INCREASING WALKABILITY IN PUBLIC SPACES OF CITY CENTRES: THE CASE OF TUNALI HİLMİ STREET, ANKARA

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

PARISA GHADIMKHANI

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF SCIENCE IN URBAN DESIGN
IN
CITY AND REGIONAL PLANNING

MAY 2011

Approval of the thesis:

INCREASING WALKABILITY IN PUBLIC SPACES OF CITY CENTRES: THE CASE OF TUNALI HİLMİ STREET, ANKARA

Submitted by **PARISA GHADIMKHANI** in partial fulfillment of requirements for the degree of **Master of Science in Urban Design in City and Regional Planning Department, Middle East Technical University** by,

Prof. Dr. Canan Özgen ……..
Dean, Graduate School of **Natural and Applied Sciences**
Prof. Dr. Melih Ersoy ……..
Head of Department, **City and Regional Planning**
Assist. Prof. Dr. Müge Akkar Ercan ……..
Supervisor, **City and Regional Planning Dept., METU**

Examining Committee Members:

Prof. Dr. Baykan GÜNAY ……..
City and Regional Planning Dept., METU
Assist. Prof. Dr. Müge Akkar Ercan ……..
City and Regional Planning Dept., METU
Dr. Banu Aksel Gürün ……..
Director, BC Tasarım LTD
Assoc. Prof. Dr. Adnan BARLAS ……..
City and Regional Planning Dept., METU
Assoc. Prof. Dr.Cana Bilsel ……..
Architecture Dept., METU

Date: 09.05.2011

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name, Last name: Parisa Ghadimkhani

Signature:

ABSTRACT

INCREASING WALKABILITY IN PUBLIC SPACES OF CITY CENTRES: THE CASE OF TUNALI HİLMİ STREET, ANKARA

GHADIMKHANI, PARISA

M.Sc., the Department of City and Regional Planning in Urban Design

Supervisor: Assist. Prof. Dr. MÜGE AKKAR ERCAN

May 2011, 204 pages

Liveability and walkability have recently become one of the major policy topics in the agenda of many cities all over the world because of the negative effects of car-oriented urban developments that have impoverished physical, social, cultural, economic and environmental values of cities. In Ankara, however, the urban development policies based on the decentralization of the city centre and inner city, the impoverished public transportation services and infrastructure, the increasing car-dependent development and the neglect of pedestrians accessibility within the urban public spaces in last twenty years have decreased the walkability and therefore liveability of the city center. This thesis aims to investigate the notion of 'walkability' in urban space, specifically in urban public space, and to identify the measures of 'walkability'. By employing a case study method, it examines how far Tunalı Hilmi Street (THS) - one of the major high streets and public spaces of Ankara - is a walkable street and identifies the positive and negative factors which effect its walkability capacity. The analysis on THS is carried out through six measures of the walkability: *safety, orientation, attractiveness, comfort, diversity and local destination*. Based on the findings of the investigation, this thesis gives recommendations which are practical and which can be implemented on the design of the case study area, as well as on the public spaces that are similar to THS in Ankara or other cities.

Key words: Liveability, sustainability, walkability, public space, urban design, Ankara, Tunalı Hilmi Street

ÖZ

KENT MERKEZLERİNDEKİ KAMUSAL MEKANLARININ YÜRÜNEBİLİRLİĞİNİN ARTIRILMASI: TUNALI HİLMİ CADDESİ, ANKARA

GHADIMKHANI, PARISA

Yüksek Lisans, Şehir ve Bölge Planlama Bölümü, Kentsel Tasarım

Tez Yöneticisi: Yrd.Doç. Dr. MÜGE AKKAR ERCAN

Mayıs 2011, 204 sayfa

Yaşanabilirlik ve yürünebilirlik, kentlerin fiziksel, toplumsal, kültürel, ekonomik ve çevresel değerlerini yoksunlaştıran özel araç bağımlı gelişimlerin olumsuz etkileri nedeniyle, dünyadaki birçok kentin gündeminde ön sıralarındaki politikalardan biri haline gelmiştir. Ankara'da ise, son yirmi yıldır uygulanan kent merkezinin desantralizasyonu, toplu taşım hizmetleri ve yatırımlarının azaltılması, özel araca bağlı gelişimin artırılması ve kentsel kamusal mekanda yayanın erişebilirliğinin göz ardı edilmesine yönelik kentsel politikalar, kent merkezinin yürünebilirliği ve yaşanabilirliğinin azalmasına neden olmuştur. Bu tez, kentsel mekanda 'yürünebilirlik' kavramını özellikle kentsel kamusal mekan bağlamında incelemeyi, ve 'yürünebilirliğin' ölçütlerini belirmeyi amaçlamaktadır. Örnek alan incelemesi yöntemini kullanarak, Ankara'nın önde gelen ticari caddelerinden ve kamusal mekanlarından biri olan Tunalı Hilmi Caddesi'nin (THC) yürünebilirliğini incelemeyi, ve bu caddenin yürünebilirliğini olumlu ve olumsuz etki eden etmenleri ortaya çıkartmayı hedeflemektedir. Araştırmada, THC'nin yürünebilirlik kapasitesi, *güven, yönelim, çekicilik, rahatlık, çeşitlilik* ve *yerel odak hizmet alanlarına olan mesafe* ölçütleri bağlamında incelenmektedir. Bu tezde, inceleme sonuçlarından yola çıkarak, hem THC üzerine, hem de Ankara ve diğer kentlerdeki THC'ye benzer kamusal mekanlarda uygulanabilir kentsel tasarım önerileri geliştirilmiştir.

Anahtar kelimeler: Yaşanabilirlik, sürdürülebilirlik, yürünebilirlik, kamusal mekan, kentsel tasarım, Ankara, Tunalı Hilmi Caddesi

To my dear son, Arman Ak

ACKNOWLEDGEMENTS

I am heartily thankful to my supervisor, Asst. Prof. Dr. Müge Akkar Ercan, for her patience, continuous support and encouragement with invaluable guidance, comments, and ideas from the initial to the final level which enabled me to accomplish this thesis.

I would like to thank to my other committee members Prof. Dr. Baykan Günay, Assoc. Prof. Dr. Adnan Barlas, Assoc. Prof. Dr. Cana Bilsel, and Dr. Banu Aksel Gürün, for transmitting their professional worldview throughout my education and for their attendance, comments and suggestions.

I am thankful to Ms. Hülya Özdil for her valuable recommendations. I also thank to Mr. İsa Çapanoğlu, for his generous help and support.

I thank to my devoted father who encouraged and supported me to start my second master education.

Lastly, I would like to thank to my dear husband Siyavuş Ak who inspired, encouraged and fully supported me during the completion of the thesis.

TABLE OF CONTENTS

LIST of TABLES

TABLES:

LIST OF FIGURES

FIGURES:

CHAPTER 1

INTRODUCTION

1.1 Definition of the research problem

Walking is a healthy means of transportation. It does not only contribute to social life by increasing opportunities for social interaction and learning about urban life, but it also helps to create healthy and liveable communities. Despite these merits, walking has been disregarded in car-oriented urban environments (Kolody, 2002, p.1). After the 1920s, with the development of car technology, cars have become dominants of urban life. The appearance and functions of streets and public spaces have consequently changed due to this new means of transportation. The physical, social and cultural functions of streets and public spaces have been impoverished, and the quality of urban life has started decreasing (Kaiser, et al., 2003, p. 1-3). Traffic congestion, noise and air pollution, time, energy and money loss from going from one place to another have become the new and main urban problems due to the increasing use of private cars in the city centre. On the other hand, walking has been discouraged by this new way of developing cities. Air and noise pollution, narrow sidewalks, the boulevards and avenues which have been turned into highways in the city centre have discouraged people to walk. The use of streets and public spaces in the city centre by pedestrians has decreased more and more because of decreasing comfort and safety in public spaces (Lambert, 2005, p.19; Kolody, 2002, p.4-8).

Suburban development is another important consequence of urban development in cities due to the increasing use of car. Suburbs started to develop in the 1960s in the Western cities (Kolody, 2002, p.1). One of the major characteristics of suburbs is their unsafe and unpleasant sidewalks that did not create attractive public spaces for people to walk (Kolody, 2002, p.1). The development of suburbs was followed by the appearance of suburban shopping malls which were built on the inexpensive urban lands, and which were situated close to main arterials or highways in order to be highly accessible for people and goods (by car and truck). But, they have become very attractive for people who lived in the suburbs. Because they have served all shopping, entertainment and cultural needs of suburban communities in closed and

safe environments, and they have been protected from climatic conditions. Shopping malls have been generally designed for car users. They have had car-parks with high capacity. The earlier ones were not very well connected to different parts of city by public transportation services. But, some new ones are now well connected to either bus or metro systems.

The development of suburban shopping malls has caused the decentralization of retail activities of traditional city centers. The streets in the inner city were developed with less regard to walkability and thus encouraged people to use their cars. The insufficient public transportation services have also become another factor which has encouraged people to use their cars. All these factors have led to the decline of city centres and loss of their liveliness.

Walkability is a sub-heading of the notion of 'liveability'. Liveability has become an important topic of city planning all over the world after the recognition of negative effects of the decentralization policies in cities which have caused the loss of their liveliness and vitality (Kaiser et al, 2006, pp. 21-52; Kaiser et al, 2003, p. 1-3). In the early-1990s, liveability became an investigation issue for cities as a part of a wide literature on sustainability and sustainable development whose three main factors are economy, ecology and equity (Kaiser et al, 2006, pp. 21-52; Kaiser et al, 2003, p. 1-3). These notions therefore were introduced in the urban planning and design agenda to improve the quality of life in cities and revitalize city centers (Kaiser et al, 2006, pp. 21-52; Kaiser et al., 2003, p. 1-3). The sustainability policies generally aim to improve physical values, as well as social, economic, cultural and environmental dimensions of cities. The main argument behind this multi-dimensional approach is that the physical design solutions cannot resolve the complicated social, economic, cultural and environmental problems of urban space alone. Today, the sustainability theory is based on the idea of developing a holistic approach espousing social, economic, political, legal, functional, visual, perceptual, and morphological (form and structure) aspects of urban space accompanied by technological developments (Kaiser et al., 2003, p. 1-3).

Over the last twenty years, the urban development policies in Ankara have resulted in the decreasing liveability of the city centre. Along with the decentralization policies of the Central Business District (CBD), suburban developments started in the 1990s. While the CBD has expanded along the west corridor, Ulus (the historic city centre) and Kızılay have been losing their economic and social vitality. Nevertheless, some neighbourhoods in the inner city, such

as Kavaklıdere, Gazi Osman Paşa and Çankaya where some part of the CBD is located, still include prestigious commercial, business and residential functions and keep their economic and social vitality.

Despite the presence of these lively neighbourhoods in the inner city, the public space and street network in Ankara have been deteriorated due to the recent policies of Ankara Metropolitan Municipality. The boulevards, such as Atatürk Boulevard, Inönü Boulevard, have turned into motorways by the recent car-oriented transportation projects. The usage of these boulevards and many other avenues in the city centre has become more car-oriented, while pedestrians have been neglected and marginalized. The city centre of Ankara is now far away from being walkable. There are a few places, such as Sakarya Street and its surroundings, Izmir Street, and Yüksel Street, which were pedestrianized in the 1980s. They are still pedestrian-dominant public spaces. The rest of the city centre and its sidewalks, however, are becoming more and more occupied by cars and car users. The impoverished public transportation services have also encouraged people to use their private cars. All these factors have decreased the capacity of walkability in the city centre and therefore decreased its liveability.

