DROSSCAPE AND THE CITY

the case of Eleonas in Athens

by

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Diploma of Architect - Engineer
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Submitted to the Department of Architecture
in Partial Fulfillment of the requirements for the degree of
Master of Science in Architecture Studies
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ABSTRACT
This thesis addresses design strategies for the future development of drosscapes in urban regions and their relation with the city at large, having as an example the district of Eleonas in Athens, Greece. It provides answers to the problems of the district and understands the drosscape as a potential for the urban revitalization of the city of Athens. The design proposal is primarily concerned with the urban transformation of the drosscape, and not its ecological reclamation. To do so, the proposal focuses in multiple scales of analysis and proposals. The city of Athens experienced rapid growth during the 1950s due to its rapid urbanization and the rise of industry. These activities had their impact in the organization of the city and its development. During the post-industrial era the areas that were previously formed, have been used for other emerging economic activities, however their role and their relation with the city remain problematic until today. Having as an example the area of Eleonas, this thesis will address the role of drosscapes inside the city and propose an alternative urban strategy for their future development. Eleonas is a huge area covering approximately 2,350 acres. It is located within walking distance from the historical center of Athens, while at the same time it is the biggest undeveloped piece of land in the city. The district today is characterized by its problematic mobility infrastructure, the severe environmental pollution problems, the accumulation of incompatible land uses and its unresolved relation with the downtown of Athens. This thesis aims to recognize and strengthen the urban identities that have emerged in the area since it was an agricultural land. It is an alternative solution to the ongoing urban sprawl to the east part of Athens by bringing more inhabitants in Eleonas and designing mixed uses, urban communities. It solves the problems related to the environmental pollution of the area and creates a well-articulated mobility network which would promote public transportation. Finally, it reserves the existing road infrastructure and the buildings.

Thesis Advisor: Michael Dennis
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INTRODUCTION

Introduction

This thesis addresses design strategies for the future development of drosscapes in urban regions and their relation with the city at large, having as an example the district of Eleonas in Athens, Greece. It provides answers to the problems of the district and sees the drosscape as a potential for the city of Athens. The design proposal is primarily concerned with the urban transformation of the drosscape, and not its ecological reclamation. To do so, the proposal focuses in multiple scales of analysis and proposals. The city of Athens experienced rapid growth during the 1950s due to its rapid urbanization and the rise of industry. These activities had their impact in the organization of the city and its development. During the post-industrial era the areas that were previously formed, have been used for other emerging economic activities, however their role and their relation with the city remain problematic until today. Having as an example the area of Eleonas, this thesis will address the role of drosscapes in the city and propose an alternative urban strategy for their future development.

The problem of Athens

The city of Athens today expands continuously into new suburban areas, which promote low density development and horizontal growth. At the same time, the center of the city is declining. The population is gradually moving away from the center to new suburban areas and the city's fabric becomes abandoned. The new model of development promotes small population densities and increases the cost of living per capita, due to the high mobility and maintenance costs. At the same time, Athens continues to be the major urban center of Greece, attracting young people from all over the country who seek new professional and educational opportunities. However, the city is economically unaffordable to most of them and the potential for economic and urban growth that is connected with this group of people is diminished. The need to better utilize the existing urban building stock becomes obvious. The drosscape of Elaionas is the largest problematic urban area in the city. The area disconnects downtown Athens with the east part of the city and faces acute environmental pollution problems which also affect the adjacent areas.
1. Eleonas
2. "Hellinikon" airport
3. Goudi's military base
Why Eleonas?

Eleonas is a huge area covering approximately 950 Ha. Today, it is the largest undeveloped piece of land inside the city of Athens. Urban voids of comparable size inside the city have also occurred due to the removal of a military base and the old airport away from the city center. However, in the case of Eleonas, its transformation from an active industrial and a logistics center to an abandoned district has been a gradual procedure, which still continuous until today. These uses have been gradually relocated outside the city, along the main road infrastructure. This gradual decline of Eleonas requires a distinct method of designing for its future. Strengthening post-industrial areas, like Eleonas, makes good economic sense because of the vast infrastructure already in place. However, the concept of post-industrialization in Greek economy has not the same meaning as in the rest of the European countries. Specifically, Eleonas never reached the stage of mature industrial development. Thus, we can consider that Eleonas is a district which is possible to enter a phase of adaptation to a global economy, before reaching the stage of maturity. The district today is characterized by its problematic mobility infrastructure, the severe environmental pollution problems, the accumulation of incompatible land uses and its unresolved relation with the downtown of Athens. This thesis acknowledges Eleonas as a potential for the urban revitalization of the center of Athens and its future economic growth.

How?

