Success and Sustainability Criteria for Streets: The Case of Ismet Inonu Boulevard (Salamis Road), Famagusta

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Submitted to the
Institute of Graduate Studies and Research
in Partial Fulfillment of the Requirements for the Degree of

Master of Science
in
Urban Design

Eastern Mediterranean University
July 2014
Gazimağusa, North Cyprus

Approval of the Institute of Graduate Studies and Research

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ABSTRACT

Streets in cities in addition to being movement channels provide an urban context for social interaction however, nowadays the role of streets as movement channels is overlapping its role as public open space and streets are becoming more isolated. Car dependency and technological development encourage people to stay in their own private while decreases using public open spaces and declining urban life. Developing and designing streets for vehicle is the result of this privatization. As a result there is a need to care about designing street in such a way that become more attractive for people and encourage social interaction in order to increasing the quality of urban life. This research focuses on the designing streets in order to make them attractive and successful public open spaces as streets have potential to become the most livable organs of the city. With this in mind theoretical framework of this research forms to understand the characteristics of street for being a more successful and livable public open space and in continue defining criteria for sustainable and promote them into the case study of Isment Inonu (Salamis Road) to make it as successful and sustainable public open space for the city of Famagusta. Salamis Road as the main access for students of Eastern Mediterranean University`s student to the city have potential to become as the main public open space for the city while Famagusta has serious lack of public open spaces. As a theoretical framework, characteristics of street as physical, functional and social are studied then the concept of sustainable street and its characteristics are explored thorough documentary survey. Then based on the main aim of the study which is evaluating and checking all aspects of Salamis Road as public open space to find out its potential and weaknesses regarding pedestrian satisfaction of the place and existing facilities,

Salamis Road will be evaluated through three main characteristics of streets by means of observation, site surveying and questionnaire methods of analysis. At the end based on the analysis result which highlight the potential and weaknesses of Salamis Road in line with theoretical frame work which define successful and sustainable streets` characteristics, a guideline will be defined in order to make Salamis Road a successful and sustainable public open space.

Keywords: Public Open Space, Successful Street, Sustainable Street, Boulevard, Salamis Road.

ÖZ

Kent sokakları, hareket kanalları olmanın yanında aynı zamanda kentsel bağlamda sosyal etkileşim olanağı sağlarlar; ancak, son yıllarda sokakların hareket kanalları olma rolleri, kentsel kamusal açık alan olma roller ile kesişmektedir ve sokaklar daha isole alanlara dönüşmektedirler. Motorlu araç bağımlılığı ve teknolojik gelişmeler toplumu kendi mahrem alanlarında kalmaya itmekte ve kamusal açık alanların kullanımını azaltmakta ve kentsel yaşantıyı azaltmaktadır. Sokakların motorlu taşıtlar için tasarlanması, bu özelleştirmenin bir sonucudur. Bundan dolayı, sokakların kullanıcılar için daha cazip hale gelmesine ve kentsel yaşam kalitesini artırmak için sosyal etkileşimi teşvik etmesine yönelik olarak sokakların tasarımı için daha özenli olunması gereklidir. Bu araştırma, sokakların kentin en canlı organı oldukları inancıyla, sokakları çekici ve başarılı kamusal açık alanlara dönüştürmek üzere tasarlama konusuna odaklanmıştır. Buna bağlı olarak araştırmanın kuramsal çerçevesi, sokağın bir kamusal açık alan olarak fiziksel, işlevsel ve sosyal özellikleri ile sürdürülebilir sokak kavramını anlamak üzere kurgulanmıştır. Bu kuramsal çerçeve daha sonra, Mağusa kentinin ana arteri olan Salamis Yolu - İsmet İnönü Bulvarı'nın başarılı ve sürdürülebilir bir kamusal açık alana dönüştürülmesine yönelik olarak kullanılacaktır. Salamis Yolu, özellikle Doğu Akdeniz Üniversitesi öğrencileri için temel ulaşım alanı olarak kent içinde bir ana kamusal açık alan - bulvar olma potansiyeline sahipken, ciddi sorunları olan bir yoldur. Tez kapsamında, kuramsal çerçevede, öncelikle sokakların kamusal açık alan olarak fiziksel, işlevsel ve sosyal özellikleri incelenmiş; ardından sürdürülebilir sokak kavramı ve özellikleri ortaya konmuştur. Kuramsal çerçeve sonrasında, 'Salamis Yolu'nun kamusal açık alan olarak ve kullanıcı memnuniyetine bağlı olarak tüm özelliklerinin

değerlendirilmesi, zayıf ve güçlü yanlarının belirlenmesi ve ardından başarılı ve kullanıcı dostu bir sokağa / bulvara dönüştürülebilmesi için öneriler sunulması' olarak belirlenen araştırmanın temel amacına yönelik olarak; gözlem, arazi çalışması ve anket yöntemleri kullanılarak sokağın temel özellikleri irdelenmiştir. Çalışmanın sonunda analiz bulgularına dayanılarak Salamis Yolunun sorunları tespit edilmiş, potansiyelleri belirlenmiş ve kuramsal çerçevede ortaya konulan başarılı ve sürdürülebilir sokak tanımlamaları doğrultusunda Salamis Yolunun bir bulvar olarak başarılı ve sürdürülebilir bir kamusal açık Alana dönüştürülmesine yönelik öneriler ortaya konmuştur.

Anahtar Sözcükler: Kamusal açık alan, başarılı sokak, sürdürülebilir sokak, bulvar, Salamis Yolu.

TO MY FAMILY,
for their unconditional love and support

ACKNOWLEDGEMENT

It would not be possible for me to finish this research without the guidance of my supervisor, committee members, support from my family, and help from my friends.

It was an honor for me to work under the supervision of Prof. Dr. Şebnem Önal Hoşkara and I deeply owe her my thesis. I extremely appreciate her support and patient guidance along with encouragement and valuable critiques of this research. Her warm smile always welcomes me during this period and I never forgot her kindness. I am really thankful for the admirable example she has offered as a successful, patient and kind woman.

I also have received many useful lessons during my study period from experienced instructors. I would to express thanks to the ones who helped me to learn new facts not only in regard of this research but also for my future life. Prof. Dr. Naciye Doratlı as an experienced instructor with a constant smile always support me with her valuable critiques and Assoc. Prof. Dr. Mukaddes Faslı with her supports and concerns as my examining committee are the ones which help me to improve this research.

Last but not least, none of this would have been possible without the love, patience and support of my family. My kind mom and hardworking dad are always my great examples of my life which sacrifice their life for their children. At the next step I would like to thank my dear and kind brothers which always support me in my life while giving me energy. I am also grateful to my beloved husband which always help me during the study period and always been beside me with his kindly support in all steps of my life.

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INTRODUCTION

One of the basic needs of a city can be public open spaces because one of the basic needs of people is social interaction. However, nowadays reduction of using public open spaces which leads decreasing the quality of urban life could have been caused not only because of the motor car dominance in many urban areas, but also by technological developments specially internet usage by various purposes such as purchasing, communicating, entertainment. To increase the urban life quality there is a need to encourage people to use public open spaces.

In this chapter, firstly the problem statement is presented. Secondly, the main aim of study, research questions and objectives are defined. Finally, research methodology and the thesis structure is presented in the third part.

1.1 Problem Definition

Public open space in a city context refers to a social space which is generally accessible to all kind of people for social interaction between different groups of the society. In history, cities have been created by gathering of people in a special place which shows that human beings are basically social creatures. Social contacts are one of the basic needs of people, so public open space is a necessity not only for a city but also for different districts and neighborhoods of city. However, the perception of public open spaces for people from different social and cultural layers of societies is different. Public open spaces may appear in different forms and functions for

example alleys, streets, squares, parks, beaches and courtyards. Among these, streets which work as movement channels can be considered as major socializing spaces.

Generally streets are linear spaces which are limited by buildings and built environment and in different dimensions are used for movements, transportation, humans assemble and interaction and other activities. So streets can be referred as busy places where daily activities by citizens happen in urban structure. Besides, streets can accommodate all daily needs of citizens like walking, shopping, gathering, meeting in restaurant, etc. and can be considered as significant living environments. In other words, a street should be a place where mobility and transportation needs of various types of users such as motorists, bus riders, bicyclists, and pedestrians as well as persons with disabilities are met.

One of the direct and prejudice-free activities of human being is walking. So street and its pavements can be an answer to this need; because of having a pedestrian friendly character and can be considered as a socializing center for a city. Jane Jacob about street and sidewalks states: “Streets and their sidewalks, the main public places of a city, are its most vital organs.” (Jacob, 1965, p.39)

However, in many developing cities in the world, streets as the most usual public open spaces loose their users, attractiveness and popularity. Using unsuitable transportation to achieve faster movement causes increasing in the entrance of automobile into city centers and their streets which causes marginalizing pedestrians as users of these spaces and cars become the major users of streets. As a result, on one hand, streets come to be a place with air and noise pollution and loose their function as a public space and meeting place. On the other hand, facilities of car and

faster movement become more important and preferred in these spaces. Even though urban spaces can help cities being sustainable, most of them are “created” places named “public spaces” which do not encounter spatial, ecological and even social features that may not be considered as “places for people.” (Oktay, 2012)

By taking a look at history of streets it is proven that streets belong and are designed for pedestrians which walking and gathering are the main purposes, although by the time is dominated by automobiles. On the other hand, recently, livability and walkability become the most important aim of many cities in the world. It is happening because of negative effects of car-dependent development of cities on physical, cultural, social, economic and environmental features of cities. It is obvious that to control air and noise pollution and reduce automobile traffic of the city and to increase quality of life, pedestrian facilities are essential. As a result of creating walking and biking facilities in a suitable way in a city, the need of using cars for short urban trips reduces and streets can be considered as places to eliminate many needs of peoples of the city and most preferable public spaces; and according to Calthorpe: “streets are spaces which facilitate pedestrian access.” (Calthorpe, 1993, p.98)

However, to make a street attractive and suitable for pedestrians, many features should be considered such as designing to improve the physical features of path, to increase people interest and as a result their attendance and considering night life enhancing attractiveness and variety of functions (Saghafi, 2012). So some characteristics and equipment for pedestrians may become important such as greenery, comfortable pavements, safety and security, shelters, mixed-uses, public services.

With these discussions in mind, this study will focus on Ismet Inonu Boulevard (Salamis Road) located in Famagusta which is one of the major cities of North Cyprus. Famagusta is a historic and a university city and development of city somehow is affected by the Eastern Mediterranean University (EMU) and its students though city has no defined master plan not yet. Ismet Inonu Boulevard (Salamis Road) is one of the main streets of the city which connects the university to the old city. The users of the street are mainly students but after opening new facilities on this street, local people also became more interested in using this street and its new facilities. On the other hand, although these facilities can attract and be interesting for people, there are many problems in the street in terms of pedestrian facilities which need to be considered.

Although Salamis Road is the connection between university and the old city, facilities and attractiveness of street have no continuity and unity which causes some part of street become more popular than the others. Generally Ismet Inonu Boulevard (Salamis Road) is overwhelmed by car traffic; it lacks sidewalks, it has narrow lanes which is shared by bicycles; street is marked poorly in terms of signs which in some part is very dangerous for pedestrian crossing. Also sidewalks are used by automobiles for parking and additionally, the quality of pavements are poor and sidewalks lack street furniture and lighting. Continuity and unity along the street can be named as most challenging weaknesses of the street. However, despite to these weaknesses, many people are using the street and this shows that this street have potential to be one of the most popular public open spaces of the city of Famagusta.

1.2 Aim, Objectives and Research Questions

Based on these discussions above, the main aim of study will be evaluating and checking all aspects of Ismet Inonu Boulevard (Salamis Road) as a public open space to find out its potentials and weaknesses regarding pedestrian satisfaction of the place and existing facilities. At the end, recommendations which will provide a basis for a guideline will be proposed to help creating a more successful, attractive, pedestrian friendly and sustainable street.

Based on this aim, the main research question will be "How can Ismet Inonu Boulevard (Salamis Road) be turned into a successful pedestrian-friendly public open space based on pedestrian needs?"

To be able to answer this question, the sub-research question is defined as:
"What are the problems and needs of pedestrians along Ismet Inonu Boulevard (Salamis Road)?"

To answer these questions, the objectives of this research are listed as below:

- To understand public open spaces and its types;
- To explore the role of street as a public open space;
- To explore physical, functional and social characteristics of streets;
- To understand human needs in public open spaces;
- To find out the success criteria for sustainable streets;
- To understand the problems, weaknesses and potentials of Ismet Inonu Boulevard (Salamis Road) from pedestrians` point of view;
- To propose a guideline for turning Ismet Inonu Boulevard (Salamis Road) into a successful pedestrian friendly street.

Accordingly, this study, after a general review on public spaces and its various classifications, will focus on streets working as public spaces and evaluate different characteristics of streets in terms of public open space quality which is mostly focused on pedestrians need. Then, the research will turn to its case study which is Ismet Inonu Boulevard (Salamis Road) in Famagusta.

1.3 Research Methodology

The methodology of research includes both qualitative and quantitative research methods which is based on literature survey, documentary survey and case study. Methods of data collection contain both qualitative methods which are literature survey, on-site observation and site survey; quantitative method is a questionnaire survey. The methodological flow is presented in Figure 1.

First part of the research has a focus on public open spaces in general and streets in particular. Then the focus would be on characteristics of streets in terms of physical and functional features and considering streets as public open spaces for pedestrians. The third part introduces the human needs in general and the effect of space on activities. Then the criteria for successful pedestrian friendly streets will be put forward. All of these steps will be conducted by a documentary and literature survey.

Then by using case study method, including data collection, analyses and evaluation of Ismet Inonu Boulevard (Salamis Road) is presented in the next chapter. The analysis of case study contains natural, physical and socio-economic and functional conditions of area through observations, on-site-survey and a questionnaire survey.

After gathering all information through site survey and analyzing data, level of satisfaction, problems and needs of the pedestrian users of the street will be

determined through questionnaire survey. Finally solutions to enhance the level of satisfaction of pedestrians along Ismet Inonu Boulevard (Salamis Road) is proposed in the fourth chapter.

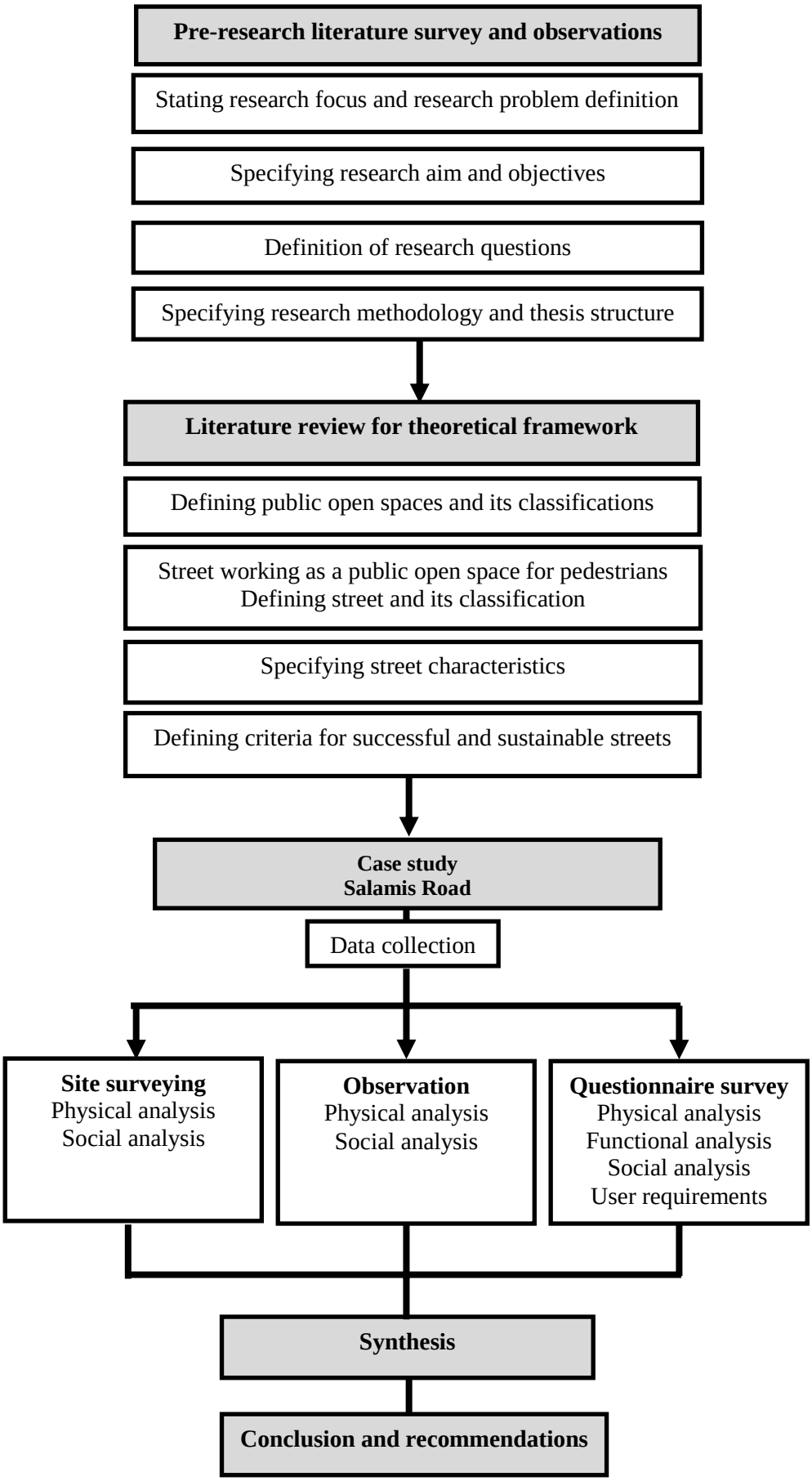


Figure 1: Research Methodology

1.4 Thesis Structure

The structure of thesis based on four chapters in which from different ways of research methodology information and data are presented and analyzed in order to achieve the main aim of the research. The first chapter as it is obvious from its title, is introducing the subject and have a general review on what would be the thesis all about, from one hand information about what is the thesis main part about, where is the thesis case study and what are the problems, and on the other hand what are the main aim and objectives of the thesis and what are the methods are going to be used in achieving them.

The second chapter have deep literature review which starts with the concept of public open spaces and its role in cities life and social interaction in general. Streets as one of the main public open spaces of the city are described in the second part of chapter two and offer information about streets and its classifications while talking about importance of it for pedestrians. The third part have focus on physical characteristics of street such as street form, street proportion, the quality of street in terms of sky line and building facades and street elements such as street furniture. Functional characteristics of street are discussed in the fourth part of chapter two which is more about street working as path and place. The next part in chapter two is all about social characteristics of street which is discussing about human activities and needs in street spaces and relations between these two. In the sixth part it has been tried to mention successful street factors. And finally summary of chapter is presented in the last part of chapter two.

The third chapter introduces the case study of the thesis and methodology of analysis. The analysis are done along with what is discussed in chapter two about

streets on current situation of Salamis Road. The analysis are categorized in three main parts: physical, functional and social which in detail present the factors discussed in chapter two of each characteristics. Information and data are collected from various techniques such as site surveying, questionnaire survey and observation. The tools which are used for data collection and analysis are different such as maps, photographs and sketches. The conclusion of chapter is presented in the last part of chapter three.

The last chapter after presenting a general view of the whole study will present the results of study according to analysis and define recommendations as a basis for a developing and design guidelines to improve the current situation of street to a pedestrian friendly street which work as public open space for whole city.

Chapter 2

THEORETICAL FRAMEWORK THROUGH LITERATURE REVIEW

In this chapter, in the first part, after an introduction to public open spaces and defining their different kinds, important and general factors affecting a well-defined public open space are explained; then in the next step, the focus would be more on streets and its definition, various kinds of streets and their usage. Characteristics of streets which are separated in three main categories as physical, functional and social will be explained in detailed more as the next steps. Finally, criteria for successful and sustainable streets will be put forward. Summary of chapter is offered in the last part of chapter.

2.1 A Review on Public Open Spaces

To define public open spaces it may be necessary to have a look at the concept of "public". Public is the opposite of private and related to all people as a whole; which belongs to, affects, or nations and community of people (Madanipour, 1996; Oxford Dictionary, 1993). Other definitions which are somehow similar can be mentioned as "open and shared by all people" and "a place where all obey the same rule and have the same rights" and "concerning the people as a whole" (Madanipour, 1996; Fasli, 1998; Concise Dictionary).

Generally, public spaces are considered as all parts of built and natural environment, indoor and outdoor, public and private, urban and rural, where public have free access. By this definition, all streets and squares, whether in residential, commercial

or community areas; the open spaces and parks; and the public\ private spaces both outdoor and indoor where public access is unrestricted can be regarded as public spaces. It can also includes private shopping centers, rail and bus stations; and interiors of public and civic buildings such as library, churches. It can be said that public space includes the interfaces with key indoor and outdoor and private spaces to which the public normally has free access (Carmona, 2008, p. 5).

More simple definition according to Carr is: "as the common (Carr et al. 1992) ground where people carry out the functional and ritual activities that bind a community, whether in the normal routines of daily life or in periodic festivities" (Carr et al. 1992, p.xi). However, public space in common conservations refer to parks, playgrounds, or systems of open space that are apparently in the public realm. Although it does not mean that any public space may be open, and for a matter not all open spaces are in public realm; in the sense of being either alfresco or accessible and free. As a result of taking place a great amount of social interaction and human contact in such these spaces, public open spaces have significant role not only in city structure but also in human life. Hence public open spaces are important part of urban heritage; strong elements with prominence as community development and social interaction (Woolley, 2003; Council of Europe, 1986).

These places can be categorized in three general groups as (Carmona, 2003, p. 111):

i. Outdoor public space: Any parts of land that exist between private landholdings and are accessible to all. This category in urban areas encompasses public squares, streets, highways, parks, parking lots, etc., these spaces composed public space in its purest form.

ii. Indoor 'public' space: Any kind of public institutions such as libraries, museums, churches, town halls, etc., and also public transport facilities such as train or bus stations, airports, etc.

iii. Outdoor and indoor quasi-' public' space: Places such as university campuses, cinemas, shopping malls, sport ground and restaurants which are legally private and are accessible for public, are categorized as privatized public spaces.

The concentration of this research will be on outdoor public spaces and will be called as public open spaces from this point onwards. Between these three categories, public open spaces have significant role in process of defining privateness and publicness of life (Rapoport, 1980). It would be more sensible by understanding the growth in cities` size, the privatization of life and filling the public spaces which were formerly used as markets, social interaction and playing, the chance for public life in many ground which was suitable disappeared (Carr et al. 1992). Carr et al (1992) also explains: "the public life can support the essential communication system of cities, the linkage that holds them together, helping to orient people enabling connection both to community and to pre-urban nature. Public life enables the transmission of important massage for people." (Carr et al. 1992, p.24) Rapoport (1989) in this sense, states: "open and publically accessible places where people go for group or individual activities" (Rapoport, 1989, p.102). "Public space is the stage upon which the drama of communal life unfolds. These dynamic spaces are an essential counterpart to the more settled and routines of work and home (Carr et al. 1992, p.3)."

It can be said that livability and character of a city are mostly defined by nature and arrangement of public open spaces of that city. In this approach Lynch (1984) states that public spaces are essential for a city because of the following reasons:

- Public open spaces are lands which are open to many uses extend the range of choice for individual and let him to follow his pleasure.
- In a public open space where social investment is low and is not vastly cared for, the individual has a chance to show mastery, to meet challenges.
- As public open spaces have less intensity in being use by human than other part of city, it can be a place for relaxation.
- Public space is a place which increases the chance of meeting new friendships; such places make possible to ignore some social barriers in having an unspecialized contact and joining to another social world.
- Public open spaces develop the understanding of environment and of self; and convey sense of larger landscape and larger ecology.
- As an extension of these ideas on a greater time scale, open spaces contribute to community control, because they make room for growth and change (Lynch, 1984, p.397).

As a result of being gathering spaces, public open spaces can play important role in reflecting and exchanging cultures and lifestyles of various people, besides to "providing channels for movement, the nodes for communication and the common grounds for play and relaxation" (Carr et al. 1992, p.3). It means that public open spaces, besides to serve daily needs, work as places to gather people and propose alleviation from stress of work, social contact and opportunities for relaxation where people can learn from others or discover things.

Hence, it can be said that in each public open space two dimensions can be considered, which are 'physical' and 'social'. The physical dimension refers to the space and settings which strengthen public life and social interaction, whether publicly or privately owned; and social dimension also refers to activities and events which happen in these spaces (Carmona, 2003, p. 109). The importance of these two dimensions can be understood from definition of public realm by Loukaitou-Sideris and Banerjee (1998) which is: "The public realm defined as the sites and settings of public life, and including some notion of 'public space'; as a 'neutral' or common ground for social interaction, intermingling, and communication; and as a stage for social learning, personal development, and information exchange (Loukaitou-Sideris and Banerjee, 1998, p. 175)." It is shown that the quality of an urban environment is directly affected by these two dimensions of public spaces; and in study of public open spaces from pedestrian point of view, both dimensions should be considered.

Public open spaces in formation can be categorized at least in two various processes;

- Naturally developed public open spaces: this category engendered without planning or an idea to create them; generally they are created as a result of concentration of people which somehow identify a need or attraction to be and develop a public space (Carr et al. 1992). It may happen because of people need of people which are living around to gather together for special purpose such as meeting or relaxing. It may be a street corner or even steps or in front of building or somehow a developed plot in a district.

Figure 2: People concentrations on stairs make it naturally developed public space (Carmona, 2008, p.60)

- Planned public open spaces: These public spaces are designed to meet the needs of community which may not be available naturally. They usually have the same function as the other category. Statement of Stone (1986) in this approach is: "planned public spaces are the result of laying out the urban area. The deliberate or accidental consequence of constructing, housing, offices or public spaces." (Stone, 1986, p.32) In addition, definition of Hough (1990) identifies other properties for planned public spaces: "Much of urban landscape, parks and gardens and formal open spaces of the city, which are planned has been subjected to a universal design standard." (Hough, 1990, p.8)

Figure 3: Michelangelo's Renaissance Piazza
del Campidoglio in Rome, (Carmona, 2008, p.26)

It is obvious that public open spaces are most essential where great concentration of people happen, in order to serve people`s gathering and meeting. Rapoport (1980) states: "Designs of public open spaces are ordered according to some ideal environment." (Rapoport, 1980, p.12) Furthermore some popular places can be a combination of both planned public spaces and naturally developed ones. For example, a step which is designed as an entrance or passing way become a place for gathering people on it.

According to many authors public open spaces are categorized in three main groups by their form:

1. Squares and plazas,
2. Streets,
3. Parks.

Additionally as stated by Carr et al., public open spaces can be classified as:

1. Public Parks,
2. Green ways and parkways,

3. Found neighborhood spaces,
4. Streets,
5. Squares and plazas. (Carr et al. 1992)

Despite to all these various categorizations, public open spaces need to be in such a way that they not only invite people but also have qualities to keep them. In other words, form and formation of public open spaces are not the only factors in success of these kind of places; but also their functions and social characteristics.

2.1.1 Factors Effecting the Quality and Success of Public Open Spaces

Despite Jane Jacobs and William H. Whyte`s opinion which is mentioned by Ford (2000, p. 199): "Good streets, sidewalks, parks, and other public spaces bring out the best in human nature and provide the settings for a civil and courteous society;" some peoples have a pessimistic sense about this idea, in such a way that they think this belief causes in small and local neighborhood to have more stranger than before and benches in parks may become a home for vagrants.

This way of thinking nowadays is one of the reasons of declining public open spaces. As it has been observed by many interpreters, this declining is happening because of decreasing availability of these spaces and importance attached to public space and public life. Others (e.g. Brill, 1989; Krieger, 1995) believed that obvious decline of public realms based on a wrong conception which is the belief that public spaces have never been as diverse, dense, classless, or democratic as is now imagined' (Loukaitou-Sideris and Banerjee, 1998, p. 182). Some commentators see the cause of decreasing in usage of public spaces as a result of sociocultural transformation.

However to this point, as most of discussion is about physical dimension of public spaces, there is a need to have more information about social feature of open spaces. As Carr et all. (1992, p. 343) argue, the relationship between public space and public life is active and two-sided in such a way that new forms of public life require new spaces. In other words public life in public realm shows the quality of space as a supportive and helpful environment (Gehl, 1996). So, this relationship shows that if people use public space less, then there is less incentive to provide new spaces and maintain existing ones. With a decline in their maintenance and quality, public spaces are less likely to be used, thereby exacerbating the vicious spiral of decline.

Nowadays according to Ellin (1996, p. 149) many civic and social interactions and activities which formerly happened in public realms have been transferred to private spaces. He states lately by using internet and watching television all activities like leisure, entertainment, consumption and earning information by social interaction have being done at home by using computer. As a result of this way of living activities which were accessible in public and communal forms have become available in private and individual realm; and this is happening while social life have been faced with several problems and changes, such as increasing personal mobility; primarily by using car in daily activity and afterward by using internet (Carmona, 2003, p.110). As Loukaitou-Sideris and Banerjee (1998, p. 175) observe: "Public life involves relatively open and universal social contexts, in contrast to private life, which is intimate, familiar, shielded, controlled by the individual, and shared only with family and friends."

Furthermore, the separation of public space and public facilities has been both a reason and a result of the tendency towards privatization. As Ellin (1999, pp. 167-8)

observed the impoverishment of public realm, there has been a consistent deterioration in meaningful space, and a need to control one's space, or to privatize'.

It is expected that for the next 10 or 20 years the private car will keep on an essential means of urban transport and the future city planning should come to terms with this vision. In such a way that fast movement of traffic in huge volumes needs more and larger roads. This way of planning would continue if certain limits would not be placed on traffic volume and its freedom of movement; and it is obvious that the demolition of streets and squares as places of public contact will continue and degrade the local environmental quality (Moughtin, 1992, p. 132).

As it is obvious from discussion above despite to all endeavors which have been done by many scientists, nowadays urban public spaces are going to be more secluded and people prefer to spend more time at home or work by internet and computer.

In order to have a well-defined public open space, many factors which contain physical and social dimensions should be defined and considered. As Francis (1988, p. 57-58) states:

- Public open spaces should be in way that be used by variety of users such as elderly, children and teens.
- In these spaces variety of activities should happen.
- Public open spaces should be comfortable.
- Best results are achieved by evaluating, improving and redesigning over time.
- Public open spaces should increase the chance of involvement, manipulation and control for its users.

- They should be accessible to all.
- These spaces should create opportunities for challenge, discovery and delight.
- Public open spaces must be ecologically healthy.
- Public open spaces should improve and be effective for the economics of its surrounding community.
- Public open spaces should be democratic places.
- These places should be loved by its users and people who are living or working nearby.
- People who are in public space should feel safe and secure there (Francis, 1988, p. 57-58).

In addition to the above mentioned notes, accessibility and movement in public open spaces are also very important in a successful public space. The below lines will give some general information about these two key elements in detailed.

About accessibility it can be said that although some parts of any environment purposely or by chance may be less accessible to certain section of society, a good public space should be accessible to all. According to Carr et al. (1992, p. 138) access to public open spaces can be divided into three categories:

- Visual access (visibility): help people to see the place where they want to stay to decide whether to feel comfort or not.
- Symbolic access: symbols can be either alive or not; it may be a group of peoples which threat or invite other people to a place, or a shop which welcome people to enter a public realm.

- Physical access: a public space should physically be available to public. Lack of physical access not only make the place not being seen and ignore visual access, but also disable a place to get into and be used.

Another factor which has important role in creating life and activity in public open spaces is movement through spaces. It can be said that places which people prefer to sit or spend time in public spaces are places which are connected with defined and attractive ways; it means that the connection between places is very important for pedestrians. Duany et al. (2000, p. 64) assert that, "pedestrian life cannot exist in the absence of worthwhile destinations that are easily accessible on foot. Otherwise, there is no reason to walk, and the streets are empty."

It is necessary to understand pedestrian movement to achieve a successful public open space; since a pedestrian trip may not be single purpose trip. It may start by the aim of shopping and be continued by buying newspaper, enjoying a view and talking to a friend or even sitting in a bench to watch a fountain and spend time.

Hillier (Hillier and Hanson, 1984; Hillier, 1988, 1996a, 1996b; Hillier et all, 1993) is one of the scholars which has deep and attentive study on the connection between movement and structure of urban spaces. He asserts that the outline of a space, principally result on visual permeability and is essential in specifying movement densities and encounter rates.

Despite to these two important factors, as it is mentioned before, public spaces can have different shape and forms however public spaces in every shape and form should have defined edge and center. As Alexander et al. (1977, p. 606) assert that a

public space “without a middle is quite likely to stay empty.” Equally the edge of an open space can be as important as its center and is one of the most important elements in a powerful urban space; in such a way that the public edge of buildings also can accommodate activities that make a profit from interplay with the public realm and chip in vitality there.

Another key feature of creating an active and well used public realm is the spatial and temporal focus of different land uses and activities. An adequate density of activity and people has often been observed as a necessity of liveliness, and for creating and preserving viable mixed use. Jane Jacobs (1961, p. 163) argued that city life has much to do with density.

Moreover to these factors, an essential part of urban public open space is the need to provide comfortable circumstances in public spaces. If spaces are not comfortable enough, they are not likely to be used. Levels of sunlight, shade, temperature, humidity, rain, snow, wind and noise have an effect upon the experience and use of urban environments. Favorable conditions would change by season or activities taking place (Carmona, 2003).

However, considering the impact of microclimate, sun and shade, wind and specially lighting in creating a comfortable place can be useful. As an example natural lighting can have an important influence on the character and value of public space; even play of light and different sort of lighting in urban spaces may have aesthetic dimensions. In general to have a good urban environment, some goals have been defined by Allan Jacobs and Appleyard (1987, pp. 115-16) as below mentioned:

1. Livability: A city should be a place where everyone can live in relative comfort.

2. Identity and control: People should feel that some part of the environment 'belongs' to them, individually and collectively, whether they own it or not.

3. Access to opportunities, imagination and joy: People should find the city a place that they can break from traditional molds, extend their experience, and have fun.

4. Authenticity and meaning: People should be able to understand their city, its basic layout, public functions and institutions, and the opportunities it offers.

5. Community and public life: Cities should encourage participation of their citizens in community and public life.

6. Urban self-reliance: Increasingly cities will have to become more self-sustaining in their uses of energy and other scarce resources.

7. An environment for all: Good environments should be accessible to all. Every citizen is entitled to a minimal level of environmental livability, and of identity, control and opportunity.

To achieve these goals, five physical characteristics of an urban environment were defined:

1. Livable streets and neighborhoods.

2. A minimum density of residential development and intensity of land use.

3. Integrated activities - living, working, and shopping - in reasonable proximity to each other.

4. A manmade environment that defines public space, particularly by its buildings.

5. Many separate, distinct buildings with complex arrangements and relationships.

Public open spaces play an important role in cities and people`s life. As a result designing or improving them it in such a way that encourage people to come and use the space is important. As it has been mentioned previously there are various kind of public open spaces and accordingly the way of designing them are different. In this part the research focus will turn into streets as public open spaces due to its main aim and objectives.

2.2 Street as a Public Open Space

Despite different shape and sizes of all positive urban spaces, street and square are the main types. 'Streets' (roads, paths, avenues, lanes, boulevards, alleys, malls, etc.) with a sense of movement classify in dynamic spaces and 'squares' (plazas, circuses, piazzas, places, courts, etc.) are static spaces with less sense of movement (Carmona, 2003).

In terms of streets it can be said that they are the most virgin sort of public open spaces (Krier, 1979; Carmona, 2003). Streets, besides being one of the most critical units of a city, are tools in presenting the features of urban fabric (Shamsuddin, 2011). By providing situation for socio-economic activities and through signifying the outdoors, street can define the structure of the city (Lynch, 1960, Jacobs, 1993). As Jacobs mentions the street and its sidewalks as the most crucial section of the public open spaces in the city (Jacobs, 1961).

2.2.1 Definition of Street

As mentioned above street is a kind of public open space and can be used as a pathway among different areas. Streets work for the movement and mobility of

pedestrians, vehicles and good in its physical space. Moreover, these communication lines can be used for various activities such as shopping, living, working, etc. in general streets are the best places for social activities. Streets can be effective for social and economic encounters; they have important role in city life since they bring out the culture and life-style of its inhabitants (Kostof, 1992).

Streets refer to a linear three-dimensional space surrounded on both opposite sides by buildings. At this point, the main question which comes in mind can be the distinction between road and street. In general, road is a usual line of communication between different places, which can be used by travelers within a vehicle or on foot. The main purpose of a road is the movement between two places; and so it can be said that, road is any way or path to some end or trip. However, street in a common meaning, is a road in a town or village equality in its usage, comparatively wide as opposed to a lane or alley (Moughtin, 1992). Moughtin in this approach defines street as: "a road that is a linear structure along which movement occurs between the adjacent houses. It runs between two lines of houses and shops." (Moughtin, 1992, p.128) Moreover, "the street is not only a means of access and an act of movement but also an arena for social expression." (Moughtin, 1992, p.129) Another definition according to Trancik is: "streets are in a linear form, which also have the properties of three-dimensional frame, two-dimensional pattern, and objects to provide interest and focal points." (Trancik, 1986, p.71)

In general it can be said that streets are social setting and their function and their name emerge from being accepted by public. Street is similarly a perilous matter as a place and furthermore to its architectural identity, it has social importance and economic function (Rykwert, 1988).

2.2.2 Importance of Streets for Pedestrians

From pedestrian viewpoint, Calthorpe (1993, p.98) expresses that: “streets are spaces which facilitate pedestrian access”. Jane Jacobs who is a great apologist for the street asserts: “Streets and their sidewalks, the main public places of a city, are its most vital organs. Think of a city and what comes to mind? Its streets. If a city’s streets look interesting, the city looks interesting; however if they look dull, the city looks dull.” (Jacob, 1965, p.39)This statement shows the role and importance of streets in a city as public open space. Jacobs also states: “streets are places of social and commercial encounter exchange” (Jacob, 1965, p.5). To Jacob, streets are places for people to meet each other and within these channels of movement they may watch at the passing movement and changing postures and dresses (Jacob, 1965).

To understand this issue from another point of view, we may think of a city as a creation of urban functions which leads by transport; this way of thinking may divests the street`s role and meaning as a social arena and these functional analyses ignore the existence and reasons of being street. As Le Corbusier (1967) states: “Our streets no longer work. Streets are an obsolete notion. There ought not to be such a thing as streets; we have to create something that will replace them.” Later he said: “No pedestrian will ever again meet a high-speed vehicle.” (Le Corbusier, 1967, pp.121-123) Le Corbusier`s considers street as the only technological device with the single purpose of carrying people all over the different residential and commercial arenas (Lillebye, 1996). Although it is not legal to accommodate high speed traffic in a street, this is not the reason to ignore the value of street neither does it essentially prevent the use of the street for vehicular traffic. The specific form of pedestrian-vehicular communication is conditioned by the function of the street. Although it is obvious that the total separation of pedestrians and vehicles may be dangerous to the

improvement of an active and lively street; the success of pedestrian spaces is related to the diversity of attractions they offer thus pedestrians in large numbers have intention for remaining. Moreover, it depends on good access for both private and public transport. In general, the best and basic need is the separation of high-speed traffic movement from pedestrian traffic (Moughtin, 1992).

Streets in cities, same as city sidewalks which carry many purposes further working for pedestrian, carry other purposes moreover to carrying vehicles. In such a way that street moreover to being a physical element for a city is also a social fact which can be evaluated by its users, owners or who controls it; also the aim of building and changes in social and economic functions may be important. Also, as it is mentioned previously, street has a three-dimensional physical figure, in addition to its social fact, which prevents occurring definite activities and makes other activities possible while it may not be an answer to social interaction (Moughtin, 1992). In this sense Ford (2000) argues that: “Good streets, sidewalks, parks, and other public spaces bring out the best in human nature and provide the settings for a civil and courteous society. Everything will be fine if we can just get the design right” Ford (2000, p. 199). Ford in parallel to parks and other public spaces mainly argues about street and its sidewalks which are the first place of social interaction in cities.

Streets can also be considered as the major element in formation the structure of physical environment. They work as a linkage which connects buildings, both in street and in city scale and provide connection between neighborhoods, buildings and even cities together. As a linkage, street eases the movement of people within vehicles or as pedestrian; it also helps the movement of goods to keep in existence the wider market and many specific uses within the street. Besides, the expressive

duty of street comprises its use as a site for occasional interaction, containing recreation, conversation, and entertainment, as well as its use as a site for formal observances. A Street is also a common area which works for a group and not just one family; as a space which is serving a group. It is somehow closed social system and has clearly defined boundaries in spite of acting as a common thoroughfare to other areas (Moughtin, 1992).

It may not be irrelative while studying about street to have analysis of Islamic cities. In Islamic analysis the city is structured along a spatial continuum alternating from private, semi-private/semipublic to public space. The public streets within an environmental area and where its function is the main pedestrian and vehicular networks or 'paths' need a different design style in comparison the completely residential streets where greater concern may be given to the necessity for privacy and defensible space.

Thinking about Islamic streets and its classification may remind anyone that not only residential streets but also all kind of streets may need its own safety and discipline. Although street is a place for people to interact and somehow spend their time, safety of a street in a huge city with different sort of people is a concerns for many people. Great cities are not as same as towns and suburbs, even they have differences in their basic concepts; they are not just denser or larger. One of these distinctions is that cities are by definition full of strangers; and as basic characteristic of a successful city district is that a person among all the strangers in a street must feel personally secure and safe; and have no feeling like being threatened by them. Hence keeping the city safe is a fundamental duty of a city's streets and its sidewalks (Moughtin, 1992).

According to Jane Jacob: “The first thing to understand is that public peace – the sidewalk and street peace – of cities is not kept primarily by the police, necessarily as they are police. It is kept primarily by an intricate, almost unconscious, network of voluntary controls and standards amongst the people themselves and enforced by the people themselves.” (Jacob, 1965, p.41) Then in this sense, Jane Jacobs states three conditions that are necessary for any street to keep its safety for pedestrians and encourage more people to use it. At first, there must be a clear and strong demarcation between public and private space. At the second step, to have eyes upon the street at all time; eyes belong to those which somehow may be the natural properties of the street. And the third one is that, any street and its sidewalks must have users on it which might be continuously and properly, not only to enhance the number of effective eyes on street but also to encourage people in the buildings to watch the sidewalks in adequate number. Nobody like to seat and watch an empty street while there are many people who enjoy watching street activities (Jacobs, 1961). As a result street and their sidewalks need people to use them to be interesting, lively and secure. And in response people enjoy to spend time in street in order to see and be seen.

Street`s duty is not only secure the city from predatory strangers, but also they must protect the large number of well-meaning and peaceable strangers who use them, and be sure of the safety of these passengers too as they pass through (Jacobs, 1961).

There is a way keep such a surveillance on street; to have substantial number of shops along it especially the ones which works in evening and night. For example stores, bars and restaurants works for street for a long hours which not only causes to keep its safety but also to bring more people to street. On the other hand people who

are demanding for food or drink became attractive for many people to watch (Carmona, 2007).

A street which is well prepared to manage strangers and has a good and effective separation between public and private spaces and also has a basic source of activity and eyes, if has more strangers would be merrier (Jacobs, 1961).

Despite to all street roles in daily especially social life nowadays several change have taken place in the social outlines of life in cities. As an example, about thirty years ago many housewives would walk to shops or even they would walk their children to school; however recently the role of housewives has changed in such a way that they may be a breadwinner or head of a single parent family or even a co-working family partner, so their responsibility increased and they neither have enough time to walk in streets. Hence more journeys are now made by car to the supermarket or to school and leisure day out. No matter male or female, old or young, a larger number of social interactions take place at the destination comparatively during the trip, and the telephone call somehow plays the role of chats on the doorstep. These changes not only causes the streets to be fade but also causes environmental or green problems, which may be a reason to return to a more compact urban form (Moughtin, 1992).

2.2.3 Classification of Streets

There are various classifications of streets by different scholars in literature review. Their classifications are either from functional or formal point of views. One of the scholars who classified streets based on their functions is Moughtin (1992). According to his classifications streets categorize as below:

1. Civic streets
2. Commercial streets

3. Residential streets
4. Multi-function streets (Moughtin, 1992).

Classification of streets by Calthorpe (1993) is based on the pedestrian's need:

1. Arterial streets
2. Connector streets
3. Commercial streets
4. Local streets
5. Alleys (Calthorpe, 1993).

In terms of street relation to urban morphology according to Onal and Doratli (1997), there is another classification as below:

1. Bridge streets
2. Waterways
3. Covered streets
4. Boulevards (Onal, Doratli, 1997).

Hals (1929) introduces street hierarchy of street categories in terms of urban patterns of traffic arteries which is mentioned below:

1. Main streets
2. Residential streets
3. Industrial streets
4. Park streets
5. Stair streets (Hals, 1929).

In this classification the first three types can be categorized in functional street typology; and the last two in terms of their urban and architectural importance can be classified separately.

To Hals (1929) the main streets have a function which is connecting various urban areas or a town to the outer suburbs. According to Hals (1929) residential streets have function which is leading the users in a tiny distance from the main street into door sill. Industrial streets are designed in a dimensions to adapt to heavy traffic. For Hals, park streets own visual appearance which are adjust along with situation and surrounding. The last type of street which Hals mentioned have ideals from baroque urban tradition in central Europe. The most remarkable example of this type of street is the Spanish Stairs in Rome (Lillebye, 1996).

Figure 4: Spanish Stairs, Rome (URL1)

At this point by having these various classification in mind, in below some of them will be explained more in detail.

Civic streets: This category generally forms around civic buildings such as museums, concert halls, theatre, governmental offices, etc.

Commercial streets: Commercial streets are based on commercial activities; the function of such a street decorates the city and provides it identity (Moughtin, 1992). To Calthorpe (1993) this category is located in the center of a commercial district. This kind of streets should be in such a way that to have slow traffic, accommodate pedestrians and provide side car parking; in general make a pleasant shopping atmosphere and comfortable pedestrian environments to encourage walking for many shopping trips, thereby reducing reliance on the automobile and creating an active main street (Calthorpe, 1993, p.99).

Residential streets: Residential streets have wide range of variety, they may appear as high-density inner-city neighborhood or suburban and rural districts. In general neighborhood units and residential areas are classified in this category which needed low-density traffic, safety, quiet atmosphere and places for children to play. (Moughtin, 1992).