Tunalı Hilmi Street (THS), located in Gazi Osman Paşa, is one of the major high streets of Ankara. The street was a rather prestigious mix-used street before the decentralization policies of Ankara. It was a lively place with many pedestrian activities. Although it is still keeping some important business and commercial precincts due to the activities surrounding it, such as important governmental institutions, luxurious hotels, hospitals, prestigious businesses, embassies, as well as residential quarters of high and middle income groups, it has become less usable for pedestrians. Therefore, it is now questionable how far THS is a walkable street and what factors have decreased the walkability of the street. These questions are important research issues that need to be investigated. This thesis aims to focus and address these questions.

1.2 Aims, Objectives and Research Question of the Study

This thesis aims to investigate the notion of ‘walkability’ in urban space, specifically in urban public space. It seeks to identify the measures of ‘walkability’ and to examine how far THS -

one of the major high streets and public spaces of Ankara - is a walkable street and to identify the positive and negative factors which effect its walkability. With the help of the findings, this research also aims to give recommendations which are practical and which can be implemented on the case study area, as well as on the public spaces that are similar to THS in Ankara or other cities.

The main questions of this study are how far THS is a walkable street and what positive and negative factors affect its walkability capacity. To answer these questions, the research poses other sub-questions to answer. These are:

- What does 'liveability' mean within the urban context?
- What are the dimensions (measures or criteria) of 'liveability' in urban space?
- What does 'walkability' mean in urban public spaces?
- What are the measures or criteria of walkability in urban public spaces?
- How far the selected case study area (i.e., THS) is 'walkable' regarding the criteria of walkability?
- What are the factors that affect the walkability of THS?
- What could be recommended for the case study site to improve its walkability?
- What are the general recommendations that can be derived to improve the walkability of public spaces similar to THS?

Based on these research questions, this research has several objectives. The first is to explain what the notion of liveability is and what dimensions it encompasses. The second objective of the research is to study the notion of 'walkability' as one of the indicators of liveability, and to identify the measures of walkability in urban public space. The third objective is to understand the development history of Ankara and its public spaces and how far the urban policies have developed a walkable city. The fourth objective of this research is to explain THS within Ankara, its spatial characteristics before the in-depth investigation of its walkability capacity. The fifth objective is to make an in-depth analysis on THS' walkability capacity, as well as the factors which effect its walkability. Finally, the thesis aims to provide recommendations regarding its design for THS to improve its walkability, and for other public spaces in Ankara and other Turkish cities to increase their walkability capacities.

1.3 The Research Methodology

This study uses a case study as a research method. THS, one of the major high-steets and pedestrian-dominant precincts of Ankara, is used as the unit of analysis of the research. As THS includes various problems, it has been subject to a number of studies. Nevertheless, there is no study focusing on the question of walkability on THS so far. By investigating particularly the walkability of THS, this research differs from other studies.

In order to assess the THS' walkability capacity, the research identifies the main attributes or components of walkability. For the analysis of THS, the research first investigates the historical development of Ankara and the evolution of public spaces to put THS in the context of Ankara's historic development and the changes in the public space development policies. Then, the research introduces readers THS by giving information about the location of THS and its close proximity in Ankara, its historical evolution from the early-1920s to today, and its current land-use pattern.

The second part of the analysis focuses on the walkability dimension of THS. It investigates THS from Kuğulu Park to Hacıoğlu Street through the major attributes of walkability (safety, orientation, attractiveness, comfort, diversity and local destinations) which are identified in the theoretical framework of the study (Also see Table 3-1).

This research uses quantitative and qualitative data which are based on the four major sources of evidence. The first source of evidence includes documents which constitute written reports, books, articles, researches, formal studies or evaluations of the same site under study, articles appearing in the media and websites related to THS. The second source of evidence is direct observation. Various maps are prepared and photos are taken to support the arguments of the research. The third source of evidence is the questionnaire held with the users of Tunalı Hilmi Street. Cognitive maps is the fourth source of evidence used by this research. A copy of the questionnaire is provided in Appendix A of this thesis. The examples of cognitive maps obtained through the case study are also provided in Appendix B.

The research methodology of the study is explained in detail in Chapter 4.

1.4 The Structure of the thesis

This thesis consists of five main sections. Chapter 2 explains the concept of 'liveability', its historical evolution through a review of literature and its main components and dimensions. Chapter 3 is dedicated to the concept of 'walkability', one of the major qualities of liveability in urban public spaces. This chapter first defines the notion of walkability, its contribution to the life of cities and urbanites, and then explains in detail its major components. Chapter 4 explains the research methodology used by this study. Chapter 5 focuses on the historical development of Ankara, and the evolution of the public spaces. In doing so, it aims to put THS in the context of Ankara's historical development and the changes in the public space development policies. Chapter 6 introduces THS through the description of its location within the city, its development history from the early-1920s to today, and its current land-use functions. Chapter 7 is dedicated to the analysis of walkability of THS. It assesses the walkability qualities of the current street according to the criteria identified by this study. Chapter 8 gives a brief explanation about the findings of the research and provides recommendations about how the walkability capacity of THS can be increased regarding urban design policies. It also seeks to make more general recommendations for the public spaces in the city centre of Ankara and other Turkish cities.

CHAPTER 2

THE NOTION OF 'LIVEABILITY' IN URBAN SPACE

This chapter examines the notion of liveability in urban space. It first explains how this notion emerged and developed; second it investigates the concept of liveability and its indicators. Third, it studies three major dimensions of liveability: physical, environmental and economic.

2.1 How the notion of 'liveability' emerged and developed?

The notion of 'liveability' emerged and developed on the debate of car-oriented urban development in cities. In the 1920s, with the development of car industry, automobiles started being used as a modern transportation vehicle. In the 1950s and 1960s, cars became cities dominants. As a result, the appearance and function of streets and public spaces changed with the new urban plans based on car-oriented policies. This transformation did not only appear in urban space, but also in social, cultural, recreational and environmental dimensions of urban life which resulted in decreasing quality of life and liveability in cities (Kaiser, et al, 2003, p. 1-3). These new urban and transportation policies have strengthened the design of car-dependent streets and have caused immoderate use of cars in cities (Okullu, 2007, p. 1-2, 12). They have also resulted in the neglect of pedestrians, the increase in fuel consumption, air pollution, unusual climatic changes, car occupancy in streets and car-parks (Okullu, 2007, p. 1-2, 12). All these changes in cities have turned streets into unsafe and uncomfortable places for pedestrians (Okullu, 2007, p.1-2, 12).

The dominant use of cars in cities has also negatively affected the vitality of city centers. Traffic congestion especially in city centres became one of the main problems of cities. City centers and their public spaces have become more and more unsafe and uncomfortable for pedestrians (Lambert, 2005, p.19; Kolody, 2002, p.4-8; Okullu, 2007, p.iv, 1-12). This particularly discouraged people (especially pedestrians) to use downtowns and public spaces of cities. However, pedestrians have been inevitable elements for social and economic liveability of city centers (Ünsal, 2010, p. 27-28).

The development of suburbs and suburban shopping malls away from the city centers has also discouraged people to use commercial, entertainment, cultural and leisure activities in city centers. The development of these commercial and residential areas out of city has also attracted other activities, such as cultural, business and entertainment activities, within or close to these newly-built sites (Kazimee, 2002, p.1-2). Consequently, traditional city centers started to lose their vitality and liveability (Kazimee, 2002, p.1-2). Walkability has not been considered in the design of newly-developed urban spaces. Accessing to these segregated urban enclaves in suburban areas due to the increased distance between them has become impossible by walking and biking (Okullu, 2007, p.1-2).

Walkability in cities has been neglected by the car-oriented urban policies. Walkability, however, has played an important role to create healthy and livable communities and to increase the quality of life in cities (Okullu, 2007, p.1-2).

Since the 1960s, communities which have realized the importance of liveability and walkability in cities initiated the thoughts and movements that aimed to promote the presence of pedestrians and the use of public transportation vehicles within cities, instead of cars, in order to regain the lost value of walkability and liveability (Okullu, 2007, p.iv, 1-2, 12).

'Liveability'-oriented activism developed in the US and around the world in the 1960s (See Figure 2.1). It started with the discussions of Jane Jacobs, William Whyte and Kevin Lynch which planned enrichment of pedestrian life in cities through 'visual' and 'functional' elements. Jacobs (1961) put forth the advantages of 'density' and 'diversity' in increasing sociability and 'liveability' of urban areas in her well-known book titled "The Death and Life of Great American Cities", and described how far old urban communities, such as those in Greenwich Village in New York and in Boston's North End, were vital. Between the years 1960-1966, a growing volume of research in environmental design began providing theoretical and empirical foundations for designing liveable urban environments. These researches sought to understand how people actually used and perceived cities and then used this information to develop design guidelines and recommendations to create liveable urban spaces.

Afterwards, 'Townscape movement' which was pioneered by Lynch and Jacobs emphasized the importance of street evaluation by examining 'urban form', 'use of street' and 'urban experience'. "Urban experience" indicates pedestrian experiences accompanied by its mutual relation with environment, as also explained below (Kaiser et al, 2006, p.41; Akit, 2004, p.3-4):

> (T)he townscape movement, led by the "architectural review", emphasized "urban experience". This phenomenological view of the city was espoused ultimately by Lynch and Jacobs. It identified a whole new vocabulary of urban form –one that depends on sights, sounds, feels, materials, textures, facades. (Jacobs & Appleyard, 1987: 493; cited in Akit, 2004, p.3-4)

William Whyte (1960), another pioneer of liveability, emphasized the importance of walkability. He analyzes the characteristics of safe streets for many different pedestrians groups. With his studies, he particularly focused on the quality of streets in attracting pedestrians and therefore in increasing social interaction (Moudon and Appleyard, 1987, p.26; Kaiser et al, 2006, p. 39). Lynch (1960) developed techniques of 'cognitive mapping', based on people's mental images of the city. According to Lynch (1960), cognitive maps could be important sources of information for future planning and design efforts. He (1981) further developed 'good city form' theory that became very influential in laying out a framework for thinking about urban liveability, by emphasizing such qualities as legibility, transparency, congruence, diversity, efficiency and convenience. Likewise, Montgomery (1997; 1998) was inspired by Lynch's study on urban space evaluation and the Lynch's analysis criteria ('vitality', 'sense', 'fit', 'access' and 'control') (Akit, 2004, p.4). He then identified 'form', 'image' and 'activity' as three main values for urban space assessment to improve pedestrian life in urban space.

The 'silent revolution' of state-wide growth management and planning processes that began in the mid-1970s sought to preserve open space in the face of growth, to help provide urban residents with recreational and aesthetic amenities that are important for creating liveable urban spaces. In Germany and the Netherlands, streets were redesigned for the purpose of traffic calming in the late-1970s. Likewise, since the 1980s, with the influence of feminist perspectives on urban design that have strongly emphasized liveability, urban environments have been designed for the comfort and convenience of women, children, and the elderly.

Apart from the feminists, the notion of liveability was developed through the influential series of 'International Making Cities Liveable' Conferences that were initiated in 1985. Since that time, more than twenty major events have been held around the world, including many in Europe.

Over the last two decades, the notion of liveability in urban space has been predominantly advocated by the Congress for the New Urbanism (CNU) and Smart Growth. In the 1990s, the CNU, headquartered in San Francisco, has become the most influential urban design movement of the United States (US). CNU members seek to improve community 'liveability' by recapturing many of the qualities of traditional American cities and towns. The New Urbanism, as an urban design movement, focuses on built environments designed to counter the effects of low-density sprawl. In urban centers and residential neighborhoods, the New Urbanism promotes the policy of mixing land-uses rather than segregating them, and that of producing pedestrian-oriented streets (narrow streets with generous sidewalks) instead of developing wide boulevards which are designed mainly to accommodate automobiles (Kaiser et al, 2006, p.41).

