AMERICAN UNIVERSITY OF BEIRUT

UPGRADING INFORMAL SETTLEMENTS: THE CASE OF TAAMIR

by
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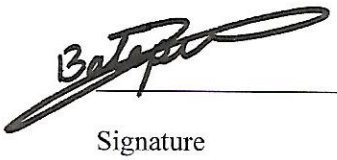

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AN ABSTRACT OF THE THESIS OF

Valerie Nader Kassem for Master of Urban Design
Major: Urban Design

Title: Upgrading Informal settlements: The case of Taamir.

This thesis articulates an upgrading strategy for the neighborhood of Taamir (South Saida), one that seeks to complement ongoing titling efforts with an integrated intervention on public and shared spaces. More specifically, the thesis adapts the Green Infrastructure (GI) approach to the neighborhoods' public and shared spaces, articulating main connectors in relation to regional circulation, introducing road hierarchies and main way findings, and integrating the neighborhood within its surrounding. The thesis then breaks down to the scale of the block where several options are explored to identify new lot boundaries, de-densify when needed, and green buildings.

Given the illegal tenure of the land, the thesis pays special attention to property claims and introduces a hybrid titling approach to be adapted to both public and private spaces.

The thesis builds on several sets of literature that include: (i) the property rights literature focusing specifically on informal settlements and customary titles, (ii) the green infrastructure approach that has proved to act as a remarkable tool for implementing livability in informal settlements while contributing to ecology, agriculture and socio-economic practices and (iii) urban design literature in informal settlements, specifically on-site resettlement options.

CONTENTS

ILLUSTRATIONS

CHAPTER I

INTRODUCTION

A. Introduction to the neighborhood of Taamir

1. Location and Population

Figure 1: The location of Taamir

Source: Municipality of Saida, 2014.

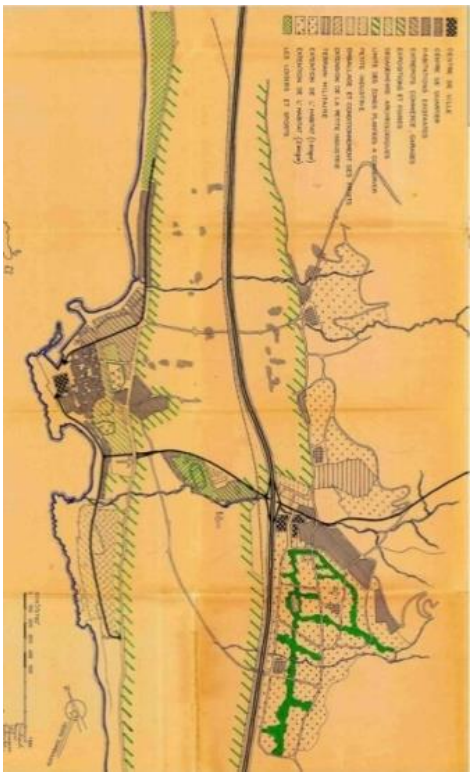


Figure 2: 1956 Ecochard's Master Plan

Source: "Who is Ain El-Helwe?" Jadaliyya, 2013.

"Taamir" is a neighborhood located next to Ain El-Helweh camp (Fig 1), the largest Palestinian camp in Lebanon. Taamir used to be the location of the Phoenician necropolis, and it was the site of a French military camp in 1940. After the earthquake that hit the city in 1956, the Lebanese government hired the French planner Michel Ecochard to develop master plan for the city of Saida (Fig 2). Ecochard proposed to build a social housing project in the same site where Taamir was built. According to

Ghandour, Ecochard and his team saw “Ain el Helweh as a convenient future neighborhood of modern living, resting at the foothills, overlooking the orchards and sea coast beyond, connected with multiple modes of transportation with sport facilities and entertainment facility with vicinity, in addition to an existing French hospital and a public school” (Ghandour, 2013). Hence, the team of Ecochard anticipated the neighborhood of Ain el-Helweh as an area of first extension for urban growth in Saida.

At present, Taamir is a mixed neighborhood housing multiple ethnic and national groups. A neighborhood where affordable rental housing abound in an otherwise ever more exclusive city (Ghandour, 2013), and a refuge for many low-income dwellers seeking shelter. Yet, given the rapid deterioration of its physical conditions, many residents leave when they can, creating a dynamic social community. More recently, the neighborhood witnessed an influx of refugees fleeing the war in Syria. The Syrian refugees found shelter in the cheap apartments of Taamir; hence, adding to the neighborhood’s mixing.

According to the Hariri Foundation for Sustainable Human Development, a count dating back to 2005 estimated the neighborhood population at 4341 inhabitants. By 2011, the population was estimated to have increased to 5375 inhabitant (Hariri Foundation, 2010). Today, the population has doubled in number is around 8106 inhabitant (researcher, 2017). Thus, the annual population growth is 3.1% per year. Taamir is a low-income neighborhood, according to the Hariri’s Foundation (2010), the minimum salary was estimated to 173.4$ per month. As for employment 49% of the population are craftsman, 20% works in agriculture, 20% service and sales workers, and 11% as elementary occupation.

The administrative division of Taamir, according to the municipality of Saida is as shown in the below map (Fig 3), property boundaries of the lots purchased by the state and allocated to public housing. Broadly, people agree about the legal boundaries of the neighborhood. This is because these boundaries overlap with the infrastructure.

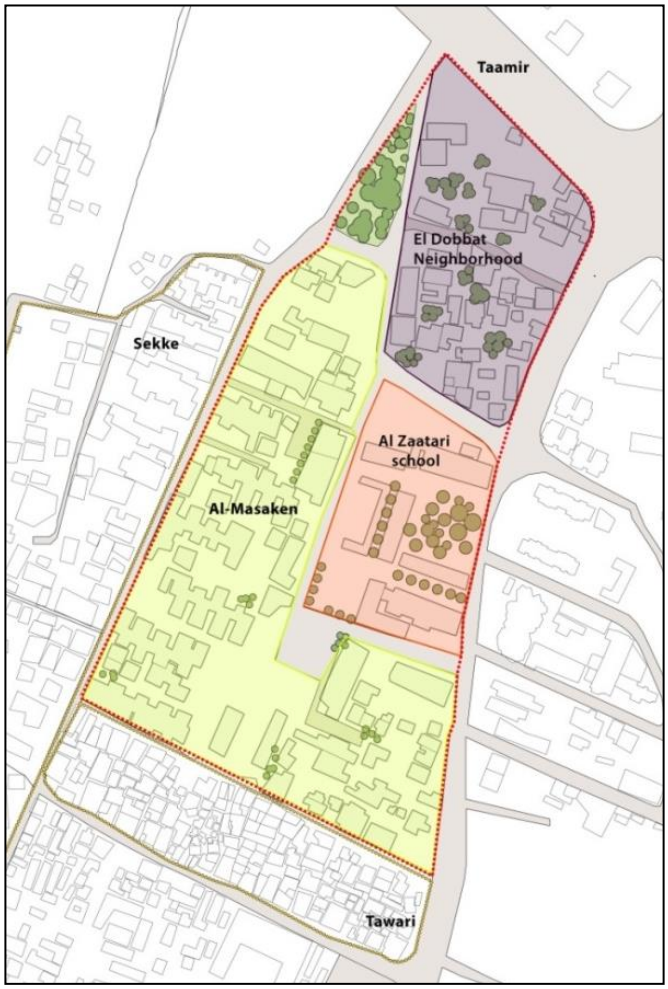


Figure 3: Administrative divisions of neighborhoods in Taamir (author, 2017)

Physically, the Taamir neighborhood consists of multi-story buildings ranging between 2-4 floors, typically with a surface area of 60m2. Many of these building had six apartments per floor when built in the 1960. Today these apartments are subdivided into 2-4 rooms per apartment, each inhabited by one to two families. At the main

arteries, ground floors are busy with commercial activities, however within the neighborhood, ground floors are residential.

Access to urban services is limited and deteriorating, as evidenced by the frequent smell of sewers, the piles of trash next to the apartment, dense electric wires that clutter the neighborhood's horizons, and the lack of general order and arrangement.

Taamir consists of two residential neighborhoods, namely the Lieutenant and Masaken project. Each of these areas has a particular character, for example, in the lieutenant neighborhood, streets have direct access to sunlight, this is because they are North- South oriented. In the Al-Masaken neighborhood, the streets are asphalted and wide, mostly occupied by cars. Although this area lacks sunlight, some sunny areas were spotted on a few streets at sunrise and sunset, mostly those oriented east-west.

Generally, the streets in Taamir have a wide diversity of users and activities and even some of the walls are tagged with political and religious signs. Although at the main entrance of Taamir, a fenced and closed public garden exists, the neighborhood suffers from the lack of green patches or open spaces. As within the lieutenants' neighborhood, there are gardens next to the apartments. However, in the Al-Masaken neighborhood there are no green-open spaces.

According to the traffic and titling analysis survey that I have conducted, the neighborhood is facing many challenges. Most importantly, I can list dis-connectivity, density/ illegality and lack of green public spaces, which present consistent and difficult issues to address by any urban planning and design intervention seeking to improve the livability of the area. Moreover, it is important to consider approaching the

neighborhood and targeting these challenges at multiple scales without acknowledging the ways these problems reinforce themselves and the extent to which they are directly related. But before moving to the outline of the research and focusing on each of these issues, I present below a brief historical overview of Taamir.

2. A brief Historical overview

Taamir social housing was built on lands originally belonging to the Ministry of Agriculture (Lebanese government). Originally known as Masaken Shaabiya (المساكن الشعبية social housing), Taamir is a governmental public housing project built in the early sixties as a response to the urgent housing needs of the city (Fig 4). The housing project, which at the beginning included 1200 apartments and then expanded to hold around 2600 units ranging from two to four floors, was a proposed solution to accommodate people who had lost their housing from the earthquake, especially the fishermen and their families considered as the largest portion of the city's working class the Hariri Foundation (Fig 5).

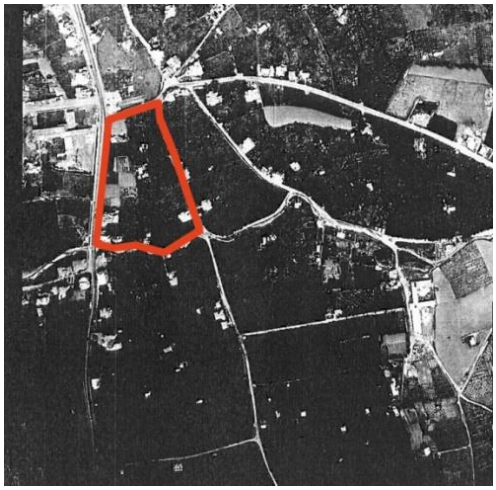


Figure 5: Aerial view, 1956, The social housing was already built. Red area shows the current location of Taamir. Source: Direction des affaires geographiques.

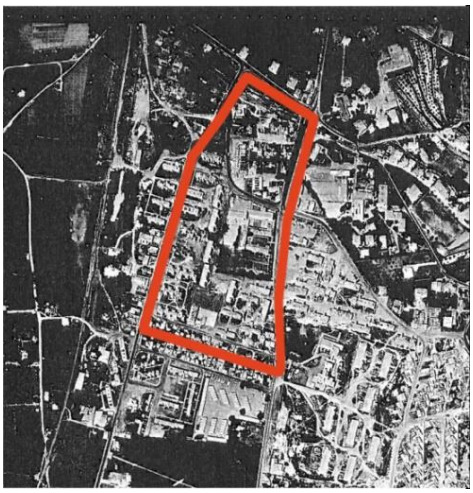


Figure 4: Aerial view, 1965. The site was an agricultural land, Red area shows the current location of Taamir. Source: Direction des affaires geographiques.

Due to the lack of documentation and reliable resources on the history of the neighborhood and its development, my research depended on collecting statements from the current dwellers of Saida and Masaken, who agreed on a common narrative.

After the 1976 Damour massacre and before the completion of the 1200 planned houses, rumors spread about Palestinians fleeing Beirut fearing the repercussions. Being alarmed by the news, the Masaken house owners and other Saida dwellers immediately occupied the unfinished houses, “preferring to occupy the houses before the fleeing Palestinians would.”(Ghandour, 2013). Right after, settling and building houses were conducted by other families from the old city of Saida in the neighboring plots until the stop of construction in the nineties (Fig 6).

Different forms of land appropriation techniques allowed people to access housing in Taamir. As dwellers account, the “first wave” occurred when anyone could demarcate a piece of land near the housing project and claim it her/his. However, this was halted by the Israeli invasion in 1982, when collaborators were given the right to

build, while various older constructions were destroyed by the Israeli tanks. The current settlement consists of about 250 houses and includes different dwellers: (i) families displaced from the old city of Saida, (ii) Bedouins who cultivate the adjacent lands, (iii) Lebanese-Palestinian refugees from “Ain El-helwe”, (iv) Lebanese villagers from various regions in the South, (v) Syrian workers.

As the building construction was prohibited in the neighborhood, the construction, occupation and later expansions of Taamir was only suspended in the seventies and the early nineties. Hence, the neighborhood developed its own form of dealing with the minor building expansion necessities which is the need of the local dwellers (Fig 7).

Figure 6: Aerial view of Taamir (1978).

Source: Direction des affaires geographiques

Figure 7: Aerial view of Taamir (2010).

Source: Direction des affaires geographiques.

B. Research Problem and Significance

1. Problem statement: Research question, hypothesis and objectives.

In Lebanon, Taamir was the name of a public agency set up to respond to the needs of people displaced by the 1956 earthquake. The Agency specifically targeted housing reconstruction through the provision of long-term loans and the direct construction of housing. In Saida, Taamir initiated a project that aimed to build 1,200 housing units in three large-scale building areas: Taamir El Tahta, middle Taamir, and the villas area. The development didn't go however as planned; the building were squatted and eventually integrated the large informal areas surrounding the Ain El-Helwe refugee camp, as one of the "greay zones[1]"

A recently proposed law allows for the subdivision of old and new apartments into individual units and the provision of individual titles to unit occupants, even if they were not the individuals or families to whom the units were originally destined. This intervention may be seen as an important precedent in Lebanon where public authorities have never titled squatters before. Yet it remains limited because its scope is limited to the legalization of ownership. My on-site observations indicate that living conditions in Taamir are deteriorating: the spatial quality of the area is degrading, insecurity is rising, and the larger infrastructure crumbling. As such, this thesis investigates how to upgrade livability in the neighborhood of Taamir focusing specially on shared spaces.

As an informal settlement, Taamir suffers from some of the issues typically faced by this type of neighborhood; these issues are at 3 scales. (1) First, at the building scale, conflicts over property boundaries: The blurred property titles cause conflicts

[1] Grey zone: According to the UN-Habitat, Grey zone is the surrounding areas of the Palestinian camp.

among dwellers and contribute to rising insecurity, (2) Crowdedness problems attached to the multi-story apartment buildings where apartments and complexes suffer from high density and crowdedness, (3) Poor maintenance from the old piping and lack of maintenance in buildings, (4) Loss of spatial qualities that result from the illegal additions that were added incrementally by dwellers. There are also problems in the spatial qualities of the neighborhood, such as the lack of green public spaces: the neighborhood public spaces are narrow and encroached on, they are dirty, often perceived as "dangerous", they lack greenery and adequate infrastructure, and remain poorly managed. There is third, the place of the neighborhood in the city or its "Marginalization": the neighborhood has been largely cut out of the city due to the securitization and inclusion as part of the Ain el Helweh enclave. No public transportation directly links it to the city and access from there to main urban landmarks and areas requires commutes and changes.

The thesis builds on the existing Saida USDS strategy that advocates the connection at the city scale. It adopts the main recommendation of the USDS to link neighborhood to the city and considers that integration of the scale of the neighborhood is achieved, consequently the thesis articulates strategies that address the scales of the neighborhood and the block focusing on the quality of the building rooftops and open/shared spaces. The purpose is to upgrade shared spaces according to dwellers' needs by relying on improving the resident's sense of place through the introduction of green infrastructure. This approach will enhance livability in the neighborhood by improving the quality of spaces and their connectivity.

More specifically, the thesis seeks to develop an integrated urban intervention that builds on and adapts the "green infrastructure approach" as a strategy to upgrade the quality of the shared/open spaces of the area of Taamir. By "green infrastructure", I refer to the natural life-supporting system that has been used as a framework to improve livability in multiple contexts such as shared and open spaces (public domain) and building plots (private domain) by integrating concerns for environmental, social and ecological health (Rouse & Bunster-Ossa 2013). My hypothesis is that the "green infrastructure" approach can respond through an integrated fashion to many of the ecological, social and recreational shortages that the shared community spaces suffer from.

In addition, considering the fact that the Municipality of Saida is providing individual land titles to residents as proposed by MP Bahia Hariri, my thesis will not intervene to duplicate this intervention. Rather I provide a legal framework for (1) legislating through titling and property ownership. (2) The shared spaces on the blocks and (3) connecting to the green infrastructure network, (for aesthetics and beautification). In addition, I will upgrade shared public spaces by using green infrastructure.

The research questions are: How can I design an integrated intervention that takes MP Hariri's intervention beyond mere titling to address the poor livability of the neighborhood, the lack of institutional/legal frameworks to manage shared and open spaces, and the isolation of Taamir?

More specifically: What form should an adapted green infrastructure approach take to respond to the spatial deficiencies of the neighborhood of Taamir and improve its poor

spatial qualities? And how can I adapt the “green infrastructure approach” to design an integrated, multi-scalar mobility network and adequate shared open spaces in the neighborhood of Taamir? What is the current status of shared property areas in Taamir and what is the best form to consolidate and manage this share ownership to respond best to the needs of an integrated green infrastructure approach? How will such an approach be implemented and which institutions will manage it?

2. Significance:

My thesis seeks first to extend the green infrastructure approach, widely used in the European cities; it’s slowly applied to the context of low-income neighborhoods, particularly to the context of Lebanon. Thus, my aim is to show the positive potential that a green infrastructure approach can bring to urban dwellers in Saida (Lebanon) and beyond through adapting the concept to one of the city’s low-income neighborhoods.

More generally, this thesis will help designers and inform planners in, theory and practice about how to approach the challenges that neighborhoods such as Taamir face using the tools urban design.

Second, Taamir is currently the center of attention for international NGOs such as UN-Habitat, UNHCR and World Vision who look at these urban neighborhoods that particularly in the context of the increased number of Syrian refugees and the consequent critical situation. So my goal while conducting this research is to influence the decision making processes of international organizations through working on the refugee issues addressing the specific conditions of Taamir, rather than the general focus on household conditions and services.

Third, the thesis hopes to shed light on the strategies that could ameliorate the livability of Taamir along the three main axes of "connectivity", "dwellers/place relation" and "spatial qualities" in relation to the quality of the shared/public infrastructure of the neighborhood. This approach seeks to build a design approach that recognizes the neighborhood dwellers as fundamental members of the city.

Finally, the thesis aims to extend our knowledge of the informal settlements in Lebanon, where most of the available research on informality is conducted in Beirut. By addressing informal settlement in Saida, I hope to shed the light on informality in Lebanon outside the capital city.

C. Methodology

In order to respond to my questions, I gathered information about the neighborhood of Taamir, synthesized it and articulated an approach to the intervention I designed. So I needed first to understand how the dwellers of Taamir relate to their environment spatially and socially. I had to put a lot of effort in order to understand their culture, traditions and the policies of the social housing in Taamir.

Data Collection: It’s well known that there is a lack of documentation and written sources about cities in Lebanon. In the case of Taamir, my thesis builds on narratives that I collected during my undergraduate studies in 2014-2015. At the time, I tried to understand and analyze the relationship of Taamir with its surrounding and with the city. I also gathered enough data about the perception of Saida’s residents about Taamir. However, considering the large changes since then, I conducted several visits to the site through different periods of the day to update my narrative of the neighborhood.

This was helpful to draw more accurate conclusions. The section below explains in details how the survey was conducted on different layers.

- First of all, a qualitative semi-structured survey was prepared to interview locals, shop owners Hariri foundation and members from the municipality of Saida.
- To create wider personal bonds with the locals, I participated in religious rituals, which were held in Taamir, This helped later on to gain their trust.
- During the summer of 2016, I did an internship at UNDP, where I was responsible for the Lebanese camps and Palestinian camps over Lebanon, and more specifically on Taamir and the nearby Sekke neighborhood. This helped me at the beginning get familiar with the site.
- I conducted a newspaper review, exploring how Taamir is covered in the news. I looked at “Saida online journal” which posts local problems such as social, political and divers conflicts and the “daily Star”.
- On the production of space, I tried to analyze the urban form of Taamir by mapping the divers social spatial practices.
- At the macro scale, I relied on historical development Ecochard’s master plan, where the grid formed Taamir, this has led to differentiate between Lieutenant and Masaken neighborhood. In addition, I overlapped the grid system with the existing social spatial practices. As a result, I constructed the Urban form of Taamir with the social practices, local needs and their activities, to come up with guidelines and generate a master plan with an interconnected network of the green infrastructure and guidelines.

Due to the insecurity that is facing Taamir, I was perceived as “an outsider” or in another term “Visitor from AUB”. That is why during the data collection, interview and surveying the areas, I faced many difficulties that restricted and stopped my research sometimes until I found an alternative. It took me around one year to gain the locals’ trust; At the beginning of my research, I was labelled as a “spy” especially after the growing conflicts between Taamir and Ain el-Helwe refugee camp. Therefore, I had to show my ID (Local one, which proves that I am Lebanese and the AUB ID to make sure that I am a student). In addition, I had to have a Tasrih from the Mouhafez of Saida. In addition to these documents, I had to proof the nature of my work and its scope. During the last three months of my research, The Hariri Foundation, was interested with my research and provided me with a local (Fatimeh Masreh) to accompany me during my interviews and while taking pictures. However, I was prevented to take pictures from many places.

Another difficulty I faced during the interview was how I was approaching the locals, and the shop owners. I had to explain the research aim and clarify that the research neither provides financial aid from an NGO or the government nor threaten their lives in Masaken. Being a woman also gave me a privilege to gain the local’s trust and allowed me to enter their houses. This gave me access to participate in women’s gathering, casual talks about their problems, their children and their needs. In addition, I formed friendships with several individuals and families from Saida and the surrounding villages. The latter’s became informal informants planning interviews and connecting me to relatives and acquaintances in Masaken or the municipality. This was consequently the most efficient way in building trust with the residents.

1. Scope and scales of intervention:

As mentioned above, this thesis investigates how to upgrade livability in the neighborhood of Taamir. As an informal settlement, Taamir suffers from some of the issues typically faced by this type of neighborhood (i) at the city scale: Taamir suffers from marginalization, (ii) at the neighborhood scale: Taamir suffers from the lack of green public spaces. (iii) Finally, at the plot scale: Taamir suffers from high density and deteriorated physical conditions (fig.8).

Having outlined this greater scope, this thesis will only tackle the last two dimensions of the challenge, remaining at the scale of the neighborhood. More specifically, the thesis will seek to develop an integrated intervention on the building complexes in order to (i) de-densify these apartment buildings, (ii) improve spatial quality of shared and individual apartments, (iii) organize the relocation of dwellers to a new location within the same area, and (iv) identify the best "property" option for the provision of titles once current ownership status is clarified. As noted above the city scale intervention adopts the framework of the Saida urban sustainable strategy (Saida USDS), including the proposed green/blue interconnected networks. Further details about the USDS are described in the second chapter (fig.9).

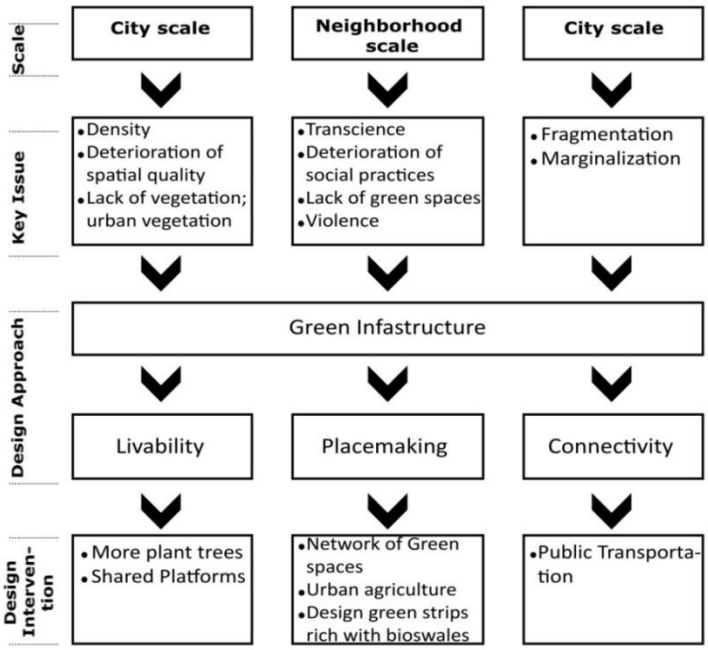


Figure 8: Scope and scale of intervention. Source: author 2017

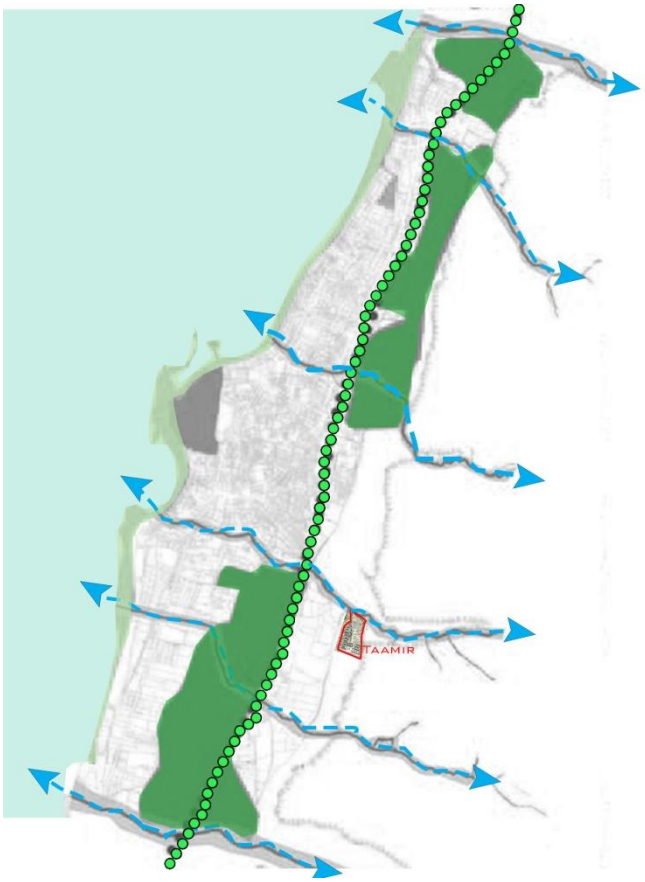


Figure 9: Taamir design intervention with Saida USDS Project.

D. Thesis Outline

In this chapter, I have introduced the case of Taamir and presented the research problem, its significance and the methodology. In chapter two, I introduce the framework and the concept of my thesis, which is green infrastructure. In chapter three, I present a deeper analysis of Taamir; based on site visits and observation. In chapter four, I explain the urban analysis of Taamir, and elaborate three main challenges, which are marginalization, density and titling. In the chapter five, I present my design intervention, which tackles the three different layers of transportation, connectivity, greenery and land use. In the last chapter I ended up with the conclusion.

CHAPTER II

LITERATURE REVIEW

This literature review is divided into three parts. It starts by outlining different types of land tenure that have been adopted in titling to show the range of options that can possibly be adopted in Taamir. The second part defines place making and livability as a tool to upgrade the public spaces in informal settlement. I also introduce green infrastructure as a tool for implementing livability in relation to informal settlements.

A. Upgrading Informal settlements:

The literature of informal settlements upgrading approaches has rapidly evolved since the 1970s. While early policymakers aimed to build modern public housing complexes, remove, and replace informal settlements, things have changed at least since the mid-1970s. Informal settlements began to be considered as "the solution to housing problem" rather than a problem by themselves particularly as formal public housing projects could not respond to housing needs for large sections of the population across the Third World (Khalifa, 2015).

According to the World Bank (1996), upgrading is an attempt to improve the physical/ spatial condition of the slums, which includes securing access to basic needs such as water, electricity, sanitation, drainage and so on. However, The Cities Alliance (2016) define the upgrading approach as a process where informal spaces are formalized, integrated into the city and improved not only physically through the

environment but also socially, economically and organizationally including all citizens, community groups as well as local and national authorities (Cities Alliance, 2016).

1. Different approaches to upgrading

Most governmental policies addressing informal settlements mix tolerance with repression; some illegal settlements are tolerated while others are bulldozed. There are however also instances of intervention towards upgrading. According to Mukhija (2002), governments' interventions to respond to housing needs have typically taken one of two approaches to dealing with informal settlements. The first is **slum clearance and on-site rebuilding,** also called the "bulldozer approach": it is usually adopted when decayed buildings in extremely bad conditions cannot be treated in another way. The option is to demolish everything and develop the area from scratch according to a new plan. The second is **slum upgrading,** which means that the municipality or the government proceed to upgrade the neighborhood on the basis of its current conditions. The government helps in the provision of basic amenities, infrastructure and housing (Mukhidja, 2002). Upgrading the slum also aims to increase the income earning capacity of its residents by providing them with job opportunities and programs (Mukhidja, 2002).

There is no universal intervention method that could be applied to all informal settlements. Every method is considered appropriate according to the specific physical, socioeconomic and environmental conditions existing in the informal areas or affecting it (Khalifa, 2015). However, if increasing livability is the goal, place-making and green

infrastructure have recently been proposed as adequate approaches to be considered. Given my interest in this thesis in these approaches, I will outline them below.

a. Place-making, Livability and Green Infrastructure

i.Place-making

According to Schneekloth and Shibley, placemaking is the interaction between space and people and their habits, "based on a worldview that assigns legitimacy to every person's experience of living, to the potential competence and compassion of human action, and to the fundamental importance of place as an actor in living well" (Schneekloth & Shibley, 1995.p12). Placemaking does not consist of designing a nice plaza, neither creating a green space, but it rather involves the community and takes the opinions of the dwellers with the purpose of getting these spaces to function well. In addition, the Placemaking approach focuses on process rather than on end-product. Hence, it improves the relationship between the life of the dwellers and the physical configurations of space. It is a project for the entire community and it should reflect its identity.

The purpose of place-making is not just to connect and integrate a neighborhood to the city but also to create a mediator to the sites that have conflicting uses (Smeha, 2016) and security issues. By upgrading the open spaces in ways that can respond better to the needs of informal settlers, place-making can contribute to creating organized public spaces that promote livability: environmental social and ecological health. Placemaking is also an approach which can be done on both the public realm and the private realm. This technically means that both the public and private sectors can contribute to the livability of the informal settlements environment.

ii. Livability

The concept of livability is a broad concept and does not have a particular definition. Marsman and Leidelmeijer define livability as "resident's evaluation of the living environment" (Kamp et al., 2003). It is the interactions between a dwellers and the daily environmental life. IMCL (International Making Cities Livable)'s definition of livability emphasizes the everyday life improvement for all, especially the more vulnerable: for example the informal settlers. Safe, clean streets, and places to foster community are all considered important characteristics that improve public health and well-being. From my perspective, livability is the improvement of environmental, social and ecological health of an entity, therefore livability can be improved, when the physical, economic and social dimensions of informal settlements are improved.

However, the design criteria and tools that could foster livability are not a set of generic solutions applicable to all informal settlements. In low-income neighborhoods, the relationship between the physical form of the neighborhood and its quality become more critical (Smeha, 2016). According to Olumuyia (2017), the best approach for livability in informal settlements is through the introduction of green infrastructure (GI) in the public realm. He argues that GI helps informal settlers identify and prioritize conservation opportunities and plan development in ways to optimize the use of land to meet their needs while harvesting natural elements. He further argues that GI is a natural system that could be used as a framework to improve agriculture, social interactions, and ecological conditions in informal settlements. GI is also a tool to connect the informal settlement with its peripheries and to tie the vulnerable

neighborhoods to more dynamic entities, hence creating connectivity between urban elements and structures. But what is Green Infrastructure?

iii. Green Infrastructure

According to Benedict and McMahon (2006), green infrastructure is "an interconnected network of natural areas and other spaces that conserves natural ecosystem values and functions, sustains clean air and water, and provides a wide array of benefits to people and wildlife" (Benedict and McMahon, 2006, p.1). Green infrastructure, they further argue, can be implemented at three scales: state scale, community scale, and parcel scale, forming the "underlying foundation" for the continuum of a community while facilitating ecological and sustainable goals.

2. Green Infrastructure in informal settlements

In recent years, green infrastructure has been considered as a tool to upgrade informal settlements. This is because "there is connection between informal settlements and green spaces and between natural ecosystem functioning as urban green infrastructure" (Olumuyia 2017 p 23). This connection takes place in three different ways as follows:

a. Ecology:

Informal settlements take advantage of abandoned lands (Alsayyad, 1993; Van Gelder, 2010). Usually these lands are rich in biodiversity and unsuitable for residential

development because of its “location near streams, on low-lying river banks, within wetlands, on steep hillsides or servitudes, buffer strips and other kinds of interstitial space” (Olumuyia, 2017, p. 24). According to Seto et al. (2012) and Gunerlap et al. (2013), informal settlements always occupy and expand into “ecologically-significant, environmentally- sensitive and biodiversity-rich places within cities”. Finally, informal settlements connect to green infrastructure through socio-ecological infrastructure, in other terms “when infrastructure needs are met through natural and semi natural systems” (Olumuyia, 2017,p. 24). This approach is usually used as a catalytic insertion at strategic points that stimulate wider-scale improvements in a settlement which could reduce the vulnerability and lack of a infrastructure of the settlement.

b. Agricultural cultivation

Green infrastructure connects to the informal settlements through agricultural practices. As for residents of informal settlements, many undertake various forms of agricultural cultivation, through diverse practices whether by planting in containers, in yards, pocket gardens, or in their communal gardens (Redwood 2009; Webb 2011; Hamilton et al. 2014). Regardless of size and form, these cultivated spaces make up parts of green infrastructure.

c. Socio upgrading approach to infrastructure:

GI contributes to the sense of place and identity of informal settlements. Besides creating articulated accessible open spaces, authors have argued that it can improve social interactions between neighborhood dwellers and hence reduce violence that informal settlements are often accustomed to (Olumuyia, 2017).

3. Benefits of green infrastructure in informal settlements:

Green infrastructure provides many benefits, on the ecological, agriculture and social level.

a. Ecology and informal settlements

GI provides several ecological benefits for informal settlements. Van der Ryn and Cowan (1996) define ecological design as "any form of design that minimizes environmentally destructive impacts by integrating itself with living processes" (Van den Ryn & Cowan, 1996, p. 33). In the urban context, ecological design integrates an ecological approach into the concepts of sustainable urban development, and creates a tool for meeting environmental challenges in the cities (Rottle & Yocom, 2010, p. 6). Primary goals of ecological design are creation of urban structures that are adaptive and resilient to future change or disturbance, self-regulating in their processes, self-renewing in form and composition (Rottle & Yocom 2010, p. 74) and that promote diverse and healthy natural and human communities (Rottle & Yocom 2010, p. 16). The aim is to improve the biological integrity, improve ecological functions, preserve, and generate resources for human use, both of the existing conditions as well as to achieve a sustainable future for both human and non-human communities (Rottle & Yocom 2010, p. 6 & 13). There are many different design principles that can be used in the work towards an ecological design in informal settlements. The first is dealing with the storm-water collection, and the second is protection, restoration and rehabilitation of ecosystems within the site.