This thesis aims to recognize and strengthen the urban identities that have emerged in the area since it was an agricultural land. It is an alternative solution to the ongoing urban sprawl to the east part of Athens by bringing more inhabitants in Eleonas and designing mixed uses, urban communities. It solves the problems related to the environmental pollution of the area and creates a well-articulated mobility network which would promote public transportation. Finally, it reserves the existing road infrastructure and the buildings.
Eleonas

Eleonas is located within walking distance from the historical center of the city, while it is 15 times the size of it. The area was not covered by an official town plan until 1991 and the present situation is an illustration of governance failure. Parts of Eleonas are divided under the authority of five municipalities which have their own general town plan, thus making it hard to take decisions for the area as a whole. The fact that administrative borders cross the area impedes the application of any common town plan.

Today, the biggest part of the area is characterized by big empty plots and vacant buildings. The open spaces are not accessible to the pedestrian and there are only a few designed public spaces, which are randomly distributed inside the area.

Today, the main development in the area involves the construction of malls, entertainment parks and big office buildings along the boundaries of the area. However, the most interesting attribute of Eleonas today, is the existence of the distinct urban typologies that are found inside the area.
826 Ha  total space of the area, without the roads
595 Ha  free space today
Land uses

The historical process of Eleonas development is closely associated with the changes in Greek economy. The available land has been used to place uses which could not be placed in other parts of the city. Specifically, the area had been an agricultural land until the early 20th century and became an industrial center during the 60's. During the 90's, many different land uses had been accumulated in the area, one of them being the logistics. Other firms that have been placed in Eleonas today are small-scale industries, wholesale trade, scrap yards, limited housing, gypsy camps, sport fields and university campuses. Almost 50% of the firms located in Eleonas functioned for years in a state of illegality. Today, the remaining industrial, logistics and commercial uses, gain some economic benefits for being closely located to each other. Most of the 30,000 people working in these firms usually live in other parts of the city, due to the small number of housing units in the area.

The biggest part of Eleonas is deprived and lacks a hierarchically organized road network. Its indefinite character becomes in contrast with the surrounding dense urban fabric of Athens and at the same time its central location makes it a great potential for the city center.

The development in the area today consists of new malls and sport facilities. These programs grow along the main highways, on the boundaries between the area and the city because of the easy accessibility through the road infrastructure. Eleonas keeps attracting big investors because of the low cost of land and the big size of the plots that are found in it.
Existing land uses

- Industry: 25%
- Education: 5%
- Agriculture: 13%
- Logistics: 33%
- Storage space: 7%
- Commerce: 18%
- Housing: 6%
Statutory land uses

Green spaces - 42%  [3,987,507 sq.m.]
Industrial - 25%  [2,373,517 sq.m.]
Commercial - 10%  [949,404 sq.m.]
Auxiliary spaces - 8%  [759,523 sq.m.]
Housing - 6%  [569,642 sq.m.]

Housing for 22,000 people is available today

Proposed land uses

Green spaces - 20%
Industrial - 10%
Commercial - 15%
Auxiliary spaces - 5%
Housing - 50%

Housing for 190,000 people could be built
28,175 persons working in the area today.

<table>
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<td>2012</td>
<td>32,015</td>
</tr>
<tr>
<td>2013</td>
<td>28,175</td>
</tr>
</tbody>
</table>

371,868,289 dollars - mixed annual profit of the companies located in the area.

DEBT 1,024,797,582 dollars

There is no efficient organization of the existing land uses in the area. The industrial and logistics uses gain some benefits for being closely located. However, they are randomly distributed in the wider area. Thus, they form a chaotic urban fabric and spatial discontinuities. Furthermore, there is a small number of housing units in Elaionas and thus most of the 30,000 people working there usually live in other parts of the city.

Population changes during 2010-2013 the center of Athens is declining.
Density exercises

The following chapter consists of density exercises which present the potential for urban development that lies in Eleonas. On the first two figures, an overlay with parts of the cities of Paris and Barcelona in Eleonas shows the quantitative and qualitative upgrade that would occur in downtown Athens in terms of number of inhabitants and designed open spaces. In the case where Athens' city fabric would expand into the district, Eleonas would be able to accommodate 126,000 people, instead of the 22,000 inhabitants today, however with a comparable low quantity and quality of designed open spaces. The third map in this chapter is an attempt to fill all the available empty plots inside Elaionas district with a homogeneous block structure which has the same density as the city of Athens. Through these three density exercises we can understand the potential that lies in Elaionas district.
Overlay of Paris in the area