The 'Smart Growth' movement emerged in the mid-1990s (Kaiser et al, 2006, p.41). Environmental groups define Smart Growth primarily in terms of environmental preservation and open space protection, while planners define it in terms of the revitalization of older urban spaces (Kaiser et al, 2006, p.41). The Smart Growth movement seeks to promote more compact communities and to halt suburban sprawl (Kaiser et al, 2006, p.41). The promoters suggest to build infrastructure only in communities with growth management plans in order to ensure that expenditures will be cost effective and promote desirable forms of development (Kaiser et al, 2006, p.41).

Although coming from different perspectives, all these movements contribute to the understanding of how to make cities and towns more 'liveable', and how to base planning agendas on the experience and input of people who will be using urban environments (Wheeler, 2001, p.11). Hence, these movements have started promoting to compensate lost quality of life in terms of physical, environment, economic and social cultural aspects. Today, these efforts are the main subject of urban planning & design, to ensure liveable, healthy urban places to future generations. (Wheeler, 2001, p.14)

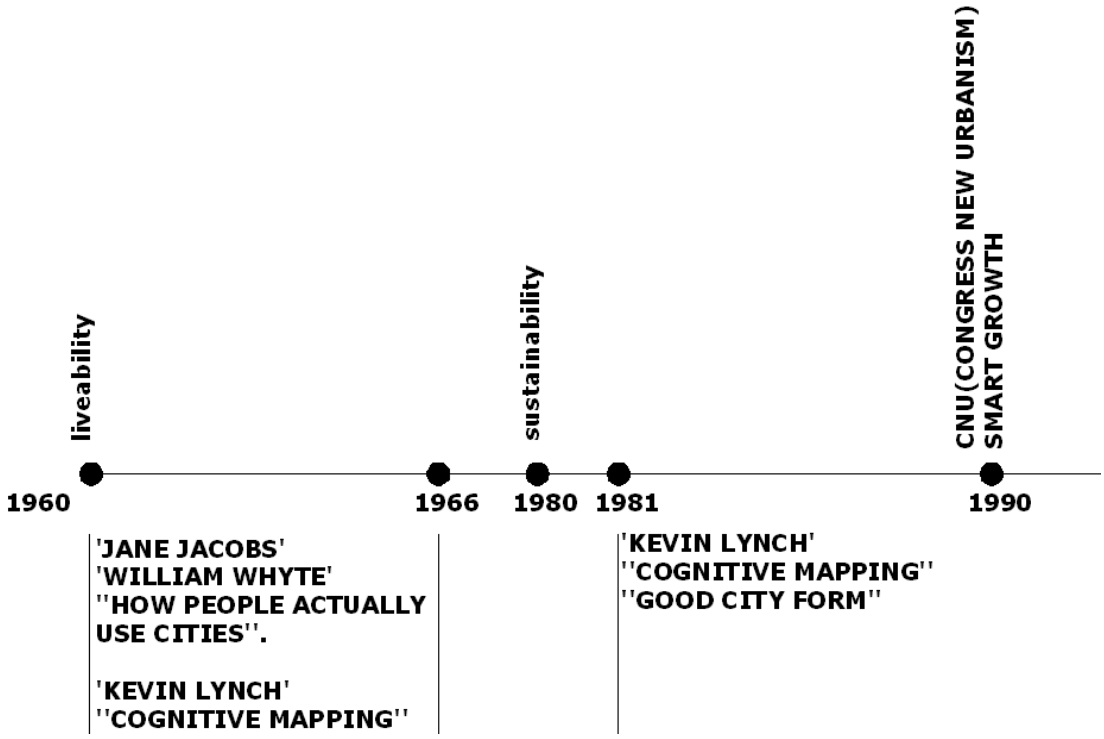


Figure 2-1, Liveability, Sustainability, CNU, Smart Growth movements and their advocators, (Kaiser et al, 2006, p.41 and personal rendering)

2.2 What is the notion of 'liveability'?

Liveability emerged in the 1960s and this notion led to the development of the discourse of 'sustainability' in the 1980s. Both liveability and sustainability have turned into the main topics of current urban planning (Lambert, 2005, p.1-2). The concept of liveability has also been started to be used by two urban design movements -the New Urbanism and the Smart Growth that were appeared in the 1990s (Figure 2.2).

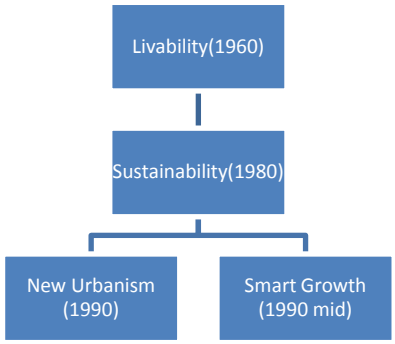


Figure 2-2, The relationship between the notion of liveability, sustainability and New Urbanism and Smart Growth (Resource: Personal Diagram)

Liveability refers to sustaining "long-time well-being or quality of life" (Lambert, 2005, p.7). It refers to the environmental and social quality of an area as perceived by residents, employees, customers and visitors (Lambert, 2005, p.7; VTPI, 2010a, p.1-2). This includes 'safety and health' (traffic safety, personal security, public health), 'local environmental conditions' (cleanliness, noise, dust, air quality, water quality), 'the quality of social interactions' (neighborliness, fairness, respect, community identity and pride), 'opportunities for recreation and entertainment', 'aesthetics', and 'existence of unique cultural and environmental resources' (such as, historic structures, mature trees, traditional architectural styles) (VTPI, 2010a, p.1-2).

The notion of liveability directly benefits people who live in, work in or visit an area, increases property values and business activity, and it can improve public health and safety. Liveability is largely affected by conditions in the public realm, places where people naturally interact with each other and their community, including streets, parks, transportation terminals and other public facilities, and so is affected by public policy and planning decisions (VTPI, 2010a, p.1-2).

To create liveable cities and urban spaces, the quality of urban space design becomes important. The space should be designed according to multiple needs of people, such as physiological needs, safety needs, belonging and love needs, esteem needs call for face-to-face interactions, self actualization needs, cognitive needs, and aesthetic needs (VTPI, 2010a, p.1-2; Barlas, 2006, p.83-94). Yet, the high quality of design is not enough to create liveable spaces. It is important to provide physical, social, economic and environmental solutions to

improve liveability in urban space (Lambert, 2005, p.1-2). The following section will investigate these dimensions of liveability in urban space.

2.3 Dimensions of liveability

2.3.1. Physical dimension of liveability

There are a number of indicators to describe the physical dimension of liveability. These are: *density and diversity, walkability, connectivity and permeability, qualified architecture and urban design, smart transportation and sustainability* (Akit, 2004, p.4, 13-15). As far as *density and diversity* are concerned, they include 'physical diversity', 'economic diversity', and 'social diversity'. 'Physical diversity' refers to a variety in terms of urban physical elements, such as a variety regarding dwelling types, architectural styles, and land-use activities. 'Social diversity' signifies a mixture of people coming from different ages, family types and socio-economic status, while 'economic diversity' means a variety of building types with different property values. The presence of such diversity in urban space is important in terms of bringing different groups of people together to use urban public spaces. In this way, public spaces can be lively (Lambert, 2005, p. 23-24).

Walkability is the second quality of liveability in public space. It is related to pedestrian travel in an area to make walking enjoyable. It also includes requirements needed to pedestrian convenience such as roadway conditions, land use patterns, community support, security and comfort (Litman 2011, p.26). It is defined according to various components which are *safety, orientation, attractiveness, comfort, diversity* and *local destinations* (Lambert, 2005; Kolody, 2002; LA-Walkability Checklist, 2008). The principles of grouping of Gestalt psychologist (proximity, similarity, enclosure, common ground or common enclosure, continuity and orientation, area symmetry) and mental maps of Kevin Lynch play also important roles in assessing *attractiveness, orientation, comfort* and *safety* of walkability (Eraydın, 2007, p.30; Bentley, 2002, p.174, 178-179; Akit, 2004, p.19).

Walkability plays an important role to protect the environment, to decrease traffic congestion, to create social interactions, to promote mental and physical health, and to contribute economic vitality of urban space (Meenakshi, 2009, p.97). It also provides a variety

of benefits for urbanites; including its contributions to *basic mobility, community liveability, community cohesion, economic development, consumer cost savings, public health,* and *efficient land use* (Litman, 2011, p.1). Walkability will be examined and explained in detail in Chapter 3.

The third physical indicator of liveability is *connectivity and permeability.* Both are related to the walkability capacity of open public spaces in cities. Connectivity and permeability can be examined in both *physical* and *perceptual* terms. Continuous physical pattern of a street or path without interruptions encourages pedestrians to walk, while street furniture (such as coherent height of light poles, and coherent canopies) can enforce a perceptual continuity and can create harmonious rhythm (Kolody, 2002, p.43; LA-Walkability Checklist, 2008, p.11; Litman, 2011, p.26).

The fourth physical indicator is *qualified architecture and urban design.* These characteristics address to *attractiveness, comfort, legibility, green space and a sense of place*. Lynch (1960) developed techniques of 'cognitive mapping', based on people's mental images of the city (Kaiser et al, 2006, p.41). He further developed the 'good city form' theory (1981) that includes five basic public space rights: the right of 'presence', the right of 'use and action', the right of 'appropriation', the right of 'modification', and the right of 'disposition'. He claims that "people should not only have access to a public space, but also freedom to use, change, and even claim the space, as well as to transfer their rights of use and modification to other individuals" (Moudon and Appleyard, 1987, p.28). These rights provide an effective measurement of the street's publicness and democracy (Moudon and Appleyard, 1987, p.28). These characteristics become very influential in laying out a framework for thinking about urban liveability through *qualified architectural and urban design features* (Kaiser et al, 2006, p.41).

Smart transportation is another physical indicator. It particularly contributes to walkability, as well as environmental and economic dimensions of liveability (Akit, 2004, p.4, 14-15). Transportation network facilities, such as streets, provide people with the opportunity of movement and social interaction. Therefore, its quality directly influences liveability. The quality of transportation coordinated system can be strengthened through a number of strategies, such as *street calming measures, land-use planning, transportation management*

policies, green space protection, and *sustainable transportation* (VTPI, 2010a, p. 1-9) (Figure 2-3).

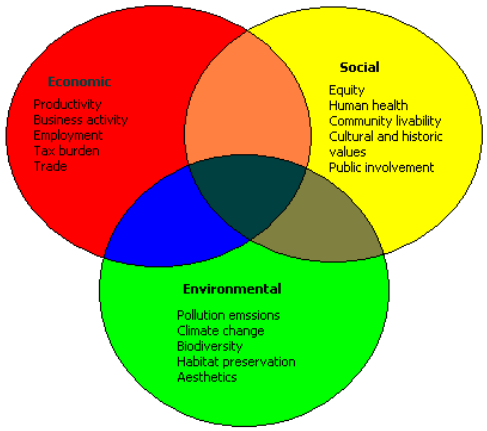


Figure 2-3, "Sustainable Transport goals" (Resource: Litman, 2011, VTPI, 2010b, p.1)

The last physical indicator is *sustainability.* The main principles of sustainability are improving environment, economy and community aspects. (Kaiser et al, 2006, p.41) Thus, it promote the development of mixed-used, dense, affordable, continuous and walkable urban spaces which decrease the impact on environment and natural resources and so increase human wellbeing and city's liveability (Akit, 2004, p.15, 56) (See also Figure 2-4).