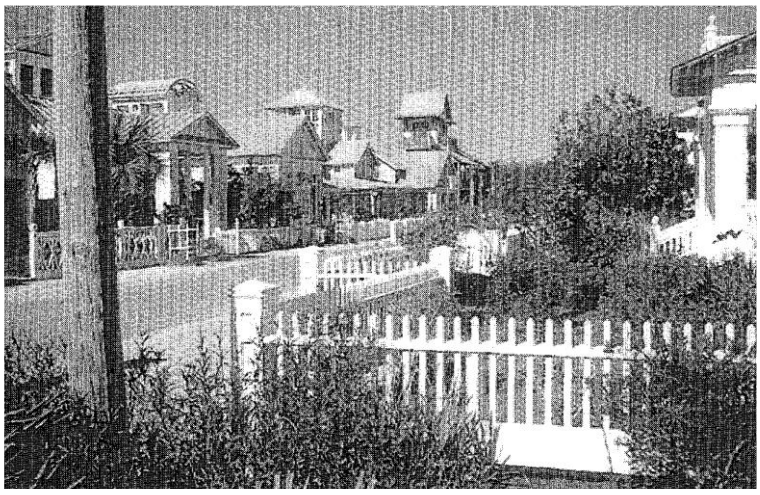


Figure 5: Residential Street, Seaside, Florida
(Carmona, 2003, p.176)

A well-designed residential street should have an appropriate balance between its privacy dominant, defensible space, safe space pedestrian use and car entrance and

access. This ratio is well-defined in early Garden City houses; in such a way that family security is worked well by homes which located on plots enclosed on three edges by neighborhood plots and have only one access point in the side of pedestrian path and family cars. In addition by having low hedges, small front garden and expanded bay window the street sense would be complete (Moughtin, 1992).

Multi-functional streets: this category usually have more than one function (Moughtin, 1992).

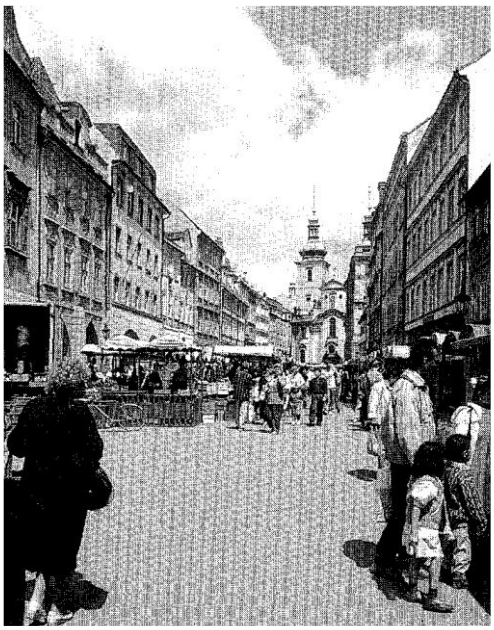


Figure 6: Prague, Czech Republic
(Carmona, 2003, p.176)

Arterial streets: Arterial streets provide a high level of mobility these streets generally serve longer vehicle journeys to, from, and inside urban areas. Arterial streets allow efficient conveyance of through traffic, they are barriers to pedestrian. (Calthorpe, 1993). They work as interconnects of major urban elements like the Central Business District, major residential areas, industrial facilities, etc.

Connector streets: This category accommodate moderate to high through traffic volume inside and through the city. They also provide path through neighborhoods and to major destinations, such as bicycles and foot traffic. On a connector street automobiles, bicycles, pedestrians and transit are equally accommodated (Calthorpe, 1993).

Local streets: are designed to serve low volumes of traffic through a pedestrian-oriented environment. They are also known as public open spaces in which children often play around and where neighbors interact (Calthorpe, 1993).

Alleys: service slow moving traffic of vehicle access and parking away from the street and sidewalks affording an interesting and comfortable street scope (Calthorpe, 1993, pp.95-100).

Bridge streets: Bridge streets are generally bridges which carry streets across an opening. The examples of bridge streets can be mentioned as Rialto Bridge in Venice and the Ponte Vecchio, which crosses the Arno in Florence (Moughtin, 1992).

Figure 7: Rialto Bridge, Venice (Moughtin, 1992, p.160)

Figure 8: Ponte Vecchio, Florence (Moughtin, 1992, p.160)

Waterways: This category are streets which developed along the water in a long river canal. Grand Canal in Venice is an example of waterways (Kostof, 1992).

Figure 9: Grand Canal, Venice (URL2)

Covered streets: Glass-roofed by vaults or domes, exclusive pedestrians, and symmetrical interior facades are the feature of these kind of streets which mostly can be found in Islamic towns.

Figure 10: Belediye Pazari, Lefkosa

Boulevard: Boulevards are complex urban streets allowing the close coexistence of various travel modes and speeds in a same right of way. Boulevards generally provide special roadway which is separated by three-lined medians. Section of boulevard contains at least four lines wide designed for fast moving traffic and narrow access roadways on both side to handle the slow moving local traffic; roadways also separated by three lined medians to serve pedestrians walkways. The distinctive feature of boulevards is the ability to house many uses with balance. (Watson et al. 2003).

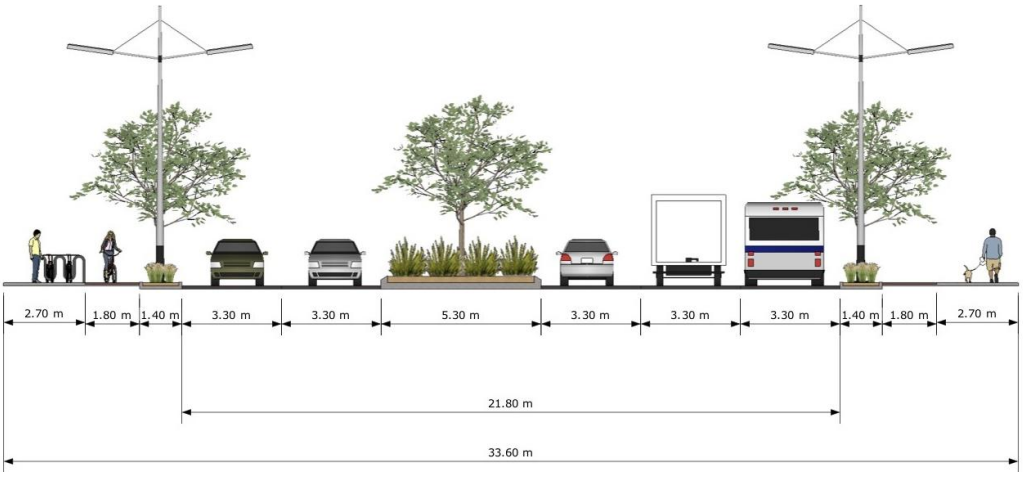


Figure 11: Boulevard section (URL3)

As the research case study is also called as boulevard it seems that there is a need to explain boulevards in more details. The wider boulevards with a width over 46 meters possess wider medians with two line of trees, benches, pedestrian path, pedestrian-scaled light fixtures and often more details; in contrast the narrower one approximately 20 meters can accommodate a narrow median (1.5 to 3 meters width) and a line of trees. Generally boulevards are categorized in three main classes as: center median boulevard, boulevard street and multi-way boulevard (Watson et al. 2003).

A key factor in distinguishing safe from unsafe boulevard is the presence or lack of "pedestrian realms" along the boulevard edge; pedestrian real generally contains sidewalks, the planted median and the access roadway. To create an extended pedestrian realm below mentioned conditions should be considered:

- Continuous median between thorough lanes and access lanes.
- Continuous densely planted trees line along the medians to the intersections.
- Existence of almost narrow access roadway to provide just one lane traffic.

- Existence of transit stops or benches on medians encouraging people to cross the sidewalks to use them.
- Existence of access ways which is varied from the central through way in its level or paving materials (Watson et al. 2003).

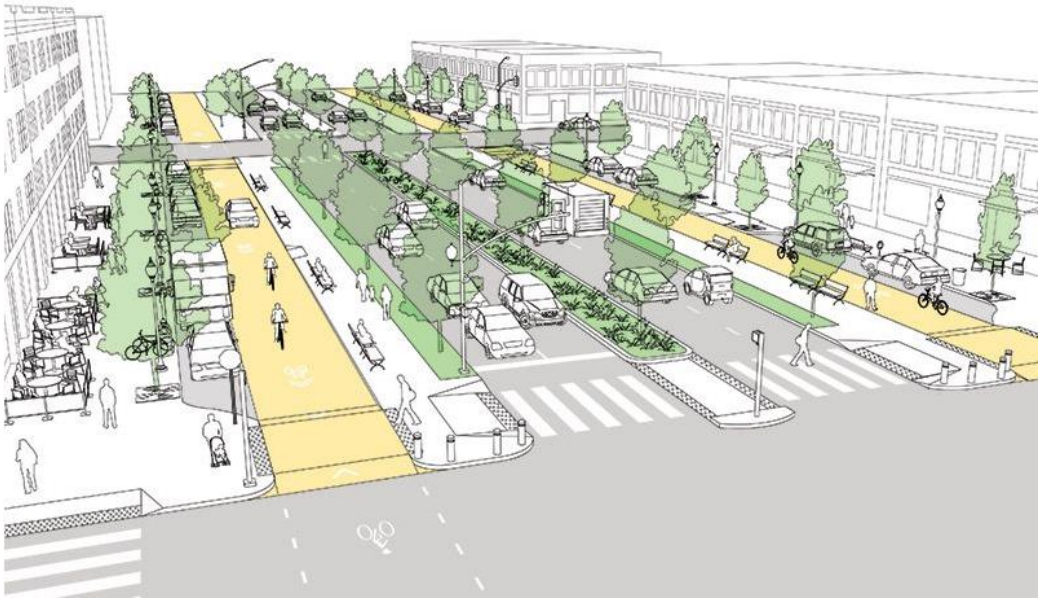


Figure 12: A boulevard which accommodate all kind of transportation for all group of users (URL4)

There are some qualities which should be considered in construction of a well-designed boulevard. These qualities are mentioned as Location, context and uses of boulevard, Buildings that face the street, Boulevard realms and its overall size, The through going central realm, The pedestrian realm, Continues three-lined medians, Rows of trees and tree spacing, Public transport, Parking, Lane widths, Bicycles, Intersection design, Traffic control, Discouraging mid-block jaywalking, Differentiating the roadways (Watson et al. 2003).

Despite to all these classifications, pedestrian mall, pedestrian sidewalks and traffic restricted streets are not mentioned which can be considered as the major social

places of street. There are more classification of street by other scholars however it has been tried to have the most important ones.

Table 1: Street classification

Scholars	Moughtin (1992)	Calthrope (1993)	Onal and Doratli (1997)	Hals (1929)
View point	Functional	Pedestrian`s need	Urban morphology	Traffic arteries pattern
Classifications	Civic streets Commercial streets Residential streets Multi-function streets	Arterial streets Connector streets Commercial streets Local streets Alleys	Bridge streets Waterways Covered streets Boulevards	Main streets Residential streets Industrial streets Park streets Stair streets

2.3 Physical Characteristics of Streets

Besides to all various definitions and ideas about streets, it also can be defined and categorized by its physical characteristics; as an example, streets can be defined in two ways: vertically which refers to height of buildings, trees and walls along the street; or horizontally which concerns about length and spacing between whatever which may interference in street definition. Another definition may come in mind at the end of street and contains both vertical and horizontal features, it may be somehow a building which is defining elements, or a wall, may be trees, and sometime composition of both of them and always the floor; these elements are particularly categorize in physical characteristics of street (Jacobs, 1993).

Streets also can be categorized based on their forms such as long or short, straight or curved, enclosed or open, wide or narrow, formal or informal. Moreover to these factors form of street can be evaluated in terms of proportion, rhythm, scale, contrast and connections to other streets and squares (Moughtin, 1992).

Physical characteristics of streets as it is obvious is related to many factors which are explained more in the next part. Physical characteristics of streets can be listed as below:

1. Street form
2. Street length
3. Street proportions
4. Street unity
5. Edge and center in streets
6. Building facades of streets
7. Sidewalks along streets
8. Flooring
9. Microclimate in streets (natural lighting, wind flow, shading)
10. Elements of streets (street furniture, artificial lighting, greenery, public art)

2.3.1 Street Form

Street form can be analyzed in terms of a set of polar qualities which are very general. The main characteristics of place and path identified the form are: Straight or curved, wide or narrow, and long or short.

Trancik (1986) states that there are two major street forms; one is inflected (curved) streets and the other one is uninflected street. Visby Street in Sweden and Regent Street in London are good examples of curved street (Figure 11, 12). In contrast Rossi Prospekt in Leningrad (Figure 13) is a straight street with golden proportion of Russians planners which is 22 meters height and length of 220 meters, exactly tenfold (Trancik, 1986).

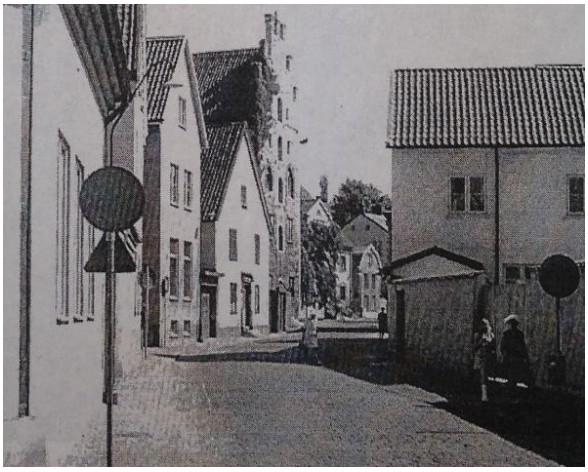


Figure 13: Visby Street, Visby, Sweden
(Trancik, 1986, p.73)

Figure 14: Regent Street, London (Moughtin, 1992, p.164)

Figure 15: Rossi Prospect Street, Leningrad, Russia
(Trancik, 1986, p.72)

Curved streets with irregular frontages increase the sense of enclosure and offer continuous and variable vistas for it pedestrians; while the straight streets according to many commentator (e.g. Sitte, 1889; Cullen, 1961) is selected without enough concerns about the terrain, townscape effect, circumstances and importantly the potential for visual amusement also interest in local context. However as Gibberd states: “The street is not building frontage but a space about which dwellings are grouped to form a series of street pictures; or alternatively the street is a space that may be expanded into wider spaces such as closes or squares” (Gibberd, 1955, p.230).

Sitte personally prefers curved streets, while he did not eliminate using straight streets even in city planning; straight streets are monumental, while the meandering one is more pleasant. However, monumentality is not enough for existence of street, designers of modern cities do not misuse the one or other one, and use them both as suitable, in such a way that giving each neighborhood which they arrange an aspect in conformity with its aim (Collins, G.R. and Collins, C.C., 1986, p.205).

Sitte believed that attractive results created from some practical reasons; which can be mentioned as adapting the development to the environment, avoiding a current structure, squaring up the connection points by creating curve roads both to enable circulation and to have well-shaped building plots (Collins, G.R. and Collins, C.C., 1986, p.206).

When a street is narrow, vertical features come to be more noticeable and eye-level details are more significant; looking along the street causes just see part of the façades in sharp angle. However in broad streets, the whole surrounding façades and

their relationship become evident; considering that the skyline and floor scape of the street are essential factors in street's character (Moughtin, 1992).As a result, the definite dimensions of the street must be preserved by reasonable proportions; which is explained more in street proportion.

From another point of view Alberti (1955) agreed with narrow and curved street; he believed that there is health benefit in such a kind of streets while widening the street of a city makes it hotter and as a result less healthy. In narrow winding streets which air moves, breeze and a little sunshine will reach all the houses (Kostof, 1992, p.69).

2.3.2 Street Length

In the matter of length, the maximum limit for continuous length of a street is possibly in the order of 1mile or 1500 m; more than this limitation human scale would be lost, whereas the enclosure of the view may faces considerable difficulty in a street with vistas significantly less than 1500 m (Moughtin, 1992).

The distance to the terminal building must not be too far, according to Hegemann and Peets; they consider that under an angle of 18° even a noticeable building would miss its domination and may start to merge into silhouette by their neighborhood; this situation would be worse when there will be tall buildings on both sides of vista (Hegemann and Peets, 1922).

According to the length, streets may be considered as long or short. Long streets may works as connecter more than short one; Asukusa Temple Street in Japan is a good example of a long street which has atmosphere as bazaar in contrast to its religious ending that is a temple (Trancik, 1986).

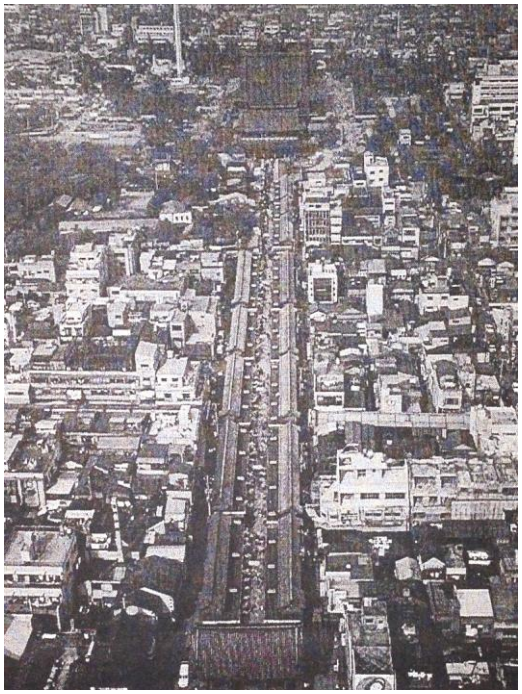


Figure 16: Asakusa Temple Street, Tokyo,Japan (Trancik, 1986, p.74)

2.3.3 Street Proportions

Another important factor in street design is street proportion, which is the basic ratio of length to width to height. The idea of proportion in street basically goes back to the notion of symmetry which has been used in Hellenic Greece time (Moughtin, 1992).

A street with strong physical character possesses a volume with positive and well-defined form and keeps a strong sense of enclosure. A sense of spatial enclosure also determines not only by height-to-width ratio but also by the continuity of street wall; even though width of the street separately, defines the surrounding architecture and how it is been seen. In this approach Sitte (1901, p.61) states: “The ideal street must form a completely enclosed unit!” He then adds: “Even more impressions are limited within it; its image will be more perfect” (Collins, G.R. and Collins, C.C., 1986, p.199).

Streets unlike squares have only two walls to define their space; and in order to make sense of unifying space the outward views should be contained enough which it does not happen if walls of street be low in relation to street width (Carmona, 1996).

While the height of street walls are equal with the width of street a limited sky view is resulted and create a strong sense of enclosure. The minimum ratio of width to height which is considered for a comfortable urban space is 1:1. While the maximum desirable ratio for a good spatial definition is considered 1:2 – 1:2.5. More than this ratio the sky view would be less dominant peripheral vision (Carmona, 1996).

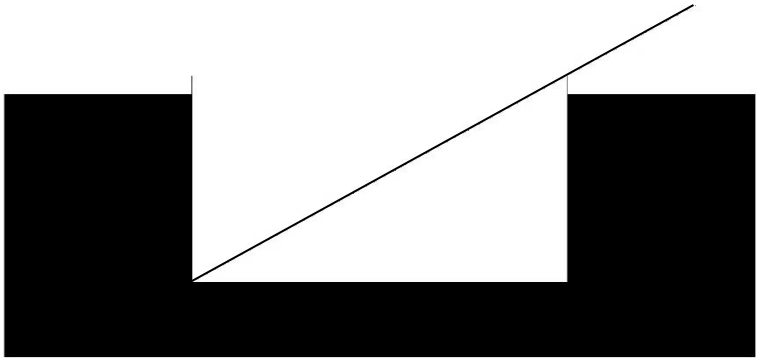


Figure 17: Height to width ratio 1:2 (Carmona, 1996)

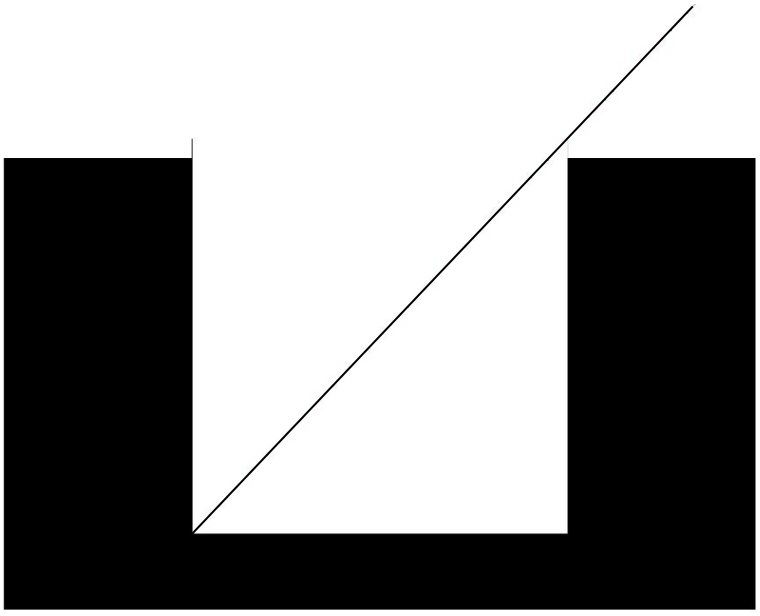


Figure 18: Height to width ratio 1:1 (Carmona, 1996)

Providing suitable height to width ratio causes a scale on thoroughfares which is not only comfortable to people but also encourage them to walk. Below mentioned graphic illustrations shows more detailed of height to width ratio in street section. The first section compare two different height to width ratio in which a line is shown to illustrate cars, buses, trees and people, with dotted horizontal, vertical and diagonal lines to show the difference in heights and ratios. In the second section, two similar images are shown on the left and right. Building elevation shows in the side of drawings with a 1:2 ratio. Exactly after building elevation in line people, a tree, a car, a bicycle and a bus are shown. The diagonal dotted line which is moving from the lower left corner toward the upper right corner of each drawing shows the 1:2 ratio in this section which these two dotted lines are perpendicular (URL5).

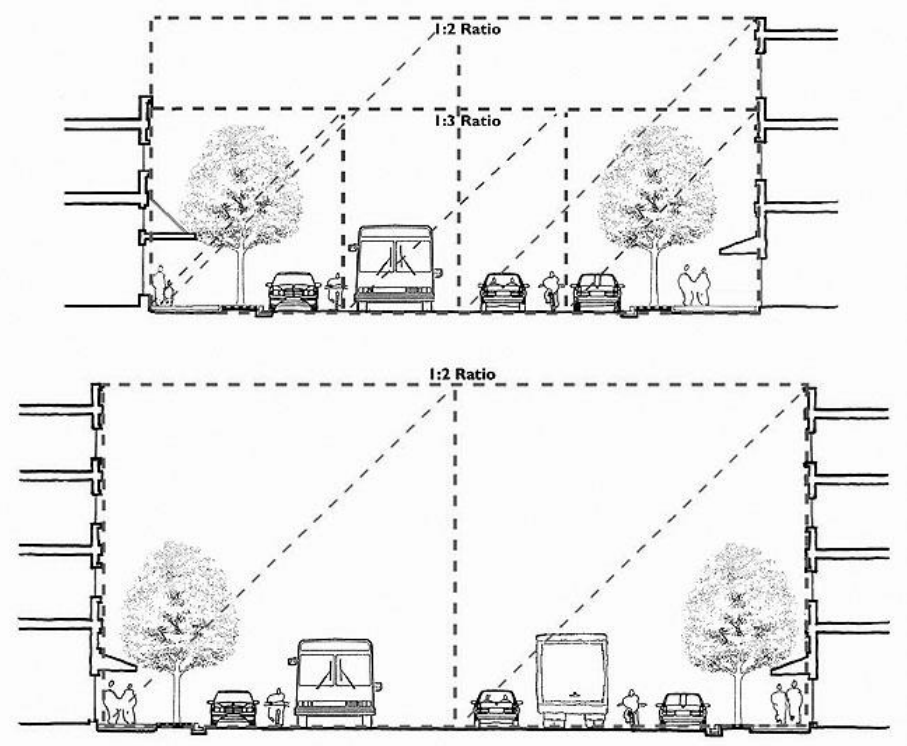


Figure 19: Comparison of two different ratios of street (URL5)

This proportion is more obvious in straight streets, in such a way that the perfection of this kind of street shows itself mainly in the well-defined ratio of its length and

width, its composition of which kind of structures, and its monumental termination (Collins, G.R. and Collins, C.C., 1986, p.205).

Hence, it is obvious that one of the most critical factors for a good street design is the proportion of street, width of street to the enclosing buildings height. However, the wide road is preferred by road engineer and drivers, it is not suitable space for shopping; to achieve this purpose and have a sociable and attractive place it is more successful to have a narrow pedestrianized street which contains continuous enclosing walls somewhat higher than street width (Moughtin, 1992).

As a result, the definite dimensions of the street must be preserved by reasonable proportions; in such a way that it would be difficult to find a sense of enclosure in a wide and long street which has houses with a common frontage. However there is some suggestion to terminate a long street, as an example in ancient times, an arch over the street may break the continuity of over-long perspective effects (Moughtin, 1992).

Narrower streets with dimension 6–9 m (20–30 ft.) which include buildings by three or four stories inspire the sense of enclosure and completeness in the image of street (Unwine, 1909). The Essex design guide proposes that the height to width ratio of 1:1 can be comfort; however the 1:2.5 ratios is as open as can be accepted (County Council of Essex, 1973). Narrow streets also provide situation in which shopping is more facilitate in such a way that there is no barrier to move from one side to another and window looking, in addition the narrower street is more requested for the physical form of the development (Moughtin, 1992).

Figure 20: Street proportion based on hot and humid weather which make shade in street, Algeria, (Moughtin, 1992, p.142)

Scale and proportion in street design are considered not only as aesthetic factors but also in various climate situations. According to Palladio (1965), a street which is located in a city with cold weather and has sub tile air, with high structures, must be wider in order to have enough sun light penetration to make it warmer. However, in city with hot and humid weather, the streets ought to be narrower with even higher buildings to make more shades by its narrowness; so the heat of the space may be smoother and even healthier (Palladio, 1965, p. 59).

2.3.4 Street Unity

Buildings in a unified street get along with each other; which means they are not the same however they state respect for one another especially in their height and the way they look (Jacobs, 1993).

Many factors contribute to create a unified street which the most crucial one may be considered as the form of the buildings; in that sense form of the buildings in a unified street should work as surface instead of being mass. As a street is composed as varied form of buildings which arranged along the street, style and treatment of the street loses its definition (Mougthin, 1992).

In a unified street contradistinction may promote the spatial volume to figural state contrary to background of two-dimensional plans, pavements, walls and sky above. Gibberd have a similar statement, which is mentioned previously, saying that street may not only be structuring frontages of buildings but also it is a space which includes a group of dwellings to create a series of street pictures, or a space which may grow to a wider space like square or a closes (Gibberd, 1955, p. 230).

Figure 21: Chipping Campden, Gloucestershire
(Moughtin, 1992, p. 134)

Reinforcing unity in street sense is visibly possible by using common materials, architectural elements and details of buildings. Roofline of buildings works as lid for space and is the most important factor of skyline which the more differences in the height of roofline the more unsteady the volume. However this is a general statement

which may not think of a rigid prescription in unity design of building heights, the most attractive medieval streets contain quite irregular façades. The unity in street sense would be preserved and monotony avoided by having this range of differences (Mougthin, 1992).

Hegemann and Peets (1922) point out: “The difficulty of combining the large amount of individuality required by the difference of taste and practical needs of the individual owners with the necessary element of harmony and even unity without which a street turns into a disagreeable hodge-podge of contradictory assertions” (Hegemann and Peets, 1922, p. 187).

The nature of a meandrous street contains definite in-built benefits, by which the requirements of personal property owners can be combined to larger needs of social unity expressed, as John Ruskin states: “The great concerted music of the streets of a city” (Hegemann and Peets, 1922, p. 169).

Techniques which are useful for success in designing a curved street and may have equal effects on the straight street designing can be mentioned as using a confined range of material, details, colors and repetition of a persistent bay or plot width. Straight streets which have formal character naturally, their successful design depend on exact definition and consideration of parts (Mougthin, 1992).

Alberti recommends the city streets must provide much more nobles; and it is possible by building doors all after by the same style and houses in both sides of street stay in line and not higher than the other (Alberti, 1955, p. 172).

It is not inevitably necessary to have a complete similarity of each personal building which comprises a straight street. Sometimes it is enough to have one strong theme at ground level to attract the group together; as an example a classical solution to this situation is arranging colonnades or arcades at the ground floor level, and above or behind these unique elements may personal development occur even in upper stories (Mougthin, 1992).

Figure 22: Smithy Row, Nottingham (Moughtin, 1992, p.144)

The main principle which is designing street façades should not be lost in this situation; and the complete street scene must be considered rather than personal buildings. It is effective to close the gaps at both end of building façade as it is possible; even service accesses which enter the street must be as narrow as possible. Positioning architectural elements which arrange a strong axial line in contrast to the street length must be avoided except a situation which there exist corresponding features on both side of street and to pick up and reflect it. As well inflection in street scene is used in situation that such reflection of main elements engenders. Inflection is crucial in achieving unity where thinking to visually literate streets ruled by recognizable grammar (Moungthin, 1992).

Developing at once or changing and developing in a long continuing period is not necessarily the thing that may create unity or ignore it in a street; however it is a series of characteristics which all of them are rarely present in a street, but efficient number of them are always used to state respect and regard for each other and the whole street (Jacobs, 1993).

2.3.5 Edge and Center in Streets

As mentioned before a street in addition to its role as a road for vehicles, carry more important duty which is being a public space. In evaluating a well-designed public space, edge and center of a public space as important factors should be considered. The importance of center in public spaces clearly specified in Alexander`s assertion, which say that a public space "without a middle is quite likely to stay empty." (Alexander et all, 1977, p. 606) They also recommend that between "the natural paths which cross a public square choose something to stand roughly in the middle: a fountain, a tree, a statue, a clock-tower with seats, a windmill, a bandstand . . . Leave it exactly where it falls, between the paths; resist the impulse to put it exactly in the middle." (Alexander et all, 1977, pp. 606-8) As well as providing a sense of identity and character, such features can also prompt triangulation.

Another important and effective factor in a successful urban place is having well-defined edges. In this sense Alexander state that social life in a public space shapes around its edges which happens naturally because people attracted to the edges (Alexander et all, 1977, p. 600) As alexander states "If the edge fails, then the space never becomes lively, the space becomes a place to walk through, not a place to stop." Instead of thinking about edges as line or border without thickness, it should be considered as a thing or a place and a sector with volume to it. Continuous street

edge which define an enclosed space is requirement for a well-designed street (Alexander et all, 1977, p. 753).

The important factor about street edges is the quality of transparency at street edges, where public realm and less public and sometimes private realm of street meet. To know, feel and see what is going on behind the edges which define street may eliminate the sense of curios about street edges and offer sense of invitation to view them. Windows and doors usually give transparency to the street; for example in a commercial street it is the windows which may invite people to come and see what is going on inside (Jacobs, 1993).

After all discussions what are Alexander states is very useful to have an active public space. He expresses that: “Streets should be for staying in, and not just for moving through, the way they are today.” Consequently he recommends: “make a bulge in the middle of the public path, and make the ends narrower, so that the path forms an enclosure which is a place to stay, not just a place to pass through.” (Alexander et all, 1977, pp. 590-591) Equally it is proven in Lynch`s expression, street is a path spirited by a group of nodes, which other paths meet it there or a place which activities strengthen to such an extent the place and rest compete for dominance with purpose of pathway and movement; such nodes should be organized each 200 to 300 m (Lynch, 1960, pp. 47-56).

Also Lynch about an unforgettable path expresses a path should have a definite end and beginning, along its length having certain places or nodes, a place by special usage and activity. This idea has been mentioned not only by Lynch but also Carmona and Jacobs have remembered to have such these factors in street. In this

sense they believed that, while a section of a street or the whole street have the quality of enclosure, it must have three main features, an entrance, the own place and a termination. As the street is also a path and have two directions, the place must terminate in two directions (Carmona, 2003; Jacobs, 1993). Besides marking the starting and ending points of street is not usually hard to fix. However it is not crucial to have a physical thing in start and finish points of street, a well-designed street always has notable start and end points but not necessarily fine (Jacobs, 1993). To Lynch this path may be scaled and have contrasting elements, however more than these factors paths should be able to present to its passenger a memorable and stimulating image of connected places (Lynch, 1960, pp. 47-56).

Considering the edges of a street with functions laid along are also important. Studying the edges of a street from functional point of view, we may talk about active edges and passive edges. Active edges refers to the part of a street which its functions make people to use them or contribute every passerby in their activity while making street alive and active in that part like restaurant, cafes and shops. Whereas passive edges are the parts of a street which make no connection with street users while having no activity and livability cause to deaden that part of street. Passive edges of street are mostly belongs to houses, vacant buildings or lands. Active and passive edges are explained in details in functional characteristics of streets.

2.3.6 Building Facades of Streets

The surface of building blocks which faces to street are considered as front facades of buildings. Facades of buildings are one of the most important elements of streets and they present a diversity of visual experiences for the viewer which may be called visual richness. This visual richness may be related to contrast of elevation elements

such as wall, windows, building material contrast, color, texture and light and shade contrast (Moughtin, 1999, p. 25).

Visual-aesthetic of an urban environment develops from both spatial qualities and, texture and color and details of its surface which can be named as decoration on buildings. For example warm colors induce smaller space than cool colors which give a spacious feel of space. Lack of fine elements which are not interested in human scale also give sense of inhuman of the surface (Carmona, 2003).

The architectural styles in a street may span many centuries while forming a particular composition building from same materials and using similar details and few elements. Contrast also may occur in a disciplined theme. In a street which its both sides are designing by a single architect, it is easier to have control on form of architecture and the space modeling (Moughtin, 1992).

Not only the style of architecture but also the number of visual elements related to architecture are very important in visual richness while existing many of identical elements in comparison to a single object is more interesting for viewer (Moughtin, 1999).

Facades can be analyzed in three main parts: the ground floor, the roof and the main floor as well as analyzing in terms of symbolic qualities and formal function. The ground floor which can be named as foundation also, somehow connects the building to the pavement and ground. The middle part mainly contains rows and windows. And the last part which is roof section connects the building to sky in terms of silhouette. The decoration of each part of building façade depends on the building

position in relation to viewer, building height, the shape of building and its function (Moughtin, 1999, p. 25).

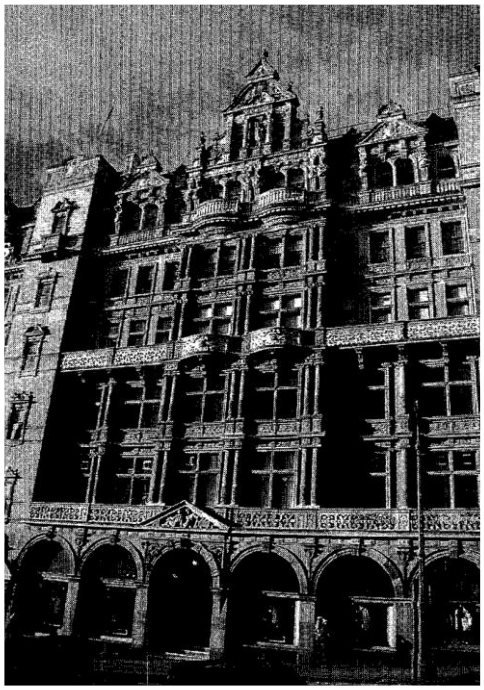


Figure 23: Presents three min part of façade of a building
(Carmona, 2003, p. 153)

Having emphasize on one or two of the main parts of street façade it is possible to create a pattern or highly modelled decoration. The most important part of façade in the notice of a passer-by is the foundation or base part which is around the main entrance and front door. This part of facades in the shopping streets is the most important part for decoration and the most contact of people with the facades is in this part. The shop front contains three part in horizontal division which are the stall riser, the fascia for advertising and the display window. In the more pedestrianized streets the windows are smaller than the streets in which people take a look at window shops in cars above the shop window is the fascia which carry the details of shop owner`s activity or name (Moughtin, 1999).

Figure 24: Ground floor details and different parts
(Moughtin, 1999, p. 29)

Carmona et al. believed that in ground floor level of facades it is better to have small-scaled details to create visual interest for passer-by, in contrast large-scaled details are appropriate for watching from long distance. (Carmona, 2003).

The middle zone can be defined by elements such as string courses, cornices and vertical edging along building boundaries. Articulation in the middle zone also contains decoration around the window edges, balconies, niches, stairwells, etc. The roof zone also can be defined by decorations on the corners of building and the roof type (Moughtin, 1999).

Buchanan (1988) in order to prevent repetitive, boring elevation, identified some criteria as below:

- Facades should create a sense of place.

- Beside to mediate between outside and inside and private and public space, provide gradation between them.
- Containing windows which suggest the potential people presence while framing the internal life.
- Comprising character that acknowledge conventions and being in a connection with the in line buildings.
- Having a sense of mass and materials which are expressive of the form of construction.
- Have tactile, substantial and decorative natural materials, which is adapted with weather.
- Have decoration that confuses, delights and intrigues (Buchanan, 1988, p.25-27).

In addition to the above mentioned criteria, harmonization of a building and its surrounding are important from the pedestrian point of view. As Francis Tibbalds (1992, p.16) states that "if every building scream for attention, the result is likely to be discordant chaos." (Francis Tibbalds, 1992, p.16) So it is obvious that there is a need for unity along the street.

To have unity among facades of street Carmona et al.(2003) states that repetition of an architectural style or in other way unifying elements like proportions, materials, details, massing, plot widths, treatment of entrance, etc. can be helpful (Carmona, 2003, p.150). It is also important that a building express it's inside function from outside elevation and also its form and construction (Cantacuzino, 1994, p. 70).

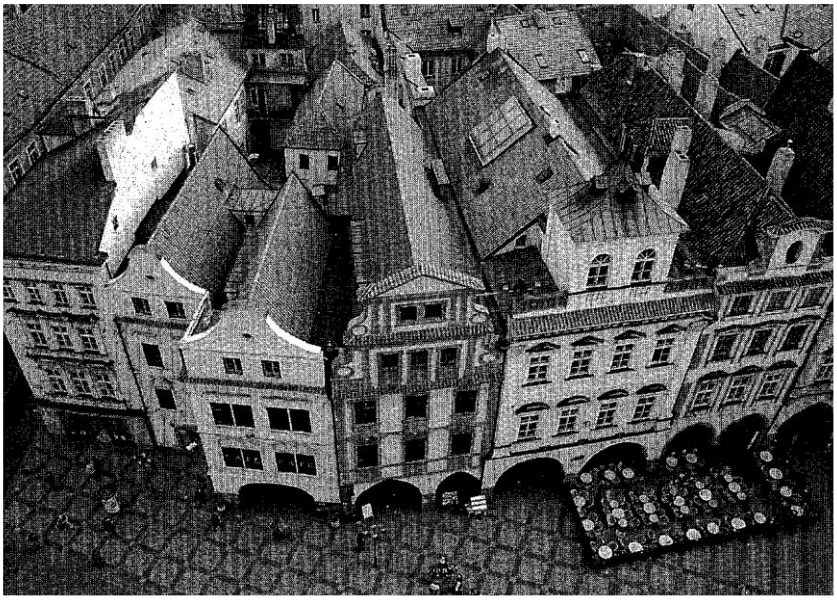


Figure 25: Unity of street facades (Carmona, 2003, p.64)

2.3.7 Sidewalks along Streets

One of the requirements of every street is having sidewalks. Rules of countries may recommend having or having no sidewalks, for examples in some standards do not require sidewalks in residential streets, or in some cases just needed in one side. Recent standards permit the sidewalks be constructed exactly adjacent to the street (Moudon, 1987).

According to Jacobs (1993), along a well-designed street there is necessity to have sidewalks let people to walk in almost wide and somehow leisurely space. An ideal sidewalks, should induce people neither a sense of being alone nor crowded while it is safe enough especially from vehicles (Jacobs, 1993).

In different areas and different standard the dimension of sidewalk may be different. On less travelled streets may be recommended to be narrow in contrast to a busy street which may be designed wider and separated it from the traffic by strip or planter. As a result sidewalks should offer an unobstructed pathway at least 1.5 meter

which is a minimum for a clear corridor to encompass two people walk comfortably. For commercial cores larger sidewalks should be considered because of the more pedestrian activity and outdoor seating demands (Calthorpe, 1993, p. 96).

Figure 26: Well-designed sidewalks in a commercial street, Lord Street, Southport (Moughtin, 1992, p. 145)

2.3.8 Flooring in Streets

Moreover to environmental design some physical factors also contribute to make open spaces more comfortable. Floors cape is one of the essential cases which should be considered in the harmony and integration of public spaces. Flooring in urban areas categorizes in two main types which are hard pavement and soft landscaped areas. Character of a floors cape basically is defined the way they are being used, the material used such as bricks, concrete, macadam, cobbles and etc. and the way of connection of them to other landscape feature and materials (Carmona, 2003).

Providing a dry, hard and non-slip surface to convey the traffic load both for vehicles and pedestrians is the primary function of every paved area. Changes in construction methods and even flooring material can reflect different traffic loads and also specify where various sort of traffic should go (Moughtin, 1992, p. 91).

Using different flooring material can also be a result of changes in ownership as an example from public to private or semi-private, or may show possible hazard, and work as warning. Directional paving can only have an aesthetic function, which is being used merely to emphasize a linear form and also improve a sense of movement. While floorscape pattern emphasize the linear posture of a street, it is highlighting its function as a path by inspiring a sense of direction with a visually active pattern. In addition they can check the movement of space by indicating its character as a space; otherwise by proposing a sense of repose with a visually immobile or contained form (Carmona, 2003).

Figure 27: Flooring in street can be designed (Carmona, 2003, p. 160)

Another usage of floorscape is somehow to manipulate the obvious size of space by adding details or the tendency of modulation, make a small space seem bigger, while simple treatment has the contrary effect (Carmona, 2003).

Figure 28: Unity of materials and design between the floors cape and the surrounding architecture, Telc, Czech Republic (Carmona, 2008, p.102)

Non-linear paving have a tendency in slowing the visual pace, also to emphasize qualities of place to linger or stop, while parallel lines which follow the street length strengthen the sense of movement. Relationship between floor patterns replacing the movement and rest carries qualities of rhythm and balance to the urban sense (Carmona, 2003).

2.3.9 Microclimate in Streets

Providing comfortable conditions have essential role in survival of each public open space. As Alexander states that streets should be places for stay, so there should be conditions to be able to stay easily; and if a street is not comfortable especially in terms of physical circumstances, there is not like to be used. Equally to environmental cases which are mentioned as level of sunlight, wind, noise, temperature, humidity, shading, rain and snow (Carmona, 2003). According to Jacobs (1993) climate-related characteristics of comfort are practically quantifiable and there is a need to be part of street design (Jacobs, 1993).

Natural Lighting:

In urban design theory there is circumstances which define desirable condition related to the above mentioned cases. Sunlight level is one of the essential cases in urban design decisions in such a way that its penetration into public space and even buildings make them more comfortable and pleasant. It increases outdoor activities; encourages plant growth; decreases mold growth while improves health by offering vitamin E for body. Additionally sunlight is a cheap readily accessible source of energy for active and passive assembly. Its value and situation also changes by varying seasons in such a way that places which are desirable in the sun at some time of year, at other seasons may be preferred by shades (Carmona, 2003).

As mentioned above natural lighting have significant role in character and utility of open spaces; as such play of light in public open spaces can have aesthetic dimensions. Also the amount of visible sky is essential for quality of day lighting.

Wind Flow:

Such as sunlight in the street, wind flow has considerable influence on satisfying pedestrians; while affecting the environmental situation in public spaces and also surrounding of buildings and their entrances and the activities which may take place there. Wind flow in open spaces can works cooling air in very humid climate, if it has been guided well; while in dryer climates, in public open spaces water features such as fountains can be helpful in cooling air through evaporation of water vapor (Carmona, 2003).

Shading:

Everywhere people search for comfort while understanding it; seeking out shady or sunny places according to various climates can easily prove it (Jacobs, 1993). Physical circumstances, such as organizing of space, use of buildings and trees,

walls, arcades and canopies to have shade and shelter, and their design which have influence on the experience and usage of streets are useful to make situations more acceptable. However these favorable qualifications may change by seasons, and also by activities are happening there (Carmona, 2003).

As Jacobs states: “The best street are comfortable, at least as they can be in their settings” (Jacobs, 1993, p. 275). Offering sunlight and warmth when it is cold and providing shading elements and coolness when it is hot. It is important to provide reasonable protection from elements while avoiding or negating the natural environment. A well-designed street also provide shelter from wind.

2.3.10 Elements of Streets

In addition to all physical characteristics there are also three-dimensional elements within the street. These elements also contribute to the quality of streets and can be mentioned as:

1) Street furniture
2) Artificial lighting
3) Greenery
4) Public art.

These elements separately are explained in detail in below:

2.3.10.1 Street Furniture

Street furniture contains hard landscape elements. Street furniture can be defined as: “The overall tools and equipment placed in urban public spaces like street lights, signs, symbols, benches, monuments, public art, planters, telephone boot bank and bus stop etc. In urban space all the stationary equipment and built in element with undetermined or variable user and designed for various open air functions, have been

called as street furniture." (Hacihasanoglu, 1991, p.330) Quality and organization of these elements moreover to the way of their contribution to identity and character are the major indicators of quality of any urban public space. In addition street furniture can set expectations and quality standards for development of an area.

Although street furniture is necessary to the public realm, many of them may frequently distributed with a concerns for their general consequence, resulting in functionally and visually cluttered urban prospect. Gillespies (1995, p. 65) offers a set of six general principles:

- Design to incorporate the minimum of street furniture.
- Wherever possible, integrate elements into a single unit.
- Remove all superfluous street furniture.
- Consider street furniture as a family of items, suiting the quality of the environment and helping to give it a coherent identity.
- Position street furniture to help create and delineate space.
- Locate street furniture so as not to impede pedestrians, vehicles or desire line.

2.3.10.2 Artificial Lighting

Moreover to natural lighting, artificial lighting also have a positive influence on the value and character of open spaces. However these lighting is frequently used for vehicular traffic and is inefficient in the use of energy which causes light pollution. Artificial lighting has two main functions as:

1. The first one comes as statutory lighting which as basic lighting level; can helps pedestrians to find their ways, increase the security of public space at night and separates the safe pedestrian path from vehicles lane.