The main problem that informal settlements face is flooding and the lack of clean water. Well designed, GI contributes to storm water collection and management (Rouse and Bunster-Ossa, 2013, p. 12-13). There are multiple design proposals that deal with run-off water in informal settlements in an integrative way with the ecological systems. Some of the examples are above ground swale; that capture and infiltrate storm water and rain gardens. Rain gardens are designed to facilitate the collection of run-off by planting beds where water infiltrates during wet periods, and rainwater capture basins; rainwater can be collected by using tanks and be used to supplement ecological design and related principles (Rottle & Yocom, 2010, p. 150). All the techniques collect, clean, and infiltrate the storm-water and provide habitat (Rottle & Yocom, 2010, p. 114). It is important to incorporate solutions for managing flooding and run-off as well as providing a sustainable system for irrigation due to the needs of informal settlement dwellers.

b. Agriculture and informal settlements

In the case of most informal settlements, including Taamir, many people have moved to the informal settlement from rural areas where they had agricultural experience. These individuals have a desire to reconnect with their abilitnaturey; as evidenced by the multiple methods for growing plants in recycled bottles and cans. According to RUAF (RUAF Foundation 2016), urban agriculture is integrated into the urban economic and ecological systems and provides an urban ecosystem. In a dense neighborhood, “urban agriculture is a part of the urban system that can compete for land with other urban functions” (ibid) which also “contributes to poverty alleviation and availability of healthy nutrition as well as to stimulate exchange and enterprise and

create links between consumption and production". In informal settlements, urban agriculture also provides recreational opportunities where people can enjoy green areas that reconnects them to their identity, hence boosting self-esteem and stimulates actions for further improving the community's livelihood (ibid).

c. Social benefits and informal settlements:

In order to become functional and practical, people need a sense of safety and security in their city spaces (Gehl, 2010, p. 97). A lively street catches the attraction of both users and observers, which grows the sense of security within the city (Jacobs, 1992, p. 35-36). Usually, informal settlements are stereotyped as violent and insecure. According to Carmona, both being and feeling safe from violence are important to the human being (Carmona, 2010, p.134). Feeling safe is different from being safe, and they are not always related to each other (Carmona, Tiesdell, Heath & Oc 2010, p. 138). Another benefit that green infrastructure provides is that it can be designed in way, which provides a sense of security. Social control does not consist of implementing security techniques such as metallic wires, or guards, and CCTV. Instead, common use of the urban spaces makes it secure. Daily activities/ practices and presence of people will encourage neighbors to go and have a walk in public spaces, which will increase the sense of security (Gehl, 2010, p. 97-98). Well-articulated green public space will attract dwellers for social practices/ interactions. So planting trees/ vegetation, and designing continuous routes that are rich with diver activities will make the space friendlier to hangout (Jacobs 1992, p. 32-36). Green infrastructure encourages informal

settlers to use public spaces which will supply their entity with a sense of security and so a decline of violence will occur.

Informal settlements often lack a sense of place and a collective identity. One of the main contributions of GI to informal settlements is its ability to create an identity and sense of place. A developed GI makes green areas and nature more accessible and connected to people, and thereby strengthens the interaction between humans and the landscape they live and act in (Rouse and Bunster-Ossa, 2013, p. 12-13). This creates engagement in the nature that provides cultural, ecological, and psychological linkages between people and their environments (Lafortezza et al. 2013, p. 3). The GI can create places where people can gather, socialize, express art and culture, which can strengthen the community spirit and connection to the place. By being accessible for all inhabitants, GI promotes environmental justice and equity. Greenery has positive effects on the public health by improving environmental conditions such as air and water quality, lower stress, and promotes healthy lifestyles by providing outdoor recreation and activities. Finaly, GI has a big aesthetic quality for urban areas (Rouse and Bunster-Ossa, 2013, p. 12-13), and can beautify the neighborhood. In this way, it helps vulnerable people to improve their psychological health and living conditions and beautify the space where they live in (Rouse and Bunster-Ossa, 2013, p. 12-13).

As a conclusion, GI contributes to socio-economic improvements in several ways. GI targets the most important point of informality that is Aesthetics/ Livability it also provides job opportunities through agriculture, local business, farmers market and even local retail sales. The boost in economy contributes to the safety and security that

the settlers need. According to Desoto (2002), increase of economy creates a sense of identity and strengthens the security of informal settlements.

B. Land tenure

Planners have long believed that there is a strong correlation between individual titling and tenure security. Titling informal settlement has social and economic benefits. Titling gives an opportunity to its owner for attachment hence investment, also it reduces violence and provides sense of the security.

1. Types of land tenure

Payne (2001, p. 2) defines land tenures as "the mode by which land is held or owned, of the set of relationships among people concerning land or its product" and property rights as "a recognized interest in land or property vested in an individual or group and can apply separately to land or development on it" (ibid). The agreed definition of "security of tenure" is "the right of all individuals and groups to effective protection by the state against forced eviction"(UN-Habitat, 2005, p.19). Tenure security doesn't however need to materialize in an individual property titles. Scholars have instead shown that many forms of tenure exist in the world. The most common among these are: customary tenure and private/public tenure. These forms sometimes co-exist, creating conflicts among opposing claims. I begin by outlining these aspects.

<u>a. Customary tenure</u>

According to the Right and Resourses Initiatives, 20011 (RRI), Customary land is land which "is owned by indigenous communities and administered in accordance with

their customs, as opposed to statutory tenure usually introduced during the colonial periods. Common ownership is one form of customary land ownership.

Statutory recognition and protection of indigenous and community land rights continues to be a major challenge. The gap between formally recognized and customarily held and managed land is a significant source of underdevelopment, conflict, and environmental degradation.

b. Private titles

Private tenure or "freehold" is a form of individual private ownership. This tenure system authorizes the "unrestricted use and exchange of land and is intended to ensure its most intense and efficient use." (Payne, 2001) It was often imported to developing countries by colonial settlers. This form of tenure is typically focused in urban areas but may sometimes co-exist with indigenous tenure systems, creating overlaps and sometimes conflicts. Private tenure strengthens the role of land as an economic asset, at the expense of other possible roles such as shelter, work or play. As such, it places vulnerable low income groups often at a disadvantage because of their incapability to access and own?. Public tenure or public land ownership is where the private ownership rights are vested in state agencies (e.g. municipalities, ministries). (Payne, 2001)

c. Formal-informal tenure

The tenure systems range from illegal or legal and formal to informal systems. Because of the existence of different systems within the same city, it becomes a challenge for policies to be implemented in one tenure system without having

unintended consequences for others (Payne, 2001). These forms of claims often reflect different relations to public authorities: Formally recognized titles are legal and pay municipal costs for land use. Non-formal tenure comprises "varying degrees of legality or illegality. It includes regularized and un-regularized squatting, unauthorized subdivisions and unofficial rental arrangements. Non-formal tenure represents the most common tenure category and it "accommodates the majority of lower-income households." It is also considered as the fastest growing category in tenure (Payne, 2001, p.10). These informal tenures frequently do not cover the costs of municipal services and other taxes.

2. Titling

According to DeSoto (2002) land titling is often introduced as the solution to challenges posed by informal settlements. The process consists of delivering property titles to individuals living in informal settlements. However, titling has several types each providing benefits/problematic which are explained below.

a. Types of titling:

There are three typologies for titling, which are: private property, common property and state ownership. Each one of the mentioned can be applied in a specific context and provides particular benefits.

What are the challenges to titling? First, titling is often applied as the disbursement of private, individual titles in contexts where they conflict with local systems of tenure and claims (Boone, 2012; Tripp, 1997). It "may […] destabilize informal property relations by reestablishing challenging cooperation" (Ostrom and

Gardner, 1993). Instead, scholars have proposed that rather than a private property, a diversity of property arrangements exist and can be beneficial for internalizing the externalities linked with the use of common-pool resources (Ostrom, 2005, 1990). Second, communal ownership or common property could be appropriate in some contexts. Finally, state ownership is financially beneficial as it improves economic outcomes (Bromley, 1991; Liu et al., 1998). Before looking at those, let us first review the pros/cons of private individual titling interventions.

b. Titling pros and cons

Pros: Many scholars have argued that land titling is the only solution for informal settlements improvement (De Soto, 2000; Holstein, 1996): its most widely recognized advantage is extending an asset to low-income vulnerable city dwellers who would be able to rely on this capital to improve their conditions. This approach could enable households to use their property titles as collateral in obtaining loans from formal sector finance institutions in order to improve their homes or develop businesses. Moreover, it may help local authorities to provide services more efficiently and to integrate informal settlements within the tax system, consequently improving the efficiency of urban land and property markets. It has also been argued that such formalization will empower poor households; give them additional political influence and voice, thus strengthening democratic ideals; and may also increase land user's investment incentives. Finally, titling, it has been argued, reduces terrorism and insurgency (De Soto 2000, p. xx).

The literature (Deboulet, 2002; De Soto, 2000; Holstein, 1996) supporting land titling argues that it will benefit and give residents of informal settlements access to the

formal markets with all the protections and benefits that will come with it. Land titling encourages its dwellers to invest and upgrade their home. Thus, the title and access to credit will help them tap into the wealth they already have which they have been unable to use before. In addition to the market benefits; land titling provides its dweller with security. The literature (De Soto, 2000; Holstein, 1996) argues that land titling empowers people since it provides security by knowing that no one can come and remove or demolish their houses. This is because they will have complete control over their land and houses. Therefore, they are no longer living in fear or doubt. Thus, land titling provides a stake in the property for the dwellers, hence empowering stability and commitment to a property.

These widespread advantages have been however contested by growing research. Scholars have decried the assumption that land titles are essential to create wealth and provide a convincing solution to inequality. The most cited critique of land titling is put forward by Gilbert (2002) who argued that "Evidence…. Against that possession of a legal tittle makes little or no difference to the availability of formal finance (Gilbert, 2002, p.11), that means a legal title on its own does not guarantee access to credit; as it's really difficult for poor people to acquire financing or take a loan from the bank. According to Gonzalez (2009), "many poor families are hesitant to take out a mortgage because they are not willing to risk their homes" (Gangalez, 2009 ,p 246). They would rather deal with unsecure credit base because they are flexible and have their contacts (Gangalez, 2009, p.246). Gangalez also mentions the situation in the United States "in terms of justifying a cautious approach by poor families and underscores the danger of formalizing property rights without implementing regulatory measures to protect the poor from predatory lending".

Cons: Land titling may be an economic obstacle instead of a benefit to the urban poor because the high costs of legalization often make it inaccessible to buyers (Deboulet, 2011, p.210). In other words, dwellers may not be able to afford paying the loans as the residents have to pay for the titling process and many expenses that come with it such as property taxes. Gilbert (2002, p.x) further argues that titling "raises the living expenses of others who are not direct beneficiaries, for example, tenants may be hurt by rent rises in newly legalized settlements", forcing their displacement.

Gilbert and Gulger (2011) further contested the correlation between home improvements and land titles. They argued that the lack of title didn't act as a barrier for residents to invest in their homes. Residents already feel a sense of ownership since they build their houses and the government provides them with basic services such as water and electricity… Their argument echoes a literature that links neighborhood improvements with "a feeling of security" (Payne, 2000). Research has found that there is "numerous examples of considerable investments being generated simply by an official statement that a settlement will not be removed, by the provision of services, or by the insurance of certificate use." (Payne, 2012).

Furthermore, several authors have argued that land titling programs are a way to delegate responsibility to the dwellers by legalizing while leaving upgrading to dwellers. This makes titling a more affordable option for government than upgrading or demolition. So by providing residents of informal settlements with property rights, the government will be solving a multitude of problems with one solution without incurring the costs. In reality, however, experiences have shown that legalization is a lengthy and complicated process that takes up to 20 years, sometimes more. Therefore, this long

time consuming and costly process deters many residents from obtaining land titling and ultimately proves that titling alone is not sufficient (Gilbert, 2002).

3. Security for informal settlers

One of the main assumptions made to support the Taamir titling process is that it will reduce violence in neighborhoods. According to Hernando De Soto (2002, p.xxxix) legal titling serves as a counterterrorism and counterinsurgency strategy. Providing land tenure security and legal titling for informal neighborhoods reduces participation in iterrorism, by creating economic stability opportunities for the residents. This economic stability is defined as "Soft Power".

Hard Power or coercion is a classic tool that is used to combating insurgency and terrorism. However, soft power is a concept developed by Joseph Nye of Harvard University to describe the ability to attract and co-opt rather than by coercion (hard power), using force or giving money as a means of persuasion. Soft power is the ability to shape the preferences of others through appeal and attraction. Soft Power refers to policies that are accomplished in a persuasive way in order to adopt goals and contrasts with the "carrots and sticks of economic and military power" (Nye, 1990). Soft Power presumes that information attack can change people's mind about participation in and support for terrorists and insurgents. The tactics of soft power "improves political order because of perceived relationship between economic opportunities and incentives to participate in rebellion" (Berman et al., 2011; Kilcullen, 2010). This means that violence is linked with financial and economic situation, so poor people are more likely to replace productive economic activities with violence and crime, and those who have

a respectful job don’t get involved in these acts (Fearon and Laitin, 2003). Thus, terrorism could be considered as a consequence of state failure, so providing public goods could be a suggested solution for reducing violence and applying the functions of the state (Coggins, 2014).

C. Using green infrastructure in informal settlements

In order to understand the relationship between a green infrastructure and the informal settlements and be able to come up with design strategies and principles for my case study, which is Taamir, I have tried to identify projects that have green implications on the public domain. Taking the vast awareness of public spaces and greenery on the past decade most of the urban regeneration projects involve the development of green spaces in abandoned urban spaces, and informal settlements also implementing a sustainable character to prevent future decline.

The selected case studies propose different scales of intervention whether at the city or neighborhood scales. They also provide different type of interventions as top down and bottom up approaches. Although these case studies are different they all aim to regenerate and revitalize the areas where they are introduced (Fig 9). First of All I will start with the Saida Usds project, since I assume its correct and will be implemented by the government. Then I will move to the neighborhood scale.

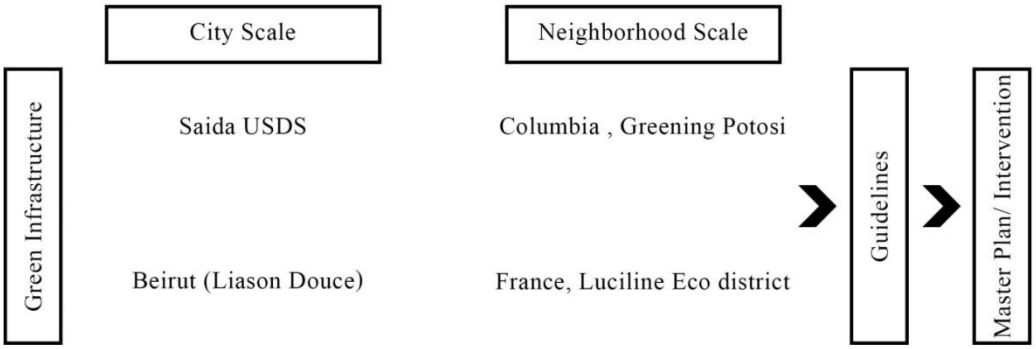


Figure 10: Case Study outline. Source: Author.

1. Case study One: Saida Urban Sustainable Development Strategy.

Ain Helwe: The USDS Project, collaboration of MedCities, the European Neighborhood Policy Instrument and Cross Border Cooperation (ENPI-CBC), aimed to develop “a strategic framework of inter-regional cooperation between EU and ENP neighbors” (Nelsson, 1996) .The focus on “the promotion of sustainable development and social cohesion of Mediterranean cities through networking and use of Urban Sustainable Development strategies (USDS)”(Nelsson,1996) The underlying aim is local capacity building, engaging and enabling local communities as active partners in urban development. Saida Municipality appointed a team of consultants, commissioning them to develop the USDS vision and the strategic framework (Pincetl, 2006). The interdisciplinary expertise of the consulting team was a key asset to the project.

The urban greening challenge for the Saida USDS was to demonstrate that a landscape framing of environmental and ecological concerns not only spatializes them but also addresses social concerns, provision of amenity, green spaces, and cultural dictates, protecting the landscape heritage.

The main objective of this project is to promote a sustainable development and social cohesion of Mediterranean cities through networking and use of urban sustainable development strategies. Multiple approaches were taken into consideration, such as; enhancing the interaction between nature and the urban context, enabling citizens to benefit from the natural heritage present in the city, promoting diversity, raising people's awareness and encouraging them to participate in the conservation plans, improving connectivity of urban green spaces through corridors, protecting biodiversity, and sustaining environmental health. Most importantly, the project aimed to reconnect the informal settlements to the city proper (Saida Urban Sustainable Development Strategy, 2013).

The project adapted a clear stand in relation to the camps: The camps will remain one of the main hindrances to development in Saida as long as they are neglected and allowed to sink further into poverty. Upgrading the camps will allow their residents to improve the quality of their lives and reduce local tensions. The proposed project aims at developing an incremental participatory framework for upgrading the camps by providing badly needed infrastructure as well as incentives for improving the private housing stock. The improvement of the camps (to be carried out in partnership with UNRWA and the local camp committees) would also involve ratifying new detailed plans for the area to bring more equity between the UNRWA administered areas and areas developed spontaneously on the fringes of the camp. It will also involve developing legal tools to provide the residents with assurance of tenure and mechanisms of legally transferring property rights, which would provide the residents with some economic advantage and security to invest in developing their livelihoods, contribute to the local economy, and contribute to dismantling the vicious cycle of poverty and

violence in the camps. This in turn would encourage outside investors to invest in the city.

One of the approaches of the project was the revitalization of the rail road trail by developing a network of eco-tourism / agriculture trail (Howayda Al-Harithy et,al. 2014). The trail that would also pass within Ain El-helwe boundaries will connect different parts of the green corridor together as well as connecting the informal settlement to the wider scale of the city both socially and economically (Fig 11). This green corridor is also connected to a wider network of green paths that will increase biodiversity and provide a safe transport corridor for flora and fauna between the different green sites as well as their surrounding nature.

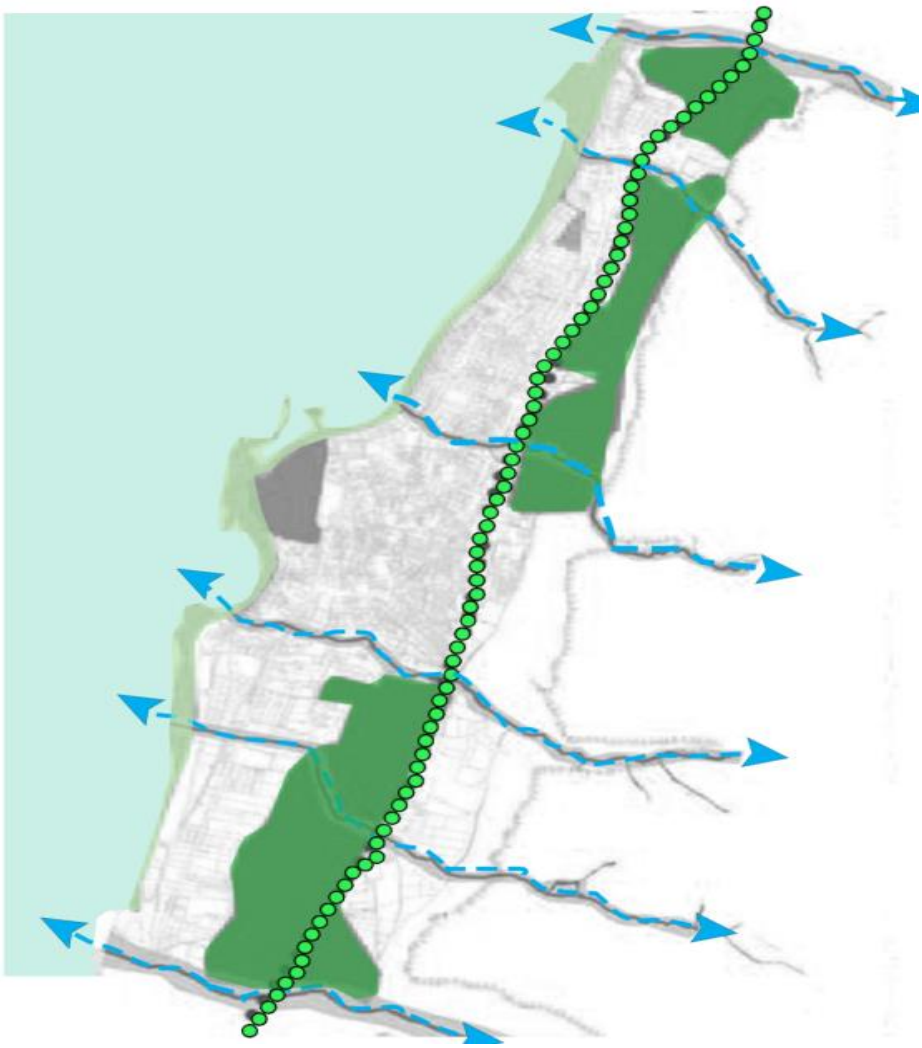


Figure 11: Green/Blue corridors of the Saida USDS master plan . (Source: Jala Makhzoumi, 2016)

In order to generate an identity for the informal settlements the project fostered the agricultural heritage of most of the residents. Experts proposed communal gardens, where locals can plant and harvest the final product. This will also alleviate the informal settlers living condition both socially and economically: these gardens will beautify the neighborhood and will encourage people to hangout therefore the social bond will be

improved also the harvested products can be sold hence bring an extra income for the residents.

2. Case Study Two: Beirut Liaison Douce Project

In collaboration of Ile de-France and the Municipality of Beirut, a project was initiated in 2011 by the Municipality of Beirut that aims to regenerate and link the city's two main public spaces which are Beirut's Pine Forest and the city center of Beirut via Damascus Street "previously was called the green line" (Debs, 2016). This project aims to connect and revitalize the surrounded neighborhood of this link, by encouraging pedestrian circulation and revitalizing or adding green spots. This project can be considered as a participatory approach since the designer took the locals inputs and the identity of each neighborhood into consideration for the master plan. (Fig 12)

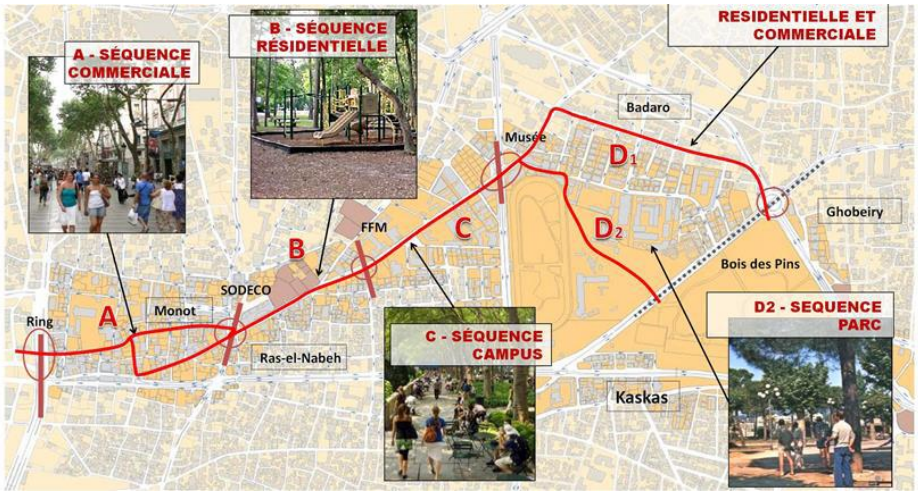


Figure 12: Different sections of the intervention, (Debs, 2016)

This project deals with the cultural and the green layer. Since I'm working on the green infrastructure I'm going to focus on the green section. The green layer's main problematic was to find an appropriate way to link different green patches. The design team used different mineral and vegetable, free and cut vegetation, tall and dry grass

and treated lawns, etc to gain connectivity. They also enriched the connectivity by more punctual and direct references, notably to the location of the old "passages" (numerous checkpoints of the Ring, the Museum, Sodeco)(Fig.13). For example, at the right of the Ring, ficus will be rooted in the steps separating the street of Damascus Avenue from Béchara-el-Khoury. In addition, the development of a plant cemetery integrated into the layout of the public space at Sodeco's right is also part of the masterplan. The cemeteries of Damascus Street, other places of memory within the project site, will have rest areas associated with them.

Habib Debs revived these green hubs by adding cultural and social activities (Fig 14), so the significant function will not be limited to these developments. The artists' community in Beirut, which has been the subject of archives and memory for more than a decade, has seen its artistic production receive international recognition in recent years. They could find here a space of singular expression, in-situ. Planned developments, squares, museums and universities, outdoor amphitheaters, are intended to make room in the public space for facilities, events, traveling exhibitions, etc. They can be used as mediators for cultural events associated with various museums (Museum of Memory, National Museum), theaters (Monot, Beryte) and cultural centers.

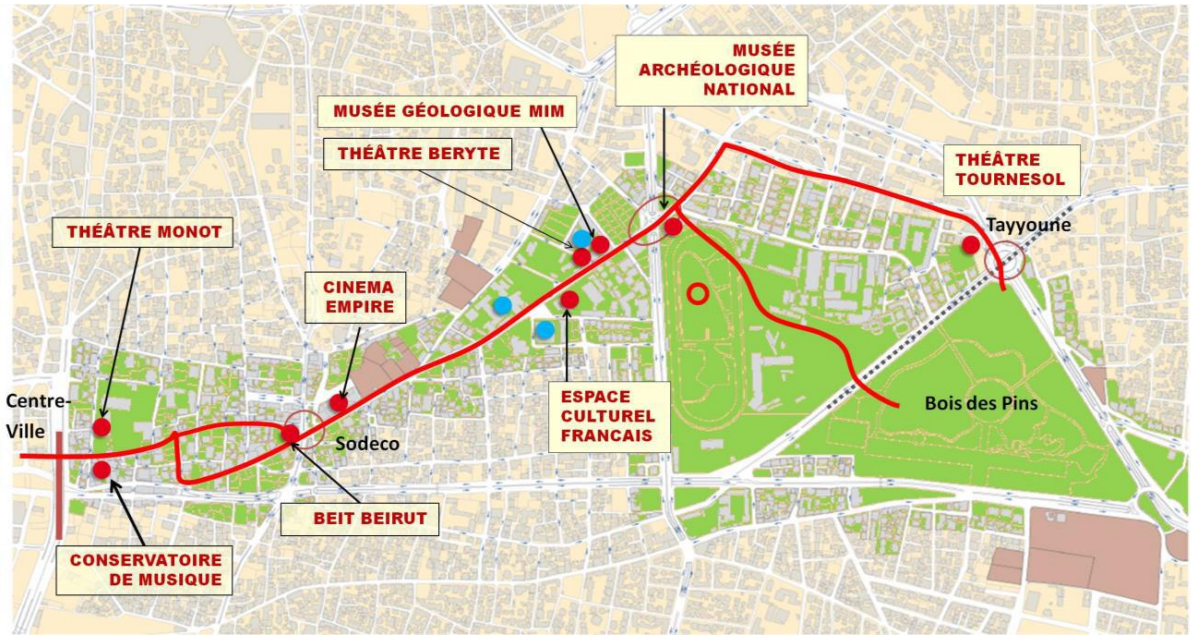


Figure 13: Open spaces of the linear intervention (Debs, 2016)

Figure 14: 3d views of the Liaison Douce. (Debs, 2016)

3. Case study Three: Greening Potosi Making Use of Green Infrastructure in a Dense, Informal Settlement of Bogotá.

Potosi: Potosi is situated at the west boarder of the Bogota, which is the capital of Columbia (Fig 15). The topography in this part of Bogotá is quite steep, as the neighboring barrios are located on hills. Due to the rapid, uncontrolled urbanization, Potosi has risen through "bottom up" processes within very limited resources, where the residents have used their own initiatives and imagination to develop the environment. In another words Potosi is an informal settlements that lacks sufficient amount and quality

of greenery as well as adequate infrastructure, provision of social services, access to public places and opportunities for recreation (Amanda Hultman & Johanna Svahn, 2016)

Figure 15: Left: the location of Bogota in Columbia. Right: the location of Potosi In Bogota. (Source: Amanda Hultman & Johanna Svahn, 2016)

In order to improve the neighborhood's physical conditions, a proposal was designed by students with a focus on greenery: a green network of hubs, sites and links coincide with a network of well used paths and nodes. In this way, active spaces go green and green spaces go active, which will provide ecological, social and recreational benefits and at the same time improve the sense of security. To promote social and recreational benefits, attractions are created and combined with tools for ecological benefits. In the Green Infrastructure plan, four Green parks with different themes are designed to attract different target groups and to extend the use during the whole day. Six existing well-used nodes are developed ecologically into green spots and green paths to create a network of links that connects the parks and spots to each other, creating an interconnected Green Infrastructure. Create security, build solidarity and trust, utilize initiatives and engagements and allow for continuous development were

fundamental aspects to consider in Potosí. These aspects depend on much more than the physical environment and are not possible to solve directly with a specific design solution or even in a green infrastructure plan. They nonetheless constitute the core of what the development of Potosí had to be based in. To adapt the proposal to the dynamic character, of the neighborhood, the student approached the project as a "base" that can be further developed by the community, rather than a finished product (Amanda Hultman & Johanna Svahn, 2016)

In addition to the urban agriculture, urban farming was also proposed in four sites. Two of the locations are in two schools in the barrio. The students get involved in the cultivation during school hours and workshops for the community are arranged over the weekends and during evenings. The other site for urban farming is in Cocinol where an elderly activity house is being constructed. The last one is only temporary, a waiting the completion on an elderly, but this shows a need and wish for more opportunities for urban agriculture sites within the neighborhood (Fig 16).

Figure 16: Left: vegetated recycled bottles along the facades of residential houses. Right: Shows vegetated recycled pipes. (Source: Amanda Hultman & Johanna Svahn, 2016).

The proposed plan paid particular attention integration: the structure of the greenery where the green paths are connecting the green public parks and the green public spots, creating an interconnected green infrastructure. The attractions are placed in the green public parks to create or strengthen nodes. The different tools of green infrastructure such as green walls, planting strips, and solitary trees… are distributed within the green public parks, the green public spots and along the green paths (Fig 17).

Figure 17: Proposal green infrastructure plan for Potosi. (Source: Amanda Hultman & Johanna Svahn, 2016)

The purpose of the “attractions” is to create meeting places with social and recreational benefits. This was done by proposing playground areas, areas that are dedicated for outdoor exercising, BBQ areas, food hubs, and an amphitheater. The network of green paths consists of existing streets in the barrio that was developed

ecologically. These are complemented with three new green paths to create a more cohesive and logical structure to oriente oneself within. Rain gardens, street trees and street greenery are the tools used in the street network inside the barrio to increase biodiversity and to take care of run-off water. (Fig 18)

Figure 18: Different solutions for handling and displaying run-off water in Public place in the park at library Virgilio Barco, Bogota.

Another example is the vegetation stretches along the entire canal that provides habitat and transport corridor for flora and fauna between the different sites and hubs along the canal as well as to the surrounding nature (Amanda Hultman & Johanna Svahn, 2016). The plants can handle both drought and flooding, and help protect the soil along the canal against erosion. The plant composition is diverse both to be aesthetically interesting and to promote biodiversity (Fig 19).

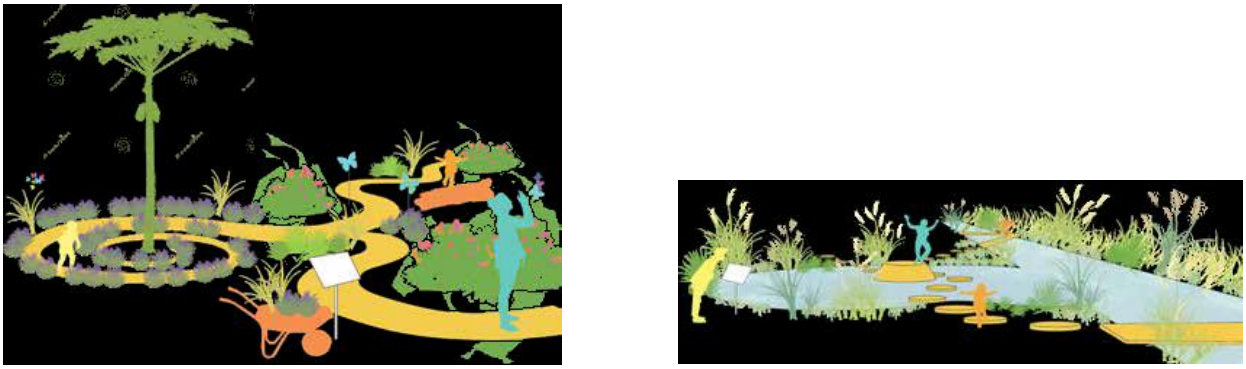


Figure 19: Left: Butterfly garden is aesthetically interesting and to promote biodiversity. Right: vegetation stretches along the entire canal. (Source: Amanda Hultman & Johanna Svahn, 2016)

4. Case Study four: Luciline-Rives de seine Eco district, well-balanced and active eco-district

The Luciline is a mix of 13 districts (Fig 20-21) which are located on the western part of Rouen (France); more specifically, Luciline is situated in a valley next to the sea. In collaboration of the government, the regional public authority and the European unions, Saint Martine department proposed multi-layered strategies, which aim to design an eco-neighborhood including integrated water management, reduced flooding measures, and measures for cooling building and public spaces.

Within the urban development zone, public spaces were designed and added to improve the landscaping quality of this eco-neighborhood which combines housing (1000 units) and 76 docks of leisure and shopping centers.(Ariella, 2012)

Figure 20: Luciline Master Plan. (Source: https://www.rouennormandyinvest.com/en/relocating/city-centre-tertiary/luciline-rives-de-seine-eco-district)

Figure 21: Land Use of Luciline. Source: https://www.rouennormandyinvest.com/en/relocating/city-centre-tertiary/luciline-rives-de-seine-eco-district)

The neighborhood was designed based on three key principles as follow:

1- Well-articulated transport lines: three high-level service public transport lines connected the neighborhood. These lines connect the neighborhood with the city that is a 10 min drive away.

2- Integrated water management: in this section planners and designers proposed multi-layered strategies as follows:

- Dealing with the flooding: planners and designers created a landscape loop which serves as a retention basin and by integrating the risk of hooding by the Seine and the increase in heavy rain episodes (creation of a flood chamber, raising ground floor levels, etc.);

- The collected water will be treated naturally by using storm water management, bio swales, which are planted and connected through pipes collecting rainwater and discharged in the public spaces (Fig 22).

Figure 22: View of the pedestrian mall bordering Luciline. Source: https://archi-rouen.fr/realisations/luciline.

• Also planners took heat effect into consideration, by using a geothermal network by adding green roofs and rainwater collectors in ditches which reduce the effect of heat during the summer, hence, saving energy for the heating during the winter.

• Planners and designers encouraged biodiversity by creating new eco-specifications on the public and private domain. For example, they required home owners to plant 20% of any land with native vegetation.

3- In order to conserve/ preserve the eco-neighborhood, planners and designers fought to create awareness by distributing banners that explain how to benefit, and how to deal with the eco-system. For example, they shared guidelines for garbage recycling. In addition, they encouraged people to use public transportation and bicycles. Finally, they distributed kits with instructions of how to deal with the public spaces and efficient buildings. The project was successfully implemented in collaboration with the locals and the municipality.

D. Conclusion:

Ecological urbanism or green infrastructure, are contemporary powerful tools that can address the needs of the natural and the built environment specifically in informal settlements. Such tools project interventions that have the possibility to become catalysts for upgrading and improving the livelihood of informal settlements.

The case studies show that ecological urbanism has a positive impact on the society; this was addressed by creating an open green space network as well as open space patches giving them functions, character and way finding. These open spaces are

to foster diverse activities however, in neither case studies security, although is a major problematic in informal settlements, was mentioned as a barrier and was not addressed.

Agriculture also was a strong front in all case studies. By implementing urban agriculture, which is closely related to the background of both Potosí and Eyn al Helwa settlers, both communities have a chance to embrace their heritage and tackle different innovative solutions for growing plants. For example, in recycled cans and bottles on roofs and along the facades of residential houses as well as local methods of farming on the allotments.

However, although case studies tackled the three dimensions; ecology, agriculture and social, I believe that Potosi is much more integrated within the fabric of the city than Saida's case study. In the case of Potosi the planners focused and tackled each dimension according to the needs of the informal settlers. For example on the social dimension they improved the social practices that were happening on the site through the GI implementations, this was also reflected in their master plan where multiple tools of GI were used to connect the informal settlement with city. However, in the case of Saida the three dimensions were proposed holistically without mentioning how the informal settlers could appropriate them. The proposal focused on the connectivity of the informal settlement to the city rather than proposing an intervention that was focused on the social characteristics and needs of the informal settlement. Of course I must add that the final outcome was strategies and recommendations for the future intervention and there is still a lot of work that could be done. That's why I believe that Municipality of Saida will benefit from Saida Usds and based on this study it will elaborate detailed interventions.