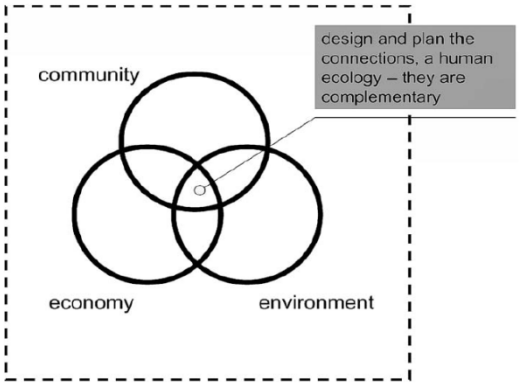


Figure 2-4, "Three pillars" of sustainability (Resource: Williams, 2007, p.14)

2.3.2. Environmental dimension of liveability

The environmental dimension of urban liveability comprises a number of issues, one of which is to connect with nature. Increasing density of city centres and their growth regardless of

green open space protection lead many inner city residents to move to the suburbs and to connect with natural environment (Wheeler, 2001, p.26-30; Lambert, 2005, p.25-26) . Houses with their private gardens become the major open private spaces where suburbanites enjoy the merits of nature (Wheeler, 2001, p.26-30; Lambert, 2005, p.25-26). This intention indeed creates a significant demand for suburban developments and urban sprawl while damaging natural environment and bringing about unsustainable cities. For example, urban sprawl particularly encourages the use of private cars and the consumption of fossil fuel. Increasing use of private car in traffic causes traffic congestions and spend more time, energy and money in transportation, thereby the loss of time, energy and money in production (Wheeler, 2001, p.26-30; Lambert, 2005, p.25-26). Urban sprawl also results in the development of monotonous urban fabric with vast green land connected to each other through mindless road network (Wheeler, 2001, p.26-30; Lambert, 2005, p.25-26). Such an urban fabric brings about difficulties of accessing recreational, cultural and commercial activities for a variety of groups who do not drive (unless there is sufficient public transportation services) (Wheeler, 2001, p.26-30; Lambert, 2005, p.25-26). High cost of physical infrastructure investments also makes suburban developments unsustainable particularly for local governments (Wheeler, 2001, p.26-30; Lambert, 2005, p.25-26). To overcome the financial burden of infrastructure investments, local authorities generally tend to increase local taxes in the suburban parts of cities (Wheeler, 2001, p.26-30; Lambert, 2005, p.25-26).

However, it is still possible to create liveable urban environments in dense inner city neighbourhoods by improving the quality of life. One of the major strategy can be the provision of new open green spaces or to introduce some greenery in the available places in the buildings (such as, balconies or roofs) or residual spaces in between buildings (Wheeler, 2001, p.26-30; Lambert, 2005, p.25-26).

To turn such dense inner city neighborhoods into liveable neigborhoods, it is also necessary to provide necessary public amenities (such as parks, playgrounds, recreational areas, schools, and shops) in the close proximity of their users, accessible by walking or public transport.

Likewise, the protection of environmental systems is another important issue in creating liveable cities and urban spaces. Nature could continue its natural recycling system by protecting natural systems, such as the protection of natural drainage systems instead of

using impervious surfaces or the protection of trees and natural ground cover (Lambert, 2005, p.25-26). It has also economic benefits (Margaret and et al, 2008, p.84). In fact, the protection of natural elements prepares the conditions for clean air, resource efficiency, recycling, regulates climate conditions and decreases natural disasters (Lambert, 2005, p. 33). Today, preserving natural features and systems has become a common strategy through the planning and design concepts, like sustainability and liveability, and the new planning and design streams, such as New Urbanism and Smart Growth (Kaiser and et al., 2006, p. 41).

Additionally, safe and attractive public open spaces are necessary for creating 'livable' cities and communities. Public spaces, as the places that can be accessed and used freely by all people, increase social interaction (Stevens, 2009; p. 3). Public spaces are also the places which connect urban elements, such as neighborhoods. As Comitta (2000, p. 116) claims, we need to consider green open spaces not as instruments which separate neighborhoods, but the tools which connect them. For this reason, to create liveable cities and communities, liveable public spaces are essential.

Clean air is another prerequisite for developing liveable cities and communities. (Pacione 2002, p. 85; cited in Kaiser et al, 2006, p. 417) identifies five major sources of air pollution: 1) the generation of energy from fossil fuels; 2) the agricultural and industrial production process; 3) household consumption activities; 4) spatial pattern, density and use of urban land; and 5) released smoke from cars. 'Liveability', as a concept that leads the design of urban space, takes steps to remove the causes of air contaminant by preventing suburban sprawl and by improving the quality of life in more denser residential areas within the inner city, by increasing 'walkability' and by increasing the use of bicycle and public transits (Pacione, 2002, p.85; cited in Kaiser et al, 2006, p.417).

2.3.3. Economic dimension of liveability

'Affordability' and 'feasibility' are the two important terms to explain the economic dimension of liveability (Lambert, 2005, p.18-19). Affordability means the financial ability of people to meet their basic needs, such as sheltering, eating, and to enjoy daily facilities (Lambert, 2005, p.18-19). Thus, the factors which are considered in the design of liveable urban spaces aim to reduce the costs to the minimum level while increasing the affordability

of people (Lambert, 2005, p.18-19). Likewise, the same factors in the design of liveable urban spaces need to be feasible for local authorities. In other words, the local authorities can be capable of accomplish the development of such urban environment in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors.

Creating liveable cities and communities serves these economic purposes in several ways. One of the major principles for creating liveable urban spaces is the use of diverse land-use functions (Lambert, 2005, p.18-19). Neighborhoods with a mix of commercial, residential and other public amenities serve to meet the daily needs of the users of these places close to home (Lambert, 2005, p.18-19). Another important principle for creating liveable neighborhoods is to accommodate a wide range of housing types, styles and costs (Lambert, 2005, p.18-19). In this way, it is possible to make people from different income levels, age and even ethnicity backgrounds live together (Lambert, 2005, p.18-19). Such neighborhoods are also very important in terms of creating new social spaces for local residents (Lambert, 2005, p.18-19).

Walking, cycling and the use of public transit are particularly encouraged by the design of liveable urban spaces and neighborhoods (Lambert, 2005, p.18-19). The residents of the liveable neighborhoods therefore satisfy their needs by walking, cycling or by public transit (Lambert, 2005, p.18-19). These consequently lead to reduce the number of vehicle trips, the transportation cost of individuals and the traffic congestion (Lambert, 2005, p.18-19). Using public transit instead of using personal vehicle help people to save from the cost of fuel, maintenance and insurance (Lambert, 2005, p.18-19).

The neighborhoods with a mix use of activities also provide the new employment opportunities for the community members, and self-sufficient urban neighborhoods (Lambert, 2005, p.18-19).

Another feature of liveable neighborhoods and urban spaces is their provision of a wide range of rental opportunities (Lambert, 2005, p.18-19). In this way, different groups of people with a variety of financial ability will be able to rent a home (such as an apartment, a house, a suit or

a room) (Lambert, 2005, p.18-19). Rented places can also be used as an office or workshop that can support the policy of creating mixed-use neighborhoods (Lambert, 2005, p.18-19).

Increasing building and population density is also another character of liveable urban spaces and neighborhoods. Increasing the number of apartments will decrease their price levels, thereby rises the opportunities for people to find affordable housing for their own preferences (Lambert, 2005, p.18-19). Also, increasing density is also feasible for the local authorities, as they will save from the costs of building roads, and providing services and utilities over a great number of units (Lambert, 2005, p.18-19)

CHAPTER 3

THE NOTION OF 'WALKABILITY', ITS BENEFITS TO URBAN LIFE AND WALKABILITY MEASURES

This chapter aims to define what walkability means. It also seeks to underline the major merits and benefits of creating walkable and pedestrian-friendly streets for cities and urbanites. Finally, it seeks to identify and explain the criteria of walkability that will be used for the assessment of walkability capacity of the case study of this research.

3.1 The definition of 'walkability' and its contribution to urban life

> *"A 'walkable community' is designed for people, to human scale, emphasizing people over cars, promoting safe, secure, balanced, mixed, vibrant, successful, healthful, enjoyable and comfortable walking, bicycling and human association. It is a community that returns rights to people, looks out especially for children, seniors and people with disabilities…"* (Burden, cited in VTPI, 2011c, p.28)

Figure 3-1, A walkable street in Washington, 2011, (Resource: http://www.walklive.org, last assessed on 20, 01, 2011)

'Walkability' is one of the most commonly discussed qualities of liveability in public space. Walkability supports pedestrian travel in an area to make walking enjoyable. It requires pedestrian convenience in urban space, such as "roadway conditions", "land use patterns", "community support", "security" and "comfort" (VTPI, 2010b, p.32). This is not only important for protecting the environment and decreasing traffic congestion, but also for creating social interactions, promoting mental and physical health of people and contributing economic development (Meenakshi, 2009, p.97).

Walkability assessment has various ways and dimensions. On the one hand, it should consider the walkability quality of various groups in urban public spaces. These groups can be classified under three categories: a) standard pedestrians, 2) vulnerable groups, such as disabled people, pedestrians over 65, parents with strollers and children who walk to schools, and 3) groups moving in the city via vehiculars, such as cyclists, private car drivers and passengers, and public transport and service users. On the other hand, the walkability assessment should consider the quality of public spaces. For instance, quality of routes, accessibility and pertinent facilities should be taken into consideration for site valuation. For the assessment of the walkability of a street, qualified sidewalks and adequate cross walks become important. Finally, at community degree, local destinations, continuity and quality of connections should be considered as well. Litman (2010) points out four essential factors of walkability as 1) *Pedestrian network quality* and 2) *Pedestrian network connectivity*, 3) *safety*, 4) *diversity* and *approachability (local destinations).* These are also defined as values to walkability by Leinberger (2007) and Burden (2003). Pedestrian network quality is related to physical and perceptual quality of paths, sidewalks, street crossings (VTPI, 2010b, p. 32). Pedestrian network connectivity relates to the continuity of sidewalks to encourage pedestrians to walk, while the third factor of walkability involves physical and perceptual safety of pedestrians in sidewalks during the day (VTPI, 2010b, p. 32). Finally, diversity and approachability emphasize accessibility to common facilities, such as public spaces, public services, commercial lines (VTPI, 2010b, p.32).

'Walkability' in public spaces provides a variety of benefits for urbanites; including its contributions to *basic mobility, community liveability, community cohesion, economic development, consumer cost savings, public health,* and *efficient land use*. First of all, walkable public spaces increase *basic mobility* of urbanites, especially the mobility of

vulnerable groups (VTPI, 2010a, p.1). Secondly, walkability significantly contributes to *community liveability* which refers to the environmental and social quality of an area as perceived by residents, employees and visitors (VTPI, 2010a, p.11). Walkable, attractive and safe public spaces ease and increase the interactions of people between each other. However, "residents on streets with higher traffic volumes and speeds are less likely to know their neighbours, and show less concern for their local environment, than residents on streets with less vehicle traffic" (VTPI, 2010a, p.11). It also strengthens social life, as residents in walkable communities are more likely to know their neighbours, be politically active, trust others and be actively engaged in social life (VTPI, 2010a, p. 12-14; Leyden, 2003, p. 3-4). In this sense, walkability has a positive effect on the development of liveable communities and neighbourhoods, as stated below:

> *A 'livable' neighbourhood can be defined as one that is pleasant, safe, affordable, and supportive of human community. Key elements of community 'livability' often include an attractive, pedestrian-oriented public realm; low traffic speed, volume, and congestion; decent, affordable, and well-located housing; convenient schools, shops, and services; accessible parks and open space; a clean natural environment; places that feel safe and accepting a diverse range of users; the presence of meaningful cultural, historical, and ecological features; and friendly, community-oriented social environments.* (Wheeler, 2001, p.5)

Walkability also contributes to *community cohesion (social interaction)* which means "the quality of relationships among people in a community" (Forkenbrock and Weisbrod, 2001, cited in Litman, 2009, p.11) Community cohesion is indicated by "the frequency of positive interactions, the number of neighbourhood friends and acquaintances, and their sense of community connections, particularly among people of different economic classes and social backgrounds" (Forkenbrock and Weisbrod, 2001; cited in VTPI, 2010a p.11). Walkable public spaces enrich the possibilities of developing community cohesion, as they enable community members to meet and interact with each other frequently and this helps the creation of social cohesion within the community.