2. Amenity lighting is the second function of artificial lighting; to improve the sense of street through features, flood and the lower level of lighting. They bring liveliness through shop lighting, signs and seasonal lighting at nights.

In addition wide range of light sources- light of buildings, street lights, shop signs, etc. - helps the lighting of street at night; however this collection needs careful deliberation in meeting statutory and amenity needs (Carmona, 2003).

2.3.10.3 Greenery

As well as hard landscaping, soft landscaping is a crucial factor in formation of character and identity of an urban space. Vegetation and trees can inspire changes of season; deciduous trees can change the character of space during different seasons, while improving the legibility of urban environment. By landscaping it is possible to add coherence and structure to disparate environments albeit in an aesthetic manner (Carmona, 2003).

Using vegetation and trees in an urban space make a contrast with the hard urban landscape, moreover to create a sense of human scale. When trees are lined in a street, can be mentioned in parallel to buildings as factors defining the street space. Trees can also reinforce or make a sense of continuity and enclosure in some streets, while in any urban areas trees need to be designed positively. Moreover some streets may be remembered and identified by their trees (Jacobs, 1993).

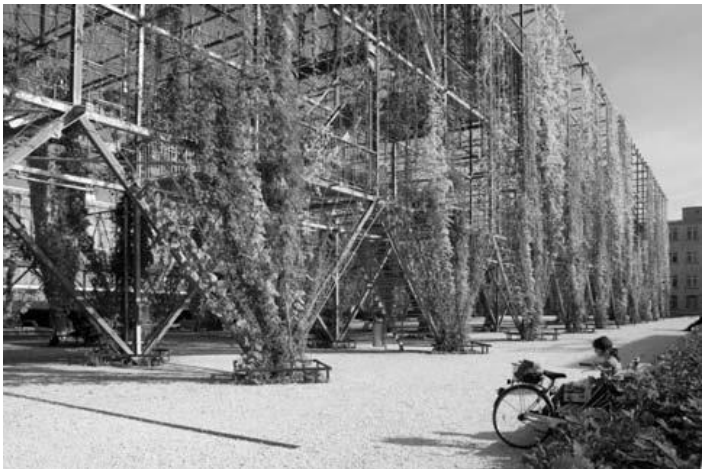


Figure 29: Combination of hard (buildings) and soft (trees) landscaping (Carmona, 2008, p. 152)

It can be said that usually this is sidewalk which are used as separation border for pedestrians from vehicles from protection point of view. Although sidewalks may separate them physically, they do not induce a sense of safety. By adding trees which are close enough together in sidewalks, make pedestrian zone separate from vehicle zone which is more safe (Jacobs, 1993).

Figure 30: trees in line create a border in street space, (Carmona, 2008, p.150)

The three-dimensional effect and somehow the floorscape pattern of urban spaces can be improved by tree planting; and may strengthen the sense of spatial containment, and create space in space.

Mostly deciduous trees are preferred to the evergreens for the streets; because such trees let sunlight to reach street and its sidewalks in winter while it is cold and more needed while their denser leaves, than evergreens, in summer when weather is hot offer shade to the pedestrians (Jacobs, 1993).

On other hand, air quality is very important factor in open spaces, through which vegetation and trees work as air filter in these spaces whereas rainfall scrubs it. This is happening whilst air pollution is like to damage and kill natural vegetation in high condensation areas. However well air circulation around building and through urban space is necessary in disappearing air pollution; but this regulation may be in contrast with sense of enclosure in public open spaces (Carmona, 2003).

Providing shade, making the street more viable walking environment are the positive points of planting as well as decreasing heat build-up from huge asphalt areas and creating cooler microclimate and providing oxygen and comfort. Furthermore green from psychologically viewpoint is agreeable and restful color.

In this approach Calthorpe states: “Street trees should be spaced no further than 9 meters on center in planter strips or tree wells located between the curbs and sidewalk. Tree species and planting techniques should be selected to create a unified image for the street, provide an effective canopy avoid sidewalk damage and minimize water consumption.” (Calthorpe, 1993, p.96)

2.3.10.4 Public Art

Public art can be mentioned as any artistic features which is designed to exhibited in public domain and be accessible to all. Public art can be presented in all types and size of art; it can be a fifty feet height tower or a small painting on pavement, either

abstract or realistic (URL6). The history of public art goes back to the Antiquity which contains different stone works however, nowadays public arts can be found in various forms such as painting, sculpture, etc. in different materials like plastics, stained glass, ceramic, mosaic, etc. (URL7).

Figure 31: Public art in Bratislava, Slovakia
(Carmona, 2003, p.162)

Public art is distinguished in terms of where it is made, how it is made and what it means. Public art can be presented to identify community values or enhance the environment, question people assumptions, heighten people awareness, or transform a landscape. Public art in an urban context is a part of the public history of a society, its culture and the collective memory of its people (URL6). As a result public art can be part of a street besides to its furniture and greenery while enhancing the quality of the street space.

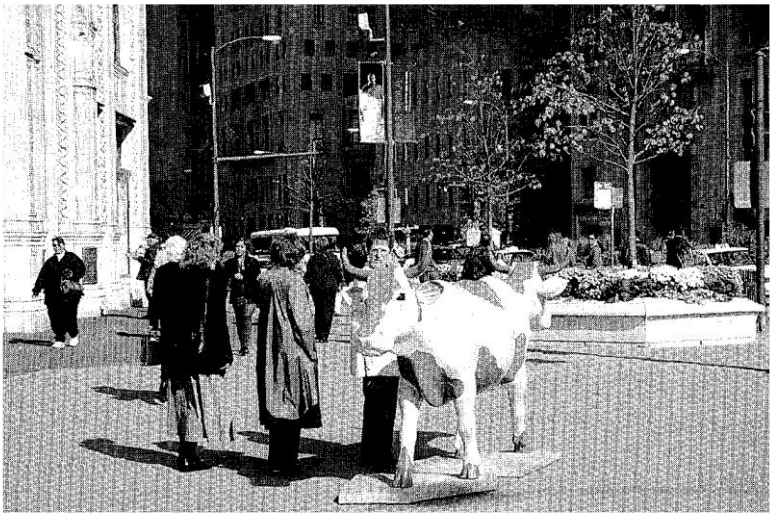


Figure 32: Chicago, Illinois, USA. (Carmona, 2003, p. 168)

2.4 Functional Characteristics of Streets

Although streets contain various physical characteristics such as long or short, straight or curved, enclosed or open, long or narrow, they have two main roles, which is directly related to its form and are at the same time both path and place. The function of street as place should not be overlooked while in common practices the street is recognized as route for motor vehicles as well as pedestrians (Moughtin, 1992).

Before being a road for vehicles in a time of fewer cars and for many generation street was being worked as an urban community by public open space exactly outside homes. In that sense Jonathon Barnett says: "A second element basic to any public open space plan is to recognize the importance of streets as the framework of public open space" (Barnett, 1982, p. 168).

On the other hand, streets can be considered, as a place more than a simple pathway; it is somehow a series of connected places with different functions, a place for staying in but not only for moving through. In the ancient times, a street was a small

universe as Norberg-Schulz states, street in the past was a place that the character of district and even the town as a whole was offered in a condensed form to a passerby. A Street may present a section of life while history had shaped its parts (Norberg-Schulz, 1971, p.81).

To Rapoport streets are: “The more or less narrow, linear spaces lined between buildings found in settlements and used for circulation, and sometimes, other activities.” (Rapoport, 1987, p. 81) It is shown that streets are primary designed for movement of people. Lots of different functions take place along the street simultaneously (Shamsuddin, 2011).

People expect streets for various kind of activities such as leisure, social, and functional (Mehta, 2006). According to Gehl (1987), having opportunity to socialize and accessibility are the main two significant activities people expect in streets to have advantage from transmitting and interacting with each other by greeting, meeting and shopping (Gehl, 1987). Reviewing various literatures shows that designers and planners mostly consider the role of street being accessible and having social interaction for cohesion, awareness and contact (Mehta, 2007).

2.4.1 Mixed use and Density in Streets

It can be said that one of the requirements of vitality in streets is having adequate density of activity and peoples; also it can be useful creating and sustaining feasible mixed use. According to Jane Jacobs density has crucial role in city life (Jacobs, 1961, p. 163). Diversity is needed in a street; diverse uses in street make it alive by bringing various people for different purposes to the street.

Hence to create a well-used and lively street, there is a need of spatial and temporal concentration of various land uses and activities. As an answer to the sterility which is the result of functional zoning policies, mixed use planning has been accepted as urban design objectives. Mixed use in urban areas can be in both form as: mix of single-use buildings or buildings in which mix of uses can be found which the second one is more accepted (Carmona, 2003). As a proven subject according to Jacobs vitality of city streets is directly related to the interweaving and overlapping of activities; and as an essential phenomena, should be familiar with city`s requirements in dealing with mixture or combination of mixtures of uses (Jacobs, 1961, p.155).

She suggested four conditions which are crucial for generation of exuberant diversity in street of a city, as are mentioned below:

- Streets should serve more than one or if possible two main functions in streets.
- Blocks must be short; to make streets and opportunities to turn corners be frequent
- The street must mix buildings that are different in age and condition.
- There must be appropriately dense concentration of people, intended for any purposes that may be there (Jacobs, 1961, pp. 162-3).

In the sense of mixed-use development, Llewelyn-Davies (2000, p. 39) ascertains the below mentioned benefits:

- Create more appropriate access to facilities.
- Make more opportunities for social interaction.
- Socially diverse communities.

- Feeling more safety over more 'eyes on street’.
- More energy efficiency and further efficient use of space and buildings.
- Greater consumer choice of lifestyle, building type and location.
- More urban vitality and street life.
- Increase in viability of urban facilities and support for small business.

So it is obvious that mixed use development empower walking in daily life and also enable choice in travel mode, hence it would be more sustainable and comprise more lifestyle varieties; however mono-functional development frequently provide car-dependency and decrease varieties (Carmona, 2007).

According to Duany et al. (2000, p.25) in mixed use street one may live next to a store or above a store or even five minutes walk from a store which somehow make people to walk to eliminate their needs whereas in functional zoning in residential zone while there is a need for shopping one requires a car to reach the shopping zone.

Along with mixed use, density along a street can bring high quality of life by reducing energy and resource consumption. As Llewelyn-Davies (2000, p.46) mentioned higher density developments can bring a below benefits:

- Social: higher density can encourage positive interaction; increases viability of community service and eases access to it.
- Economic: higher density improves the economic capability of development while providing economics of infrastructure like basement car parking.
- Transport: providing higher density also supports the public transport while decreasing car travelling and need for car parking.

- Environmental: higher density as mentioned before also increases energy efficiency in parallel to reduce resource consumptions; cases to create less pollution; reduces the need for development land Llewelyn-Davies (2000, p.46).

Jacobs (1993) believes that more buildings along a street contribute more in street life than fewer buildings, also it can be said that diversity can be provided by having more buildings. According to Jacobs two kinds of diversity along a street can be found which are physical and social; both of them are recommended while the first one may bring the second one. More buildings means more architects with various design strategies and more participants. More buildings brings more owners which do things differently and modify them variously during time. In general it can be said that ta have more diversity there is a need to have more buildings to provide more uses and activities (Jacobs, 1993). It can be resulted that more buildings lead to have higher density in streets.

Although in some cases higher density may cause poor quality environments, the principles of a high quality urban design is achievable and also essential in protecting amenity and providing more livable environment (Carmona, 2003).

Even though higher density is recommended, Jacobs (1961) states that proper city density is preferred. In parallel Llewelyn-Davies (2000, p. 46) recommends that the aim must be to create a mass of people in order to support urban services for example local shops, public transport and public facilities (Llewelyn-Davies, 2000, p. 46).

2.4.2 Active-Passive Edges in Street

It is important to talk about active and passive edges while talking about functions in a street. Function of each building along a street should be in such a way that provide active relationship with its users instead of being a blank, passive edge without any activity.

The public edges of buildings are the most important part of edge in a street which should be in such a way that buildings touch the street and propose an active frontage to the public space; while improving interest and vitality in street. Windows and doorways in building façades remind human existence; in such a way that views into buildings interests every passer-by; on the other hand eyes on the street would bring more safety (Carmona et al. 2003).

Public edge of buildings must house activities that advantage from communication with the public realm and participate to vitality there. Richard MacCormac (1983) concerns about the 'osmotic' properties of streets, which shows the way of percolating activities through buildings and fill the street with life. As he claims some land uses may have weak relationship to peoples in the street whereas others engage with peoples and make them involved. However this may not mean that the less active land uses have no place in urban areas just because of their fewer claims to street frontages and public places. To create livelier and busier space, it is needed just to add more interactive uses just around them (MacCormac, 1983).

MacCormac (1987) expresses a variety of uses which support the liveliness of a public realm. At greater collaborations end of range were street markets; cafes, restaurants, bars; housing; shops and small scale offices; and small scale industry. At

the other end were warehouses, car parking, large scale offices, large scale industry, supermarkets and blocks of flats (MacCormac, 1987).

In contrast to active frontages there exist blank frontages which can be said that these parts of street in addition to deaden part of the street, they breakdown the continuity of experience in street which is essential for the rest of it (Carmona, 2003).

Buildings with large mass which occupy a large space of façades in a street edge and employ a single entrance have a mostly deadening impact on streets. To have solution to this problem in ancient time, large building such as law courts, churches and theatres which have little contribution to street life, were often set into urban fabric to have limited attendance on the street frontage (MacCormac, 1987).

2.4.3 Accessibility and Permeability in Streets

It is not possible to ignore the most important purpose of streets is to allow one person to get from one place to another, which may not only to be in the same street but also from one part of the city to another whether in a vehicle or on foot (Jacobs, 1993).

In parallel to accessibility, permeability also is a concept in which environment offer people a possibility of access to places while offering attractive spaces in which social interaction will improve. Tibbalds define permeability as “the freedom in which a person can walk about and look around in the urban space” (Tibalds, 2001, p.49). Quality of physical character of the space such as slope, number and width of possible channels toward a place which should be visible as well. Small blocks by providing physical and visual permeability try to improve users` awareness of the

existing routes. Hence reducing permeability may cause by increasing the scale of the development (Bently et al. 1985).

From accessibility point of view there is another type of street accessibility which is needed to be mentioned here; which is getting to the street for people should be with ease. A good street should be easily found and got in, within the city or in their local context. This accessibility can be provided by walking, public transit, whether crossing, along or under them. According to Jacobs (1993): "Accessibility is also a matter of public access at places along the street, by intersecting or crossing streets or public ways" (Jacobs, 1993, p. 302).

Another important kind of access which needs to be mentioned is for handicapped people which most of the streets in the world are not designed by having this in mind, however some of them try to accommodate wheelchairs with ease and have places to rest along them. Being relatively decipherable for visually handicapped people is another important kind of access. Providing the most elemental sense for handicapped access is possible by adding ramps to sidewalks and wherever is needed which is easy to provide in streets (Jacobs, 1993).

In this sense Carmona (2003) states that physical barrier somehow can prevent the disabled, elderlies, pregnant women, parents with young kids in pushchairs, etc. to use public realms. It has been observed by Imrie and Hall (2001, p.409) that disabled people have a tendency to understand the built environment while it is as an obstacle course for them. For buildings, pavements and height differentiations there is a need to be accessible for wheelchairs; also where there is a need, built environment should contain color contrast or tactile coloring to help vision impaired people to use the

environment with ease. “The design of specific items, such as doors, handles, and toilets, are also standardized to the point whereby many people with a range of physiological and/or mental impairments, find them impossible to use” (Hall and Imrie 2001, p.409).

Unfortunately there is little awareness of handicapped people`s need by most of built environments professionals. As a result disabled people are mostly separated from the built environment and in parallel they are alienated from the developmental and social process underlying it (Carmona, 2003).

It also happening for all groups of people not only for disabled while nowadays in many modern city streets peoples are have to stay in their privacy of their homes or move in their own private vehicles; this is happening in some places, because of streets which become so unattractive and a place of danger for peoples. In a way that Alexander hopes to see an end to this condition and states: “Streets should be for staying in, and not just for moving through, the way they are today.” (Alexander, 1977, pp. 590-591) To make streets an enclosed space for staying in not to pass through, Alexander also suggests to make the ends of street narrower and create an attraction in the middle of it as a center.

Discussing about street and path reminds a physical space which works as route for vehicular traffic; whereas street more than being physical element for city, it is a social fact. Its three-dimensional physical form prevent street to be a place of certain activity and make other activities possible, while it may not provide a social structure. Street also works as linkage between buildings along a street space or in city scale. So the movement of people either as pedestrians or in vehicles and also

transporting goods to sustain a wider market is the result of being a linkage between buildings and other streets (Moughtin, 1992, p. 131).

Facilitating communication and collaboration between people and groups may be the less tangible function of streets than the others. However, it can be said that streets, in addition to being a means of access, is an arena for social interaction. In this sense Jane Jacobs, believed that streets and sidewalks can be considered as not only the main structure of a city but also are the basic public space of a city (Jacobs, 1965). So it can be said that street`s expressive function is a site for occasional interaction which can be mentioned as conversation, recreation and entertainment. This function of street is more obvious in suburban area which street is a place for social aspiration (Moughtin, 1992).

It also should be considered that street is a common area which works for a group of various people not only one family. This feature somehow creates a closed social system which has distinct boundaries even with acting as a public thoroughfare to other areas (Moughtin, 1992, p. 131).

To have a more active street it is important to make it convey for many of pedestrian to use it in various ways; and this happens by having efficient density to prevent or decrease use of vehicles in street and to support some kind of facilities which are possible to put them in walking distance, like shopping and schools. As a result variety of land uses encouraging many activities is essential for a lively street. It may reduce the tendency for social contact in the street by eliminating non-conforming land uses from a residential district (Moughtin, 1992, pp. 130-133).

Definite form of pedestrian-vehicular contact is conditioned with function of street. Although complete separation of pedestrian and vehicular may be risky for development of an active and lively street, achievement of pedestrian areas rely on diversity of attraction they propose to pedestrian in order to have reason for staying there. It is also important for a pedestrianized area to have good and well-defined access together for private and public transport. It is also necessary to separate the pedestrian traffic from high-speed traffic movement (Moughtin, 1992, pp. 130-133).

Needs for new roads is always exist while many observers support the idea of working street as both a connection and social space instead of separating elements in city. Also the role of street as a place which enhance the quality of public life and street and its sidewalks can be consider for social purpose is highlighted by many commentators. Loukaitou-Sideris and Banerjee (1998, p. 304) express instead of or somehow in addition to considering street as a "channel for efficient movement" or as an "aesthetic visual element", urban design "should rediscover the social role of the street as a connector that stitches together and sometimes penetrates the disparate downtown realms" (Loukaitou-Sideris and Banerjee, 1998, p. 304).

Successful public places usually have animation and vitality within them. As Jacobs argued bringing people onto the street created animation and vitality (Jacobs, 1961).

As mentioned previously street is a multi-functional space which provides enclosure and activity beside to movement and has some elementary function as:

- Circulation for all users group (pedestrians, vehicles and cyclist);
- Ease of movement;
- Access to buildings;
- A route for facilities;

- Storage space, generally for automobiles;
- Public space for human activities, providing different kind of opportunities, and marching and gathering.

Practically all street carry these function sometimes there is balance between them by varying along street. It may be possible that all aspect come together successfully at the same time in an ideal street, though most of the time one of them which usually is movement of vehicles become dominant (Illustrated Urban Design Principle, 2010). As a conclusion it is possible to categorize street function into three main types: container for traffic movement, social activity, the good exchanging.

Functional Changing Process of Street

In a time that the major type of transport was on foot or by horse, the movement domination and social space was considerably overlapped. However nowadays changes in methods of travelling causes the high level of separation of vehicular movement space from pedestrian movement and social space. All at once, public spaces became domination for cars and social features of street repressed in a favor of vehicular movement and circulation. To compare vehicular movement is just circulation; in such a way that chance of social interaction only takes place on one occasion that a car has been parked, because the more focus is on destination instead of journey (Carmona, 2003, pp. 72-77).

As it is obvious recently many changes have occurred in the lifestyle of many huge cities, in addition to their changes in travelling style. It can be said that almost thirty years ago, many women as housewife preferred to walk to shop, or walk the children to school or even spend more time in public spaces to have social interaction; however nowadays most of them have different roles in their life such as being co-

working family partner or head of a single parent family, and as result of this situation and lack of time more trips are done by car and most of social interactions may occur in destination instead of during trip (Moughtin, 1992, p. 131).

Albeit there is a possibility that cars turn to be the only linkage between inside homes and the world outside, in residential districts which are dominated by cars; as a result detachment related to the high level of privacy for single dwellings and isolation of each home may be strengthen (Moughtin, 1992).

Jacobs points out about empty streets which are result of car domination, public spaces become donated to thug, robber and rapist. As a result of this situation and as a reaction, people may request for privatization of public street and be controlled by private security force. This condition leads the city to be labelled as an unfriendly, extremely defended private domain where the ordinary write of public law may does not run (Jacobs, 1965, p. 41).

As a consequence to the domination of streets by cars, it is expected that private cars may become the most important means of transportation in cities for the next 20 years; so more volume of traffic needs larger roads. If there is no limitation for the improvement of vehicular traffic, streets will lose its role as public space for social communication soon and stay only as a road for vehicles (Moughtin, 1992, p. 131).

While streets become only roads for vehicular traffic there would be a plea for accommodating fast-movement vehicular traffic; and as a result the finely meshed grids of streets would change to road networks around super blocks. There was less

conflict between social space and request for movement, in a time that the major transportation was by foot (Moughtin, 1992).

Accommodating cars in traditional street cause replacement of social space by movement space which happens because of safety and traffic flow; however in order to have sustainable street design, it is essential to consider patterns of development which can accommodate and integrate the requirements of the different movement systems, while supporting social interface and exchange. A multi-purpose street shared by pedestrians and vehicles with a pedestrian priority which both movement area and social space can have considerable overlap, is needed while tensions and conflicts between public space`s role as social and movement space (Carmona, 2003, p.79).

2.5 Social Characteristics of Streets

Physical planning can be considered as the art of producing a physical environment with the aim of fulfilling different requirements of human beings while during history its requirements have changed radically from the first man settlements in comparison to the present urban life. In this sense Gehl (1971) believes that urban spaces created to be lived in, as a result should be designed in such a way that encourage optional public use (Gehl, 1971).

Development and transformation of streets as an important part of cities are affected by social problems in urban context. Social problems have been a part of urban society of all time. Through the history industrialism brought inhuman social environment to the working class of the societies. Rationalism create new urban setting for better social life by separating residential and industrial areas. Modernism bring the garden city movement which besides to all of their ideas they believed to

complete separation of pedestrians and automobiles (Broadbent, 1978). The town scape movement rehabilitate the street as a legitimate factor of civic design (Moughtin, 1992). At this time the street gets a more important role in city by redefining the enclosed street space both to make it more attractive and to get promoted status for its social possibilities and activities. As Cullen (1961) states: "Inherent feeling of safety and social bond had much to do with the obviousness and simple order of the form of the street." (Cullen, 1961)

Nowadays the relationship between urban environment and human being is becoming very important in designing urban spaces. As Gosling and Maitland (1984) believe, "Cities are growing without planning or some parts of cities denied or destroyed. This situation imperils the fundamental cohesion of the traditional urban structure and visually amplifies the city`s state of aesthetic degradation." (Ozkanli, 1998, p.56)

Street is a kind of urban environment which give a focus of activity and specific quality to urban block. Street and its interesting elements create memorable images in the mind of the passer-bye (Ozkanli, 1998, p. 56). Similarly Jacobs states "The best streets are those that can be remembered." (Jacobs, 1961, p.10)

Jacobs also asserts that the best place for social and commercial meeting and also exchanging is street because it is a place where people meet each other. Then she states: "The street is movement: to watch to pass, movement especially of people of feeling faces and forms, changing postures and dress." (Jacobs, 1961, p.5)

2.5.1 Human Activities in Street Spaces

Human activities can be considered as definite behavioral performances which are somehow a response to the environment and are affected by cultural, socioeconomic, physical and climate aspects (shamsuddin, 2011).

Human activities are essential subjects which are related to the place character (Gehl, 1987; Carmona, 2003; Lang, 2005) and act as a component of a good place (Canter, 1977; Montgomery, 1998). Livability in a street is directly related to people attendance and interaction in terms of human activities. Understanding all the activities that people contribute in a public space is important in identifying the qualities of that space (Shamsuddin, 2011).

Rapoport called street as a linear space between buildings and then states it is a "Setting in which a specified set of activities occur." (Moundon, 1987, p.81) So it can be said that numerous day-to-day activities which are functional for living can be done in streets.

Outdoor activities according to Gehl are divided in three main categories which each of them have various demands on physical space and are named as: necessary activities, optional activities, and social activities (Gehl, 1971) which are explained as follow:

- Necessary activities as its name are more or less obligatory and essential to participate and take place without considering physical environment. To exemplify everyday responsibilities and pastimes are categorize in this group. This category among others contains the majority of compulsory activities related to walking and shopping.

- Optional activities are those that participated in while there is a desire and if place and time make it possible. These activities occur while the exterior conditions are ideal and welcoming. This category of activities is particularly dependent on external physical conditions; such as strolling, sitting, and sunbathing.
- The third category named as social activities which depend on the existing of other peoples and high quality of public spaces which can also be named as resultant activities, since they almost in all cases develop from activities linked to the other two groups. This group of activities takes place spontaneously and as a result of people moving around and being in same space, such as talking and watching people (Gehl, 1971, 1987).

All these outdoor activities can be regarded also for streets as they are the most important public open spaces for cities.

Another classification of activities which is presented by Moundon (1987) separate the pedestrian movement and non-pedestrian movement:

- Non-pedestrian movement: This category contains wheeled vehicle movement. Cars, bicycles, buses and other kind of vehicles, also in some periods and cultures animals may involves in this category.
- Pedestrian movement: This category divided in two principal types:
    - Dynamic pedestrian behavior: such as walking and strolling
    - Static pedestrian activities: such as sitting and standing, laying down, squatting, playing, working, eating and drinking, sleeping, etc. (Moundon, 1987, p.83).

2.5.2 Factors Affecting People Attendance in Streets

Successful public spaces are described by people attendance, in many times of self-reinforcing process. Public spaces including streets and squares are mainly discretionary environments which people have to use them and possibly could choose to go elsewhere; so to become populated and active, they must propose what people want, in a lovely and safe environment. Four key characteristics of successful public places are mentioned as: comfort and image; uses and activity; access and linkage and sociability (Project for Public Space, 2001).

In general human activities happen in a well-defined physical base which depends on the environmental settings to support them (Shamsuddin, 2011). Whyte and Gehl define situations as the major focus of public space, for people, to feel comfort and spend their time in a comfort space participating in various activities (Whyte, 1980; Gehl, 1987). Most sociable spaces according to Whyte (1980) and Gehl (1987) usually have following characteristics:

- A good location, if possible on a busy route and both visually and physically accessible.
- Streets being part of the 'social' space – fencing off a space from the street isolated it and reduced its use.
- Being level or almost level with the pavement (spaces significantly above or below this were less used).
- Places to sit; both integral (e.g. steps, low walls); and explicit (e.g. benches, seats).
- Movable seats, enabling choice, and the communication of character and personality.

Comfort in streets

The successful streets provide the most comfortable space as they can, for their users. In this situation people understand comfort and answer to it by coming to street and use it (Jacobs, 1993). In terms of comfortable streets Carr et al. (1992) states that comfort is one of the basic requirements of successful streets which can be determined by measuring the length of time which people spend there. Dimensions of sense of comfort contain physical factors like enough and comfortable seating, environmental factors like releasing from sun and wind; and the last one is social and psychological comfort. Lang (1994) define comfort as: "Comfort, at minimal level, implies a freedom from pain on all dimensions of environmental experience. Biological comfort has to do with a person`s assessments of the level of stimulation to which his or her body is being subjected" (Lang, 1994, p.221).

Carr`s consideration about comfort is also highlighted by Whyte (1980), which believed that important factors in a comfortable street included sun penetration, the aesthetics of the space, and the shape and size of spaces (Whyte, 1980, p. 15). It is obvious that people in addition to ask for comfortable sitting and standing places, have request for possibility to move freely wherever they wish to.

However according to Shamsuddin climate can be considered as an important issue in describing behavioral patterns and as a result answering to climate issues in an urban setting acquire specific behavioral answers (Shamsuddin, 2011). As Metha (2006) states depend on the impacts of environmental aspect on behavior of human, a suitable microclimate can be presented by shading, wind and sunlight which are important to be considered in public open spaces. As a result microclimate issues which are designed well have possibility to change the natural environment into

preferable situation and make the outdoor activities become sustain while making a comfortable space (Metha, 2006).

Metabolic comfort also is another relative notion which should be mentioned in this part (Lang, 1994). Metabolic comfort in one person can be related to the air temperature, radiation, humidity, air movement, individual`s activity and clothing worn. As a result it can be said that physical and environmental comfort are important factors in streets which influence the livability and vitality of the space.

Access and linkage

It is obvious that a large number of street activities take place when it is convenient and accessible for most of pedestrians to use the street in different ways. It means that while in a street density is high enough to prevent the use of vehicles and to support variety of facilities like shops and schools which can be accessible by walking; activities in that street would increases. On the other hand one of the prerequisite of a lively street is variety of functions and land uses which encourages more activity to the street. To eliminate all non-related functions from the residential area causes reduction in tendency for social interaction in the street (Moughtin, 1992).

Safety in streets

Public life mostly occurs in safe spaces, also safety can be named as one of the basic needs of human beings in environment, and so common streets should be safe for all of its users. Being psychologically secure is essential to be able to control the environment and feel a sense of place, socially and geographically in a place; and the last mentioned need concerns with achieving a security of being bodily safe from physical harm from human or artificial and natural elements. Layout of an

environment offering a safe and secure setting that people can follow their daily lives in such a place is related to urban design projects (Lang, 1994).

While people claimed that a city or a part of it is dangerous what they mean is they do not feel safe in its streets. The most important part of street which need to be safe for people is its sidewalks.

Jane Jacobs believed that safety in streets and its sidewalks will bring livability and attractiveness to the street and can be encouraged by diversity. This safety can be provided by maintaining activities on the streets during the day to late at night, increasing number of "eyes on the street", decreasing monotony on the street, enhance public interaction (Jacobs, 1961), increasing number of people along street, replacing lost spaces along the street by new facilities and public spaces to bring more "eyes on the street" decrease level of darkness in street (Gehl, 2002).

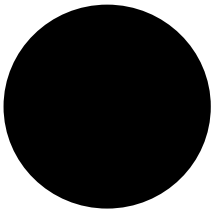
2.5.3 Effect of Environmental Quality on the Human Activities

It is possible to understand the way of necessary, optional, and social activities are taking place in a finely interwoven pattern by looking at street scene as a primary point. People walk, talk, sit and watch. Recreational, functional and social activities interweave in conceivable combinations. Life around buildings is not only recreational or social activity by pedestrian traffic, but also is combination of whole range of activities to make public spaces in residential areas and cities meaningful and attractive (Gehl, 1980, p. 55-60).

Streets which have poor quality can be host of bare minimum activities and people usually have no tendency to stay there and hurry to home, in contrast a broad range

of human activities take place in a completely different and well-designed environment (Gehl, 1971).

Table 2: Environmental Quality Impact on Human Types of Activity, (Gehl, 1971)

	Quality of the physical environment	
	Poor	Good
Necessary activities		
Optional activity		
Resultant activity (Social activity)		

The character of outdoor activities is significantly affected by physical planning however as it is seen in table 3 the impact of physical factor of environment is very low on necessary activities, since they seem to be crucial for continuing life. In contrast while outdoor area has good quality, optional activity takes place with increasing frequency. Moreover as a result of rising levels of optional activities, social activities also increase substantially. Our perception of space can also be defined by activities; since while people prefer to stay in a space instead of passing through, the space seem to be more livable (Carmona, 2003).

In addition to the above mentioned factors which influence the outdoor activities, other factors that may be effective can be listed as below:

- Social activity will increase in streets with more offered functions than others.
- Variation in the use of streets is directly related to the total number of shops and commerce.
- Service offers create social activity.
- The more restaurant and eating facilities bring more social life.
- Public transportation facilities have great impact on increasing social life.
- Pedestrian ease of movement is more important than bicycle accessibility.
- Being close to the main shopping area of the city center have great impact on the level of social activity.
- The size of area designed for pedestrians, the place and number of bus stops and the number of shops and service facilities which affect the social life seem to be important to street life.
- Weather conditions normally affect the optional activities more than the necessary and social activities.
- It seems that in streets with attractive offers for public, high level of air and nose pollution have no effect on reducing social life.
- Traffic barriers such as heavy vehicle traffic and fences which decrease freedom of movement, reduces the activity behavior (Lillebye, 1996).

According to the above mentioned factors it can be said that conditions as well as the physical environment quality affect the social life in streets, as a result to strengthen street as a social arena three main steps needed to be considered:

- To have variety of activities in the street.
- To have good and defined accessibility to and within the street.

- To provide a suitable level of motorized traffic which do not influence the social activity (Lillebye, 1996).

2.6 Criteria for Sustainable Streets

Cities can be named as the basis for cultural and social changes, in parallel to housing international economy. Streets as main component in forming cities along with working as both place and path for it can be also considered as the house for social, cultural and economic changes in cities. However, nowadays because of increasing in car dependency such a balance has been ruined and as result many problems in relation to urban living have been developed like air and noise pollution and accessibility difficulties, etc.(Rowe, 2001). It can be resulted that although there are many characteristics which have been mentioned in previous parts of this chapter in order to become a well-designed and popular street, there are other factors that have important role in street livability.

Alexander (1965) and Gehl (1987) believed that city`s livability is directly related to vitality of its street and street patterns are closely related to city livability. According to Litman (2003) streets in cities are public spaces in which people have a chance to interact with their community. So walkable streets is effective in the perception of the community livability. At this step, there is a great need to have study on the concept of sustainable streets or in other words sustainability in street space. However before that the concept of sustainability in urban environment will be introduced.

2.6.1 Concept of Sustainability in Urban Environment

The concept of sustainability can be defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (WCED, 1987). In an urban environment concept of sustainability can be

called as a development policy underneath coordinating or conflicting objectives for a city and its citizens (Finko & Nijkamp, 2001). In general sustainable developments can be evaluated in three sub-systems as: **physical**, **social** and **economic** which according to Elkington (1994) can be mentioned as "triple bottom line".

It can be said that notion of sustainability deal with quality of urban life while emphasizing on equity for the smallest sections of both present and future generations. Sustainability concept has been mostly concerns **social**, **economical** and **environmental** features of an urban space. From this point of view social sustainability is related to the greening of trade, service industry, investment and also improving personal responsibility for all society members. Along with social sustainability, economic sustainability concerns self-reliance with the aim of local equity. The last parameter which is environmental sustainability include practices of the energy management, waste and pollution and transportation (Erem & Sener, 2008).

Designing sustainable space requires a balance between three main basic features which define the space, especially as walking area;

1. The space consumption economics of users which is defined by pedestrian's requirements.
2. The spatial environment which is defined by movement and non-movement relationship in a pedestrian space.
3. The space`s socio-cultural history in order to discover the culture of pedestrian space of the past (Erem & Sener, 2008).

It can be resulted that streets need more sustainable development in which cultural, social and economic dimensions should be balanced in the limits of street environment. In this sense street can be considered as an ecological system in which there is a close inter-dependency between different groups of living organisms and resources that sustain them. Streets woks as an arena for manufacturing, conversation, interaction and exchange of all kinds of goods from cultural to material (Rowe, 2001).

2.6.2 Sustainable Streets

Sustainability concerned with street design play an active role in satisfying inhabitants. In planning considerations of sustainability with urban rehabilitation, pedestrian needs have significance role in planning agendas (Desyllas, 2006).

To promote livability and sustainability objectives some features is needed which can be mentioned as protecting public spaces, providing transportation alternatives, having climate change objectives and regulations, protecting landscapes and natural features, and using natural resources efficiently and responsibly (Greenberg, Carlson, Kanninen, 2011).

In a more general view, sustainable streets are defined as "multimodal rights-of-way" which are designed and worked to produce benefits relating to **movement**, **community** and **ecology**. These three issues together support a comprehensive sustainability agenda accepting the three factors: economy, environment and equity. It can be said that in general, successful street projects need to yield the pedestrian, environmental, economic and traffic variables to create a complete/sustainable street (Greenberg, Carlson, Kanninen, 2011).

As it has been mentioned, the pillars of sustainable streets are movement, ecology and community which are somehow related to dimensions of sustainability that are mentioned as environmental (ecology and movement), social (community and movement) and economic (community, ecology and movement).

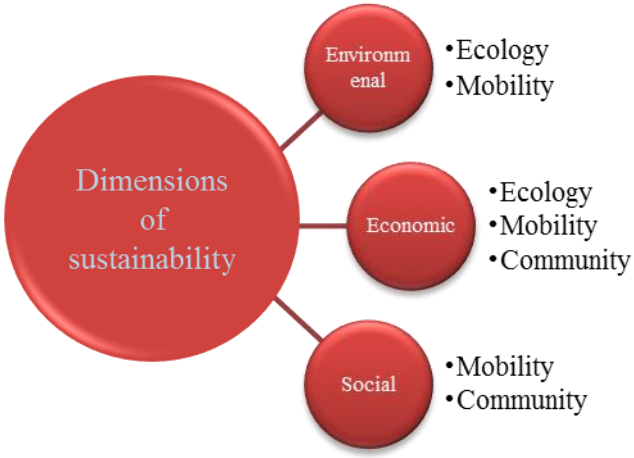


Figure 33: Relationship between dimension of sustainability and sustainable street pillars

Benefits of sustainable streets in terms of each of its three pillars are defined as below:

- Mobility: sustainable streets in terms of mobility link people and goods toward their destination by means of nonpolluting or less polluting ways while reducing in vehicle travels.
- Community: sustainable streets reflect the community values in terms of social, economic, cultural, public health and aesthetic needs as well as supporting the pattern of urban development which reinforce mobility objectives.
- Ecology: sustainable streets increase and also protect natural resources in the right-of-way. In this sense Design strategies should be environmental friendly

in order to reach low-cost maintenance and environmental sustainability (Greenberg, Carlson, Kanninen, 2011).

The following information explore the objective and features of pillars of sustainable streets which are mentioned separately in order to define principals for sustainable streets.

Table 3: Objectives and features of sustainable streets factors (Greenberg, 2009)

	Objectives	Features
Movement	Increasing the level of satisfactory of convenience accessibility and reliability	Highly connected multimodal network
	Reducing vehicle miles travel by increasing non-motorized and transit mode	Highly connected networks for walking, biking and transit
	Controlling vehicle speeds suited with context, community goals and energy	Enough parking lots
	Creating independent mobility	Easy street crossing
	Providing necessary access for emergency vehicles	Access for emergency vehicles
	Reducing spending budget on travel	Speed reduction by suitable street design
	Reducing travel-related fatalities and injuries	Suitable land use pattern with various activity
	Increasing active travel in parallel to providing high level of accessibility	
Community	Place-making: identity, beauty and distinction by natural and built environment	Public gathering places in or linked to public right-of-way
	Supporting infill and compact development	Narrow carriageway width
	Using local traditions, resources and priorities in design	Community events and festivals in shared streets
	Resulting in positive public health	Distinctive lighting and street furnishing reflecting tradition design
	Promoting sociability and community life	Access to adjoining properties
	Creating value for adjoining properties	Native plant landscaping
	Reducing travel-related fatalities and injuries	Aesthetic environment improvements
		Convenient pedestrian realm separated from moving traffic
		Easily street crossing
		Safe places for transit waits and transfers
Ecology	Improving air quality	Urban forest; other vegetation
	Improving water quality; water conservation	Rainwater absorption
	Increasing ecological health and productivity	Variety of features of bio-filtration
	Reducing negative effects of noise	Permeable and non-reflective paving while reducing paving surface
	Decreasing effect of urban heat island	Use of reusable and recyclable
	Reducing waste	Energy-efficient traffic lighting and signals
	Using overall energy and other resources efficiently	Preserved natural features and landscapes
	Preserving natural features and landscapes	
	Reducing greenhouse gas releases	

2.6.3 Principals of Sustainable Streets

In general there are principles for sustainable streets which are somehow defined based on the objective and features of three factors in a more general view.

1. Creating a street network in which communities and places be supported: Street networks connect people to each other and to their destination while moving goods, wealth and ideas. They also house public spaces and foster economic activities; in general street networks are effective for building a community.
2. Creating a street network in which economic activities are attracted and sustained: street networks offer a framework for a combination of shopping, housing and transportation varieties. In street networks, mixture of culture and commerce can be found while they are magnets for light industry, business, economic opportunities and jobs.
3. Making most of transportations choices: a sustainable street network allow all groups of people to be able travel safety and efficiently with various transportation modes in their community. People should be able to walk, take transit, bike and use a vehicle to get to their destination and get back easily.
4. Integrating street network with natural system: a sustainable street network should protect, respect and improve the ecological system and natural features of its urban environment. Sustainable street networks should concerns a broad range of relationship to natural system whether regional or global.
5. Respecting the existing built and natural environments: scale and orientations of a street in a network should be designed in a way that respect the unique local characteristics of the built and natural environment which include climate, architectural features, history, topography and geography.

6. Walking as the fundamental component of the street network: sustainable street network should be designed for pleasure of people on foot which need finely woven fabric of streets with blocks which provide direct various pedestrian routs.
7. Creating harmony with all transportation networks in urban area: street network is a foundation for evaluation and design of other transportation systems like highways, rails, etc. which a sustainable network has integrated all these systems. It offer flexible mobility legible and easy movement between various modes (CNU, 2012).

2.6.4 Sustainable Street Program

In this section some criteria for sustainable streets are presented in order to introduce a general program for streets and achieve the above mentioned principles.

- Recycled content: Recycling construction waste up to 90% based on total weight and volume.
- Energy conservation: Reducing energy usage by using reflective surface on roads and sidewalks, using sky-friendly lighting fixture.

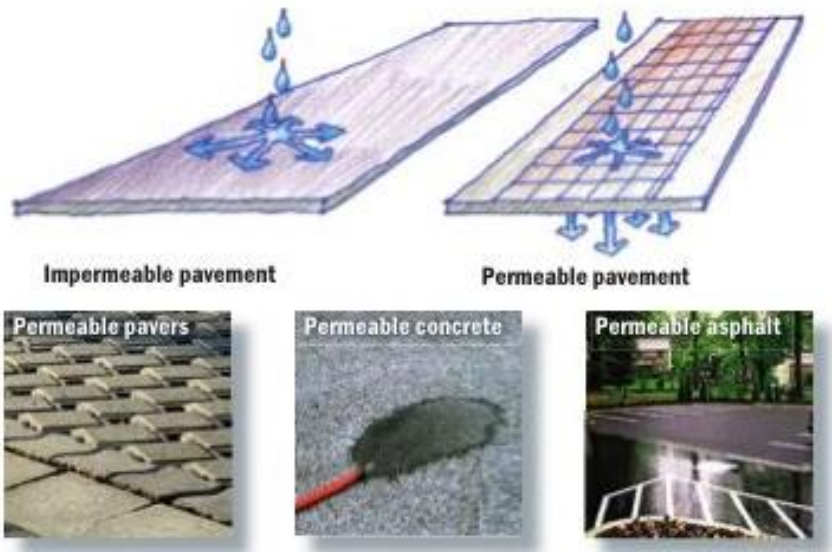


Figure 34: Comparison of permeable and impermeable paving materials (URL8)

- Storm water management: Directing high amount of annual rainfall into the catchment area by using storm water management practices in order to promote infiltration, improve water quality, provide water for new landscaping, reduce the amount of storm water entering general sewer system.

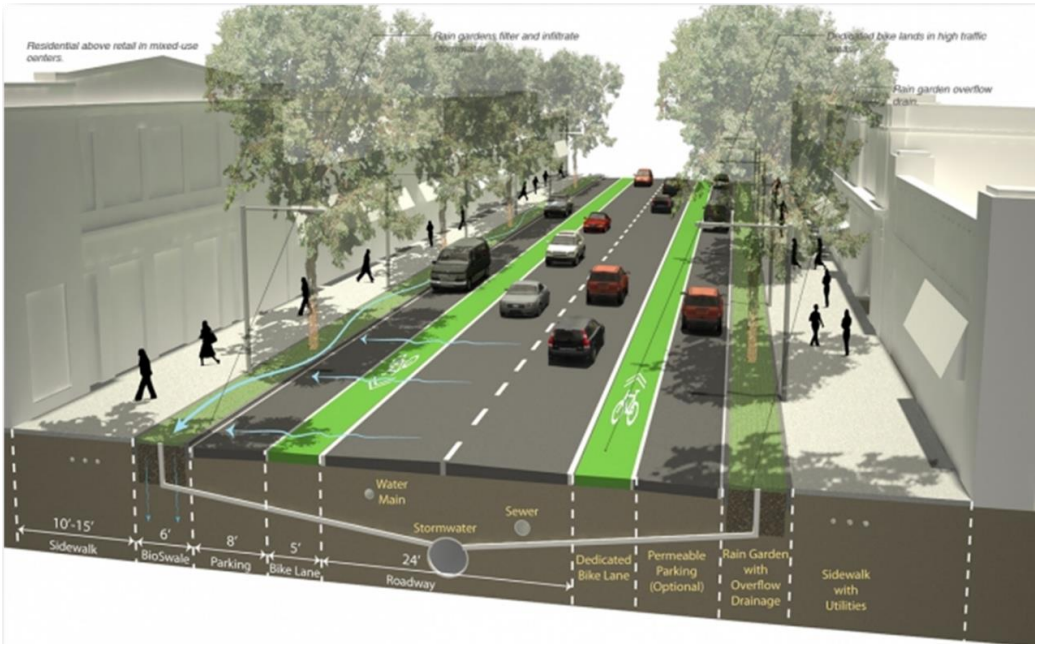


Figure 35: The picture shows the details of a storm water management in sustainable street (URL9)

- Reduction urban heat island: Reducing ambient temperatures of streets and sidewalks during summer by using permeable and high-albedo pavements along with using trees for shading and also increasing landscaping.