160.563
753 HA
73 HA

Overlay of Paris in the area
Overlay of Barcelona in the area

- 115,755
- 723 HA
- 103 HA
Overlay of Athens in the area

126,950

773 HA

53 HA
Environmental Pollution

The area is overall moderately polluted and heavily polluted in specific parts, due to the permitted industrial emissions and the illegal disposal of industrial waste inside the stream which runs through the site. The sewer network is insufficient in the biggest part of the area. The disposal of liquid waste in surface and underground recipients has caused significant soil and groundwater pollution. Any new urban plan for the area should take into consideration means for soil rehabilitation, where needed. Polluting land uses today include the scrap yards, the power distribution stations and bus and trucks depots. The insufficient sewer network leads many industries to throw their waste inside the stream which runs across the area. Most of the existing infrastructure of the illegal scrap metal industry is located in the area of Elaionas, because of its close proximity with the industrial uses and the rest of the city, where most of the metal is collected. Further benefits include the easy access to main infrastructure networks, the cheap available land and the unclear land uses legislation in the area. Closely related with this recycling activity, there are thousands of scrap collectors who take advantage of the big empty plots in the area, which are placed next to the scrap metal plants. In most cases they appropriate the land temporarily, by forming informal settlements. These settlements lack basic infrastructure and develop an unclear relation with the city fabric.

Air pollutants found in the area
SO2 soil pollution in Elaionas area related with sewerage network
Today, there are estimated 100,000 people living in the city of Athens, who make a living as scrap metal collectors. They gather all kinds of recyclable matter that is thrown away from the society, by wandering constantly throughout the city. The scrap metal that they gather is responsible for the 70 percent of the 3 million tons of iron that is produced in the country per year. Most of this illegal scrap metal industry is located in the area of Elaionas, because of its close proximity with the industrial uses and the rest of the city, where most of the metal is collected.
Illegal temporary housing settlements of Roma people

Further benefits include the easy access to main infrastructure networks, the cheap available land and the unclear land uses legislation in the area. However, the result of this uprising activity is a further environmental pollution of Elaionas area, which is already burdened by the industrial activity of the past decades. Roma people appropriate the empty spaces found in Elaionas. When circumstances change, Roma move to other areas.
Mobility Infrastructure

The area is characterized by the high connectivity in the national scale but low accessibility in the neighborhood scale. Even though railway lines and highways constitute links of the city with the rest of the country, yet they also construct barriers in the level of the neighborhood and make pedestrian movement extremely difficult. The chaotic local road network in the inner part of the area is completely insufficient and occupies 71.3 Ha, or 8% of the whole surface. The narrow snaky streets with many dead ends diminish the accessibility of the area while the middle scale road network is sparse. Furthermore, the insufficient infrastructure in the area disconnects the center with the west part of the city.

The area is spatially defined from two main infrastructure systems. On the west part, Kifissos highway forms a strong boundary, due to the big industrial plots which are located along it. Furthermore, it is difficult to cross through the highway either by walking or using a car. On the east side of the site, the rail line that connects the port with the city and the northern part of Greece forms a different type of boundary. In this case, the boundary is not clear, since the urban fabric penetrates at several cases inside the area of Elaionas.

The road network in the area occupies Eleonas is currently transforming from a logistics area to a commercial and entertainment uses center. However, these uses already have a serious impact on the road traffic of the area. The projected accumulation of relevant growth in the near future will deteriorate this condition. Therefore, the promotion of public transportation as an alternative to private cars use is essential.

Pedestrian movement inside the area is poorly structured, due to the bad condition of the existing roads and the lack of pavements. However, an efficient public transportation system and a pedestrian movement network would easily apply in the area, due to the relatively flat landscape. A general strategy for the mobility networks in the wider area should be identified in any future urban plan.
Road infrastructure and traffic congestion
Main highways infrastructure

Railway infrastructure

Kifissos highway defines the west border of the area

Railways define the east border of the area
Land pattern

Elaionas had been the main agricultural land of Athens since the early 19th century, and this reflects on the irregular road network and the huge scale of the plots that can be found today. Following the destruction of Asia Minor at 1922, 100,000 immigrants came to Athens. Some plots were divided into smaller ones and immigrants moved in to inhabit the area and built homes which were poorly constructed and lacked infrastructure. Housing was organized in small dense clusters inside this vast agricultural land. Since there hadn't been any public housing planning by that time, Elaionas was the best solution for isolating this unwanted group of people and at the same time being indeterminate about their future. Today, 16 residential clusters with different urban typologies exist on the site.

The second big development in the area takes place during the 60's with the industrialization of Greece. At that point, industries and factories grew up next to each other between downtown Athens and the port of Piraeus, taking advantage of the big plots in the land of Elaionas. The results of these two types of development through time, has resulted in a small number of dense housing clusters within a 'sea' of low density development of incompatible uses. The random open spaces that occur between the buildings become useless spaces at most of the times. Furthermore, the huge fenced empty plots in the area constitute barriers for the movement of pedestrians. At the same time, they are appropriated by temporal illegal settlements of scrap collectors.
Irregular road infrastructure
Athens city map - 1770

Elaionas

Typical block structure of Athens
Elaionas had been an agricultural land until the 20th century. The irregular road infrastructure used to serve the people who worked in the olive tree farms.