Additionally, walkability provides *economic* contribution to the urban life and the life of urbanites. On the one hand, walking makes commercial areas more attractive, as walkable commercial streets and public spaces enable pedestrians to survey goods slowly and carefully. Supplementally, the presence of pedestrian movement in such public spaces generally led to stimulate other people. Thus, walkability especially in mixed-use main streets helps increase the number of users of such places; thereby increase liveability of the commercial centres and their public spaces (VTPI, 2010a, p. 14).

Walkability provides *consumer cost savings*. Instead of taking public transport or driving a car, people can save costs of transportation in walkable streets and public spaces (VTPI, 2010a, p. 8).

Walkable streets also contribute to *public health* which means "overall health and well-being of people in a community" (Safety and Health Costs, 2009, VTPI, p.2). Walking is a fundamental activity for physical and mental health. As it provides people with the opportunity to make physical exercise, it protects them from a number of diseases, such as heart disease, hypertension, stroke, diabetes, obesity, osteoporosis, depression, and some types of cancer (VTPI, 2010a, p. 12). Likewise, walking protects people from mental diseases, through loneliness and depression reduction, neighbourliness promotion, confidence promotion and hence advancement of people's life quality (Mental Health, 2006, WHI, p.3).

Finally, walkability provides *efficient land-use planning* which is top subject of *Smart Growth, New Urbanism, Location Efficient Development and Transit Oriented Development* discussions. It helps the development of a compact urban form which will lead to less waste of land and to minimize distances between common destinations in order to be accessible by different transportation modes, such as walking, cycling and public transit. Hence, improving walkability also means preferring dense, mixed-use developments connected together, rather than sprawled, automobile dependent urban developments. Efficient land-use planning also supports economic value by decreasing public substructure and service costs (More Efficient Land Use Management, 2010, p.1-2).

3.2 The major attributes of walkability

Walkable public spaces have six major attributes: safety, orientation, attractiveness, comfort, diversity and local destinations (Lambert, 2005; Kolody, 2002; Department of City Planning of Los Angeles, 2008). (Figure 3-2) These attributes of walkability are not haphazardly chosen. The key assumption behind these attributes is that walkable public spaces are those which are safe, attractive, comfortable and well-connected to its surroundings and local destinations, and those that accommodate diversity. The following sections explain each of these attributes in detail.

Angeles

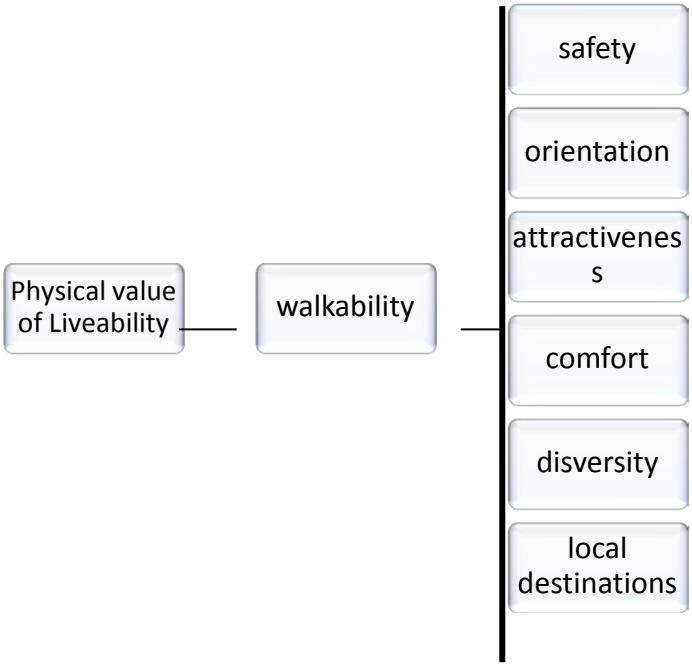


Figure 3-2, Walkability attributions, (Resource: Lambert, 2005, Kolody, 2002, Department of City Planning of Los Angeles, 2008 and personal rendering)

3.2.1 Safety

Safety is an important quality of walkable public spaces. It can be created by physical design methods and other complex factors which prepare safety. Thus, urban spaces must be not only physically, but also perceptually safe. In general scale, the safety problem is a complex and multi-faceted; whether pedestrians or drivers, people on the streets can feel ‘safe’ or

'unsafe' vary in many different ways. A comprehensive approach to promote the public safety therefore needs to include initiatives to improve 'actual' and 'perceived' safety on many different fronts (Lambert, 2005, p.19; Wheeler, IURD, 2001, p.38-39) (Figure 3-2).

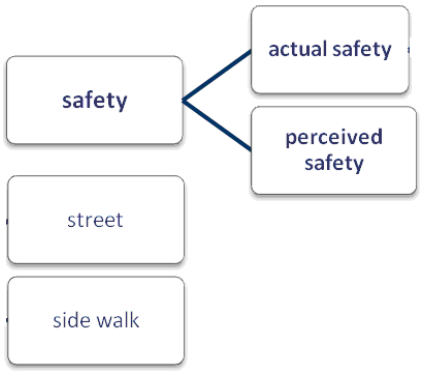


Figure 3-3, Safety is evaluated in actual and perceptual aspects in both street and sidewalk, (Resource: Lambert, 2005, p.44-45 and personal rendering)

3.2.1.1 Actual safety

Actual safety' means a 'safety' achievable through safe physical properties in urban spaces. It can be achieved in streets and sidewalks through different ways. One should note that street is a three-dimensional entity with its all components, such as vehicular road, sidewalk, street furniture and buildings. It is not only used as a part of a transport network, but it is used for many activities. Rapaport (1987, p. 81) defines these activities as: 'non-pedestrian movement' which includes the movement of vehicles, 'dynamic pedestrian activities' which includes people walking and running, and 'static pedestrian activities' which includes people standing and waiting. As such, Gehl (1987) defines three categories of pedestrian activities in urban public spaces: necessary activities, optional activities, and social activities. Necessary activities include those that are more or less compulsory, such as going to work, shopping, waiting for a bus or a person, running errands. The activities in this group are necessary, because their incidence is influenced only slightly by the physical framework; they take place throughout the year, under nearly all conditions, and are more or less independent of the exterior environment; and the participants have no choice. Optional activities, however, happen if there is a wish to do so and if time and place make it possible. Taking a walk to get a breath of fresh air, standing around enjoying life, or sitting and sunbathing are the examples of

activities within this group. These activities take place only when exterior conditions (such as weather and place) are optimal. That is, these activities are especially dependent on exterior physical conditions. Finally, social activities are all activities that depend on presence of others in public spaces, such as children at play, greetings and conversations, communal activities of various kinds, and passive contacts (i.e., simply seeing and hearing other people).

All these activities should be considered when considering the safety in streets (and thus in public spaces). Street pattern, traffic calming measures, lightening, continuous pavement, pedestrian enclosure, separation, floor quality, street crossings, and vehicle mix become important elements which influence actual safety in streets (Lambert, 2005, p. 19-22; Kolody, 2002, p. 44-45; LA-Walkability Checlist, 2008, p. 7-66). The following sections elaborate these elements of actual safety in streets.

3.2.1.1.a Street Pattern

Southworth and Owns (1995, cited in Kolody, 2002, p. 50) divide street patterns into five types: grid-iron fragmented parallel, warped parallel, loops and lollipops, and lollipops on a stick (Figure 3-3).

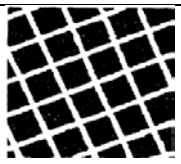
				
Grid-iron	**Fragmented parallel**	**Warped parallel**	**Loops and Cul-de-Sacs**	**Lollipops on a stick**

Figure 3-4, Five types of street pattern classified by Southworth and Own (1995), (Resource:Kolody, 2002, p. 50)

Street patterns are evaluated through configuration of sreet and shape of intersections. Continuous, connected street pattern, such as grid or modified grid (Neo-Traditional Street Types), developed in the 1930s, is more walkable, because it includes shortest trips and highest amount of paved surface; it also ensures pedestrian's accessibility to parallel streets in a short time. It makes easy approchability to public services. It is also safer, as the

intersections slow car speed (Preiss and Shapiro, 2002, p.3; Kolody, 2002, p.50; Lambert, 2002, p.20; Marshal, 2005, p.xii, 77, 238, 243, 247; Bentley, 2002, p.21).

Some claim that grid-iron pattern is less safer than curvlinear pattern because of its intersections. Also they claim that, in residential area, cul-de-sacs is more preferable. However, circuitous and complex street patterns, such as dead-end cul-de-sacs and curvilinear streets that are combined with low-density development patterns, make urbanites to use car in order to reach to their destination. Thus, they are is against walkability and safety of pedestrians. Together with all discussions, New Urbanism and Smart Growth approaches claim that grid or modified grid street pattern increase walkability and liveability. However, 'Institute of Transportation Engineers' Traditional Neighborhood Development do not have a clear opinion about the best street pattern; they believe that many other factors, such as street width, may affect safety level of pedestrians (Preiss and Shapiro, 2002, p.3; Kolody, 2002, p.50; Lambert, 2002, p.20; Marshal, 2005, p.xii, 77, 238, 243, 247; Bentley, 2002, p.21).

3.2.1.1.b Traffic Calming

Traffic calming is another important factor influencing safety on streets. It is found that speed usually causes serious accidents; therefore traffic calming measures become vital factors for pedestrian's safety (Çiçek, 2009, p.23). On the other hand, *width of street, on-street parking* and *design details* are other supportive factors slowing down the traffic (Lambert, 2005, p. 21).

The street may be physically narrow or be perceived as narrow. Defining factors, such as parking, sidewalks and street trees, are effective factors in perception of the width of streets. As Greenbie (1981) indicates, wider spaces encourage drivers to increase their car speed, and this will reduce walkability and general safety of the streets. But, narrow streets, physically or perceptually, make drivers feel insecure, and therefore make them avoid acceleration of car speed (Lambert, 2005, p. 21).

On-street parking is another important instrument for traffic calming. It raises activity on residential and commercial streets, while providing comfort for shoppers, consumers, shop

owners and traders. Street parking acts as a buffer between pedestrians and cars and contributes to pedestrian's safety (Lambert, 2005, p. 15; Litman, 2009, p.14) (Figure 3-5).

Design details, such as '*raised or textured pavement at crosswalks', 'barrier effect (severance)'* are helpful for traffic calming. These measures slow traffic and permit non-motorized transport users to cross streets (Lambert, 2002, p.21; Çiçek, 2009, p.7).

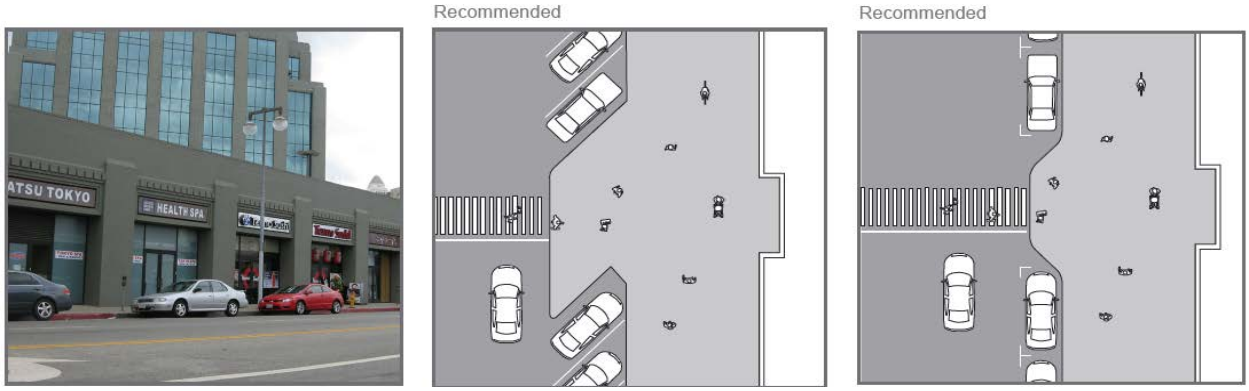


Figure 3-5, On-street parking and its effect on sidewalk width and street crossing, (Resource: LA-Walkability Checklist, 2008, p.22)

3.2.1.1.c Lightening and visibility

Lightening and visibility are the third necessary factor for security of foot-travelers. 'Appropriate and adequate lightening' system contributes to driver and pedestrian's safety through increasing visibility. Also, illuminations of park areas and cross-walks improve safety. The purpose of using 'appropriate lightening' is to provide 'glare-free' lightening systems which are also called 'dark sky' and are known as correct lightening systems (LA-Walkability Checklist, 2008, p.67) (Figure 3-6 and 3-7).