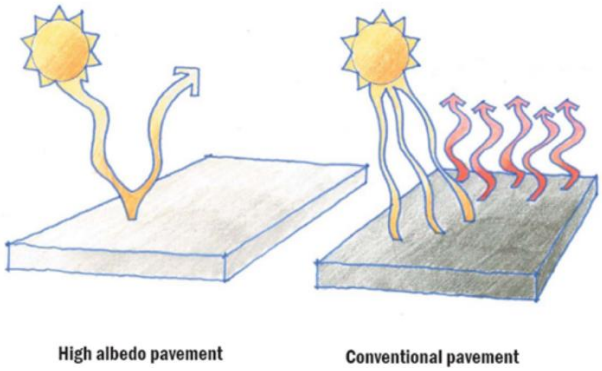


Figure 36: Shows the differentiation between various paving materials in terms of heat reflection (URL8)

- Alternative transportation: Improving bus stops with shelter, signage and lighting where possible while facilitating use of bicycle by adding new bike lane. Increasing pedestrian movements by adding fully accessible sidewalks while improving crossroads.

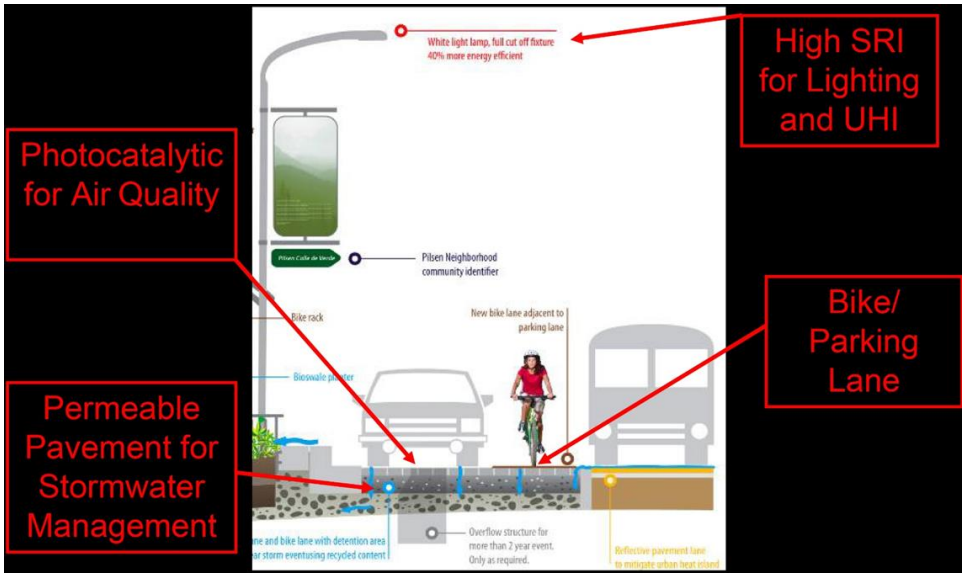


Figure 37: Alternative transportation is illustrated with energy conservation in sustainable street (URL10)

- Beauty and community: Creating opportunities for appealing public spaces which not only are beautiful but also encourage interaction and natural world observation.

- Water efficiency: Eliminating use of sources of potable water for irrigation and improve the use of climate-adapted, drought-tolerant or native plants for all landscaping.
- Education: Highlighting sustainable, innovative design features throughout self-guided tour brochure and public outreach materials.
- Commissioning: Creating a good partnership with governance, municipality and executive managements (Attarian, 2010).

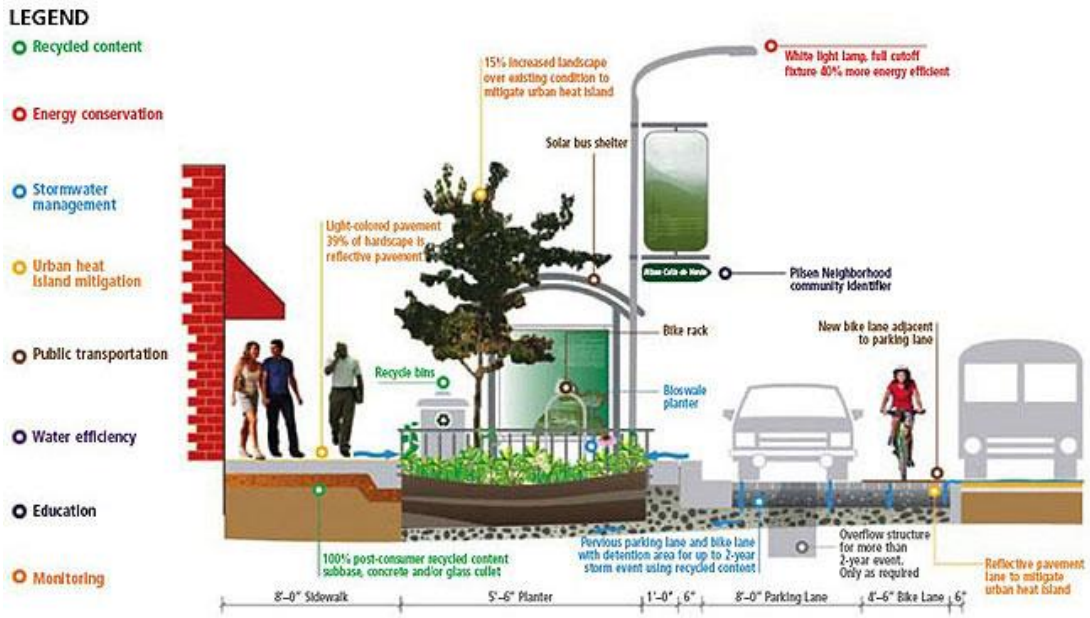


Figure 38: This graphic helps illustrate how a sustainable streets project integrates sustainable principles throughout the design (URL10)

2.6.5 Sustainable Streets Types

Having a review on the multifunctional streets such as smart growth streets, green streets, complete streets, etc. can be helpful in this section. Each type of these streets types are defined by the main focusing on the one or two of the sustainable street program criteria to reach its principles.

1. **Smart growth streets:** this category are designed and worked to promote minimum polluting transportation performance, support compact

communities and preserve environmental resources beyond and within the right-of-way. Principles of smart growth streets are defined as:

- Integrate community, ecological and mobility functions
- Protect environmental resources and processes in street`s life cycle
- Design for context sensitivity which contribute to the natural and built environment character of both immediate and wider surrounding
- Form highly connected network
- Create comfortable environment for gathering, lingering and walking in shopping districts and neighborhoods
- Design and manage in parallel to suitable speeds and intersections

2. **Complete streets:** are public right-of-way which are comfortable and safe for all users including transit riders, bicyclist, pedestrian and also people of all ages with different situation such as elderlies, children and disabled people.
3. **Green streets:** are generally designed to provide the following objectives:
    - Integrate a storm water management system in the right-of-way
    - Decrease the water volume which is piped directly to the rivers and streams
    - Be a visible element of green infrastructure while contributing in community aesthetics
    - Improve the use of street tree canopy for temperature reduction, storm water interception, air quality improvement
    - Reduce the effect on their surroundings mainly at sensitive areas like where they cross a stream
4. **Living streets:** are vibrant places in which all ages and physical abilities of people feel comfortable and safe in using any kind of travel mode such as

automobile, transit, walking or biking. The main concept of such street is to consider people at first in designing (Greenberg, 2011).

In general it can be said that permanent sustainability of streets is resulted from social, economic and technological changes. Understanding these changes in the context of a street is highly related to the three factors which influence sustainability as social, economic and environment. Sustainable streets for survival need to offer setting for social and commerce interaction while respecting to natural environment and supporting ecology of place. In addition social and cultural context in the street should be considered as basis framework to create a safe and livable street.

It can be resulted that sustainable streets work as means to transform the public right-of-way in towns and cities to create harmony between demands of mobility, goals of community and instruction for environmental stewardship. Sustainable streets are going ahead in order to expand the knowledge base, improve design techniques and new tools of planning (Greenberg, 2009).

2.7 Summary of the Chapter

In this chapter according to the understanding of street as a public open space, the concept of public spaces in general and public open spaces in detailed are explained. Following by factors influencing the quality of public open spaces which the most important ones can be mentioned as accessibility to and within the space, from various point of views and for different kind of people; and the other one is movement through space.

In the next step streets are explained in terms of public open spaces. Streets is defined as canal for movement of people, vehicles and goods. In addition to

movement other activities take place in street such as shopping, working, living, eating, etc. Then streets are evaluated from three different points of views which are mentioned as physical, functional and social; Physical characteristics are mentioned as factors related to street form, its built environment and the elements which are used in street, in terms of functional characteristics, streets are considered as both a canal for movement and a social arena, streets as social space houses human and social activities. The next part turn to the concept of sustainable streets and define its principles; the most important elements of sustainable street are defined as movement, ecology and community which successful and livable streets houses them in balance.

The table 4 summarizes the contents of the chapter which will actually shape the frame work of analysis of the case study in the coming chapter. Ismet Inonu Bouleverd (Salamis Road), located in Famagusta, as case study is evaluated according to the three different characteristics in terms of physical, functional and social characteristics in chapter three.

Table 4: Street Characteristics

Physical	Functional	Social	Sustainable Streets
• Street form • Street length • Street proportion and enclosure • Street unity • Edge and center in street • Building façades of streets • Microclimate in streets • Sidewalks along the streets • Flooring • Elements of street: 1. Street furniture 2. Artificial lighting 3. Greenery 4. Public art	• Land use along the street (mixed-use and density) • Accessibility in streets • Active-Passive edges	• Human activities and people attendance • Safety in streets • Comfort in streets	• Mobility • Community • Ecology

Chapter 3

CASE STUDY: ISMET INONU BOULEVARD, FAMAGUSTA, NORTH CYPRUS

Based on the outcomes of previous chapter, the third chapter will focus on the case study which is Ismet Inonu Boulevard (Salamis Road), as a public open space of the city of Famagusta. Data collection and methodology of analysis to evaluate the case study as a public open space are described in the first part of the chapter and followed by some general information to introduce the case study. In the third part of the chapter, all analysis related to the case area are explained under the physical, functional and social characteristics of the street. The summary of chapter will be presented in the last section of chapter as synthesis of all analysis and characteristics.

3.1 Methodology of analysis

Methodology of this research up to now, was based on documentary and empirical theoretical review. In this chapter the current situation of Ismet Inonu Boulevard (Salamis Road) as the case study area, would be analyzed by three different methods, which are observation, site survey/ site analysis and questionnaire survey.

In this part, based on the theoretical framework of the study, three levels of analysis are carried out: for the physical characteristics, for the functional characteristics and for the social characteristics. The natural characteristics of the street are considered as a part of the physical characteristics.

Physical characteristics are analyzed in terms of locational analysis, street typology, figure ground (urban pattern), street form, street length, street proportions and enclosure, street unity, building heights, building facades, Lynch analysis for legibility, sidewalks, flooring of streets, microclimate in streets and street elements such as, street furniture, etc.

In addition to the above mentioned characteristics people are the ones who bring vitality to streets and should be considered for survival of an urban space. For social and functional characteristics of street, traffic and accessibility analysis, land use analysis, considering necessary and optional activities, active and passive edges and safety/ security analysis are done to understand the needs and expectations of people.

To be able to understand the physical, functional and social characteristics of the street, in addition to documentary survey, three types of data collection techniques and methods have been used as below:

1. Observation
2. Site survey
3. Questionnaire survey

Each of the methods are explained in details coming forward.

3.1.1 Observation

In data collection and evaluating some characteristics of street, observation method of analysis have been used. In microclimate analyzing beside to movement of shadows, the way shadows help people in using street have been observed. The quality of sidewalks, street furniture and legibility analysis which somehow affect the people behavior in street and categorized in physical characteristics of street have

been observed. Observation have been done to understand the way that each function affects the street and affect other functions. Walking along the street in various times of the day and the night in different days of week and concentrating on people`s behaviors help to understand and analyze the socio-economic situation and active and passive street edges.

3.1.2 Site Survey

For physical characteristics, parameters related to street proportion and enclosure, building heights, quality of sidewalks, façades, accessibility, lost space, etc. have been observed and analyzed through photographs and drawings. Site surveying help in evaluating the type and number of trees along the street in natural part. In functional and social parts the land use analysis in two different floors of buildings are done by site surveying method.

3.1.3 Questionnaire Survey

For the parameters such as comfort and safety which included factors like pavement quality and efficiency and appropriateness of street furniture questionnaire have been prepared in order to measure social analysis and testing the user's satisfaction and understanding their expectations from the street and the existing problems be clarified. Questionnaires also has been considered for socio-economic analysis by asking about the efficiency and appropriateness of functions and clarifying user`s needs. In physical characteristics, questions related to accessibility, car parking and generally transportation are asked in questionnaires.

Questionnaires which are written in Turkish and English (see Appendix1, 2 for a copy of the questionnaires in each language) are given to 139 users and 81 shopkeepers of Salamis Road from various groups of society including 90 students, 107 locals and 23 residents. Residents can be defined as people which have only

residency of the North Cyprus and as they cannot be classified neither in locals of the city nor students category they have been categorized as residents in analysis. In total 220 questionnaires are done. The questionnaires contain four main parts; the first part is related to demographic structure of society including personal information of each person. The second part asks questions from users about street usage and working hours of facilities. Physical characteristics of Salamis Road according to literature review and human needs in open spaces have been asked from users in terms of quality and efficiency of pavements, street furniture, greenery and parking lots; this part also contains questions about the existing situation of vehicular traffic from different perspectives. In the last part of questionnaire it has been tried to understand the users` feelings, problems and requests from the Salamis Road; in which some short questions are asked about the satisfaction of pedestrians of the street in terms of efficiency of functions in street, safety of street and adequacy of activities. The questionnaires are arranged to understand the expectations of users from street and to determine the problems of streets and their needs and somehow their suggestions about the street to make the street more successful. To evaluate the results of questionnaires SPSS program have been used.

The table below shows the analysis, topic, techniques and methods conducted and the tools used during the analysis.

Table 5: Analysis, topics, techniques, methods and tools

ANALYSIS TOPICS		TECHNIQUES & METHODS	TOOLS
Analysis of the Physical Characteristics	Locational analysis	Documentary research	Maps
	Street typology	Documentary research	Maps Photographs
	Urban pattern analysis	Figure-Ground analysis	Maps
	Street form analysis	Site survey Serial vision	Maps Sketches
	Street pattern: enclosure, proportions	Site survey Serial vision	Maps Scaled sketch drawings Photographs
	Building heights analysis	Site survey	Maps presented with appropriate coloring and technique Photographs
	Building facades	Site survey Observation	Photographs Panoramic views of streets Reports
	Legibility analysis	Lynch analysis	Maps Photographs
	Flooring and Sidewalks	Site survey Observation	Photographs Reports
	Microclimate analysis	Site survey Observation	Maps Comparative Photographs Reports
	Street elements: street furniture, greenery and public art	Site survey Observation Questionnaire survey	Maps Photographs Charts Reports
Analysis of the Functional Characteristics	Accessibility/ Permeability/ Traffic Circulation	Site survey Questionnaire survey	Maps presented with appropriate coloring and technique Photographs Questionnaire survey Reports
	Functional distribution	Land use survey	Maps presented with appropriate coloring and technique Photographs
	Active-passive edges	Site survey Observation	Maps presented with appropriate coloring and technique Photographs Reports
Analysis of the Socio-Economic Characteristics	Demographic structure of the citizens, users of/ Within the area	Observation Questionnaire survey	Charts Reports
	The existing human activities		
	Safety along the street		
	Comfort of street		

All the analysis have been synthesized and classified in the form of SWOT analysis, although a SWOT analysis by the participation of stockholders have not been conducted.

3.2 Evaluation of Ismet Inonu Boulevard (Salamis Road), Famagusta

Ismet Inonu Boulevard (Salamis Road) is located in Famagusta with population of 54,000 though is rounded to the nearest 1000 (Census 2011), the third biggest city of Northern part of Cyprus, which is the third biggest island of Mediterranean Sea. Figure P1 in Appendix C presents the locational analysis maps. Famagusta is located on the eastern coast of the island and as a result of locating near the sea houses a well-equipped port which has important role in trading of the whole Northern Cyprus and economic activities of the city. Apart from its port, Famagusta accommodates the largest university of North Cyprus with a population of 16000 students. Eastern Mediterranean University (EMU) which is located exactly at the north-west end of the Ismet Inonu Boulevard (Salamis Road) creates an economic pole in the city, in such a way that nowadays not only the economy of city but also the urban development of Famagusta is somehow affected by the university and its students. Despite to all these, owning a rich history with an ancient walled city, may attract many tourist to the city.

According to P1 which is presented in Appendix C, Ismet Inonu Boulevard which is well-known as Salamis Road connects the university roundabout to the Toros roundabout and goes further toward Zafer roundabout which is located on the corner of walled city of Famagusta (P1). The research focuses on the northern part of Salamis Road which is limited to Toros roundabout; because this part is more active

than the southern part and mostly influenced by university while housing more leisure activities and restaurants. The Figure P1 shows the Salamis Road which is separated by two colors in the map. As it has been shown in figure 39 not only the facilities are concentrated in the northern part but also many social and commercial events happen there.

Figure 39: Liveliness of the northern part of Salamis Road

The point is that not only the Ismet Inonu Boulevard (Salamis Road) but also the whole city is not built upon a master plan while they are a result of partial growth of the whole town which has been shaped and developed approximately around the historic walled city which previously was located in the center of the city. However, as a result of island`s division in 1974, the city lost its main parts and the south part of city was bounded by military (closed Maras) which is shown in the Figure P1. So the development of city is towards the north direction where the university was established, while the urban patterns of the new area face many problems such as existing vacant land and buildings. This happens because the Salamis Road was formerly a road and was not planned and designed as a street and as a result an urban space, it is obvious that the street may have serious physical problems as a whole.

Traditional Cypriot settlements had well-scaled narrow and organic streets with houses which were directly connected to it and during history it was used as the main public space for socializing besides linking places. Streets were was the main outdoor room for gathering, communication and social activities. In this approach Oktay (1998) states: “The traditional Cypriot settlements reveal a cohesive character with well-scaled narrow streets and cule-de-sacs and organic public open spaces at the intersection of the street. Connecting a group of houses with each other and to a larger circulation artery, the street is the most rudimentary of intersections between the private and public domains. The street space is almost an extension of home where diverse group activities are accommodated within the limits of privacy.” (Oktay, 1998, 22-31) Also Cypriot people prefer to live near their relatives and friends, as a result they were demanded to live in one street to be together. In the past streets were narrow and created a sense of enclosure and were more safe, however nowadays streets are become wider according to building proportion and also to serves vehicles more than pedestrians.

According to above information it is obvious that Cypriots are extroverted people, furthermore it has been observed that the development of public open spaces despite to their various types and form in Famagusta has not been successful, and the existing ones need evaluation and organization, as a result city suffer lack of public open spaces. They usually have lack of functions and properties and are not maintained; they have no specialty and are not enough interesting and attractive. As a result of lacking activity and liveliness especially at night there is no safety. The most important point is that the number of public open spaces in Famagusta are not enough for its residence as has also been indicated by Pasaogullari (1999).

The Ismet Inonu Boulevard (Salamis Road) as it is apparent has the potential to be a well-defined public open space for the city while locating between the old and new parts of the city and bringing diverse users. The street can be attractive to all its users, students and local people and maybe for tourists, if the street would be well-equipped. In order to be an attractive and livable public space, besides to vehicle traffic, the street should provide a comfortable environment for its pedestrians. In other words it should become a place to be able to stay in it, not just to pass through. As a result and as it is clear that Salamis Road has a potential to work as a public open space even though by more maintenance and investigation.

As it has been indicated in the previous chapter, a public street should create strong connection between people and encourage social interaction. To become a proper public open space, Ismet Inonu Boulevard (Salamis Road) needs to offer a variety of activities and functions and feeling of relaxation to its users, as well as a better quality of physical characteristics. The following parts of the chapter will present a thorough analysis of the Salamis Road in terms of its physical, functional and social characteristics.

3.2.1 Physical Characteristics

Physical characteristics of Salamis Road are analyzed in terms of location, street typology, street form, urban pattern, street proportion and building heights, building façades, legibility, flooring, sidewalks, microclimate features and street elements.

3.2.1.1 Location

Cyprus is the most easterly of the Mediterranean islands and the third biggest in area after Sicily and Sardinia in Mediterranean Sea. The nearest coastal point to Cyprus is Turkey which last 40 miles; the next coastal is Syria with 60 miles distance. As the location analysis (P1) which is presented in Appendix C shows the location of

Cyprus Island between Asia, Europe and Africa make it very important in its region (P1).

Famagusta is the third biggest city of North Cyprus after Nicosia and Kyrenia and is recognized as the center of the Famagusta district. The city is located on the eastern coast of the island and owned the deepest harbor of the North Cyprus. In addition to a strong harbor, city contains a historic walled city and an international university. Also after division of island in 1974 the southern part of city (Maras) which was the most developed part of city was closed by military and forced the new development of city into opposite direction. These are the points that makes Famagusta different from other cities of North Cyprus (Figure 40).

Figure 40: Location of Salamis Road in Famagusta

Ismet Inonu Boulevard (Salamis Road) is located in the north part of city where new developments are forming and works as a connector for old and the new part of city (P1). Its direction is from north-west to the south-east which is in similar direction with sea. As the map shows Salamis Road is somehow the main street of the city which connects old quarter and EMU Campus together and as a result becomes

useful not only for the locals but also for students of EMU. As a result there is a need to care about the street as a public open space which needs a deep analyzing in all aspects of street.

3.2.1.2 Street Typology

In this part, Salamis Road have been analyzed based on street classifications in Chapter 2 which are done from various points of views. According to functional classification of Moughtin (1992), Salamis Road can be mentioned as multi-function street as variety of functions beside to mixed-use buildings can be found in this street.

Calthorpe (1993) also classifies streets based on pedestrians' need in which Salamis Road can be considered as arterial street since it works as interconnects of major urban elements like historical Walled City and Eastern Mediterranean University which can be mentioned as major educational district of the city.

According to Onal and Doratli (1997) streets are classified based on urban morphology. Salamis Road in this classification works as boulevard, although it is not well-defined as a boulevard and there need to be maintenance especially in terms of physical characteristics. Based on Hals classification Salamis Road can be mentioned as main street since it connects various urban areas as old and new quarter of the city and also Salamis Road is the main street of the city.

3.2.1.3 Street Form

Ismet Inonu Boulevard (Salamis Road) has more or less a straight form except a little angel around its middle which changes its direction. Salamis Road is oriented in an axis from the north-west to the south-east, somehow is parallel and has same direction with the sea and has a length of 2900 meters. Long streets usually works as

connectors according to the findings of Chapter 2. In this sense also Salamis Road works as a strong connector of EMU Campus and the new district of city to the Walled City which is the old part of city. Straight form of the street causes to have less visual amusement and interest in its local context. The form of the street is more obvious in P2 which is shown in Appendix C. The width of the street is not wide enough to accommodate tow-way boulevard with well-defined pedestrian realm, bike lane, public transportation and side car parking however, in some parts almost around Toros roundabout street becomes a little wider which may become possible to design properly (Figure 41).

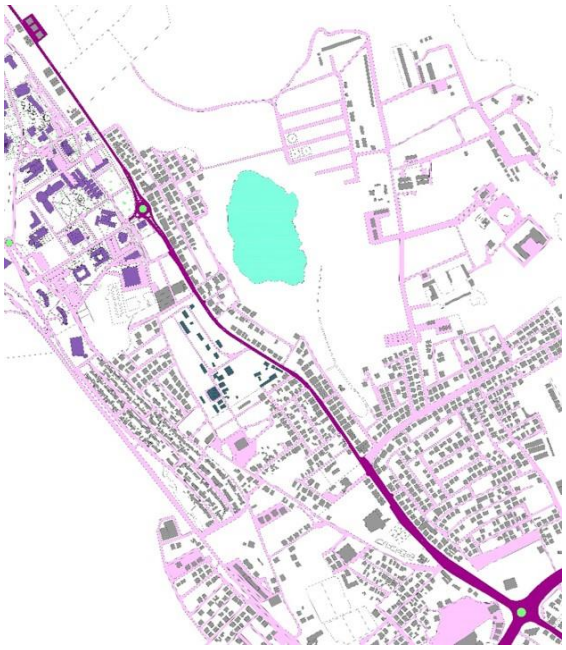


Figure 41: Form of Salamis Road and distribution of building along street

As it is mentioned in chapter 2, the vertical features and eye-level details become more significant; so, it can be said that buildings and their facades along a more or less narrow street have important role in its character. The Salamis Road is not clearly defined by buildings which mean that there is no continuity in building of street; some parts have serious shortage of building surface and in general it has no

character and identity. Another important character of such a narrow streets without any barrier in between the street is that they are more suitable for shopping and social interaction while creating more sense of enclosure. In that sense Salamis Road although is not a narrow street, has a potential to be a shopping and social interaction street if well designed, since the street has already been used as public open space for city.

3.2.1.4 Urban Pattern

In an urban pattern these are urban blocks which define a space rather than individual buildings. According to the figure ground (P2) analysis, which is presented in Appendix C, around Salamis Road in the north-west side which EMU Campus exist, larger individual blocks define the space by huge open spaces which are used as public spaces of university. Except the part of street which belong to the university other parts made up of attached small building block with accesses in specified distances toward back side of blocks for vehicular and pedestrian movement. In contrast to the north-west of the street which generally lacks buildings, toward the south-east part of the street, there are denser and also more regular urban pattern which also are obvious in P2. Generally along the street the distribution of building blocks are diffused, some parts are in order and dense which a huge vacant land broke the continuity and order of blocks in some parts. In the north part of street the building block size are more regular than the south part. It can be resulted that whatever moving to the new development area the urban pattern is more diffused which is obvious in Figure 41.

3.2.1.5 Street Proportions

The basic ratio of building height to the width to length of street states street proportions. In Salamis Road where street is straighter this ratio is more obvious. Generally along the street this ratio is not defined, as some parts of street contains

buildings which are too high to define a suitable ratio or there are no buildings in one or both parts of the street. P2a, P2b and P2c in Appendix C shows the detailed sections of street. However, the width of the street is in such a way that induce sense of enclosure and is suitable for social activities such as walking, shopping, seating, etc. The street width is also enough (Figure 42) to create shadow and an enjoyable space for walking except at noon time, which the sunlight angel is too intense. As it has been mentioned in previous chapter, in hot and humid weather it is needed to have narrower with high buildings street not only to create more shadow but also to bring more wind to the street. As it is observed the streets in Cyprus provide a smooth and healthy space for socializing by their narrowness and high enough buildings and in some parts their curvature.

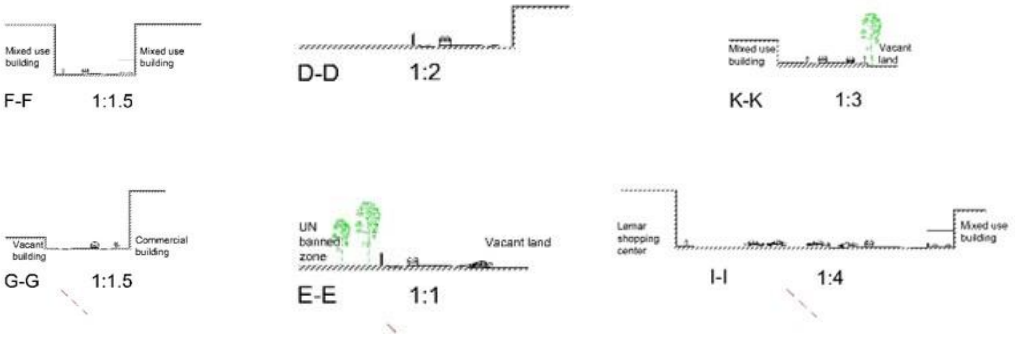


Figure 42: Various street proportions along Salamis Road

Another factor which should be considered while discussing about street proportions is sense of enclosure. Sense of enclosure is gained by a suitable ratio of height of building to weight of street, in addition to this ratio the continuity of building which form the street walls are very important in inducing sense of enclosure. According to street sections (P2a, P2b, P2c), street proportion is not suitable in some parts of street and moreover the continuity of street walls are broken by vacant lands along the street and existing the huge banned area of UN damages the sense of enclosure in

streets. In some parts moreover to vacant lands, recessed rear of buildings reduces the sense of enclosure in the street which is obvious from Figure 43. It can be said that just in limited parts of the street, somewhere near its middle, building heights make enclosed unit of street and the others, especially in the north part and before EMU roundabout and south part around Toros roundabout, not only there is no suitable ratio but also there has shortage in building structure or street walls (Figure 43).

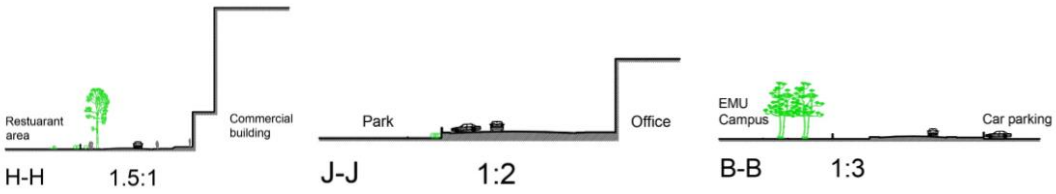


Figure 43: Inappropriate building heights and lack of buildings damage sense of enclosure in street

3.2.1.6 Building Heights

A map which shows the height of each building along the street is prepared by site surveying and is presented in Appendix C as P3. According to this map, the street contains a variety of heights from one story building to the highest 12 stories which create an ugly and distressed view from street. Salamis Road from the north direction has mostly tall buildings in one side in contrast to the other side which has mostly lower than five stories building which create an irregular image of street. In the middle of street there is some parts that have good order of building heights however this continuity is broken by vacant lands and UN area. According to the below figures it can be said that in general there is no harmony in heights of the buildings along the street which causes creating an irregular street walls. This irregularities in building heights causes the street to have undefined skyline and create an unpleasant view to its users.

Figure 44: Variety in building heights

Figure 45: Variety in building heights

Figure 46: Irregularity of heights in both sides of street

3.2.1.7 Building Facades of Ismet Inonu Boulevard (Salamis Road)

Building facades present a diversity of visual experience which are related to elevation elements like wall, window, material, color and texture. Also as it has been mentioned in the previous chapter facades of the building are the most important part of street edges, so they should be in such a way that to propose an active and attractive frontage to the public to make the street more livable. In a general view of Salamis Road, separated building blocks with variety of height, facades and styles which are cut repeatedly by access distance and vacant lands comes in eye of

visitors. Gaps between building masses which is considered for access to the residential blocks in upper floors, and are obvious in Figure 49 and 50, mostly used as storage and parking; somehow break the continuity of street facades and reduces the quality of urban form while inspiring a sense of residential street rather than commercial or mixed-use one.

Observations show that the street mostly consists of detached apartment blocks with a small distance between them which are used as access for buildings. In general most of the buildings are small apartments for meeting the housing need of students; so most of them have retail or leisure in their ground floor which make more contact to pedestrians and bring liveliness to the street, except some vacant land and the huge banned zone of UN which are blank frontages. The most problematic issue here is the advertising of retail and leisure in ground floor which are without any respect to each other and creates an ugly and distress view for the street. In addition to advertisements, along the street and in the façades of many building there exist huge advertisement billboards which create an ugly view beside to having visual pollution. Existence of huge billboards next to the children play-ground and sport facilities also decrease the quality of urban space while creating visual pollution in such mixed-use street (Figure 48). It can be said that this way of advertisement is not suitable and recommended for street or boulevards.

Figure 47: Irregularity in building height and advertising of ground floor

Figure 48: Unsuitable billboards along the street


Figure 49: The accessibility distance between buildings

First floors ordinarily accommodate apartments for students and local people; however building heights in this street have wide range in comparison to its scale. Along the street there exist a range of one story buildings to 12 stories which make unsuitable perspective.

Figure 50: Irregular building heights

Buildings not only have lack of continuity but also they have no unity in architecture, plan and function. The facilities of the street and functions of buildings without any

unity and continuity causes some parts become less attractive and somehow useless. Some part of street have more attractions such as restaurant and shops and some vast part just are vacant land or equipped by government. This part is discussed in detail in active-passive edges of street.

Not only the building heights but also their styles have no harmony. Although it can be said that all of them are built during 30 last years with new regulations they encompass dissimilar architectural styles which have selfish standing and has distinct way in each building. Variety in roof type, block size, window form, entrance points, material, color, density, height, frontages and so on, make a confused and disorganized image rather than unity. Although some owners by changing the color or lighting of façade in the lower floors yearly or every 3 or 4 years have tried to improve the position of his building, these partial improvements may not cover the chaotic image of street. According to the questionnaire survey 61% of the users believe that the quality of buildings along the street is intermediate and 36% think that their quality is poor. This shows that the users are not satisfied enough by the quality of buildings along Salamis Road.

Figure 51: Various advertisement forms and bilboards

Figure 52: Various advertising forms

Roofline of buildings works as a lid for space and is the most important factor in defining skyline. Salamis Road, not only because of variety of building heights but also the variation of roof types make the skyline of Salamis Road more distressed.

Figure 53: Variety in building heights and roof type

Figure 54: Variety in building heights and roof type

By observing the pictures, one may see that, there are many irregularities in building façades; the material and color used in facades are very different; building entrances and windows are very various; the way retail and leisure are advertised are not usual

and in unity; the whole architectural style have no harmony and the building heights are very confusing. In general, the whole street cannot be regarded as unified, continuous and well defined street in terms of its building façades.

Figure 55: Variety of façades and lack of building surface

To be a unique and well-designed street, there is a need to work more in some parts than others. In addition, facilities and equipment of the street are not enough and in a good situation. The street generally suffers from the lack of street furniture, lighting, shading, planting and etc. and also have very poor pathways.

3.2.1.8 Legibility

In an almost long street, it is very important to have a well-defined edge, center, entrance and termination. In the case of Salamis Road, although it is more or less long, it has no definite entrance and termination point and it would be more important while thinking about the street as a connector of the EMU to the whole city which make it as the geometric center of the new town area. More importantly, this street somehow welcomes the visitors coming from the north direction and as it is obvious there is not a well-defined entrance and thus no inviting feeling from the outside, to the city. As well as its entrance point, the end of the north part of street which is Toros roundabout, has no definite urban character. Particularly, there is just an interaction point with lots of vacant lands around it which bring no feeling of urbanity not even a well-designed square.

Figure 56: Termination of Salamis Road without no character

Figure 57: No welcoming entrance of Salamis Road from Karpaz zone

In terms of legibility, according to Lynch analysis, which is presented as P5 in Appendix C, landmark of street is the existing mosque on the Toros roundabout which is somehow visible from most part of street and mostly help people in addressing. After that, the most important building of the street is Lemar complex which works as a focal point for the street. This complex is almost located around the middle of street and its outdoor restaurants and other functions create a place for people to stay in and spend more time in street not just pass through. However the functions along the street which are blocked by a large car parking are mostly interacted and do not create an active edge. Magem complex also can be considered as the other focal point of street which present an active edge for the street (Figure 58). The park which is located between Lemar and Magem complexes works as node for street and attract many people not only young people but also elderly and children by having sport facilities and children playground while making street to become physically legible. However, having only one node for such a long street does not help enough to make it attractive.

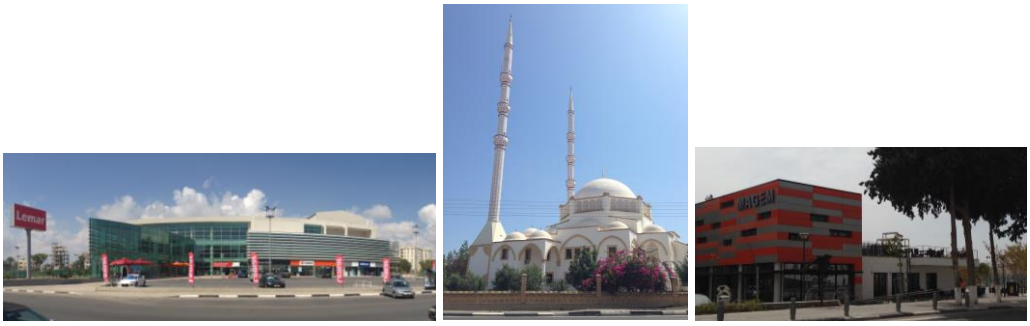


Figure 58: Land mark and focal points of Salamis Road

The edge of the street is defined by buildings though without any continuity and unity. The Figure 59 shows the street edge which generally are not continuous. Existence of lots of vacant lands along the street is a problematic issue for its built environment, while ruining the continuity of street edge and becoming a place for rubbish. Not only vacant lands but also huge banned area of UN nearly after university which is fenced for a long distance of street edge corrupt the continuity of street edge. Although the UN area is on one side of street, its effect on the other side make this section of street become dissociable. In addition to UN area, huge edge of Salamis Road belongs to university which are only green areas without any buildings or functions. This part also damages the continuity of street edges while before university also there is no unified edge. In contrast to all these problems there are some parts in the street which have well defined edge not only by buildings but also by trees.

Figure 59: Defined and undefined edges of street


Figure 60: Street edge is properly defined by trees in comparison in opposite side no building defines the edge

Gaps between buildings happen almost after each block not only create an unpleasant perspective but also ruin the connection of street edge; these gaps although work as accessibility part of each building, affect public negatively. According to the findings of Chapter 2, edge of the street are places which social life happen; so having lots of barriers which causes some parts become less active than others, is not good for

street liveliness. In contrast, some parts of street edges have functions which make it more active and invite people to stay and spend more time in street.

3.2.1.9 Flooring

Flooring included the material which is used in paving the surface to make it a dry, hard and non-slip surface for the users. In Salamis Road the surface of vehicle road in general have good quality (recently covered by asphalt) although there are only colored lines to separate two way directions of street and are not defined by any physical elements. In contrast, the surface of pedestrian paths are in terrible situation. The paved area of sidewalks in general is not continuous and in most parts have lots of holes which is not safe for pedestrians, and will be full of water in rainy days which is shown in Figure 61. Besides most parts of the paving is either broken or inappropriate in a way that there is lots of height differentiations in pavements. Another important factor which should be mentioned here is existence of no arrangements on flooring for disabled people, either visually or physically, in any part of the street which causes hard accessibility for disabled in the street. Height differentiations, broken pavements, unsuitable paving material also can be mentioned as difficulties for disabled people. Most importantly there are no defined materials for visually disabled people along sidewalks.

Figure 61: The quality of flooring

Figure 62: Variety in height and flooring material

Although it has been tried to specify borders of different parts of the pedestrian path in terms of changing in ownership, this is not done in a right way in such a way that they not only have differences in height but also they are paved in a selfish way almost in front of each building with unrelated material.

According to Figure 61 the covers for drainage system are not only inappropriately placed in pavements but also have poor quality which in some cases they are broken. This way of covering for drainage create an ugly view in pavements while making problems for pedestrians.

3.2.1.10 Sidewalks

One of the most important parts of street for pedestrians is the sidewalks especially in mixed-use and the commercial ones. Salamis Road, as it has been mentioned previously, is a mixed-use street with majority of commercial functions; as a result, it is very crucial to have well-designed sidewalks while generally sidewalks along this street have really bad condition. Width of sidewalks are not same during the street in such a way that they are too narrow to accommodate two person together while walking. In addition the quality of pavements and the way of paving the floor is very

irregular and varied especially in front of each restaurant and shop. In addition to this variety of material having lots of height variations, besides to have no explicated surface along the entire sidewalks make walking impossible while watching around or the shops. The other problem of the sidewalks is in some parts they are blocked by rubbish of the building constructions and shops trashes. One of the main problem of sidewalks along the street is the way of car parking on the sidewalks which somehow sounds to be a usual way however the most important reason is lack of car parking. As a result, the terrible situation of sidewalks is another important problem for all groups of users. In contrast some parts of the street have well defined sidewalks, which is shown in Figure 64, but still narrow while they are not in sections that there is need to stop to watch a shop or maybe talk to someone.

Figure 63: Blocked sidewalks with cars

The terrible situation of sidewalks which make walking hard for ordinary people may become impossible to be used by disabled. It can be said that in general along the street there is no ramp to eases the movement of disabled people although there are lots of height differentiation along sidewalks mostly in front of shops and restaurants. There are no defined places with ramp and also no especial material for physically and visually disabled people to pass the street and get in sidewalks easily and safely. This situation can also be difficult for pregnant women and parents with

babies in push chairs. In addition sidewalks which are blocked with cars and rubbishes cannot be used by disabled people (Figure 65).

Figure 64: Well defined sidewalks

Figure 65: Sidewalks barriers

According to questionnaires 46% of users believe that the condition of sidewalks is poor while 36% chose the fair option which shows the users also are not satisfied with the sidewalks.

3.2.1.11 Microclimate

Cyprus somewhat is located in the warmest zone of Mediterranean Sea which possess characteristics such as long hot and dry summers and short, mild and rainy

winters. It can be resulted that shadow is needed in such a climate not only to avoid the sunshine in the summer but also for the rainy days of winter.

As Salamis Road is a long, mixed-use street which connects two of the main elements of the city, is being used by many people. Therefore it is needed to provide comfortable condition for its users. Early in the mornings and evenings while the angel of sunlight is low, the street has an enjoyable condition to walk, while at noon is very hot for walking by considering that there is no shading elements along the street except the bus stops. Position of buildings along the street are not dense enough to provide shadow in hot summer days. The Figure P6 sows the movement of shadows in two different times of the day which is presented in Appendix C. In addition, except the parts that street lack buildings there is no wind flow to reduce the temperature in summer; this happens while the building separation distance causes wind to annoy pedestrians while walking along the street especially in windy days of winter. Therefore, according to the above mentioned situation, the street is not comfortable for pedestrians for walking, shopping, strolling and seating. Instead of lacking shadow by buildings and shading elements, trees along the street especially in parts which are in order, provide good shadow for the street particularly along sidewalks.

3.2.1.12 Greenery

For natural analysis vegetation map which shows the dispersal of greenery along the Salamis Road have been arranged by site surveying and is presented in Appendix C as P7. In general the way of disposal of the existing plants along the street shows that they grow naturally which are various in their size and type while they have no order in planting and spreading. Trees along the street are mainly Eucalyptus, Ficus Benjamina, Cypress, Pine and Palm (P7).

Figure 66: Variety of plant type along street

Figure 67: Variety of plant type along street

According to questionnaire survey 55% of users believe that street has poor greenery while 32% state that greenery is fair (Figure 68). These percentages obviously proves the disordering of the existing greenery; some part of street trees are in order and arranged well while most parts of street lack trees and greenery. Also the existing trees in some parts create shadows on sidewalks and street and because of street narrowness they make a pleasant space to walk or pass through.

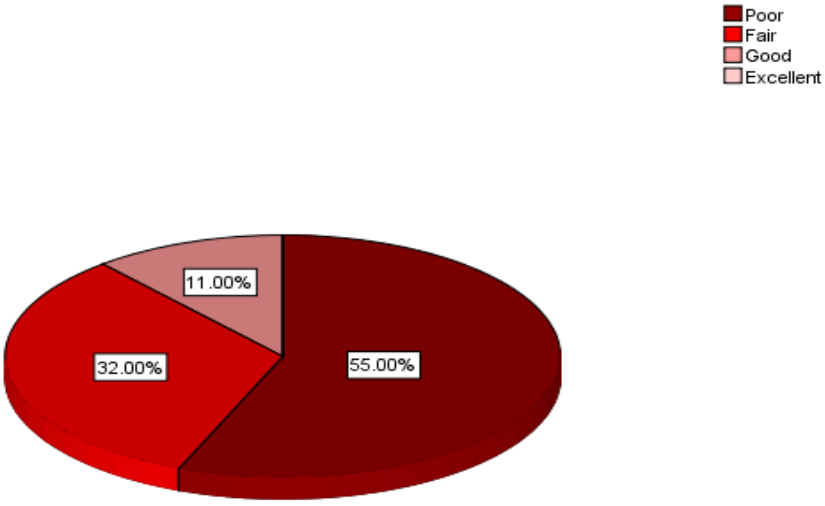


Figure 68: Greenery rating by the users

3.2.1.13 Street Furniture

It is very crucial to provide comfortable condition in each public space, and to make a street more comfortable and a place to stay, street elements may become important. According to questionnaire surveys 87% of users believe that Salamis Road is not well-equipped in terms of street furniture. Also 78% think that there is a need to have more public facilities like public phones, public toilets, etc. P8 which is presented in Appendix C shows the distribution of street furniture along Salamis Road.

Use of natural light in Salamis Road during the winter day is needed and restaurants try to get this light to make a pleasant space for people, however in summer sun penetration is controlled by shops and restaurants` shading elements while lack of trees in sidewalks make walking hard during hot summer days. In addition to natural lighting the street has remarkable lack of lighting during the night time. Although according to street furniture analysis (P8) along the street there is a lot of lighting elements whether in poor condition, there is always lack of light in sidewalks. It is important to mention that the existing lighting elements not only have poor quality

but also are too ordinary for a well-designed street. 43% of users in questionnaires specify that lighting along the street is fair and 29% believed that it is poor.

Figure 69: Lack of lighting at night time along Salamis Road

In the matter of shading elements as it has been mentioned in microclimate section there is no shading elements along the street and because of hot and humid weather of Famagusta there is intense need of shading elements to protect from sun. It is interesting that in questionnaires only 48% believed that shading elements along the street are needed while there is no shading elements.

Another street furniture which is mentioned in street furniture analysis is the bins. Street furniture map shows lots of bins along the street, some of which are really in poor condition. In addition to the bins shown in the map there are big moveable bins almost next to each small bins generally have no good image in the street picture. According to analysis there is enough bins along the street, however they are not properly designed and placed.

Figure 70: Lack of sitting elements and bus stop along the street


Figure 71: Quality of existing bins along the Salamis Road

Bus stops can also be mentioned as street furniture, which are also not enough in terms of number along the street. As the observation shows in busy hours there is lack of seats for people who are waiting for the bus (Figure 70). Although some of the old bus stops are replaced with new ones, there are still poor quality bus stops along street.

In terms of sitting elements there is intense lack of them in the street not only according to street furniture analysis, which shows there is only two benches exist in the street, but also according to questionnaire surveys 65% believed that there is a need for good quality sitting elements. So there is a need to accommodate sitting elements with shading along the street.

