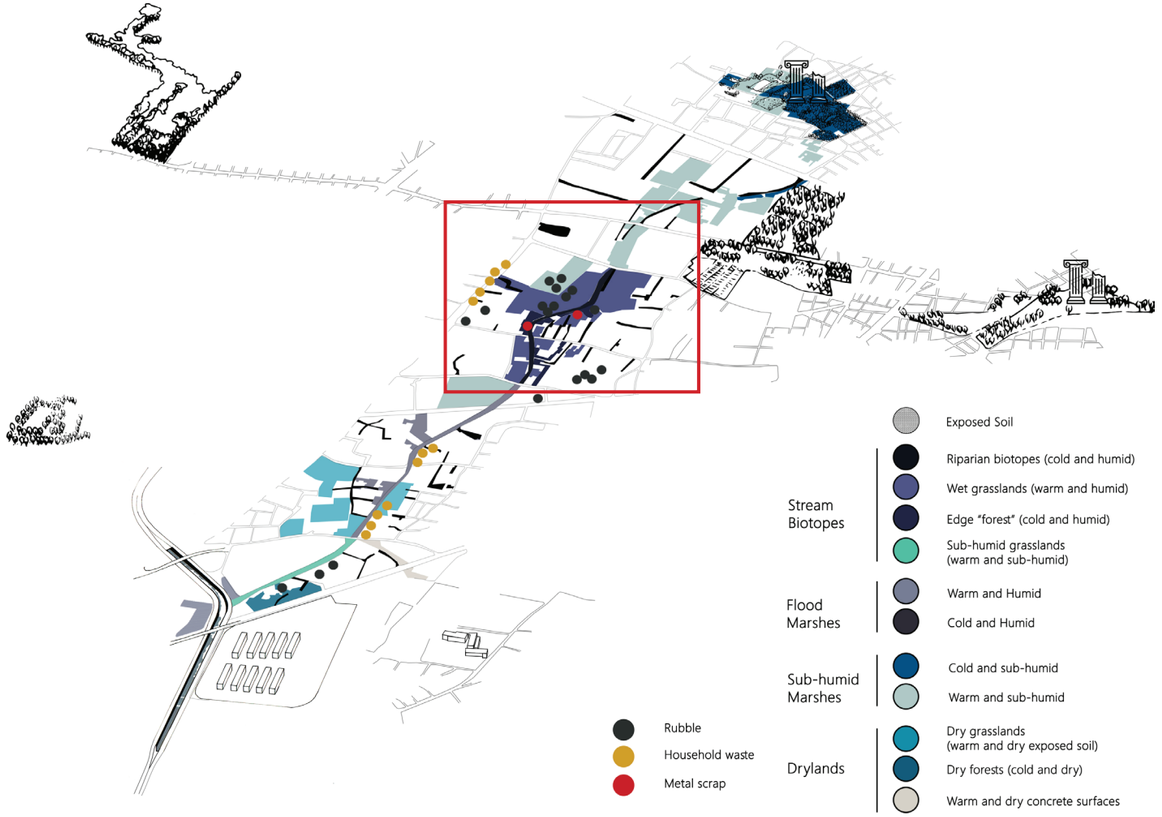
Use of the post-industrial remnants to make “pockets” of green spaces.
These could either be used as both spaces of ecology and public life or they could be used only for ecological purposes.

C. IERA ODOS

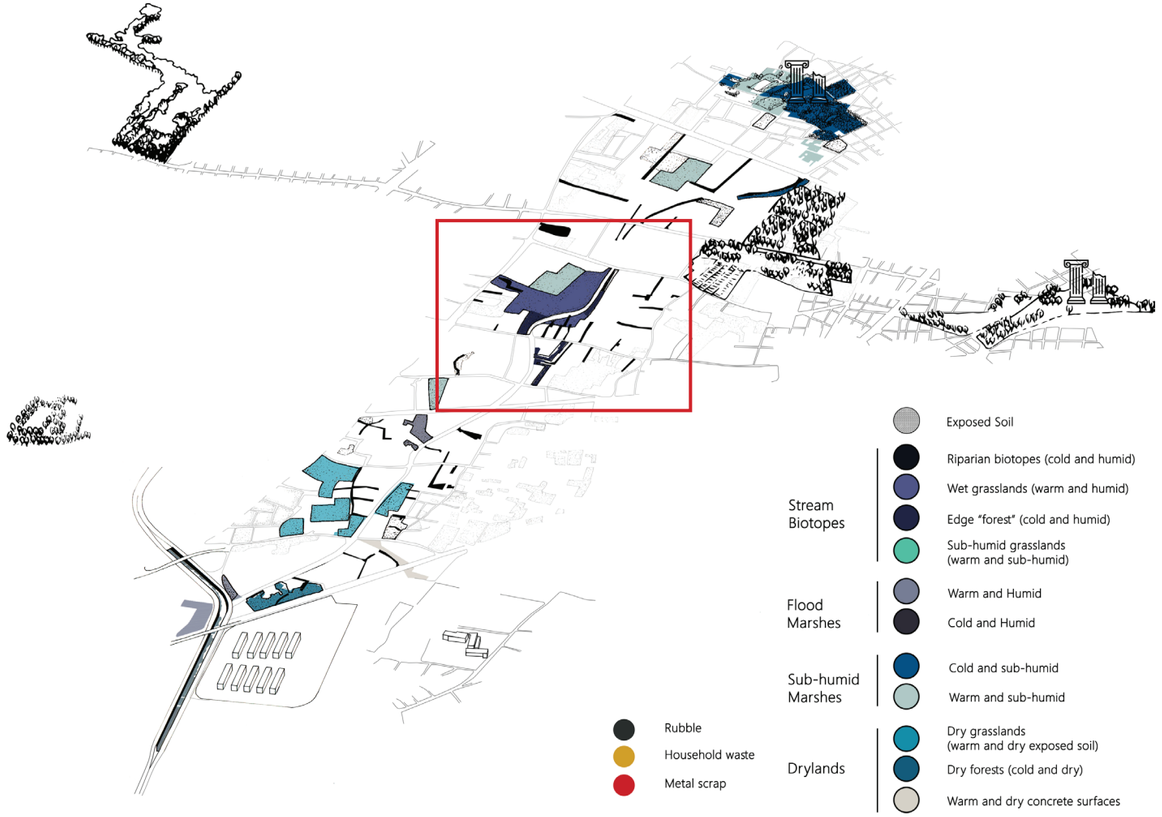


An urban corridor with pockets of ecology.

PROPHET DANIEL STREAM



Third spaces attached along the stream

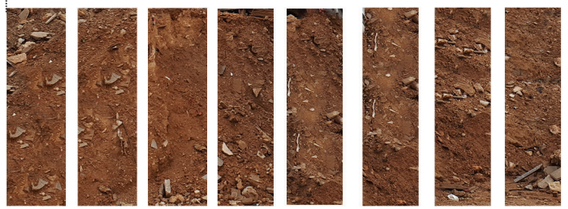


Identifying the Ruderal refugia

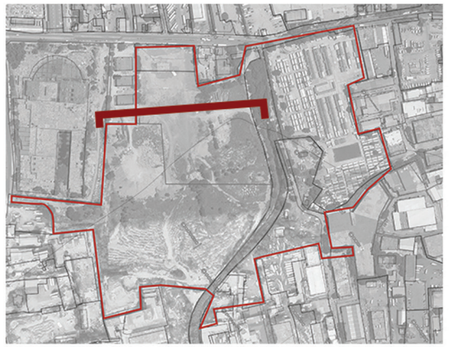
Spatial elements of the Third spaces | Behind the dead ends

Stream | Riparian Vegetation

Mounds of excavated soil
opportunity for new spatial qualities



Vegetation along the walls



Mounds of rubble and plastic
opportunity for new spatial qualities & ecological diversity

Stream | Riparian Vegetation

Prophet Daniel stream
Landscape architectonic design

Creating networks

In order to create corridors of connection between the stream, the anchors and the surrounding urban web i am using the third spaces and the dead ends of the area. Biodiversity is less prominent in these corridors, however, attached to them are patches of ruderal refugia and orchards or community gardens.

Activating existing anchors

In the context of the chosen part of the stream the anchors with which i am attempting to connect are the Agricultural University of Athens to the east of the stream, the new transit hub (currently under construction) to the west and a residential cluster to the southern part of the stream.

Identifying and utilizing the voids

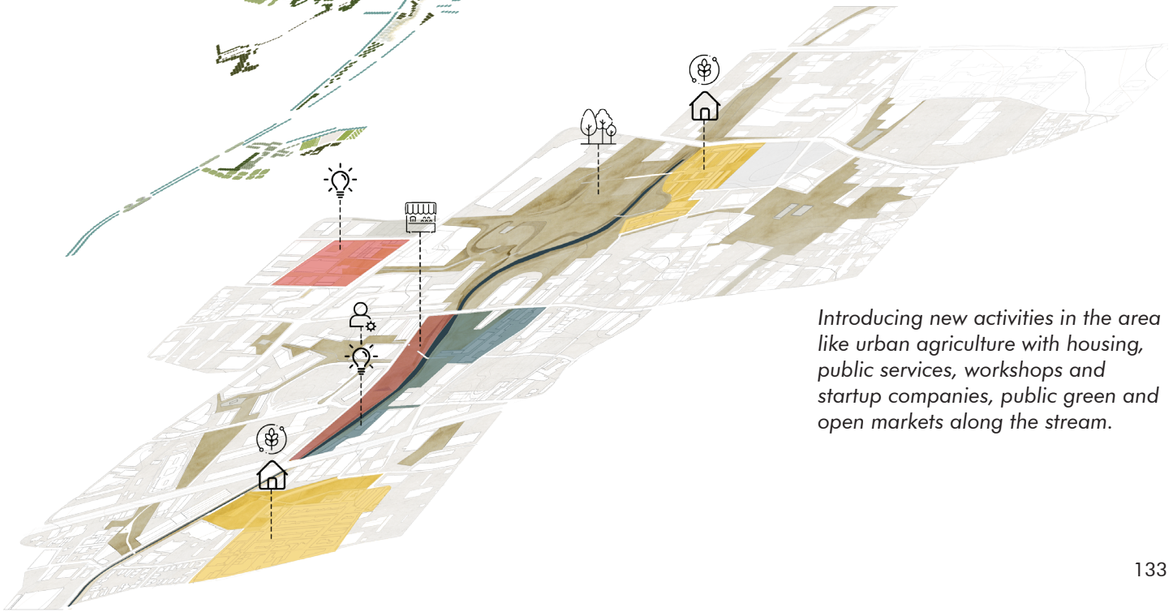
Starting the design from the open spaces along the stream in the areas available for appropriation according to the 1995 city plan.