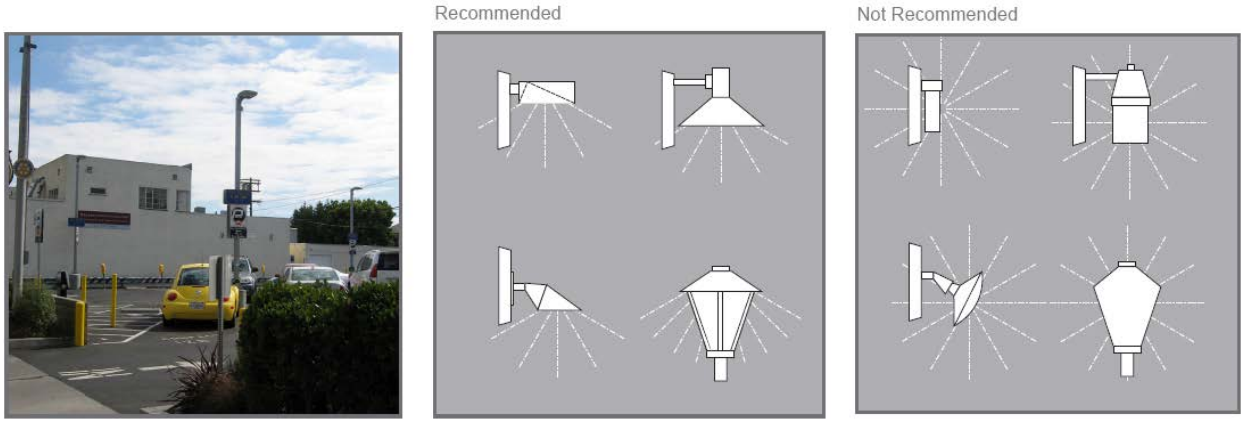


Figure 3-6, Correct lightening system (Resource: LA-Walkability Checklist, 2008, p.67)

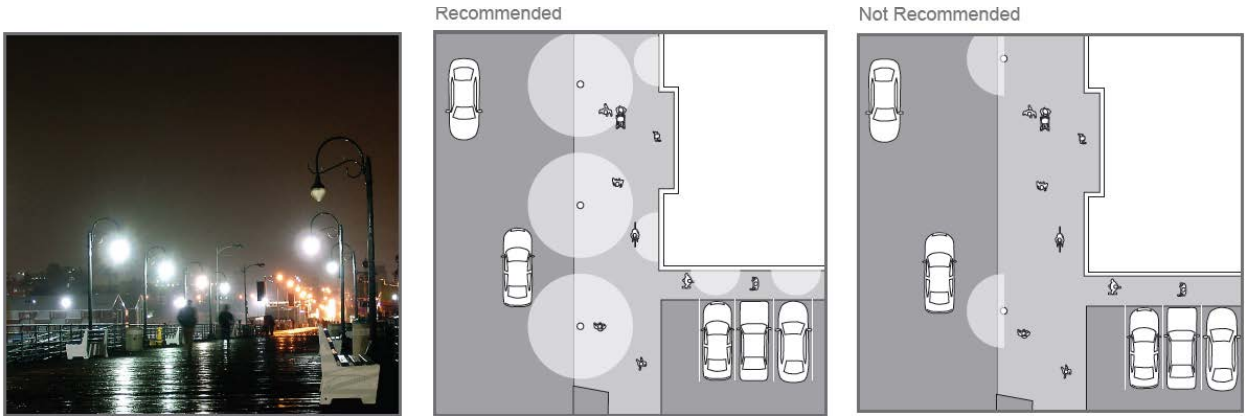


Figure 3-7, Parking areas and sidewalks illumination (Resource: LA-Walkability Checklist, 2008, p.66)

3.2.1.1.d Continuous pavement

Continuous sidewalk pattern is an essential feature of a well-designed pedestrian system that increases 'walkability'. It enables pedestrians, especially those with physical disabilities, to move freely along the sidewalks. It can be strengthened physically and perceptually. The modifications on the physical pattern of sidewalks aim to remove all interruptions on the paths and therefore encourages pedestrians to walk. Perceptual continuity is provided by street furnishings which create harmonious rhythm, such as coherent height of light poles and coherent canopies (Kolody, 2002, p.43; LA-Walkability Checklist, 2008, p.11; Litman, 2010, p.36) (Figure 3-8 and 3-9).

As grid-iron street pattern is highly interconnected, it offers a more continuous, therefore walkable sidewalks for pedestrians, compared to the neighborhoods based on cul-de-sacs, crescents, loops and lollipops street patterns. Of course, this does not mean that 'walkable' cities are only possible through grid-iron street pattern. For example, there are many historic centers in European cities with complicated street pattern. But their walkability is supported by other effective factors, such as human-scale dimensions; diversity and special landmarks (Preiss and Shapiro, 2002, p.3; Kolody, 2002, p.50; Lambert, 2002, p.13; Marshal, 2005, p.xii, 77, 238, 243, 247; Bentley, 2002, p.21).

Figure 3-8, Perceptual continuity created by urban elements (Resource: LA-Walkability Checklist, 2008, p.11)

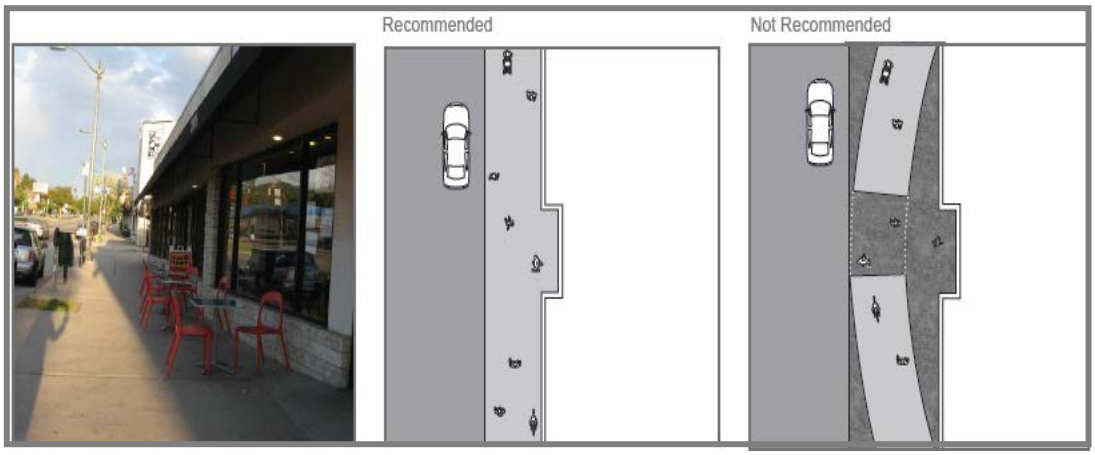


Figure 3-9, Continuous sidewalk indication (Resource: LA-Walkability Checklist, 2008, p.10)

3.2.1.1.e Pedestrian enclosure

Pedestrian enclosure also effects pedestrians' safety, physically and perceptually. It is provided by paying a particular attention on *human scale, building orientation, and street furniture* factors (Lambert, 2005, p.15; Litman, 2010, p. 22, 24, 28) (Figure 3-10 and 3-11).

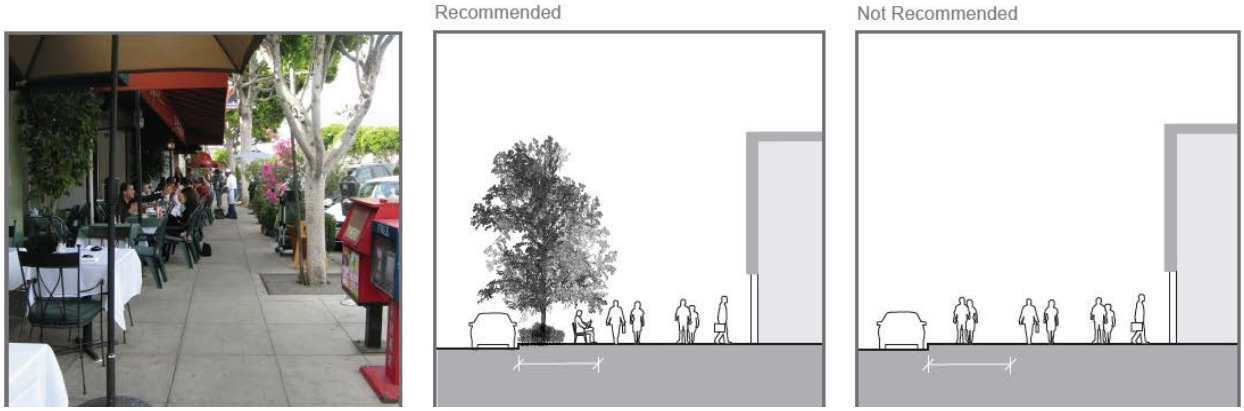


Figure 3-10, Pedestrian enclosure by considering urban elements, building scale, orientation on enclosure sense (Resource: LA-Walkability Checklist, 2008, p.10)

Human-scale standards refer to functional width of sidewalks which could provide pedestrian movement and their activity. It is also related to building height which should be determined according to sidewalk width (Lambert, 2005, p.15; Litman, 2010, p. 22, 24, 28) (Figure 3-10 and 3-11). Appropriate sidewalk width is about 1.53 m which responses to minimum needs of urbanites, those walking, resting, biking, and skating. Unnecessary sidewalk widths lessen

enclosure feeling. Nevertheless, the width of sidewalks should be also determined according to pedestrian volume. The ratio of height of buildings to street width is identified by Jacobs (1993) as 1:2. In general scale, appropriate sidewalk width enables pedestrians to realize the structure of the route, its use, and the entrance placements. In addition, appropriate sidewalk width enables different parts of the sidewalk function properly, and therefore, pedestrians can move freely (Lambert, 2005, p.15; Litman, 2010, p. 22, 24, 28) (Figure 3-12).