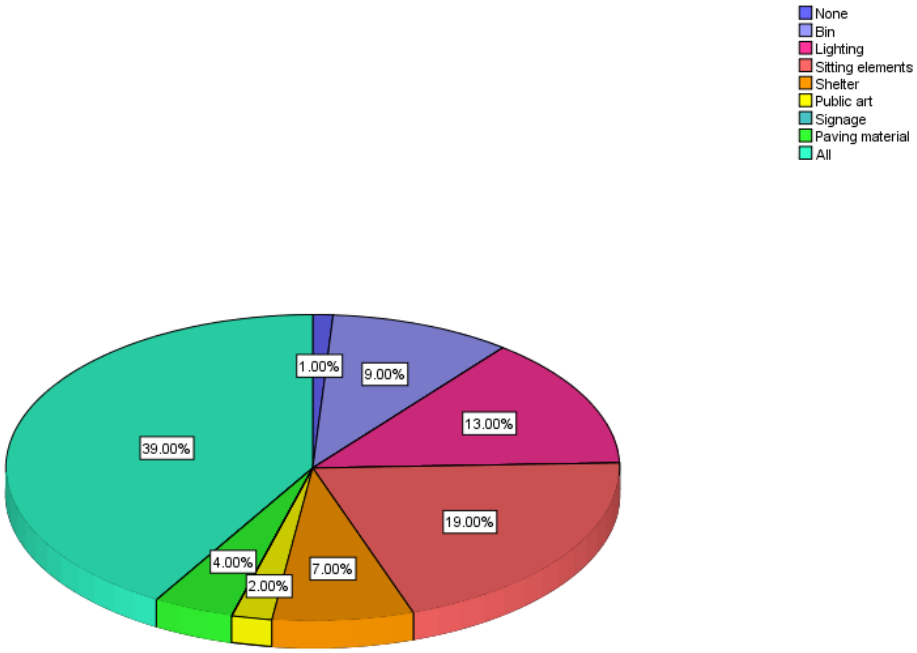


Figure 72: Need of street furniture from users` point of view

The figure above shows that the street generally lack street furniture as 39% of users choose the “all” option in questionnaire. 19% have highlighted the need for sitting elements while 13% wants to have more lighting elements along the street. In general according to the site survey the quality of almost all street furniture are very poor.

3.2.2 Functional Characteristics

In this part accessibility, functions of the street (land use) and active and passive edges of the street will be analyzed.

3.2.2.1 Permeability and Accessibility

Transportation, traffic and linkage analysis are considered in this category and are analyzed in F1 map which is presented in Appendix C. Generally Salamis Road in terms of accessibility has a good location in the city; the street somehow can be considered as one of the main streets of the city which connects the university to the old city and is mostly at the beginning of the city from Karpaz zone, so it should have a considerable attention from public authorities. Salamis Road is a two way

street boulevard however the general quality of street pavement is more or less suitable though it has been covered by asphalt recently; however there are lots of holes which are mostly constructed without coverage. As a boulevard there is need to have more maintenance for pavement of vehicle roads as it has been mentioned previously in flooring analysis. Street usually has intermediate to high traffic especially at weekend evenings and during the time that everyone come back home from work or school which traffic is high because of the width of the street which is not enough for a two-way street (Figure 73). According to the questionnaire survey 44% of street users believe that the street has high level of traffic which is followed by 39% of intermediate traffic.

Figure 73: High level of traffic along Salamis Road

Another important factor which should be mentioned in this part is serious lack of pedestrian lane crossing the street while there are only two suitable points in such a long and busy street which are well-designed for pedestrians to cross the street. This situation create insecure condition for pedestrians while crossing the street. However, exactly around roundabouts in street there are defined pedestrian lanes in each side of street.

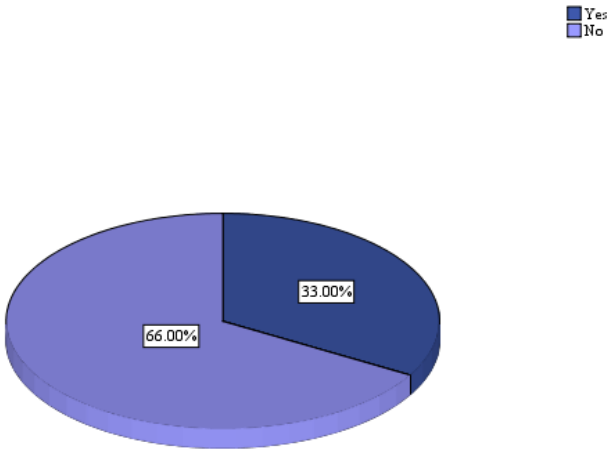


Figure 74: Adequacy of entrance points to Salamis Road

According to accessibility analysis (F1a, F1b, F1c) although there are number of secondary and territory streets which connect to the Salamis Road, they are low in number in comparison to street length and this decreases the permeability of street. In this sense banned area of UN have important role in decreasing the permeability of street by occupying a huge length of street edge. According to the Figure 74, 66% of people are not satisfied with the number of entrance points to the street in comparison 33% of users believe that the entrance points are enough. Even though the connector streets or alleys to the street are two way, they have no good quality and it is obvious from Figure 75 that about half of the users are not satisfied with the quality of access and also mostly are agreed that their quality is poor.

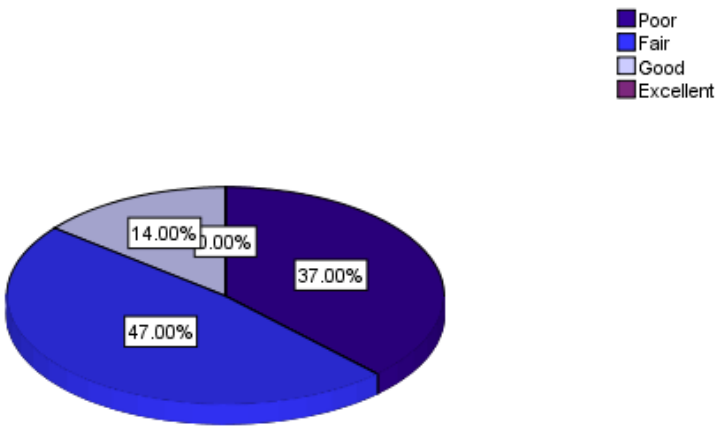


Figure 75: Quality of entrance point to Salamis Road

According to figure-ground analysis (P2), buildings located in both side of street except UN and vacant land areas are medium blocks and have direct or back side access to the street on each building, have good physical permeability. In terms of permeability it is needed to mention about disabled people which the street is not permeable for them also.

Based on the questionnaire survey the street is accessible for users and shopkeepers though the local peoples mostly prefer to use their car for coming to the street while students mostly prefer to walk to the street.

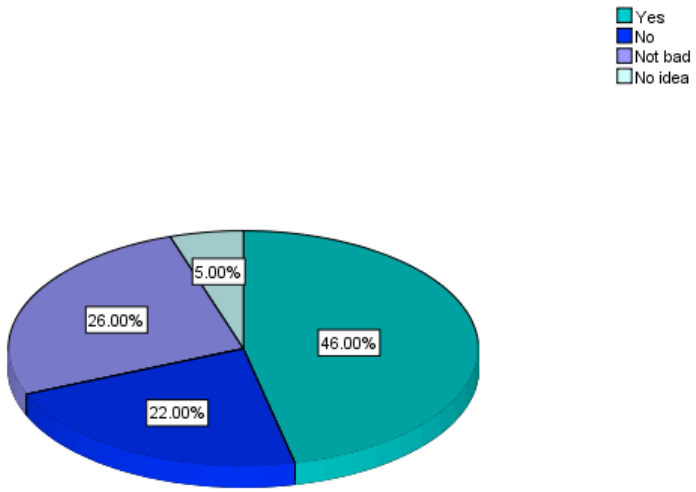


Figure 76: Level of accessibility Salamis Road for its users

According to the Figure 77 there is 14% bicycle preference to be used in the street while there is no bike line along the street and it can be said that the street is very narrow in some parts to define a suitable bike line for its users. Also public transportation has an important role in transportation of student especially from university to the street and Figure 77 shows that 17% of users prefer the public transportation than the other facilities to come to the street. From accessibility

analysis it can be stated that there are lack of bus stops along the street. The hours of buses during the week and at weekends are suitable in such a way that there are three buses which service students to Salamis Road in the morning while from evening till late at night the number of buses decrease to two buses which work every two hours during the week days. In addition during weekends there is one line, every two hours from morning till late at night, which service students. Despite to all these services, observation shows that the number of buses which service the Salamis Road are not enough as sometimes they are too busy to get in.

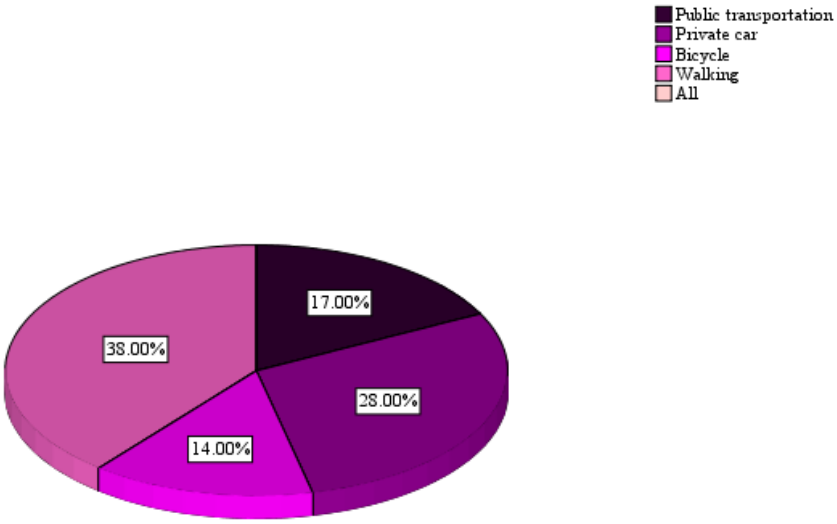


Figure 77: Preference of transportation modes by users

In the Figure 77 the highest percentage belongs to private car which means most of the people prefer to come to Salamis Road by their own car, and the most problematic issue in using private cars is car parking. Based on car parking analysis there are only four organized car parking with very limited area, and the side car parking are not enough for users in comparison to the function and length of street. As a result the lack of car parking is the main problem for local people and those who have car in such a way that existence of privately owned vacant lands encourage people to park their cars in them. These vacant lands along the street do not seem to

be enough while most of cars are parked on the sidewalks and block pedestrians` way. F2 which is presented in Appendix C shows the existing organized car parking, side car parking and temporary car parking along the street. Also based on questionnaires 83% of users do not agree with this situation while there is no rule to stop them (Figure 78).

Figure 78: Inappropriate way of car parking which is usual along Salamis Road

Although vehicular traffic in addition to pedestrians can help in livability in street, high speed traffic should be separated from low speed in such a street; however, cars in existing situation of Salamis Road which have been parked in sidewalks make trouble for pedestrians of the street.

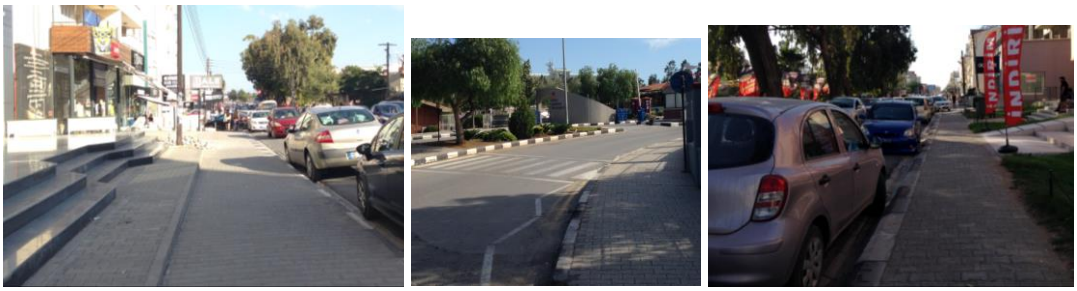


Figure 79: No defined accessibility for disabled along the street

In the matter of accessibility it is needed to mention the handicapped people, not only physically but also visually. Such a street should also be accessible for this

group also while in Salamis Road nothing has been considered for accessibility of handicapped people and there is a special need to take care of them.

3.2.2.2 Functions along the Street (Land use)

In its overall view Salamis Road exhibits mixed uses, as it has been mentioned in land use analysis, F3 which is presented in Appendix C, in which mainly mixed use buildings serve people. Along the street functions such as restaurants, cafes, bar, market, boutique and betting clubs in the ground floors can be seen more than other functions.

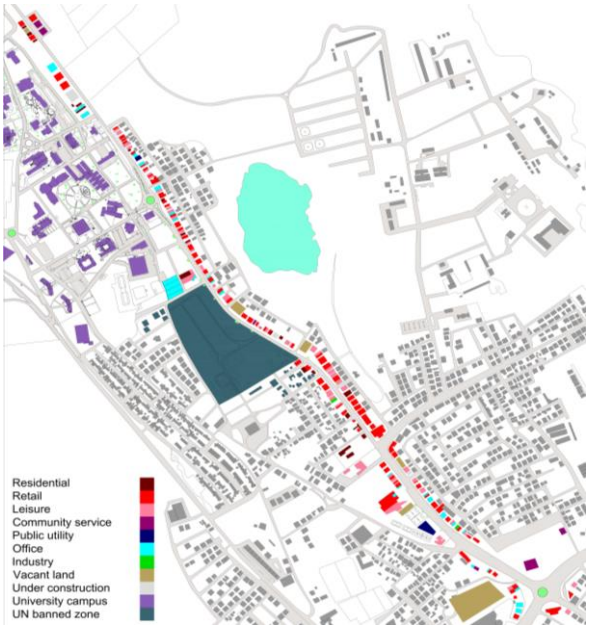


Figure 80: Ground floor land use analysis

Although along the street there are various functions, majority of ground floor functions belongs to shops and leisure which are 184 in number. In general, the street in order to being close to university, offers multi use apartments which are mostly used by university students not only for their needs of apartments but also for shopping and entertaining. The first floor function of buildings along the street are mostly residential according to the first floor land use analysis, F4 in Appendix C.

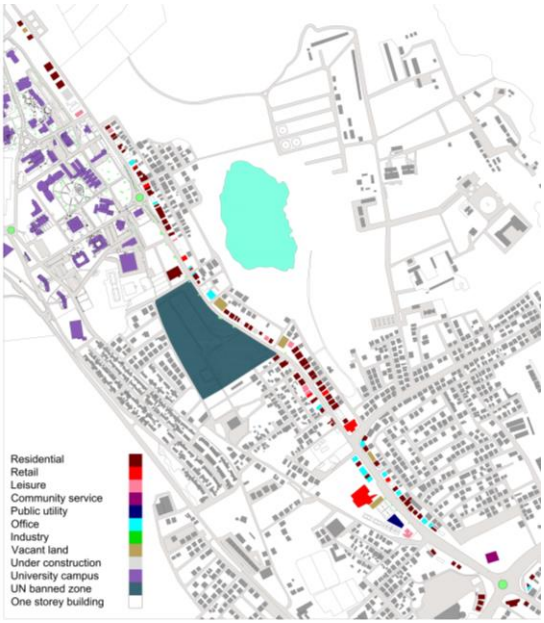


Figure 81: First floor land use analysis

Facilities like Magem and Lemar complexes are the mixed used buildings which can be mentioned as strength points of street which offer variety of functions to people. In addition, existence of a children play ground and sport facilities attract various groups of people to the street and work as strength points for the street (Figure 82).

Figure 82: Lemar Complex as a mixed-use building


Figure 83: variety of uses along the street

Not only the physical environment but also functional situation of street was somehow influenced by lack of a master plan for the city which is existence of incompatible uses like banned area of UN and a gas station and lots of vacant lands; as a result it can be said that the mixed use situation of street is not planned before and has no structured plan.

This can be mentioned as a great weakness for the street which in comparison to all suitable functions along the street, there exist incompatible land uses which decrease activeness of street in some parts (F4). As the street previously was used as outside road for city and recently become in the center of a new development area, the existence of such incompatible function is somewhat ordinary however these functions in the street create functional problem to the street. One of the most problematic ones is the banned area of UN which occupy a huge green area next to the university in the west side of street and blocked the street edge while making it useless and inaccessible for users of street (Figure 84).

Figure 84: Banned area of "United Nation" as a incompatible function along street

In addition to UN area, existence of other incompatible functions like Gas station, one in the north part of street and the other one near the Toros roundabout, are other problematic land uses exist in street edges. In the center of a town for a street which

works somehow as public open space, while people like to walk and enjoy their day after hard working day, there is no place for a not human friendly function like Gas station which not only offer no enjoyable view but also make bad smells and damaging the street edge liveliness.

According to lost space analysis (F5), there are lots of vacant lands along the street which make the street edge without any functional character. Vacant land along the street especially around Toros roundabout and Lemar complex not only create bad vision of street but also they do not have any contribution to street life. The most important problem of such areas is the break of the continuity of facilities and liveliness of street edges while becoming a place for rubbish or car parking.

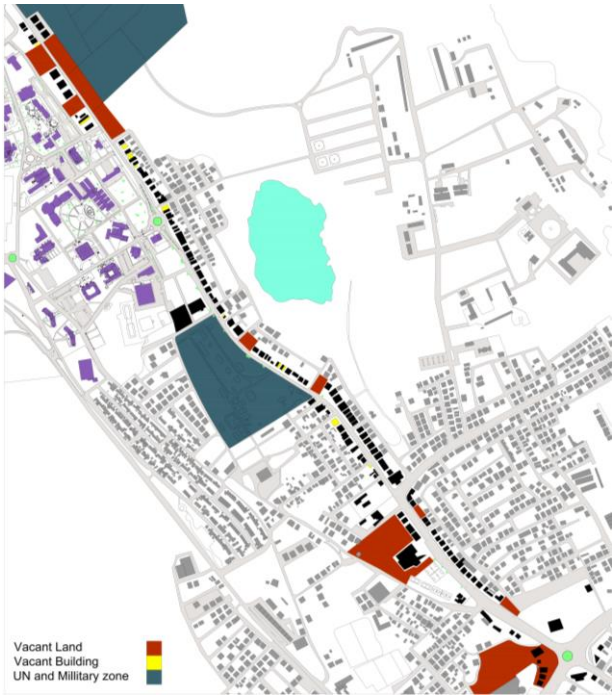


Figure 85: Lost spaces along the street

Although there are many facilities and functions along the street, there are not enough cultural facilities except the cinemas. This can be mentioned as a major weakness of such a popular street which has no contribution to cultural activities. In

comparison to cultural functions there are lots of retails in various kind along the street which make it alive especially during the day time. Along with retails, restaurants, cafes and boutiques can be mentioned as active functions which offer a suitable connection between interior space and outdoor space. In contrast the other function which can be mentioned as incompatible are betting clubs which the number of them are not low along the street. As the users of betting clubs are specific people they cannot have any contribution to the street life.

In general it can be said that the usage of street by people also affect its function. They use street in various ways like only to pass through whether walking or by car or for shopping, eating and drinking and also entertaining or working. Others may use the street to meet their friends while dealing with the space and to have social interaction among other people. Mostly students use street as a path to reach university or get home. According to questionnaire survey people mostly come to the street only to pass through while 24% meet their friends in street and come for shopping; Figure 86 shows the purpose of people in terms of using street. Most of the respondent which choose “other” option, specified that they are forced to come to street for work, this option was marked mostly shopkeepers while some users have specified that they have to come to Salamis Road as there is no other option in the city.

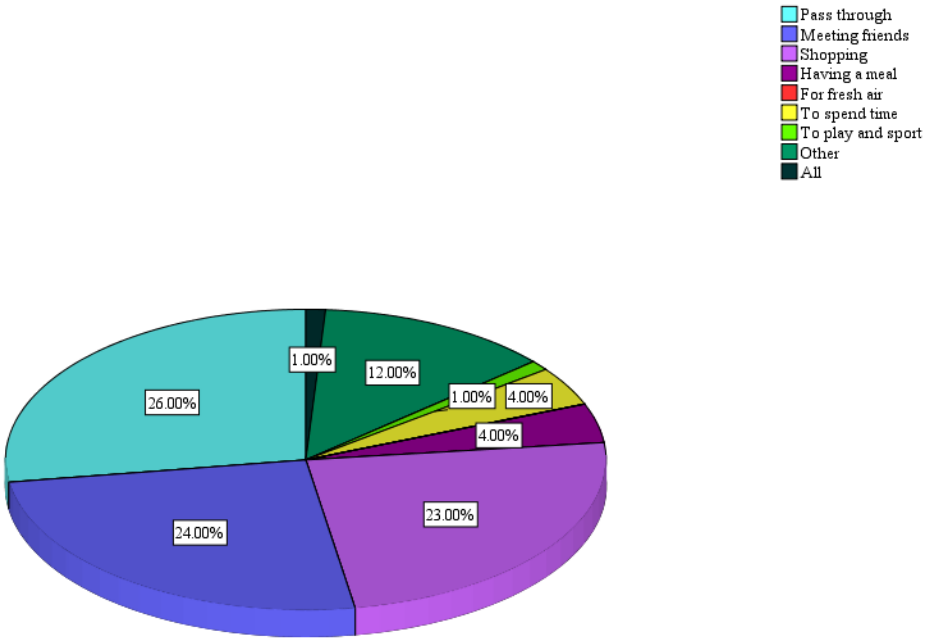


Figure 86: Purpose of users of coming to the Salamis Road

3.2.2.3 Active-Passive Edges

Active and passive edges in a street are directly related to functions along a street. According to functional analysis Salamis Road as a whole works as a mixed use street while because of existence of incompatible uses in some part the continuity of facilities are broken and as a result passive edges have been formed. In a general view Salamis Road is mostly an active street in day time however in night time except the parts where restaurants and cafes exist on the street edge, the other part are almost passive (F6, F7). This shows the role of various functions in street livability and in order to have more livable street there is a need to have functions to attract people to visit the street in various ways and times. Restaurants and cafes and in general eating and drinking facilities along Salamis Road by creating a welcoming edge to the users in day and night time create active edges for the street while boutiques which have more limited working hours make active edges only during the day time. In order to have a visual image of active and passive edges along the street, two separated maps which shows the active and passive edges during the day and at

night time are prepared by observing street in various days and nights during the week and at weekends. The maps are presented in Appendix C as F6 and F7.

According to active and passive map (F6, F7) the concentration of activities almost near the middle of street where Lemar and Magem complex exist and before them the Gulseren junction are more than the other parts along the street and are obvious from Figure 87. The most passive edges of street are north-west edges of street which is occupied by UN camp and the university and is only vacant green lands without any functions to contribute in the activity of street while the opposite side of street is more active by restaurants especially during the day time (Figure 88). Before university roundabout in general street is passive on both sides because of vacant lands and incompatible functions; this part of street mostly works as residential ones than mixed use as there are high rise residential buildings.

Figure 87: Active edges along Salamis Road

To go toward south in street just next to passive edge of university and in the same side, the huge banned side of “United Nation” has intensified the passive edge of street while affecting the livability on the other side. This section of street not only because of UN side but also because of existing lots of vacant lands is not active in

general. The other part of the street which have a huge passive edges is around Toros roundabout which contain lots of vacant lands and incompatible functions.

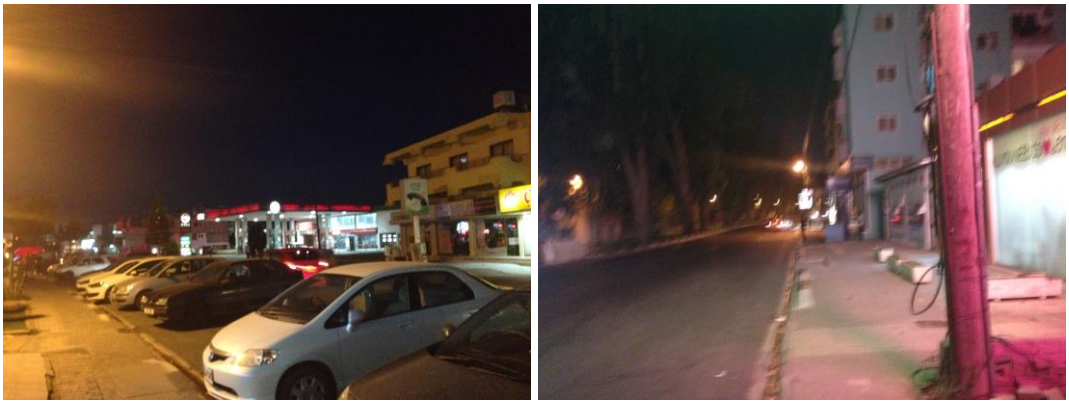


Figure 88: Effect of incompatible function on street life along Salamis Road

3.2.3 Social Characteristics

In this section social characteristics under the people attendance, human activities, safety and comfort in streets will be presented.

3.2.3.1 People Attendance in Salamis Road

The location of Ismet Inonu Boulevard (Salamis Road) in the city may work as a connection between the old quarter of city and university which nowadays become a new quarter of city. As a result it is obvious that the main users of the street are the students of university, not only for access to their homes or meeting their daily needs but also for walking, spending time and shopping. In addition, due to the existence of new facilities in this street, local people become more attracted to the street and are the second users beside the students. So, by providing a variety of uses for its users Salamis Road plays an important role in their life.

Figure 89: Various group of people exist in street

Various kinds of people usually appear in Salamis Road; male and female in different ages come to the street. However according to questionnaires and observations the majority of users are young people, who are EMU students and are also not necessarily Cypriot citizens. Questionnaires prove this issue that the major users around 42% are in 25-34 age range and 25% are in the range of 19-24. Alos from Figure 90 it can be resulted that students have important role in street life. Although it is obvious that they are students who use the street more, local people also come to the street especially after the establishment of Lemar complex and mainly at weekends.

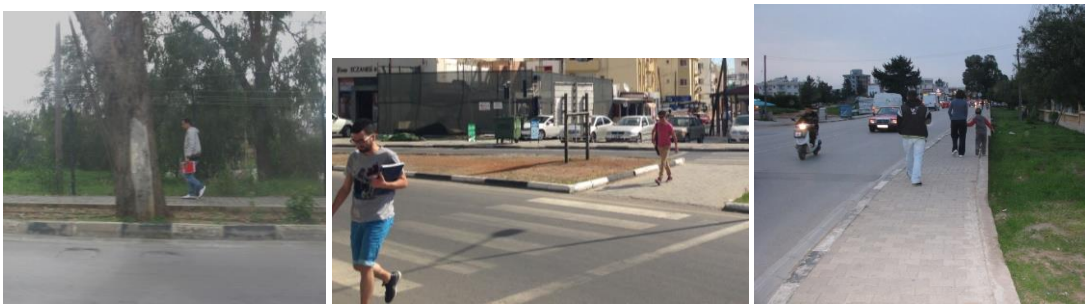


Figure 90: Major of users are young people

According to questionnaires, 56% of respondents like to spend time on Salamis Road, while tourists mostly prefer to visit the old quarter of city or beaches. This shows that the street is not attractive enough to invite tourists. Street is used by people in various social groups or individually, of which young groups are the most

dominant users of street in comparison with low level of family groups. Figure 89 shows various groups of people in Salamis Road.

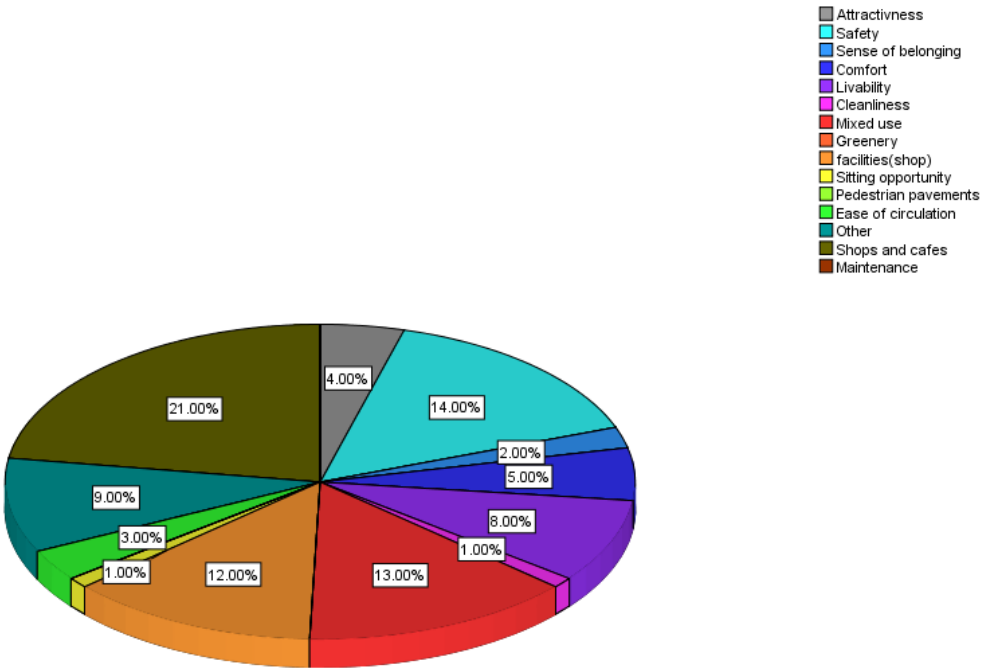


Figure 91: Factors encourage people attendance in street

Another factor which influences the people`s presence in street is time. Early in the morning when students leave their home to come to university till night when students and other people come to the street to relax and enjoy their time, the street is busy by people. In summer, because of weather conditions this time extends up to late at night and street mostly is used for leisure. Working hours of shops and restaurants starts at 9 in the morning while most of the shops, boutiques and agents close at early night and restaurants and cafes work until the midnight and they are more active at weekends. 73% of people who fill the questionnaires, come to street almost daily and 18% use the street 1-3 times a week. There is no preference for them in using street during week or at weekends (Figure 92).

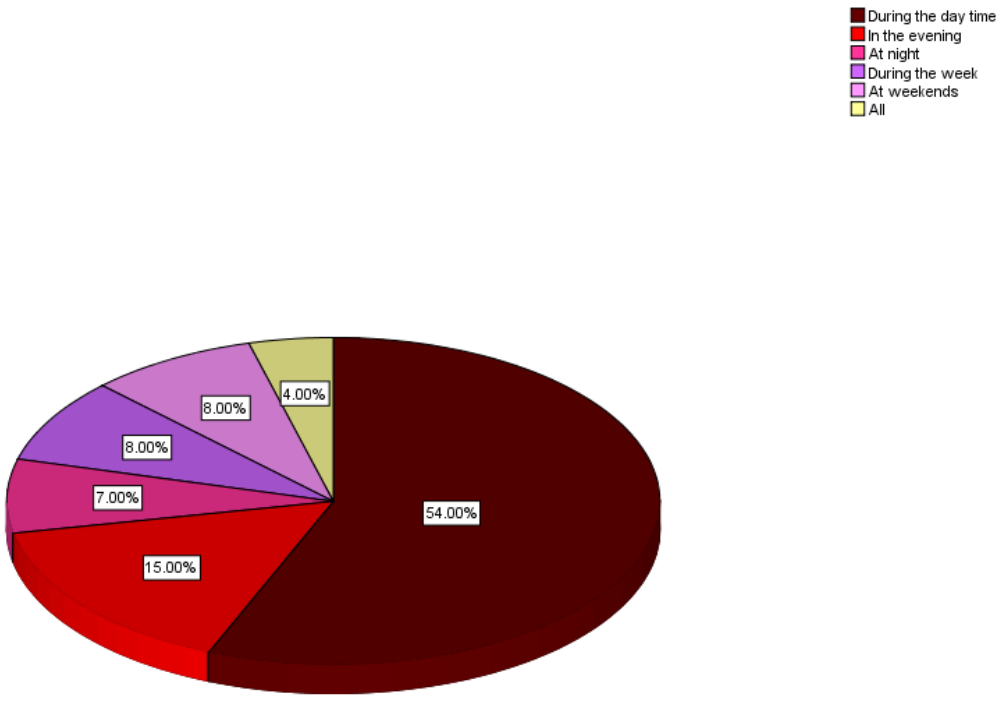


Figure 92: People preference of using street in various time

As the Figure 92 shows almost half of the people prefer to use the street in day time and only 15% like to come to street in the evening; this can be happen because of the limited working hours of shops.

3.2.3.2 Human Activity in Salamis Road

In general activities in Salamis Road are very diverse. Street works as a daily path for students to reach university and for officials to go their works, while it is a workplace for the shopkeepers and the ones who work there. Eating and drinking facilities serve people in day and night time for not only for having meal but also for socializing and retails also in day time contribute to street activities. As a result there is a variety of social activities along the street while not only observation but also it is obvious from Figure 93 that eating and drinking facilities have the most important role in the daily life of the street. People come to the street to meet their friends, having meal with them while having conversation and watching others while other

just come to see and be seen when passing through or taking a walk or spending time.

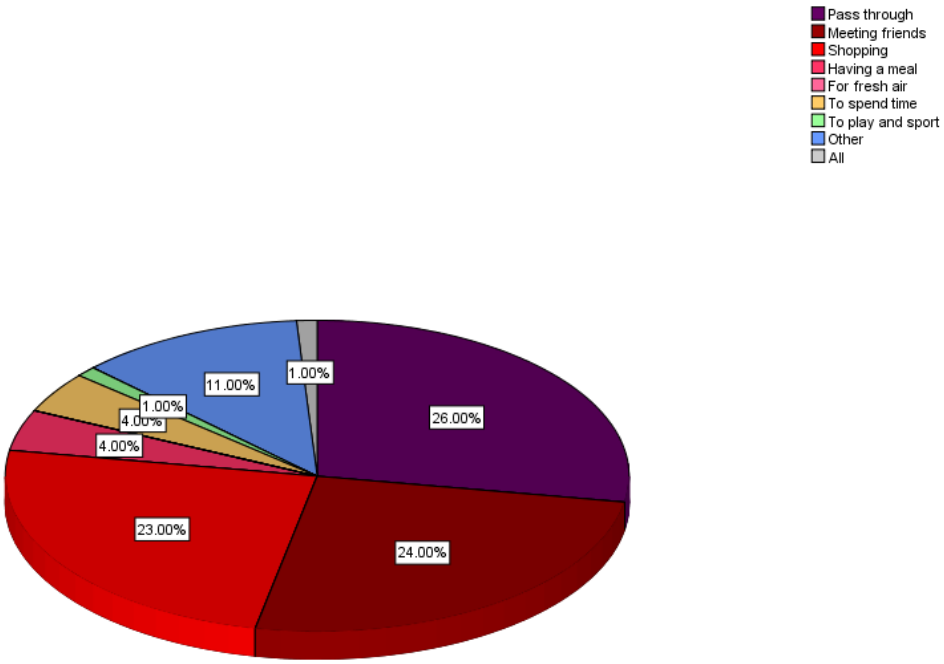


Figure 93: People activities in street

It can be said that it is the people walking, seating on a bench or in a restaurant which make the street more livable; while the Ismet Inonu Boulevard (Salamis Road) nowadays is being used for socializing, gathering, communicating, shopping, walking, and having lunch or dinner and in some cases playing and sports, there has a serious lack of sitting opportunity, greenery and natural material, landscaping elements and paving materials.

Figure 94: Necessary, Optional and Social activities happen in Salamis Road

As a result it can be said that all three categories of human activities which are defined by Gehl (1971) and introduced in Chapter 2 under title of necessary, optional and social activities take place on the Salamis Road. Necessary activities such as walking from home to classes and vice versa and necessary shopping while concentration of cafés and restaurants mostly around shopping center besides to boutiques somehow encourages optional activities. Socializing happen almost every day and night in most of restaurants and cafes along the Salamis Road. In general it can be said that poor quality of physical environment has no influence on human activities in the street.

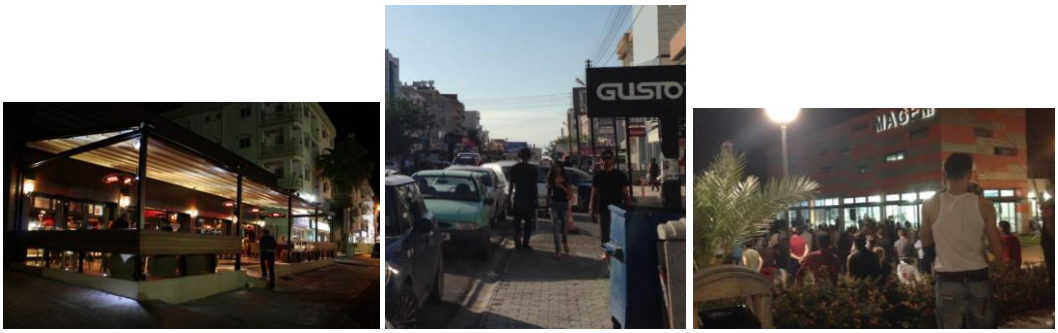


Figure 95: Variety of activities along Salamis Road

Not only social activities occur in the street but also cultural activities and celebrations like some part of spring festival and outlet (indirim) festival happen in the street almost every year. Although cultural activities take place in the street, they are not enough in number and there is need to have more of such activities, which force people to come out of their homes and visit the street.

3.2.3.1 Safety of Salamis Road

Safety along the street is a parameter that can be evaluated from questionnaire survey. 65% of respondents believe that street is safe and 23% have sometimes feel of safety in street which shows that street is safe especially during the day time. On one hand a safe environment is a place that can serve all groups of people, in such a

place they can feel safe and comfortable during day and night. According to the social analysis Salamis Road has variety of users in various time of the day which can be resulted that street have a secure atmosphere. On the other hand, according to the findings of Chapter 2, safety along a street also can be achieved by having eyes upon street and based on functional analysis of first floor existing of residential blocks in the first floor along the street make it safer especially at night when other facilities are closed. Besides existence of 24hour stores help safety of street. In general it can be concluded that Salamis Road is safe in all day and night time.

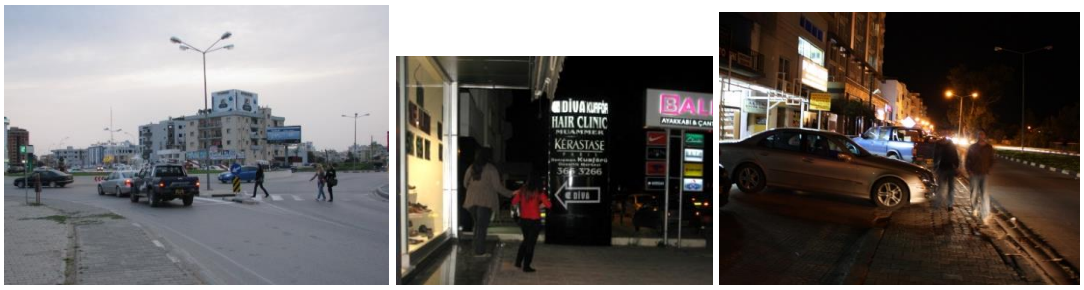


Figure 96: Safety along street

3.2.3.2 Comfort of Salamis Road

Comfort in the street can be evaluated through environmental experience of street users and somehow is related to social analysis. According to the questionnaire survey, it can be concluded that people do not feel comfortable in this street in terms of environmental and physical together with security. 39% of respondents feel lack of any kind of street furniture in the street while 19% need sitting elements and 13% wants to have more lighting elements along the street which means that users do not feel comfortable in terms of physical characteristics. In addition, observations show that the quality of pavements and flooring material are in poor conditions which also can affect the feel of comfort in a negative way. In questionnaires respondents mostly asked for a green area while 55% rated poor greenery along the street.

Moreover some people asked for a public space to provide sitting and socializing provisions. Lack of these factors can reduce the level of comfort along the street. So based on the above results it can be argued that Salamis Road is not comfortable for its users especially in terms of physical and environmental comfort.

Figure 97: Lack of environmental and physical comfort along Salamis Road

Besides to the above mentioned factors affecting comfort of street, there is another factor which has been mentioned in questionnaires is pollution. According to questionnaires 32% believed that street is polluted; however by personal observation there are no sign of air and noise pollution, most parts of street suffer from environmental and visual pollution. Although the environmental pollution is not too much, there exists unpleasant points which present negative impact on visual perspectives such as mess upped and full trash bins, construction waste around new construction buildings, shops and restaurants' rubbish (Figure 97). Generally it can be said that street have no maintenance especially related to trash cleanliness.

3.3 Summary of Chapter

In this chapter Salamis Road has been analyzed in three different characteristics: physical, functional and social which are achieved form literature review. In general street have many weaknesses in terms of physical and functional dimensions however in social characteristics street have more positive factors while having a lively atmosphere which is mostly because of existence of students and partially

mixed-use edges. The result of this chapter based on information of chapter two are summarized in Table 6 to have a general overview of all findings about Salamis Road.

Analysis shows Salamis Road certainly have potential to work as the main public open space for Famagusta, especially in terms of its social characteristics. Although there are various social activities along Salamis Road, users' needs probably all of them are not eliminated in terms of physical and functional characteristics. Lack of continuity of facilities and existence of incompatible functions along street can be mentioned as the main functional weaknesses of street. In terms of physical characteristics the main weaknesses can be mentioned as lack of street furniture, greenery and sidewalks; in addition the paving material has poor quality and are not designed appropriately. Lack of unity and continuity of building surfaces, lack of legibility, car parking, and sense of enclosure make street look distressed. These situations do not allow street become a successful pedestrian friendly street. As a result Salamis Road need strategies to be able to work as a pedestrian-friendly public space.

Based on the findings of the two previous chapters, all analysis conducted have also been presented in the form of SWOT analysis in Table 7. With the belief that all suggestions/recommendations which will be presented in the conclusion chapter will intend to use the potentials and strengths of Salamis Road to recover its weaknesses and threats. This research in order to achieve its main aim has defined recommendations in terms of Salamis Road to turn it into a successful street, which will be presented in the next chapter as its conclusion.

Table 6: Summary of characteristics of Salamis Road

	Street Characteristics	Salamis Road Characteristics
Physical Characteristics	Street form	Straight
	Street length	Long (North part: 2900m-South part: 1500m)
	Street width	Too narrow for a two-way boulevard
	Urban pattern	Irregular building distributions Attached small building blocks
	Street proportion	Suitable proportion in most parts (1:1.5, 1:1, 1:2)
	Sense of enclosure	Narrow enough to create enclosure
	Building heights	Various heights from 1 to 12 stories without harmony Undefined skyline
	Building façades	Various styles, materials, colors, roof types and heights Interrupted and disarray façades Diffused advertisement mode of shops and restaurants Poor quality of buildings
	Edge, center of street	No definite entrance and termination points Mosque as landmark Lemar and Magem as focal points Children play ground as node Interrupted building surface as street edge
	Flooring in streets	Discordant and poor flooring in front of sidewalks and shop fronts
	Street sidewalks	Narrow sidewalks Blocked sidewalks with cars Poor design and maintenance of sidewalks
	Greenery	Spread and diffused plants No planned green areas Various size and types of plants and trees
	Microclimate in streets	Good shading by trees and buildings in the morning and evening Lack of wind flow in summer
	Street furniture	Serious lack of street furniture: sitting and shading elements Poor quality of lighting elements, bins and bus stops
Functional Characteristics	Accessibility/ Permeability/ Traffic circulation	Accessible to users Not accessible for disabled people Lack of car parking Two-way street Low permeability No bike line Not enough public transportation
	Street functions	Mixed-use street with existence of incompatible functions A path for students to walk their home and classes Lack of cultural facilities
	Active-Passive edges	Partially active edges broken with vacant lands and incompatible functions
Social Characteristics	People attendance	Various groups of users in terms of age and sex
	Human activities	Diverse activities: social, economic, cultural Necessary, optional and social activities happen in street
	Safety	Safe street with appearance of people during day and 24hours shops and first floor residential buildings
	Comfort	Lack of physical comfort: street furniture and flooring Lack of environmental comfort: greenery and shading Street pollution with rubbish and waste constructions

Table 7: SWOT Analysis

Salamis Road		Strengths	Weaknesses	Opportunities	Threats
Physical Characteristics	Location	• Connector of old and new quarters of city • Being next to a residential and educational area		• Existing university in one side of street • Existence walled city near to the street	• Existence of UN banned area • Existence of closed Maras
	Street form, proportion, building heights,	• Attached small building blocks increase permeability • Narrow enough to create a sense of enclosure • Narrow enough for shopping and social interaction	• Too narrow for a two-way street • Lack of building surface damage sense of enclosure • Irregular building distribution • Irregular and various building heights • Irregular street wall • Undefined skyline	• Regular building height rule in Walled City • Rich urban pattern in Walled City	• Existence UN banned area damage continuous building surface • Lack of master plan
	Building facades	• New construction buildings with good quality	• Variety in material, architectural style, color • Existence of access gaps between each buildings • Existence of blank frontages such as UN • Diffused way of advertising in ground floor • Poor building quality	• Rich architecture of Walled City	
	Legibility	• In order trees as a defined edge • Existence of mosque as landmark • Existence of Lemar and Magem complexes as focal points • Existence of children play ground and sport facilities as node	• No definite entrance and termination points • Interrupted street edge with vacant lands and building access • Lack of node and focal points		
	Flooring and sidewalks	• Good paving quality of vehicle road • Specified sidewalks along street • Defined planter line	• Poor paving quality of sidewalks • Discordant paving material in shop fronts • Height variation in sidewalks surface • Narrow sidewalks • Poor sidewalks quality • Barriers in sidewalks such as construction waste, parked cars and rubbish • No maintenance in planter line • No arrangement for disabled		
	Microclimate	• Street narrowness creates shadow in the morning and evening • Shadow of trees in some parts of streets • Narrow enough to create shadow during day time • Narrow enough to make wind flow in street	• Lack of shading at noon • Lack of wind flow in summer days • Irregular building heights and distribution discourage wind flow	• Warm sunlight during summer	• Intense angel of sun during summer • Annoying wind flow from sea side during winter
	Street furniture	• Enough lighting equipment in specified distances • Enough bins in specified distances	• Lack of sitting and shading elements • Poor quality of bins and lighting elements • Lack of public facilities such as toilets, etc. • Lack of seats in bus stops • Lack of bus stop		• Not lit at night
	Greenery	• Trees and plants in various types and sizes • Existence of arranged trees in line in some parts of street	• Irregular distribution of trees and greenery • Lack of green area along street	• Mediterranean weather for planting	

Salamis Road		Strengths	Weaknesses	Opportunities	Threats
Functional Characteristics	Accessibility/permeability/traffic circulation	• Accessible to its users • Two-way street • Two-way access to the street • Good accessibility to each building • Good public transportation with good quality of buses • Existence of organized car parking	• High traffic in rush hours and weekend evenings • Low access quality to the street • Lack of bike line along street • Lack of buses in number • Use of vacant lands as car parking • Use of sidewalks as car parking • Low level of permeability by low number of access to the street • Low level of visual permeability • Lack of car parking in street • No accessibility and maintenance for handicapped people • Low quality of access points to the street	• Being the main access between old and new quarter of city	
	Land use	• Variety of functions • Existence of mixed use buildings along street • Street works as an accesses path for students to get their home or classes • Existence of children play ground and sport facilities in street • Street works as mixed-use street • Existence of Lemer and Magem as mixed-use complexes • Existence of vacant lands along the street	• Lack of continuity in functions • Lack of cultural facilities • Existence of incompatible functions such as gas station and UN banned area	• Working as a public space for its users especially students	• Street was formerly designed as a road not a street
	Active/passive edges	• Café and restaurants create lively and active edge for street • Boutiques and shops create activity in day time • Lively atmosphere around Lemar and Magem complexes mixed with restaurants and shops	• Limited working hours of shops deaden active edges of street at night • Vacant lands and buildings break continuity the active edge of street • Concentration of facilities in some parts of street more than other parts • Existence of UN and EMU as passive edge for street		

Salamis Road		Strengths	Weaknesses	Opportunities	Threats
Social Characteristics	Human activities and people attendance	• Existence of various groups of people ; various ages and sexes • Existence of people from morning till late at night, all days of week in street • Divers social, cultural and economic activities • Existence of necessary, optional and social activities along street	• Lack of tourists in street • Street is busier in winter than summer • Lack of cultural activities • Poor environmental quality for human activities	• Existence of international university with variety of people • Extraverted people	• Low number of students during summer • Lack of facilities to encourage elderlies and children
	Safety of street	• Safe street • Existence of houses in first floor • 24hour facilities	• Lack of lighting at night • Sidewalks with barriers		
	Comfort of street	• No air and noise pollution • Lots of vacant land along street to be designed as small plazas for sitting and socializing	• Lack of sitting and socializing facilities • Visual and environmental pollution\ • Lack of physical comfort in terms of street furniture, poor pavement and sidewalks quality • Lack of environmental comfort in terms of greenery and street pollution		

Chapter 4

CONCLUSION

Public open spaces in general and streets in particular, as it has been mentioned previously, are the main components of a city which have important role not only in city life but also in social life of people within the city. However, every street in any city may not work as public open space for that city specifically in new developments in terms of technology and car dependency. Ismet Inonu Boulevard (Salamis Road) in Famagusta has, more or less, the same problem; this street have potential to be the main public open space of the city while it is a street which not only connect the old and new quarters of the city together but also accommodate lots of shops and restaurants while providing houses and entertainment for students. So it is obvious that after the establishment of EMU which has influenced the development of the city toward north direction, Salamis Road became more important street for Famagusta. Students are the major users of street while the new facilities like Lemar complex bring more local people to the new district of the city. Besides all these facilities Salamis Road has many problems in terms of being a public open space mostly in terms of physical and functional characteristics; lack of continuity in facilities, poor quality of sidewalks, serious lack of sitting and shading elements and dangerous way of car parking in sidewalks can be mentioned as the main weaknesses of street.