Re-purposing existing building stock
New buildings

Introducing new layers & activities

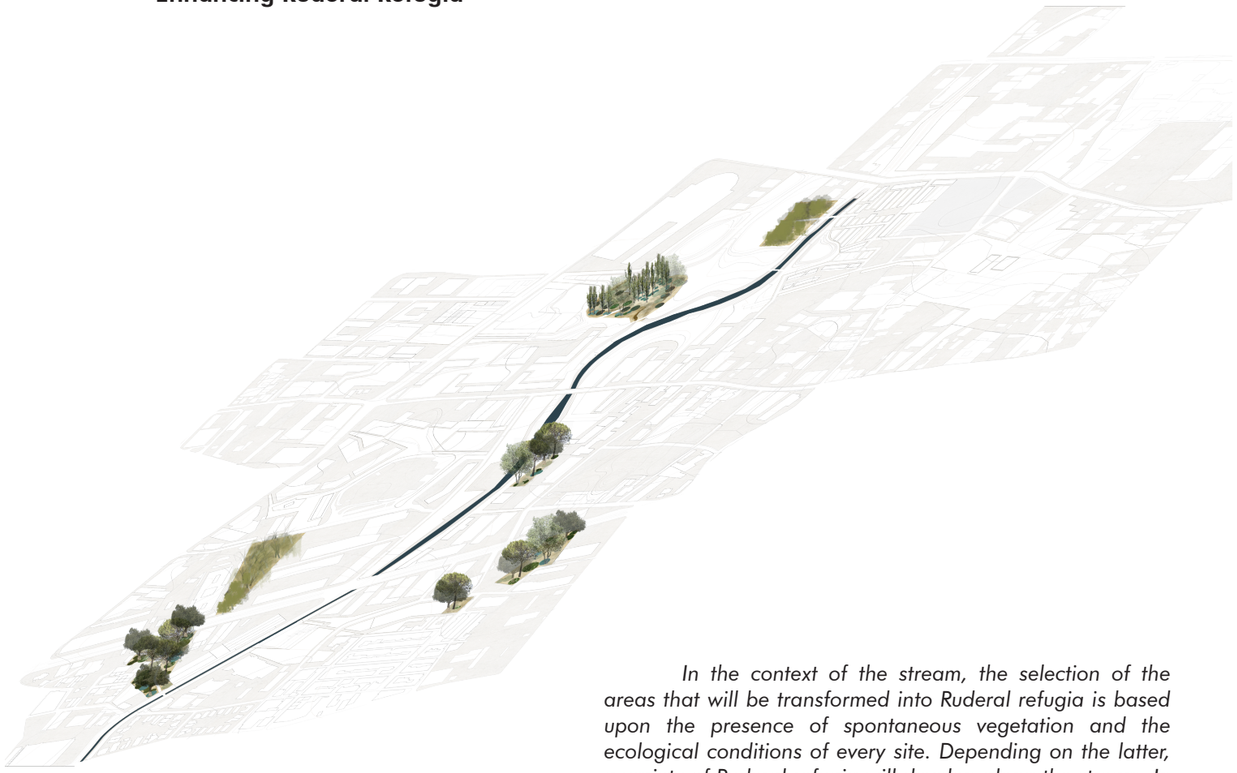
Connecting elements

Vegetation



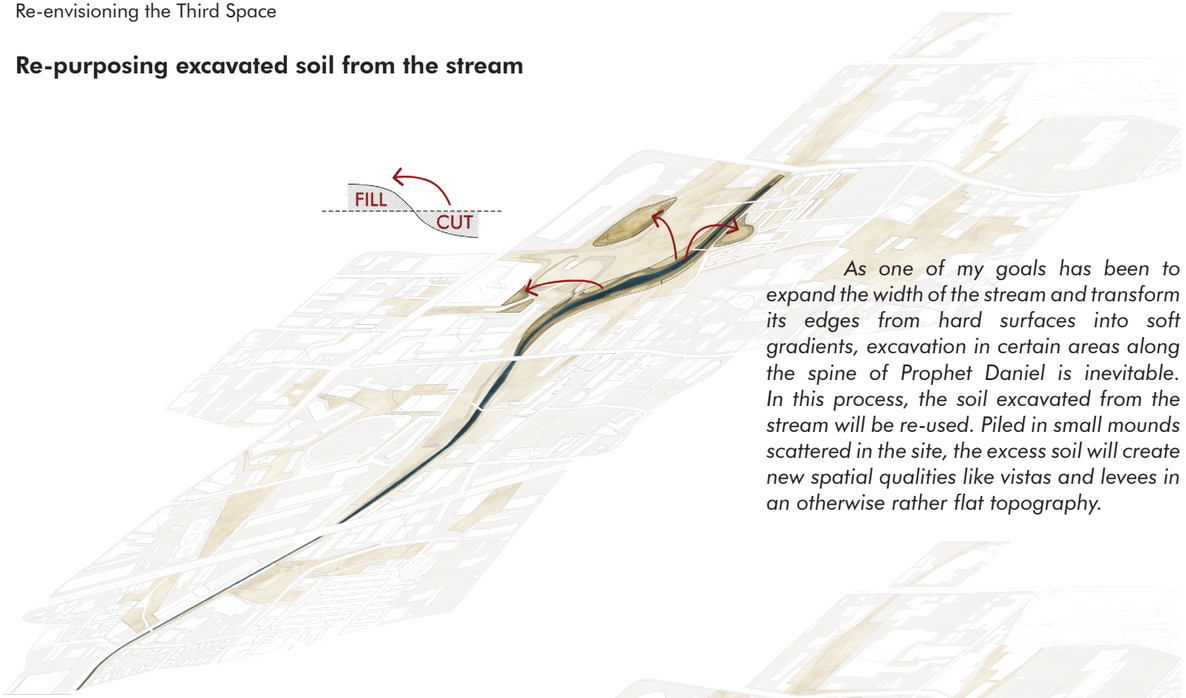
Introducing new activities in the area like urban agriculture with housing, public services, workshops and startup companies, public green and open markets along the stream.

Enhancing Ruderal Refugia



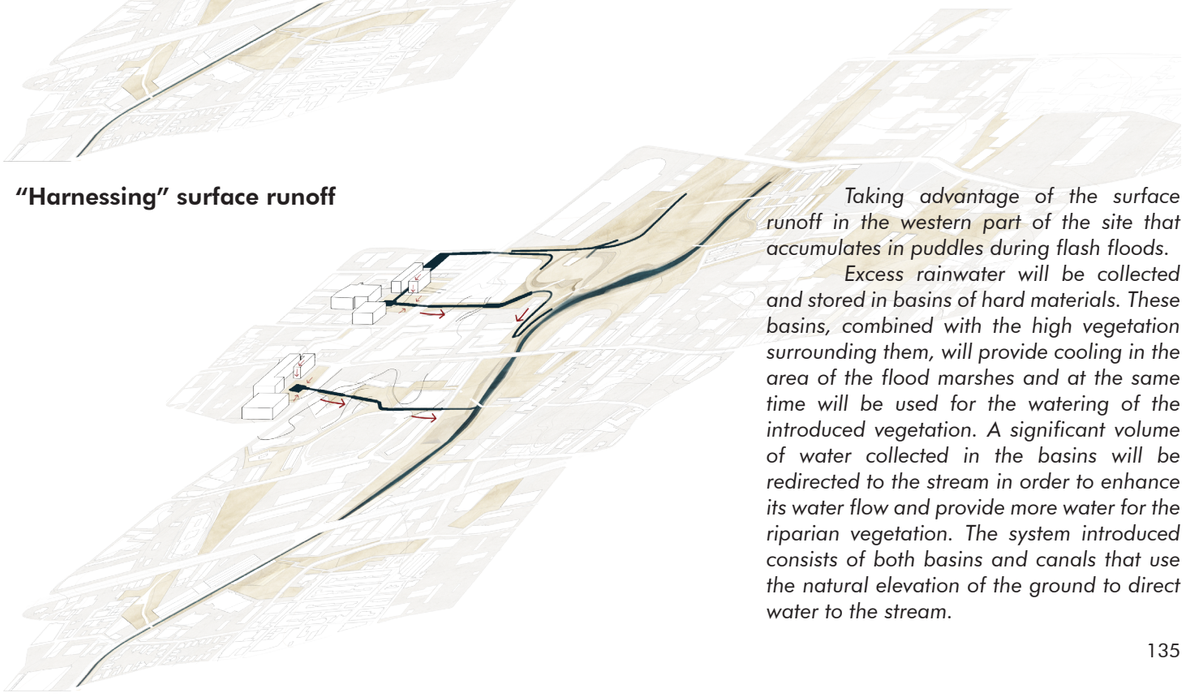
In the context of the stream, the selection of the areas that will be transformed into Ruderal refugia is based upon the presence of spontaneous vegetation and the ecological conditions of every site. Depending on the latter, a variety of Ruderal refugia will develop along the stream. In order to ensure the unhindered ecological succession of the spontaneous species in the Refugia it was imperative that i do not interfere with them in any way. As a result, these will be areas of zero maintenance and human interference. In some of the refugia, visitors will be able to walk through them in order to experience the space created by urban wildlife, while in others, visitors will only be allowed to observe the refugia from a distance.

Re-purposing excavated soil from the stream



As one of my goals has been to expand the width of the stream and transform its edges from hard surfaces into soft gradients, excavation in certain areas along the spine of Prophet Daniel is inevitable. In this process, the soil excavated from the stream will be re-used. Piled in small mounds scattered in the site, the excess soil will create new spatial qualities like vistas and levees in an otherwise rather flat topography.