To sum, urban agriculture and communal gardens were the strongest interventions that made Potosi a well-integrated GI project with in the informal settlement. This approach not only brought economic revenue to the settlers but also because they were responsible for the management and planting, also brought a sense of identity that was closely related to the majority of the tenant's former occupations. This project is an inspiration and could be a good solution for other informal settlements.

In conclusion, I would like to say that hybrid dynamic models capable of addressing multidisciplinary dynamics on multi levels is what makes ecological landscape an effective tool to upgrade an informal settlements. Although this approach is not well developed yet, especially the relation it has with informal settlements, but I think it has a potential to be a successful approach in contemporary societies.

CHAPTER III

CASE PROFILE: THE TAAMIR NEIGHBORHOOD.

In this chapter, I present an overview of Taamir's historical evolution, the neighborhood's demography's, and economic character. I will also describe the current conditions of the neighborhood through its spatial configurations and the socio-spatial practices of its dwellers.

A. The Taamir neighborhood: Political, Demographic and Economics characteristics.

Taaamir is one of the informal settlements of the city of Saida. It is located at the Southern entrance of the city. It houses low to middle-income families. The houses are characterized by a typology different from that of the buildings in Saida; the northern part of the neighborhood is still carrying the traits of rural family houses of the neighboring villages.

According to the UN-Habitat and UNDP, The Taamir neighborhood is located next to the grey areas. Grey areas or adjacent areas "are informal Palestinian gatherings located around the boundaries of official Palestinian refugee camps in Lebanon" (UN-Habitat, UNDP, 2010, p 20). As seen in figure 23, we can notice that the Taamir neighborhood is located next to the adjacent areas of the Ain El-helwe camp. Ain El-Helwe camp is considered one of the largest Palestinian camps in Lebanon; it's bounded by eight Adjacent Areas which are follow (Baraksat, Bustan ElKods and Ouzo, Bustan abou Jamil, Fadlo Wakim, Hay El-Sohoun, Jabal El-Halib, Sekke and Tawari). These adjacent areas are inhabited by Palestinian refugees who were displaced due to the civil war (UN-Habitat, UNDP, 2010, p 134).

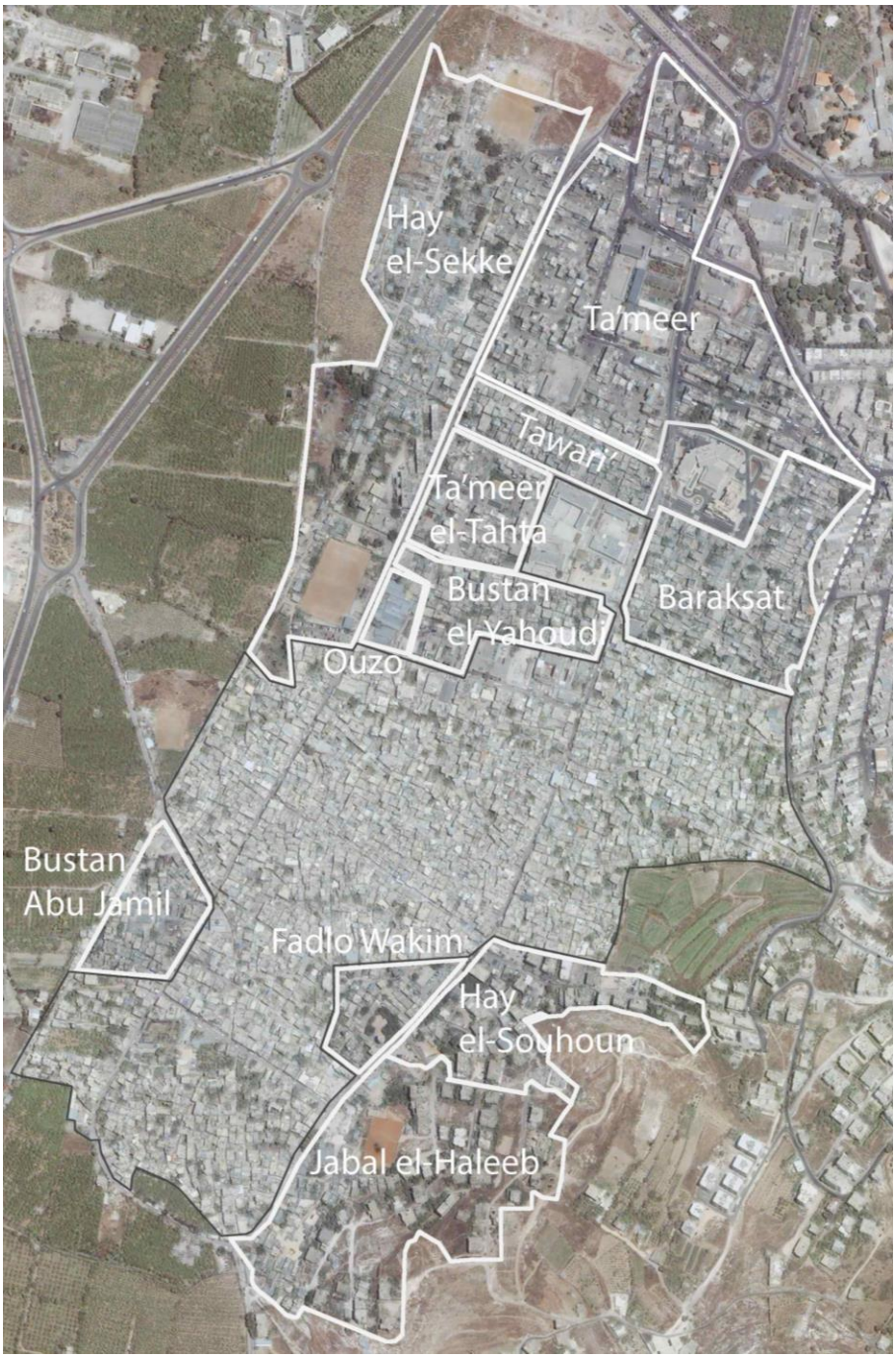


Figure 23: Adjacent Areas (Grey Areas) of Ain El-Helwe camp. Source: UN-Habitat, UNDP, 2010.

1. The early formation and development of Taamir

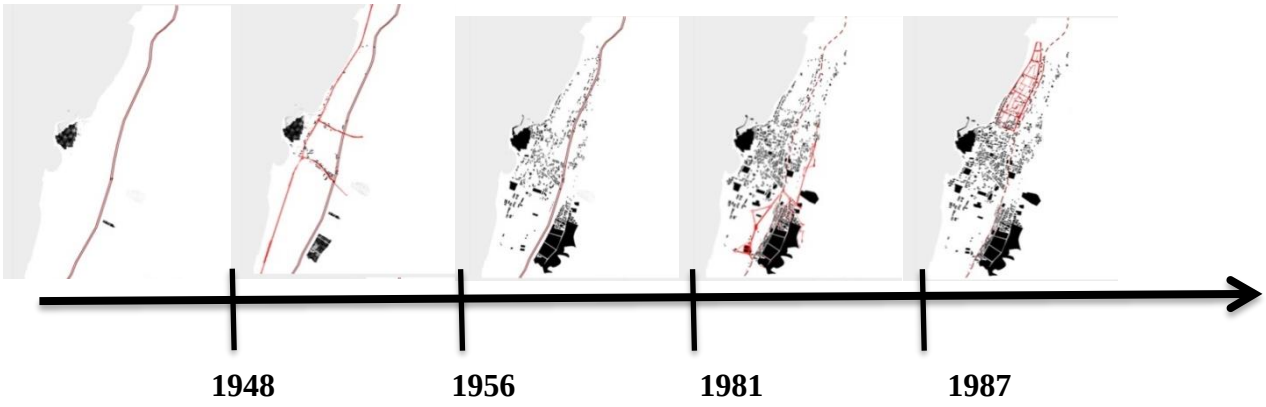


Figure 24: The historical evolution of Saida transport infrastructure determined its urban foundation.

The first settlement of this area dates back to the early 1950s. At the time, the establishment of the state of Israel and the eviction of thousands of Palestinians brought refugees to the railway station in Saida, which became a major refugee camp hosting over 100000 Palestinian refugees. This cluster formed the Tawari (Emergency) settlement, a cluster that became a turning point in the urban evolution of Saida.

A new phase of the city's urban evolution occurred through the establishment of the Zahrani fuel plant in South Saida in 1950, and its linkage to Beirut through the construction of The Riad al-Soloh highway, which cuts through the agricultural fields. High story buildings with commercial ground floors started emerging along this route, as well as the two perpendicular roads that were constructed. Commissioned to design public housing in the area, Echochard took advantage of the existing infrastructure place workers in a dedicated neighborhood. This was the initial concepts of the Taamir neighborhood.

The 1956 earthquake was to consolidate the area as a working class pool for Saida, by generating the need for temporal houses for the city residents who had lost

their homes. Ecochard designed the housing project near the camp, with in mind a working class neighborhood.

In 1981, due to the Lebanese civil war, the railway stopped functioning, causing people with high income moving out of the crowded city core and further into the agricultural fields. This urban evolution formed a type of scattered urbanization, which caused the need for infrastructure to be built around the new established urban zones.

Saida peripheries were urbanizing and in 1987, the process was consolidated by the large scale land pooling and parcelation project for the agricultural lands in the Wastani area. This planning intervention caused relatively expensive plots dedicated to developers who are constructing commercial buildings or residential towers unaffordable to most of the city dwellers. It left out Taamir and its surrounding that became, since then, the most affordable housing neighborhoods in Saida (Fig 24). Due to the urban expansion, the green areas have been shrinked. (Fig 25)

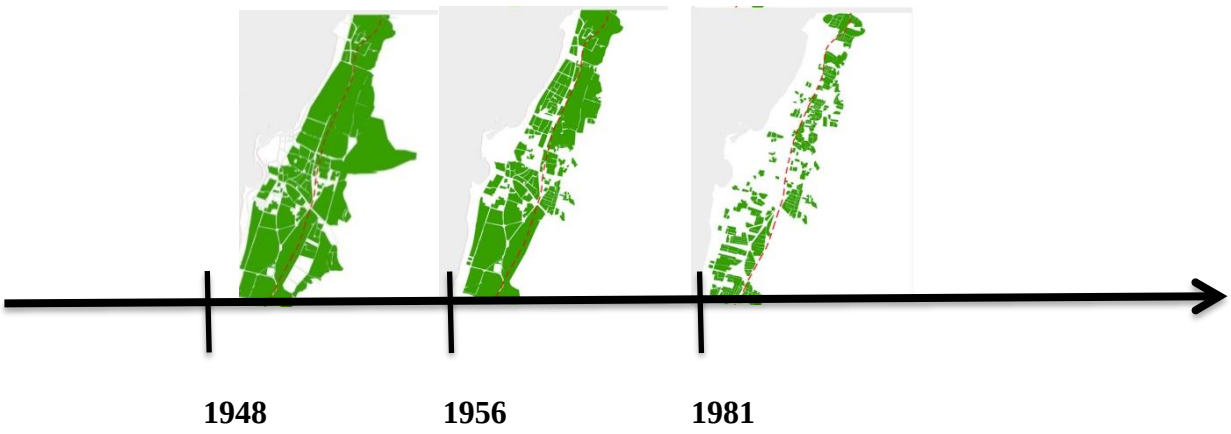


Figure 25: Shrinkage of the green spaces. Source: Author.

Figure 26: The historical evolution of Taamir and its surrounding. Source: Marwan Ghandour 2013.

2. The social profile:

At present Taamir functions as the city's main "labor pool"; the majority of the construction workers, carpenters, electricians, mechanics and etc. Live in Taamir and work in the city (Hariri Foundation, 2014). The dominant working class in the neighborhood is men engaged with agriculture, construction, plumbing, driving, and working in shops, as well as low-paid craftsmen (e.g. carpentry, blacksmith, and mechanics). However, women generally do not work; the few that are engaged work as saleswomen in shops in Saida.

According to a survey by Fatma Al Masri[2], the residents of Taamir are Lebanese and the rest are Palestinian and Syrian. According to my survey the majority of the Lebanese residents are from Saida; they come from Rejal Al Erbein neighborhood[3] while others come from Chouf, specifically Chehim and Bseba.

Housing prices have been increasing. Thus, the average 90-110m2 house in the neighboring Taamir, the closest low-income neighborhood, is around USD 40,000, a sum that is unattainable for most of the Taamir dwellers, particularly young couples. The culture of house renting is not well received by neither the renters nor the property owners. Concequently, many resorts to living with their parents with more than one family lives in one apartment.

3. Employement vs Education:

According to the Hariri Foundation, "Most Palestinian residents work as craft and related trade workers or machine operators (49.00%), a quarter works in elementary occupations, such as agriculture and construction, while 20.00% work as service and sales workers, and only 6.00% as professionals, senior officials and managers." Around 13.00% of women aged between 15-65 work, as opposed to 65.00% of men within same age bracket (Fig 27).

[2] Fatma Al Masri: was born and raised in the Taamir neighborhood, works with the Hariri Foundation to collect datas and survey Taamir from time to time.

[3] Rejal Al Arbein: This neighborhood is located in old Saida, was destroyed due to the earthquake 1956.

	Professionals Senior Officials, Managers	Technicians, Associate Professionals , Clerks	Service & Sales Workers	Craft Workers, Machine Operators	Elementary Occupation
Saida	**13.00%**	**4.00%**	**15.00%**	**49.00%**	**19.00%**
Mia Mia Camp	12.00%	4.00%	8.00%	52.00%	24.00%
Ain El Helweh Camp	10.00%	4.00%	13.00%	54.00%	20.00%
Taamir-Villat	**6.00%**	**0.00%**	**20.00%**	**49.00%**	**25.00%**
Old Saida	7.00%	3.00%	20.00%	47.00%	22.00%
Dallaa, Hey Zuhur	30.00%	7.00%	14.00%	28.00%	20.00%
Al Barrad	27.00%	0.00%	23.00%	45.00%	5.00%
Wadi Zeineh	13.00%	6.00%	22.00%	51.00%	7.00%

Figure 27: Table 1 shows Residents of Taamir: Occupation by Profession. Source: Socio-Economic Survey of Palestinian Refugees in Lebanon 2010.

According to the Hariri Foundation, the employment and the job status are linked to education. The better education is, the higher status is. As seen in fig 28, Residents who has higher education are more likely to be employed, these people are aged between 23 and 65 years old with vocational (70%) or University degree (63%). However, 40 % of the employment have been completed the primary school or have not been at school at all.

	Employment Rate (23-65 years)	Professionals , Associate Professionals	Service & Sales Workers	Craft Workers, Machine Operators	Elementary Occupation
Never at School	39.00%	7.00%	16.00%	45.00%	32.00%
Completed Primary	40.00%	12.00%	16.00%	47.00%	26.00%
Brevet	38.00%	13.00%	23.00%	49.00%	16.00%
Baccalaureate	44.00%	35.00%	20.00%	34.00%	11.00%
Vocational Degree	70.00%	36.00%	22.00%	27.00%	15.00%
University Degree	63.00%	70.00%	8.00%	12.00%	9.00%

Figure 28: Education Level vs. Employment. Source: Socio-Economic Survey of Palestinian Refugees in Lebanon, 2010

Another survey was conducted by the Hariri Foundation in 2005, for Sustainable Human Development, the unemployment rate amongst the youth in in the Taamir neighborhood is 21, 5%[4].

4. Surrounding neighborhoods and security in Taamir

Taamir and the camp play complementary roles in the lives of the 'Ain al-Hilweh residents. The camp includes busy markets for affordable food and goods serving the area, which create an organic continuity with surroundings. At the physical level, the Ain Al-Hilweh camp and most of the adjacent neighborhoods are enclosed within a security zone, successively guarded by the Lebanese army and the Palestinian Security Committee, which separates it from the Taamir neighborhood.

Today, the Taamir neighborhood falls under the control of militia armed groups such as "Saraya al-moukawama" and other Salafi groups[5]. This is reflected by the abundance of flags in many streets (Fig 29). In popular press and parlance, Taamir is often described as the city's danger zone: largely stigmatized as mobsters, the men and youth of Masaken are said to be generally affiliated to Hezbollah and Salafis. They are frequently labeled as "zo'ran", a term used to locate the whole neighborhood outside the rule of law, or beyond the control of local or governmental authorities. The Lebanese army has placed checkpoints at the main entrance of Taamir to attempt to control its security; the closer to Ain El-Helwe the more intense the security becomes. The problems peaked in 2006-2007 when the Zionist attacked Lebanon and a flux of refugees was added to the neighborhood.

[4] Volume II: Poverty Mapping & Profiles; EFSD-Formulation of a Strategy for Social Development in Lebanon; Information International; Beirut, Lebanon, 2005; p. 29

[5] Salafi are ultra-conservative reform branch or movement within Sunni Islam.

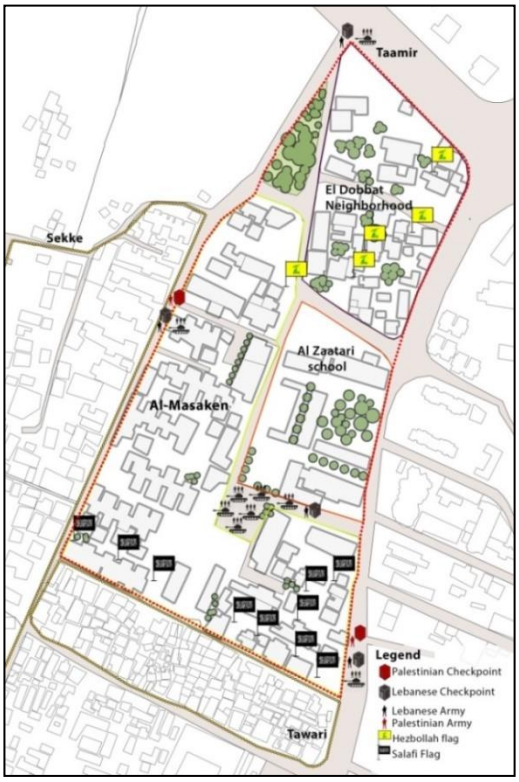


Figure 29: Security forces and political/military groups in Taamir.

In the aftermath of the conflicts[6] in Taamer (2006 and 2007), the Lebanese army raided the neighborhood looking for Islamic militants, and intensified the security at all the gates to the camp. As a result, the presence of Islamic militants became concentrated within the camp in proximity of Taameer, mainly in the Taware[7] neighborhood. A recent agreement between the Lebanese Army and Ain al-Hilweh's Palestinian factions led to building a security wall and watchtowers around the camp and restricting the circulation of Lebanese in the Camp (Fig 30). This wall has affected Taamir positively, residents feel safer since they are outside the walls and the gangs who are living in Tawari are controlled from the Lebanse army.

6 "Taamir has witnessed a series of deadly confrontations over the past three years. The neighborhood houses a number of armed militias. Dozens of Lebanese and Palestinians have been killed or wounded in violent clashes between Taamir residents and the two armed main groups, Jund al-Sham and Osbat al-Ansar." (Mohamad Zaatari, the Daily Star, 2006)

7 Taware neighborhood is located on the southern surrounding of Taamir.

Figure 30: Security wall and watchtowers to surround Ain El-Helwe camp. Source: The daily star, 2016.

The western neighborhood which surrounds Taaamir is Hay el-Sekkeh. This area is a squatter over the public rail line that extends from the north of Ein-El-helweh camp along the railway line towards the site of the previous Saida train station, now a Lebanese army military base. Hay el-Sekkeh was first squatted by a nomad Arab population "the nawar[8]" on seasonal basis since the 1950's, and later developed with Palestinian refugees from Nabatiyeh and Tal-Al-Zaatar. Today Hay el-Sekkeh is a mix of diverse population groups including Nawar, Palestinians-Gawarne, and Lebanese. It consists of single level homes, where zinco houses are distributed randomly. At the time of the field observation (Summer 2016), all houses were covered with nylon or

8 The "Nawar" are a group of nomadic Arab people who have historically inhabited the desert regions.

corrugated iron zinc roofs (Fig 31). This shows that Taamir neighborhood differs from the Sekkeh neighborhood, due to different building typology.

Figure 31: General view of the Sekke neighborhood.

5. Inner neighborhoods of Tammir:

The Taamir neighborhood was initialy build over 8 plots which are as follow: 293-298-292-294-296-295-1509 and 1510 (Fig 32). These plots were originally belonging to the ministry of Agriculture. Lot areas in the Taamir neighborhood range from 2960 m2 to 77847 m2. As seen in figure 32 and 33 we can notice that the parcelation of Saida and their prices reveals different patterns that divide it into different urban fabrics. We can notice that the Taamir neighborhood fits in the unsalable areas.

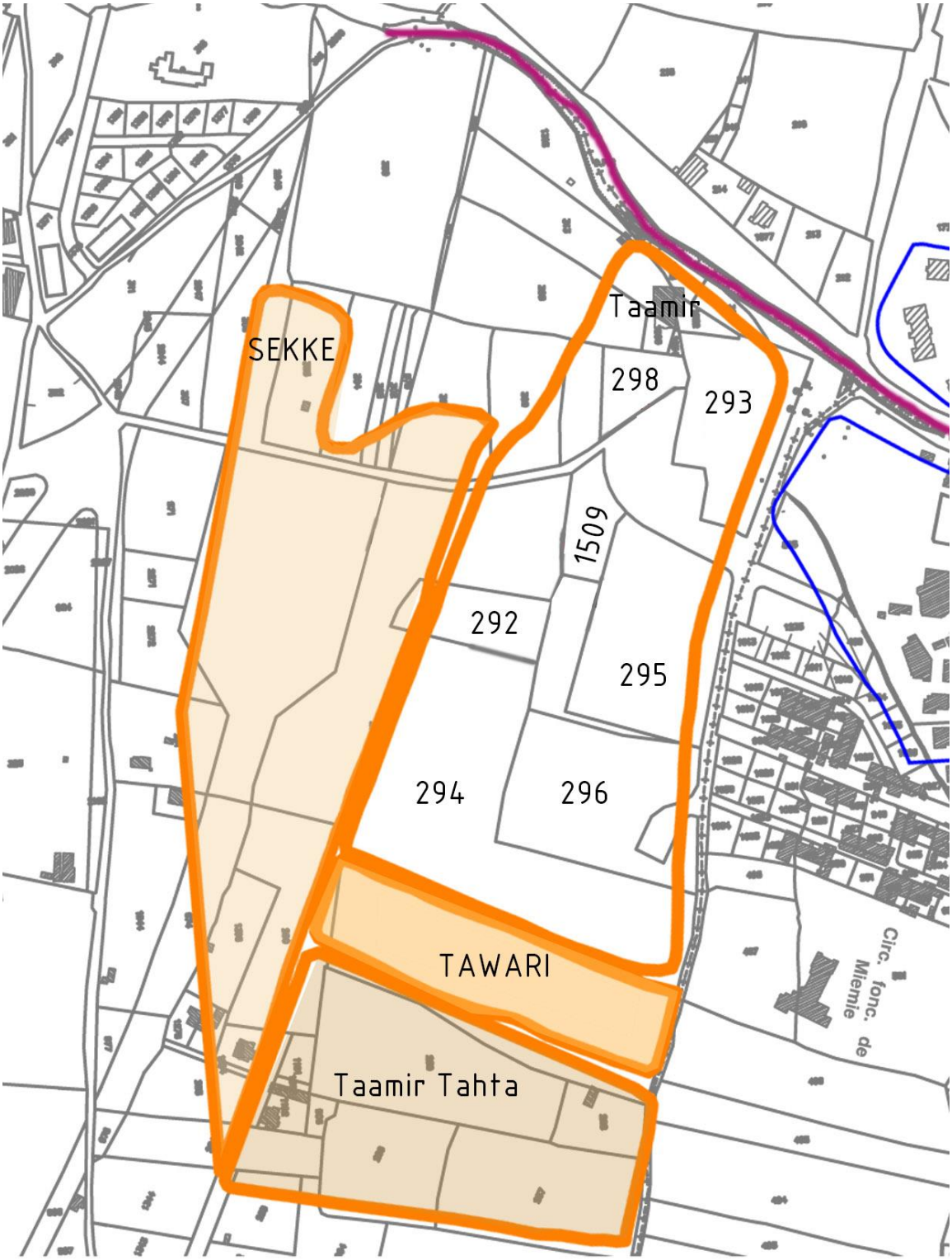


Figure 32: Lot limits of the Taamir neighborhood. Source: Author, 2018.

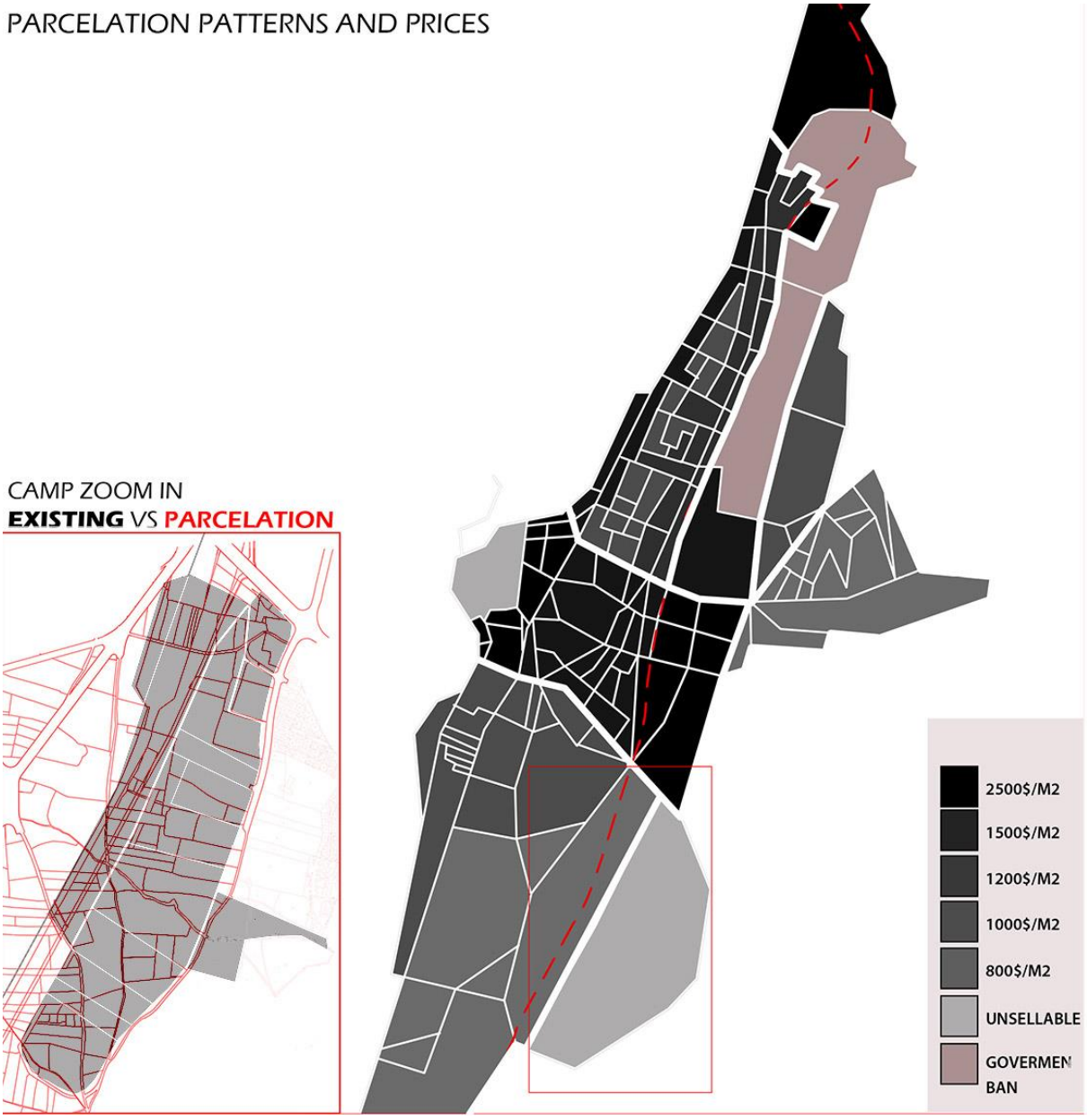


Figure 33: Parcelation pattern and prices. Source: Ghandour, 2013.

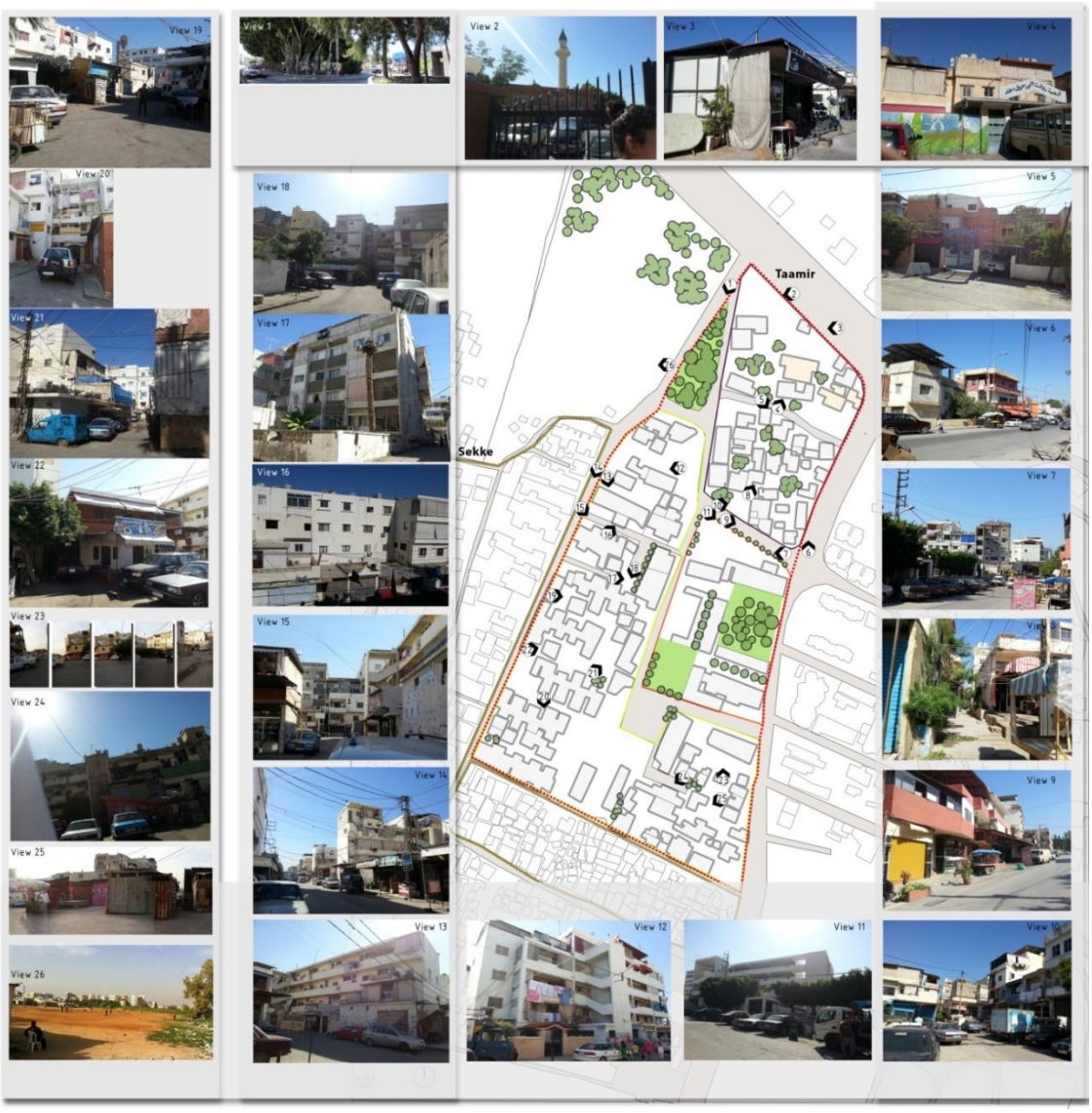


Figure 34: Contextual Analysis. Source: Author 2018.

The Taamir neighborhood consists of two residential neighborhoods, namely the Lieutenant and the Masaken project with each neighborhood having its own identity. The neighborhood also includes Zaatari public school, each of these areas has a particular character, as evidenced in the pictures (Fig 34).

a. Hay El-Doubbat or Hay al-Omal (Recently renamed) :

In 1965, the Lebanese government designed a residential area for army lieutenants. Houses in this area consisted of two floors and were known as Bouyout al-Dobbat (Lieutenant's houses). However, giving the deteriorating security conditions that resulted from the proximity to the Palestenian refugee camps that came under frequent attacks during the Israel occupation (1982-1985), in 1983 the lieutenants moved out of the neighborhood and they rented their houses to Palestinian and Syrian workers. These houses are surrounded by gardens of different sizes and narrow streets (Fig 35). The heart of this neighborhood consists of social and medical services, namely the Maarouf NGO (Fig 36) is considered one primary healthcare within Taamir Area, it consists of three doctors and one nurse. Recently this clinic was updated and operated by the Hariri Foundation for Sustainable Human Development by a mobile clinic that contains healthcare services such as Family Medicine, OB/GYN, EKG and Ultra Sound (Hariri Foundation, 2013) and Maarouf Kinder garden (Fig 37), while peripheral areas, which are located next to the main streets, consist mainly of groceries and garages (Fig 38). This neighborhood initially was subdivided and titled; Owners of the residents received a detailed map where the name of owners is written.(Fig 39-40).

Figure 35: Narrow street in Hay El-Dobat.

Figure 36: NGO of Maarouf Saad

Figure 37: Shows Kinder Garden of Maarouf Saad.

Figure 38: Shows Car Garage at the hospital street.

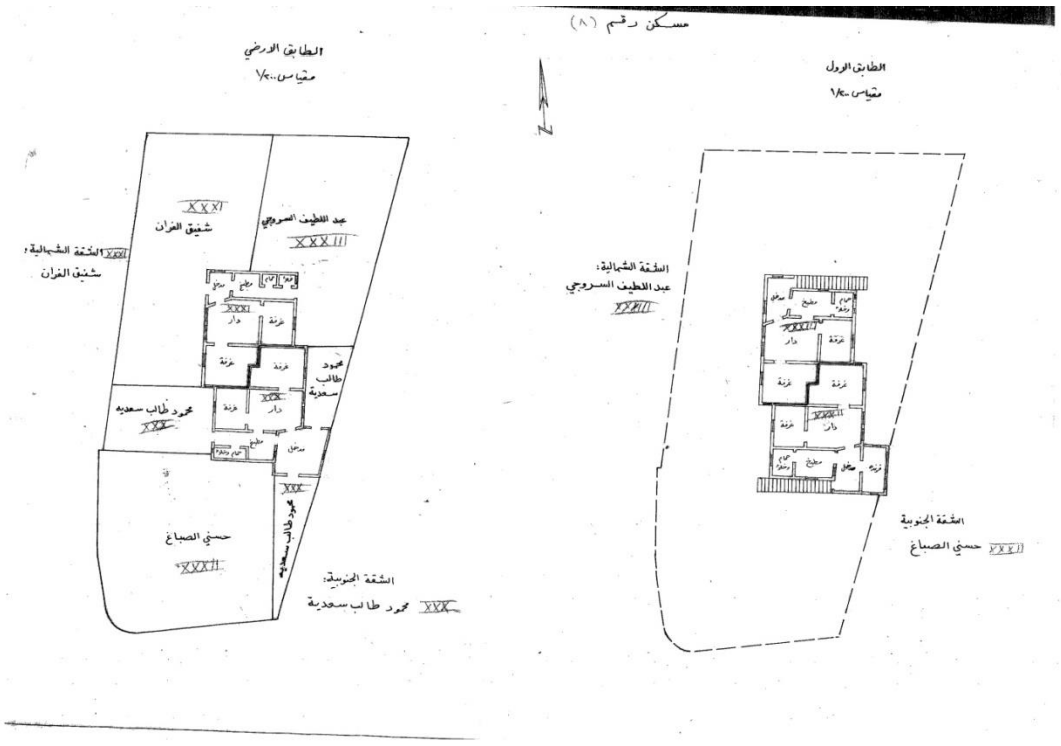


Figure 39: Detailed map of the houses of the lieutenant neighborhood. Source: Municipality of Saida.