Accordingly, the main aim of this study is defined as finding out the potentials and weaknesses of Salamis Road as a successful public open space especially for

pedestrians and generally for its users. The research question according to this aim is defined as “How can Ismet Inonu Boulevard (Salamis Road) be turned into a successful pedestrian-friendly public open space based on pedestrian needs?” The objectives of this research based on this aim are defined as understanding public open spaces and its types, understanding street role as public space in city, finding out streets` physical, functional and social characteristics following by human activities and needs in streets while defining success criteria for sustainable streets and specifying strengthen and weaknesses of Ismet Inonu Boulevard (Salamis Road) in terms of a public open space.

This study, in order the achieve characteristics of a successful pedestrian-friendly street after an introduction to the subject and the main problem of research in the first chapter, in the second chapter explores the concept of public open spaces in general and then focuses on street in terms of public open spaces and evaluated streets in three main characteristics as physical, functional and social in detail, while having a review on human activities in streets and their impact on each other. The final part of chapter two is dedicated to the notion of sustainable and livable streets in order to define criteria for successful streets in addition to the three main characteristics. These criteria are mainly related to providing balance between movement, ecology and community elements in streets which are essential in order to have livable streets. In the third chapter, the case of the research, Salamis Road is evaluated in terms of the outcomes of chapter two and weakness, problems and potentials, if there is any, are identified.

Based on the theoretical framework and the case study, the findings of this research will be presented in two parts. The first part will summarize the findings of the

theoretical study on street as a public open space. The second part will present recommendations to set up a basis for guidelines for turning Ismet Inonu Boulevard (Salamis Road) into a successful pedestrian-friendly street, based on the outcomes of chapter 2 in parallel with the findings of chapter 3. Finally, the research will conclude for final remarks for future studies.

4.1 Theoretical Findings

Nowadays as a result of increasing car dependency life, cities are developing based on vehicle and car movement which bring more roads in urban structure while producing lots of air and noise pollution. In parallel social life is losing its importance and people prefer to stay in their private. As a result, public spaces in cities loses their importance and become seclude. Public open spaces somehow identify urban character while providing lots of social interactions and human contact. Hence, public open spaces play an important role in the city structure while improving human life. Besides gathering various people in a place provide a situation for exchanging culture, ideas and lifestyles which can improve the quality of life in cities.

Streets as the main components of urban structure are the most virgin sort of public open spaces in cities during history. As a result streets having great potential to become a space which encompasses social life beside to being only an access for vehicles. The most important subject about street is that they facilitate pedestrian movement and access by its sidewalks in cities. Many activities such as shopping, living, working and walking happen in streets, in general they are places for social activities besides to being an access. Streets which serves pedestrians in parallel with vehicles can provide a setting for civil and courteous society. In its physical meaning

streets works as a connector of buildings in cities which ease movements of people, vehicles and goods.

In general in order to turning a street into a successful public open space both for pedestrians and vehicles various factors should be considered in terms of physical, functional and social context of street.

Physical characteristics of street are related to its form, length, proportions, unity, etc. and should be designed in such a way that create a pleasant, comfortable and welcoming space for its users. In terms of street form, a curved narrow street is more preferred by commentators because induce more sense of enclosure while offering variable and continuous views for pedestrians. Also narrow streets are healthier in terms of environmental conditions. A narrow street which exceed the length of 1500m loses it human scale while less than this measure is not recommended. Long streets mostly work as connector in the city. The best way is to have a breaks along a long street to make it more attractive while defining a place for stay in the center of a long street and encouraging people stay in it. Suitable proportion according to width of the street should be defined to provide a sense of enclosure. An appropriate proportion in street is recommended between 1:1 and 1:2.5 ratio of width of street to height of vertical elements. In general narrow streets with suitable proportions and continuous walls are more recommended for a shopping, sociable and attractive space.

A unified street possess buildings which get along with each other while respecting to another especially in its appearance and their heights. Common materials, visual elements of buildings, harmonious colors and architectural styles can bring unity to

the street. In addition building heights and forms should be in such a way that define a harmonious skyline. On the other hand ground floor façades of street which mostly possess various advertisements especially in commercial streets are the most important part of edges for pedestrians and should be designed and organized uniquely to be pleasant and welcoming for them. In general a unified street can bring a pleasant view in the eye of a passer-by and encourage it to stay in such a space.

To make street a place to stay there is a need to define places for sitting and socializing in specified distances in parallel continuous and transparent edges are recommended to make street attractive for people. Street edges should be in such a way that invite and contribute them in social interaction and fill the street with live. It is also useful to define certain start and end point for street which can be helpful for addressing and attracting people.

In addition to street edges street sidewalks are also very important for pedestrians providing proper and continuous and specified sidewalks without barrier and suitable width is a crucial need of a shopping street. Appropriate sidewalks also need high quality and designed flooring which create a suitable surface for pedestrians and users by considering all groups of users specially disabled people and elderly. In addition pavement of vehicle road should be in such a way to convey the traffic load. Changes in material of paving area can reflect changes in ownership or various traffic loads.

Providing comfortable conditions for people in the streets are also very important and is possible by considering environmental and physical situation in the street. Providing shade and wind flow when it is hot and sunlight when it is cold offer

pleasant space for users. In this sense there is an intense need of street furniture such as shading elements, artificial lighting especially at night, sitting elements and bins in a good quality to serve people and create comfortable space for them. In addition to street furniture public art can be interesting while specifying identity of the street. Another important factor which every successful street need to have are greenery along the street. Trees and vegetation in contrast to hard landscaping of a street create a sense of human scale. In addition trees can provide shadow for pedestrians and if designed well works as border of pedestrians and vehicles. Providing high air quality and reducing heat of surfaces by shadows can be benefits of using trees in streets.

As it has been mentioned previously streets besides being a path for movement and accessibility is place for various human activities such shopping, walking, working, etc. however there is a need to provide conditions which encourage people activities in street. Sufficient density and activity is needed to bring vitality to the street. Diversity in functions along the street bring more people to the street for various purposes and also empower walking in daily life. In addition to having various function in the street existence of mixed-use buildings along street also can provide diversity in the street. Higher density also have social, economic, transport and environmental benefits for the street and can be provided by having more buildings along street bring more people and activities to the street life.

A good street should be accessible to its users mostly by walking, public transport or private car. For pedestrian it is important to walk along and across street easily. In addition, maintaining and caring about physically and visually disabled people,

elderly, pregnant women and parents with babies to get and walk along the street with ease is very important to have a successful street.

People in the streets seek for attractive functions. In order to create conditions for people to stay and use the street, there is a need to have active edges along street walls. Buildings with functions which create contact with people instead of having blank or passive edges are needed to be organized in street. Active edges along street can be defined by functions such as shops, cafes, restaurants, parks, green areas etc. which offer various human activities, such as seating and socializing, shopping, walking, watching around, etc. A good street also need to have variety of activities along it in addition to variety of functions. If necessary, optional and social human activities happen in a street at any time it can be resulted that the street possess high quality of physical environment. In addition providing a safe and comfortable space is a basic need of every successful street.

In parallel to successful street there is a notion which is needed in street to become a pedestrian-friendly street which can be named as sustainability. Sustainable streets are planned to have benefit related three main issues as movement, community and ecology. In the matter of movement sustainable streets provide accessibility for people and goods to get their destinations by environmental friendly methods. Reflecting community values in terms of social, cultural, economic, etc. while supporting urban development in parallel to improving mobility objectives. Ecology matter in sustainable streets is achieved by protecting and increasing natural resources in right-of-way in environmental friendly way.

Based on the above mentioned criteria for streets which are concluded from Chapter 2 in addition to result of analysis of Chapter 3, recommendations for Salamis Road in order to turn it to a successful pedestrian friendly street will be presented in the coming section.

4.2 Recommendations for Salamis Road

Salamis Road according to the typology of streets mentioned as arterial street, multi-function street and a boulevard. As a boulevard Salamis Road may become a one-way boulevard street with a narrow median (1.5 to 3 meters width), a line of trees and safe pedestrian realm which contains sidewalks, the planted median and the access roadway. In general it can be said that Salamis Road need a defined pedestrian realm, continues three-lined medians, rows of trees and tree spacing, sufficient public transport, enough organized car parking, bike lane, intersection design, traffic control, discouraging mid-block jaywalking.

As the last part of this thesis some recommendations for setting up a basis of a guideline for Salamis Road are defined in the coming section in order to turn the Street to a successful and sustainable one, as it has been defined as the main aim of the study, which works as a public open space for its users. Recommendations are separated in two main parts based on theoretical frame work which are characteristics of streets and criteria of sustainable streets. All recommendations have been done based on the weaknesses, problems and needs of Salamis Road which are achieved from analysis chapter. The following lines will present these recommendations in more details.

4.2.1 Criteria for Turning Salamis Road into a Successful Pedestrian-Friendly Street

First part of recommendations are defined based on characteristics of streets and according to them separated into three main categories as physical, functional and social improvements which are presented below.

4.2.1.1 Improvements of Physical Characteristics

Street Form Improvements

- Defining continuous and dense street walls to increase sense of enclosure
- Designing buildings where it is needed in order to create suitable proportions
- Providing smooth and pleasant space by suitable proportions while inviting wind and shadow to the space
- Defining simple robust boundary wall to present unique building façades
- Sensitively filling gaps of building façades and vacant lands

Façade Improvements

- Defining a general standard in terms of façade materials, colors, architectural styles, windows, doorways, block size, roof type and texture to have unique façade along the street
- Defining shop signs in the theme of street and fitting them to the design of the buildings
- Attracting peoples` attention by providing striking shop signs
- Improving visual quality and eliminating brash or garish intrusion by adapting corporate logos on shop signs
- Planning a regeneration program including renovating shop fronts
- Proposing unique and related materials and designs to improve the quality and character of street
- Boarding or screening the vacant buildings with special decoration

- Increasing quality of buildings by structural maintenance
- Creating harmony between building heights to have defined sky line

Legibility Improvements

- Infill vacant lands by appropriate functions to have continues street edges
- Improving the quality of urban design by infill building development along street
- Improving the quality and facilities of the node of street to become more attractive for people to have social interaction
- Putting pedestrians signs where it is needed in order to increasing legibility
- Providing designed break points for pedestrians along the street in order to create seating and socializing opportunities
- Defining welcoming entrance and distinct end for the street
- Activating the EMU and UN edges of street

Landscape Improvements

- Creating furnished green areas along street
- Improving the visual quality of street by good landscaping combined with public art, decoration and planting
- Improving and maintaining the existing plants and trees along the street
- Increasing space quality by organized planting
- Using trees to provide shelter and high air quality
- Using flower whether in box or garden or window baskets to bring fresh color to the street
- Considering enough sitting and shading elements along the street in specified distances
- Improving the quality and design of the lighting elements based on street theme

- Encouraging building owners to lit their buildings in an effective way to increase lighting at night time
- Highlighting important buildings, spaces and activities by lighting to encourage night life

Pedestrian Path Improvements

- Improving the quality of bins along the street while locating them in suitable places
- Placing street furniture suitably in order to reduce clutter along street
- Clean up sidewalks from barriers such as advertisement boxes, bins, lighting elements, construction waste and more importantly cars
- Widening sidewalks along street
- Improving the quality of pavement along sidewalks
- Considering disabled people in designing and improving sidewalks and pavement
- Differentiating the ownership an various traffic loads by suitable flooring
- Using wind flow in a suitable way to decrease the high temperature in hot summer days

4.2.1.2 Improvements of Functional Characteristics

Accessibility Improvements

- Increasing permeability by defining more access to the street
- Improving the quality of entrance points to the street
- Improving the quality of existing car parking along the street
- Providing visual permeability by high lighting important buildings
- Increase the volume of organized and side car parking
- Providing a huge multi story car parking if possible in the backside street edge and connecting it by a well-designed and attractive path to the street

- Fixing welcoming car parking signs and entrances to the street sense
- Forbidding the existing way of car parking in sidewalks
- Preventing high-speed vehicular traffic along the street
- Reducing conflict between cars and pedestrians
- Increasing the pedestrian crossing lanes along the street and designing them properly
- Fitting traffic calming methods to the urban sense in street
- Providing a safe bike lane for bicyclists
- Increasing the number of buses and bus stops serving street
- Improving the quality of existing buses and bus stops along the street
- Defining readable sidewalks for physically and visually disabled people
- Considering people with difficulties in walking in designing sidewalks for example pregnant women, elderlies, children, etc.

Functional Improvements

- Replacing incompatible functions such as betting clubs, gas stations and UN camp, along the street with more active functions
- Provide continuous facilities to invite people
- Filling vacant lands by related functions or various social, cultural and economic functions
- Bringing livability and inviting people to the street by planning festivals and local events
- Managing continuous facilities and functions along street
- Structuring suitable functions around Toros roundabout and before EMU roundabout to activate them
- Bring more attractive functions to induce livability in the north side of street
- Placing cultural functions along the street

- Eliminating passive edges by replacing them by active functions
- Encouraging night life in the street by providing functions which attract people
- Activating EMU and UN passive edges

4.2.1.3 Improvements of Social Characteristics

- Attracting elderlies and children by providing attractive facilities for them in the street
- Providing small designed plazas along the street with suitable furniture and landscape to serves people especially elderlies
- Placing more children play grounds besides to children shops and facilities in order to encourage children to use the street
- Encouraging necessary, optional and social activities by providing high quality of urban environment
- Offering diverse activities to invite people to the street such as seasonal or yearly festivals, artistic exhibition, etc.
- Increasing lighting at night time to enhance sense of safety
- Controlling high speed traffic especially late at night to increase sense of safety
- Enhancing physical comfort by designing and placing suitable street furniture along street
- Cleaning up the rubbish, waste constructions, retail and leisure dump and cars from pedestrian sidewalks
- Increasing the quality of pavement in order to offer comfort while walking for pedestrian
- Increasing environmental comfort by planting, greenery, providing shadow, etc.

- Providing mixed-use complexes such as Lemar to encourage local people using street
- Offering attractive facilities to attract tourists to the street

4.2.2 Criteria for Turning Salamis Road into a Sustainable Street

This part of guidelines are defined based on outcomes of criteria for sustainable streets in parallel with outcomes of the Salamis Road analysis. The guidelines in this part are defined based on the main dimensions of sustainable streets which are defined as movement, ecology and community and have been promoted to the Salamis Road.

4.2.2.1 Movement

- Accommodating convenience and reliable accessibility
- Reducing vehicle dependent travels by increasing non-motorized transit modes
- Controlling vehicle speed based on community goals and energy by suitable street design
- Providing independent mobility along street
- Providing access for emergency vehicle where is possible
- Increasing active travel by increasing the level of accessibility
- Accommodating suitable land use pattern offering various activities
- Providing suitable connection between walking, biking and transit networks
- Providing enough parking lots
- Improving bus stops with shelter
- Facilitating use of bicycle by adding suitable bike lane
- Increasing pedestrian movements by adding fully accessible sidewalks and improving crossroads
- Easy street crossing

- Define a suitable public transportation
- Encourage walking as the fundamental component of street

4.2.2.2 Community

- Improving natural and built environment based on local identity, beauty and distinction
- Supporting infill and compact development
- Designing based on local traditions, resources and priorities
- Encouraging sociability and community life by providing public gathering places along the street
- Improving property values in street context
- Providing festivals and community events in street
- Designing distinct lighting and street furniture which reflect local tradition
- Providing suitable access to the adjoining properties
- Landscaping by using native and climate related plants
- Improving aesthetic environments
- Providing convenient and safe pedestrian realm distinct from vehicular traffic
- Providing safe places for bus and taxi waits transfer
- Attracting economic activities within street

4.2.2.3 Ecology

- Improving air quality by increasing planting
- Decreasing effect of urban heat island by using non-reflective surfaces
- Accommodating facilities to save solar energy in a sufficient way
- Providing facilities such as storm water management in order to save rain water
- Preserving natural features and landscape along street
- Accommodating waste recycle bins instead of normal ones

- Planting trees where it is possible along the street
- Using permeable and high albedo paving while reducing paving surface
- Using environmental friendly materials in structuring buildings
- Using energy efficiency traffic lighting and signals

As a general conclusion it can be said that Salamis Road which is a connection between old and new quarters of the city and play an important role in liveliness of the city need to be more cared especially in terms of functional and physical characteristics. Salamis Road need to be redesigned appropriately based on users need and activities and most importantly environmental friendly and sustainable principles in order to become a successful street. If all these recommendations are applied in the form of a design guidelines then we may argue that Salamis Road might became a smart growth and a living street.

4.3 Final Remarks for Future Study

Consequently, this research has been done to specifying the current situation of Salamis Road in terms of physical, functional and social characteristics of a well-designed and sustainable streets and promoting these characteristics in Salamis Road.

Two further studies could be done for the application of the recommendations provided in this research. One of them is for developing a design guidelines for Salamis Road and the second one is for the management of the street.

The study will be useful for the future researchers who are working on public open spaces and especially on streets. At the next level, local authorities who has the responsibility on turning the street into a more successful one can benefit from this

thesis. The study will be useful also for the central authorities while they are preparing a master plan and its guidelines.

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APPENDICES

Appendix A: Sample of English Questionnaire

Questionnaire

This questionnaire survey is conducted by Shadab Fouladkhani, Master candidate of M.S in Urban Design program, in the Department of Architecture, Faculty of Architecture, Eastern Mediterranean University, Famagusta, North Cyprus, as a part of her Master studies under the supervision of Prof. Dr. Şebnem Onal Hoskara. All collected data will be analyzed by Shadab Fouladkhani under the guidance of Prof. Dr. Şebnem Onal Hoskara.

The purpose of this research to try to understand the problems and needs of pedestrians in Ismet Inonu Boulevard which is well known as "Salamis Road", as a public open space, to improve its quality towards a more pedestrian friendly street space.

Direction:

- Put a check (√) to your corresponding answer. (If you have more than one option please mention)

Thank you in advance for your time and support.

A: Personal Information:

Gender		Age						Marriage status				Employment						Education				
M	F	13-18	19-24	25-34	35-50	51-64	65 and older	Married	Single	Widow	Divorced	Working	University Student	School student	Retired	Unemployed	Housewife	never attended school	Primary/Secondary School	High School	University	Post-Grad. Degree (Master/PhD)

1- What is your nationality?

☐Turkish Cypriot ☐Turkish ☐Other (Please specify) …….

2- Are you a

☐Student ☐Tourist ☐Local ☐Resident

3- Are you a shopkeeper or a user of Salamis Road?

……..

4- Where do you live?

☐Walled city ☐Baykal ☐Gulseren ☐Karakol ☐Sakarya

☐EMU campus ☐Other (Please specify)…….

B: Usage of Street:

5- How often do you come to Salamis Road?

☐Daily or more than three times a week ☐1-3 times a week

☐1-3 times a month ☐Monthly ☐Never

6- When do you prefer to visit the Salamis Road?

☐During the day time ☐In the evening ☐At night

☐During the week ☐At weekends

7- Are you satisfied with the working hours of shopping facilities during week and at weekends?

☐Yes ☐No ☐Not bad If you have any idea please specify…….

8- Are you satisfied with the working hours of restaurants and cafes during week and at weekends?

☐Yes ☐No ☐Not bad If you have any idea please specify……

9- Is Salamis Road accessible enough for you?

☐Yes ☐No ☐Not bad ☐No idea

10- Do you like to spend some free time in Salamis Road?

☐Yes ☐No

11- Do you feel safe at any time of the day in Salamis Road?

☐Yes ☐No ☐Sometimes

C: Physical Characteristics of Salamis Road:

12- Do you think the existing pedestrian pathways and sidewalks in Salamis Road are efficient?

☐Yes ☐No

13- How do you rate the condition of pavements of pedestrian paths along Salamis Road?

☐Poor ☐Fair ☐Good ☐Excellent

14- How do you rate the safety along the pedestrian paths of Salamis Road?

☐Poor ☐Fair ☐Good ☐Excellent

15- Is Salamis Road equipped well in terms of public facilities (WC, etc.)? If no what is needed?

☐Yes ☐No (Please specify)……

16- Is Salamis Road equipped well in terms of street furniture?

☐Yes ☐No

If no what is needed?

☐Bin ☐Lighting ☐Sitting elements ☐Shelter

☐Public art ☐Signage ☐Paving material

17- What do you think about lighting of pedestrian paths at nights along the Salamis Road?

☐Poor ☐Fair ☐Good ☐Excellent

18- How do you see the condition of shadings elements along the pedestrian paths of Salamis Road?

☐Poor ☐Fair ☐Good ☐Excellent

19- How do you rate the greenery along the Salamis Road?

☐Poor ☐Fair ☐Good ☐Excellent

20- How do you rate the sitting elements along pedestrian path of Salamis Road?

☐Poor ☐Fair ☐Good ☐Excellent

21- How do you rate the signage along the Salamis Road?

☐Poor ☐Fair ☐Good ☐ Excellent

22- What is the quality of buildings along the Salamis Road?

☐Poor quality ☐Intermediate quality ☐High quality

23- How do you see the safety in interaction points between pedestrians and vehicles in Salamis Road?

☐Poor ☐Fair ☐Good ☐Excellent

24- How do you see the safety of pedestrians while crossing the Salamis Road?

☐Poor ☐Fair ☐Good ☐Excellent

25- Do you think the existing entrance points of cars to Salamis Road are adequate?

☐Yes ☐No

26- How do you see the safety and quality of entrance points of cars to Salamis Road?

☐Poor ☐Fair ☐Good ☐Excellent

27- Do you think the existing way of car parking in Salamis Road is safe for pedestrian?

☐Yes ☐No

28- Do you think the side parking along Salamis Road is proper?

☐Yes ☐No

29- How do you rate the density of the traffic along the Salamis Road?

☐Low ☐Intermediate ☐High ☐No idea

30- Which kind of existing transportation modes do you prefer to use along Salamis Road if all facilities about it be in a good condition?

☐Public transportation ☐Private car ☐Bicycle ☐Walking

D: General information about user feeling along the Salamis Road:

31- Do you think the existing functions along the Salamis Road are adequate?

☐Yes ☐No

32- Why do you use Salamis Road usually?

☐Pass through ☐Meeting friends ☐Shopping ☐Having a meal ☐For fresh air ☐To spend time ☐To play and sport ☐To relax ☐To take a walk ☐Other (Please specify)……..

33- What are the negative points of Salamis Road?

☐Poor quality of buildings ☐Safety ☐Pollution ☐Lack of continuity in facilities ☐Bad quality of pavements ☐Lack of restaurant and cafe ☐Narrowness ☐ Lack of street elements, furniture (please specify)…….

☐Lack of parks and plazas ☐Other (Please specify)……

34- What are the factors which encourage you to spend time in Salamis Road?

☐Attractiveness ☐Safety ☐Sense of belonging ☐Comfort ☐livability ☐Cleanliness ☐Mixed use ☐Greenery ☐Facilities (Cafés) ☐Facilities (Shops) ☐Sitting opportunity ☐Maintenance ☐Pedestrian pavements ☐Ease of circulation ☐Other (Please specify)……

35- How would you rate fulfilling your needs while walking along Salamis Road?

☐Bad ☐Fair ☐Good ☐Excellent ☐Superb

36- In general are you satisfied with the quality of Salamis Road?

☐Very satisfied ☐Somewhat satisfied ☐Not satisfied ☐Not sure

37- What do you expect to see and have in Salamis Road?

☐Eating and drinking facilities ☐Entertainment ☐Children play grounds ☐Possibility of watching around ☐Sport facilities ☐Use of landscape elements ☐Sitting and socializing ☐Shops/Offices ☐Parks/Plazas ☐Restaurant/Cafe ☐Resting area ☐Crowds of people ☐Street furniture ☐Other (Please specify)……..

38- Do you have any comments regarding the improvements of Salamis Road?

…….

Thank for your time and support ☺

Appendix B: Sample of Turkish Questionnaire

Anket

Ben, Doğu Akdeniz Üniversitesi Mimarlık Fakültesi Mimarlık Bölümü, Kentsel Tasarım Yüksek Lisans programı öğrencisiyim.

Bu anket soruları, Mimarlık Fakültesi Mimarlık Bölümü Öğretim Üyesi Prof.Dr. Şebnem Hoşkara tarafından yürütülen "İsmet İnönü Bulvarı'nın (Salamis Yolu) Sürdürülebilirlik Açısından Değerlendirilmesi" adlı tez çalışmam ile ilgilidir ve toplanan bilgiler sadece tez çalışmamda kullanılacaktır.

Yardımlarınız için teşekkürler.

Shadab Fouladkhani

Yöntem:

- Lütfen uygun cevabı (√) ile işaretleyiniz.

A: Kişisel Bilgiler:

Cinsiyet		Yaş						Medeni durum				İş Durumu						Eğitim Durumu				
M	F	13-18	19-24	25-34	35-50	51-64	65 and older	Evli	Bekar	Dul	Boşanmış	Çalışıyor	Üniversite Öğrencisi	Öğrenci	Emekli	İşsiz	Ev hanımı	Hiç Okula gitmedi	İlkokul / Ortaokul	Lise	Üniversite	Yükseklisans / Doktora

1- Uyruğunuz?

☐Kıbrıslı Türk ☐Türkiyeli ☐Diğer (Lütfen belirtiniz) …….

2- Mağusa'da bulunma amacınız?

☐Öğrenci ☐Turist ☐Mağusa'da yaşıyorum (Yerli)

3- Salamis Yolu'nda bir dükkan çalışanı mısınız yoksa sadece kullanıcı mı?

……..

4- Mağusa'da nerede yaşıyorsunuz?

☐Suriçi ☐Baykal ☐Gülseren ☐Karakol ☐Sakarya

☐DAÜ Kampus ☐ Diğer (Lütfen belirtiniz) …….

B: Salamis Yolu'nun Kullanım Özellikleri:

5- Salamis Yolu'na hangi sıklıkta geliyorsunuz?

☐Günlük ya da haftada 3 kereden fazla ☐Haftada 1-3 kez

☐Ayda 1-3 kez ☐Ayda 1 ☐Hiçbir zaman

6- Salamis Yolu'nu hangi zamanlarda kullanıyorsunuz?

☐Gün içinde ☐Akşamları ☐Gece

☐Hafta içi ☐Hafta sonları

7- Salamis Yolu'nda hafta içi ve hafta sonu alışveriş saatlerinden memnun musunuz?

☐Evet ☐Hayır ☐Fena değil Başka bir görüşünüz varsa lütfen belirtiniz……

8- Salamis Yolu'nda hafta içi ve hafta sonu restaurantların ve kafelerin çalışma saatlerinden memnun musunuz?

☐Evet ☐Hayır ☐Fena değil Başka bir görüşünüz varsa lütfen belirtiniz……

9- Salamis Yolu sizin için yeterince/kolay ulaşılabilir midir?

☐Evet ☐Hayır ☐Fena değil ☐Fikrim yok

10- Boş zamanlarınızda Salamis Yolunda zaman geçirmekten hoşlanır mısınız?

☐Evet ☐Hayır

11- Salamis Yolunda günün her saatinde kendinizi güvende hisseder misiniz?

☐Evet ☐Hayır ☐Bazan

C: Salamis Yolu'nun Fiziksel Özellikleri:

12- Salamis Yolu'nda mevcut kaldırımlar / yaya yolları sizce iyi midir / uygun mudur?

☐Evet ☐Hayır

13- Salamis Yolu üzerindeki yaya kaldırımlarının fiziksel durumunu nasıl değerlendirirsiniz?

☐Kötü ☐Orta ☐İyi ☐Mükemmel

14- Salamis Yolu üzerindeki yaya kaldırımlarının güvenlik durumunu nasıl değerlendirirsiniz?

☐Kötü ☐Orta ☐İyi ☐Mükemmel

15- Salamis Yolu kamusal hizmetler/olanaklar (tuvaletler, vb) açısından iyi donanımlı mıdır? Eğer değilse ne tür ihtiyaçlar vardır?

☐Evet ☐Hayır (Hayırsa gerekenleri lütfen belirtiniz)……

16- Salamis Yolu sokak mobilyaları açısından iyi donanımlı mıdır?

☐Evet ☐Hayır

Eğer değilse ne tür ihtiyaçlar vardır? (Birden fazla işaretleyebilirsiniz.)

☐Çöp kutusu ☐Aydınlatma elemanları ☐Oturma elemanları ☐Gölgelendirme elemanları

☐Sanatsal öğeler ☐Tabelalar ☐Yer döşeme elemanları

17- Salamis Yolu üzerinde yaya kaldırımları boyunca gece aydınlatması nasıldır?

☐Kötü ☐Orta ☐İyi ☐Mükemmel

18- Salamis Yolu üzerinde yaya kaldırımları boyunca gölgelendirme elemanları nasıldır?

☐Kötü ☐Orta ☐İyi ☐Mükemmel

19- Salamis Yolu üzerindeki yeşillendirmeyi nasıl buluyorsunuz?

☐Kötü ☐Orta ☐İyi ☐Mükemmel

20- Salamis Yolu üzerindeki oturma elemanlarını nasıl değerlendirirsiniz?

☐Kötü ☐Orta ☐İyi ☐Mükemmel

21- Salamis Yolu üzerindeki tabelaları nasıl değerlendirirsiniz?

☐Kötü ☐Orta ☐İyi ☐Mükemmel

22- Salamis Yolu üzerindeki binaların kalitesi sizce nasıldır?

☐Kötü kalite ☐Orta kalitede ☐Yüksek kalitede

23- Salamis Yolunda yayalar ile motorlu araçların kesişim noktalarındaki güvenliği nasıl değerlendirirsiniz?

☐Kötü ☐Orta ☐İyi ☐Mükemmel

24- Salamis Yolunda karşıdan karşıya geçen yayaların güvenliğini nasıl değerlendirirsiniz?

☐Kötü ☐Orta ☐İyi ☐Mükemmel

25- Motorlu araçların Salamis Yoluna giriş yaptıkları yan yolların uygun olduğunu düşünüyor musunuz?

☐Evet ☐Hayır

26- Motorlu araçların Salamis Yoluna giriş yaptıkları yan yolların kalitesi ve güvenli oluşunu nasıl değerlendirirsiniz?

☐Kötü ☐Orta ☐İyi ☐Mükemmel

27- Salamis Yolundaki mevcut araç park etme biçimi yayalar için güvenli midir?

☐Evet ☐Hayır

28- Salamis Yolu üzerinde yol kenarına araç park edilmesi sizce uygun mudur?

☐Evet ☐Hayır

29- Salamis Yolu'ndaki trafik yoğunluğunu nasıl değerlendirirsiniz?

☐Düşük ☐Orta ☐Yüksek ☐Fikrim Yok

30- Salamis Yolundaki tüm olanaklar en iyi durumda olsaydı, Salamis Yolu buyunca hangi tür ulaşım modelini kullanmayı tercih ederdiniz?

☐Toplu taşıma ☐Özel araç ☐Bisiklet ☐Yürüyüş

D: Salamis Yolu üzerindeki kullanıcıların duygu ve düşünceleri / memnuniyetl durumları hakkında genel bilgiler:

31- Sizce Salamis Yolu üzerindeki fonksiyonların yeterli ve uygun olduğunu düşünüyor musunuz?

☐Evet ☐Hayır

32- Salamis Yolunu genellikle neden (hangi amaçlar için) kullanıyorsunuz?

☐Gelip geçmek ☐Arkadaşlarla buluşma ☐Alışveriş ☐Yemek yemek

☐Hava almak ☐Zaman geçirmek ☐Oynamak ve spor ☐Dinlenmek

☐Yürüyüş yapmak ☐Diğer (Lütfen belirtiniz)……..

33- Salamis Yolunun olumsuzlukları sizce nelerdir? (Birden fazla işaretleyebilirsiniz.)

☐Kötü kalitedeki binalar ☐Güvenlik ☐Kirlilik ☐Servis ve olanakların süreksizliği ☐Kötü kalitede kaldırımlar ☐Restaurant ve kafelerin yetersizliği ☐Yolun darlığı ☐ Sokak mobilyalarının yetersizliği ☐Yeşil alan yetersizliği ☐Diğer (Lütfen belirtiniz)……..

34- Salamis Yolunda zaman geçirmenizi teşvik eden faktörler nelerdir? (Birden fazla işaretleyebilirsiniz)

☐Çekicilik ☐Güvenlik ☐Aidiyet hissi ☐Rahatlık ☐Yaşanabilirlik

☐Temizlik ☐Karma kullanımlar ☐Yeşillik ☐ Olanaklar (Cafés)

☐Olanaklar (Dükkanlar) ☐Oturma imkanları ☐BAkım ☐Yaya kaldırımları

☐Dolaşım kolaylığı ☐Diğer (Lütfen belirtiniz)……..

35- Salamis Yolunda yürürken gereksinimlerinizin karşılanma durumunu nasıl değerlendirirsiniz?

☐Kötü ☐Orta ☐İyi ☐Mükemmel ☐Süper

36- Genel anlamda Salamis Yolunun kalitesinden memnun musunuz?

☐Çok memnunum ☐Biraz memnunun ☐Memnun değilim ☐Emin değilim

37- Salamis Yolu boyunca ne tür aktiviteler olmasını dilersiniz / neler görmek istersiniz? (Birden fazla işaretleyebilirsiniz.)

☐Yeme-içme olanakları ☐Eğlence ☐Çocuk oyun alanları

☐Etrafı izleme olanakları ☐Spor olanakları ☐Peyzaj elemanları

☐Oturma ve sosyalleşme ☐Dükkanlar/ofisler ☐Parklar/meydanlar

☐Restaurant/Café'ler ☐Dinlenme alanı ☐Kalabalık insan

toplulukları ☐Sokak mobilyaları ☐Diğer (Lütfen

belirtiniz)……..

38- Salamis Yolunun daha iyi olabilmesi adına herhangi bir öneriniz var mı? Varsa lütfen yazınız.

…….……

Zamanınız ve desteğiniz için teşekkürler. ☺

Appendix C: Analysis Maps

Success and Sustainability Criteria for Streets: The Case of Ismet Inonu Boulevard (Salamis Road), Famagusta

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Northern part of Salamis Road
Southern part of Salamis Road

As location analysis shows Cyprus Island owns a distinct geographical situation surrounded by three continents in Mediterranean Sea. Famagusta is one the most important ports of the Island; while possessing a historic city character and a university campus. The location of Salamis Road as it has been marked above, somehow works as a connector of these two important factors of city.

P1 **LOCATION ANALYSIS**

Success and Sustainability Criteria for Streets: The Case of Ismet Inonu Boulevard (Salamis Road), Famagusta

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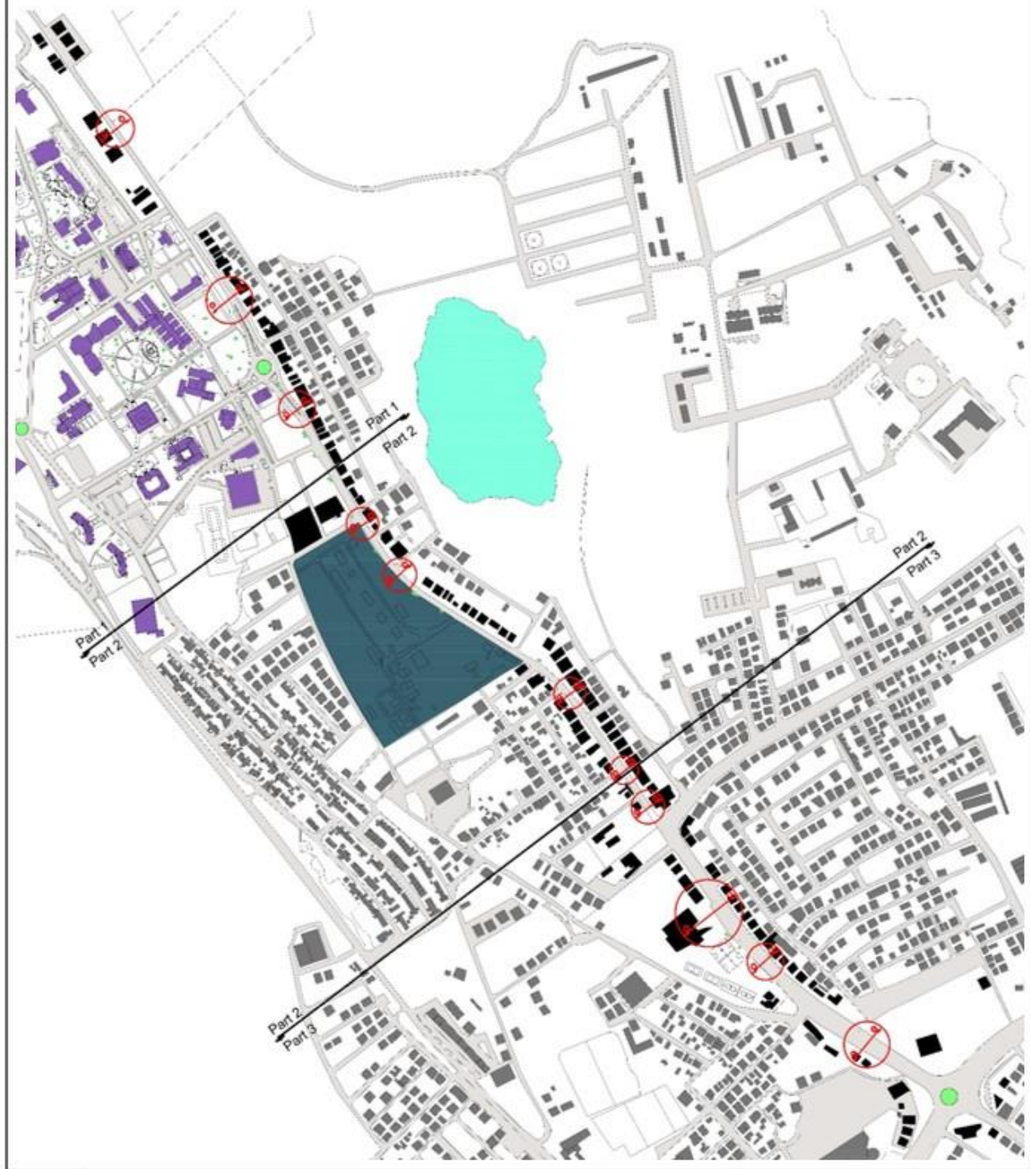

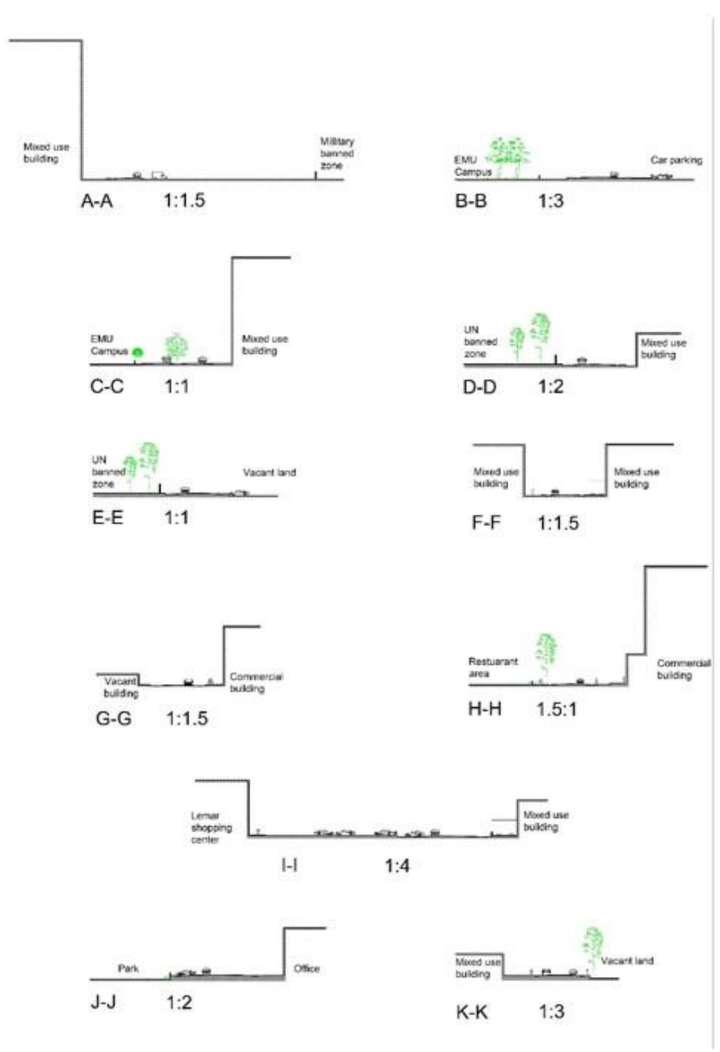

P2 **FIGURE GROUND ANALYSIS**

Scale: 1/10000
1 1/2 0 100m

N

The map shows the mass and open spaces of street and its surrounding area. According to the map along the street and around the Toros roundabout specially in northern part the density is higher; however along the street blocks are not distributed well, as a result and according to street sections street lacks enclosure in general.