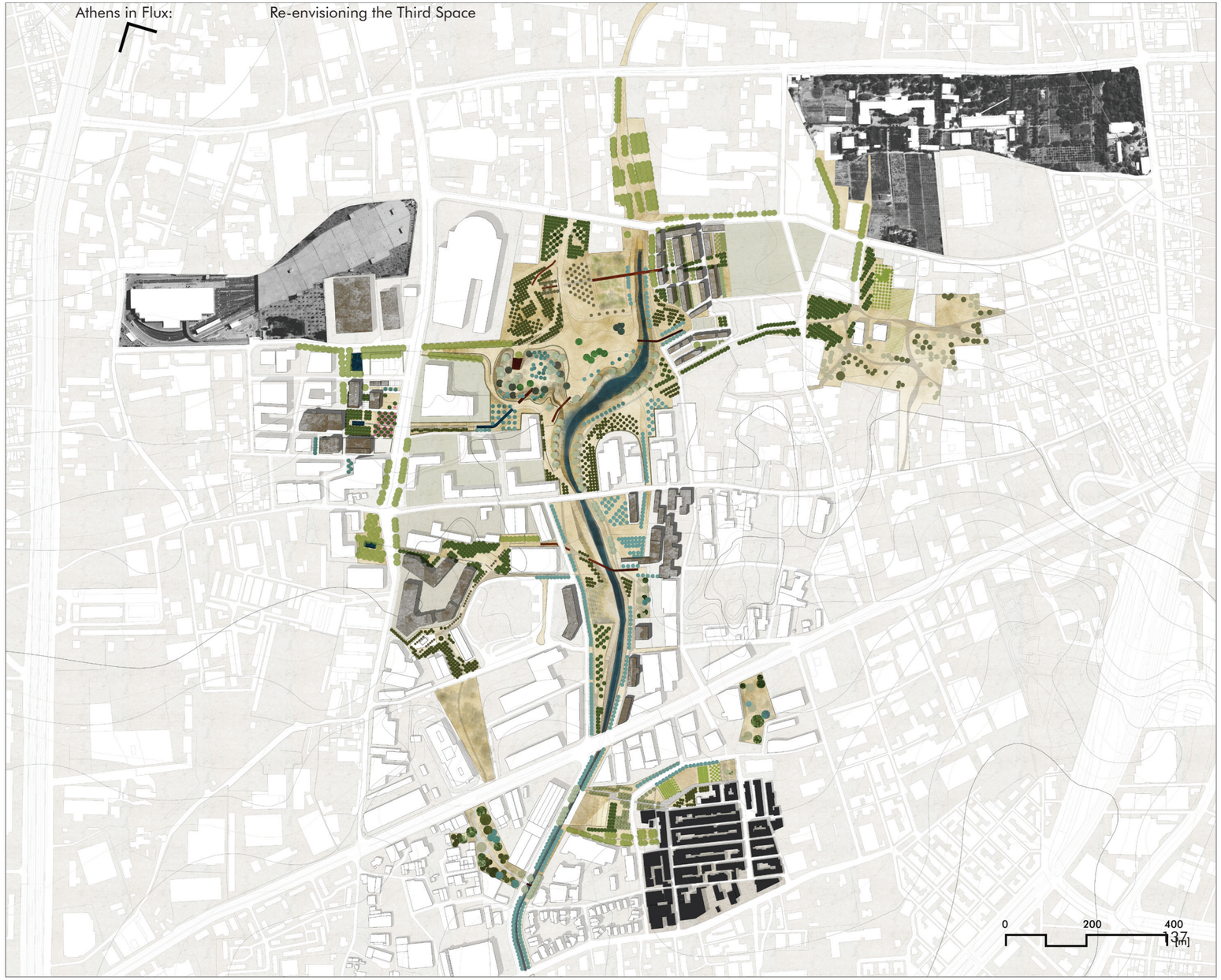
"Harnessing" surface runoff



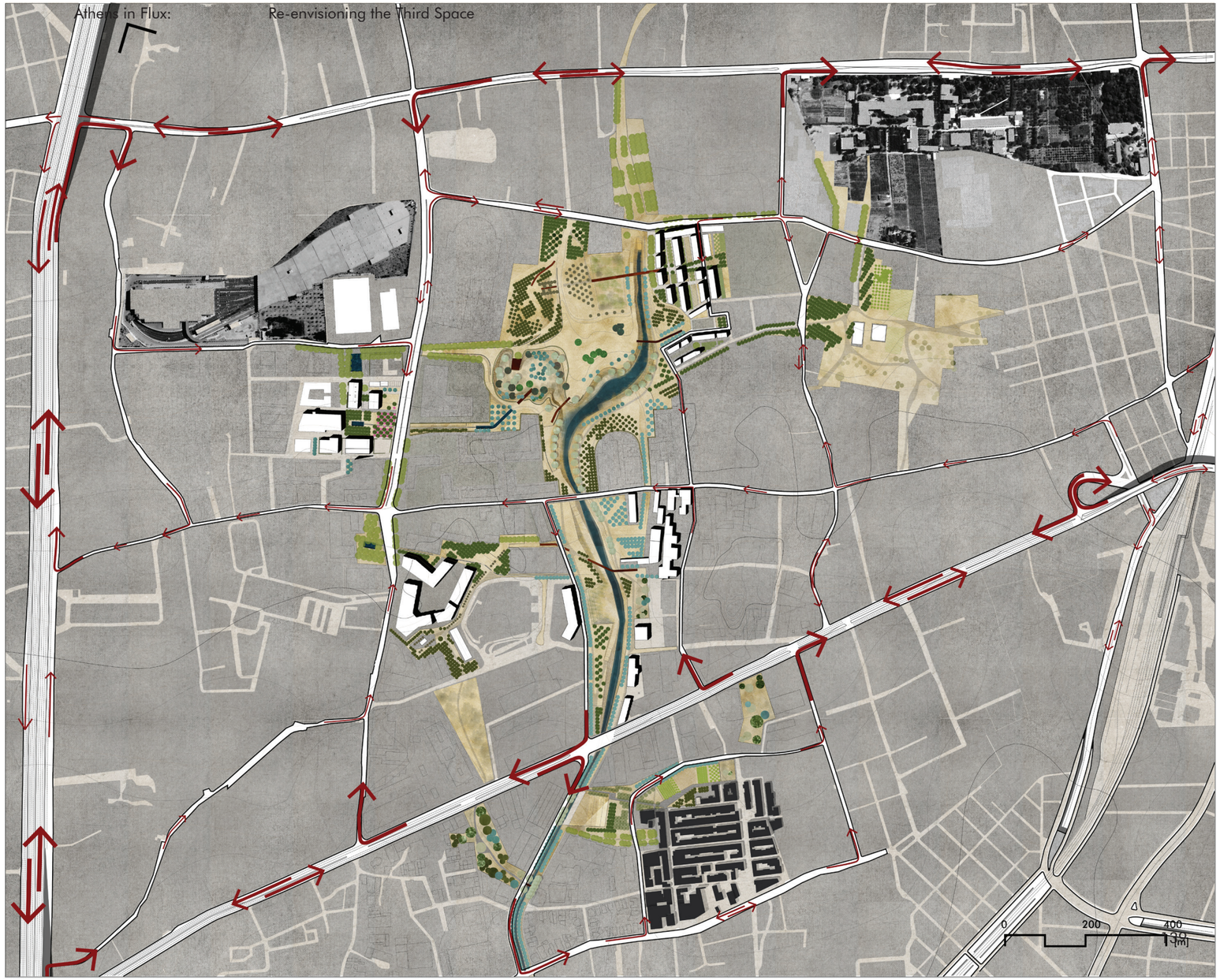
Taking advantage of the surface runoff in the western part of the site that accumulates in puddles during flash floods.

Excess rainwater will be collected and stored in basins of hard materials. These basins, combined with the high vegetation surrounding them, will provide cooling in the area of the flood marshes and at the same time will be used for the watering of the introduced vegetation. A significant volume of water collected in the basins will be redirected to the stream in order to enhance its water flow and provide more water for the riparian vegetation. The system introduced consists of both basins and canals that use the natural elevation of the ground to direct water to the stream.