### Housing - segmentation of land

After the destruction of Asia Minor on 1922, the area was used to host a large number of immigrants who came to Athens. Some plots were divided into smaller ones and people moved in to inhabit the area. Housing was organized in small dense clusters inside the vast agricultural land.

### Industrial uses

The area became an industrial center during the 1960's. In this case, factories were built inside the available large agricultural plots.
Buildings of Eleonas

The existing buildings in the area vary significantly in the typology and the quality of the structure. A big part of Eleonas is consisted of abandoned industrial buildings, with good structural and architectural quality. However, many low quality buildings exist, mostly used today as illegal industrial storage and logistics spaces. The proposal keeps most of the existing buildings and the road infrastructure that supports them. Then, it reuses the abandoned spaces and transforms them into public spaces of the new urban plan.
Buildings in pink are low quality structures.
low quality structures in Eleonas
EXISTING PROPOSALS

There have been numerous attempts to re-design the district. However, most of the projects address only specific issues of the area and don't respect the characteristic urban identities that are found inside. Most of them attempt to solve an urban scale project with architectural gestures and don't have multiple scales of analysis and proposals. They propose the development of big recreational uses into the area, as a mean for attracting further economic growth. In these cases, private interests take advantage of the low cost of the land, leading to big scale architectural projects.

The most important of these projects is the 'Double Regeneration' project, which proposes the development of the biggest football stadium in Athens, with a shopping center and relevant sport facilities. The problems associated with this project is the further increase of the road traffic in the area because of the expected large number of visitors on daily basis. The presence of malls would accelerate the shutdown of the numerous small industries and shops that are located in the wider area today and cause the extinction of the existing urban identities. Furthermore, there are no studies for the existing environmental pollution and the relation of the new structures with the rest of the city. As a result of the study of the existing design proposals for Eleonas, the need to propose a design plan with multiple scales of analysis becomes obvious.
"Double Regeneration" project

"An urban-agrarian vision for Eleonas" project
PROPOSAL

The vision for Eleonas district

This thesis aims to recognize and strengthen the urban identities that have emerged in the area since it was an agricultural land. It is an alternative solution to the ongoing urban sprawl to the east part of Athens by bringing more inhabitants in Eleonas and designing mixed uses, urban communities. It solves the problems related to the environmental pollution of the area and creates a well-articulated mobility network which would promote public transportation. Finally, it reserves the existing road infrastructure and the buildings. The proposal aims to address the necessary design strategies in order to transform Eleonas before the area reaches an irreversible stage.

In order to address the multiple issues of Eleonas today, the proposal is organized in three scales. On the district scale, it addresses the major transportation and pollution issues of the whole area. Then, it recognizes certain development forces and categorizes specific urban typologies that exist on the site today. On the Urban Patch scale, the proposal focuses on these urban typologies and predicts their future condition, according to present development forces. Afterwards, it proposes the best scenario on how these could grow in the future. It includes mass distribution, land uses, public space and transportation studies for each one of them. Finally, the Architectural-Urban scale reveals the building's active role in the urban scale. It includes the design of the space in-between the urban typologies and the way these interrelate. This study identifies the importance of small scale interventions in order to propose a general strategy for the whole area.
The proposals addresses major transportation and pollution issues that exist in the area. Then, it recognizes certain development forces and categorizes specific urban typologies that exist on the site.
Architectural - Urban

adresses the design of specific are found on the site. uses and public spaces. An area inside the district.

The building's active role in the urban section. Design of the space in-between the urban typologies by reusing the existing buildings, landscape design and public transportation infrastructure.
Scale I - district

General strategy for the mobility and the pollution problems in Elaionas

The first step of the design process is the development of a circular mobility infrastructure which will manage to organize the district of Elaionas at the bigger scale. This infrastructure consists of two bus lanes, a pedestrian and a bicycle road. The system develops on top of the existing road infrastructure, without making new roads. It cooperates with the few existing public transportation stations, in order to connect with the rest of Athens. This first act on the site, will strengthen the public mobility system and connect a lot of existing green spaces in the area. This circular mobility system will grow over time through the whole district of Elaionas, by enclosing more neighborhoods that have limited access to public transportation and sustainable mobility. As a result, Elaionas' public transportation networks will connect with the rest of the city, making it easily accessible. Furthermore, this mobility system will be accompanied by a sewer and drainage pipes network, which will develop along the mobility system and organize a sufficient infrastructure network for the area. As a result, most of the problems that are currently related with the management of the industrial and housing waste in the area, will cease to exist. In this way, more developers will be attracted to invest in the area and the land values will rise in the future. The cost of construction for this first investment will be covered by state funds.
First Phase - Mobility infrastructure as a mean for re-constructing the district

1. 2 bus lanes
2. bicycle road
3. pedestrian street

- existing bus stop
- existing subway station
- proposed public transportation ring

2.8 miles of bus and bike road

$90,000,000 dollars for the first road infrastructure ring
Existing structures management

The existing buildings which are located in Elaionas district vary significantly in the typology and the quality of each structure. The size of them ranges from small scale development, to big boxes. They are placed within the site mostly as free standing structures or sometimes in a continuous building system. A big part of Elaionas is consisted of unused buildings and other low quality structures. The most of them are old industrial structures or illegal industrial storage spaces.