Success and Sustainability Criteria for Streets: The Case of Ismet Inonu Boulevard (Salamis Road), Famagusta

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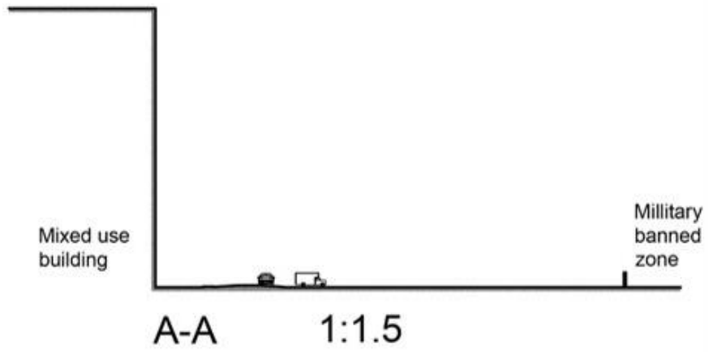
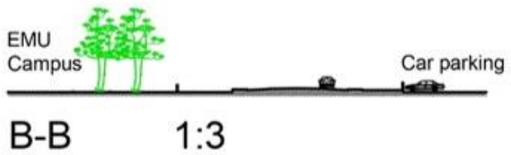
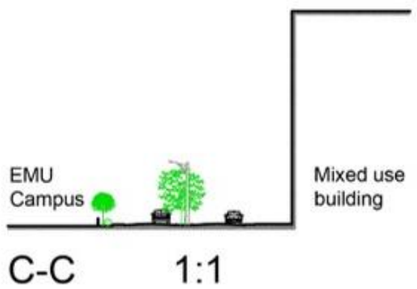
Eastern Mediterranean University







P2a **FIGURE GROUND ANALYSIS** (Part 1)

Scale: 1/5000
1 1/2 0 100m

Success and Sustainability Criteria for Streets: The Case of Ismet Inonu Boulevard

(Salamis Road, Famagusta

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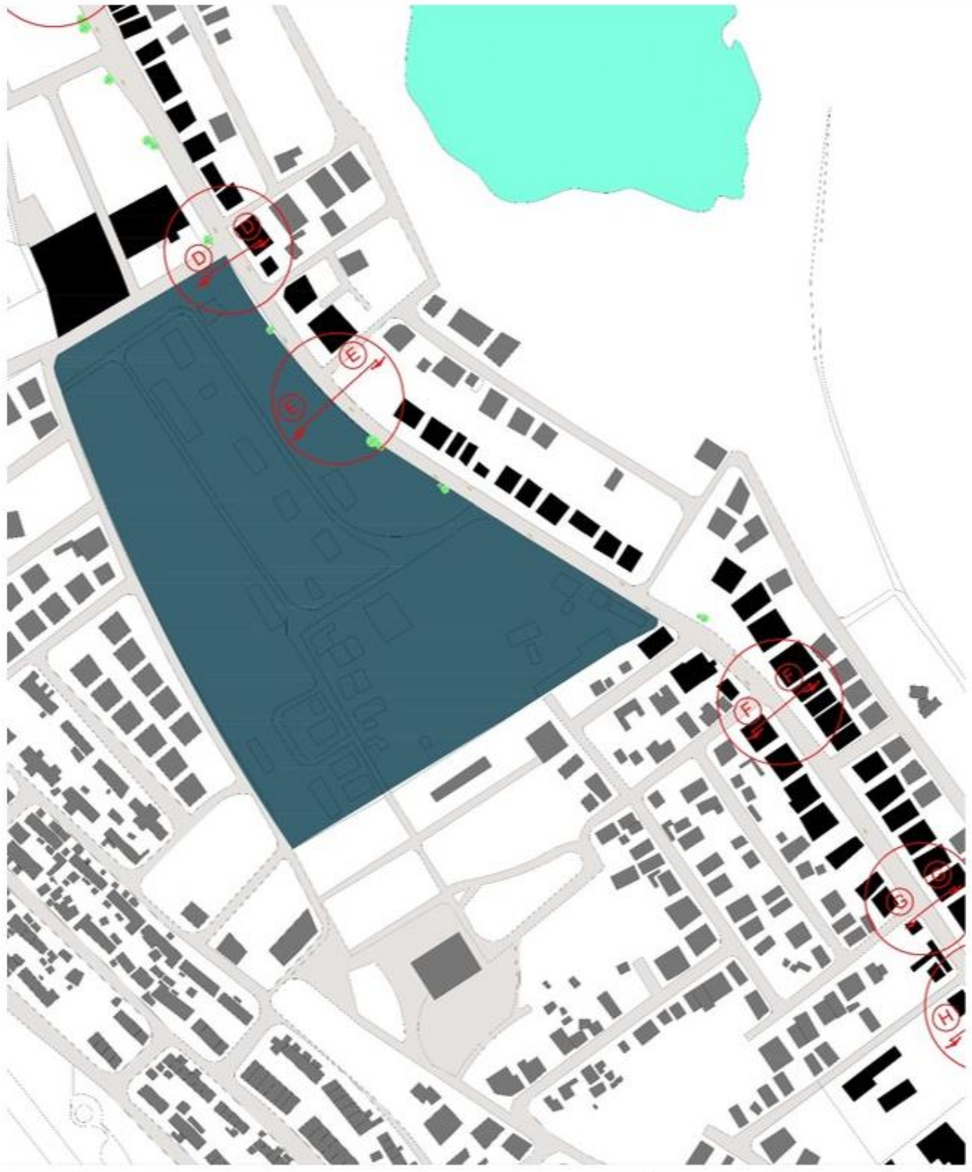
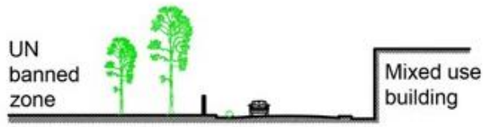
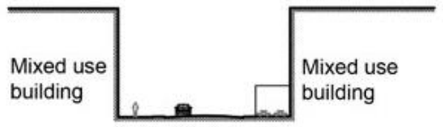
Eastern Mediterranean University



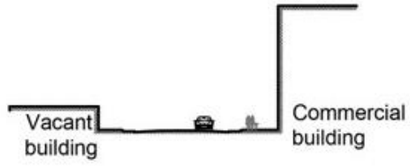


D-D 1:2

E-E 1:1



F-F 1:1.5



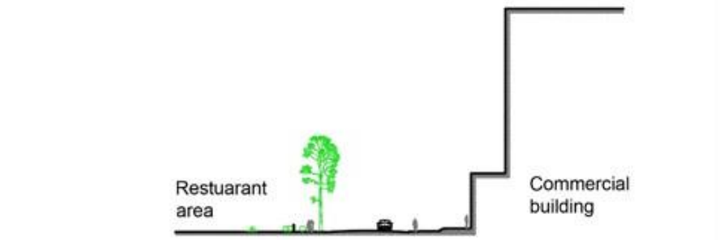
G-G 1:1.5

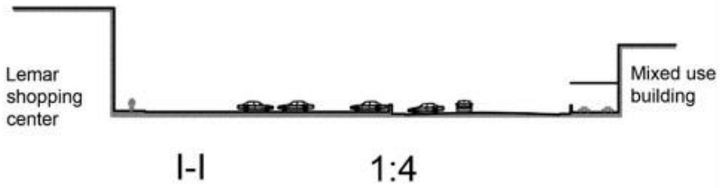
P2b **FIGURE GROUND ANALYSIS** (Part 2)

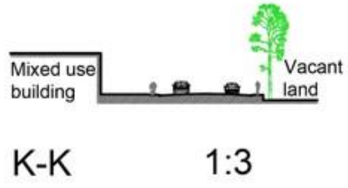
Scale: 1/5000
1 1/2 0 100m

Success and Sustainability Criteria for Streets: The Case of Ismet Inonu Boulevard (Salamis Road), Famagusta

Shadab Fouladkhani
M.S Urban Design Program
Department of Architecture
Faculty of Architecture
Eastern Mediterranean University





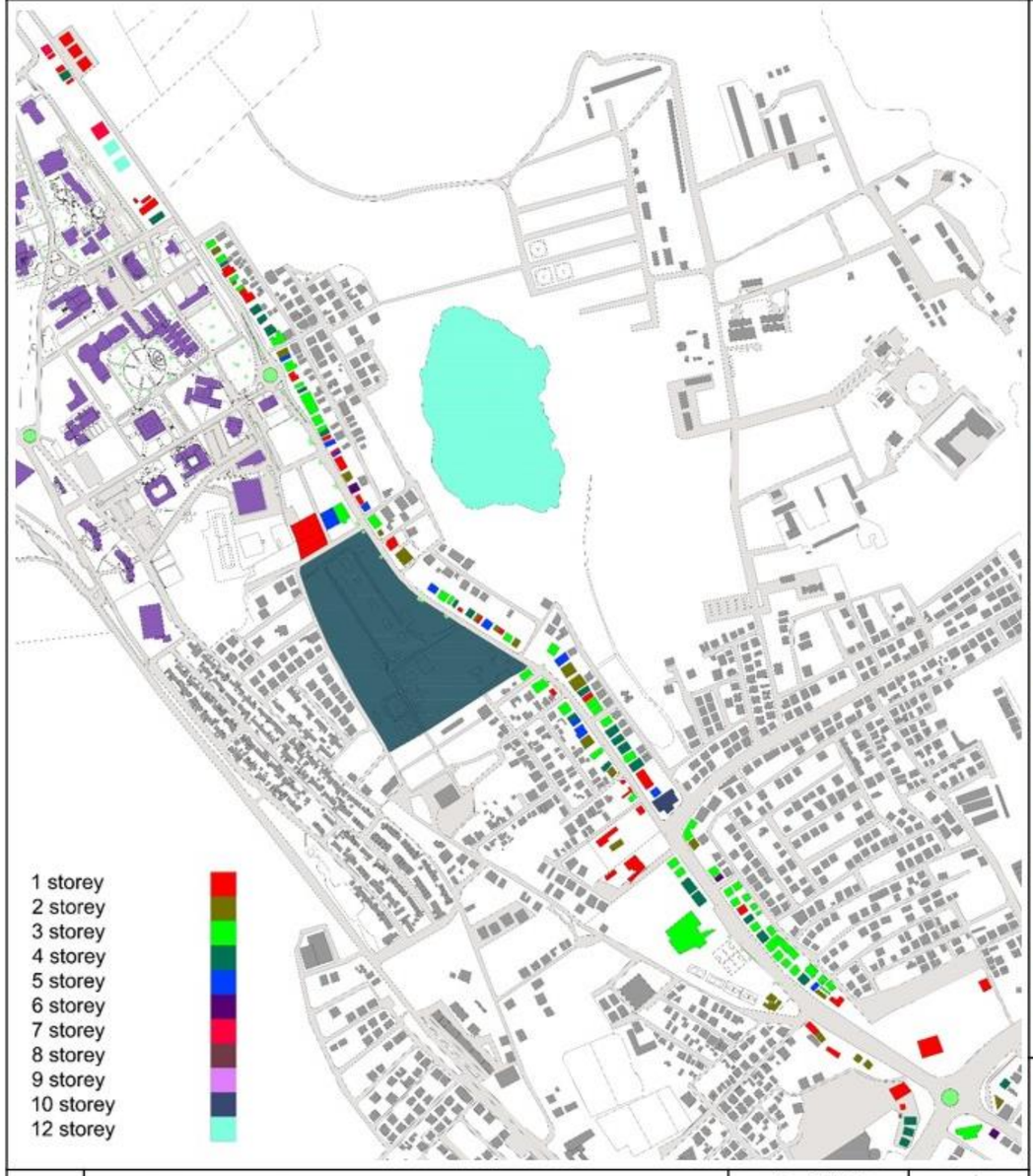


P2c **FIGURE GROUND ANALYSIS** (Part 3)

Scale: 1/5000
1 1/2 0 100m

Success and Sustainability Criteria for Streets: The Case of Ismet Inonu Boulevard (Salamis Road), Famagusta

Shadab Fouladkhani
M.S Urban Design Program
Department of Architecture
Faculty of Architecture
Eastern Mediterranean University



As the map shows there are variety of heights between buildings along the street from one storey to 12 stories while some parts of street have no buildings like UN zone and vacant lands. So it can be said that there is no harmony in the height of buildings; as a result the street has no defined skyline which bring unpleasant view to users.

P3 **BUILDING HEIGHTS**

Scale: 1/10000
1 1/2 0 100m

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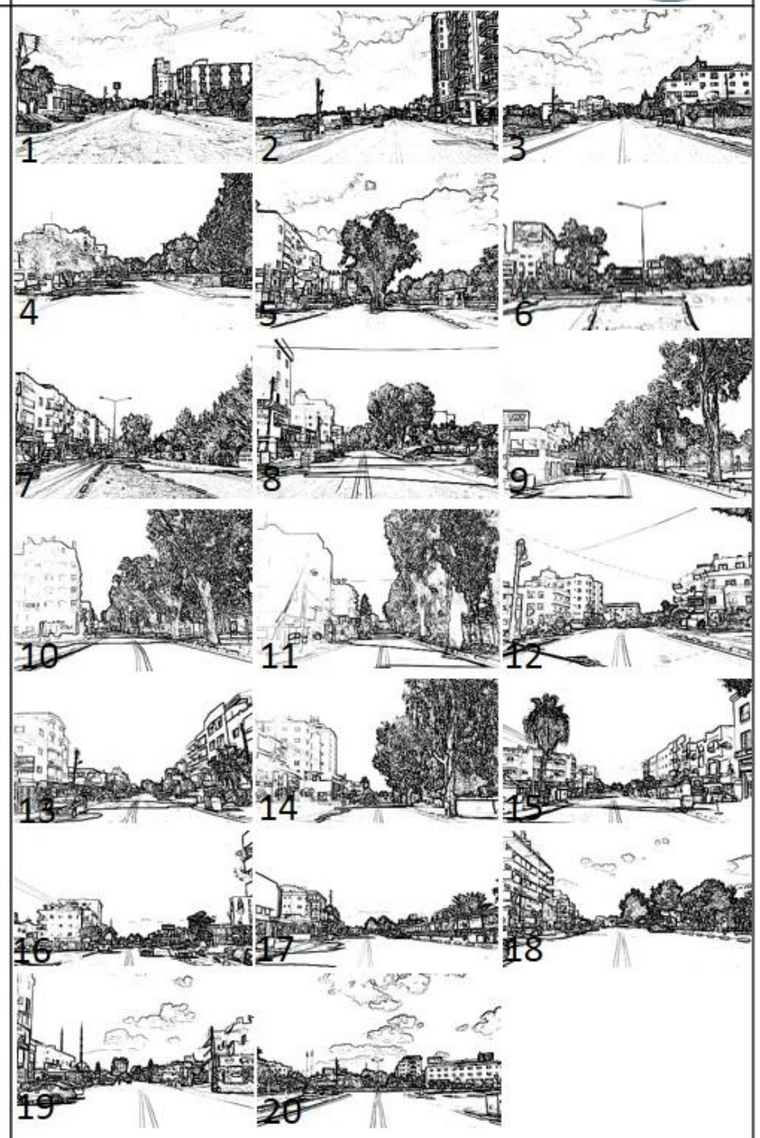

According to sketches it can be concluded that the curvature form of street has important role in changing views while the role of trees and buildings can not be ignored. Irregularity in building heights have negative effect on views.

P4 **SERIAL VISION**

Scale: 1/10000
1 1/2 0 100m

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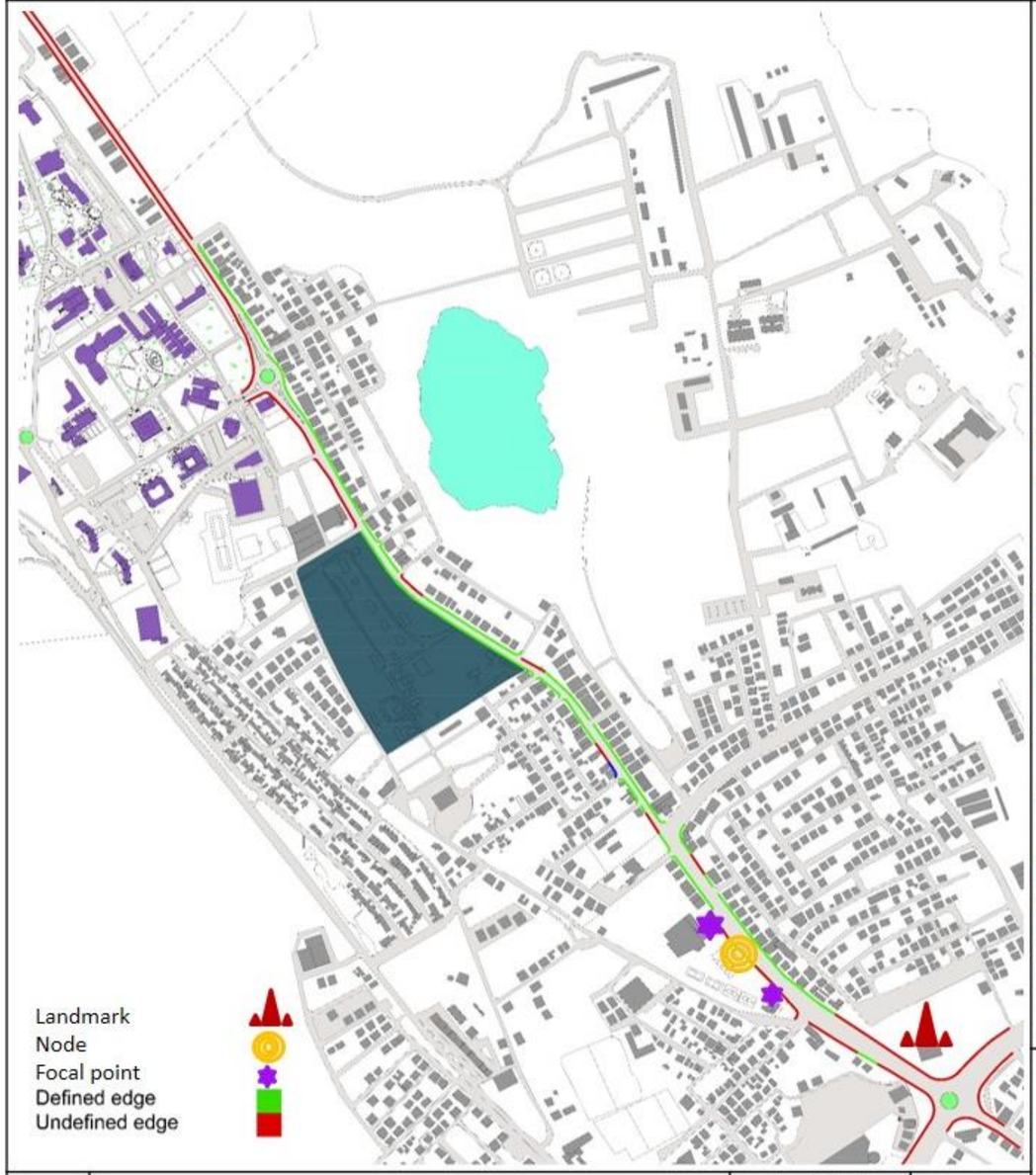

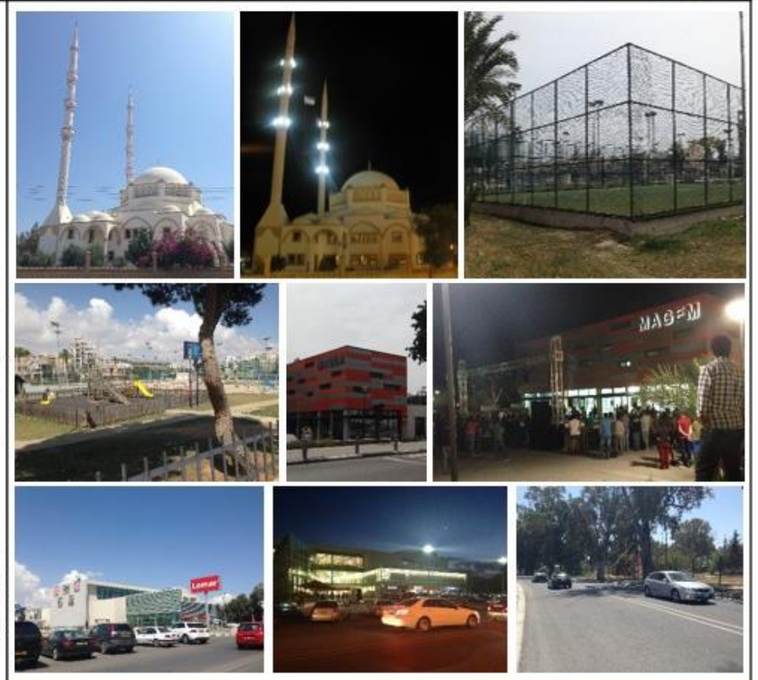

P5 | **LYNCH ANALYSIS** | Scale: 1/10000 | 1 1/2 0 100m | N

According to Lynch analysis the Mosque work as landmark of street; children playground and park are the node for street while Magem and Lemar are the focal points of street. According to the analysis street is not legible enough as such a long street need to have more nodes along it. As the map shows, street edges in northern part are not defied; toward south part of street mostly buildings define the street edge except in some parts like UN side, trees define sedges. Vacant lands have broken continuous edges in some parts.

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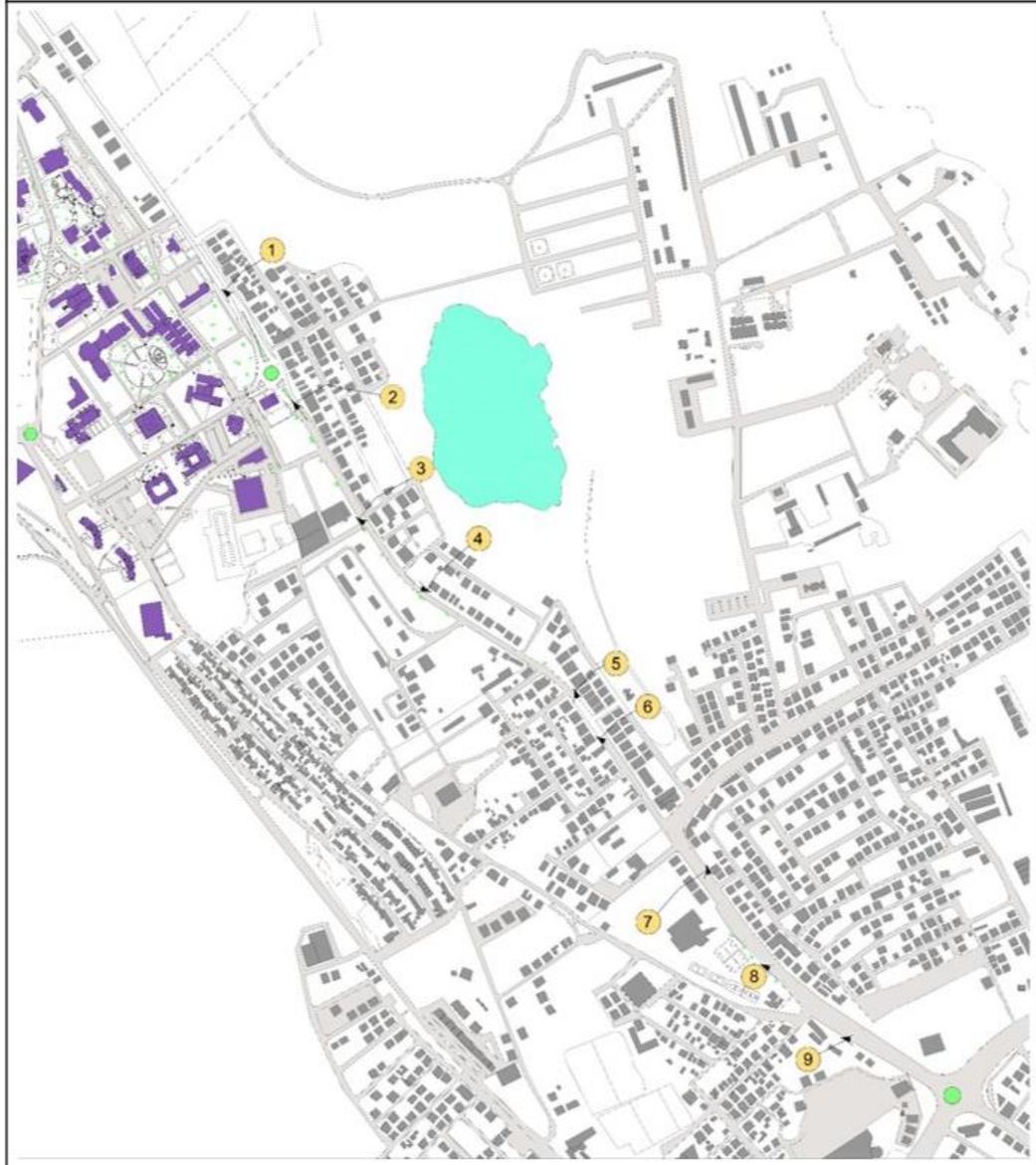

This analysis shows the movement of sunlight in two times of day, morning and afternoon, in various parts of the street. In pictures it is seen that mostly in the afternoon and where there are buildings and street is more narrow lines of shadow covers the street and sidewalks. More importantly trees have an significant role in creating shadow in the street.

P6 **MICROCLIMATE ANALYSIS**

Scale: 1/10000
1 1/2 0 100m

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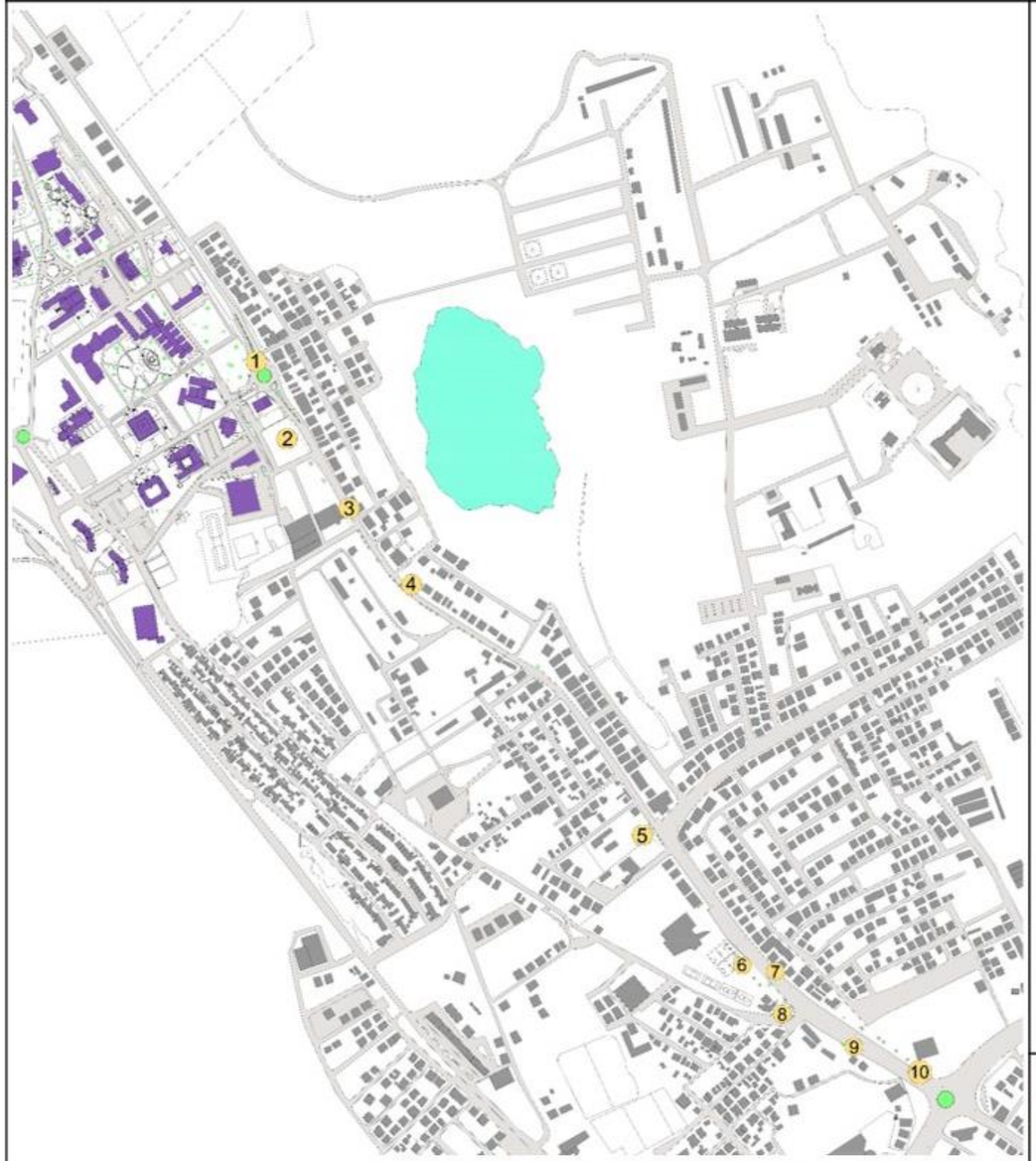

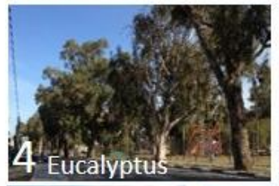

Pictures shows the variety of vegetation along the street. Main types of trees found along the street are: Eucalyptus, Ficus Benjamina, Cypress, Pine and Palm. Although trees and plants exist in different types and sizes, they are not distributed properly along the street and most of them grow naturally. In some cases the position of the trees in the middle of the narrow sidewalks is not appropriate. Generally the street lacks appropriate green area.

P7 **VEGETATION ANALYSIS**

Scale: 1/10000
1 1/2 0 100m

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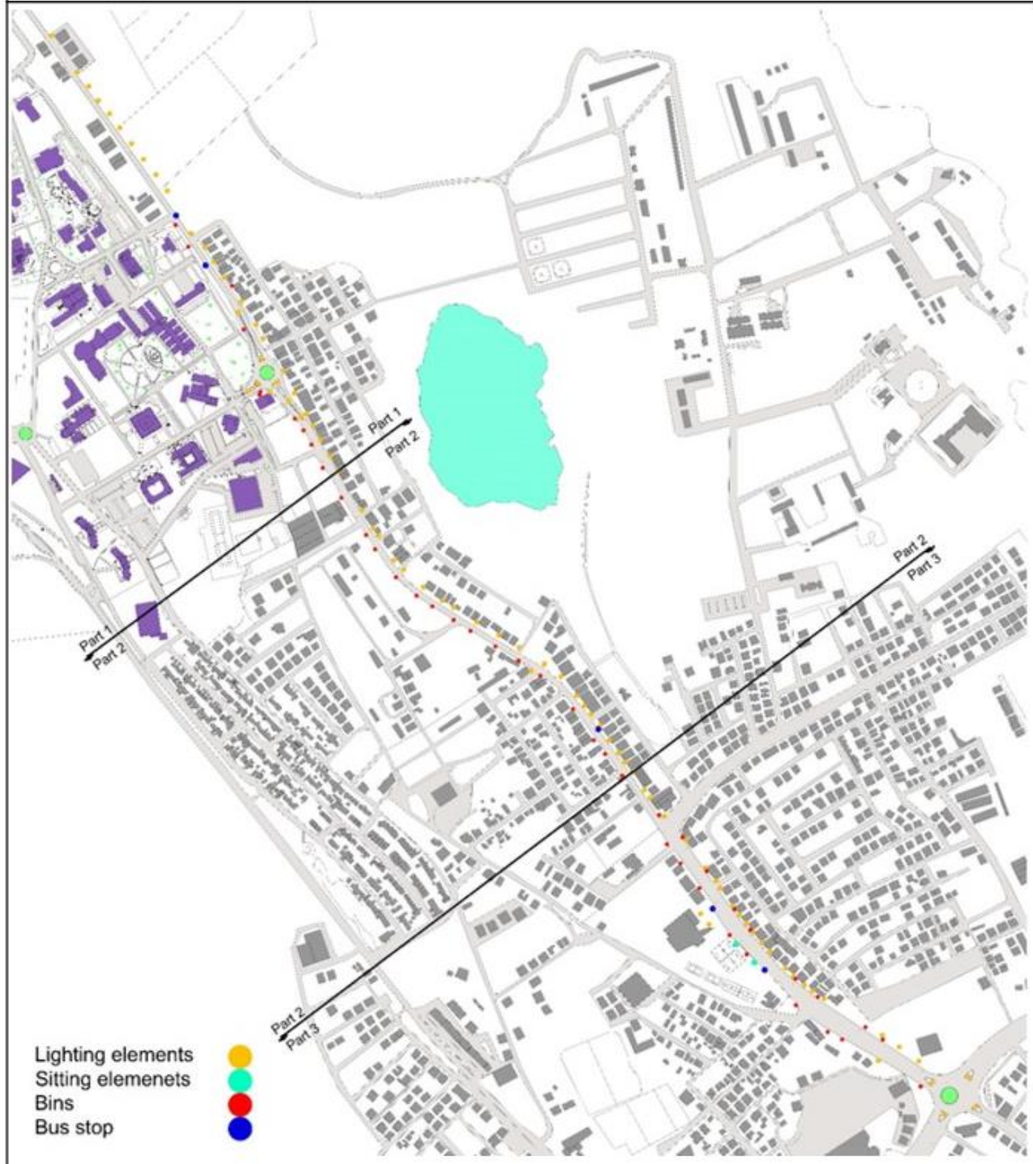

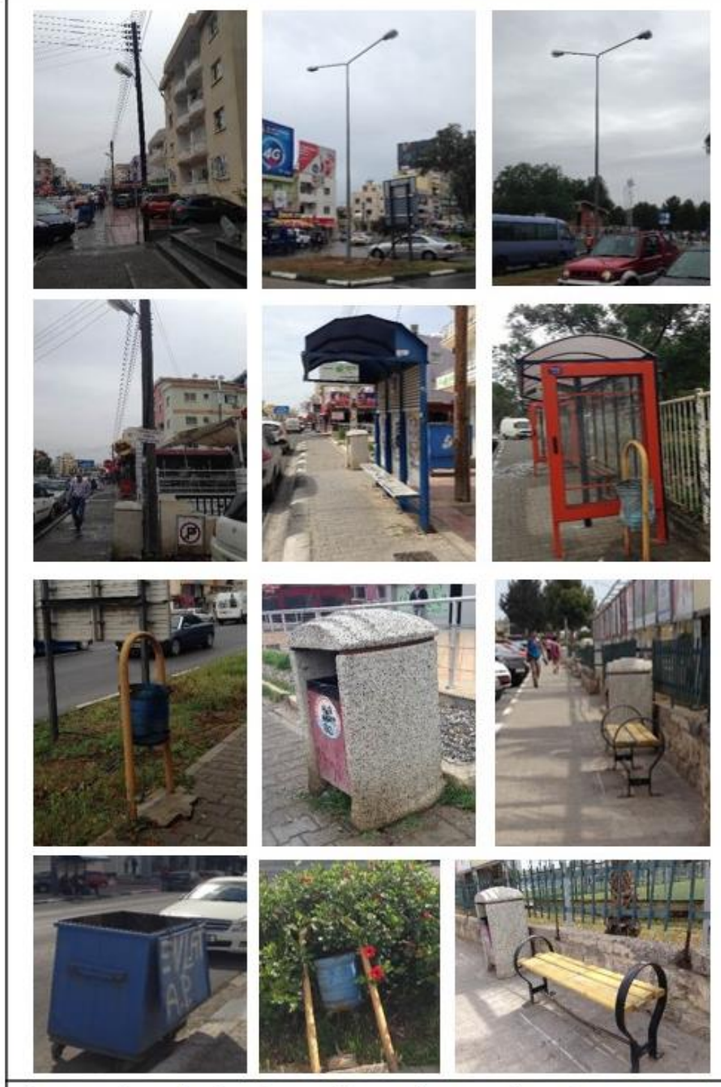

P8 **STREET FURNITURE**

Scale: 1/10000
1 1/2 0 100m

The map shows the distribution of street furniture along the street. As it is obvious from map only bins and lighting elements are distributed properly along the street. There are two benches and five bus stop which are not enough to support people. Also there are no sign of other street furniture like shading elements. In general the quality of street furniture are very poor.

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P8a **STREET FURNITURE** (Part 1)

Scale: 1/5000
1 1/2 0 100m

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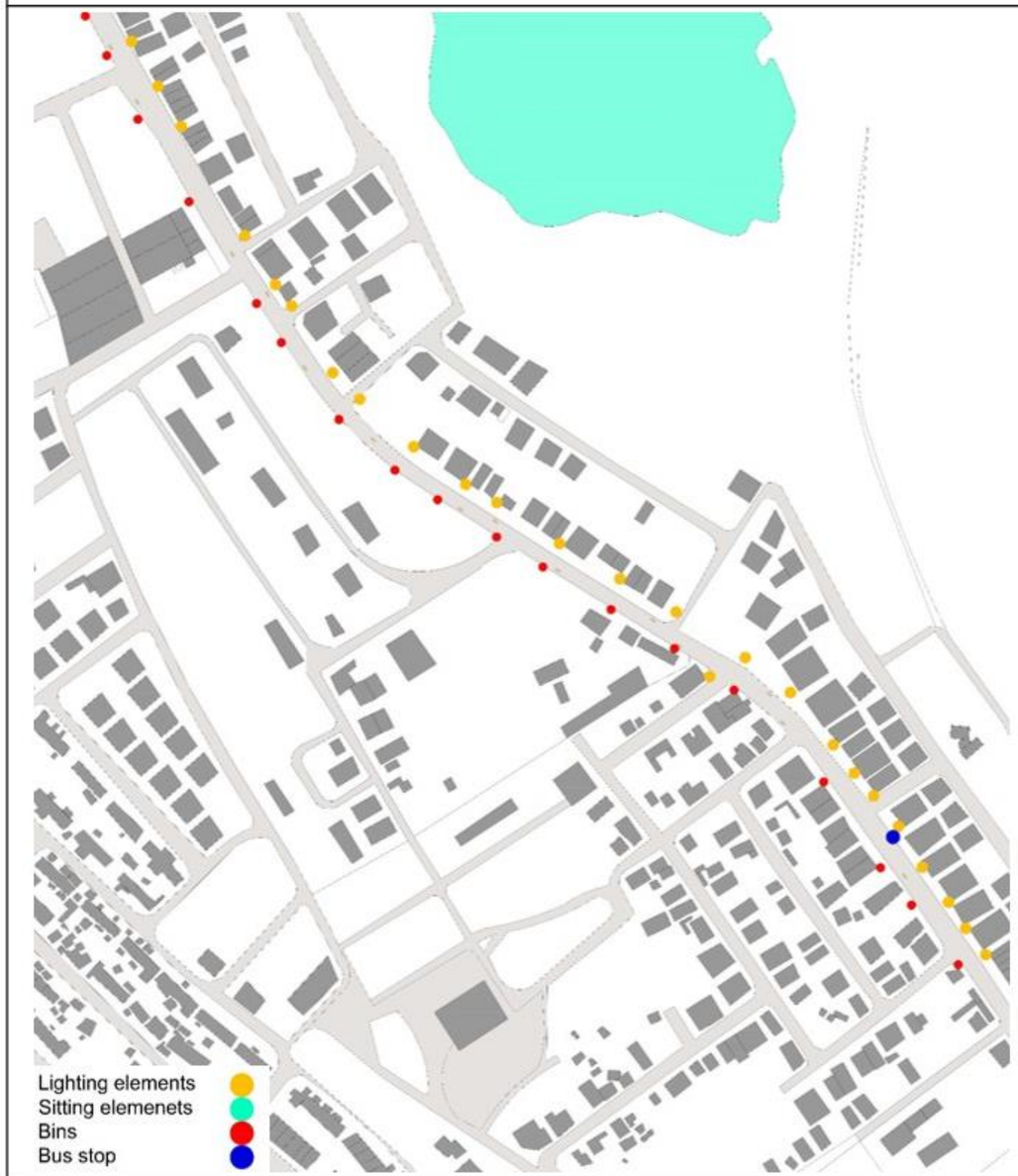

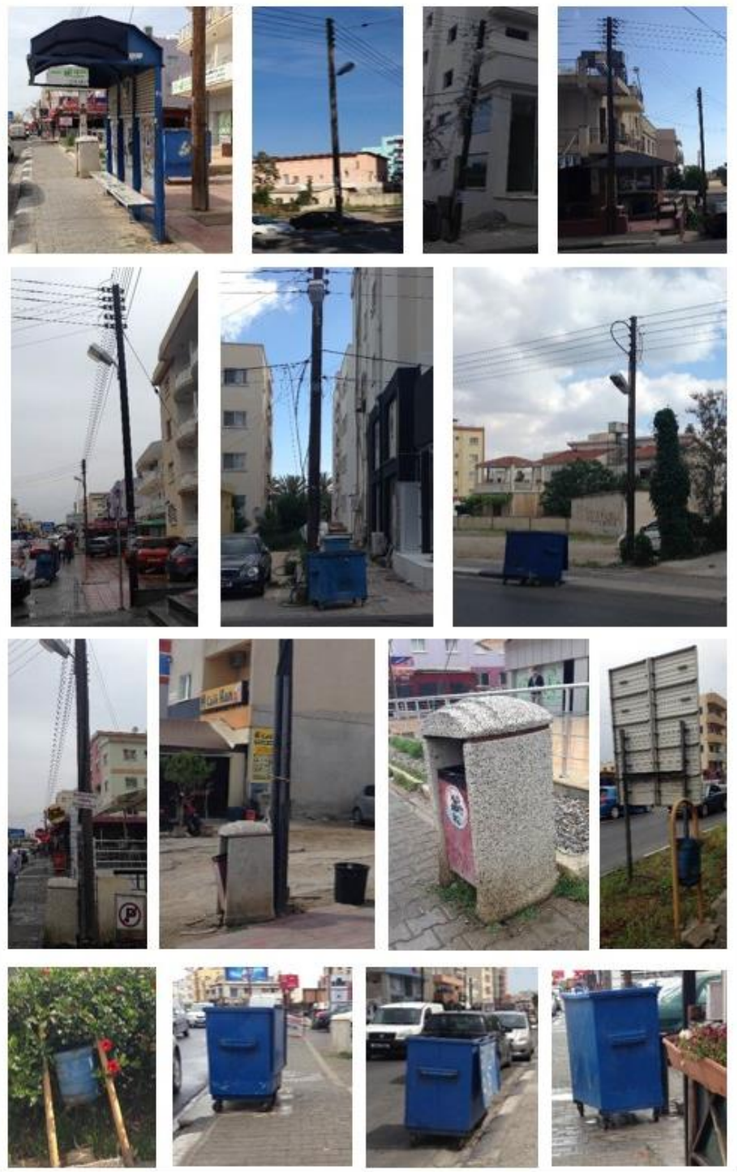

P8b **STREET FURNITURE** (Part 2)

Scale: 1/5000
1 1/2 0 100m

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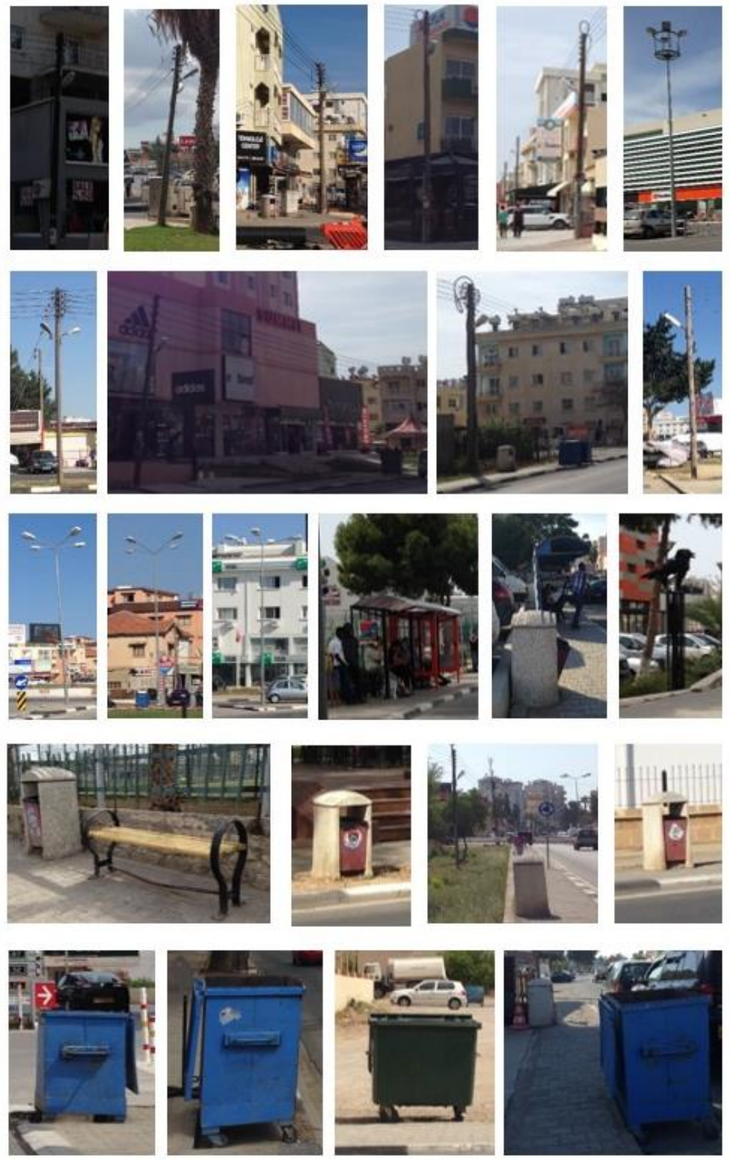

P8c **STREET FURNITURE** (Part 3)

Scale: 1/5000
1 1/2 0 100m

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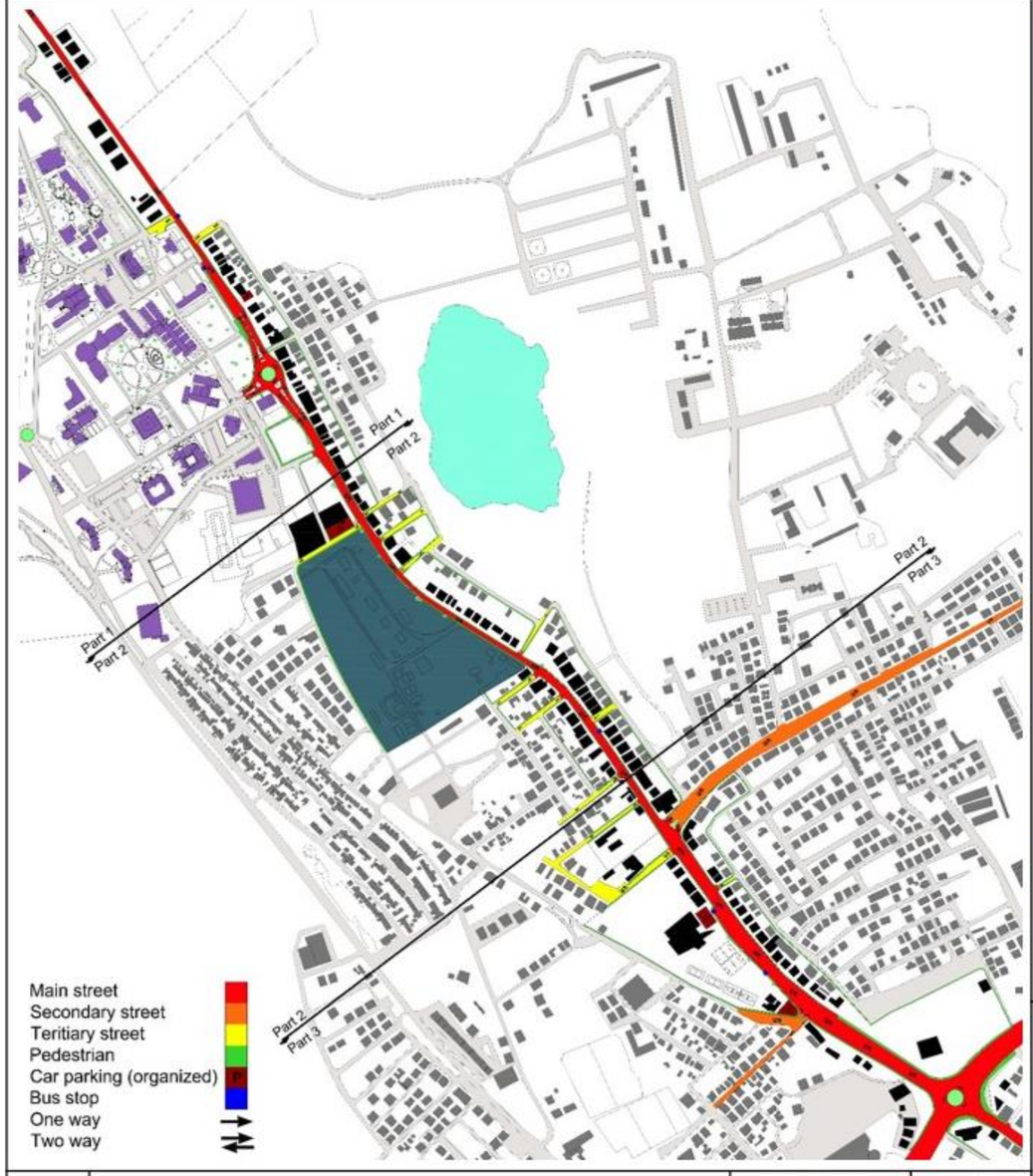

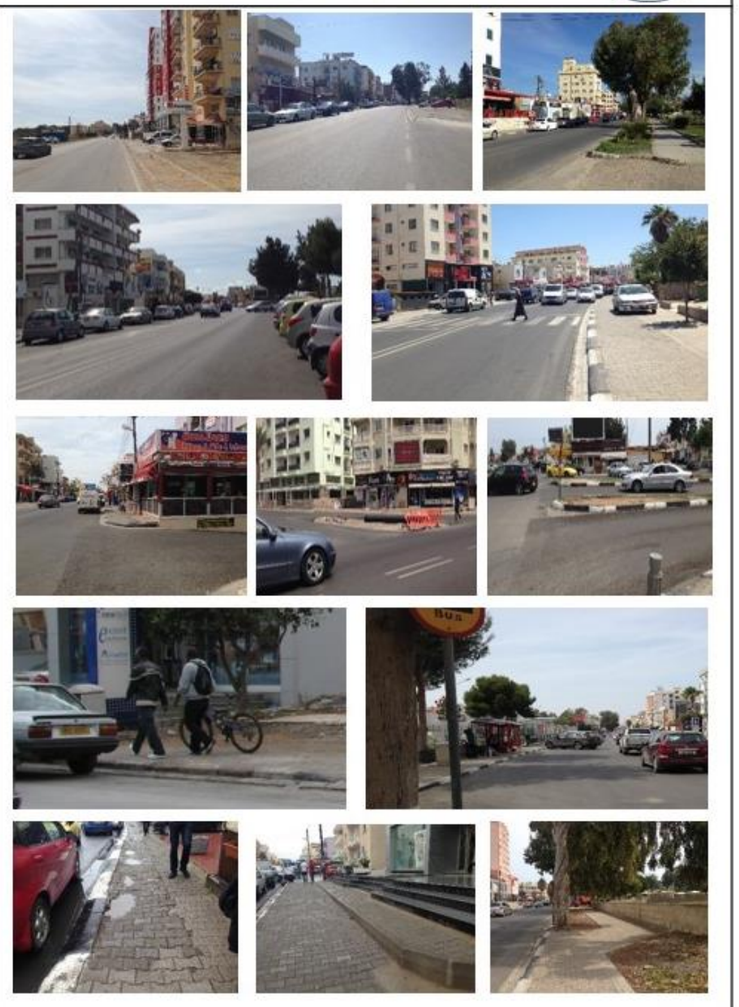

F1 **TRAFFIC ANALYSIS - ACCESSIBILITY**

Scale: 1/10000
1 1/2 0 100m

Accessibility analysis shows the various level of access joining to Salamis Road. After the main street there are two secondary and many tertiary access which support the street and help the street to be more permeable. Along the street there are pedestrian pathways, although they are not properly defined and have no good quality, in such a way that mostly people use street to walk. While there are many students using bicycle, there are no place for cycling along the street. Bus stations exist in the street and are used by people, however there is more of them needed in the street to support people needs.