Masterplan



Connectivity

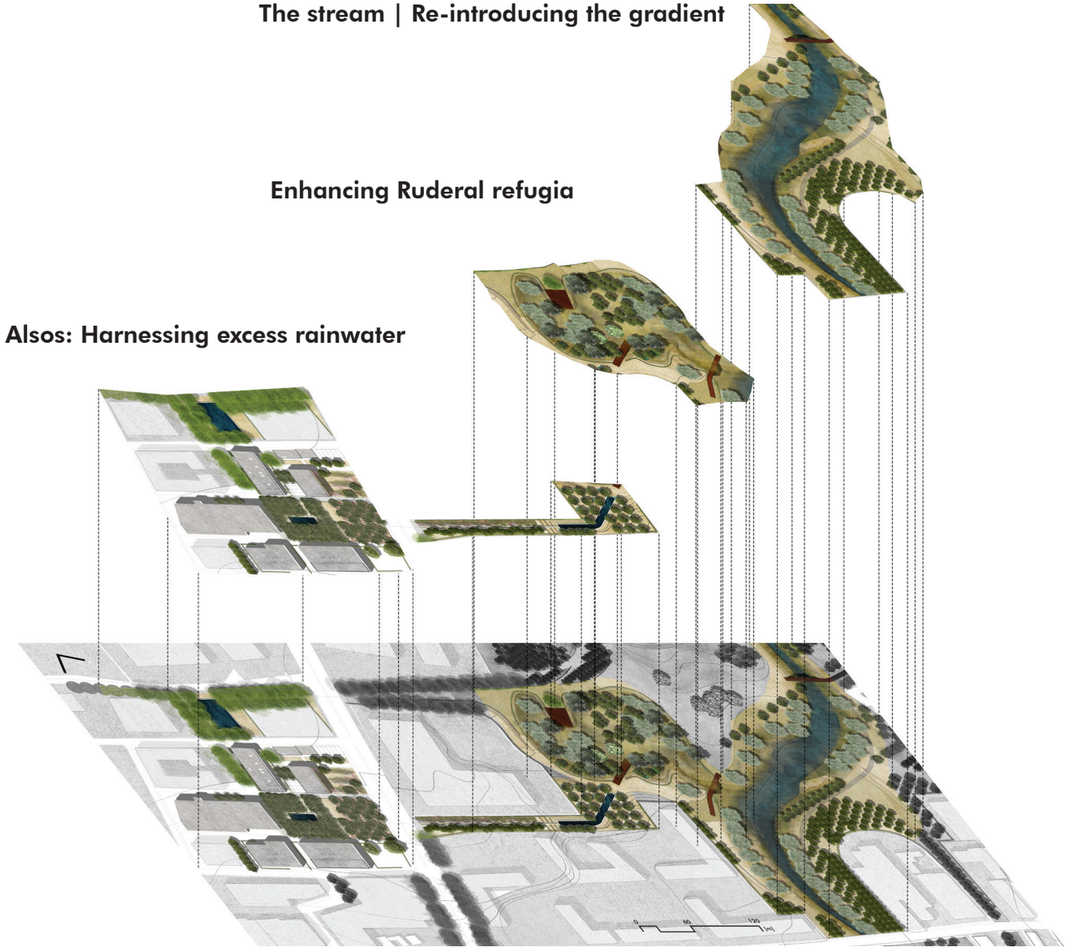


THE FLOOD MARSHES

The stream | Re-introducing the gradient

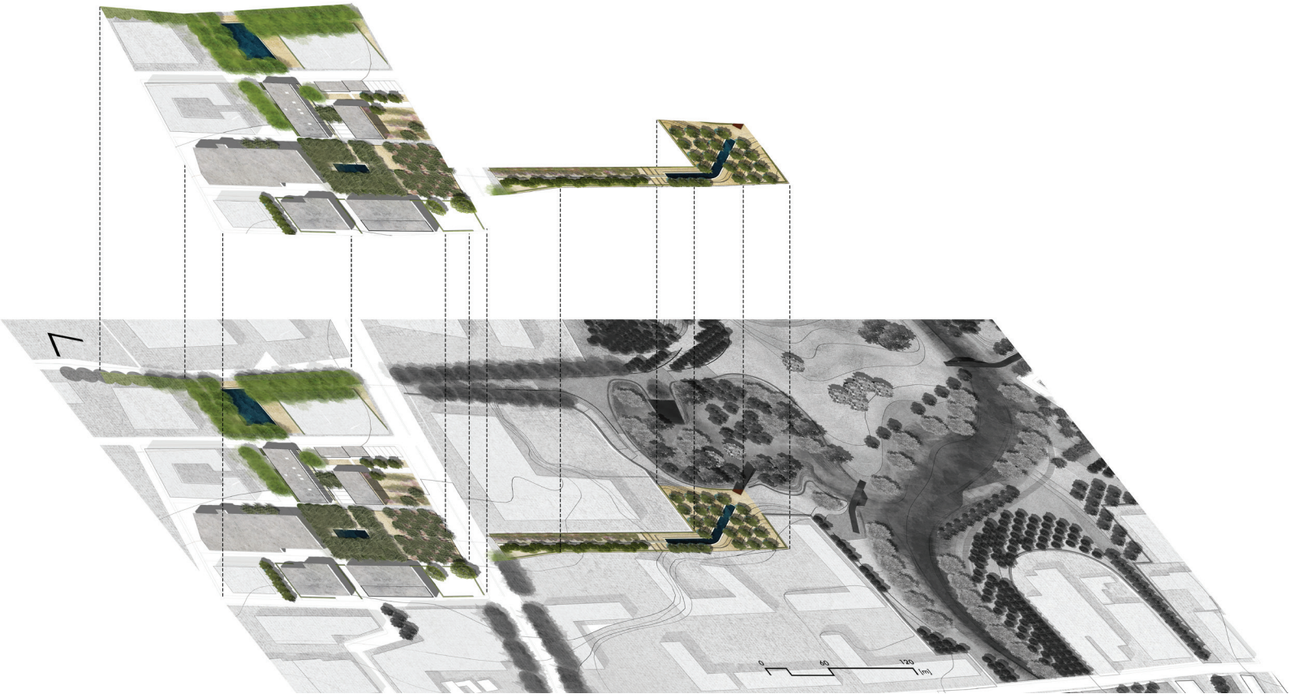
Enhancing Ruderal refugia

Alsos: Harnessing excess rainwater



THE FLOOD MARSHES 25 YEARS FROM NOW
0
60
120
[m]

Alsos: Harnessing excess rainwater



“Harnessing” surface runoff

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ALSE | ALSOS | ἄλσος

Design the groves surrounding the water basins as a reference to the sacred groves of archaic, classical and post-classical eras.

- Alsos is like a temenos, a delimited place, sacred to the gods but it is planted, even if not always extensively.
- They can consist of only a few trees, wild or planted, with or without flowers, on a large or small scale and of high or low aesthetic interest.
Green foliage and cool shade predominate […] and are part of the topos (τόπος)

(Source: Bonnechere P., “The Place of the Sacred Grove (Alsos) in the Mantic Rituals of Greece: The Example of the Alsos of Trophonios at Lebadeia (Boeotia)” in Michel Conan (ed.) Sacred Gardens and Landscapes: Ritual and Agency, Washington, DC: Dumbarton Oaks, 2002, pp. 17-42)

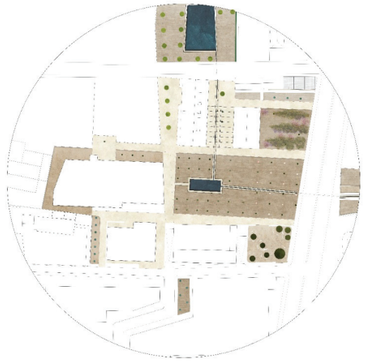
Development Phases | Ecological Succession

CONNECTING CORRIDORS

Creation of two corridors of connection between the Alse and the Ruderal refugia. The chosen vegetation (Gleditsia Triacanthos) in the connection of the northern part provides shade and cooling.

In addition, the connection of the southern part creates a route that stimulates all senses. In the alse, the combination of olive and almond trees (Olea Europaea, Prunus dulcis) creates a pleasing visual effect. Following that, along the corridor of the canal connecting the water basins, a series of herbs (Lavandula stoechas, Origanum vulgare, Rosmarinus officinalis, Thymus vulgaris) stimulate the olfactory senses, while a clump of Aleppo pines (Pinus halepensis) provides shade for pedestrians. Finally, the route leads to a "sound room" where poplars (Populus alba) surround the last water basin and through the movement of their leaves, produce a particular sound.

5 YEARS



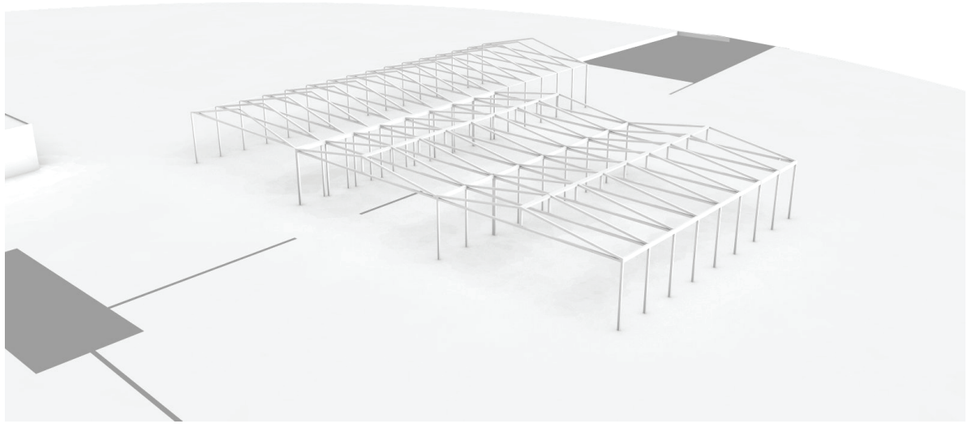
Public space
& water network

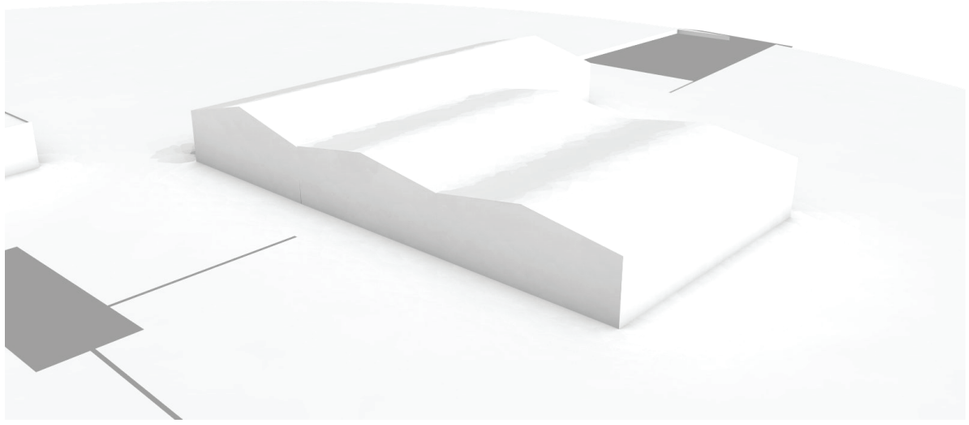
10 YEARS

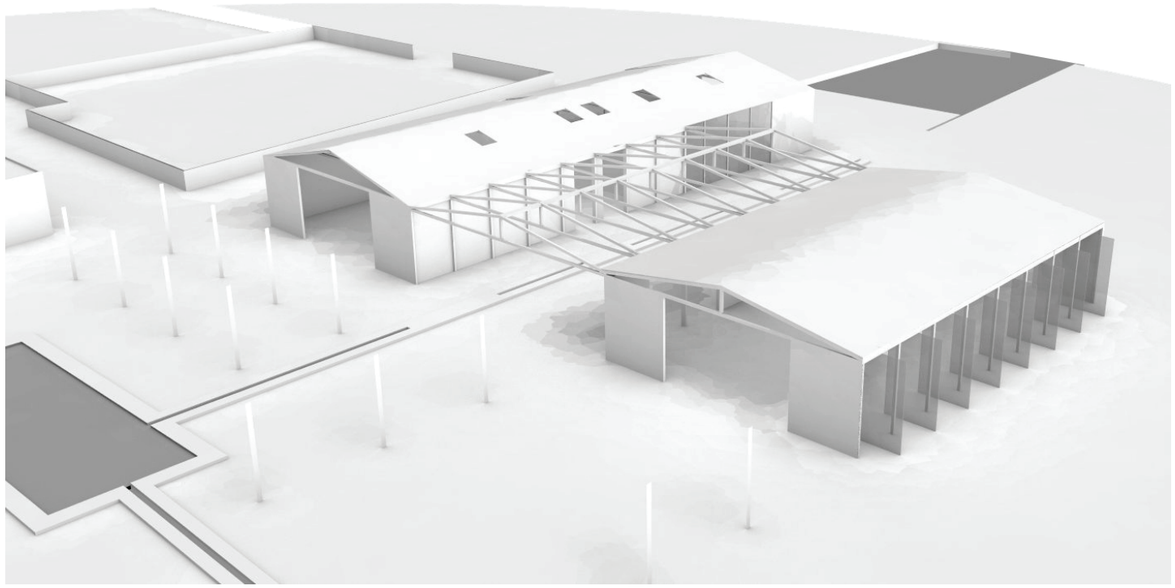
Introduction of local commerce,
startup companies & recreation
Re-purposing existing buildings