The proposal keeps the majority of the existing buildings and demolishes only a small number of low quality structures. The selection of these structures is part of the general strategy of acting into the district. First, the study recognizes specific urban typologies that exist today. Then, selects only those buildings which don’t belong in the recognized typologies, in order to develop neighborhoods with a distinct character in the future. These buildings are found in multiple areas inside the district and have been built through illegal procedures at most of the times.
Recognizing existing urban typologies.
Extension of specific existing urban typologies and development of new ones.
The structures between the neighborhoods will be used as public infrastructure.
Recognizing existing urban typologies in Elaionas

From a first look in the area, the mass distribution and the land uses seem to have occurred from random development forces. The built environment seems to have occurred due to random decisions. However, this thesis recognizes underlying urban development models which have driven a big part of its built environment as it appears today. Furthermore, these forces will probably continue to form the area in the future.

As a result, four urban typologies are considered dominant inside the area. The next slide presents the recognized urban typologies, shows how they would continue to grow in the future according to present forces and finally presents the best case scenario on how the development could happen.

A. The 'Warehouse' urban typology
The 'Warehouse' urban typology is characterized by the dense concentration of longitudinal structures along a highway. This model encourages the development of structures only along the highway, thus leaving undeveloped those plots which haven't access to the mobility infrastructure.

These buildings function as logistic spaces at most of the times and they are positioned with their small facade facing the road, in order to have direct access to the mobility network and plenty of space for the transportation of goods. The spaces between the longitudinal buildings remain active during the day but become dead spaces during the night hours.

Neighborhoods which belong to the "Warehouse" urban typology are not the product of an organized design. The structures are accumulated in the area over time because the neighborhood has been established as a logistics center already.
B. The 'Industrial' urban typology  
The 'Industrial' urban typology is characterized by a sparse concentration of large, free standing structures in big plots of land. The unbuilt space between the buildings is usually parking spaces and undeveloped land.  
This urban typology is characterized by industrial land uses.  
This isn't a designed urban typology. The big plots land in the area are owned by different people at most of the times, thus occurring in a random urban development through decades.

C. The 'Housing' urban typology  
The 'Housing' urban typology is characterized by multiple longitudinal buildings, closely positioned together. The arrangement of the buildings generates free spaces in the core of the cluster, which however are rarely used as public spaces.  
This urban typology is characterized by housing land uses.  
This is a designed urban typology which reaches its final form right after the completion of the project, since the owner is the state and the building process is purely organized. It is characterized from the bad relation between the housing units and the absence of livable public spaces.

D. The 'Mixed uses' urban typology  
The 'Mixed uses' urban typology is characterized by small buildings in a continuous building system. Buildings with different heights are positioned next to each other, forming rectangle urban blocks. The free space which is generated in the middle of the block provides sunlight and ventilation for the buildings but it's not usually claimed as a unified public space.  
This urban typology is characterized by multiple land uses; however the housing and the retail uses are the most dominant.  
This is a designed urban typology which reaches its final form through time, since each developer usually owns one plot of land and the building process is not organized.
"Logistics" urban typology

"Industrial" urban typology

"Housing" urban typology

"Mixed uses" urban typology
Projections about the future of the existing urban typologies

The second part of the design process, after recognizing the existing urban typologies on the site, is to predict the way these would grow in the future, if we assume that the existing development forces continue to dominate in each one of them. This step is fundamental in order to make projections about their future conditions and recognize the problems that already exist in each urban typology today. It forms the basis upon which the study will propose their future alternatives on the next chapter.

While Eleonas continues to be in a transformative stage today, it is crucial that design strategies for its future development will be applied in the near future. Otherwise, it would be more difficult to reverse the drosscape when it reaches a mature stage, since more owners will have to agree with the changes of a possible future urban plan at that time.
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<th>Urban Typology I - Warehouse</th>
<th>Urban Typology II - Industrial</th>
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The best case scenario on how these urban typologies could grow in the future

This chapter addresses the future development of the four urban typologies found in the area of Elaionas, by proposing the best possible scenario for their future. The general guideline of this scenarios is to generate dense urban clusters with mixed land uses, and primarily housing and commercial development. Furthermore, they should promote pedestrian movement inside each neighborhood and have an efficient network of public spaces. For doing so, each study consists of the proposal for the typology of the housing unit that applies in each urban typology and a mass distribution proposal which is based on the organization of the buildings today. Finally, a land uses proposal for each neighborhood is applied in separate stages.