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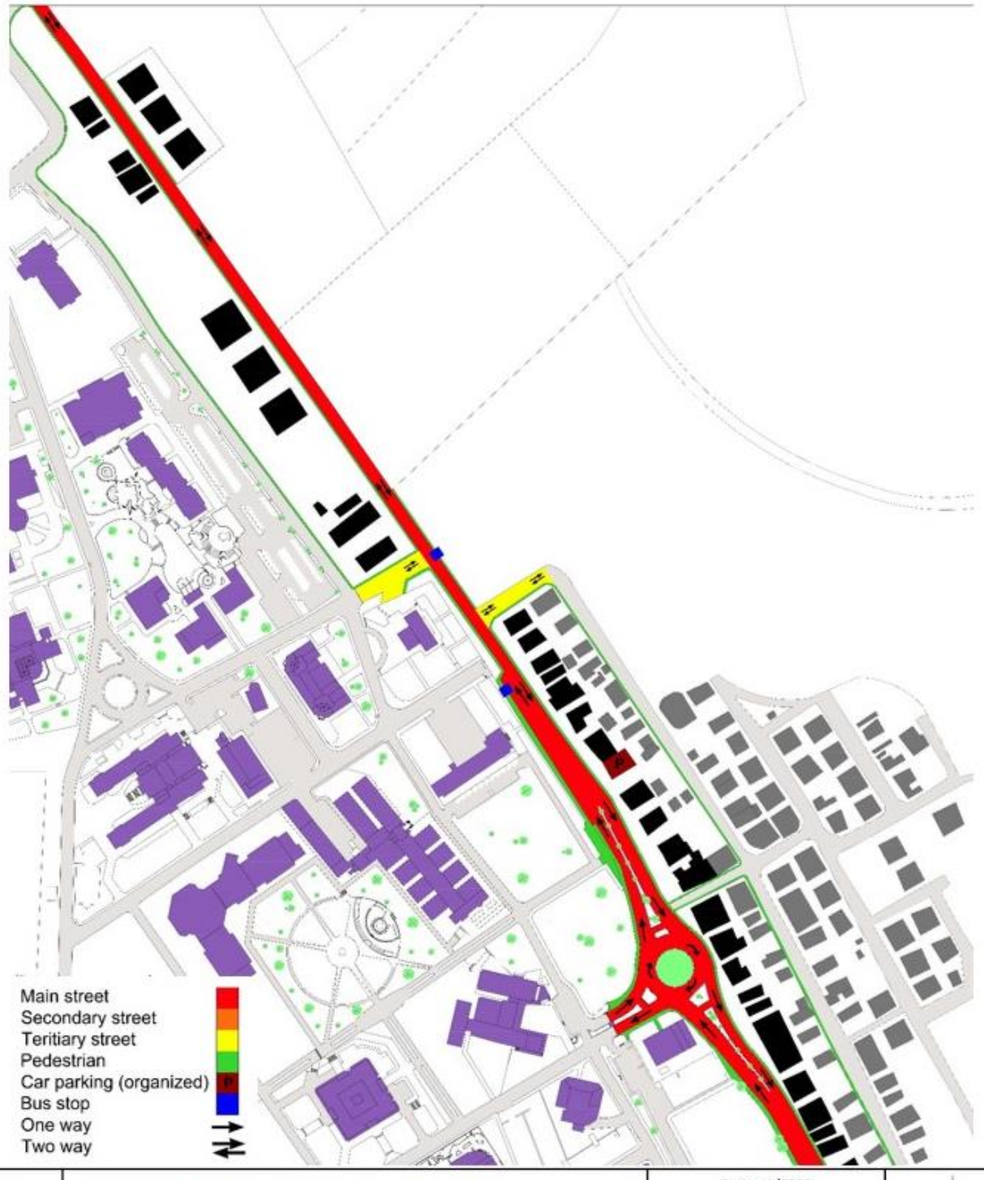

F1a **TRAFFIC ANALYSIS – ACCESSIBILITY** (Part 1)

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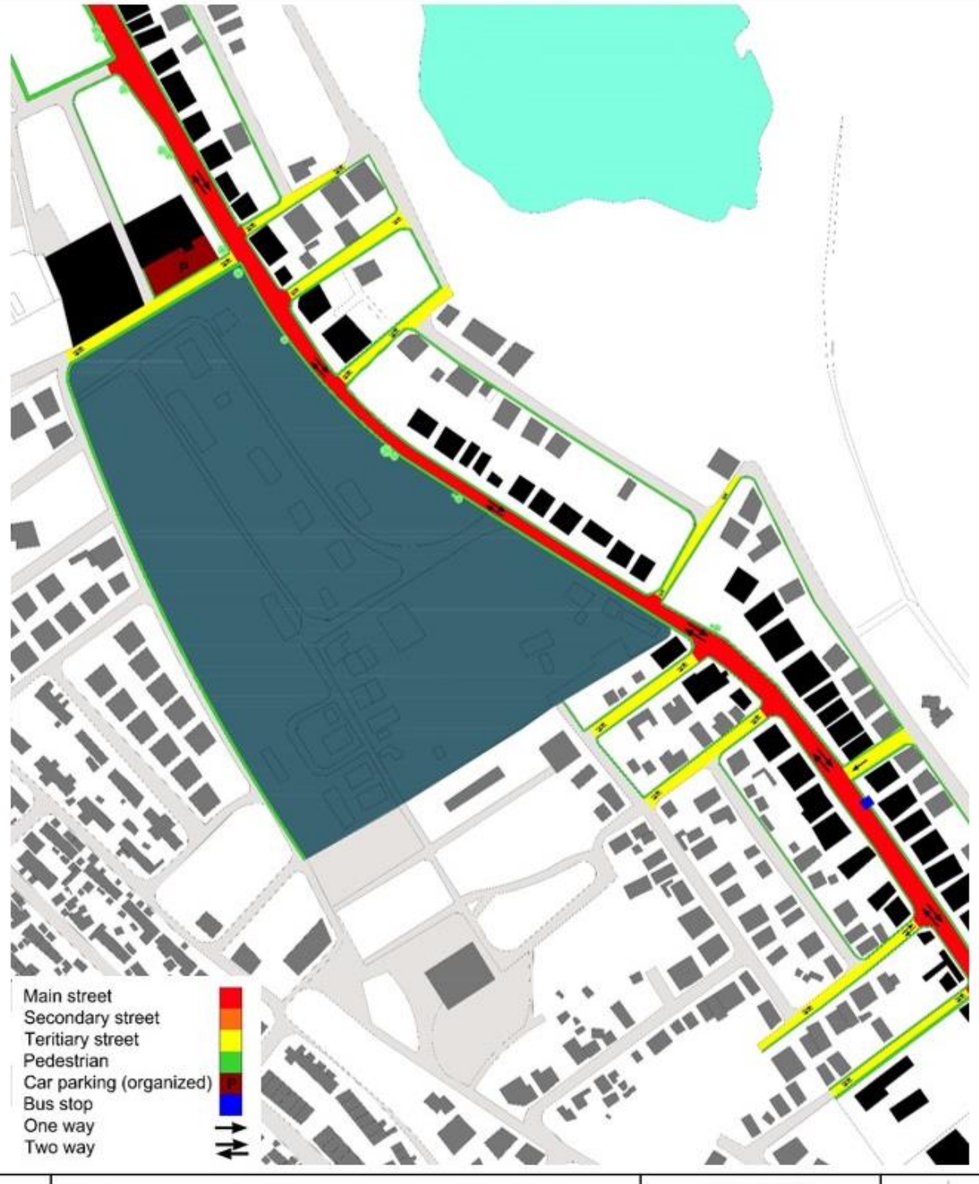

F1b **TRAFFIC ANALYSIS – ACCESSIBILITY** (Part 2)

Scale: 1/5000
1 1/2 0 100m

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F1c **TRAFFIC ANALYSIS – ACCESSIBILITY** (Part 3) Scale: 1/5000 (1 1/2 0 100m) N

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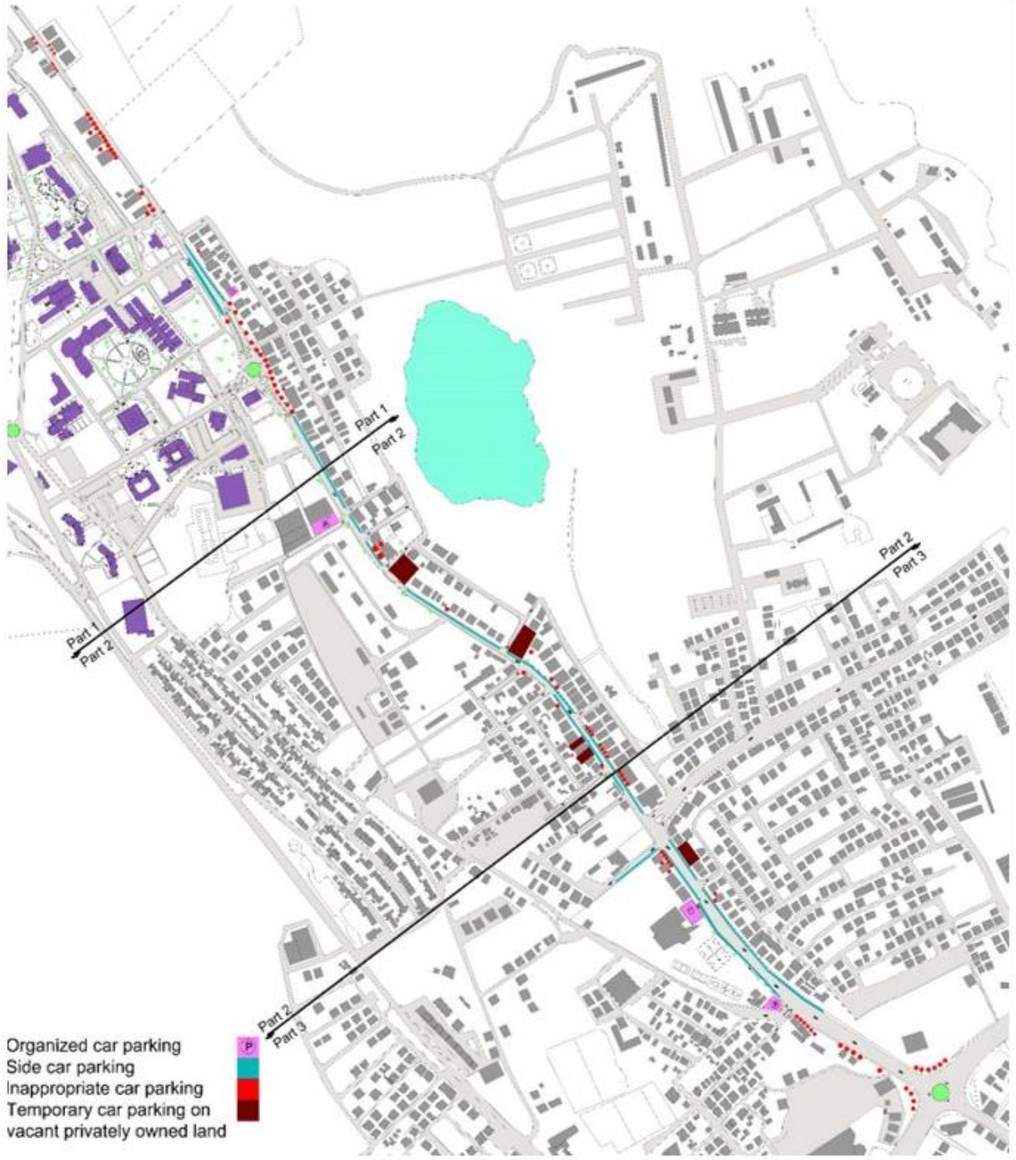

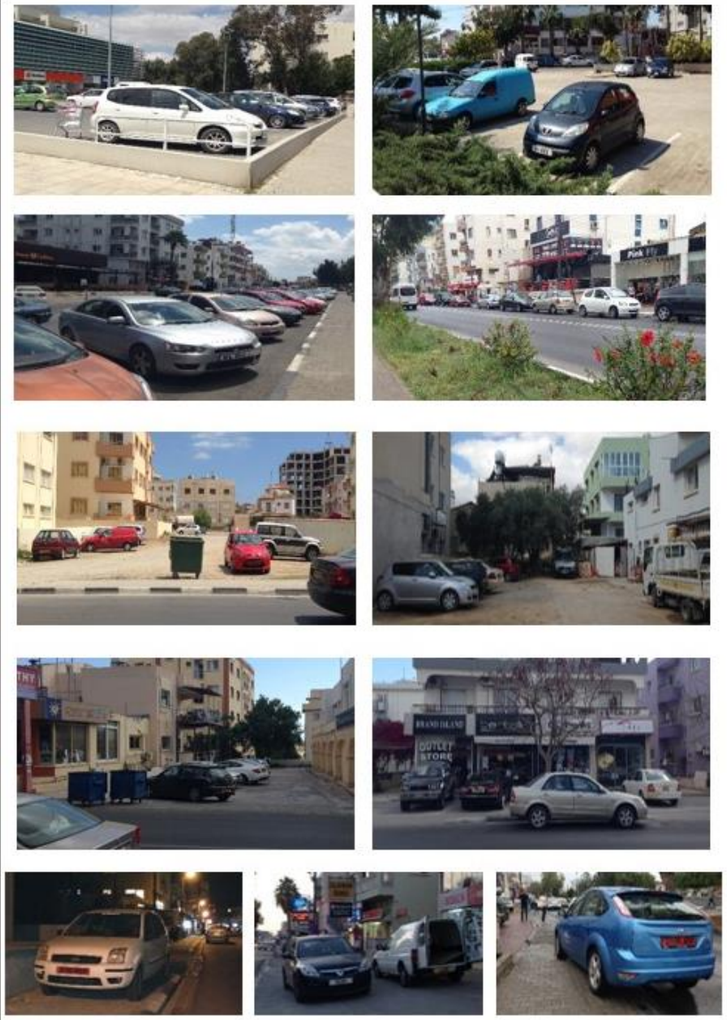

F2 **TRAFFIC ANALYSIS - CAR PARKING**

Scale: 1/10000
1 1/2 0 100m

According to map there are organized car parking in the street however as the pictures shows these organized parking are not enough for the street in such a way that in each vacant land and most of sidewalks wherever possible private cars are parked and block the pedestrian pathways; and it seems that there is no rule to prevent them.

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F2a **TRAFFIC ANALYSIS - CAR PARKING** (Part 1)

Scale: 1/5000
1 1/2 0 100m

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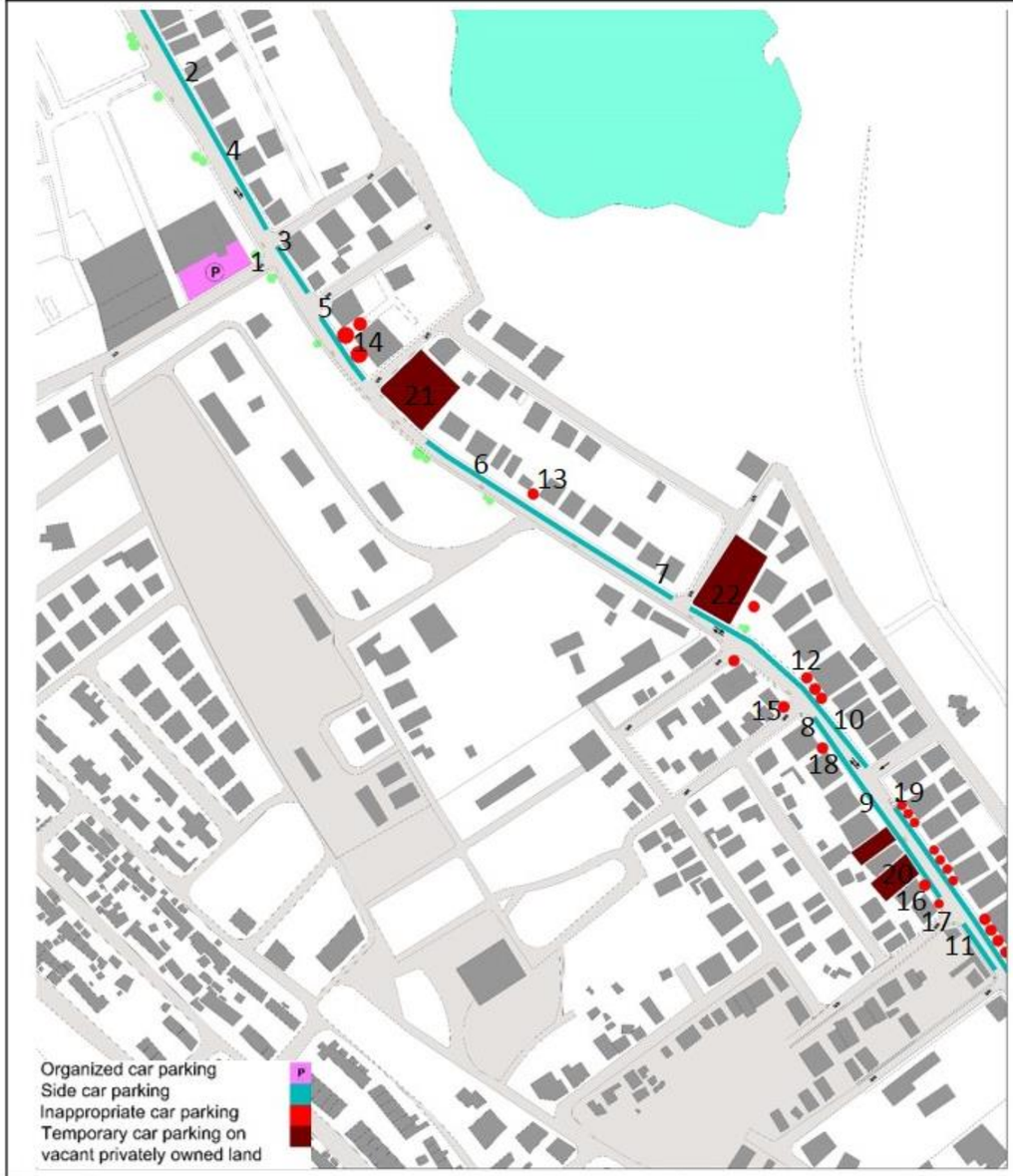

F2b **TRAFFIC ANALYSIS - CAR PARKING** (Part 2)

Scale: 1/5000
1 1/2 0 100m

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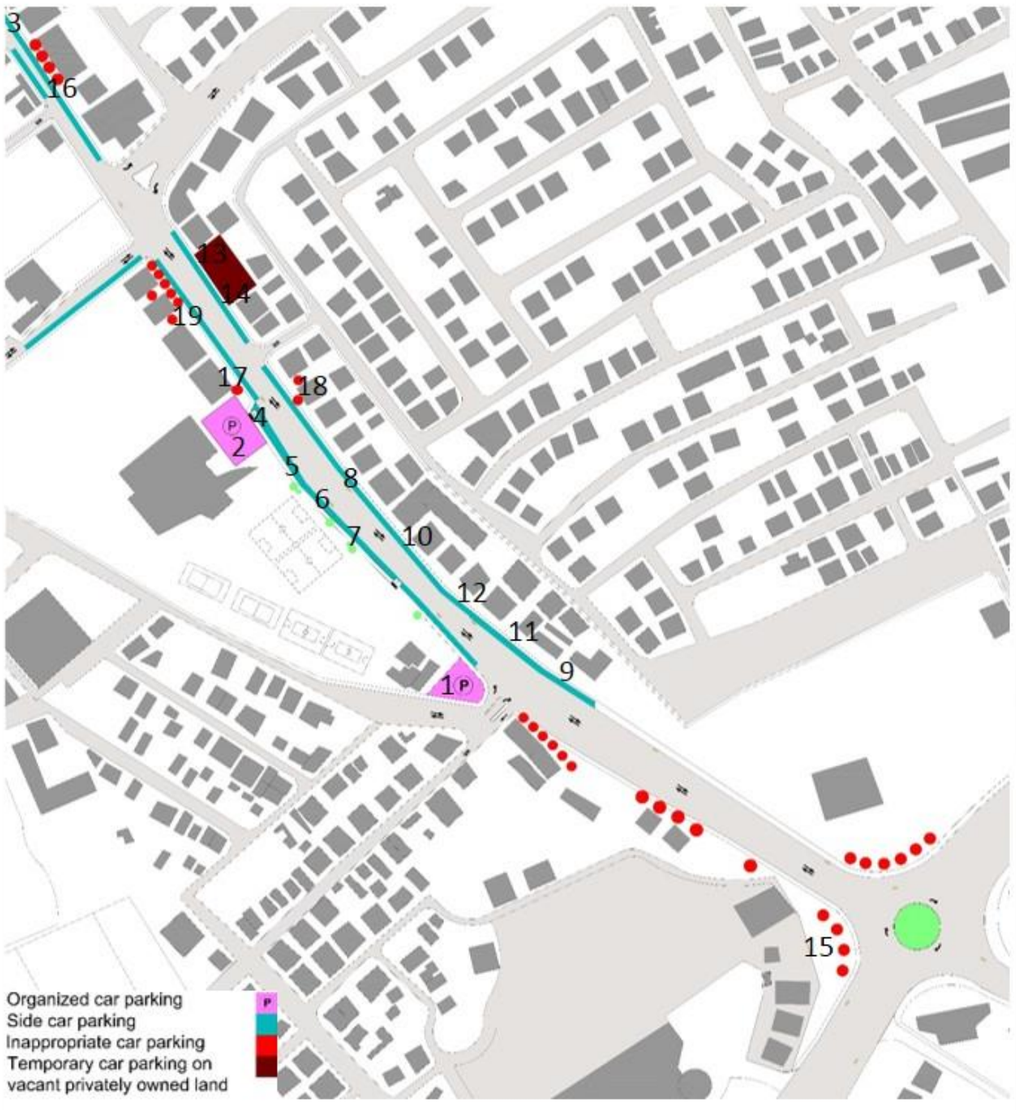

F2c **TRAFFIC ANALYSIS - CAR PARKING** (Part 3) Scale: 1/5000 (1 1/2 0 100m)

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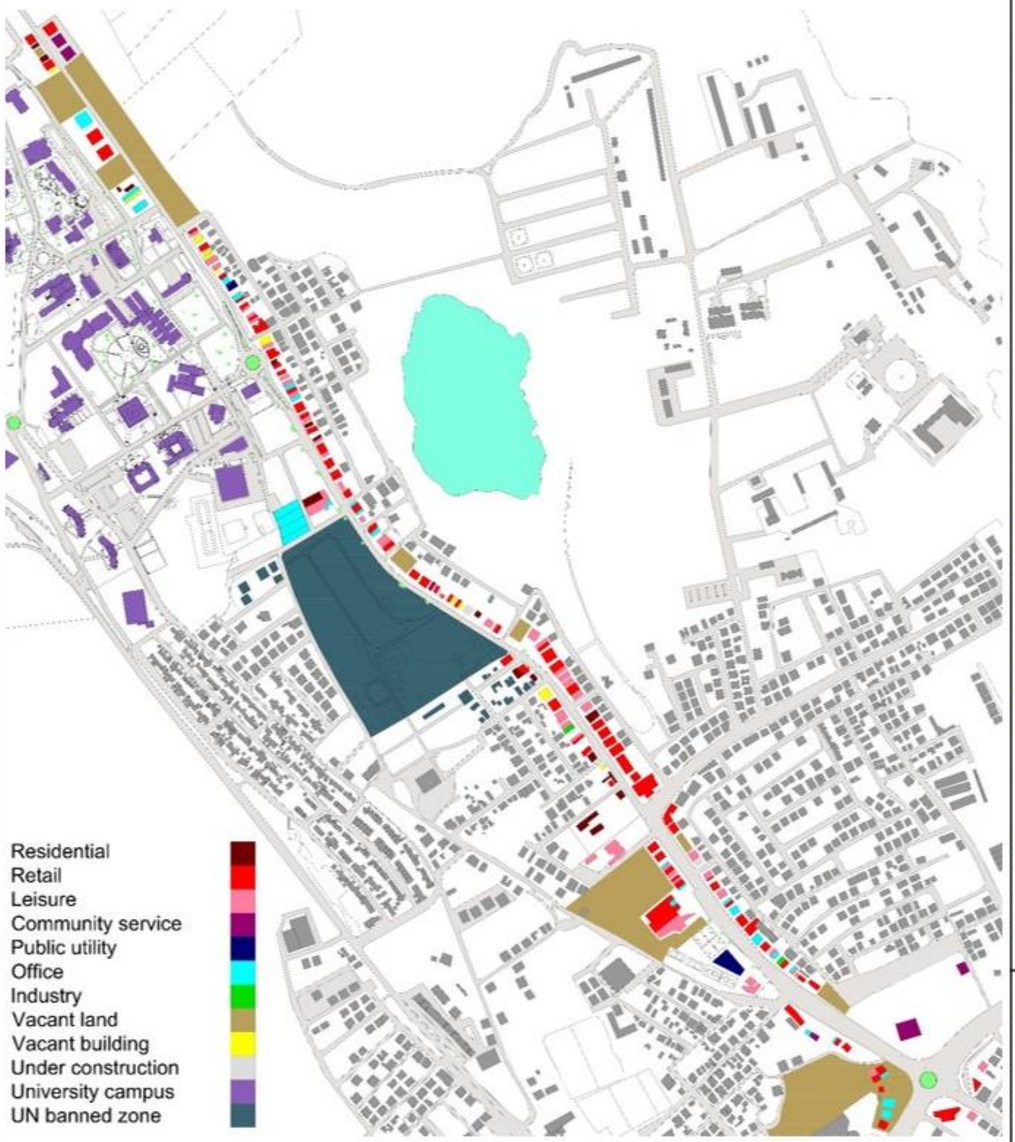

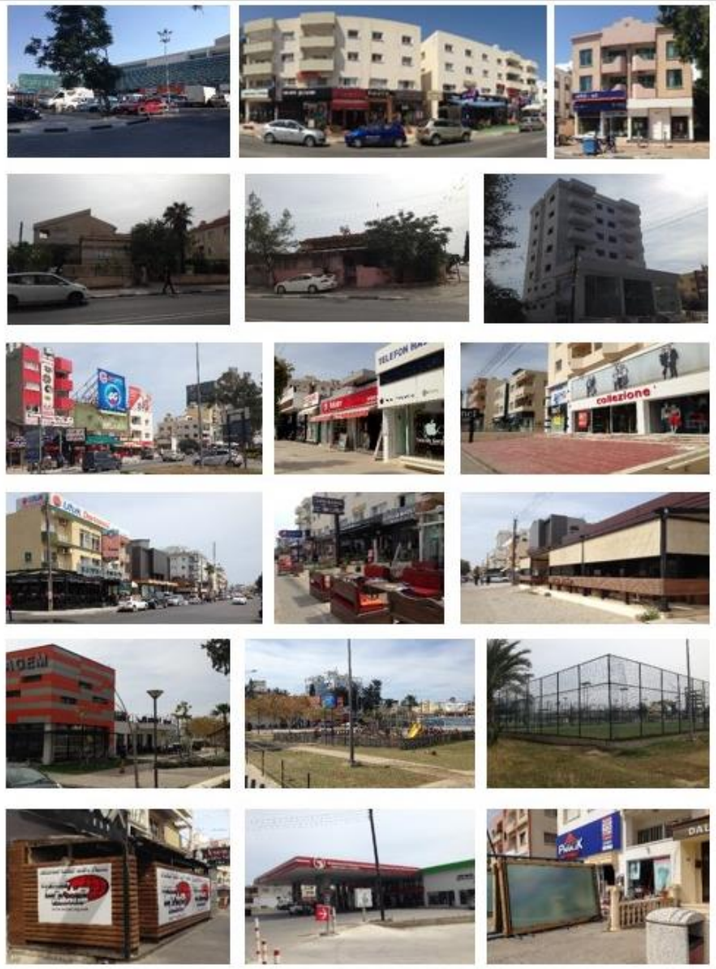

F3 **LAND USE ANALYSIS** (Ground Floor)

Scale: 1/10000
1 1/2 0 100m

According to land use analysis there are variety of functions in ground floor which make street to works as a mixed use one. However various functions are not distributed properly along the street; there are concentration of retail and leisure in some parts while in other parts there are almost no attractive function. In addition, existence of incompatible functions in some parts create a gap between related and attractive functions. Generally along the street there are many vacant lands which break the continuity of the functions.

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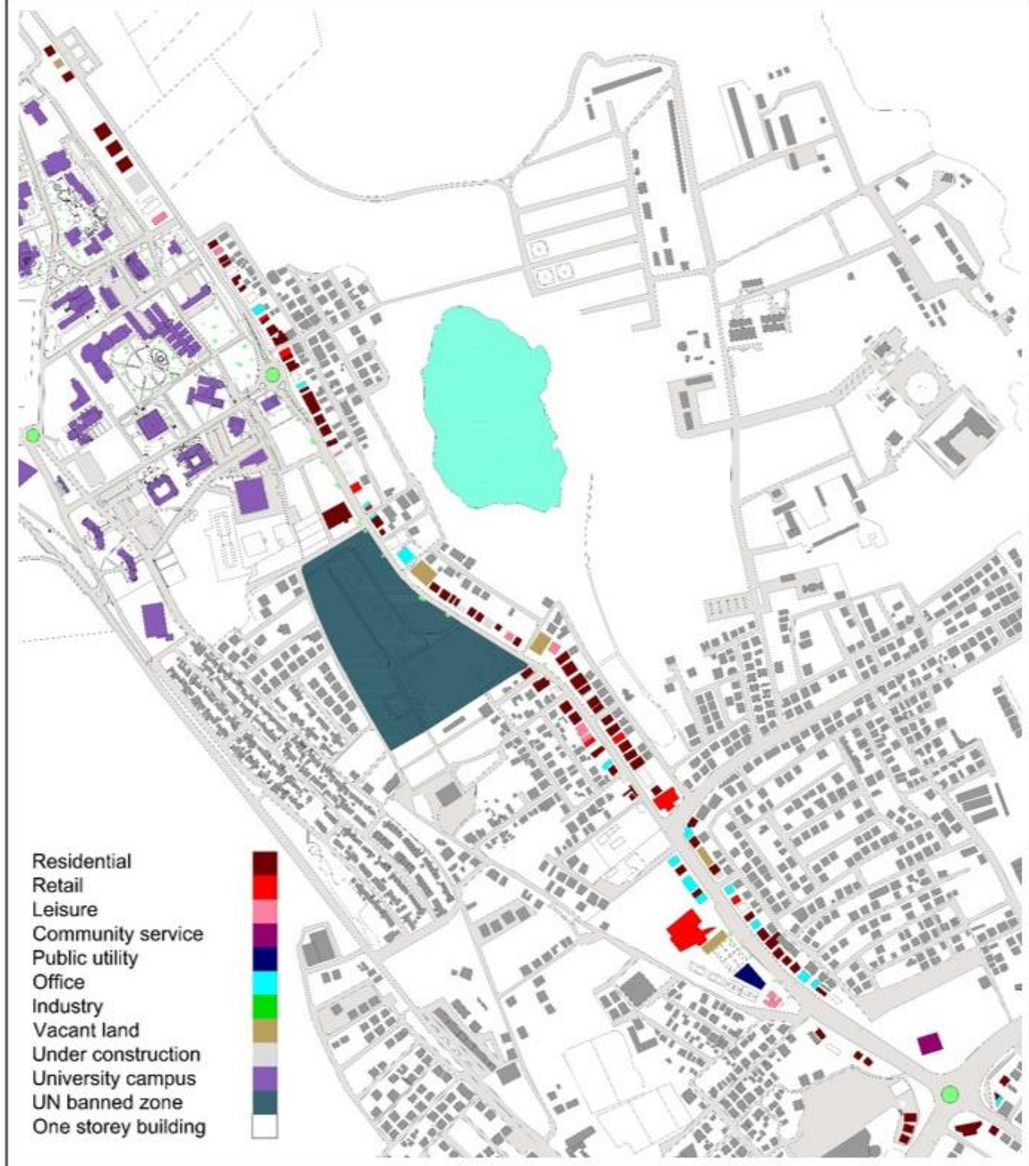

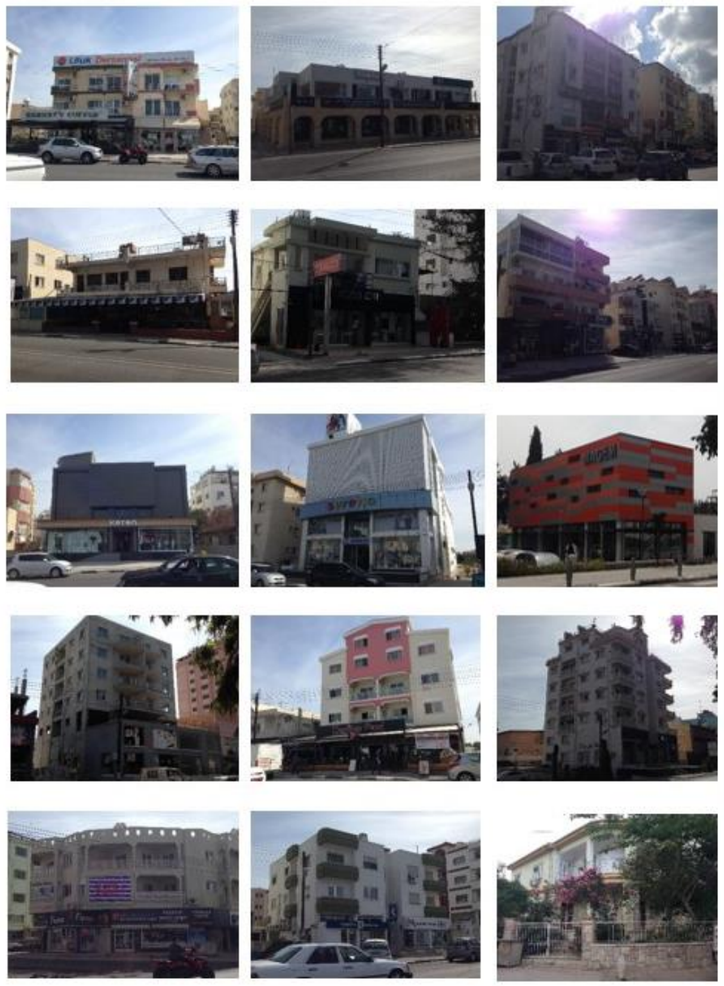

F4 **LAND USE ANALYSIS** (First Floor)

Scale: 1/10000
1 1/2 0 100m

N

Land use analysis in first floor shows most of the functions of buildings are residential while there is less number of buildings which works as retail and office in first floor. And this distribution causes street to be more safe specially at nights.

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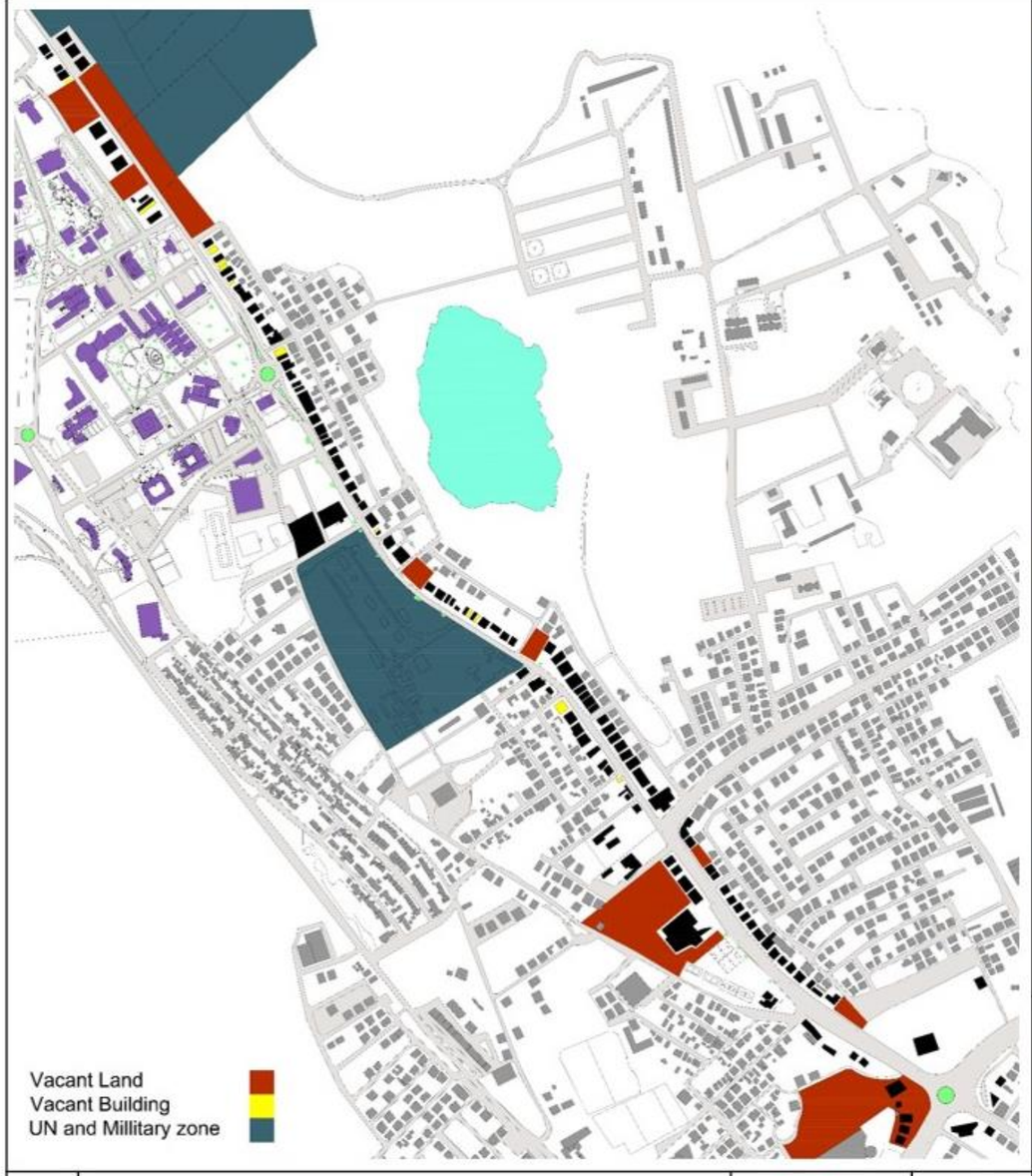

Map shows the location of lost spaces along the street which occupy a huge amount of lands exactly next to the street. Not only these lands but also the huge banned area by UN and military creates an ugly view and works as a passive edge in some parts of the street. In addition to these lands there are some vacant buildings which are not been used or constructed. According to lost space analysis these vacant lands can work as development opportunities for the street.

F5 **LOST SPACE ANALYSIS**

Scale: 1/10000
1 1/2 0 100m

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F6 **ACTIVE AND PASSIVE EDGES DURING DAY TIME**

Scale: 1/10000
1 1/2 0 100m

According to the map during the day time edges mostly near university and Lemar complex are active while north part of street and near Torors roundabout are passive. The most important part which not only break the continuity of activities but also affect the activities negatively is UN banned area.

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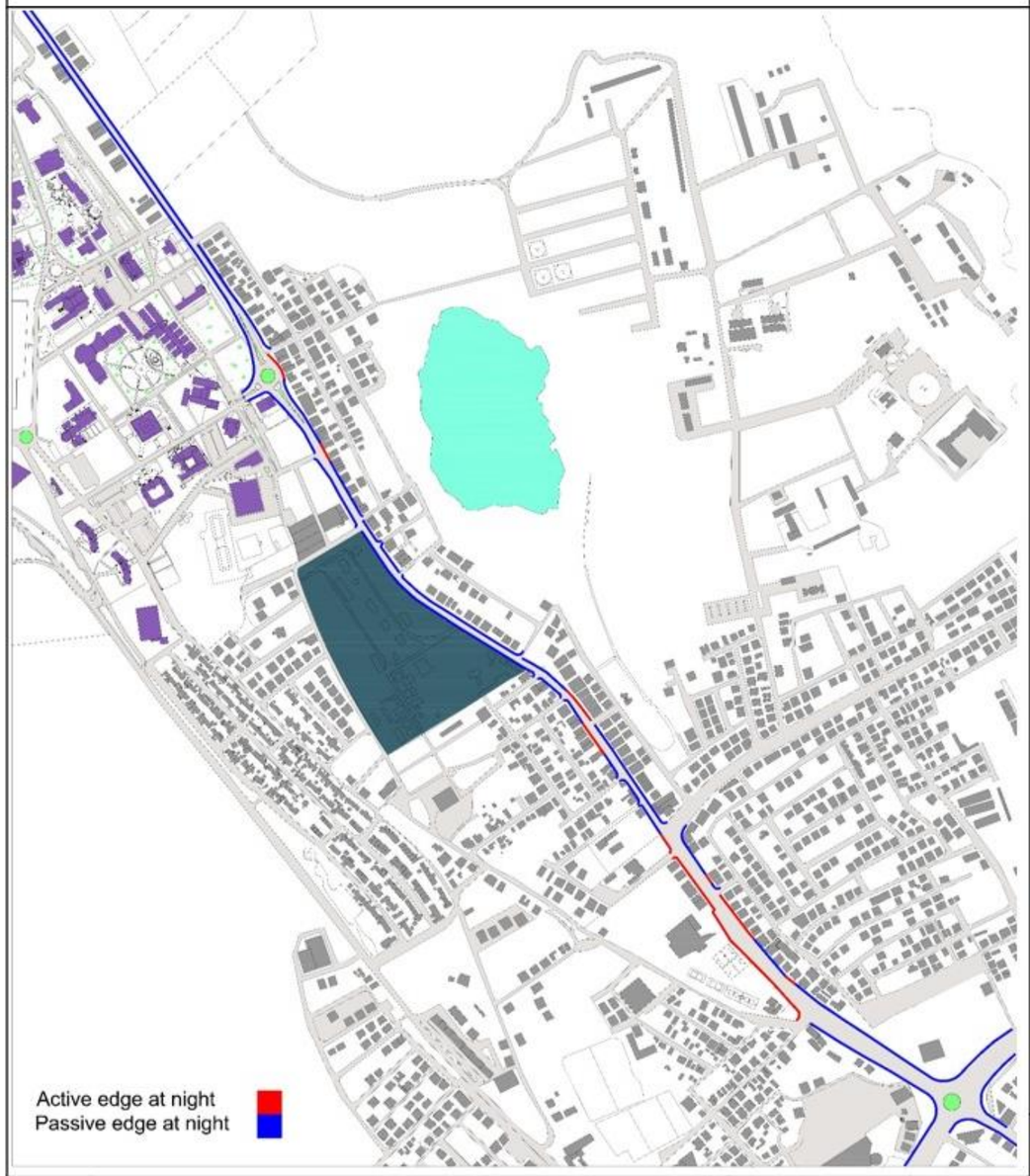

According to map at night and by ending working hours of boutiques active edges mostly become passive and only restaurants and 24 hours working facilities help street to stay active.

F7 **ACTIVE AND PASSIVE EDGES AT NIGHT**

Scale: 1/10000
1 1/2 0 100m