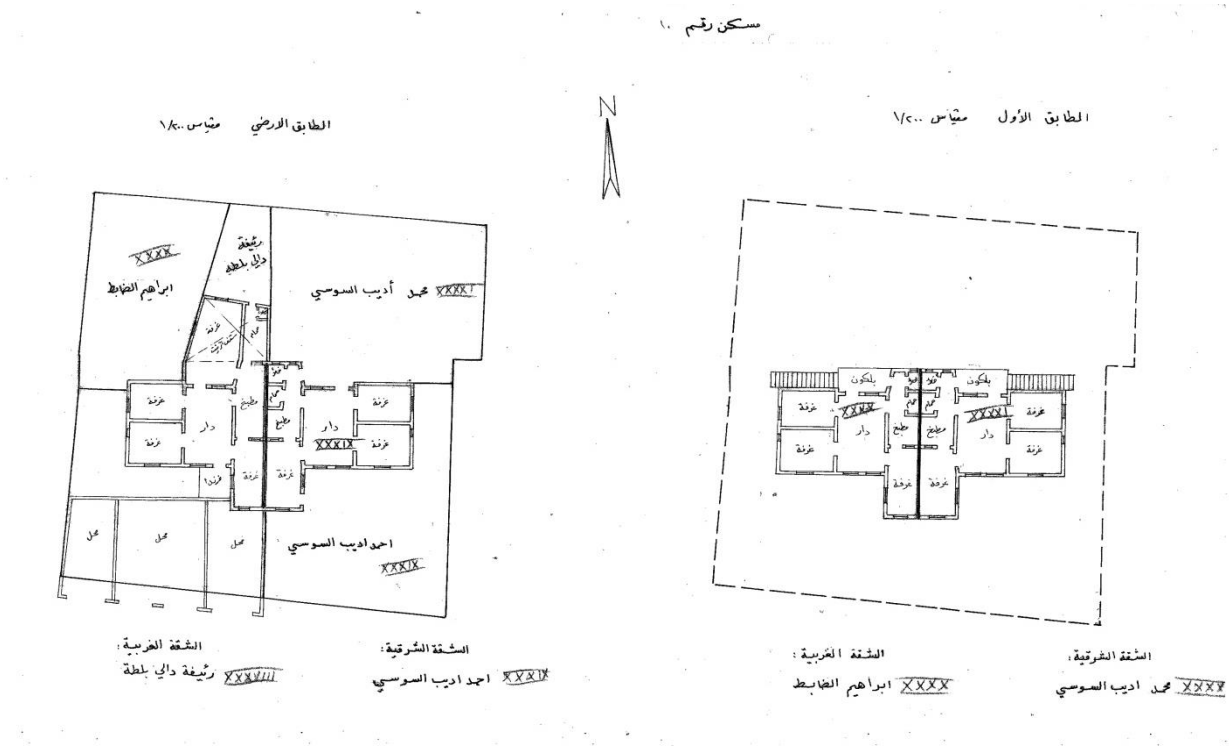


Figure 40: Detailed map of the houses of the lieutenant neighborhood. Source: Municipality of Saida.

b. Masaken Chaabiya:

According to the secretary of the Municipality of Saida, this neighborhood was built between 1956 and 1962. The governmental housing project was originally composed of two prototypes, the bar shape (Fig 41) and the intertwined shape (Fig 42). The first type was designed to fit 24 apartments of 60 m^2 at four floors (6 apartments per floor, Fig 41), and the second prototype consisted of 32 apartments of 90 m^2 at four floors (8 apartments per floor). These blocks were inter-connected and included inner gardens. Despite the fact that currently a large number of them are hidden under newer construction, they can be distinguished by their windows (Fig 42). Given the absence of balconies, and the open spaces/gardens acting like courtyards, the original governmental housing was separated from the outside. The transition between these houses and the streets is sudden, and can be easily differentiated from that of newer houses.

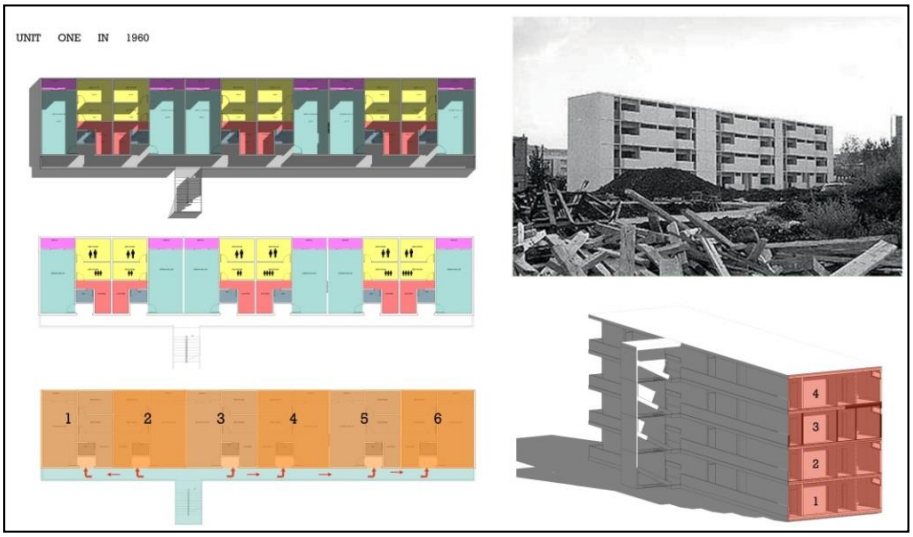


Figure 41: First prototype of the social housing in Taamir . Source: Author, Survey conducted by author (Valerie kassem), spring 2017

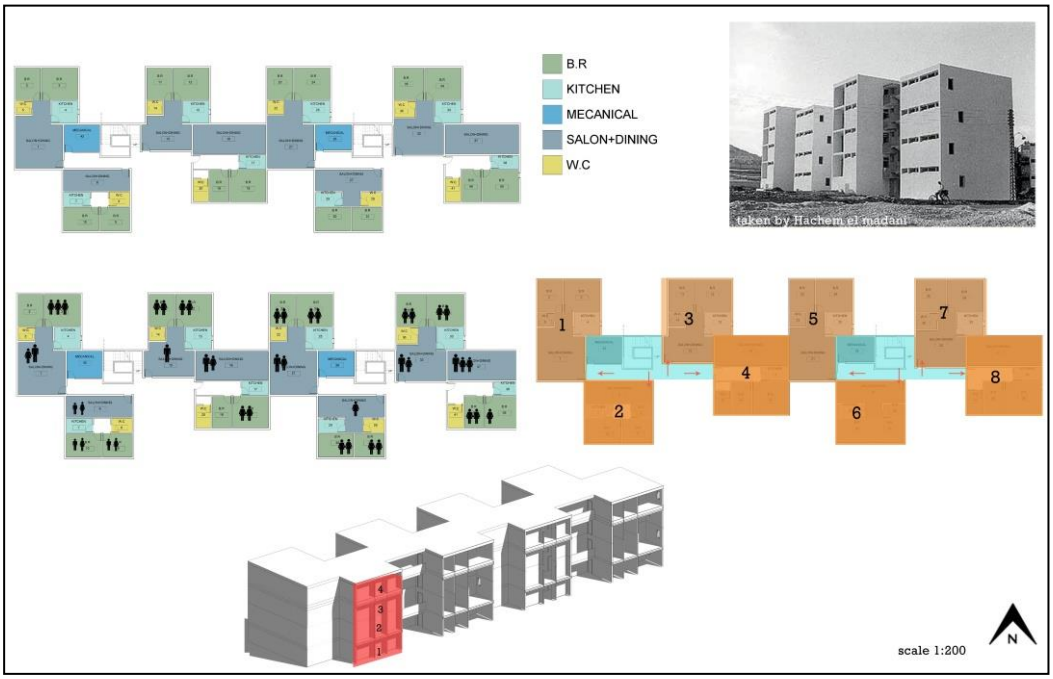


Figure 42: Second prototype of the social housing in Taamir . Source: Author, 2017.

Figure 43:Current situation of the social housing prototype in Taamir .
Source: Author, 2017.

The Taamir neighborhood has two public schools; UNRWA and Zaatari School (Fig 44). Nowadays, UNRWA school is closed due to the proximity to the Palestinian camp and insecurity. However Zaatari School, two of its buildings is occupied by the Lebanese army as a main base for them. But the rest is functioning as a school. This school hosts 619 students with different backgrounds such as Lebanese, Syrian, Palestinian and Egypt. The teacher-to-student ratio is 12.89. According to the Hariri Foundation, Taamir suffers from the illiteracy as its rate is 15.7%. “On par with the situation in Old Saida, enrollment rate for those aged 18-19 were at the lowest end, standing at 30.60%, with a dropout rate of 17.10%. There are gender variations between male and female dropouts, corresponding to 20.00% and 12.70% respectively. Dropout rates are highest among children aged 10-17 years” (Hariri Foundation, 2013).

Figure 44: Different views of the Zaatari School. Source: Author, 2018.

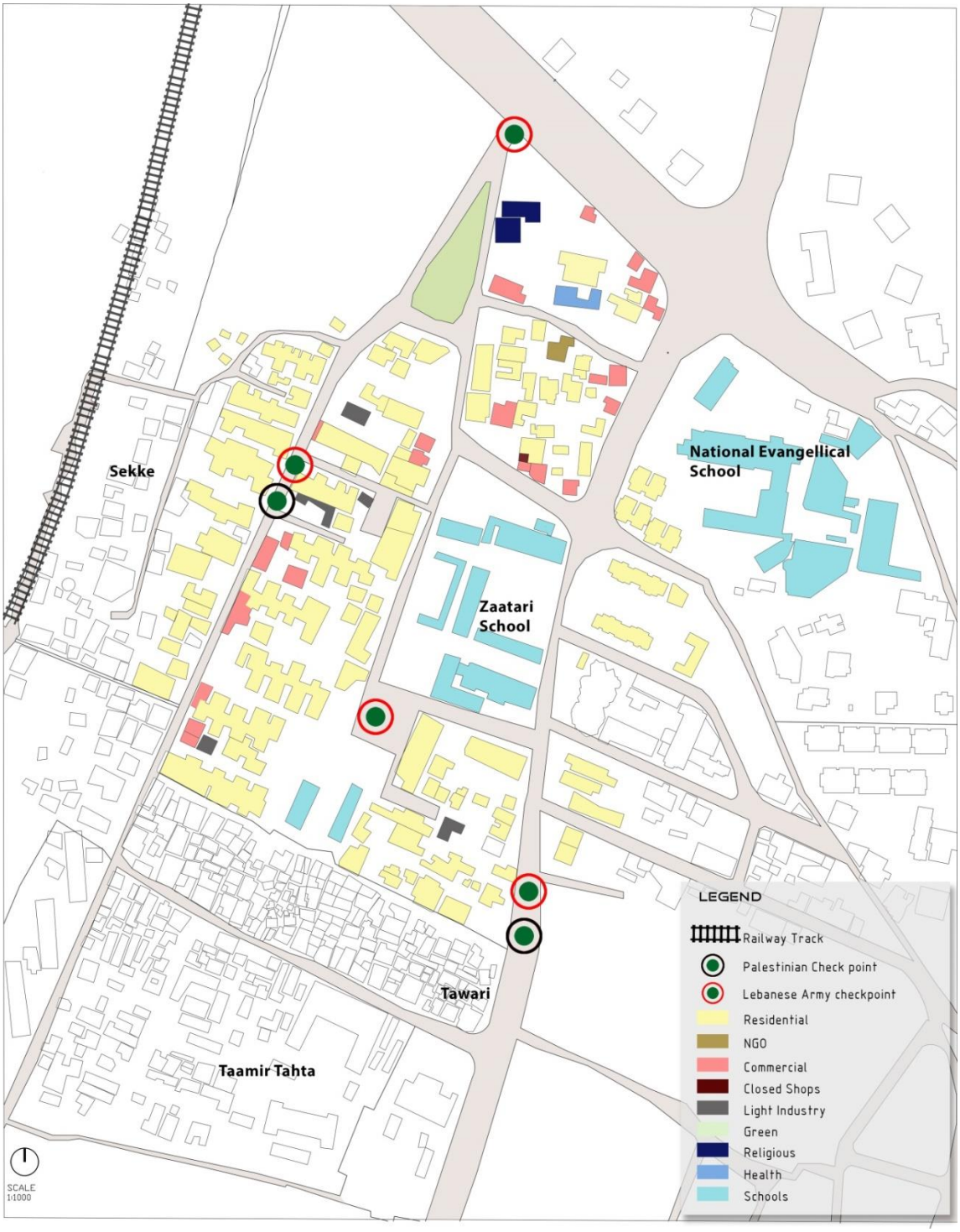


Figure 45: Ground floor land use. Source: author, 2017.

6. Building condition:

I have classified the Taamir neighborhood buildings in three main typologies; depending on their condition: (1) dilapidated (Fig46), (2) in need of renewal, and (3) renovated (Fig 47). The majority of the buildings in Taamir are immediate need of renovation and upgrading. However, the southern part of the neighborhood suffers from severe building dilapidation and need of a reconstruction. The renovated buildings are the schools and the medical center. Other public spaces such as the mosques and the NGO, are in very good building conditions.

Figure 46: Dilapidated, Zinco apartments. Source: Author, 2017

Figure 47: Good condition of the social housing. Source: Author, 2017.

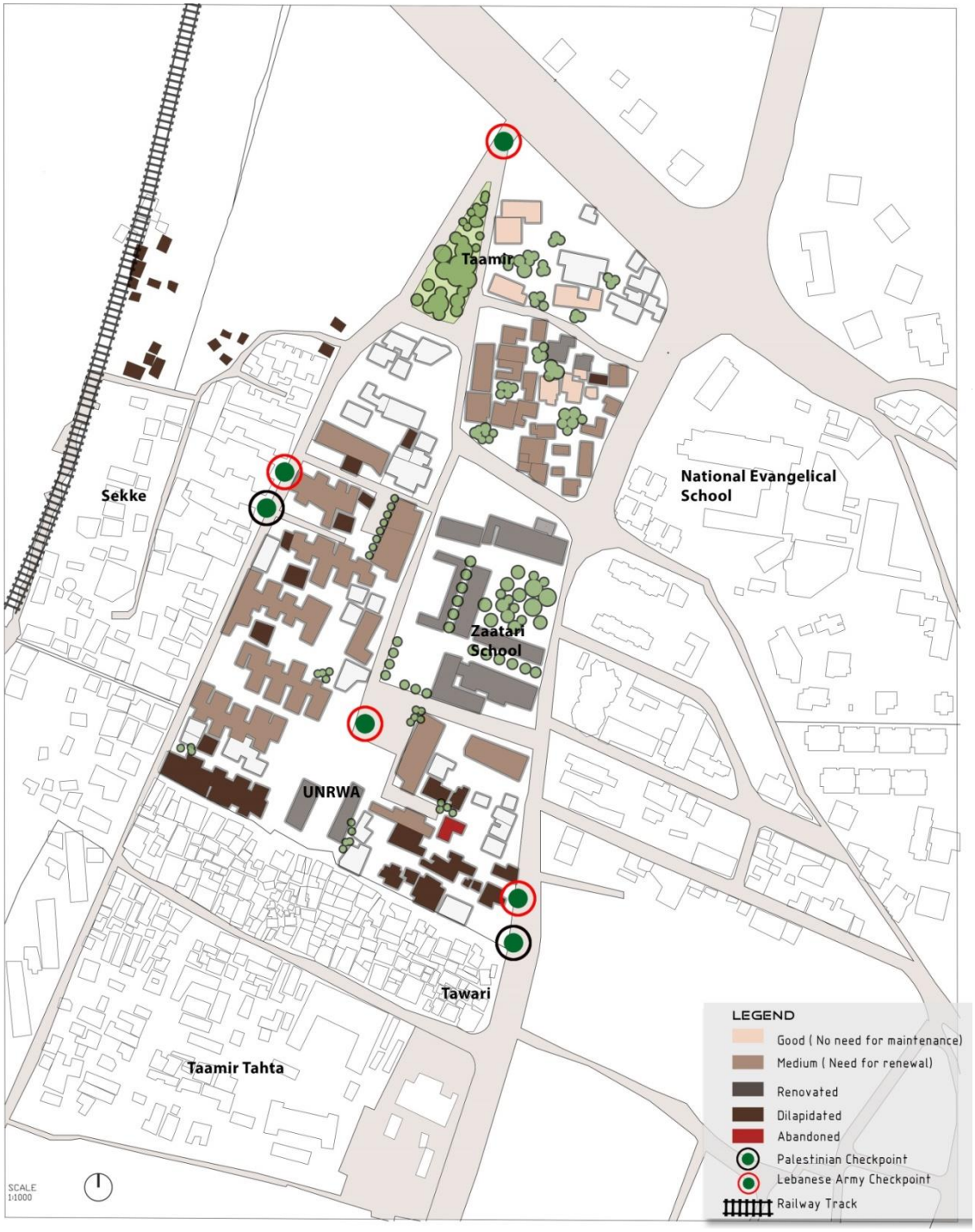


Figure 48: Building condition of Taamir. Source: Done by the researcher

7. Infrastructure.

The Municipality of Saida provides basic urban services within its municipal boundaries except in the Ain el Helwe Camp and its adjacent areas. The Municipality also extends its basic urban services to the informal settlement of Taamir. Solid waste collection in the informal settlement of Taamir is carried out by the municipality. Sweeping roads is done in all the neighborhoods in Saida except in the Taamir informal settlement. The sewage network in Taamir is an exhausted and old network of leaking pipes, leading to water contamination and insanitary situations.

In 2005, the Council for Development and Reconstruction (CDR) in cooperation with the Hariri Foundation for Sustainable Human Development and the South Lebanon Water Authority implemented a project, with 800 direct beneficiaries, that aimed at establishing a new sewage system, rehabilitating the bases and roof of building number three's underground shelter, setting up pumps to remove water from all shelters in Taamir, changing their main sewage pipes and putting three buildings on the restoration list.

In terms of tap water, around 30 houses in the neighboring area of Taamir, inhabited by a majority of Lebanese dwellers, are informally connected to a water network that was established in 2006 with the funding of Human Serve International, in consensus with the dwellers of Sekke. In general, the residents of Taamir rely on individual water wells for water supplies, whereas in Villat most houses are connected to the water network provided by the Municipality of Saida.

Electricity is provided to households in Tawari through the urban network initially installed by EDL in 1990-199. One transformer with a capacity of 500KVA was installed by EDL in Tawari, which provides electricity to the Taamir; electricity is provided every other six hours, as per the EDL system of regular cut-offs in the surrounding area. In addition, some of Taamir's dwellers are informally hooked to surrounding networks.

During the winter Taamir suffers from floods, all its shelters will be full of water, in addition one of the secondary artery of Taamir (Hospital Street) will be full of water ponding as seen in fig 48.

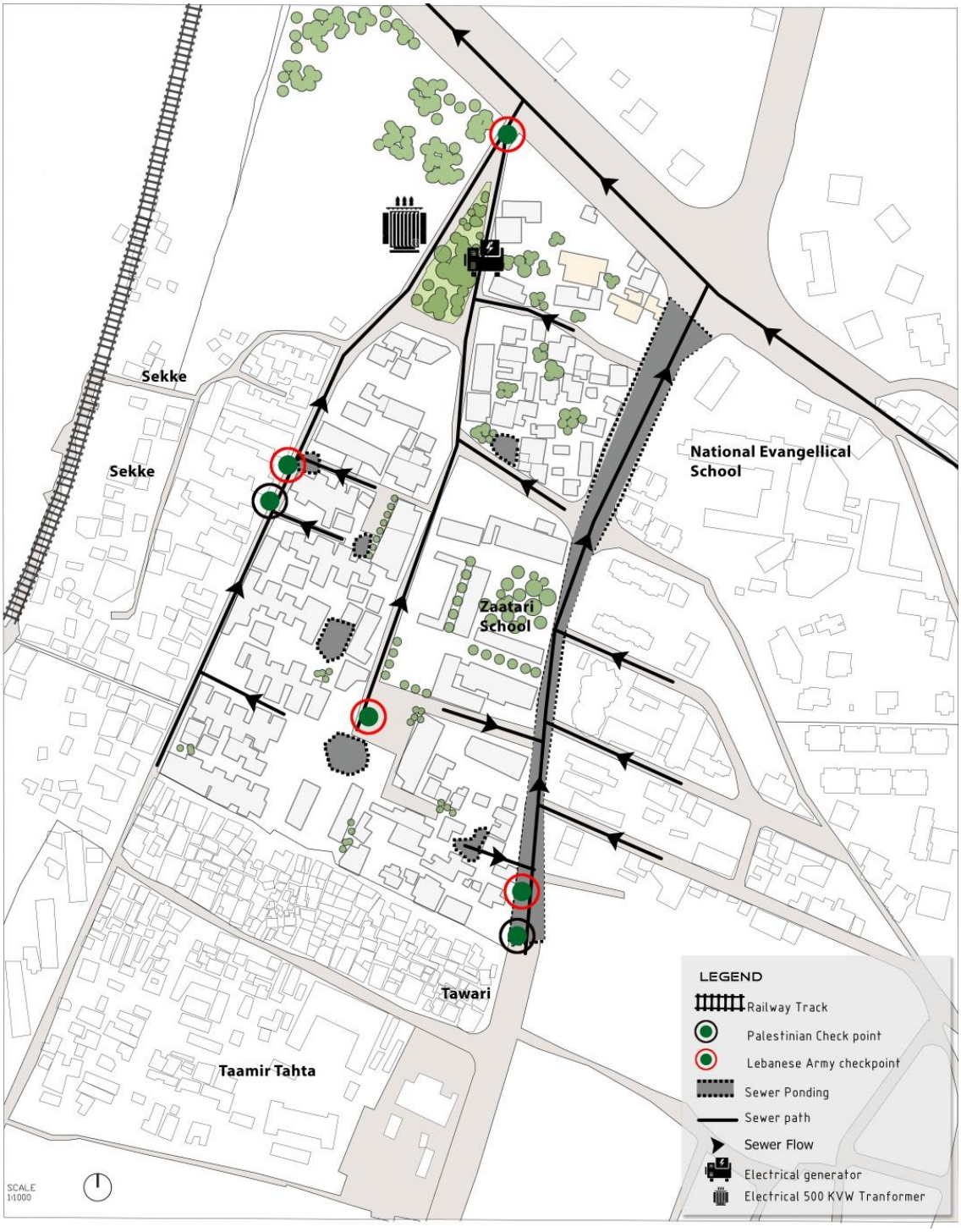


Figure 49: Infrastructure. Source: Author.

To conclude this chapter, according to the urban morphology of Taamir, we can notice that is a mixed use and self-efficient low income neighborhood. Based on the historical evolution and continuous flux of refugees, we can say that Taamir is suffering from crowdedness and density. On the transportation and connectivity layer, Taamir is bounded by divers infrastructural breaks such as high ways, secondary artery and a concrete wall. In addition, vehicular circulations are not well organized and equipped, and on other hand the lack of public transportation makes Taamir marginalized from the city.

CHAPTER IV

URBAN ANALYSIS

In this chapter, I outline the findings of the urban analysis of the neighborhood of Taamir and I map the interrelation between the physical characteristics of the space and the social practices of the dwellers within Taamir.

The analysis presented builds on previous research as well as several months of fieldwork and observations in which I formulated my reading of the area. As explained in the introduction, Taamir suffers from (i) Marginalization, (ii) Density, and (iii) illegality. Dwellers in this neighborhood have subsequently managed their space according to dwellers rationale for easy, enjoyable movement within space, affordable and available housing, hence adapting to the changing daily rituals of the individual and the community instead of standardized building patterns and norms and legal guidelines connecting them with the space.

I have compared the existing morphology to those of the neighboring quarters, in a way to deduce the reasons behind the different urban structures. I compare two adjacent neighborhoods: Taamir to Sekke and Ain el-Helwe, which seem to have affected Taamir in the spatial morphology, but which also offer two divergent alternatives for housing quality and private-public transition. Furthermore, I deduce the building rationale, which was followed by the builders-dwellers of Taamir, in order to establish design principles and guidelines.

A. Challenges

1. Marginalization

Anyone familiar with the history of Taamir, particularly as a so-called informal settlement, will find it hardly surprising that Taamir is considered a "marginalized" neighborhood. This neighborhood suffers from the lack of safety that deduces the connectivity of the neighborhood with the city. A better depiction of the neighborhood problems such as: a) physical, b) institutional and c) social barriers affirms the "marginalized" neighborhood.

a. Physical marginalization:

The morphological analysis of Taamir indicates that several large scale infrastructure elements act as powerful dividers separating the neighborhood from its direct surroundings. The most towering of this is Taamir's vehicular road loop that was established by the British Army that settled in the area in the 1960s. The Taamir neighborhood urbanized and evolved around of an elliptical loop, which allows surveillance to be established on only for the two points where the loop disconnects, following a military mindset. This quality of the loop is validated up to this very day by the fact that the current most strict army checkpoints are located on these two points at the main entrance of Taamir (Fig 50). This loop has naturally caused Taamir and its surrounding to be subjected to entrapment and surveillance.

Figure 50: Taamir road loop. Source: Author, 2017.

According to the observation, Taamir suffers from lack of public transportation. The several checkpoints and the strict access that the army imposes on the neighborhood, prevents public vehicles from entering the zone; whether vans, taxis or buses.

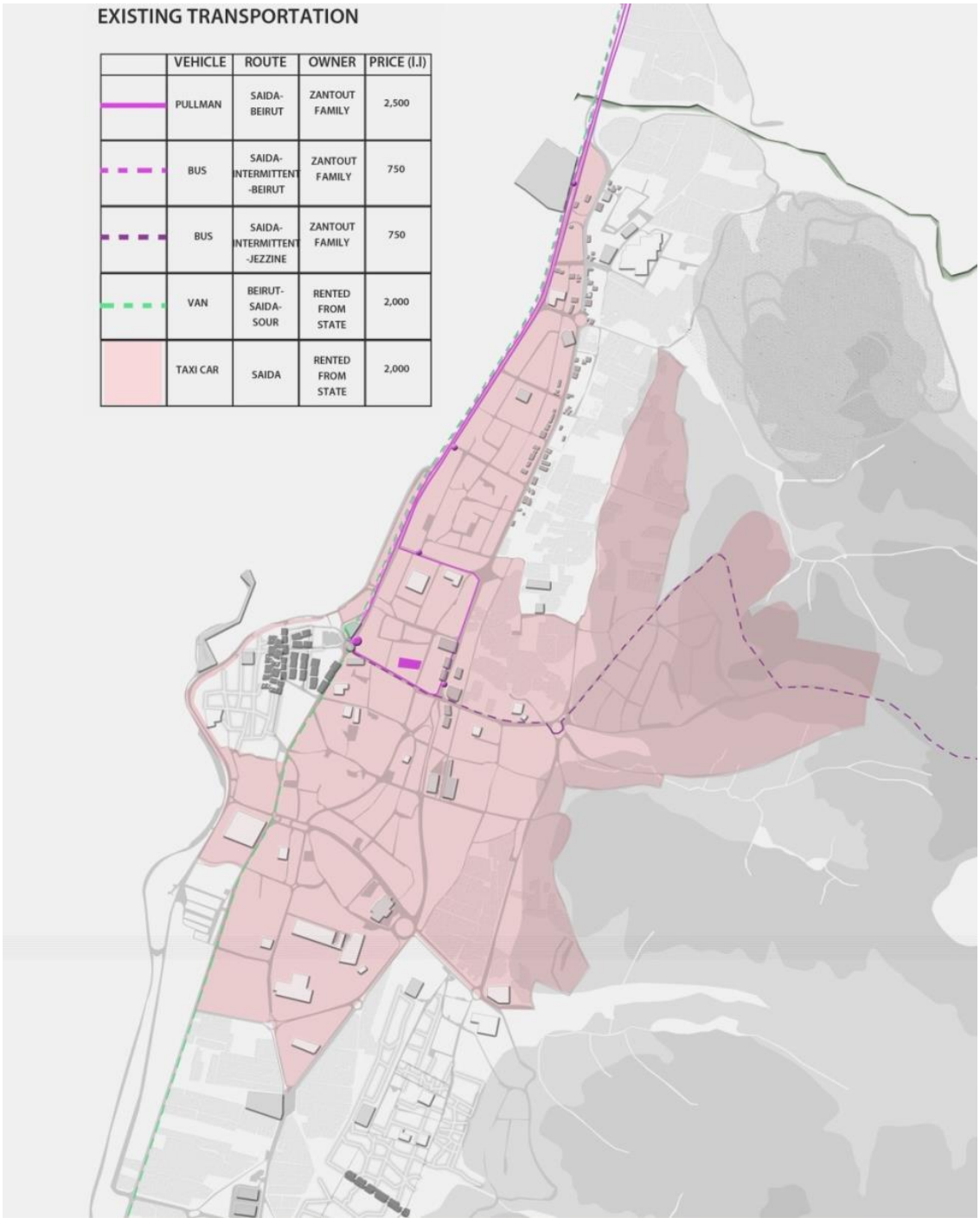


Figure 51: Existing transportation in Saida. Source: Ghandour, 2016.

Figure 52: Street Hierarchy of Saida. Source: Ghandour, 2016.

Furthermore the public transportation in Saida (routes, stops and costs) indicates clearly that there is a lack of inter-city public transportation to connect Taamir to the wider scope of the city; except for taxi cars which are relatively expensive for the residents of Taamir (Fig 51). The quasi-absence of public transportation and of roads connecting directly the neighborhood to other sections of the city renders mobility

harder. Even taxi-service drivers rarely enter the neighborhood, opting to drop-off their passengers at the entrance, due to the military's checkpoints especially at the rush hours. This has caused the main entrances of Taamir to become extremely congested (Fig 52).

Another aspect which is further causing marginalization is Taamir's strategic location. This marginalization is caused via the delineation of Taamir between the base of a steep hill on one hand, and the limit of flat agricultural fields and the highway on the other. This is shown in a section taken across Taamir (Fig 53).

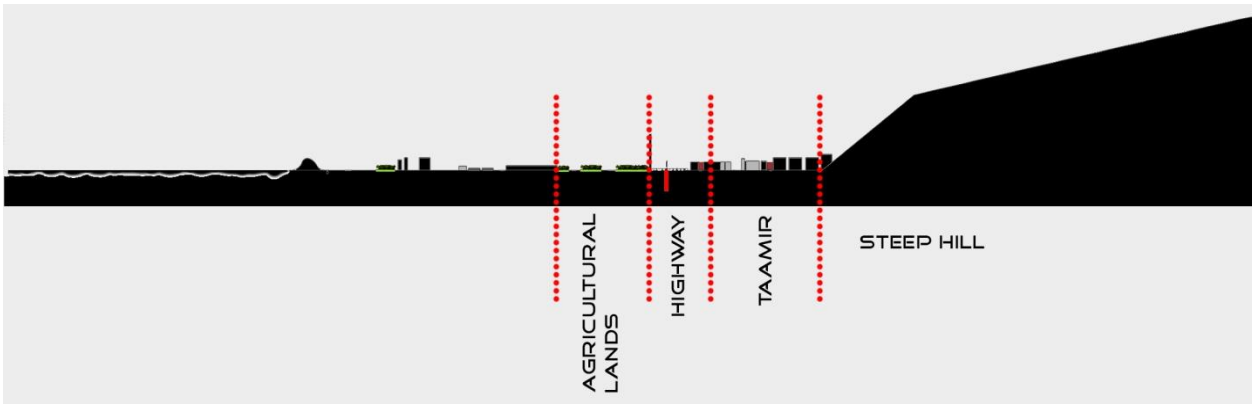


Figure 53: Section shows Taamir between the steep hill and the highway. Author, 2017.

The separation between Taamir and the nearby neighborhoods is however a result of several historical physical interventions. Indeed, the morphological analysis of the urban fabric indicates a continuous urban form; nonetheless, the institutional and social practices have also led to marginalization.

b. *Institutional marginalization:*

Institutionally, Taamir is also clearly marginalized by municipal policies. For instance, Taamir is not a neighborhood that the municipality or any other governmental organization attends to, it simply does have basic municipality projects. According Ziad Hakawati[9] (2018) municipal agents recognized that Taamir as a place of continuous concern where they have to monitor instead of construct and upgrade. Upon crossing from the northern entrance of Taamir, one is struck by the lower quality of streets, the poor lighting. Power in Taamir is cut off for 12 hours every day, although there is an alternative generator that provides electricity, not all people are connected to this channel due to unaffordability which is 75000 LBP per 2.5 AMPS and 110000 LBP per 5 AMPS. Concerning the water channel and the sewage channel, although the municipality of Saida had installed new channels at the main street of Taamir one can smell the sewers, and other obvious infrastructure and spatial deficiencies that do not exist in other municipal districts of Saida. This can be explained by the fact that the Municipality has historically considered Taamir as a poor refugee camp. Laws making almost none of Taamir's dwellers actually having the ability to voice their opinions to the local authorities exacerbate the problem.

Another historical institutional fact is the fact that state planning agencies and policies have ignored refugee camps. This started with Michel Ecochard's master plan of Saida, prepared after the camp establishment, leaving camps as blank spaces. As shown in the map (Fig 54) (Gahndour 2013), all the following executed or planned

[9] Ziad Hakawati, Engineer at Municipaliy of Saida, Field visit and consultation about the state of the rivers and streams in Saida.

infrastructure projects up to this very day, still use Ecochard's master plan as basis for their planning, hence ignoring the camps.

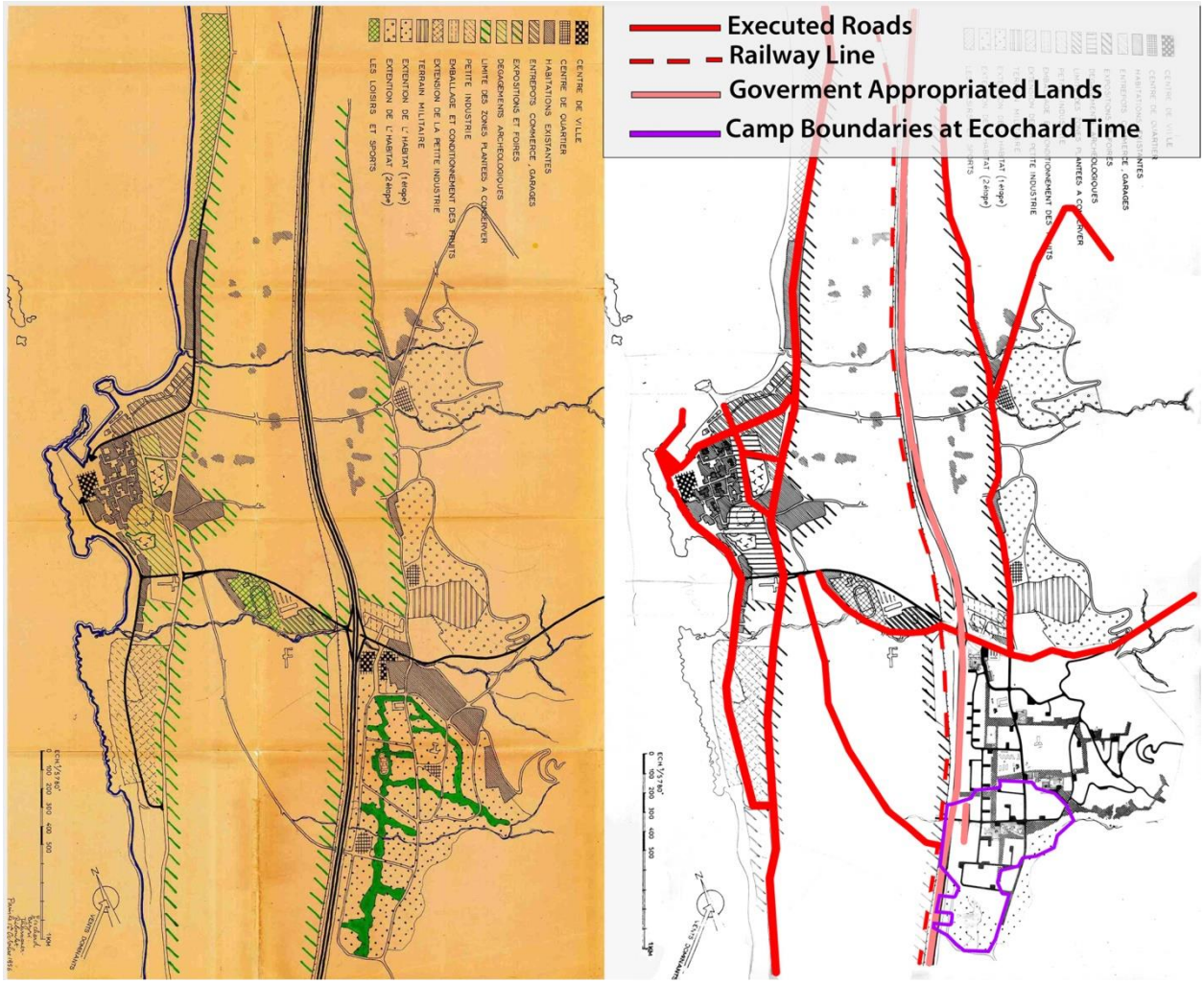


Figure 54: Executed and Unexecuted parts of the Ecochard's master plan. Source: Ghandour, 2013.

c. Social Marginalization:

Finally, the neighborhoods' "marginality", is exacerbated by both religious/sectarian and national divisions that distinguish dwellers from other residents in this area. While the Saida municipality is ethnically/nationally Lebanese, Taamir dwellers are mostly refuges and foreigners. The divide is exacerbated by the influx of recent Syrian refugees, creating a powerful sense of "otherness" vis-à-vis neighborhood

dwellers. In addition, political parties are strengthening this marginalization as each claims its turf, hence increasing marginalization.