25 YEARS

Introduction of student housing



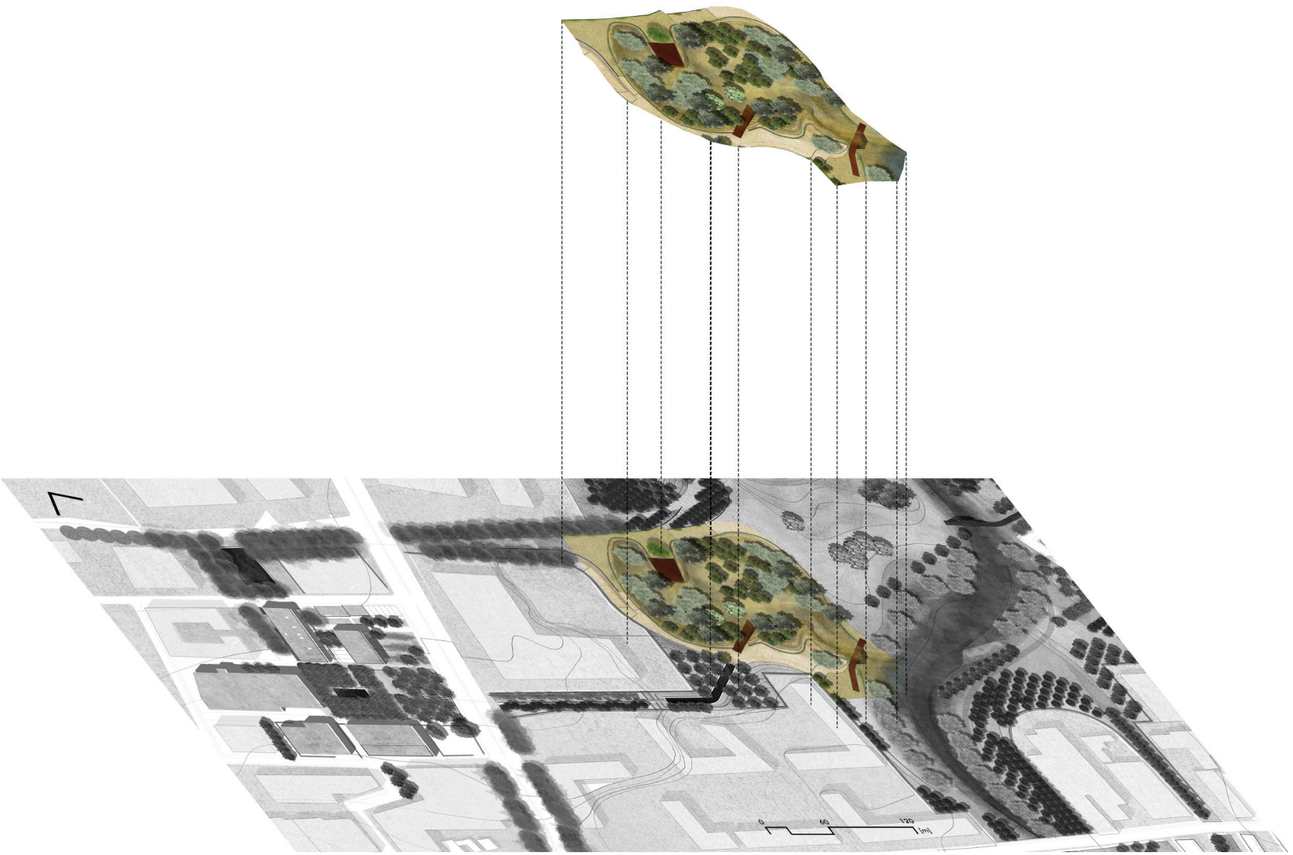




The majority of buildings found in the area are storage facilities with a light bearing structure or concrete constructions of columns and beams.

In the process of transforming the area surrounding the water basin, the storage buildings will be transformed into workshops for startup companies and recreational spaces. The transformation will entail the replacement of harming materials in the buildings and the removal of the outer skin of the middle storage building in order to create a connection between the two basins and a public space addressed to the people working in the startup companies.

Enhancing Ruderal refugia



RUDERAL REFUGIA | RIPARIAN FOREST | HYLE | ὕλη

Transformation of an existing Third space into ruderal refugia. The area was formerly a construction site, in which soil was excavated in order to lay the foundations of a building. However, the process was abandoned due to various reasons, leaving a "pit", 4 meters deep, under the influence of natural processes. As a result, spontaneous vegetation started to appear.

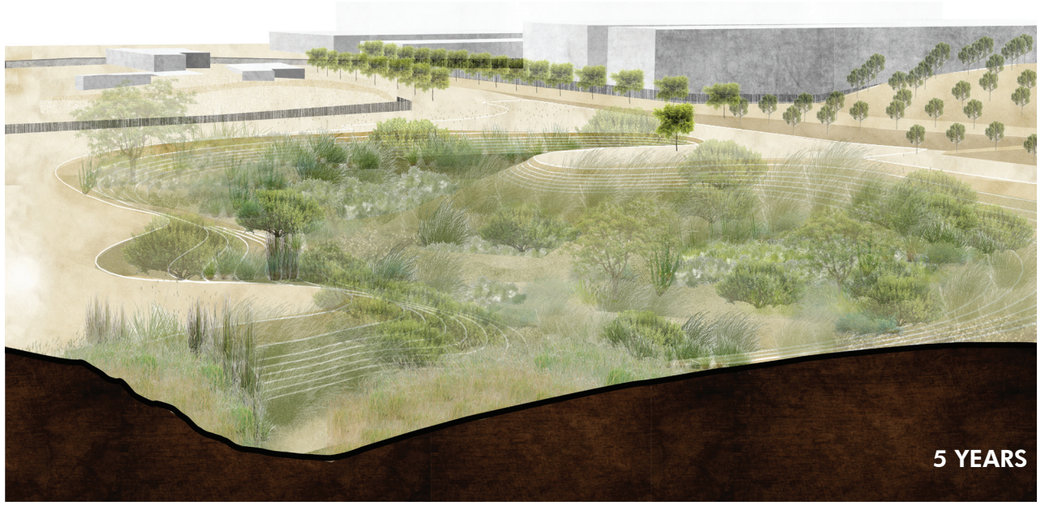
In this part of the site, the aim of the landscape architectonic design is to not interfere at all and allow ecological succession to take place. The existing height difference of the pit is a natural boundary that hinders access to the site. The only interference are a series of small scale interventions, like low hedges surrounding the pit (to create a boundary for the protection of pedestrians walking around it) and observation points.

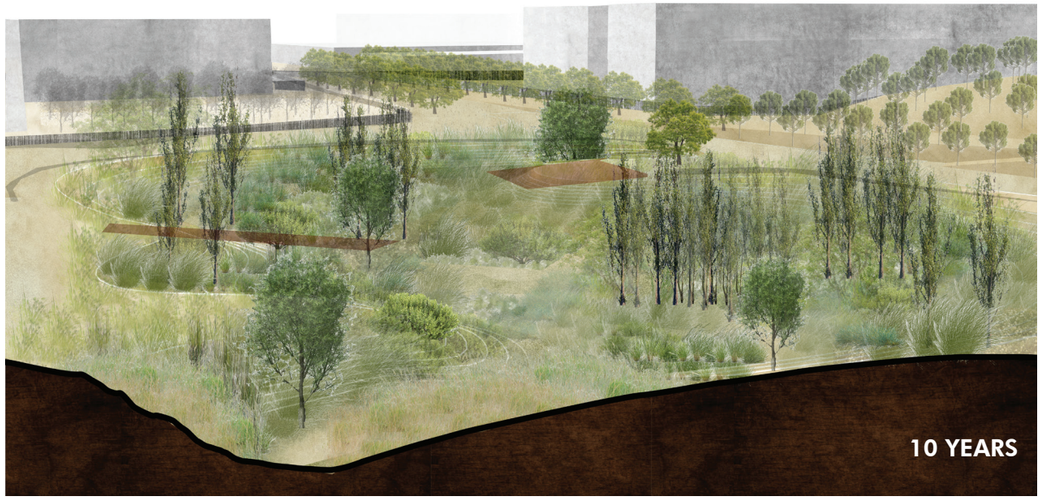
In addition, due to the proximity of the area to the stream, the ruderal vegetation will enentually transform into a Riparian forest through the process of ecological succession. That is, a forest consisting of Salix alba & Populus alba galleries. As the area will become a wild and unattended forest, i will be using the term ὕλη | **hyle** to describe it, which in ancient Greece was *A wild, untended forest consisting of trees that do not bear fruit.*

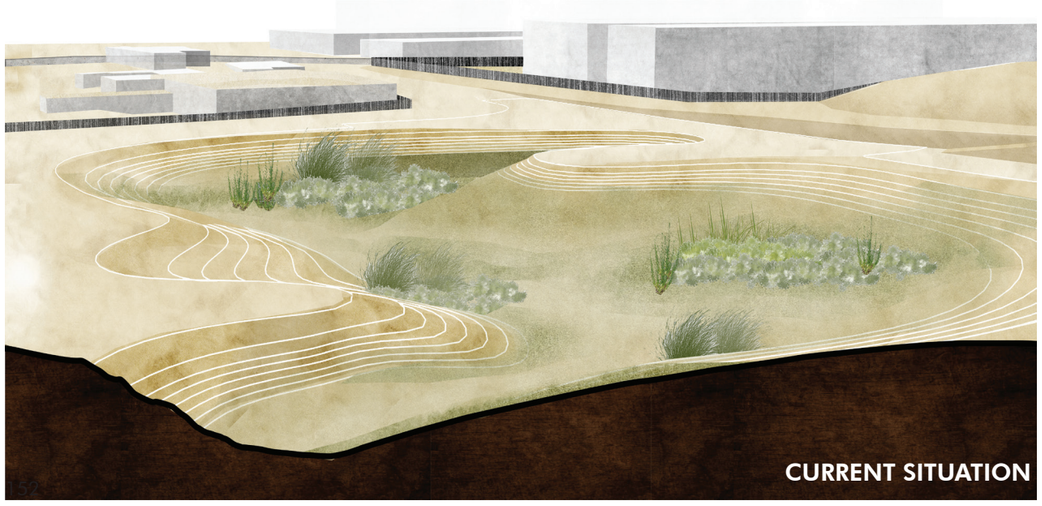
Hyle […] grows thick with trees and is not groomed.