A. The 'Warehouse' urban typology
I propose the shift from a development model which encourages structures to develop along the highway, to a mixed uses development, which encourages structures to develop across the plots which are inaccessible today.
The existing longitudinal public spaces between the buildings extend here as boulevards or as a linear network of public spaces inside the new neighborhood. The urban plan locates housing and market uses along these spaces and the neighborhood in general.
The mass distribution proposal for the 'Warehouse' urban typology is based on the longitudinal shape of the structures that can be found and the organization of the structures along the main axis of transportation. This proposal extends the new development inside the big plots which have no access to any road and establishes new boulevards which connect perpendicular to the highway. The dimensions of the block is related to the dimensions of the existing structures that are found on the site. The housing unit for this typology is longitudinal and belongs to a continuous building system, where multiple units are stacked next to each other. Each urban block is consisted of three rows of volumes and a small public space is generated in the middle of it.

B. The 'Industrial' urban typology
The proposal shifts from a low density mono functional zoning which encouraged free standing structures, to a mixed uses development that encourages smaller footprints and multiple stories. The new urban plan reclaims the free space between the structures and makes it accessible to pedestrian movement.
It establishes a new road infrastructure and a hierarchy of public spaces in different scales. This plan locates market uses along the main axis of movement and housing is developed around small public spaces.
C. The 'Housing' urban typology

The 'Housing' urban typology remains the same over time. This is because of its overall failure to generate livable housing clusters. It is characterized from the bad relation between the housing units themselves and the absence of livable public spaces. Furthermore, this urban typology can't easily adapt to new development because of its closed character and its introvert organization as a whole. For all of the above reasons, this typology is limited only to the neighborhoods that exist today in the area. No further development associated with this typology is proposed.

D. The 'Mixed uses' urban typology

The 'Mixed uses' urban typology maintains its current character and it is extended at some cases. This typology is characterized by medium size rectangular blocks which generate free spaces in the interior of each block. It is consisted of smaller plots which are owned by different persons and have been developed as separate architectural projects through time. At most of the cases, there are no public spaces created in the neighborhoods of this typology. For this reason, the proposal suggests the opening of the existing interior free spaces in the middle of each urban block in order to become accessible from the street level. At the scale of each neighborhood, these spaces will become connected and form a new network of pedestrian movements.
Urban Typology I - Warehouse

- Scrap metal industry: 5%
- Industry: 13%
- Logistics: 82%

Area: 102 acres
FAR: 1.0

0 residents
450 employees

$14,000 average income per capita

Aerial view of the neighborhood
Free space between buildings
Urban Typology I - Warehouse

abandoned buildings (in grey color)
Urban Typology I - Warehouse

maximum built condition

proposed neighborhood plan

proposed neighborhood access
Urban Typology I - Warehouse

maximum built condition plan

existing land uses
expected land uses stage I
expected land uses stage II

- INDUSTRY
- LOGISTICS
- COMMERCIAL
- STORAGE
- HOUSING
urban block structure in relation with main axis of movement.

axonometric view of the urban typology and networks of pedestrian movement.
Urban Typology II - Industrial

- 10% Logistics
- 40% Storage space
- 50% Industry

Area: 90 acres
FAR: 1.0

0 residents
250 employees

14,000 average income per capita
abandoned buildings (in grey color)
Urban Typology II - Industrial

present condition

existing neighborhood plan

existing neighborhood access
Urban Typology II - Industrial

maximum built condition

proposed neighborhood plan

proposed neighborhood access
Urban Typology II - Industrial

maximum built condition plan

- **INDUSTRY**
- **LOGISTICS**
- **COMMERCIAL**
- **STORAGE**
- **HOUSING**

80 existing land uses

expected land uses stage I

expected land uses stage II
Urban Typology II - Industrial

urban block plan

urban block structure in relation with main axis of movement.

axonometric view of the urban typology
100% housing

Area 25 acres

FAR 1.5

0.3

2,000 residents

0 employees

16,000 dollars average income per capita
Urban Typology IV - Mixed uses

7% Industry
93% Housing

Area 35 acres
FAR 3.0
0.8

1,500 residents
25 employees

16,000 dollars average income per capita
Urban Typology IV - Mixed uses
Expected general map of the district, according to the applied urban typologies guidelines. The four urban typologies are depicted in different colors.
Main roads map

Projected new main roads network. The main highway infrastructure is depicted in red, and the middle-scale road network in black color.
Expected public spaces network, according to the applied urban typologies guidelines. Each neighborhood has a hierarchy of public spaces.
In the Urban patch scale, the proposal focuses on a half by half mile area inside the district. The guidelines that were introduced in the previous chapter, now are applied onto the specific neighborhoods that are found inside this area. Furthermore, this chapter addresses the development of each neighborhood and their boundaries. It consists of detailed mass distribution, public spaces, land uses and transportation studies for each one of them. In the specific area of study, one 'Warehouse' and two 'Industrial' urban typologies neighborhoods are connected through this central spine.