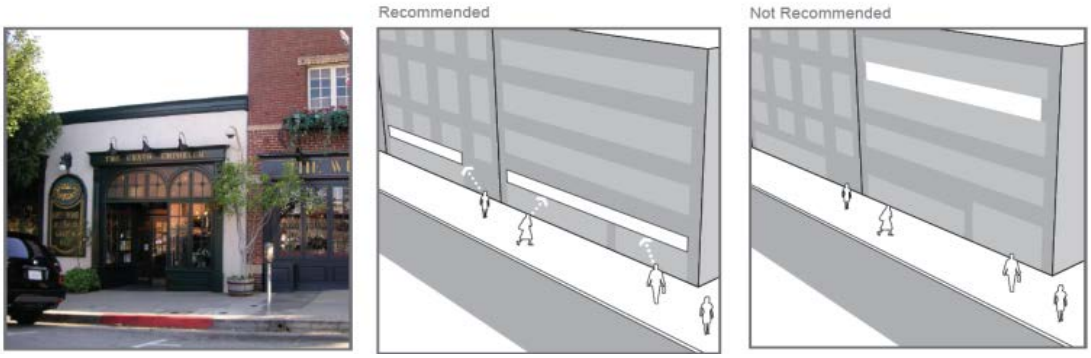


Figure 3-11, Perceptual building components according to human scale standards, (Resource: LA-Walkability Checklist, 2008, p.66)

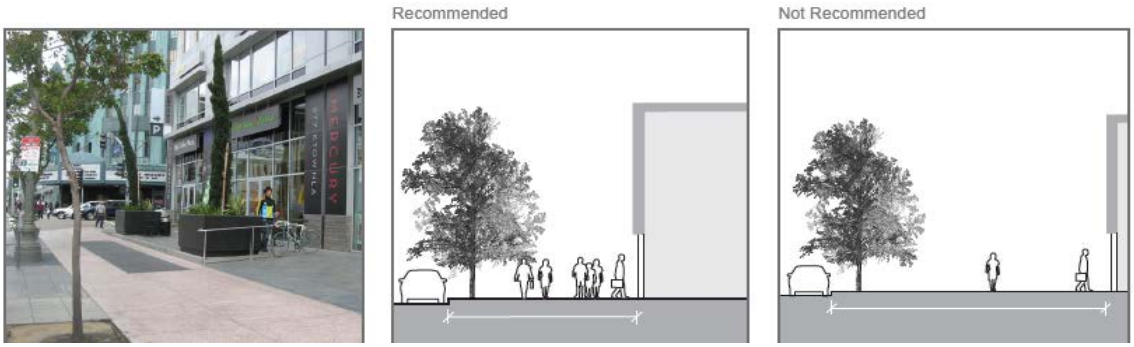


Figure 3-12, Adequate sidewalk width accordance to pedestrian volume,
(Resource: LA-Walkability Checklist, 2008, p.11)

Building orientation is also important in terms of creating pedestrian enclosure, thereby creating walkable streets. Building entrances which consistently open to the same pedestrian realm confine sidewalk and increase pedestrian enclosure (Lambert, 2005, p.16) (Figure 3-14)

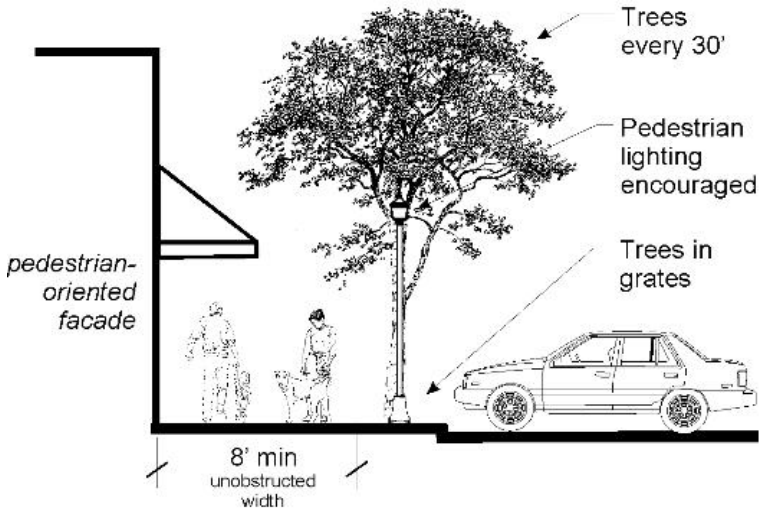


Figure 3-13, The relationship between building orientation, trees and street furniture in defining pedestrian realm (Resource: Parking Areas, Vehicle and Pedestrian Access, and Related Improvements, Retrieved from http://kirklandcode.ecitygov.net/KirklandZC_html/kzc105.html#105.05, last accessed on 25, 01, 2011)

The last important component to create pedestrian enclosure is *street furniture*. Street trees and other street furniture act as a buffer between pedestrians and moving vehicles, and protect walkers from traffic noise and its danger (LA-Walkability Checklist, 2008, p.10). Trees help to define pedestrian boundary by decreasing the proportion of building height to open space. They also make street narrower and so slow down the traffic. Furthermore, because of their benefits to pedestrian's safety and environment, they contribute significantly to 'walkability' (Lambert, 2005, p.16) (Figure 3-13 and 3-14).

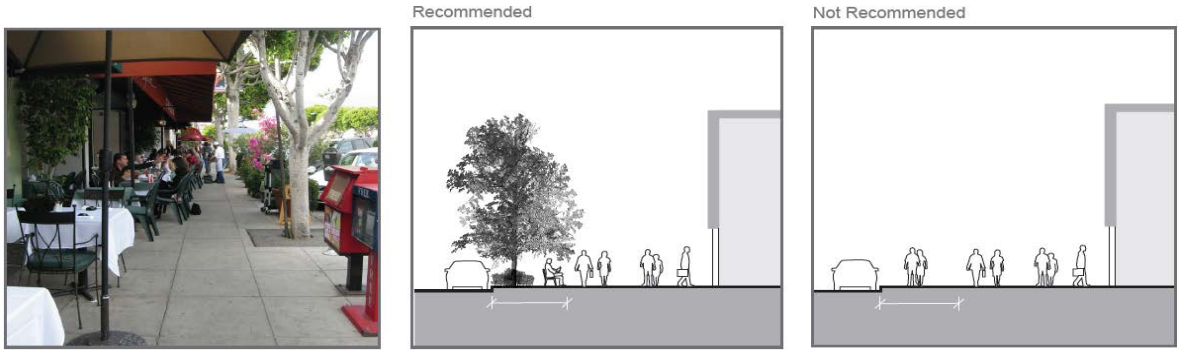


Figure 3-14, The role of street furniture in walkway enclosure, (Resource: LA-Walkability Checklist, 2008, p.10)

3.2.1.1.f Separation

Separation is another component of actual safety of pedestrians. “Sidewalks, medians, boulevards, on street parking, and parallel routes that allow pedestrians to avoid arterials all work to separate people from vehicles” (Kolody, 2002, p. 45). Obvious limitation between pedestrian and vehicle area contributes to pedestrians’ safety (Kolody, 2002, p.45).

3.2.1.1.g Floor quality

Floor quality is another measurement which enhances the actual safety in sidewalks. Qualified floor of streets is important in terms of making walking more comfortable and pleasant for all groups of healthy and handicapped people. In this sense, not only the material of floorscape, but also sidewalk ramps with safe level variation, suitable parapets selected according to climate features are important in terms of creating safe sidewalks for pedestrians (Cengizkan Discourses in 708 Course, 2009, ; LA-Walkability Checklist, 2008, p. 15, 31, 34) (Figure 3-15).

Figure 3-15, A sidewalk with high floor quality, and safe sidewalk ramps in Penang, Malaysia (Resource: “We need more pedestrian walkways like this”, 2010, http://anilnetto.com, last accessed on 30, 01, 2011)

3.2.1.1.h Street crossing

Street crossing is a crucial factor in safety evaluation. Short, safe, visible crossings which have connected two sides of the street physically and perceptually ensure security of pedestrians (LA-Walkability Checklist, 2008, p.13, 17) (Figure 3-16)

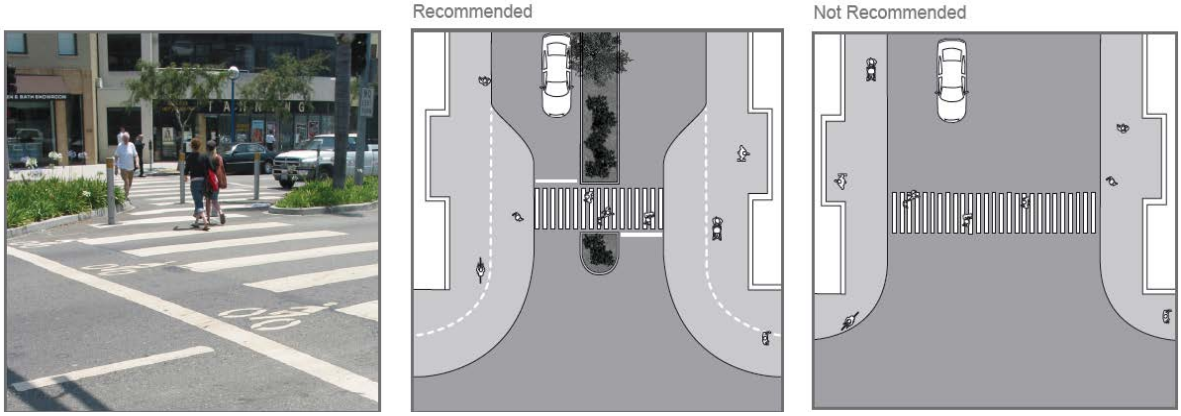


Figure 3-16, Mid-street crossing island and curbs extended out have decreased street crossing distance, (LA-Walkability Checklist, 2008, p. 17)

3.2.1.1.i Vehicle mix

The last factor related to actual safety is *vehicle mix.* The existent of big transportation vehicles, except from public vehicles which inevitably should be used, have negative effect on pedestrians' safety (Litman, 2010, p.30).

3.2.1.2 Perceived safety

Perceived safety means the protection of pedestrians from the feeling of crime or the danger of vehicular traffic. Perceptual safety is different from physical safety. For example, the separation of sidewalk from vehicular route is the concern of physical safety, while the noise of cars on streets that makes people anxious is related to the perceptual safety (Evans, 2009, p.365-385; Wheeler, 2001, p.35, 38, 62).

Perceptual or physical safety is important for both pedestrians and drivers, but pedestrians as vulnerable groups are much more affected by safety issues. Safety is essential because it directly affects the tendency of people for walking. Otherwise they would not walk around

neighbourhoods. “The safer pedestrians feel on the street, the more they will use it” (Kolody, 2002, p. 44-45).

Jane Jacobs (1961), in her book “The Death and Life of Great American Cities”, defines three main qualities necessary for perceptual safety as below:

i. A clear delimitation between public and private space
ii. Buildings oriented towards the street to provide ‘eyes on the street’
iii. Common use facilities to add more ‘eyes’ on the street (Jacobs. J, 1961, p. 35) (Figure 3-17).

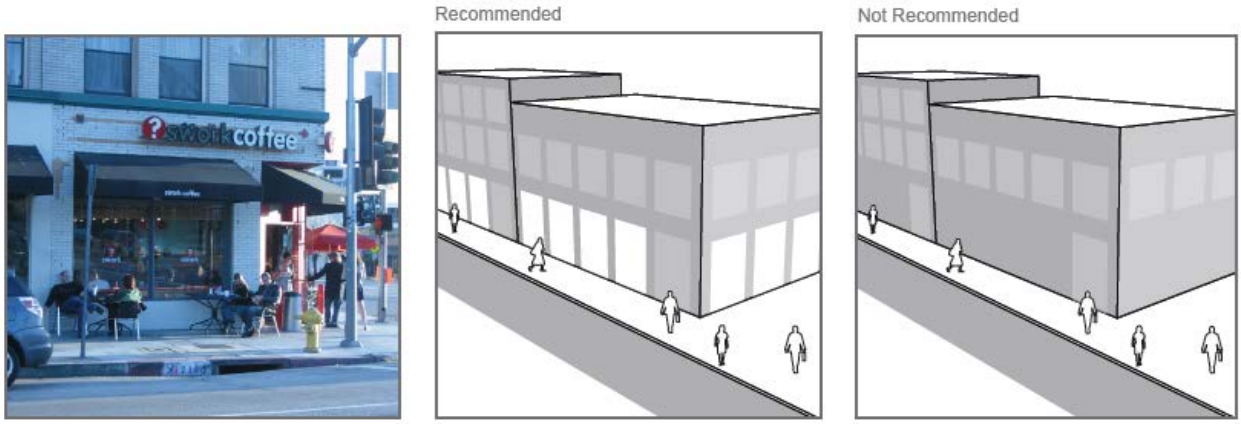


Figure 3-17, Shops which have a direct relation with streets provide ‘eyes on the street’ and create safety (Resource: LA-Walkability Checklist, 2008, p.60)

3.2.2 Orientation

Orientation is crucial part of safety and walkability, as it enables pedestrians, especially aged people, children and walkers with specific orientation problem, to realize public space network, to recognize the most important public places, to avoid from the fear of being lost and therefore, to have the tendency of walking (Bentley, 2002, p.193, 206).