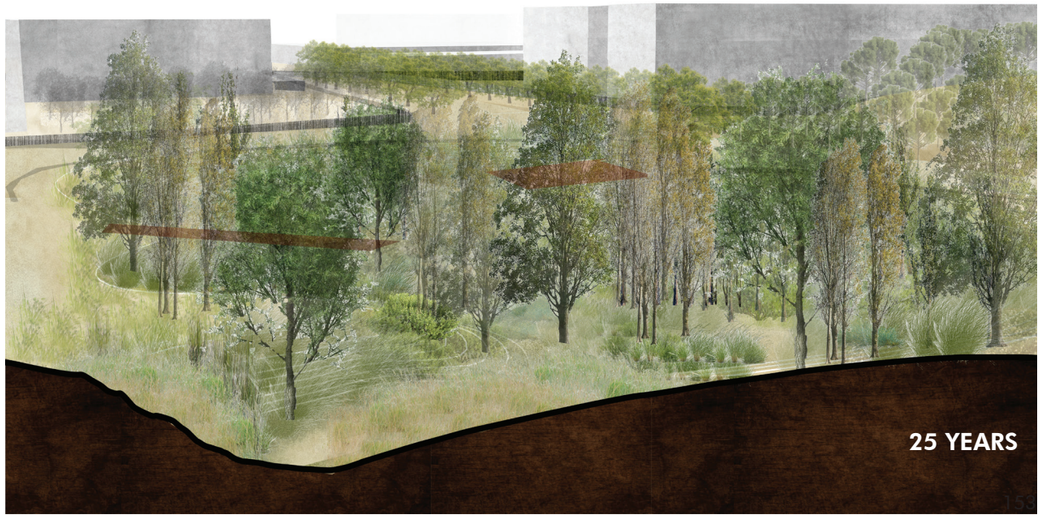
(Source: Bonnechere P., "The Place of the Sacred Grove (Alsos) in the Mantic Rituals of Greece: The Example of the Alsos of Trophonios at Lebadeia (Boeotia)" in Michel Conan (ed.) Sacred Gardens and Landscapes: Ritual and Agency, Washington, DC: Dumbarton Oaks, 2002, pp. 17-42)

Ecological succession in the ruderal refugia





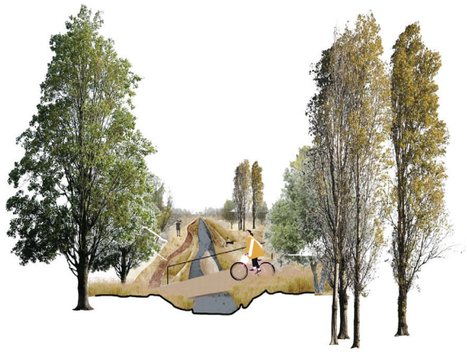


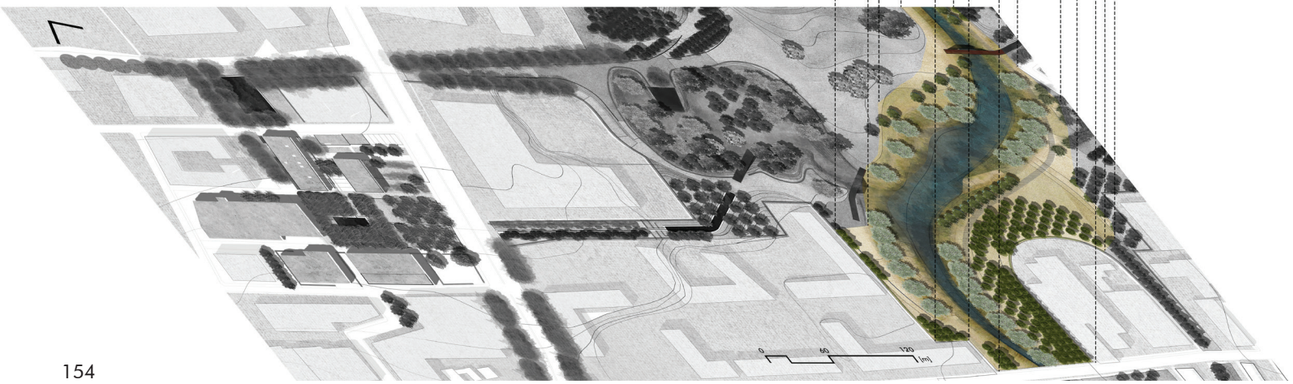


The stream | Re-introducing the gradient

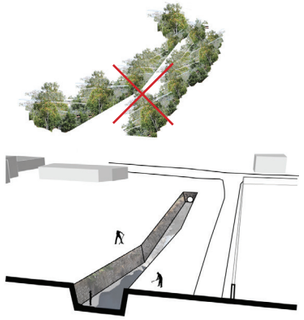
One of the goals of the landscape architectonic design has been to expand the width of the stream and transform its edges from hard into soft surfaces, therefore excavating in certain areas along the spine of Prophet Daniel.

The purpose of this action is to give room to the stream and allow the formation of an ecological gradient, from Aquatic to Riparian and Terrestrial ecosystems.

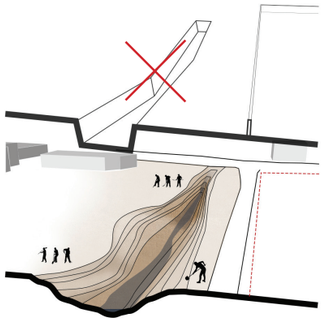




Stream transformation process

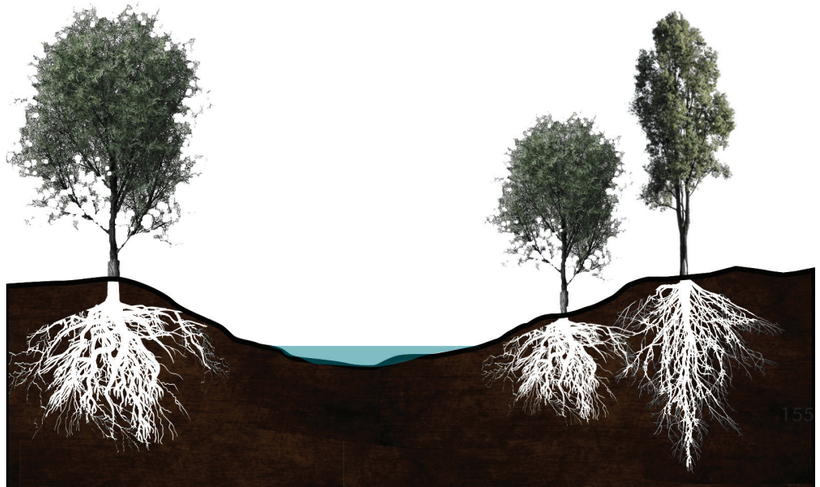


Breaking down the concrete boundary of the stream.



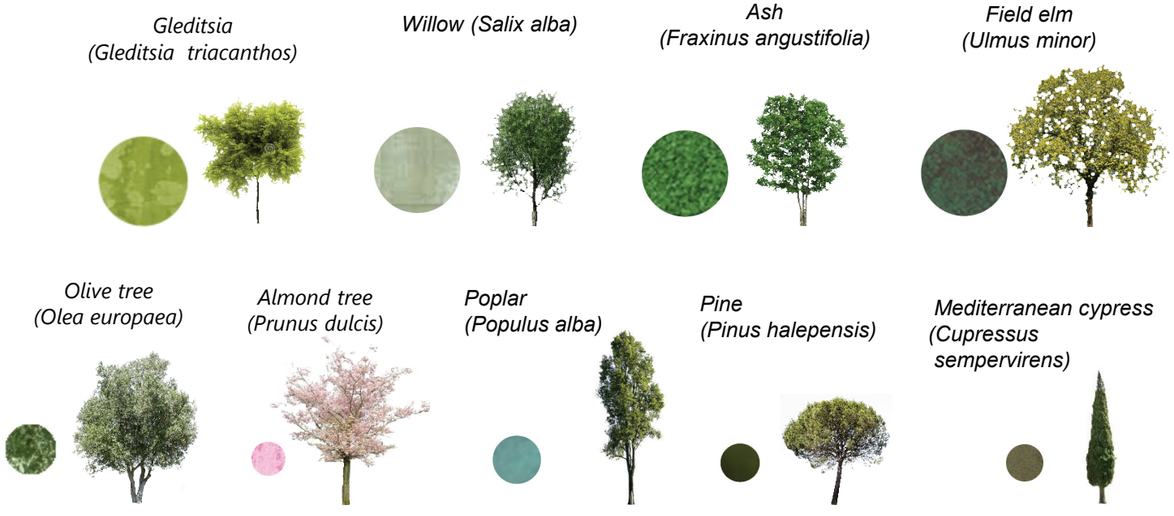
Changing the stream edges from hard to soft. Planting the first layers of vegetation that will start purifying the water and the soil in the area. For example, planting reeds (Phragmites australis (Cav.) Tri. ex. Steud) that will function as helophyte filters.

Following that, attempting to create a gradient of vegetation by planting riparian species and trees (Salix alba) along the stream that will "hold" the soil along its edges and provide new spatial qualities.



Bank stabilization
The edges of the stream are stabilized through the root system of willows and poplars planted along the stream.

Vegetation plan

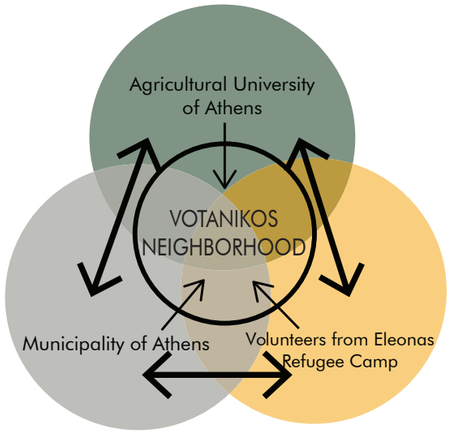


Spatial experience | From the flood marshes to the stream

VOTANIKOS NEIGHBORHOOD

MAIN CHARACTERISTICS:

1. **Eleonas Refugee Camp:**
   Since 2015
   Currently hosting 1470 refugees in 297 units (containers)
   A TEMPORARY FACILITY
2. **Prophet Daniel Stream**
   A natural boundary to the camp
3. **Soil contamination from industrial activities**
4. **Existing anchors nearby:** Agricultural University of Athens



AIM OF DESIGN PROPOSAL

The project will be a result of the collaboration between three stakeholders: members of the Agricultural School, the permanent residents of the municipality of Athens and volunteers from the refugee camp. The aim of the design proposal is:

1. To create a neighborhood that promotes social integration between the different social groups in the area through:

a. The soil remediation practices that will be undertaken by both refugees and local residents

b. The cultivation of orchards, the products of which will be sold in open markets.

c. The construction of residential buildings that will be inhabited by both refugees and locals

2. Inversion of the introvert character of the stream with the creation of public spaces

3. Improvement of the soil and water conditions in the area

The design will follow the existing parcellation of the housing units of the camp. As a result, it will compose of an accessibility network with one main axis in the north to south direction and secondary axes from the east to west. Attached to the secondary axes will be strips of buildings and orchards that will be cultivated by the people living in the neighborhood in the process of social integration.