The overlap of the diverse factors made me conclude that, Taamir and its surrounding are marginalized due to the lack of planning policies that respect the surrounding, and respond to the current dwellers' needs, as well as its physical dis-connectivity (both natural and manmade indicators), and lack of social integration, which has cut the neighborhood from the city and prevents any visual and physical connection. All this has defined Taamir as an enclave for trapped low income families, disconnected at different scales from nearby neighborhoods and the rest of the city

2. Density

According to my survey (Spring, 2017), each apartment in Taamir accommodates over 2 families (Fig 55); Taamir is a low-income neighborhood, many of its residents cannot afford to buy a new house when their children get married. As a result, many extended families live in one small apartment (more than 2 families/60m2), raising consequently serious overcrowding concerns with an average of around 3 persons per room (70% in Hay el-Dobbat lived in a density of 3 persons in a room, with 25 % over four persons a room. In the Masaken neighborhood, the situation is more dire as one block now houses 210 persons at least, meaning that each apartment is occupied by 2 families or 3 persons per room) (Fig 55-56).The population density was estimated by Hariri Foundation (2013), at approximately 0.06 persons per square meter, this rate composes a 20% over a five-year period.

Figure 55: The current situation of the first prototype. Source: Author, 2017.

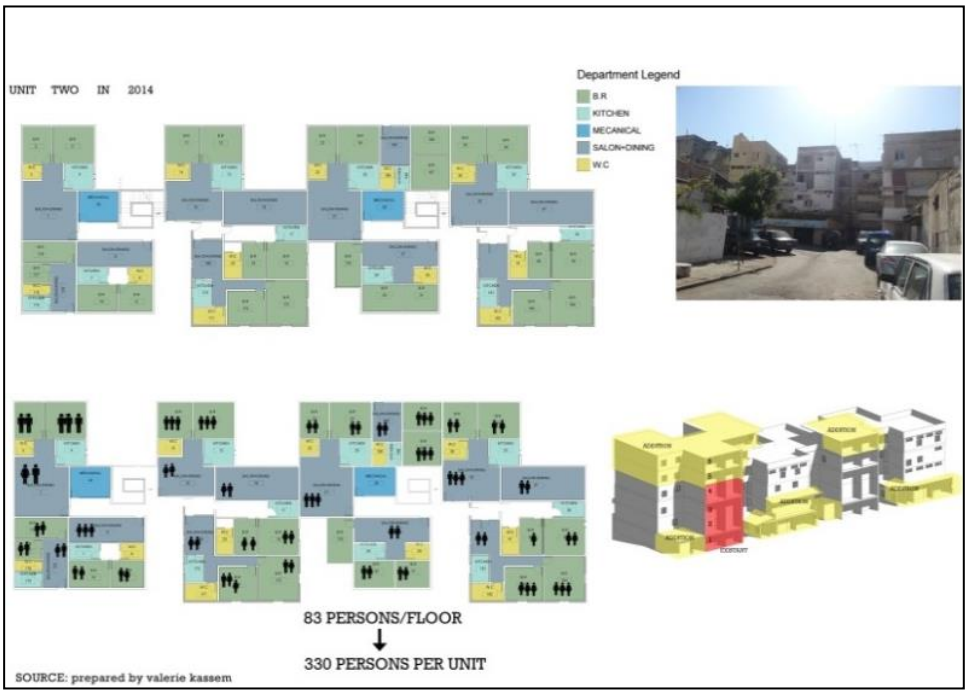


Figure 56: The current situation of the second prototype. Source: Author, 2017.

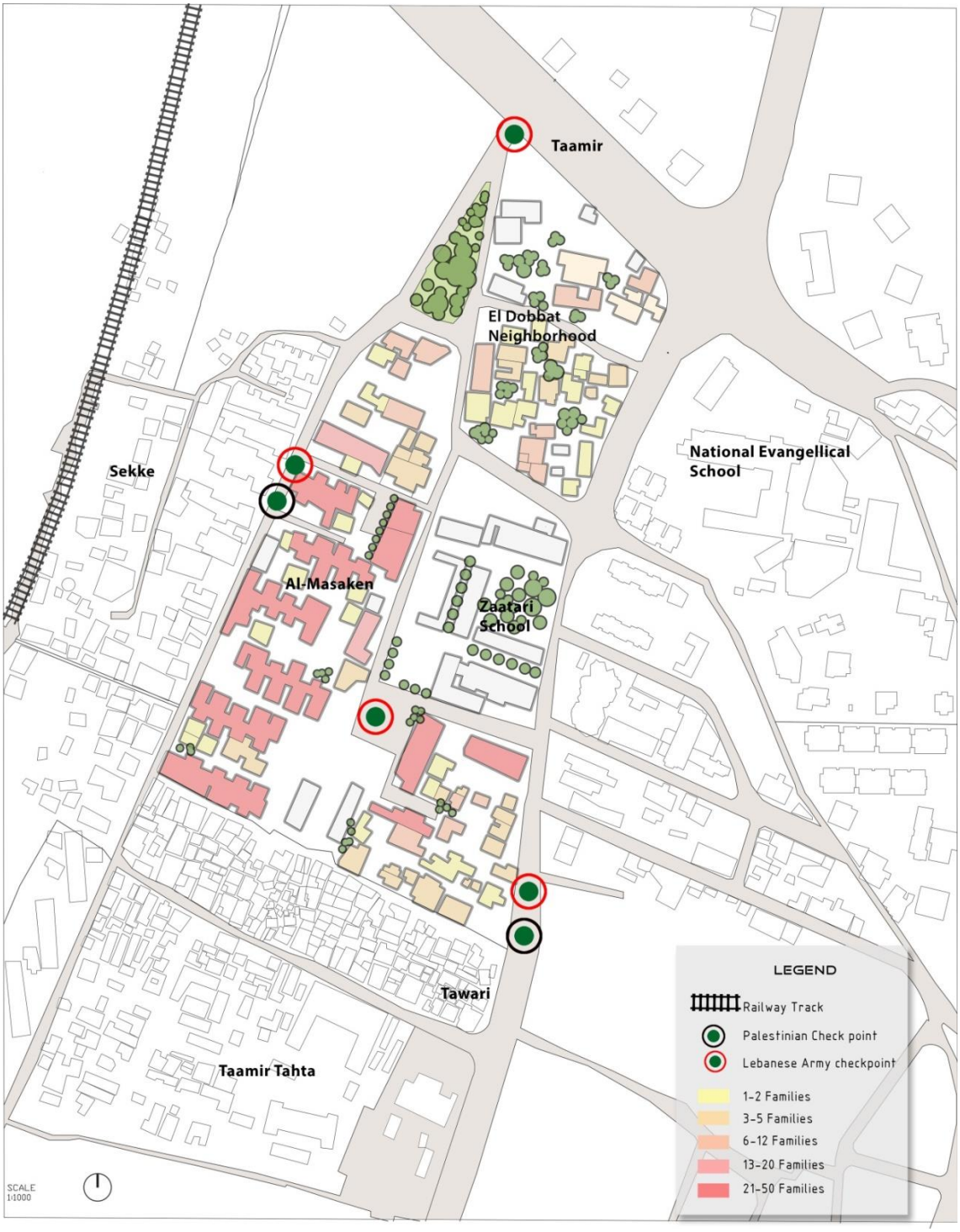


Figure 57: Number of Families that accommodates in the building. Source: Author, 2017.

Figure 58: Illegally added appartments. Source: Author, 2017.

In neighborhoods such as Taamir which have a “vernacular" social character, streets are dynamic vibrant places, spaces for sharing, and everyday exchanges. These socio-spatial practices form a sense of community through the necessary daily cooperation and negotiations required for its operation. In Taamir in the dense center, the narrow streets function as spaces of circulation, socialization, play, and commercial activities. These narrow hubs are constantly negotiated and reproduced to accommodate the changing needs of a wide variety of users: shoppers, dwellers, shopkeepers, peddlers, and children.

3. Titling

Decades after they moved in their houses, the residents of Taamir in Ayn el-Hilweh are finally expecting to receive ownership titles over the houses that they occupy. Indeed, the Lebanese parliament passed on February 23rd, 2017 a bill put forward by deputy Bahia Al-Hariri that allows exceptionally the subdivision of the social housing and the provision of individual property titles to current occupants. Article 61 of the Lebanese law makes it possible to subdivide the multistory apartment buildings in the specific location of the Taamir Project even when illegal additions have been made. More specifically, this legal article states that:

> *“It is possible to subdivide the private properties owned by the state or public agencies or municipalities or common lands owned by villages, where constructions have occurred in violation of the law, in whole or in part, in buildings or building sections without abiding by the regulations imposed on the subdivision as dictated by the law and regulations set in place.”*

MP Bahia El Hariri visited the workers' neighborhhod in the Taamir area and met a group of locals in the area at Mr. Mohammed Shams al-Din's house with the presence of the member of the municipal council Mr. Ibrahim El Hariri and the coordinator of Saida's region in the "Future Movement" Mr. Amin Hariri. In addition to the presence of the member of the Office of Saida and South coordination, the engineer Mazen Sabbagh and the head of Taamir Ain al-Hilweh in Saida's department, Al Hajj Abdul Qader Afara.

Mp.Hariri briefed the people on the situation of their region and listened to the main life and service issues they suffer from and answered their questions regarding the parliamentary elections and the new voting system. In addition to the subject of titling of Taamir's houses, which has progressed after the evaluation of MP Hariri and the new law proposal passed by the Lebanese parliament, Hariri explained: "the titling is in its final phases and it is our duty towards the people of Taamir and Saida and a basic right for locals and residents of the region which have been marginalized for decades".

Hariri argued out that the issuance of the titling deeds and the legislation of housing conditions in this area give more opportunities to improve the living conditions of the locals and residents, rehabilitate and beautify its buildings and neighborhoods and implement development projects and programs that affect all community groups in the region. She also proposed to form a committee composed of the locals and the youth to determine priorities and basic needs to work on the implementation procedure. Furthermore, the impact of Taamir's location next to Ain al-Hilweh refugee camp on the security situation was discussed during the meeting.

According to the Mayor of Saida “Mohammad Saudi”, Taamir’s titling is one of the projects that the Municipal Council is setting its sights on. He told the local newspaper “Al-Mustaqbal”: “We can finally say that what our people have been demanding in Taamir and the villas, for more than 50 years, has come close to becoming a reality”. For since the 1956 earthquake hitting Saida’s region, their displacement and the building procedure that bore this name, they have no title deeds to their homes. Now their situation will be legalized and they will get their title deeds. This step gives back the right to its owner. This decision, as a recognition of the ownership of these properties to the residents has already been issued by the Council of Ministers. However, the law was not legalized for more than two years due to the fact that the Council did not meet. Concerning the next step after the adoption of the law from the parliament, Saudi said: “The next step will be next month, but this may need a period between 6 and 8 months, congratulating the residents and thanking the efforts of MP Hariri and MPs who approved this decree”. He also explained the titling procedure, which will require property claims to go the Serail of Saida with their temporary title (Fig 59) with 2 stamps (equals of 1.5 USD). The residents have to register their names without paying any fees, however, some people have to pay their unpaid electrical and water fees before registering their names. The mayor has claimed that the maximum amount of money which residents should pay is less than 1 million LBP.

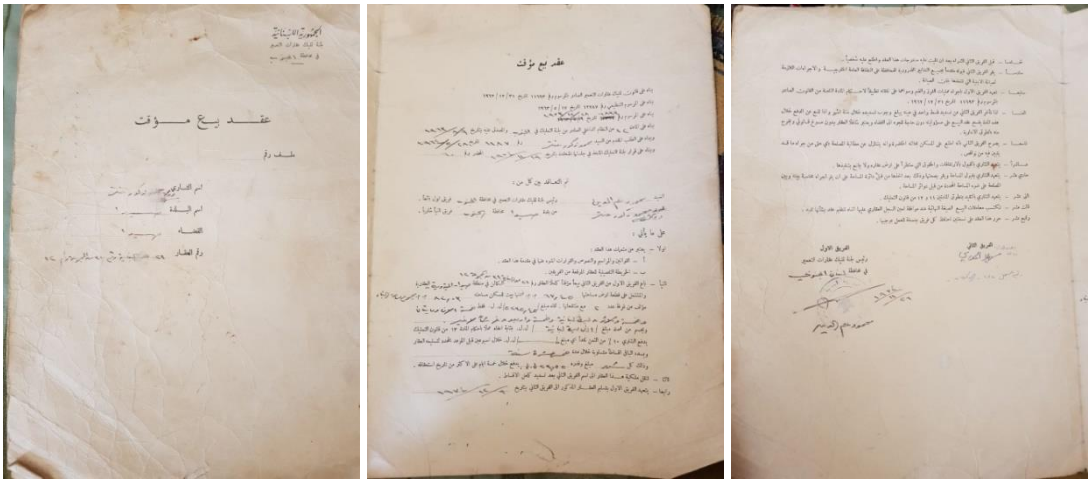


Figure 59: Temporary contract sale. Source: Taken by Fatima Al-Masre

In addition, Eng. Abdul Waheed Shehab, a specialist in urban planning and urban management, expects that the approval of Taamir's titling will have a positive effect on the economy since it will give the residents the freedom to invest in their properties. The residents could obtain a bank loan to improve their residence, and this decision would convert these fixed built properties for decades to a valuable amount through the title deed. Ahmed Hijazi added that "the adoption of this law was the result of the people's right to preserve the ownership of their homes, which they had been waiting for many years. We thank MP Hariri for her steadfast efforts and the Mayor, Mr. Mohammed Al-Saudi, for his follow-up and interest."

The approval of the proposed law was widely welcomed among the residents of Taamir, who described it as an "old dream" that finally has come true, valuing the efforts of MP Hariri who took care of this case and pursued it for many years. Samar El Baba[10] expressed her happiness of passing the titling law by saying: "It's a joy beyond joy". Furthermore, Mona Abou Akda[10] added: "My father bought the house in 1956 and since then we have been waiting anxiously for the titling deeds". The residents hope that the legitimization of their houses will enhance the interests in this region, hence, reduce the continues and accumulation of years of official neglect and lack of security.

Figure 60: MP Bahia with Taamirs' dwellers. Source: Saida online journal.

B. The socio spatial paradigms of Taamir

High density makes Taamir vibrant and a place where a wide range of socio-spatial practices take place. In the morning, women meet up for "sobhieh" (morning gathering) in front of the houses, on the balconies, in the gardens or alleys. At this time of the day, ambulant sellers stroll in the streets (Fig 61-62-63): women buy goods from

[10] Samar El Baba, Mona Abou Akda are residents of Taamir.

those sellers, not only vegetables and groceries, but also house supplies, detergents, clothes, and food. By noon, cooking is often made in groups, especially in Ramadan. Streets are crowded in the afternoon with children coming back from the nearby Zaatari School. Later in the early afternoon, and in line with other neighborhoods in Saida, streets seem to be empty. This quiet lasts until 4 to 5 p.m., when the doors open; the chairs are set outdoors to serve the visits between friends, neighbors and family members which activate the streets. Meanwhile, teenagers, single women and men cruise the streets in the so-called daily 6 to 7 p.m. "*kazdoura*" (Fig 64-65).

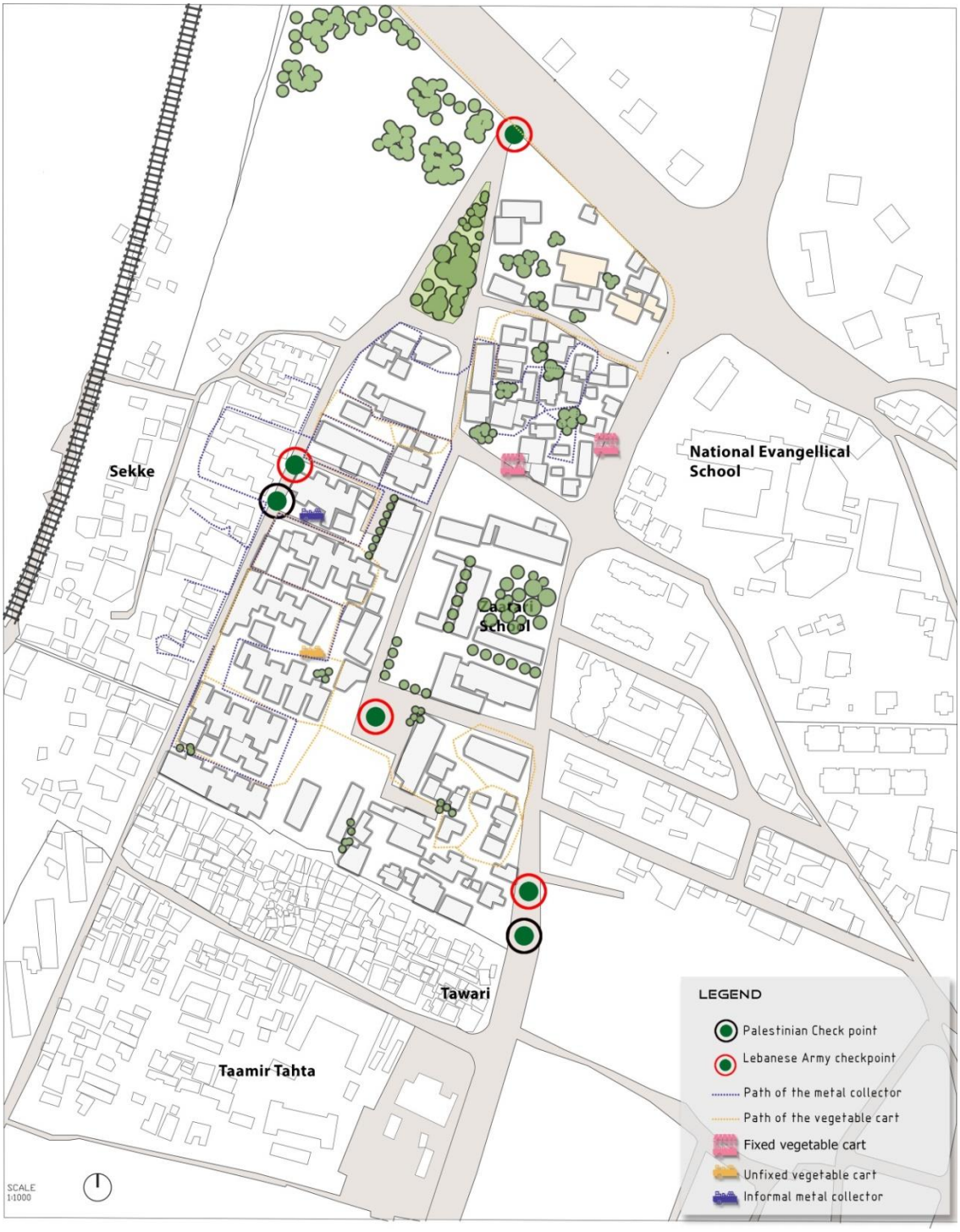


Figure 61: Cart Circulation in Taamir neighborhood. Source: Author, 2017.

Figure 62: Fixed/ Movable vegetable cart. Source: Author, 2017.

Figure 63: Informal garbage collector

Figure 64: Social practices during the day. Source: Author, 2017.

The daily motion reflects the privacy settings of local residents. The doors of the houses are generally left open throughout the day, while windows preserve privacy, hiding interior details since they are either covered by a curtain from the inside or by a thick plastic cover from the outside, in line with local cultural values that value privacy. Houses, gardens, balconies and adjacent streets shift their private/public character at different times of the day: at times, doors are widely open and meetings flow out to public spaces and private quarters.

Figure 65: Football/ Playground area for children. Source: Author, 2017.

Social and religious seasonal rituals usually take place within the Taamir neighborhood, even if Saida is the center, Taamir dwellers prefer to perform these religious rituals and ceremonies in the Azhar Lebnen mosque that is located within Taamir at the main entrance. (Fig 66)

Figure 66: Azhar Lebnen mosque. Source: Author, 2017.

Comparing Masaken to the lieutenant neighborhood, a sharp contrast between appears in buildings heights: in the Masaken neighborhood, building rise to 4-5 floors, while in lieutenant neighbood, building height only 1-3 floors. As a result, street life and house-street connections contrast sharply: in the lieutenant neighborhood, street life is limited to car parking and a number of hardware storage spaces hence, lacking diversity in open spaces. In this sense the orthogonal network of streets, generate an unilateral space, which is an unwelcoming space for transit and passage rather than interaction. However, in the Masaken neighborhood, the space between blocks varies from 5 to 15 meters, hence implementing a strong connection between the house and the street as well as the street and residents. This character projects a strong socio-spatial and well integrated dynamic.

C. Open spaces and greenery

In order to define a better intervention, a thorough mapping of all open spaces in the neighborhood was needed. Based on fieldwork and observations, the remaining open spaces in Taamir can be categorized as follows:

- public lots owned by the municipality
- open spaces that aren't necessarily public; leftover or un-built spaces that are appropriated I call these parcels semi-public
- streets/sidewalks

The public lots owned by the municipality are in majority inaccessible. The development of these spaces and their connection to the neighborhood could increase the social and spatial integration. At the northern part of Taamir there is a small public garden of 1255 square meters fenced and maintained by the municipality to serve the population of Taamir and its surrounding. This garden includes large fig trees, Ficus nitida, Date palms, Phoenix dacticlifera, and Hedges, Pittosporum tobira, paved pathways, benches and lighting (Makhzoumi and Sabbagh , 2015, p86) (Fig 66). Although this garden is within the Taamir boundaries, residents cannot access it, due to the security and the army's checkpoint on the right of it and due to the generator which is polluting the garden.

Figure 67: Panoramic view of the Taamir Garden. Source: Makhzoumi and Sabbagh, 2015.

As for other semi-public open spaces, many empty residual spaces have been appropriated by the residents; mostly by means of parking and vegetation. These occupied spaces are fragmented in the neighborhood with the majority located close to residential buildings.

Another non-optimized type of open space are the street and sidewalks as well as the alleyways that remain after the subdivision of the residential building (Fig 68-69).

Figure 68: Left over spaces in Taamir neighborhood

Figure 69: Small gardens in the Masaken Neighborhood. Source: Author, 2017.

Apart from the above mentioned open spaces, another kind of shared space is created inside the neighborhood. The railway which is located at the western side of the settlement reduced its function after the outbreak of the Lebanese Civil War (1975-1990) and, eventually stopped after the Israeli invasion (1983-84). At present, this railway is “transformed into agricultural fields” (Makhzoumi and Sabbagh, 2015,p 59) accessible to the dwellers (Fig 70).

Figure 70: Panoramic view of the Railway in Taamir. Source: Makhzoumi and Sabbagh, 2015.

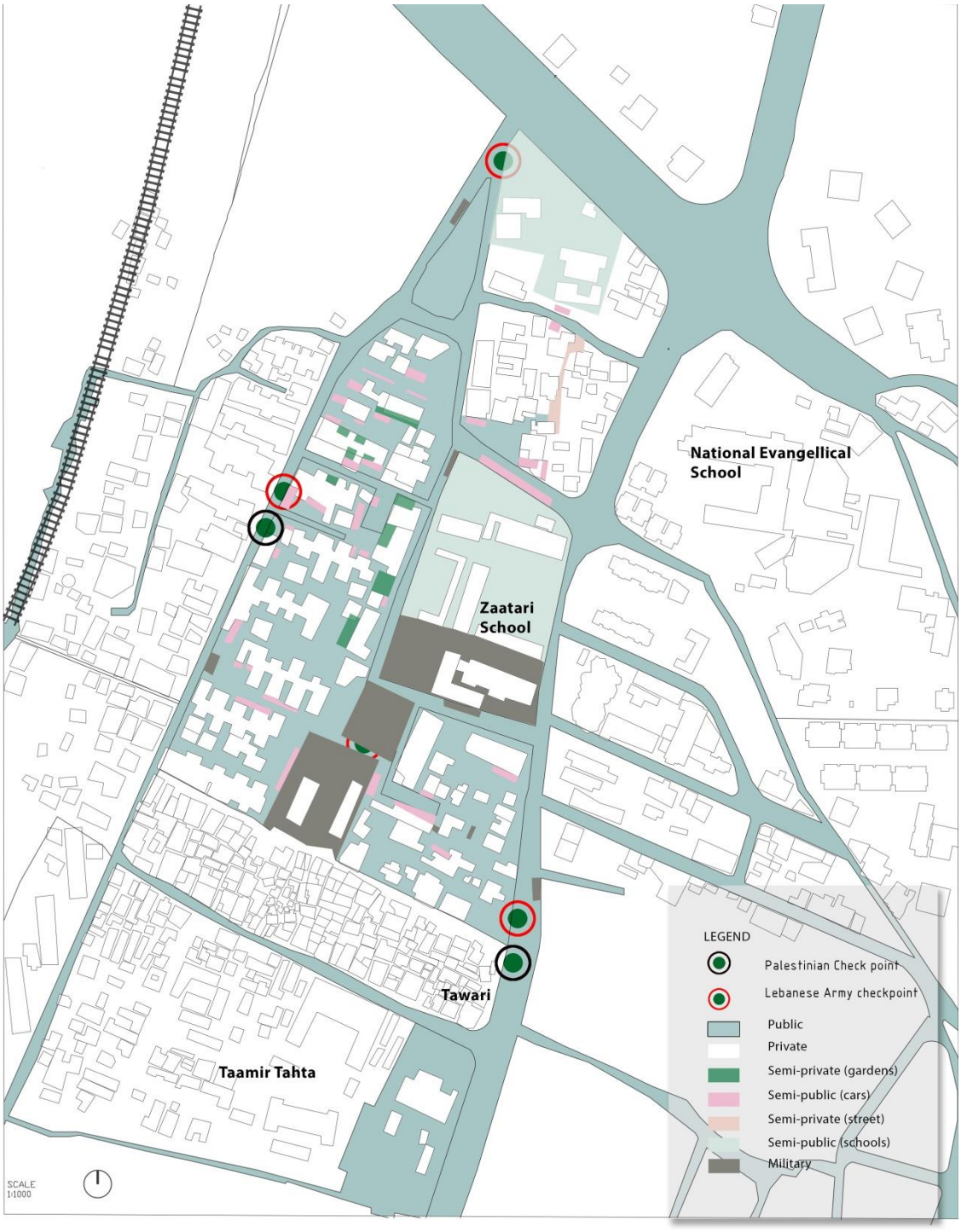


Figure 71: Different types of spaces in Taamir neighborhood. Source: Author, 2017.

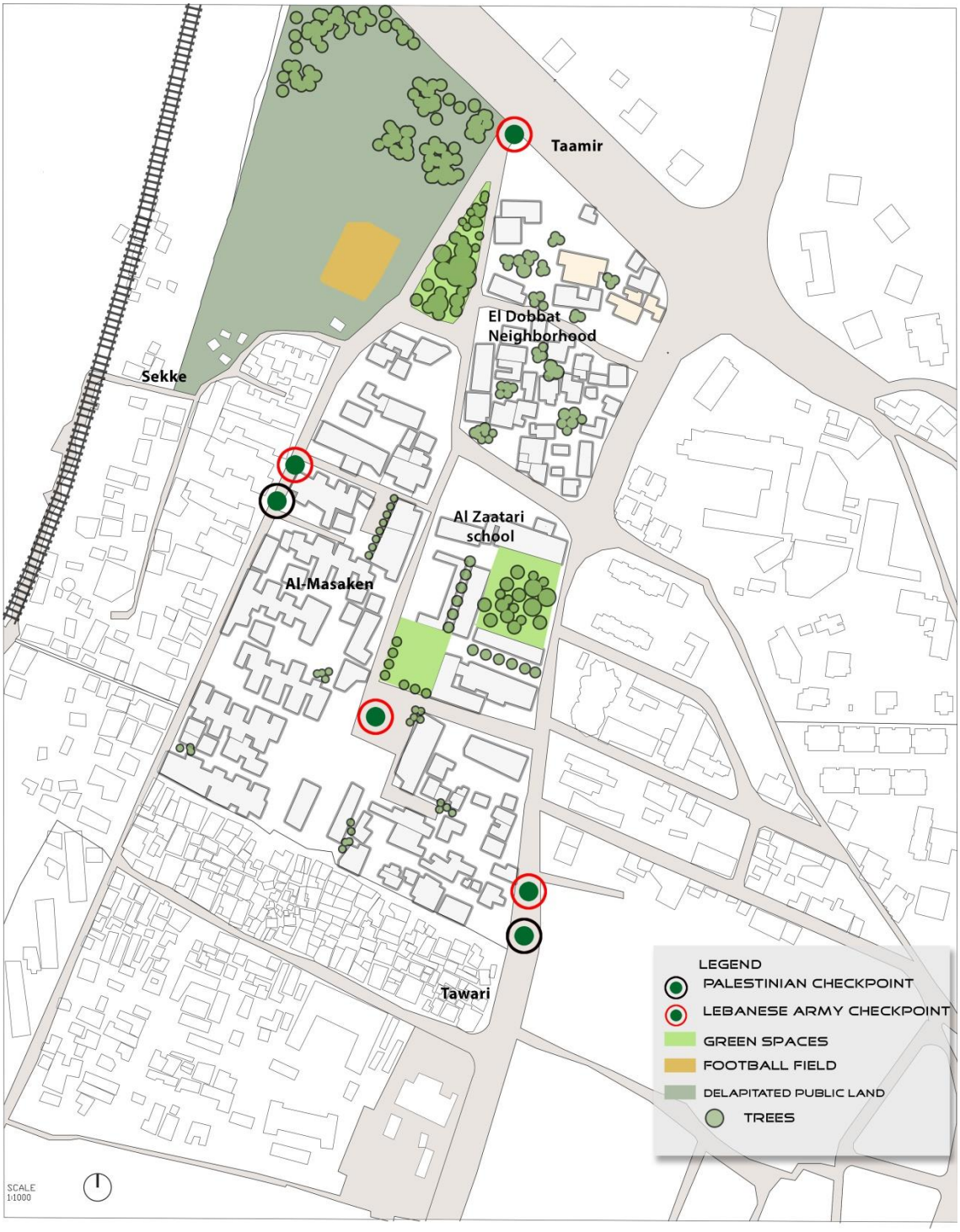


Figure 72: Map shows Green/ public spaces of Taamir. Source: Author, 2017.

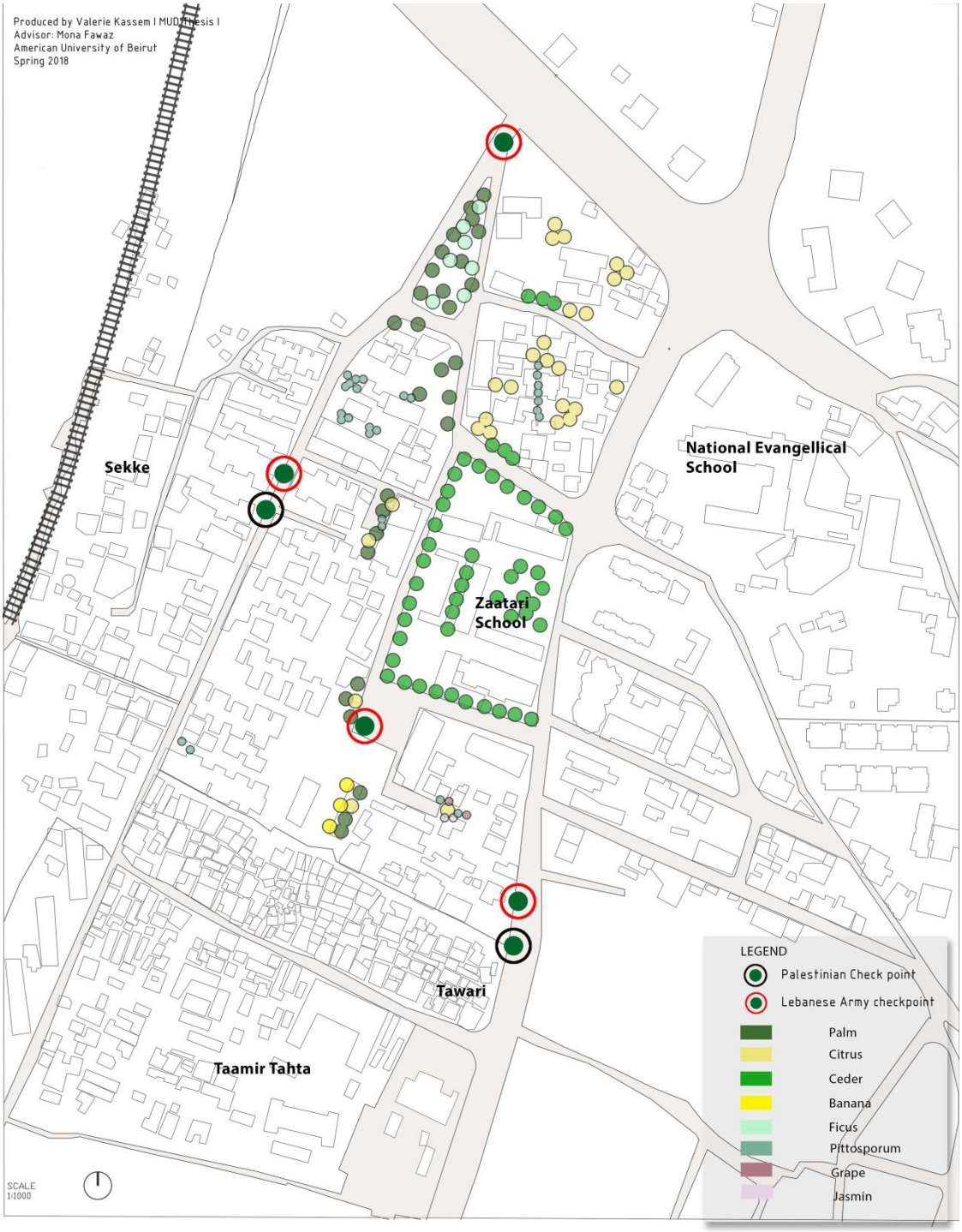


Figure 73: Types of trees in The Taamir neighborhood. Source: Author, 2017..