The relation between the different neighborhoods is organized through a unified public space which includes public infrastructure systems and landscape. This spine is able to define multiple relations between the neighborhoods by having different degrees of transparency along it. Thus, in each urban section, the elements of the spine are organized in different ways. In a similar way, the boundaries of each neighborhood are also transformed in order to have the desired result.
Neighborhood plan
The first neighborhood in this plan belongs to the warehouse urban typology. The mass distribution proposal for this neighborhood is based on the existing narrow shaped structures that are found here. The new plan re-organizes the structures in a continuous building system in order to face a street on both sides. Shifting from a development model which encourages structures to develop only along the highway, to a mixed use development, which encourages structures to develop across the plots which are inaccessible today. The proposed urban block in this case consists of three rows of buildings. The space in the middle of the block is used as a small public space, and becomes part of the linear free spaces network.
The existing mass distribution in the neighborhood consists of narrow buildings packed together in multiple ways. The proposed urban plan re-organizes them in a continuous building system in order to face the street on both sides.
Warehouse neighborhood

The front on the highway is designed more rigid and the public spaces on the east part of the neighborhood are extended through a connection with the adjacent neighborhood. Here, the projected land uses will be developed in two stages. On the first phase, housing is developed on the edges of each block. On the second phase, commercial uses are placed between the housing, in order to develop a continuous market on the ground level. The connections with the public transportation network consists of bus stops inside the neighborhood and tram stops located on its boundaries.

Urban plan - public space shown in black colour
Warehouse neighborhood

network of main public spaces

networks of pedestrian movement.
- Warehouse urban typology -
  public space in the interior of the block
Warehouse neighborhood

Land Uses

Stage I - Housing development
The empty space between the housing uses becomes a multi use open space.

Stage II - Market development
Commercial uses fill the space between the housing.
The second neighborhood in the plan belongs to the Industrial urban typology. The few existing housing uses in this case are developed next to each other, creating a random free space in the interior of the block. The proposed urban plan organizes the housing structures into dense urban blocks which are organized around small scale plazas. Shifting from a low density monofunctional zoning which encouraged free standing structures surrounded by parking, to a mixed use development that encourages smaller footprints and multiple stories.
Industrial neighborhood

neighborhood perspective

existing mass distribution  
proposed mass distribution
Industrial neighborhood

The characteristic of the proposed neighborhood becomes the extended network of pedestrian streets which runs through the interior of each urban block. On a second level, bigger public spaces are connected with boulevards, establishing a continuous market development along them. In this case, commercial spaces are placed along the main road infrastructure on the first phase. Afterwards, housing is organized around small open spaces, away from the road infrastructure.
Industrial neighborhood

network of main public spaces

networks of pedestrian movement.
Industrial neighborhood

Streets

16m. Street Section  7m Street Section
Industrial neighborhood

Warehouse urban typology - street view
Land Uses

Industrial neighborhood

- INDUSTRY
- LOGISTICS
- COMMERCIAL
- STORAGE
- HOUSING

Existing land uses

Stage I - Commercial uses development

Commercial spaces are placed along the main road infrastructure.

Stage II - Market development

Housing is developed around small open spaces and away from the main road infrastructure.
Resolve the relation between the four urban typologies

The final scale of the proposal addresses the building’s active role in the urban scale, by designing the space in-between the urban typologies and their boundaries. To do so, the mobility infrastructure that was proposed for the district in the first section, now expands further into three layers. This thesis proposes the development of a system which is able to organize the relations between the four different urban typologies that are found in the area. This system is always related with the basic mobility infrastructure that was proposed in the first chapter and consists of three different layers of elements which are presented below.

The first layer is called ‘Public transportation’ which consists of two bus lanes, a pedestrian road and a bike road. All of these infrastructure systems are placed next to each other, as a target to enhance the mobility in the wider area.

The second layer is called ‘Infrastructure Systems’. It aims to provide multiple infrastructure facilities with different applications in each case. For example, it may enhance the sewer network at a specific point or provide better access to an existing factory. In other cases, it becomes a big scale public use building or a rain water collector which can be used for the irrigation of the adjacent landscape.

The third layer is called ‘Recreational green space’ which includes landscape proposals and uses vegetation and water elements.

These three layers that are developed in the area between the neighborhoods are used in multiple combinations in each section, in order to form the desired relation between the urban typologies. This system works together with the boundaries of each typology in order to connect or disconnect two adjacent neighborhoods. Thus, in each section of the spine, one of the three elements becomes more dominant than the others, according to the local needs of each area.

Finally these three layers are recognized together as one spine which becomes the characteristic element of the whole district of Elaionas.
Spine elements

1. Public transportation

2. Infrastructure systems

3. Recreational green space
The three elements that are used in the area between the neighborhoods can be used in any combination in each section, in order to form any possible relation between the urban typologies. Thus, in each section of the spine, one of the three elements becomes more dominant than the others, according to the local needs of each area.