PHASES OF DESIGN

Based on the premise that the refugee camp is a temporary facility, it is estimated that within 25 years most of its housing units will be vacated. In order to gradually transform the camp into a new neighborhood the development process will take place in phases of 5 years. Once a group of housing units is vacated, they will be replaced by the proposed buildings and gardens of the new neighborhood.

DEVELOPMENT PHASES

PHASE 1: 5 YEARS

Transformation of the existing open spaces of the refugee camp into public spaces for recreational activities and creation of new connections with the western part of the stream. The new public spaces will be used by both refugees and locals.

Enhancing Ruderal refugia.

This area is a plot of land that used to be occupied by a building in the past. Currently, it is an empty plot the borders of which are delineated by spontaneous vegetation.

Despite its proximity to the stream, the fact that it is 7 meters above the water suggests that the vegetation that will appear after the ruderal species will belong to Terrestrial ecosystems (low vegetation, shrubs, grasses).

Following the logic of no interference in the Ruderal refugia, small intervetions are made for the creation of boundaries around the plot. The existing contours create a height difference of 1.5 m that is a boundary to the west. A small levee is created by soil excavated from the stream to form a boundary to the east. As a result, the plot is transformed into a shallow pit, accessible only through the bridges that also provide the east to west connection with the neighborhood.

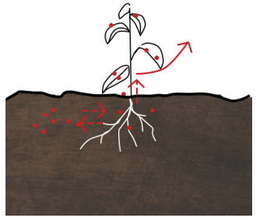
PHASE 2: 10 YEARS

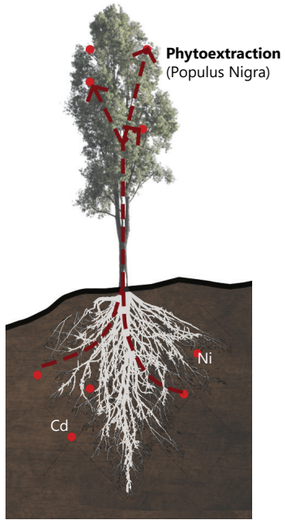
Creation of the first residential cluster once the first group of housing units is vacated.

The buildings facing the main street to the north and the stream to the west will include uses of local commerce, offices, and startup companies, whereas the buildings in the inner part of the area will be housing for the remaining refugees. Every residential building will include private gardens for the residents.

Formation of the first communal gardens for the purpose of Soil remediation. The cultivation and maintenance of the gardens will be organized by the Agricultural university of Athens and will be the responsibility of both refugees and local residents.
Social integration for all individuals involved.

PHYTOEXTRACTION PROCESSES





PHASE 3: 15 YEARS

Introduction of orchards of citrus trees, pomegranate, herbs and vineyards in the gardens that now have remediated soil. Cultivation and maintenance of the orchards are a shared responsibility between refugees and permanent population. The orchards will eventually become a source of income for the refugees.

Introduction of the second residential cluster in the south part of the refugee camp that will now provide housing for both refugees and locals in order to enhance the process of social integration. Forming the second communal gardens for the purpose of Soil remediation.

Creation of social bonds.

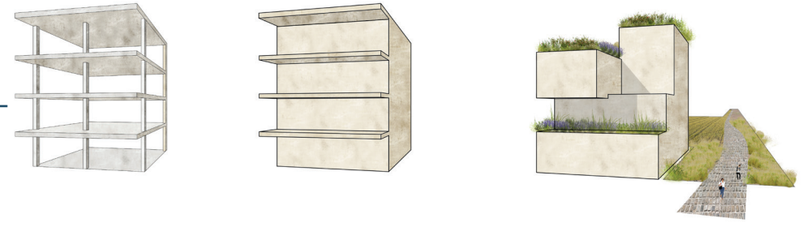
Using the multi-functional character of the Polykatoikia typology. Preserving the bearing structure and creating new forms that create different conditions for ecology.

PHASE 4: 25 YEARS

Introduction of the last residential cluster and cultivation areas. By this time, most of the soil in the gardens is adequately clean and all the orchards are cultivated and maintained by both refugees and permanent residents.

While the gardens attached to the buildings are private, the orchards between them are common spaces. The products produced in the orchards will be collected and sold in open markets thereby providing financial gain to the people living in the neighborhood.

By creating private gardens, orchards and public spaces, a gradient of privacy is introduced in the area.



Vegetation plan

Gleditsia (Gleditsia triacanthos)

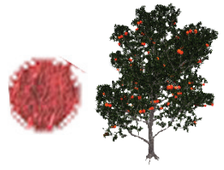
Willow (Salix alba)

Olive tree (Olea europaea)

Pine (Pinus halepensis)

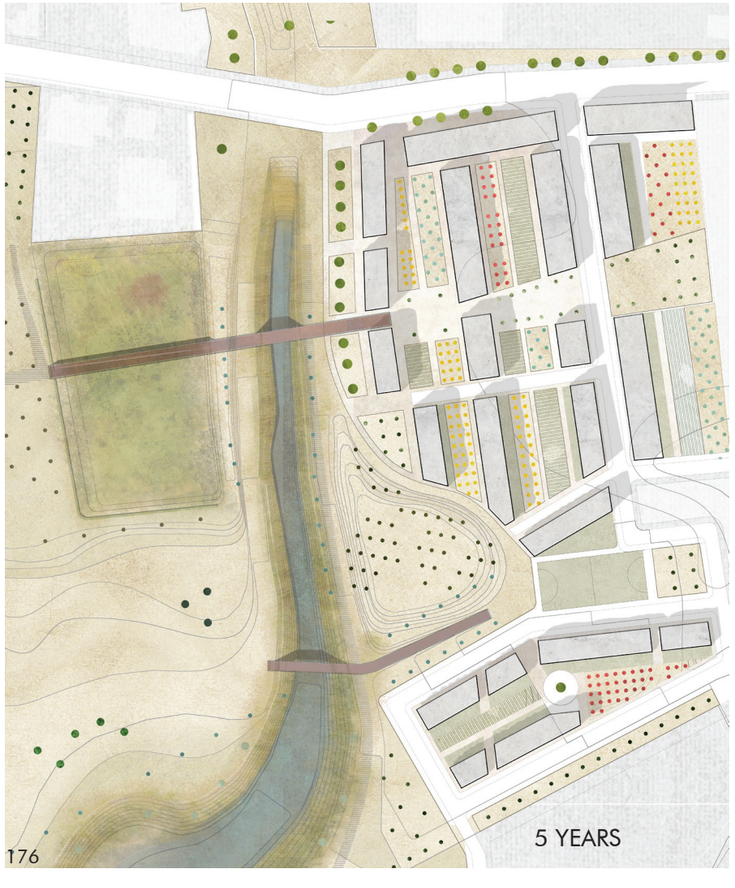
Poplar (Populus alba)

Pomegranate (Punica granatum)



Pear tree (Pyrus communis)

Citrus trees (Lemon tree, orange tree) (Citrus limon, Citrus × sinensis)



Masterplan

D. REFLECTION

Learning from Eleonas

Eleonas, as an island of Third spaces produced by the processes of urbanization and rooted at the heart of Athens, is a characteristic example of a space of contradictions; so close to the city centre and yet disconnected from the surrounding urban web, it is full of complexity and uncertainty. While dominated by environmental degradation caused by the remaining industrial and arbitrary uses, Eleonas is also a haven for wildlife that thrives in urban environments. Finally, as a site in perpetual transition, it is in search for a new identity.

As problematic as the Third spaces of Eleonas appear to be, their complex and contradictory character is what fascinated and urged me to use them in the process of improving the quality of life in Athens through the proposed design.

From the very beginning of my learning process, the goal of my research was to obtain an in depth knowledge of the intrinsic qualities of Third spaces, understand the nature of their relationship with the urban web, find out how they are being valued by past and current societies and discover the ways they could be used in a landscape architectonic design. Early on in my research, I realized the significance of the connection of Third spaces with spontaneous vegetation, ecological succession processes and the potential it presents. I was particularly influenced by theoretical frameworks on Third spaces and urban biotopes, such as the works of Gilles Clement, Martin Prominski, Forman and Godron, Ellen Braae and Robert Smithson. Similarly, projects like the documentary “Natura Urbana - The brachen of Berlin” by Matthew Gandy and Sandra Jasper, Landschaftspark Duisburg-Nord by Latz + Partner and Ville Nouvelle Melun Senart by OMA were projects that inspired my graduation thesis.

With insights and elements from both theory and reference projects, I was able to form the premises of my proposal by supporting that through the Third spaces ecological, cultural and morphological connections can be made within the urban web in the process of urban transformation.

Once I reached this stage, it became obvious to me that a cross disciplinary approach would be needed to undertake the task of realizing my proposal. As a result, I attempted to combine design methods and principles from Landscape architecture, ecology and urban design, always directed by the specific characteristics of the site.

Strengths and weaknesses of the design methodology

As Eleonas is an area that started to draw the attention of designers in the beginning of the 21st century, information and data about the site was difficult to find, especially with regards to its physical and social aspects. In order to overcome this challenge, I relied on analysis that I conducted during my site visits. This strengthened my design proposal considerably. By experiencing the unique spatial qualities of Eleonas I identified elements that later became integral for my design. The dead ends leading to the Third spaces along the Prophet Daniel stream, for example, were used as access points to the new landscape architectonic design.

Moreover, the study of site specific elements like the presence of water, temperature, shade etc. challenged the way I usually design, since my purpose in this project was to create a variety of conditions in the area of my design proposal. For instance, the spatial configuration of the trees in the Alse, creates the conditions for a cool and shaded resting place, whereas the row of pine trees, the water canal and the herb gardens along one of the connecting strips in the flood marshes creates the conditions for a cool, olfactory landscape.

A high level of complexity was also involved in the process of envisioning the future landscape and its evolution through time. This has been a challenging process for me, as it involved three aspects of change: the programmatic change, ecological succession and seasonal change.