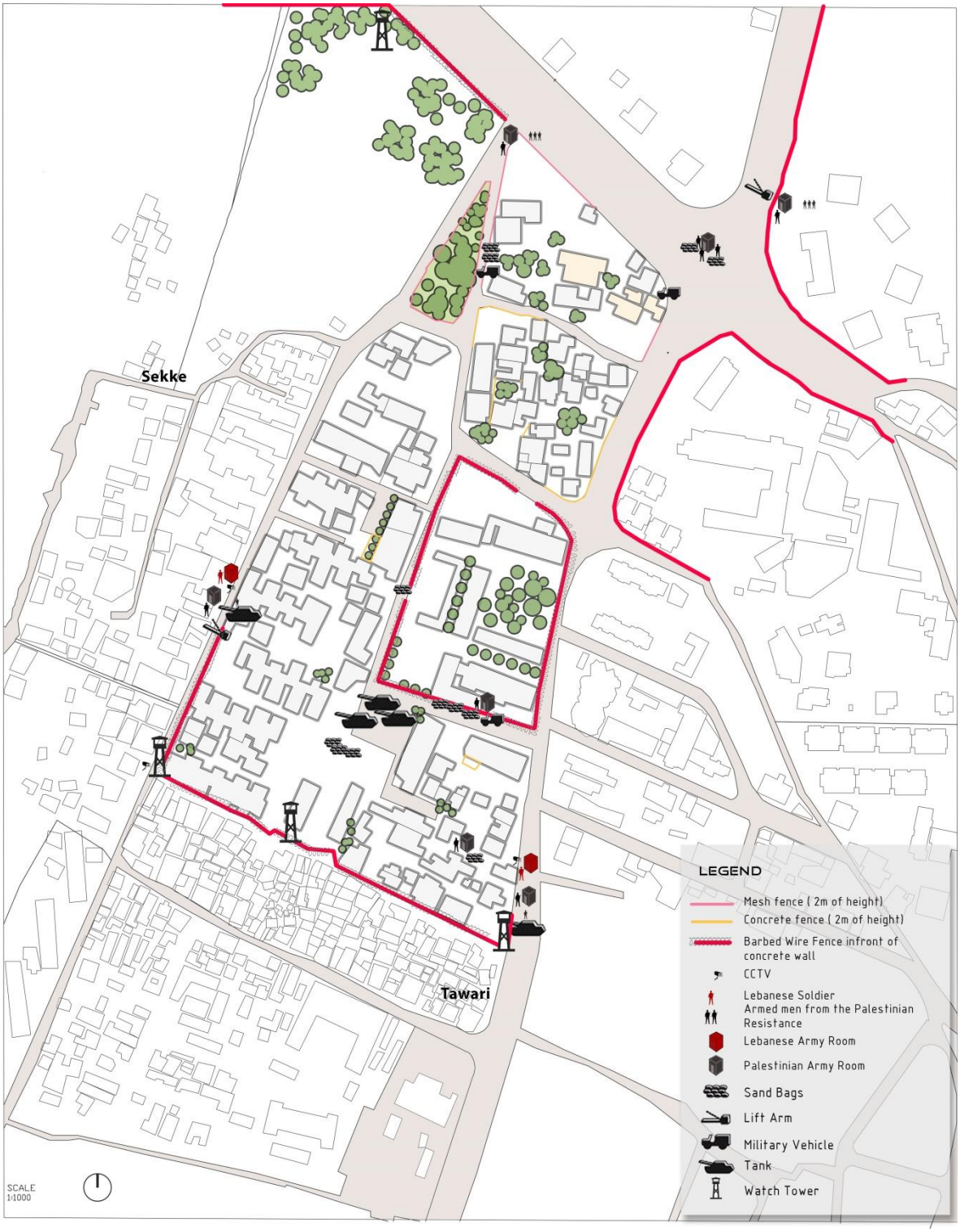


Figure 74: Accessibility. Source: Author, 2017.

Figure 75: Different typologies of fences. Source: Author, 2017.

Generally, dwellers expressed the need they had for proper accessible open spaces that could contribute in any way to their livelihoods. They perceive the municipality as the major stakeholder that is responsible for the poor quality of public amenities and the deterioration of the open space conditions in the neighborhood. They also expressed the need for appropriate parking space and greenery.

The synthesis of the information shows:

- The availability of open spaces, especially at the peripheries, but either closed or left as left over spaces.
- Lack of dedicated and functioning open spaces with accessibility.

- Most of the spaces are either abandoned or used as parking areas which undermines a lot of their potential to be shared spaces for communal activities
- Most of the public lots are fenced
- Very few spaces include greenery, with reminiscences of agricultural activities

The analysis of the streets as open public space also shows how streets act as diverse and lively entities that foster communal and commercial dynamics.

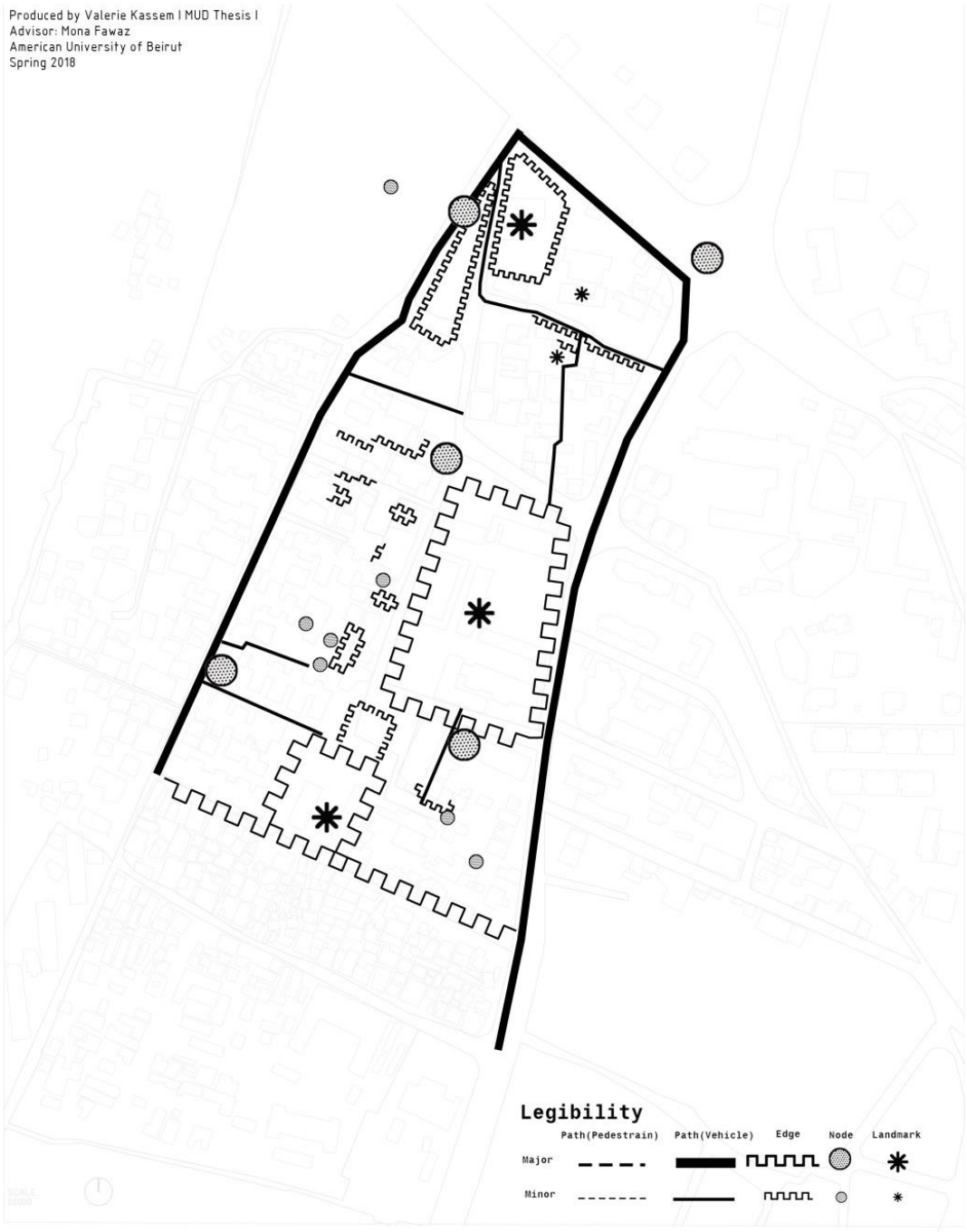


Figure 76: Legibility map of the Taamir neighborhood. Source: Author, 2017.

D. Conclusion:

Taamir neighborhood plays a major role in Saida since it's the first extension, has historical value, and is considered as one of the unique projects in Lebanon (Social

housing). Taamir is a mix self-efficient neighborhood with commercial spines and one of Saida's complex schools (Zaatari School). Although Taamir is a dense neighborhood and highly congested, it is rich with green squatted hubs and social practices. (Fig,76)

SWOT	Strength and opportunities	Weakness and threat
1- Land Use	- Diversity of characters in the neighborhood, from a commercial spine to a residential neighborhood.	- Deterioration of the old fabric.
		- Male domination of most public spaces.
	- Main street is an economic spine which benefits the entire neighborhood.	- Militarization of the whole site and loss of community integration and history.
	-Vibrant zone due to mix of mixes.	- Dilapidation of the abandoned buildings
	-Establishing a union for shopkeepers.	- Illegality changing the morphology of the neighborhood.
2- Transportation and Connectivity	-Available taxi at the main artery which is wide and has potential to be used as a major artery that connects Taamis with the city.	-Poor quality of public infrastructure.
		-Detachment of Taamir with its surrounding , physically and mentally, and dis-connectivity of the residents of Taamir with the
	- Proximity to main arteries.	
	- High will for usage of public	

	transportation by citizens. - Dynamic social hubs for Taamir. -Connecting Taamir to a wider city scope public transportation network. -The Secondary artery leads to Ain el-Helwe is a strong commercial spine that has potentials to be redesigned into green commercial artery. - The hospital street is wide enough to be redesigned into green belt with bioswales and water basin that captures, absorbs and infiltrates the rain water.	city. - Military checkpoints preventing the mobility of the locals especially at the main entrance of Taamir. - Permanent vehicular congestion on the main entrances of Taamir.
3-Safety and Security	- Political attachments give the residents a sense of belonging and protection. - The integrated and familiarity of the community in Taamir and lieutenant neighborhood have	-Growth and expansion of gangs. -Teritorialization threats by the gangs. -Sectariazation and polarization of the neighborhood.

	brought vitality and security.	- Departure of Families - Replication of the memories of the several wars has created an unsafe neighborhood, hence increasing fear and unsafety.
4-Green Infrastructure	- Green open space creates an internal neighborhood safe for children. -Internal residual spaces that can be activated as patches in the green network. -Appropriation of vernacular spaces to green hubs. -Taamir as a green buffer zone connected to its environment. - Taamir neighborhood has several rich squatted green hubs, solitary trees or patches. These sites have the potential to be connected by green paths. - The inaccessible public garden	-Lack of the green infrastructure that connecting the environment. -Lack of overall greenery and connection between the fragmented patches. -The takeover of the parking lots of the open spaces. -Overtake of the militants on the public spaces. - Public spaces turning into permanent parking lots. Lack of ecological awareness. -Lack of green infrastructure. - Lack of green infrastructure that connects the built environment to the open spaces.

	could be redesigned into a vibrant mixed green space, where people can interact. - Wide street with high potential for green infrastructure corridor. - Localized agriculture methods in the residential neighborhood.	-Lack of open space/networks that fosters children's outdoor activities. -Lack of connection between the open spaces/green patches. - Takeover of vehicles in the open spaces.
5-Titling	-Titling project is in process. - Residents who are close to the Future movement are aware of the titling project. - Political party is responsible for the titling project. - Financial support from powerful politicians to finalize the titling project.	-Lack of titling leads to conflict between people and reduce property value. - Weak financial situations have caused lack of ability to maintain and checkout house fees and loans. - Lack of awareness of the residents regarding the ongoing projects for Titling whomever outside the orbit of the Future movement.
6-Amenities	-Several educational institutions in the neighborhood which	-Overall poor hard and soft infrastructure.

occupy huge chunk of the neighborhood. - Existing water sabil in Lieutenant neighborhood	-Enclosed fenced institutions that prevents physical and visual accessibility. - Lack of leisure and activity centers. - Lack of social hubs. - Weak sewage that causes water ponding. -Illegal electrical provisioning. Educational institutions occupied by the Lebanese army.

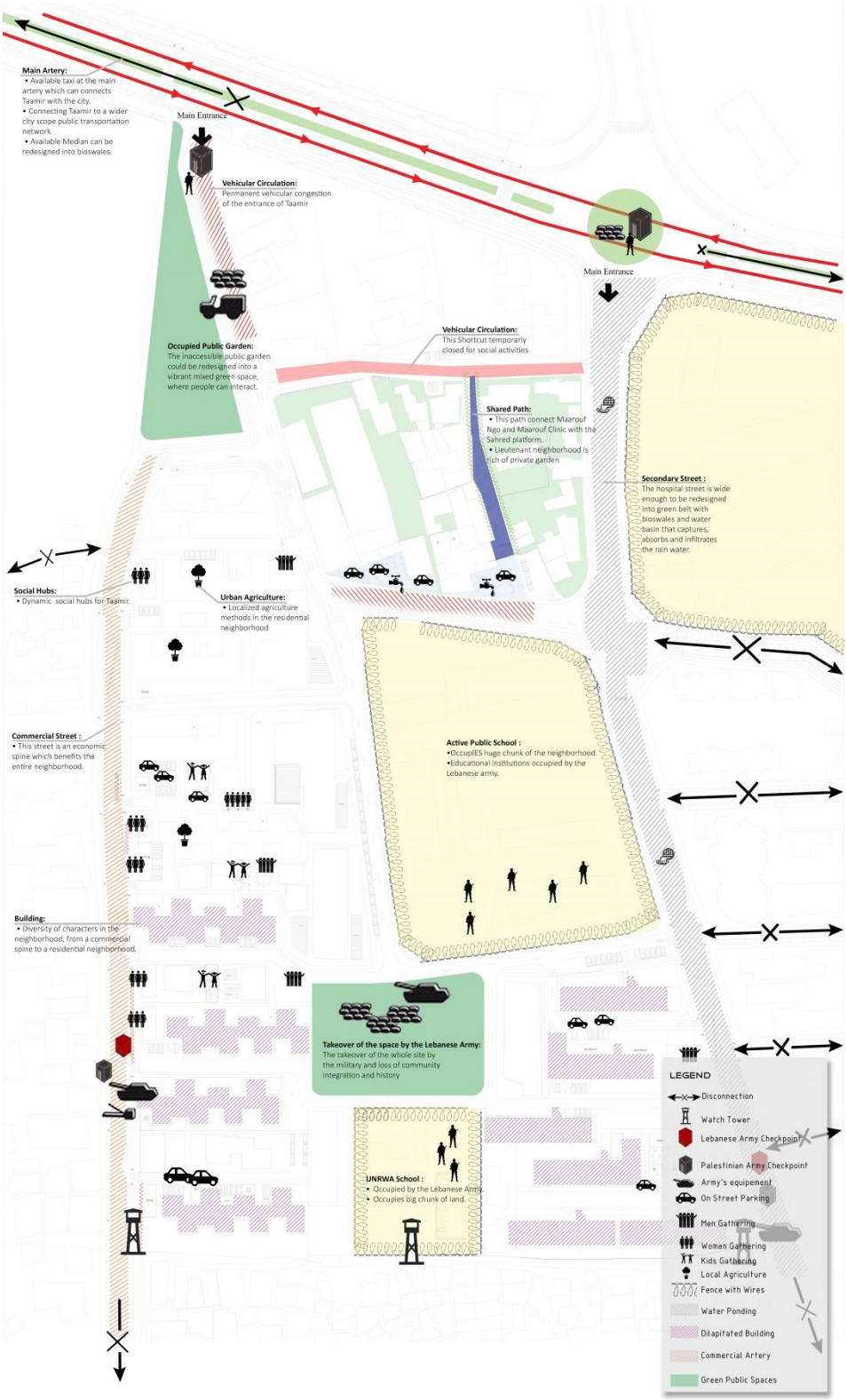


Figure 77: SWOT analysis map. Source: Author, 2018.

CHAPTER V

DESIGN INTERVENTION

A. Overall Design Approach and Objective:

My general vision for Taamir neighborhood is built local identity. The neighborhood is to foster cultural exploration, recreation while projecting sustainability and resiliency with its surrounding. More specifically my vision for Taamir is a green entity where dwellers interact with each other and nature. The green infrastructure makes the neighborhood resilient; hence, promoting ecological and social sustainability. As an outcome, dwellers will value the greenery and this attachment motivates management and guardianship of the green spaces and the ecological systems. In addition, the outdoor environment will stimulate interaction from the community and allow creativity and continuous development. In this sense, dwellers gain a sense of place and feel safe in their neighborhood.

1. Concept:

My intervention adapts the Potosi approach: Their concept aims to regenerate dead green hubs and revitalize social hubs. At the same time they are creating an interconnected green network by creating multiple links. So in this way "active spaces will be green, and green space will be active" (Amanda Hultman, 2016), therefore the sense of security will improve. At the neighborhood scale my intervention in Taamir is (1) to overlap the green and social hubs and link them by green paths. As a result, Taamir will have an interconnected network of green spaces (Fig 78), (2) create a visual institutional connectivity between UNRWA, Zaaratri and American school. (3) Green

active spaces which will provide ecological and social benefits. (4) Regenerate green open spaces that targets different groups to extend the use during the whole day. (5) Upgrade the existing social hubs to green nodes and further to the green networks. (6) Connect the green patches and the green hubs to the green corridors. (7) de-securitize the neighborhood and re-appropriate the open spaces to active green spaces within the green infrastructure. At the building scale, (1) I will use dwellers' localized agriculture methods by planting trees and vegetation in plastic and iron pots to differentiate between the public and the shared space. (2) For the opaque walls I will introduce climbing trees to provide visual and green connectivity. (3) Green roofs will be introduced to provide patches for green infrastructure on the private realm.

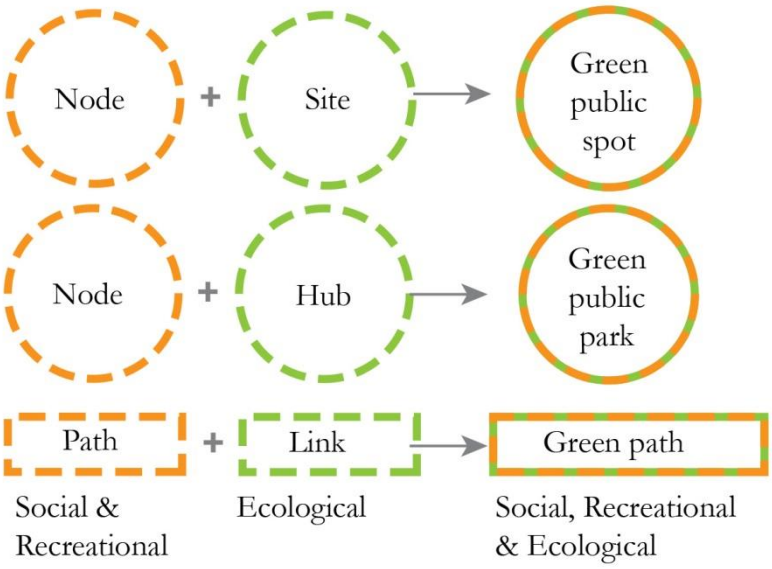


Figure 78: Concept. Source: Hultman, 2016.

Figure 79: Overall Vision Map. Source: Author, 2018.

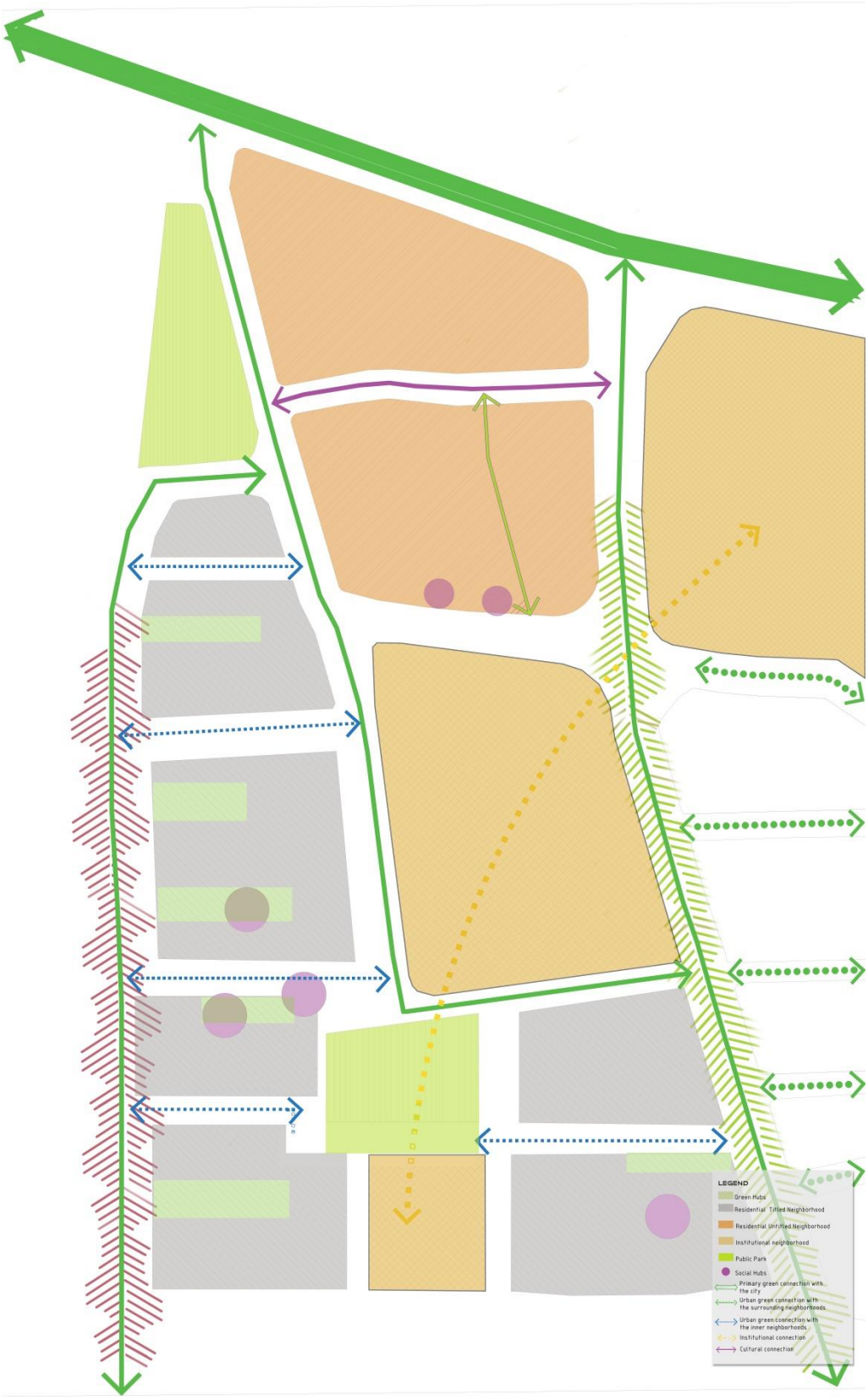
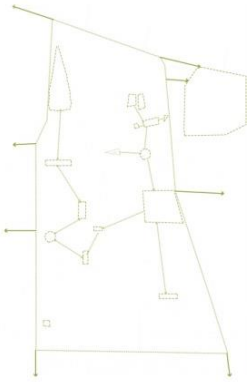


Figure 80: Conceptual design intervention. Source: Author, 2018.

2. Goals:

In order to achieve my goals, I will rely on a multidisciplinary approach, which includes a landscape architecture, planning and urban design, these will serve as the base for a development strategy that will achieve my vision. To make my program legible, illustration will be used that describe where it will be implemented; and guidelines will point out the direction of the intervention.



Implement a green network with nodes/hubs and linkages.
Connect the greenery of the neighborhood to its surrounding.
Upgrading the quality of the green open spaces.
Promote biodiversity in the neighborhood.
Using native plants suitable for the site.

Sustain dwellers from residing in hazardous zones.
Improve soil quality.
Promote mobility and activity to improve sense of security.
Increase accessibility of the green spaces.
Provide a range of recreation paces for different target groups.
Upgrading the pedestrians accessibility within the neighborhood and its surrounding.

Reduce the strong disconnection of the edges of Taamir by activating them.
Implement a structure capable of continuous development.
Promote existing resources and values of the built and natural environment as well as of the community.

B. Program of the GI in Taamir

This section describes the different elements of the G.I that will be implemented in Taamir. This section has two parts, which are the “Attractions” and the “Tools”. The first one will be implemented in the dead green nodes to improve the social interaction; however, the second will be implemented on the social hubs to improve the green layer.

1. Attractions:

According to my gathered data, I’m proposing different attractions which respond to the locals’ need, and at the same time they are executable on the site. The final product will be attractive places where people can meet and have social recreational benefits. The different attractions that I am proposing are as follow:

Icon	Definition
	Playground Area, is where local children can play. It will be located next to their houses where their mothers can observe from their balconies.
	Food hub is where locals can plant and harvest their products whether to sell them out to have an additional income, or for their daily need so they can save money.
	Farming area mainly will be located in the commercial area, where locals can sell their harvested product out.

Outdoor Gym was suggested by the local youth, is a place where they can exercise and enjoy their time.

Within Taamir boundaries there is not any sport field, therefore locals suggested to redesign the public garden and add a small sport field.

BBQ area is a communal space when all neighbors can gather especially during Ramadan.

2. Tools:

According to the survey and the literature, I tried to identify appropriate tools which will help to achieve the ecological benefit and at the same time are applicable in Taamir. These tools are described in this section as follows:

Icon	Benefits
	**Trees:** rees are the first target for birds and insects, also they produce shade for the passerby. Finally, they can be used as a code for visual and physical distinction of different areas and paths.
	**Planting strips:** These are unpaved areas between the pedestrian and the street, it will be used by insects as their shelter, also it can be designed in a way where it can collect and infiltrate the storm water (Rottle and Yocom, 2010). In addition, different types of trees might be planted in these strips except in the corner.

Green Roof:

Green roof or living roof provides shelter for the animals also, it detains precipitation and collects the rain water. Green roofs will be planted by local herbs and plants.

The green roof has big potential to be implemented within Taamir, this is because the majority of the building are publicly owned, and therefore it will be a model for the community.

Green Wall:

It's a visual garden, it will be implemented where there is an opaque wall and where it's hard to have visual accessibility to the private garden especially within the lieutenant neighborhood and in the Zaatari school. Finally, green wall provides a continuity of the green network.

Rain Water Collection:

This tool is one of the most important interventions, this is because Taamir which at present suffers from water shortage, will have access to irrigating.

Also, it will be implemented in different areas and different containers to prevent soil mitigation and prevent water precipitation to people's homes.

The collected water will be used to irrigate the urban farming and in the agricultural land.

Rain Garden:

It's a supplement to the rain water collection; it has same benefits as mentioned above.

Biodiverse Flower Strips:

Mainly it is composed by local/native flower to encourage species of flowering plant. It has an aesthetical beneficial since it beautifies and gives divers ambiances. It will be implemented at the main entrances of Taamir.

3. Conceptual Proposal of the green network:

The map bellow proposes a conceptual intervention of Taamir, where tools and attractions might be introduced to the site, and green paths connect these nodes together, therefore an interconnected network will be created. The attractions will be placed in the green nodes to create or strengthen nodes; however, tools are distributed within the social spot and along the green paths (Fig 81).

Figure 81: Conceptual diagram of Taamir. Source: Author.

C. Design Intervention:

This section consists of the multilayered design intervention which includes the transportation where the traffic, street management and sidewalk and principles of the green path are designed. In addition to the transportation and connectivity, the green layer elaborates the different types of vegetation and trees and the irrigation system. Finally, at the end the land use was tackled.

1. Transportation and connectivity:

a. Traffic:

In order to alleviate the overwhelming traffic congestion and the mobility problems caused by military checkpoints and on pavement car parking, I will tackle the problem on two levels. First, due to the military checkpoints at the main entrances of Taamir, the entrances, especially at rush hour, are congested; therefore, I will be de-securitize the entrances to provide ease of access and prevent congestion. Second, I will provide a loop next to Zaatari School at 7 to 8:30 in the early morning and at 2 pm which are the opening and the dismissal of the school. At present, the streets are totally blocked due to the arbitrary bus parking and students crowd. In my intervention, buses will park on one side of the tertiary street which will solve the traffic congestion on one hand, and on another hand the neighborhood will become safer for the students (Fig 82).

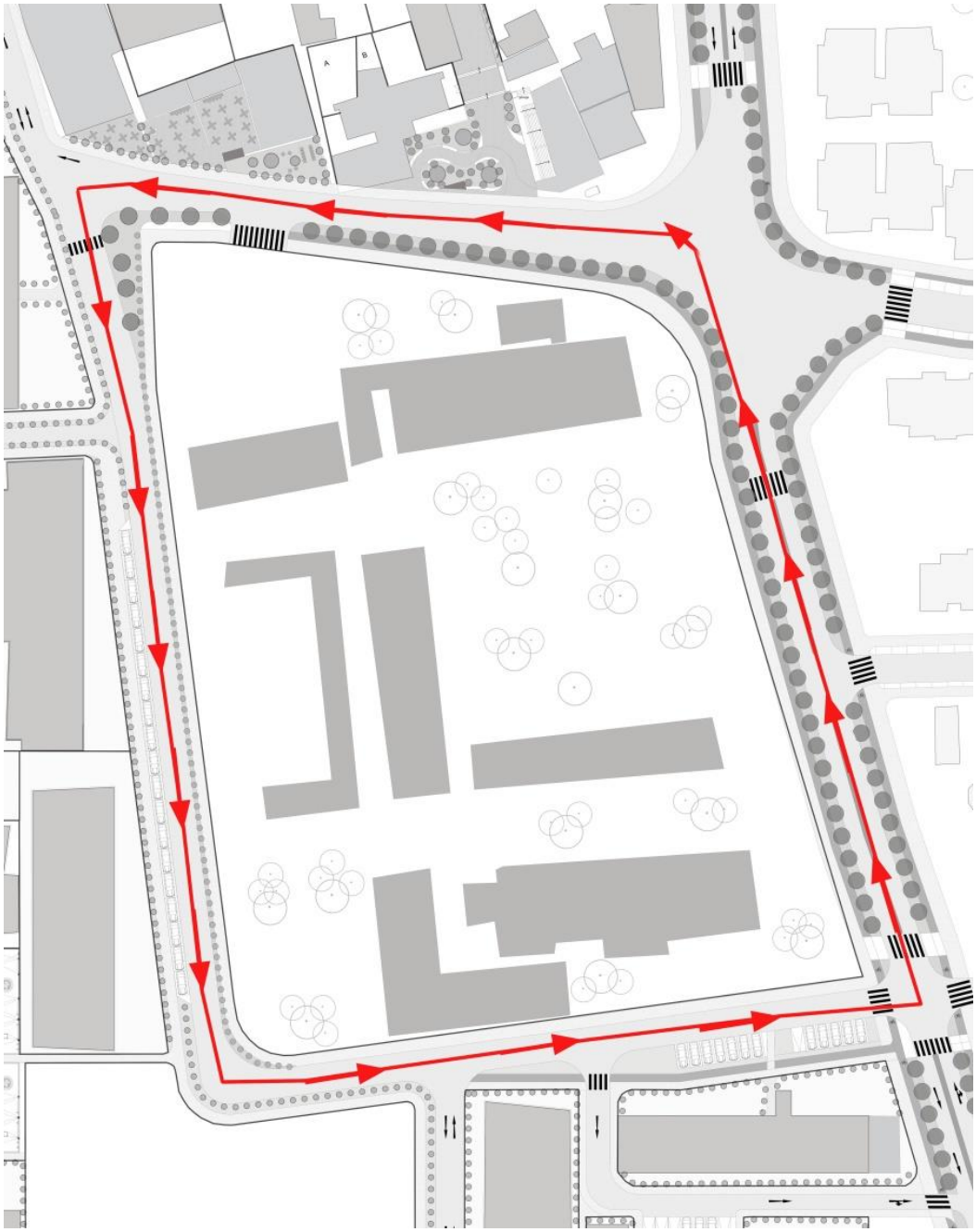


Figure 82: While loop next to the Zaatari school. Source: Author.

b. Street:

In order to guarantee a comfortable walk and hangout, the street must be organized as a safe place by reducing the speed of vehicles, providing it with safe

infrastructure for the pedestrians/bikers[11], and protecting bike lanes, crosswalks and medians. These are all suggestions that contribute to making the street a better place for people (Fig 83). This section will be elaborated in the network of green paths.

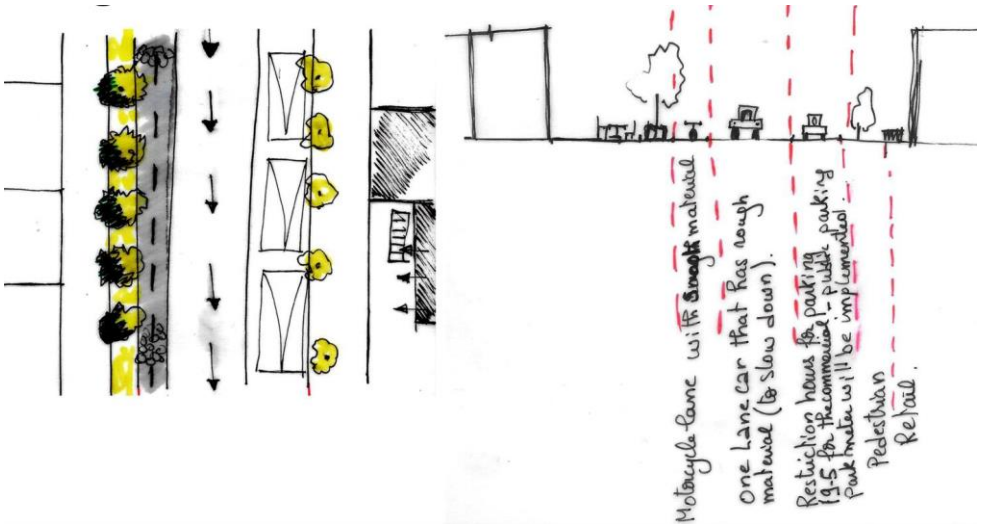


Figure 83: Sketch of the street. Source: Author.

c. Sidewalk:

The sidewalk corridor is typically located within the public right-of-way between the curb or roadway edge and the property line. "Sidewalks should be designed to provide safe, attractive, interesting and comfortable space for pedestrians by providing well designed and coordinated tree planting, lighting and street furnishings[12]" (Toronto city planning, 2012. P 6). To achieve a sustainable streetscape, we must use local permeable pavement for storm water. In addition, safety is an important factor that

[11] Bicycles is very common to see in Saida, this is because motorcycle are prohibited to use.

[12] Toronto city planning, vibrant streets, clean & beautiful city secretariat and transportation services, canada,2006,pp2, April 24,2012.

shall be taken into consideration, therefore a green path will be created in order to serve as a buffer zone between vehicle circulation and pedestrians (Fig 83).

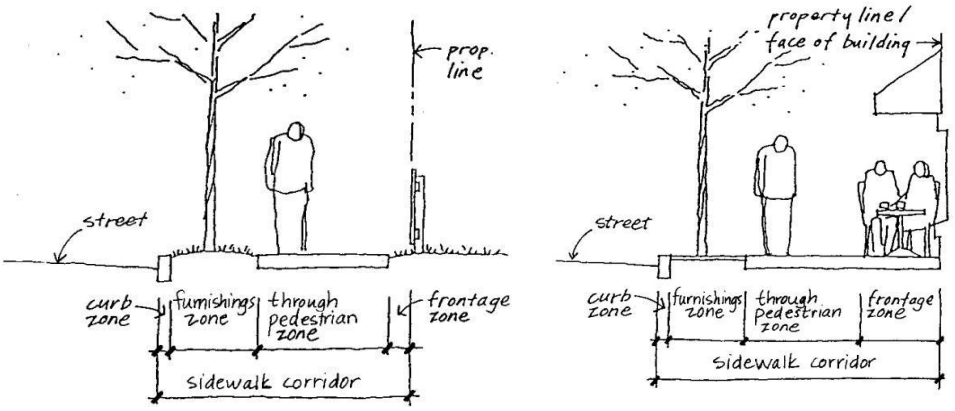


Figure 84: Typical sections of Sidewalk Corridor in residential zone, top, and commercial zone, bottom sketch. Source: Portland pedestrian guide line, June, 1998.

d. Network of green paths:

In the case of Taamir, I have five different street typologies, with great variation in width of street. Each one has its own identity and it suites different situations according to their function. The principles may vary from one street to another. The five principles will be elaborated in this section: For example,the first principle will be implemented on the main artery, it is specific and does not vary since the width of the street does not change and does not exist somewhere else in Taamir. All the principles take into consideration the transition between the private and the public domain.

i. Main Artery:

Along the main artery, which is located at the main entrance of Taamir, urban furniture such as benches, bins and street lights will be added to encourage pedestrian activities and make their walk in the afternoon enjoyable (Fig 85). In addition, bus stations will be added to strengthen the connection with the city; these buses will stop at the main artery without entering to the Taamir neighborhood (Fig 86).