1. The mobility infrastructure consists of two bus lanes, a pedestrian road and a bike road. All of these infrastructure systems are placed next to each other, as a target to enhance the mobility in the wider area.

2. The infrastructure systems layer aims to provide multiple infrastructure facilities with different applications in each case. For example, it may enhance the sewer network or the access to an existing factory. In another case, it becomes a big scale public use building.

3. The landscape layer consists of recreational green spaces. Specifically, it includes vegetation and water elements.
Spine elements

- Infrastructure systems
- Recreational green space
- Public transportation
Connection I

In this example, two industrial urban typology neighborhoods are connected with a landscape which overlaps the highway and then penetrates the existing public buildings on their boundaries. The spine here becomes a connecting landscape which overlaps the highway. The public use buildings on the boundaries of each neighborhoods become the mean of connection between them. The same ground material that is used in the between space is extended inside the two neighborhoods. The platform that consists the landscape becomes pavement and public space in this case.
Spine sections

Landscape connects two residential neighborhoods
Connection II

Two industrial urban typology neighborhoods are connected through agricultural land and recreational uses between them. The spine here becomes a connecting landscape with a common uses building in the middle. It is a longitudinal structure with rain water and goods storage spaces. The ground floor is used as a public space for community social events. The same ground material that is used in the between space is extended inside the two neighborhoods, in the form of pavement and public space. It is a linear structure with rain water and goods storage spaces located on the higher floors. The ground floor becomes a market and local community's social events space.
Spine sections

Landscape connects two residential neighborhoods
festival  market  playground  urban equipment
Connection III

Connecting an industrial and a warehouse urban typologies neighborhoods through public infrastructure. The spine here becomes a building which penetrates the two typologies. On both sides it connects with the public spaces of the neighborhoods and their market uses. Developing a network of market spaces, which passes through both the warehouse urban typology and and the industrial urban typology. The spine here becomes a big scale public use building. Due to its open plan configuration, the building becomes the framework for multiple things to happen. It is programmatically undetermined and becomes an open platform that can be claimed by different people.
Spine sections

Connecting market spaces
Infrastructure as a public use building
Connection IV

Disconnecting an industrial urban typology neighborhood and a factory using landscape and industrial infrastructure. The spine here extends the public space of the typology and the infrastructure layer forms a strong boundary between the two. The infrastructure in this case consists of storage and parking space for the factory. Furthermore, it connects the factory with the sewer network and offers space for additional industrial waste disposal facilities. The landscape covers these spaces in order not to be visible from the street level.
Spine sections

Industrial infrastructure and green space.
Connection of different urban typologies with agricultural land and public uses building
Connection of different urban typologies by placing market uses on the spine.
CONCLUSIONS

To sum up, this thesis proposes strategies for the future development of drosscapes in urban regions having as an example the district of Eleonas in Athens. It is concerned with the urban transformation of the drosscape, and not its ecological reclamation. The drosscape in this case is a post-industrial district, which however hasn't reached the stage of maturity until today. The area is in a continuous state of transformation, thus making the proposed design strategies more challenging.

The study aims to recognize and strengthen the multiple urban identities that have emerged in the area and provides an alternative solution to the ongoing urban sprawl to the east part of Athens by bringing more people in Eleonas and designing mixed uses, urban communities. It solves the problems related to the environmental pollution of the area and creates a well-articulated mobility network which would promote public transportation.

In order to address the multiple issues of Eleonas today, the proposal is organized in three scales. On the district scale, it addresses the major transportation and pollution issues of the whole area. Then, it recognizes certain development forces and categorizes specific urban typologies that exist on the site today. On the Urban Patch scale, the proposal focuses on the urban typologies and proposes the best way these could grow in the future. It includes mass distribution, land uses, public space and transportation studies for each one of them. Finally, the Architectural-Urban scale reveals the building's active role in the urban scale. It includes the design of the space in-between the urban typologies and the way these interrelate. This study identifies the importance of small scale interventions in order to propose a general strategy for the whole area. Finally, it acknowledges Eleonas as a potential for the urban revitalization of the center of Athens and its future economic growth.
The proposals addresses major transportation and pollution issues that exist in the area. Then, it recognizes certain development forces and categorizes specific urban typologies that exist on the site.

In this scale, the project addresses the design of specific urban typologies that are found on the site. Mass distribution, land uses and public spaces. A zoom-in into a 0.5X0.5 mile area inside the district.
The building's active role in the urban section. Design of the space in-between the urban typologies by reusing the existing buildings, landscape design and public transportation infrastructure.


Sapountzaki and Wassenhoven, 2003, Spatial Discontinuities and Fragmentation of Urban Areas - The example of the Eleonas of Athens, Barcelona, 5th Biennial of Town and Town Planners