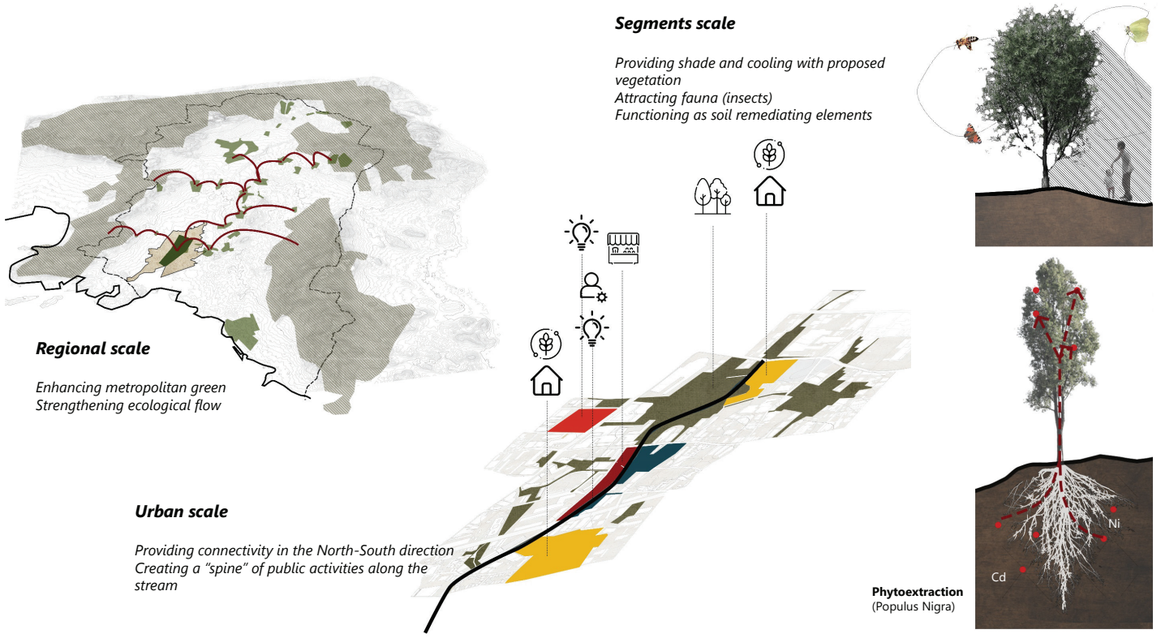
A multiscalar approach

Due to the fact that the existing situation of Eleonas is determined by factors that act on different scales, a multiscalar approach was implemented. That provided a clear understanding of the broader context (regional scale), the forces that determine the existing conditions in Eleonas (urban scale), the patterns of different ecosystems (patches and corridors) and the ecosystems themselves (segments). Implementing a multiscalar approach ensured that every element of my design proposal has multiple functions that contribute to the improvement of the quality of life in Athens in every scale.

A characteristic example of this multifunctionality is the design proposal along the Prophet Daniel stream. The decision of preserving one of the last remaining streams of a water system that has practically been “wiped out” by urban growth and providing more space for its ecological processes has multiple benefits in the regional scale. Not only does it increase the public green in the Attica basin, but also it bears testament to the idyllic landscape of the distant past in which the multiple streams and creeks of the Athenian plane were an essential part.

In addition, the interventions along the Prophet Daniel stream complete a considerable gap in the existing network of metropolitan green, thereby strengthening it. At the same time, they provide an essential stepping stone for ecology, thus enhancing the ecological flow between the urban green and the areas of ecological value surrounding the Attica basin.

As a corridor of different ecosystems attached with a variety of uses and activities, the design along the stream provides a much needed connection in the North to South axis in Eleonas which enhances pedestrian access from the surrounding areas. Furthermore,



the public activities and uses introduced along the stream attract people from other parts of the city while the new residential areas ensure that the stream is "alive" both during the day and the night. As a result, the introvert character of Prophet Daniel is inverted as it changes from a residual space into a spine of public uses. That intervention is the first step in the process of transforming Eleonas from the backyard of Athens into a successfully integrated area within the urban web.

In the flood marshes, the spatial configuration of the proposed plan provides much needed shade and cooling in both the Alse and the corridors leading to the stream. The collection, storage and reuse of excess rainwater accumulating on the ground and the rooftops of buildings during flash floods is another sustainable way of taking advantage of the site specific intricacies of the area.

The orchards in Votanikos will provide financial gain to both the refugees and local inhabitants, while the process of cultivating and maintaining them will also create social bonds. On the other hand, the ruderal refugia introduced in the area do not just enhance the existing ecological network but also, combined with the orchards, the riparian vegetation and public green, provide an aesthetic variety in Eleonas.

Needless to say, the selection of trees and shrubs in the proposed design is not random. Trees like Aleppo pines, poplars and Gleditsias are used for their thick canopies that provide shade and create different spatial qualities. Olive trees, pomegranates, vineyards and citrus trees, apart from their productive character, are also a reference to the agricultural past of Eleonas while the ruderal refugia vegetation refers to the river landscape of Kifisos. The proposed vegetation has also air and soil remediating functions; Populus nigra and Gleditsia triacanthos have the ability of fixing nitrogen dioxide (NO_2) and carbon monoxide CO in the atmosphere (Agarwal et al. 2018, p. 232). Similarly, Populus alba and Morus alba are also used for the phytoextraction of Nickel (Ni) and Cadmium (Cd) from the ground (Rafati et al. 2011, p.961). As a result, within the span of 30 years, the air and soil quality in the flood marshes, Votanikos and the stream will have improved to a considerable degree.

Ethical and moral issues

During the course of this graduation project a series of ethical and moral issues arose.

Re-evaluation of Third spaces

From the very beginning, it was imperative for me to escape from the established "cultural predisposition" that the Third spaces have **no cultural value**. That, as the young parts of urban development (Post War Era, after 1950), they have no age and historical value, since they are not necessarily fragile and they do not reflect the contrast between impermanence and timelessness[1].

I accept that the Third spaces are neither archaeological sites, nor buildings/ urban spaces with multiple meanings attached to them. **However, they are spaces of high ecological diversity and aesthetic variety and that is where their cultural value lies.** In this context, the Prophet Daniel stream is not viewed as an adverse feature of the urban environment that should be covered and hidden from the public eye, but rather a haven for urban wildlife that presents ample opportunity for urban transformation.

1. That comes in contrast to buildings or spaces that have age and historical value and that have resisted urban development to a certain extent. According to Ellen Braae, due to their age, such spaces appear to be fragile and transient, but at the same time, they reflect permanence and timelessness (Braae 2015).

Dealing with the palimpsest

Furthermore, dealing with the palimpsest of Eleonas entailed the danger of romanticizing its agricultural and recreational past and promoting a design proposal that would "restore" Eleonas to its pre-industrial phase. However, such a proposal would allude to a state that Eleonas cannot go back entirely, partly because it does not correspond to the needs of current society and partly because the physical resources of the site cannot support agriculture in such a large scale.

Instead of pursuing that route of action I chose to make subtle references to the agricultural and sacred past of the archaic, classical and post-classical eras and combine them with practices of sustainable design. By encompassing the water basins of the flood marshes with trees I am referring to the spatial qualities and mystic atmosphere of the alsos (ἄλσος) and at the same time I am storing water in the basins and providing shade and thermal comfort to the users of the space.

Working with social integration

The social milieu of Eleonas proved to be another challenge for this graduation project. Consisting of mostly groups of low incomes and different nationalities, refugees and Romani groups, the people of Eleonas have become social outcasts, isolated and segregated from the rest of society. The co-existence of such diverse ethnicities in a very poor post-industrial environment has inevitably led to social unrest. Therefore it was imperative for me to address these issues by promoting social integration in the Prophet Daniel stream.

I admit I did not address the Romani population that arbitrarily occupies Third spaces in the area due to the fact that they are constantly changing the location of their settlements in a very unpredictable way.

Nevertheless, I made it a point of promoting the social integration of refugees through the process of transforming the camp into hybrid agricultural neighborhood inhabited by both refugees and locals. By engaging several stakeholders (Agricultural School, refugees and permanent residents) in activities of soil remediation, cultivation of crops and maintenance in Votanikos, I am promoting the creation of social bonds between the parties involved. On a more personal level, I believe that such activities have positive effects on the psychology of individuals scarred from the trauma of war. Working with the earth, cultivating the orchards and selling the "fruit of their labour" in open markets along the stream can improve their mental wellbeing.

Financial implications

On a practical level, another issue has been the financial implications of the realization of such a project. Despite the fact that this aspect was not taken into account from the beginning of the design process, the question of whether the fragile Greek economy can finance such an endeavor became crucial. It is a fact that the financial crisis that lasted approximately 10 years has resulted to a very unstable economy in Greece. Nevertheless, signs of improvement in the last year have shown that the economy is slowly but gradually recovering.

In this context, it is true that many of the interventions proposed by my graduation thesis require a significant amount of money. However, they also provide several ways of recuperating the financial loss. Collecting, storing and reusing rainwater in the flood marshes, re-purposing the existing post-industrial buildings, re-envisioning the multifunctional character of the Polykatoikia typology and selling the products of the orchards and olive groves in open markets are all sustainable practices of good (financial) value.

Relevance

During the past few decades urbanization has been occurring at a very fast pace, claiming new territories by spatial expansion and occupying the last precious open spaces that are left. Urban growth, in combination with rapid climate change and the neglect of ecological processes, has had severe negative effects on the environment: land degradation, water shortage, fertile soil erosion, increasing temperatures and biodiversity loss are some of those effects. Therefore, improving the quality of life in urban environments and transforming them into resilient cities has never been more relevant.

At the same time, as current practices of urban development are failing to cope with the existing conditions, new opportunities are occurring. One of these opportunities are the unused and forgotten areas generated by urban growth that occupy large parts of the urban web. Despite their derelict appearance, these spaces provide a haven for spontaneous vegetation - the (so called) Third spaces.

The Third space is a concept forged by the theories of Ignasi de Solà-Morales and Gilles Clément and refers to all types of places that constitute a territory of refuge for biological diversity. As a result of their abandonment, the Third spaces evolve into secondary landscapes that are colonized by pioneer species and perform ecological services.

With Athens as the context of the proposal, the aim of this thesis is to explore the potentialities of the Third spaces in the new processes of urbanization and re-envision their role, by supporting that they are able to accommodate and establish ecological, morphological and cultural interrelations within the urban landscape. By using theoretical approaches on terrains vague and ruderal landscapes, ecology and landscape architecture, I wanted to create my own theoretical base for dealing with the Third spaces of Athens.

Needless to say, the significance of the project does not just lie on that basis; it also lies on the fact that it approaches urban environments as complex systems in which environmental, urban, cultural processes and spatial forms interact over time, thus creating conditions for new activities and patterns. Such an approach, however, could not have taken place and have had a viable result without addressing the intricacies of the site and its components, which, in the end, determined the outcome of the design project itself.

Last but not least, the context of this project can be used as reference for the transformation of other urban environments of similar geographical, morphological and cultural backgrounds. In order for that to happen, it must be clear that this graduation project does not provide a definite and absolute solution to a problem. By contrast, the aim of the research and design proposed is to take the field of study relating to the Third spaces of urban environments a step further.

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