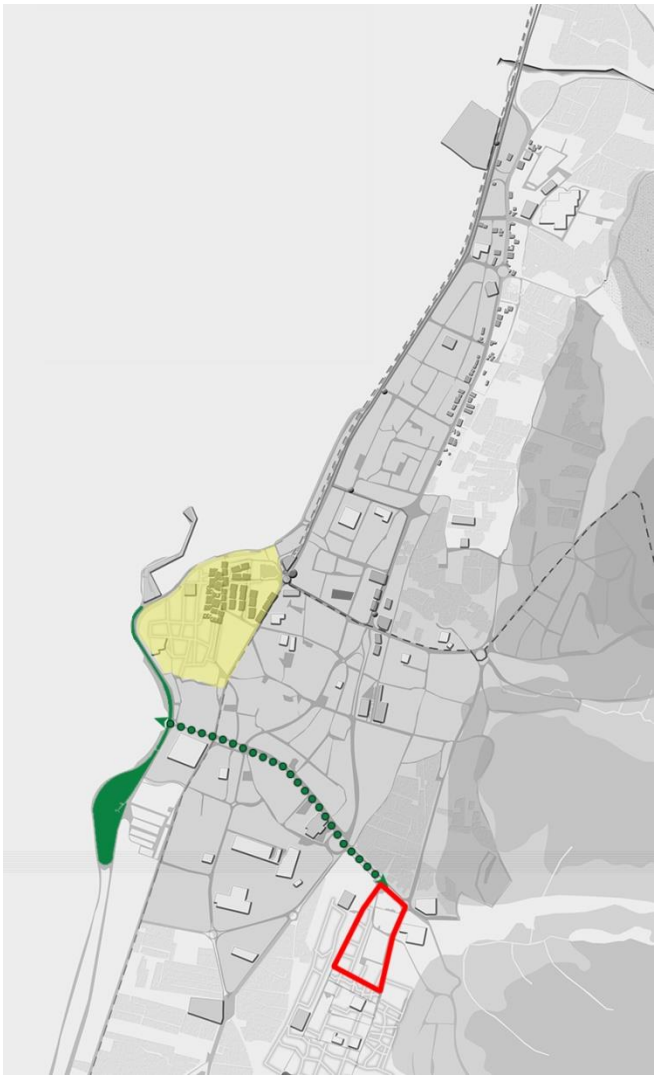


Figure 85: City Scale Connection between Taamir and City Center. Source: Author.

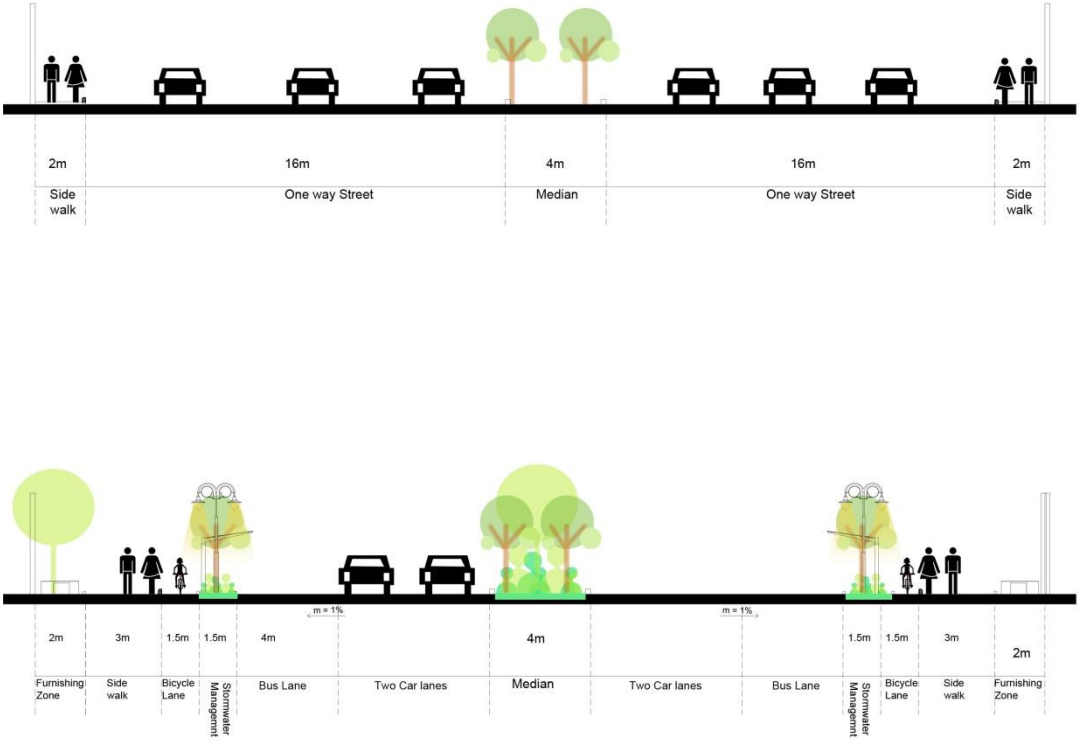


Figure 86: Before and after of the street section (main artery). Source: Author.

ii. Secondary Artery:

There are two types of secondary arteries; the first is the commercial one that is located in the western part of Taamir. This artery has a commercial identity since the majority of the shops are situated along the street. During rush hours, this artery is blocked due to the double on street parking, also the pedestrian is uncomfortable due to the disorganized shops' spill over. In order to alleviate crowdedness, the street is redesigned in a way that the pedestrian path, bicycle lanes and goods are taken into consideration (Fig 87) by prohibiting on-street parking and adding parking spots next to the shops.

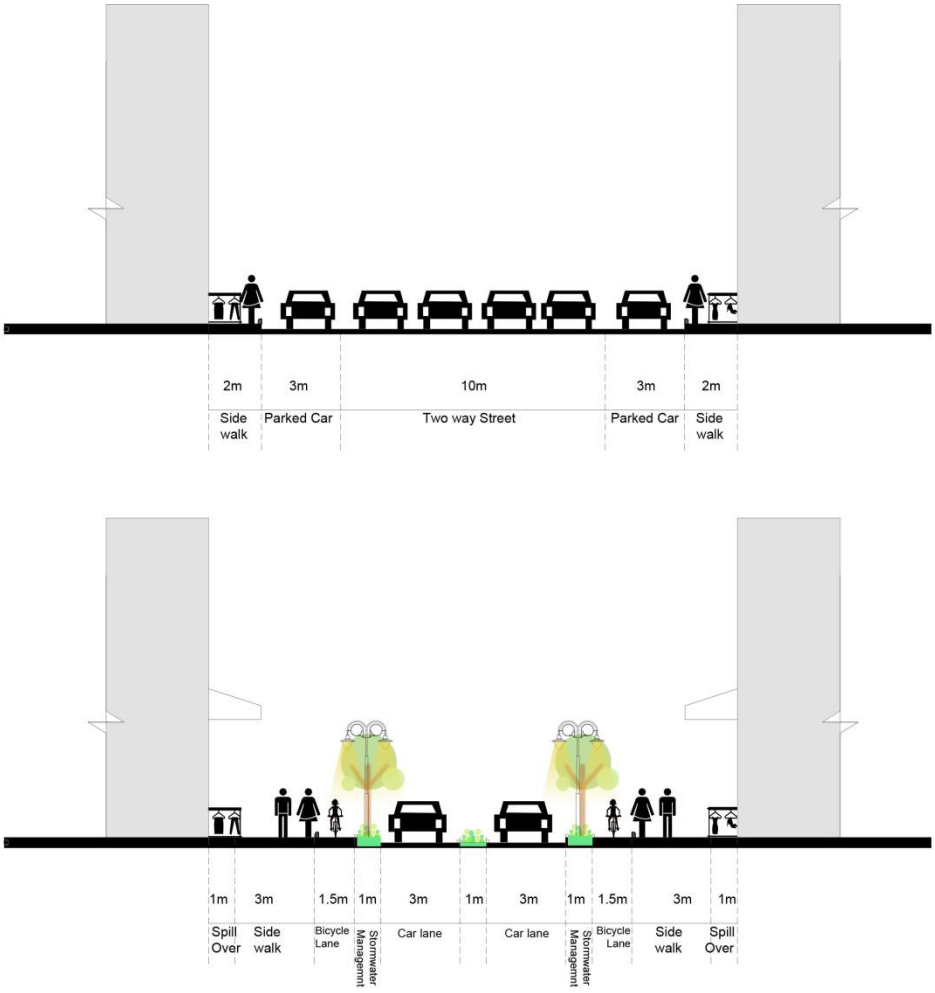


Figure 87: Before and after of the street section (Secondary artery). Source: Author.

However the second type has a green identity, since the surrounded neighborhood is higher than Taamir, runoff water run towards Taamir and result flood especially in the winter. At the same time the sewage channels are installed along this street. That's why bioswales are added to create a safe runoff belt. Water basins also propose to install to collect, infiltrate the rain water. At the end it will be reused to irrigate.

Without forgetting accessibility, along this path bicycle routes are added in order

to encourage and improve accessibility. Also on both sides of the street, trees are planted to provide shadow and safety for the passerby. (Fig 88)

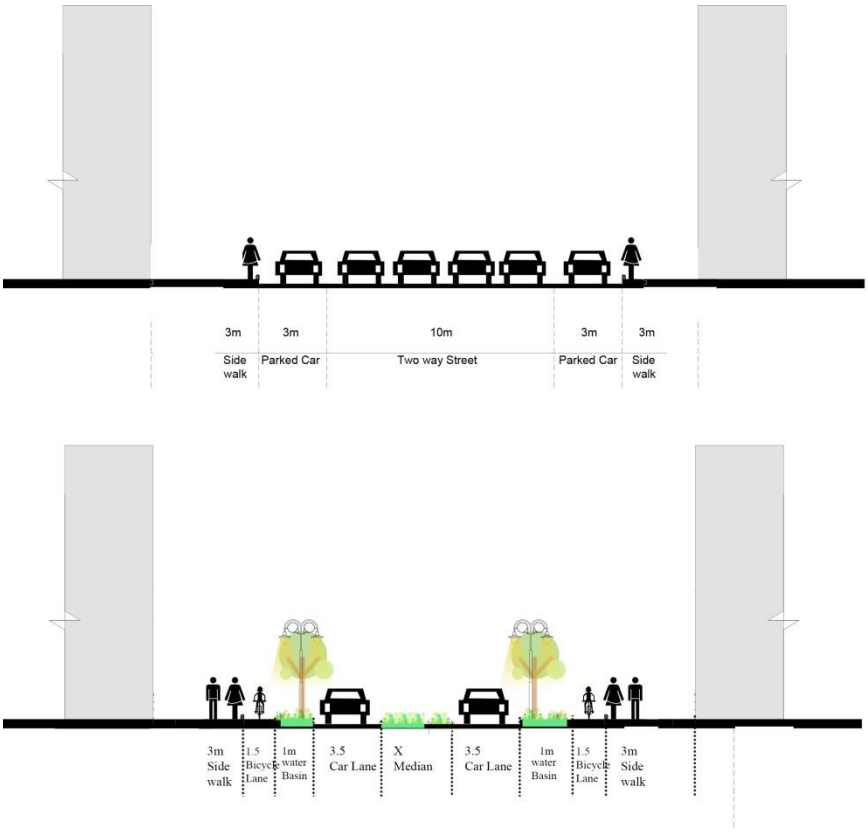


Figure 88: Before and after of the street section (Secondary artery). Source: Author.

iii. Tertiary Artery :

This street is located within Taamir neighborhood, where vehicular circulation exists. Where there is enough space or specific requirements of accessibility by car, a 5,5 m of two way lanes are implemented but always complemented with shaded sidewalks (Fig 89).

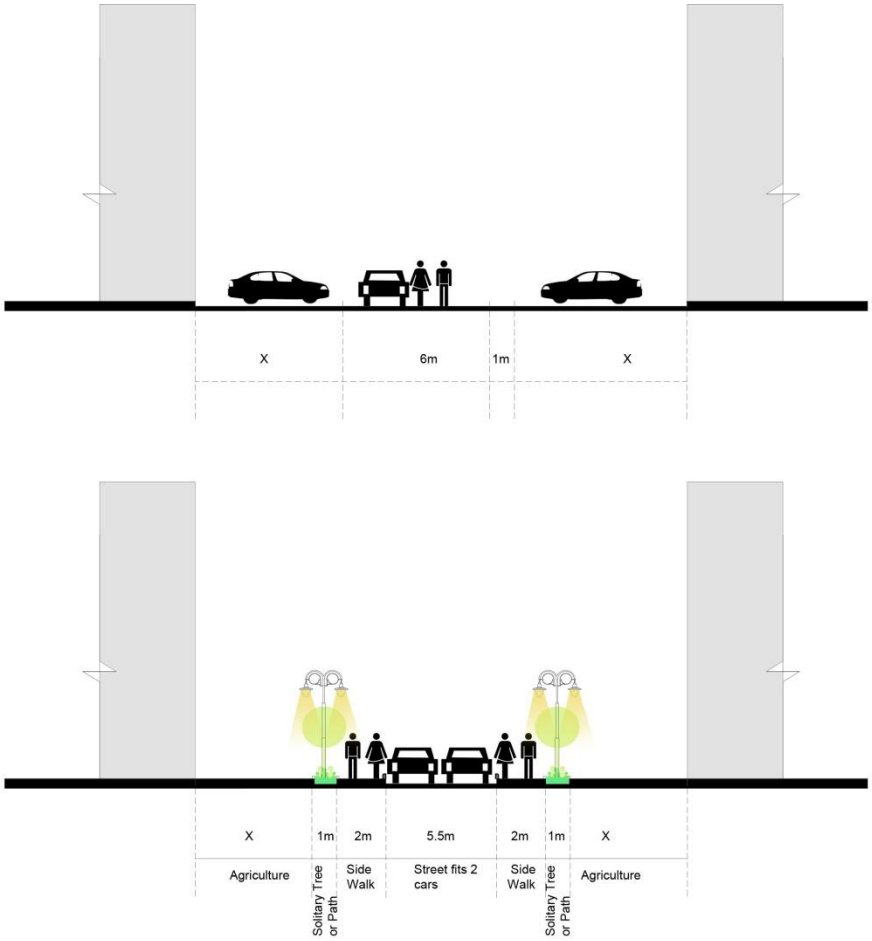


Figure 89: Before and after of the street section (tertiary artery). Source: Author.

iv. Pedestrian Path :

Along this path, motor vehicles are forbidden, but there is enough space to drive a car in case of emergency (Fig 90).

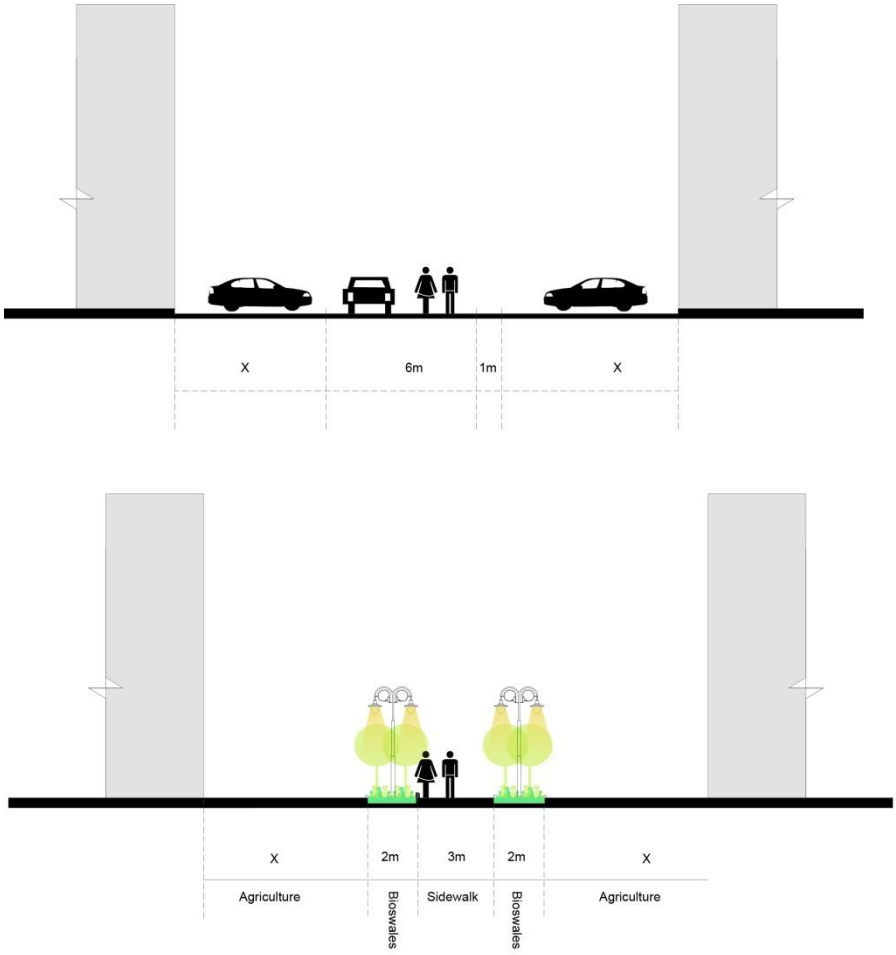


Figure 90: Before and after of the street section (pedestrian artery). Source: Author.

2. Greenery:

In order to deal with the green layer, it is important to understand the context and the locals' needs very well. According to my survey of greenery, Taamir is rich with local trees such as citron, grapes, and palms. The green network is a mixed-layered network composed from the link such as pedestrians, vehicle and bicycles lanes, and nodes whether it is private or a public space. Each space has its own guidelines and strategies that will be elaborated in this section.

Different types of vegetation such as trees, shrubs and grass will be implemented depending on their location and the purpose of it. Although different green

layers will be implemented, as a result an integrated green network will be implemented.

As we know Saida is rich of citrus trees, and prior to Taamir housing project, it was an agricultural land planted by palms and citrus trees. Although Ecochard in 1960 planned green buffer zones between the buildings, nowadays Taamir has lost its identity due to the manmade violation and the nature degradation that is why my intervention seeks to regenerate the agricultural identity of Taamir. (See fig 91).

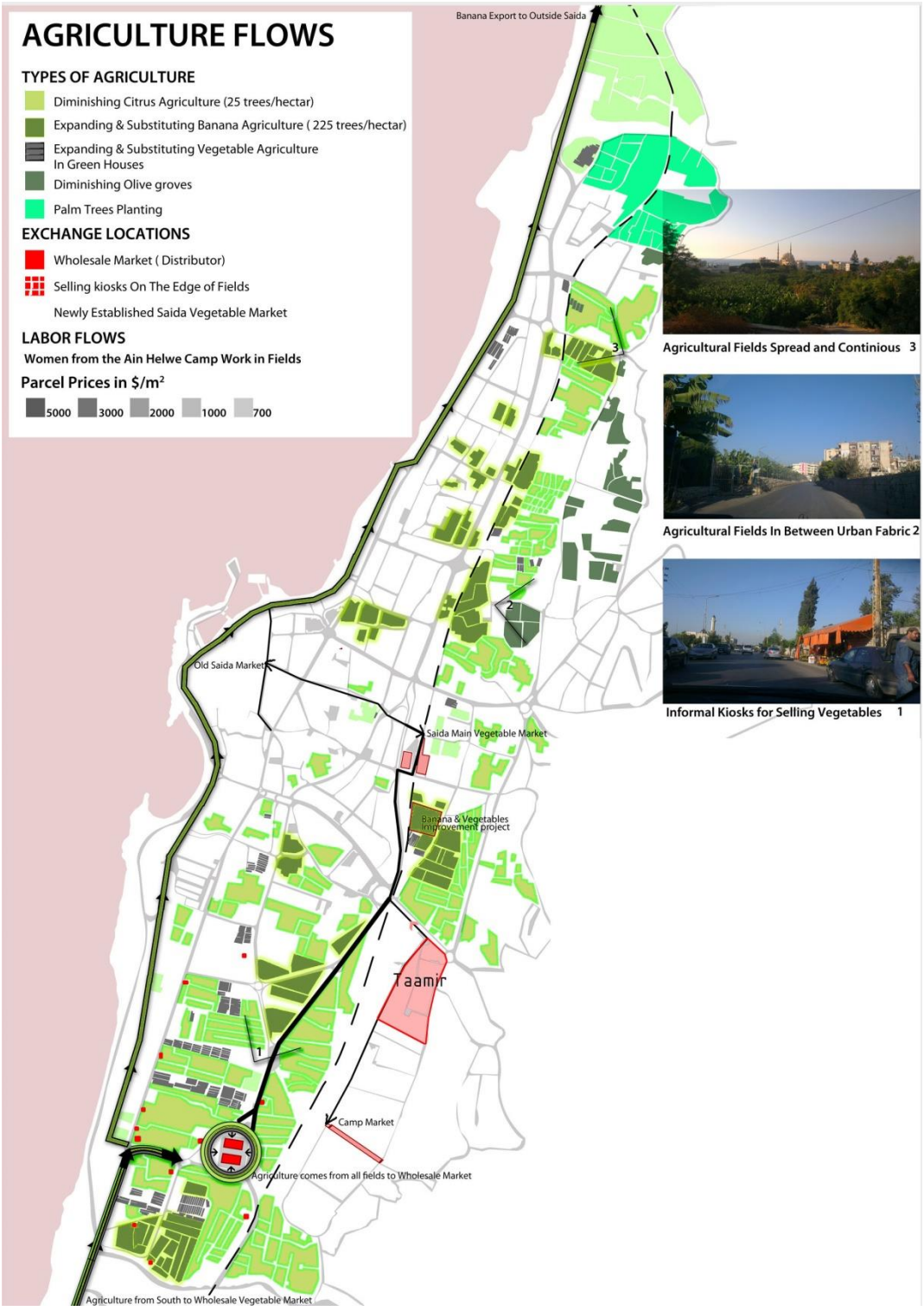


Figure 91: Agricultural Flow of Saida. Source: Author,2018.

a. Trees:

In order to provide security, Trees will be narrow or high canopy, therefore visibility will be provided. In the corner, bios-wales instead of the trees will be planted to not block sight injunctions. Along the main road, big trees will be planted to provide enough spaces for the busses to pass underneath of it, at the same time the tree will provide enough shadow for the passerby hence reducing the impression of traffic.

Trees should be large enough to provide the street passengers with shade. Since the municipality is responsible for implementing this project, it will distribute the trees among the dwellers, and will even hire some of them to take care of the trees and water them, and thus creating job opportunities for the local community. The proposed master plan consists of having diverse spots, each one with a distinct identity. Therefore, we must use different types of trees. At the same time, we have to take into consideration the climate and the irrigation system.

Since fruit trees require a lot of care, they cannot be used in public streets. However, we have already agricultural spots that are full of vegetation and trees, and of which the dwellers take care. In order to encourage the people to save this identity and to create another type of green spots, the municipality will distribute fruit trees to the residents, to be planted in their balconies, gardens and rooftops. (Fig 92)

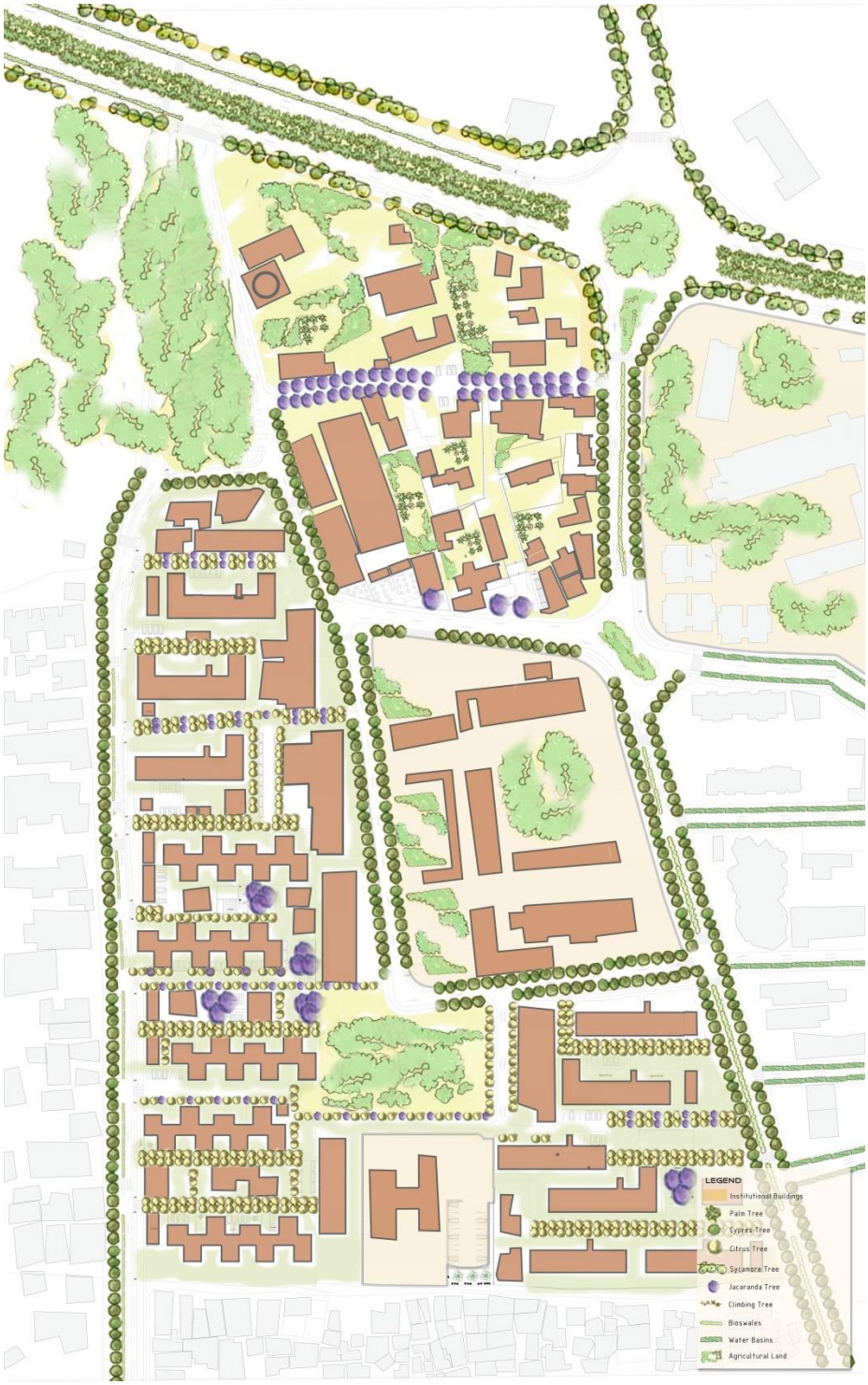


Figure 92: Vegetation map of the Taamir neighborhood. Source: Author 2018.

i.Citrus Tree:

Citrus orchards are located along the coastal zone. In Lebanon, citrus are mainly cultivated in Tyr and Saida, since it covers 73% of the total Area (Saadeh, 2016). In Saida, farmers produce 3 main lemon varieties which are as follow: Monachello, Interdonato and Meyer (Saadeh, 2016). These varieties differ on quality and flavors. In addition, they are well known as disease resistant such as Malsecro and gummosis disease, which have a negative impact on the rest of lemon types (Saadeh, 2016).

Citrus tree will be planted in the inner paths and courtyard, where locals can have economic and social benefits. On a social level, locals can gather to harvest and take care of the lemons, and on an economic level, the harvested fruit will be sold and foster a source of income for the residents. Finally, citrus tree has an aesthetical benefit, since the aroma from this tree will add to the yard a fresh scent that will take over the neighborhood. (Fig 93).

Figure 93: Citrus Tree. Source: Debs, 2013.

ii.Cyprus tree:

This tree is an evergreen tree, its native to the Mediterranean region. This tree represents the identity of Lebanon for centuries. It's a narrow tree that goes to 15-20 meters of height when it matures. These types of trees are planted next to each other to create a green wall, so they provide shade for the passerby and help them to deal with the heat during the summer. Cypress shouldn't be planted next to the residential buildings because it blocks sun penetrations, that's why I strongly advice to plant this tree in the semi-public spaces to provide a kind of privacy. (Fig 94).

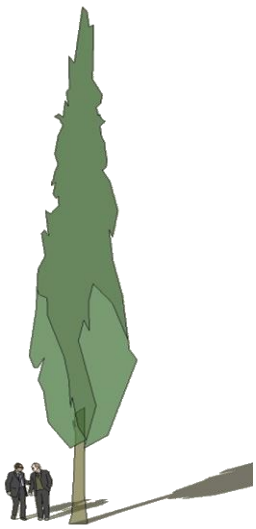


Figure 94: Cyprus Tree. Source: Debs, 2013.

iii. Phoenix Dactylifera or Date Palms:

The date palms play a major role in Muslims life, since it represents food, shelter, garden, and orchard for them. This tree is one of the most popular trees in Saida. The plantation of this tree dates back to the 3000 centuries ago. At the main entrance of Saida and next to the corniche medians are planted by date palms and the municipality takes care of them. This tree is popular because it is salt and drought tolerant, in

addition to its impact in combating densification. Ecologically, this tree helps in air purification and the decrease of temperature. In addition, this tree has an economic impact since the pollination and harvesting helps to earn a decent income. That's why I strongly advice to plant this tree in the inner part of Taamir and on the agricultural land. (Fig95).

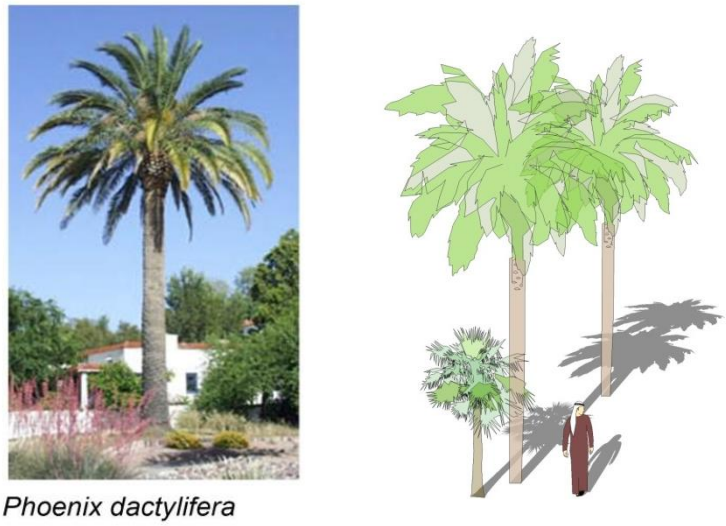


Figure 95: Date Palms. Source: Debs, 2013.

iv. Colorful Tree:

In Taamir there are diverse active social areas. Each one has its own identity. In order to keep their identity, colorful trees will be used in these areas. Learning from Debs's case study, I will use jacaranda mimosifolla and Tabebu heterophylla. These trees provide good ambiance and bright colors that give hope and long life.

Jacaranda Mimosifolla: (Fig 96) Is one of the most attractive trees, due to its lavender flower. This tree has vase growth form, it can reach 15 to 25 meters of height and spread, on other words, it's large enough to provide shade for locals who are sitting or

playing beneath it. This tree has aesthetic values because of its shape and flower's color; the blooming season starts in April and stays until August.

Jacaranda mimosifolia

Figure 96: Jacaranda Tree. Source: Debs, 2013.

Tabebuia heterophylla: (Fig 97) This tree is an extremely fast growing tree, its considered as a small to medium tree, reaching 18 m of height. It resists insects, toxics and dry conditions, also adapts in any type of soil. Heterophylla provides deep shade, which prevents any type of vegetation and falling seeds to grow up.

Tabebuia heterophylla

Tabebuia caraiba

Figure 97: Different types of Tebebuis Tree. Source: Debs, 2013.

v. Climbing Tree:

This type of vegetation will be used as a border treatment. While redesigning the relevant sidewalk, the opaque wall must be taken into consideration (Fig 98). Since we cannot force dwellers to remove their wall, growing some climbing tree, transforms these fences into vertical gardens. On one hand, it provides visual continuity of the greenery and on the other hand, it will be one of the elements of the interconnected network. This type of tree will be planted next to Zaatari school and within the Lieutenant neighborhood.

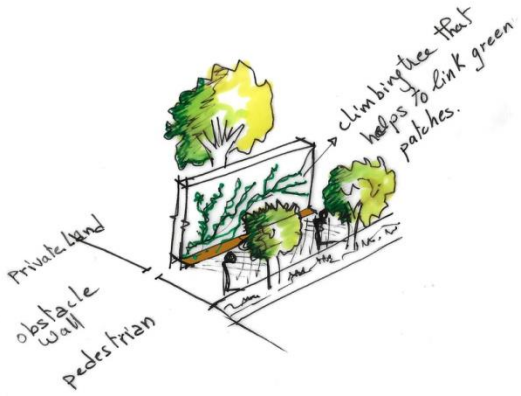


Figure 98: Sketch Shows the structure of the climbing tree. Source: Author.

Learning from Debs case study, we can use mainly wisteria sinensis, hedera helix and Parthenocissus Quinquefolia.

Hedera Helix: (Fig 99) It's an evergreen climbing vine, it has small creamy flower and fast growth rate. It can be planted in shaded areas, and doesn't require a lot of water since its drought tolerated.

Figure 99:Different Types of the climbing tree. Source: Debs, 2013.

Parthenocissus Quinquefolia: Is one of the attraction vines, it changes its color during the year. The leaf turns into scarlet color in fall and the vine bears bluish-black berries, these attract birds.

The climbing tree provides deep green cover, rapidly climbing can be planted in any soil type and in a shaded or non-shaded area. Nonetheless, it can tolerate atmospheric pollution and dough water shortage.

vi. Low-rise vegetation:

This type of the plants will be planted in curb extension, medians and in storm water management system to not block the sight. Taking into consideration the weather conditions, water precipitation and maintenance, three main plants will be used which are as follow: Stipa Tenuissima, Juncus Maritimus and Pennisetum Orientale (Fig 100).

Learning from Liaison douce case study, these vegetation are drought-tolerated

plants, planted in storm water and median canals. These vegetation's do not require maintenance, also have their own system to grow as they are a good spreader that produces thousands of seeds, which are dispersed by wind and water. These plants have a long life period and tolerate most pets and diseases.

Figure 100: Different types of low rise vegetation. Source: Debs, 2013.

b. Irrigation

The long-term approach to streetscape design considers the implementation of storm water runoff filtration. These rain gardens could improve the esthetics of the sidewalk by including lush paintings with varying colors and textures. An ideal placement for these rain gardens is along sidewalks, where they could capture runoffs from roads and sidewalks.

In the landscape strip, a rain garden will be established. According to Jennings (2012). Landscape strips or bioswales are designed as storm water treatment. When Water falls, it captures, infiltrate and less water penetrate. The water will be collected in the water collector which will be implemented in the Zaatari School. The treated water will be fed back to irrigate the agricultural lands or left to infiltrate into the ground

below. In this way the rain garden is considered the greener solution to treating water ponding and reduces the demand water plants.

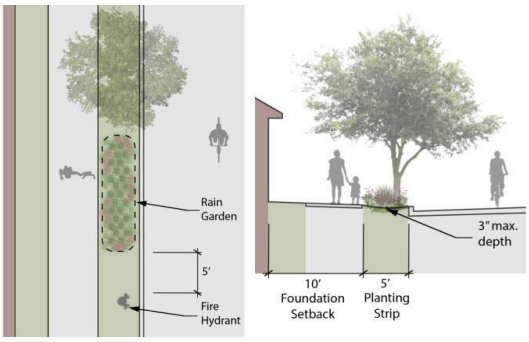


Figure 101: Rain Garden Source: A. Jennings, streetscape Rain Garden Design Principles, Clearwater, Australia, 2012.

The secondary Green corridor will be designed in a way that collect rain water, since during the winter this street suffers from water ponding therefore the water leakage reaches housing apartment. Calculating the area which collects rain water along the secondary green artery. The area of this street is 10459 m2. The final design consists of 12 bioswales with 2852 m2 , 2 rain water collectors with 570 m2. Increasing the total previous areas to 3426 m2.

The rough calculation of the amount of storm water runoff generated in a 50 mm storm event through the following equation:

Area (7603) x runoff co-efficient (0.75) x rainfall intensity (0.05m) = 285.11 m3

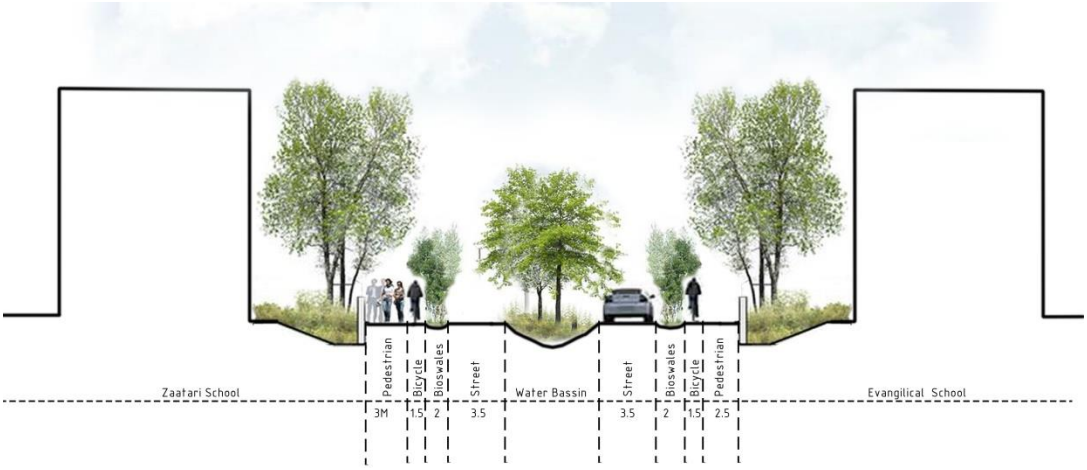


Figure 102: Detailed street section of the green corridor. Source Author, 2018.

In addition to the bioswales, we can use permeable pavement this facilitates the water precipitation and prevent water ponding.

These rain gardens will be connected through pipes that lead to a big tank. The tank will be installed at the southern part of Zaatari School following a slope, and will store the water to irrigate the trees and plants in the morning by sprinklers.

- Sprinklers should not spray directly into a plant, building, or any other structure at close range, in order to avoid any possible damage and to prevent any void from occurring on the other side of the sprinkler itself.
- Early morning hours are usually the best time to water because "wind speeds are typically low, evaporation is at a minimum, and plant leaves do not remain wet for long periods of time".
- Changes in elevation will affect water pressure, may cause low head drainage, and will disrupt the distribution of irrigation spray. Irrigation design must compensate for such occurrences by the selection of proper equipment and appropriate layout.

3. Land Use:

a. Tax Incentives and subsidies:

Incentives for leisure activities shall be given, while forbidding the use of the sidewalk as an extension for the stores activities, and reducing the taxes imposed on cafés, restaurants, and fast-food outlets. Thus, allowing the QSRs to install service tables and seats on the sidewalk, while forbidding on-street parking on one side of the road, in order to widen the sidewalks and install vegetation and urban furniture, which will allow the shops to use parts of the sidewalk for their own benefit (Café Trottoir).

b. Guidelines for caffe trotoire:

As main streets will be transformed into a sustainable café street, some requirements for cafés will be elaborated in this section (Fig103):

- As the main street is considered a very busy street, it is required to leave more than 2 clear meters for pedestrian movements, and thus allowing street cafés to use a space on the pavement where a minimum of 2 meters is left unobstructed for pedestrians.

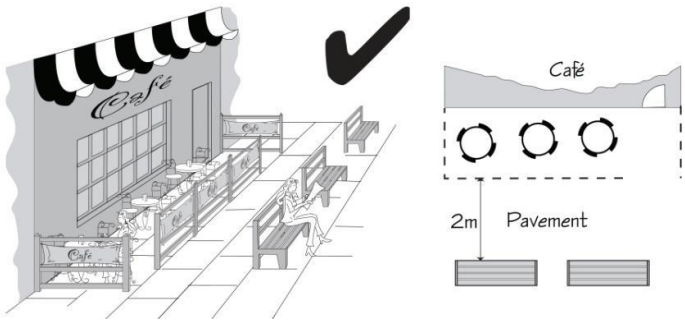


Figure 103: Guideline shows the correct distribution of the tables on the trotoire. Source: Environment-Street Cafe guidance, Neath Civic center.

- The pedestrian path should be clear and unobstructed; hence, the positioning of the café's furniture shall not discourage people from using the footway.

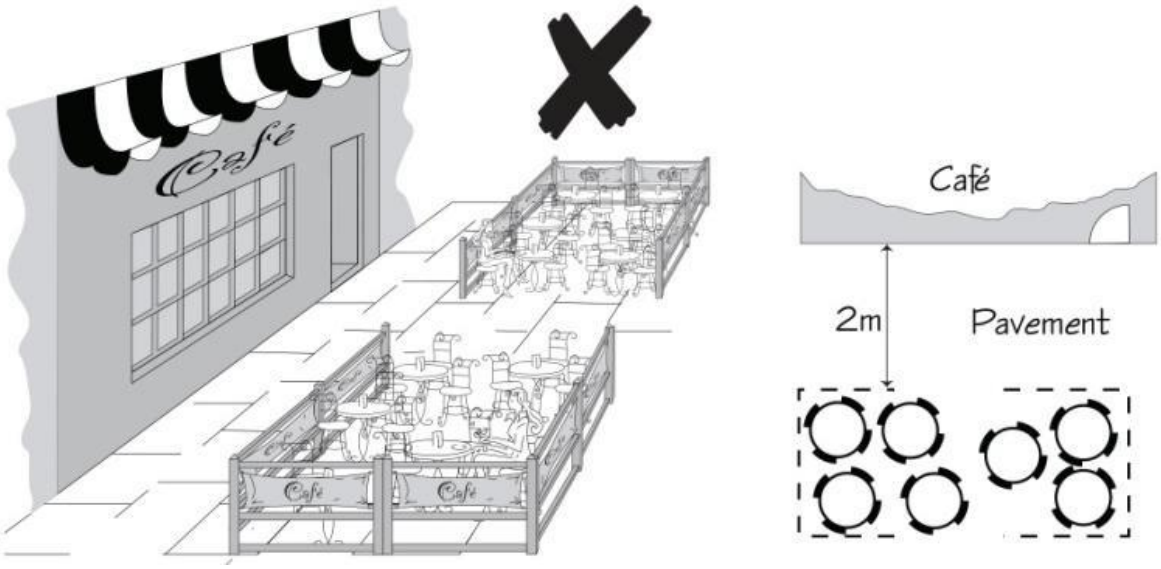


Figure 104: Guideline shows the inappropriate distribution of the tables on the trotoire. Source: Environment- Street Cafe guidance, Neath Civic center.

- The café should be located immediately outside the front of the applicant's premises so that staff and customers won't have to interrupt the normal flow of pedestrians (Fig 102).
- In order to ensure a clear access to emergency and other authorized vehicles, an unobstructed route of 4 meters wide is required in front of any street café in the pedestrian areas.
- A removable continuous physical barrier on all open sides to the highway must surround the café with defined access point. For materials, this barrier should be in line with the local environment by unifying the style, material and color matching with the surroundings.

- Place an 80 cm minimum height that either continues to the ground or incorporates a lower rail or tap board within 10 – 15 cm of ground level, to help people who are visually impaired (Fig 103).
- It should not be visually dominant with sharp edges, but strong enough for public use.

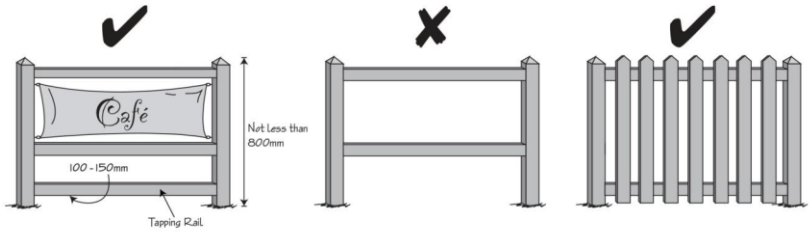


Figure 105: Different design of the barrier. Source: Environment- Street Cafe guidance, Neath Civic center.

- All furniture, umbrellas, displays and advertising signs must be kept inside the barriers (Fig 104).

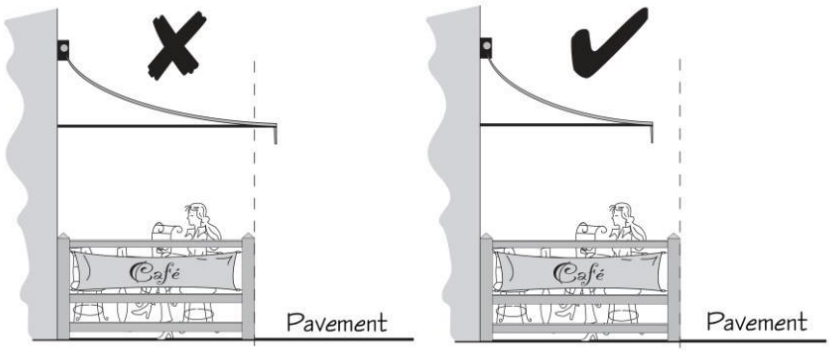


Figure 106: Guideline shows the correct position of the umbrellas: Environment- Street Cafe guidance, Neath Civic center.

D. Strategies:

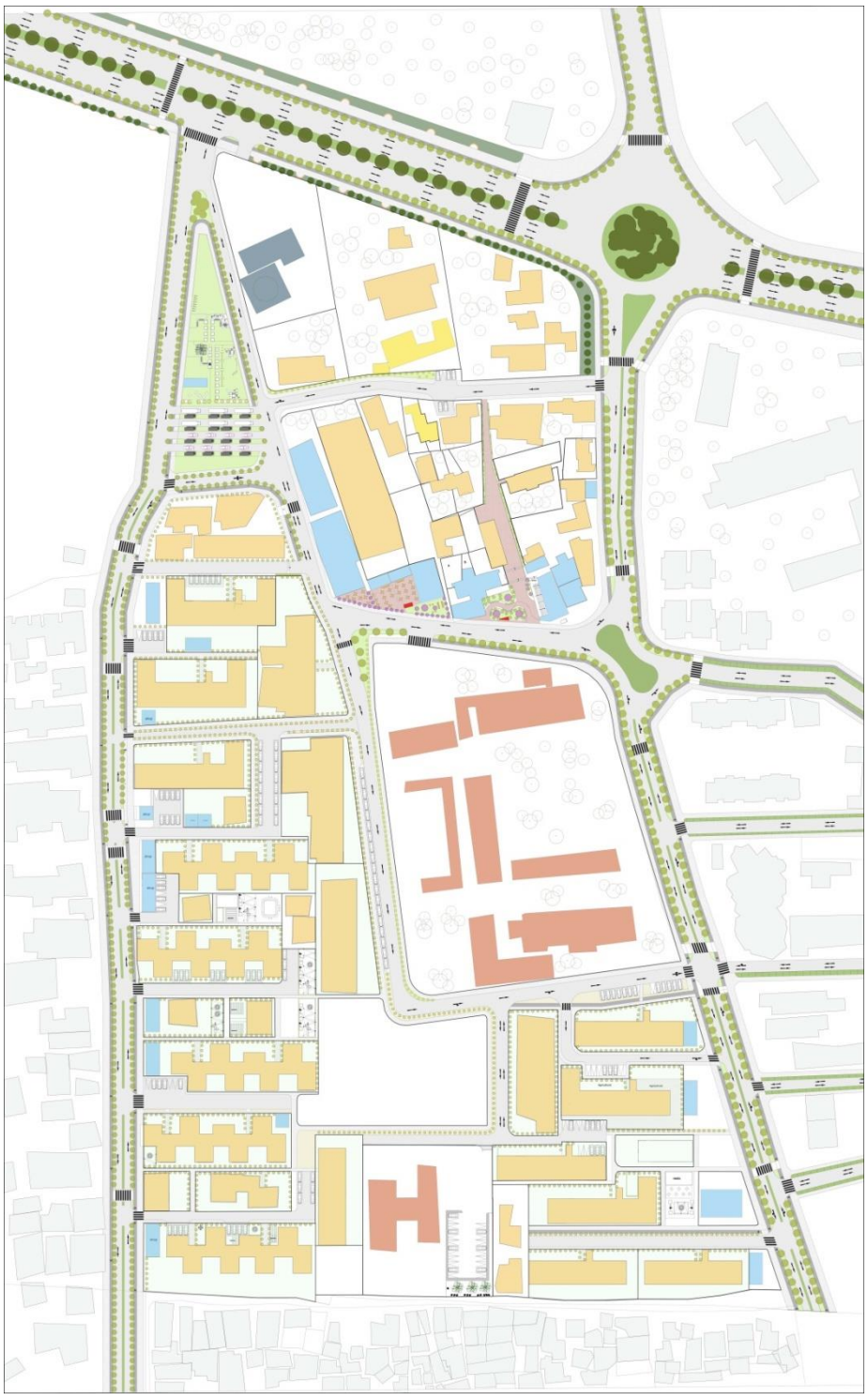


Figure 107: Taamir Master Plan. Source: Author, 2018.

1. Greening Strategies:

- Encouraging walkability in Taamir through greening the streets to act as green corridors between major public spaces.
- Redesign the public garden, which is located at the main entrance of Taamir to encourage and reinforce social interaction.
- Green connectivity of all social spatial practices.
- Use Zaatari school as a facility for special public gatherings and occasions.
- Distributing seeds/pots for balcony vegetation to enhance the visual features of buildings.
- Creating small neighborhood pocket gardens and encouraging participation of the community for maintenance of the green pockets and sidewalk paths.
- Creating a green coridor to improve environmental quality of Taamir.
- Cater for children and youth by implementing playground spaces and recreation (e.g. using roof tops).
- Converting hospital Street into a green belt where water basins can be implemented to capture, infiltrate and collect rainwater on one hand, and on another hand prevent flooding in Taamir neighborhood.
- Redesign the main artery of Taamir to have bio-swales to capture and infiltrate the water.
- **Vegetation:** Closest to the paths, low and transparent grass, shrubs and trees with high or transparent canopies are used to not disturb the visibility which increases the sense of security.
- **Cultivation gardens:** Within the parcellation, spaces can be made flat and big enough; the space is provided for cultivation gardens for the community.

- In collective and private lots vegetables, fruits, herbs or citrus can be grown.

- The gardens have a system for collection and reuse of rainwater and for composting.

- The cultivation garden is a place where different people from the community can meet and share knowledge on cultivation.

- **Food hub & Tool-pool:** At the food hub, markets where people can sell and buy the locally grown food can be arranged. This stimulates local business and creates an active meeting place. The green roof and green walls of the food hub act as an inspiration for the people in the community as well as Saida.

2. Parking strategies:

In order to alleviate the overwhelming traffic congestion and mobility problems caused by parallel and on-pavement parking, I scouted for publicly-owned land parcels within Taamir neighborhood to construct parking facilities. Due to its relatively walkable size, I will use underground parking facilities in Taamir:

- In Taamir there is only one empty land, nowadays it is occupied by the military. However, for a long-term strategy this land will be turned into public garden with basement parking, which allows the residents of the areas of Taamir to benefit from its services.
- Existing social housing will be provided by 10 parking spots. These will be dedicated for elderlies and handicaps.

3. Commercial strategies

- Give incentives in Sekke Commercial Street to convert it into a clothing and outlet-shopping street by forbidding cafes, restaurants, and fast-food shops to use the sidewalk as an extension for their activities. In addition, reduce taxes for clothing and outlet stores and allow them to use the sidewalks for displaying products on the sidewalk, and dedicate spaces for on-street parking on another.
- Enhance the connectivity of Commercial streets and Taamir neighborhoods area by installing pedestrian crossings and street lights on road intersections.
- Give incentives in Zaatari street for leisure activities (cafes, restaurants, fast-food shops…) by removing on-street parking from one side of the road to widen the sidewalks and install vegetation and urban furniture, and allow the shops to use parts of the sidewalk for their own use (Café Trottoir).
- Recommend establishing traders committees for the main commercial streets to ensure the commercial cohesion of the entire street. These committees also advertise for their respective streets by organizing events and festivals in their respective streets.
- Light industries will be relocated from the residential neighborhood to the main arteries, to reduce noises and smell within the residential neighborhood.
- Install park-meters on all commercial streets to prevent long term parking so that customers can have the chance of finding a parking spot.
- Raise the hourly rate of park meters on the commercial street to prevent unnecessary stops, therefore, reducing traffic congestion.

4. Circulation (pedestrian and vehicular)

- Mobility improvement is the cornerstone of improving all forms of activity in Taamir. The strategies range from enlarging streets, managing traffic, adding public transportation, and improving pedestrian activity.
- Proposal for the application of Bus Rapid Transit (BRT) on the two thoroughfares of the main entrance of Taamir that link Taamir to Saida Downtown and other adjacent districts.
- Applying traffic calming to the main commercial streets of Taamir to encourage easy pedestrian crossing and access.
- Implement pedestrian crossings on several main streets especially on the main entrances of Taamir to connect Taamir with the surrounding.
- Widen the sidewalks on the commercial Streets on both sides to encourage walkability and enforce unilateral parking.
- Change of double traffic direction from Main entrance to Commercial street to enhance traffic circulation.
- Change double traffic direction next to the Zaatari School to enhance traffic circulation.
- Implementation of new pedestrian infrastructure to stitch divided areas such as those of Ain El-Helwe camp and Taamir, Taamir with Sekke neighborhood.
- Prohibit parking on road intersections to ease traffic flows.
- Change of tertiary vehicular street into pedestrian streets, to provide safe shared public spaces.
- There is a high complexity in the street network, with great variations in width of the streets. The four principals will be designed to suit different situations

according to requirements of use, width and of the street. The principles are not site specific, and it is the conditions of each specific street that determine which principle that can be used. Therefore, the principles will vary along the street network. The principle for the main road is the only principle that is site specific; this was possible since the main road has a consistent width. This width is not found anywhere else in the Taamir; therefore, this design cannot be used in other situations. The principles are shown in their narrowest scenario. If the street where a specific principle is going to be implemented is wider than illustrated in the principle, the width of the greenery is extended. In all the principles, respect is paid to the landings along the facades and their function as transition between the private and public space.

5. lots/subdivision

- With the titling project, people will get title for their apartments.
- Shared spaces in each parcel will be dedicated to each block; therefore, residents have to take care of it.
- The roof will be a shared space where residents can gather and plant.
- Commercial strip will be publicly owned where the municipality will rent them to the locals and take care of it.
- Streets and pedestrians will be publicly owned.
- The residual spaces will be publicly owned, but locals will have the right to use it according to their needs.

Figure 108: Master Plan Design Intervention. Source: Author, 2018.

E. Action Area:

This action area is located within the Masaken Chaabiya neighborhood; it's a mix vibrant neighborhood, which has diverse types of intervention. First of all, this focus area has direct relationship with the secondary commercial artery, the Zaatari School and with the public garden. At the same time, this action area consists of three different sub-action areas which are as follow: children, women, and elderly's hub.

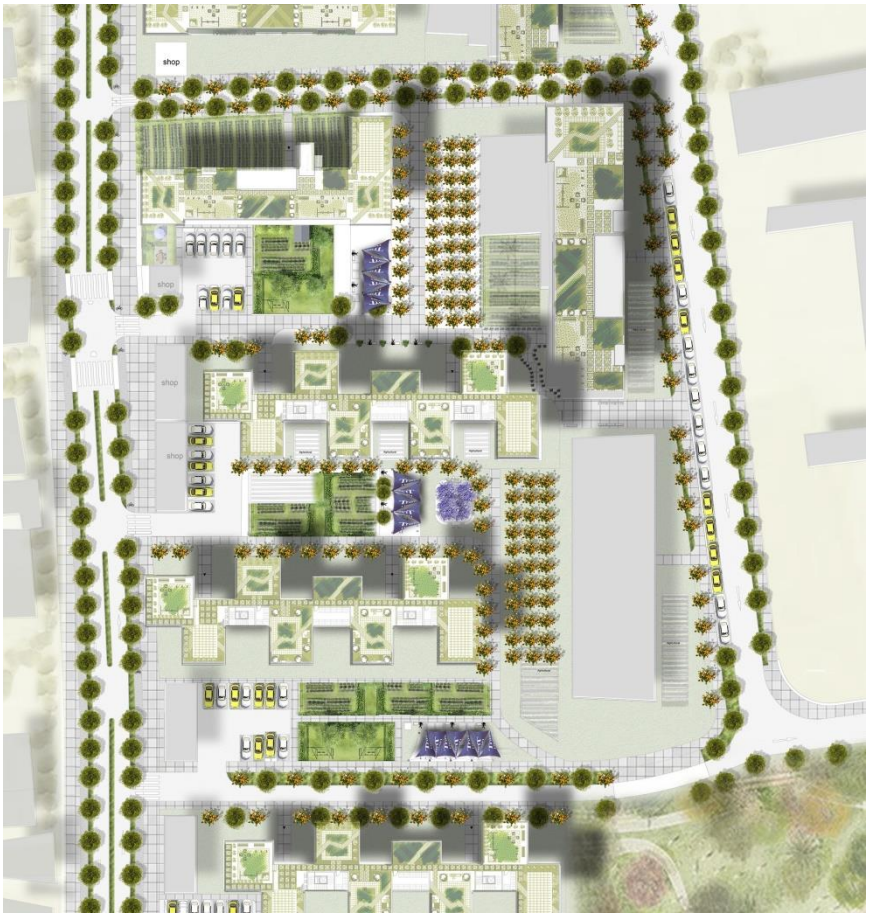


Figure 109: Action Area. Source: Author, 2018.

Figure 110: 3d view of the action Area. Source: Author, 2018.

At the street scale, this neighborhood has four different typologies. Starting with the commercial street which is located at the western part of the action area, this street is a two way street, where each side fits a 3 meters of a pedestrian path, one way of the bicycle lane with 1.5 meters of width and a green streetscape which separates the vehicular circulation and the bicycle/ pedestrian path to provide safety. This street scape will be planted by evergreen trees such as sycamore; these trees will provide shadows along the year to the passerby. In front of the shops, shop owners are allowed to spill over their goods on the pedestrian path with no more of 1 meter (Fig 110).

Figure 111: 3D view of the commercial artery. Source: Author, 2017.

At the northern part of the action area, there is a one way street, which has a traffic calming effect and provides safety for crossing. On both sides of the street there is a pedestrian path with 2 meters of width, and a green corridor planted with Sycamore and Citrus trees. The residents of this action area will take care of these trees. In addition, in order to separate the public from the private domain a shared space is introduced as a buffer zone. This zone can be used in two different ways, either an agricultural land or a sitting area. In other words, this zone has a flexible design which may be changed according to the residents' needs. At the periphery of this zone, trees in pots or bushes will be planted to separate the public from the private domain. This neighborhood will also have a formal market were residents can buy vegetables.

Figure 112: 3D view of the northern part of the neighborhood. Source: Author, 2018.

At the eastern side of the neighborhood, I designed a one way street which consists of one lane on street parking, dedicated to the visitors and the residents of the neighborhood. The pedestrian path that will have citrus trees is added, which will lead to the public park. A shared agricultural land will be added as a buffer zone between the private and the public domain.

At the southern part of the neighborhood, a two Way Street was designed to fit pedestrian path and a green corridor, which links the public garden with the secondary commercial green artery. Along this street, Jacaranda and Sycamore will be planted which will give a unique identity and reading of the street.

As I mentioned before, this action area has sub green hubs and attractions. Starting from the children's zone, this area will be bounded by Cyprus trees on the western side to separate the parking plot from the children's area, also a low rise wooden fence will be added on the southern part were children can plant flowers along

of it (Fig 113). this area will be used for outdoor play and recreation, it contains recreational equipment such as slides and swings, also benches and a small agricultural hub will be added were mothers sit and observe their children, and children can plant different types of vegetation.

Figure 113: 3d view of the children's hub. Source: Author, 2018.

The elderly's zone will be designed in a calming zone where they can play backgammon and sip their coffee. To provide good ambiance it will be planted by big colorful trees (Jacaranda) projecting hope and joy. At the same time, it provides enough shadows during the summer and lets the light ray penetrate during the winter, which is necessary. The urban furniture will be designed from pallet. These pallets will be collected from the whole sale vegetable market; usually these pallets are thrown in the garbage. That's why the pallets will be reused and turned into urban furniture (Fig 114).

Figure 114: 3d view of the elderly's zone. Source: Author, 2018.

Next to the elderly's zone, there is another attraction hub; this hub will be designed in a flexible way. For example, in the morning women will do (sobhieh) and sit and have small talks; however, in the afternoon this space will be turned into an outdoor gym which will be used by the youth. This space is shaded by tents; this tent will be made of flex which is very common in Taamir to come across. Since locals collect flex from the billboard and banners to make tents.

Another action hub was designed for women. As mentioned before, usually in the morning women stand, gather and have some talks while waiting for the cart vegetable. That's why I dedicated space for them with flexible sitting furniture; also it will be planted by low rise vegetation to provide some shadow, privacy and visual connection (Fig 115).

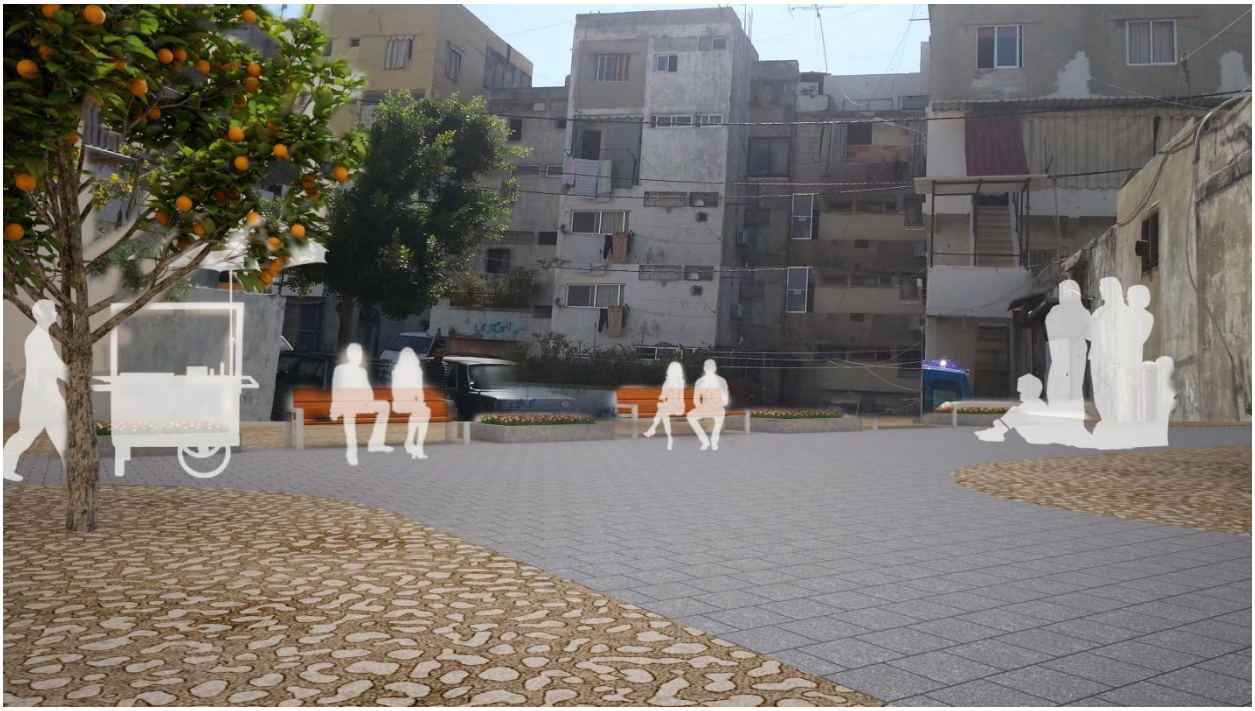


Figure 115: 3d view of the Women's waiting area. Source: Author, 2018.

F. Titling Scheme

I begin by asking: what form of tenure and property right does is appropriate to adopt for Taamir? To answer this question, I begin by pointing out to the distinction between four types/forms of property in the study area:

- A public domain zone that should include roads, streets, and main parks;
- Publicly owned land managed by municipal or service authorities;
- Shared spaces in/surrounding building blocks, within and outside apartment buildings;
- Private apartments.

In order to delineate and reorganize the existing property map, I propose to introduce a land pooling and subdivision project (law number 30/1986) that would allow for a full

reorganization of property boundaries and the extraction of an additional 25% of property for public agencies, if/when needed. This intervention has the benefit of recognizing that physical development in the area has not followed the logic of property boundaries and consequently allow for a reorganization of the lot morphology and the institutional organization and management of the area.

1. Private Apartments

Given that the property scheme proposed by MP. Hariri's privatizing the ownership of apartment is well under way, I consider its implementation to be inevitable and focus within my scheme on remaining areas. However, unlike the freehold proposal put forward in the proposed legislation, I nuance the property hold of the new title earners by imposing a number of restrictions that aim at slowing down a possible speculative resale of these housing units as an unwanted outcome of the intervention. This proposal builds on debates about property forms which since the 1990s have argued that unbundling property rights may provide protections for public investments in housing. Brando and Feder (1996) have argued that using "secure individual titling to encourage investments in housing. They argued that individual titling is more likely to encourage households to invest in their houses and improve the ability of public planning agencies to influence land and housing markets. They further argued that access to land for the poor in this form will improve the efficiency and the equity. These arguments were nonetheless nuanced with other studies (Payne, 2000) that showed that individual titles may facilitate gentrification since it will encourage households to invest in their houses. This is why I propose for Taamir to reorganize private property of the apartment with the "unbundled approach" where residents can

use/improve their apartment and bequeath their ownership but where restriction on sale are placed for at least 10 years to slow down the market in the neighborhood. Thus I expect that households will be encouraged to improve and invest in upgrading their living conditions.

2. Shared spaces

Spaces surrounding the apartments and/or building roofs are communal areas where residents interact and extend temporary uses that allow them to overcome tight private spaces. In line with private property in Lebanon, these areas will be considered "shared ownership" zones and regulated communally by all property claimant. Given that MP Hariri's intervention is providing titles to residents –and not tenants-, it is expected that only landlords can have a say in the first phases. On the long run, however, provisions needs to be introduced to allow tenants to also influence the uses of these private spaces. Shared spaces will be implemented on both scales, building and as plot scale. At the building scale roof and corridors will be shared spaces. For example, during the month of Ramadan, residents may invite their friends to break the fast together and they sit whether on the corridor or on the roof. The roof will be designed in a way that will fit both green pots and gathering areas. At the plot scale the area which surrounds the building will be shared space as well. Residents will use these spaces equally according to their needs, they have a chance to plant, gather, play and exercise. The municipality will provide and connect these land and the buildings to the main green corridors. However, residents and new homeowners are required to manage these shared spaces.

3. Municipal ownership

In addition to the shared spaces, municipal ownership consists of institutional plots such as the Zaatari School, UNRWA, Evangilical school and gardens. The municipality will implement the necessary channel and pipes needed to set in place a green corridor. It will also distribute trees and seeds to residents to be planted in bioswales in these municipal properties.

4. Public Domain

According to the Lebanese Ministry of Public Works, the land pooling and subdivision projects may take up to 25% of the land as public domain or properties, including these spaces streets and gardens. My rough or the reorganizational spaces, as shown in the thesis designs indicates that streets and green corridors remains with 25% . The municipality is expected to redesign the streets by adding pedestrian paths, bicycle lanes and street strips. Furthermore, is expected to implement the design of the main arteries, plant and maintain them.

The figure below outlines the spatialization of my intervention. It is expected that by giving clear jurisdiction of spaces and placing on every property holder, individual or institutions, clear requirements for the maintenance of the green infrastructure, we are able to sustain on the long run the proposed design intervention.

Figure 116: Titling Scheme. Source: Author, 2018.

G. Institutional framework:

Who will implement this project? The main institution to coordinate the intervention should undeniably be the municipality of Saida and UOM. Residents of Saida appeals to DGU for support. That's why this project is a collaborative of the municipality, seek partnership with local NGO, Hariri foundation and neighborhood dwellers. The funding of the upgrading project will be initiated by the ministry of works.

The city scale intervention, which connects Taamir with the city, needs greater responsibilities. This intervention has to have a set of techniques that takes care and improve this connectivity. That's why there is necessity to be "collaborative venture" whitin the framework which implements different planning and design sets.

At the neighborhood scale, more specifically in the green corridor, to achieve its prospects, the regeneration process and the implementation process will be collaboration between the municipality of Saida and the dwellers. The responsibility of the municipality consists of providing trees and equipment to the dwellers to plant the different layers of greenings. Also the municipality will collaborate with the NGOs to organize different events and activities for their sub neighborhoods. The NGO will be responsible for programing and executing activities in the Lieutenant neighborhoods.

The Taamir neighborhoods initiatives will be elected and selected from the Taamir neighborhood, this committee consists of 20 members (10 men and 10 women), this committee will manages and implement the outdoor activities in the green hubs. In the agricultural land, the municipality of Saida will provide them with seeds; however, the residents will plant, take care and harvest the vegetables to sell them later in the

local market and at the whole sale vegetable market. In the attraction hubs, locals will use and take care of the space equally according to their needs. Another duty of the Taamir neighborhood initiatives is to host community meeting from a while to while (at least once per month) and in case of emergencies to solve dwellers' problems and discuss their suggestion.

At the building scale, the Hariri Foundation will improve the livability and the building conditions, since it works on upgrading and renovating the deteriorated buildings, I will suggest collaboration between the Taamir neighborhood initiatives with the Hariri Foundation. This Foundation will not upgrade the building only, it will also distribute to the residents pots, trees and seeds to plant them on top of their roofs and walls. Also it will provide the residents by "pallet[13]" to assemble tables and sitting furniture for their roofs.

Finally, this intervention is an integrated project, where I suggest collaboration between the municipality of Saida, the local political NGOs, The Taamir neighborhood initiative and all residents. That's why I recommend having regular meetings to supply the neighborhood with training and educational workshops to improve local's knowledge and teach them how to deal and maintain the public and the shared spaces and the GI.

[13] Pallet: is a structural foundation of a unit load. It can be either plastic or wood.

Figure 117: Stakeholder. Source: Author, 2017.

CHAPTER VI

CONCLUSION

Through this research, I have tackled issues of upgrading, livability, marginalization, security and density in the Taamir neighborhood via usage of GI. My intervention can become an operational model to apply in similar contexts in Lebanon especially in low income and highly populated neighborhoods. Through the experiences I gained in studying the Taamir neighborhood and pushing them into a GI based context, the public realm as well as the private realm can be upgraded to a livable and improved entity. GI networks can become permanent urban planning and design changes that cater for the needs of the dwellers.

In the case of Taamir, which has a relatively low-income community, the dynamics must be understood and acknowledged so interventions become effective rather than destructive. In this sense, validating public participation in planning and implementation enables the formation of socio spatial bonds which will increase the investment of the private realm for maintenance and future improvements. In addition, the professionals and the municipality is also of great importance due to the fact of their ability to advocate for the improvement of the policies, mediate with the NGO's and provide capacity through the community.

My research also suggests connecting the existing USDS project; hence, widening the possibilities of using the neighborhood as an incubator for the wider scope of intervention. In this sense the GI network in Taamir, not only increases livability but also becomes an anchor for the USDS project.

My research also faces several limitations. The rapid changing conditions in Tamir in relation to socio-spatial practices particularly the constant flux of refugees and changes in the military space occupation were hard to follow during the field work which extended over a year. The Taamir neighborhood which is in constant flux raises uneasy questions about socio-spatial and security challenges that entail from this particular neighborhood. My ‘design’ intervention by itself cannot claim to solve this issue on its own and a cross disciplinary plan that deals with not only the mentioned problematics but also institutional shortages as well as and social dilemmas, would ensure a space in which the neighborhood could actually gain livability. The main challenge will still be how to enable and sustain change. However, it is important to note that livability and upgrading is not something you accomplish via planning and design but by making the process and outcome efficient and effective via a combination of different stakeholders. Only under such circumstances the design product will cultivate security and livability.

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