It is an essential factor for daily users of streets, except for those who are familiar with different parts of the street or have previous mental map about it (Bentley, 2002, p.181; Burton and Mitchell, 2006, p.64). The importance of orientation becomes clear, through ‘mental maps’, as claimed by Kevin Lynch, based on ‘paths’ and ‘nodes’. The survey of mental maps demonstrates important factors which influence intellectual maps. When pedestrians

move along sidewalk, the path as line, and environment elements as nodes form their mental map. Path carries importance, because without having a simple 'public space network', pedestrians will feel themselves lost in space. Nodes are also important because they define the place that walkers want to go.

Legible street pattern, landmarks (differentiation, *detailed building form* and *junctions,* and *singularity), continuity, built form and its location and architectural and environmental* features are effective factors in way finding of pedestrians (Bentley, 2002, p.174-180; Kolody, 2002, p.44; LA-Walkability Checklist, 2008, p.31; Burton and Mitchell, 2006, p.61).

3.2.2.a Legibility of street pattern and urban components

Legibility is the ability to perceive and understand a neighbourhood plan through a quick look. Legibility of street pattern helps create a simple image in pedestrians' mind, encourage them to walk and find their destination quickly. Walkers are the slowest individuals of urban space, and they can walk and find their way through readable street pattern and urban components. Simple and regular street patterns which are highly connected and the placement of buildings around these street patterns make them more intelligible than irregular, complex hierarchical street patterns (Bentley, 2002, p.193, 206 and Kolody.A.D, 2002, p.44) (Figure 3-18).

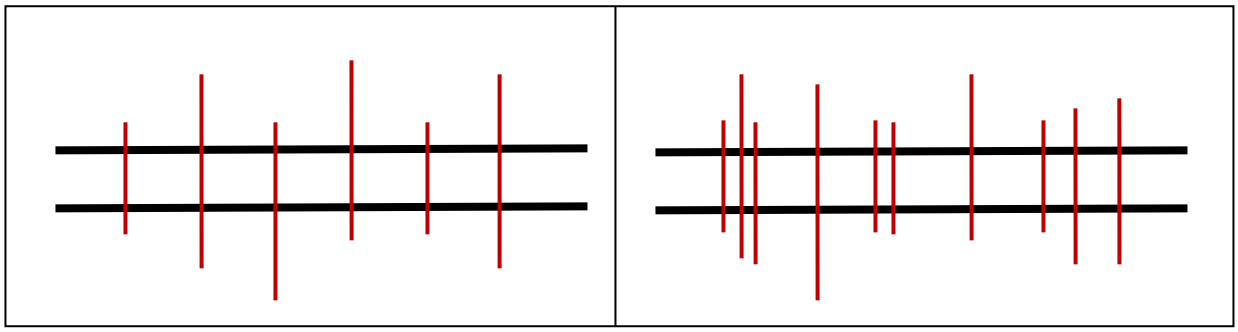


Figure 3-18, The street network which provides regular rhythm (left) and that which provides irregular rhythm (right) (Resource: Adapted from Rapoport (1977) in Eraydın, 2007, p.75)

3.2.2.b Landmarks

Likewise, landmarks increase legibility of the environment, create a memorable and familiar image in pedestrians mind, and thus help pedestrians to realize where they are or whether

they are in the right way or not (Kolody, 2002, p.44). Built forms define 'nodes' in our mental map. Hence, *differentiation*, *detailed building form* and *junctions* and *singularity (sharpness of boundary, closure, wholeness, unity…), as suggested by* Kevin Lynch and Gestalt rules, help the formation of simple mental maps in people's minds and fix unforgettable landmarks in their memory (Bentley, 2002, p.174-180,206; Eraydın, 2007, p.77).

If urban components in public spaces are not in harmony, it becomes hard for people to remember all parts of such complicated urban elements. The level of differentiation therefore should be kept balanced (Bentley, 2002, p.176). Likewise, detailed form of building and their junctions also contribute to legibility of the environment by defining landmarks in our memory (Bentley, 2002, p.206). Moreover, singularity (sharpness of boundary, closure), as discussed by Kevin Lynch, is influential factor in specializing urban components. Banham (1969, cited in Bentley, 2002, p.178-179) recalls them as "the qualities that identify an element, make it remarkable, noticeable, vivid, recognizable" (Figure 3-19).

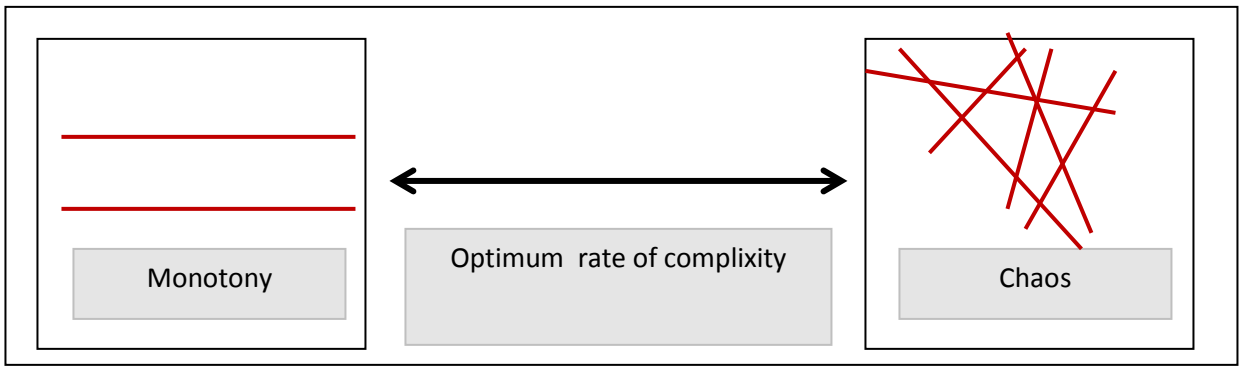


Figure 3-19, Level of differentiation (Resource: Adapted from Rapoport (1977) in Eraydın, 2007, p.72)

3.2.2.c Continuity

Continuity refers to spatial enclosure of various parts of public space system (Bentley, 2002, p.112). *Continuity and differentiation* balance together (Bentley, 2002, p.176). Continuity in public space contributes to attractiveness and legibility of the environment. It is mostly possible in direct connections achievable in grid street patterns (Bentley, 2002, p.176) (Figures 3-20 and 3-21).

Figure 3-20, The use of architectural features to achieve a continuity between different parts of the pedestrian way (Resource: LA-Walkability Checklist, 2008, p.37)

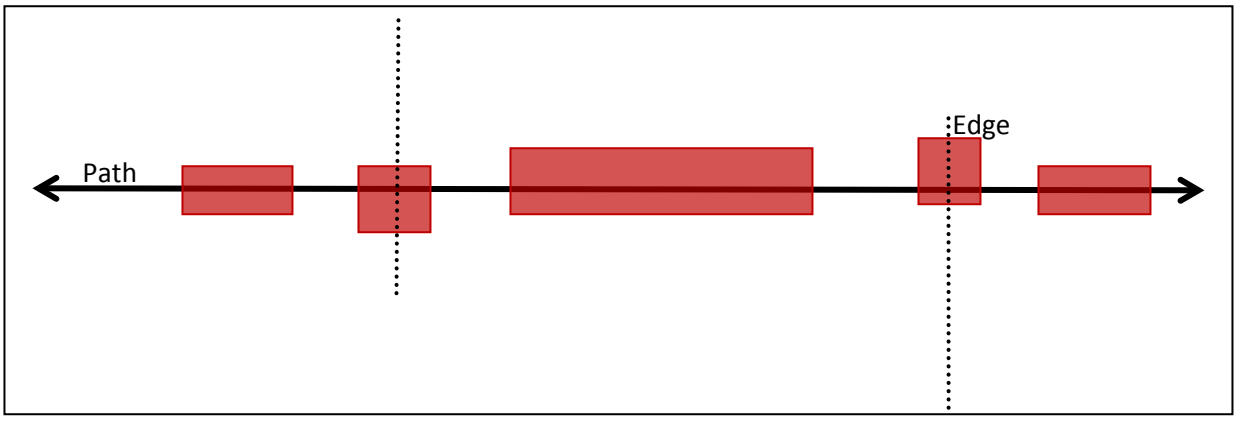


Figure 3-21, Clear boundary between path and edge and the continuity of subsequence elements contribute to orientation (Resource: Eraydın, 2007, p.73)

3.2.2.d Built form and its location

The forms of the buildings and other urban elements, and their placement are important in terms of increasing legibility. The position and form of the urban elements should be selected carefully according to their characteristics and merits. In this way, everybody can perceive them and consequently they can contribute to the legibility of urban environment (Kolody, 2002, p.44).

3.2.2.e Architectural and environmental features

As far as *architectural and environmental* features are concerned, *building entrances* and *building orientation* are two important components. *Building entrances or the main entrances of public buildings* should be visible by everyone. Thus, the details of door and windows should be clear, and building entrances should be clearly seen by everyone. Landscaping or porches should not become obstacles against the visibility of building entrances. Likewise, building entrances should be easily accessible to pedestrians. Short and direct ways to building entrances are preferable. Also, for the accessibility of disabled people, building entrances should be without level variation or should have ramps. Hence, building entrances will be legible and accessible to all.

Building orientation is important in terms of accessibility of buildings from sidewalks. For example, approaching to the building through the façade which is occupied by commercial uses, or which is near to public services, is desirable (LA-Walkability Checklist, 2008, p.31-37; Burton and Mitchell, 2006, p.61) (Figures 3-22, 3-23, 3-24, 3-25).

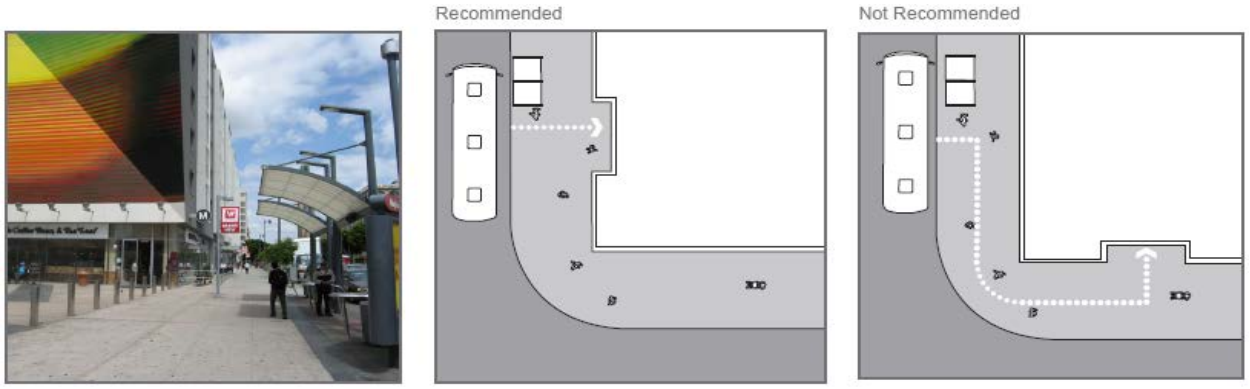


Figure 3-22, Building entrance near to public service (Resource: LA-Walkability Checklist, 2008, p.32)

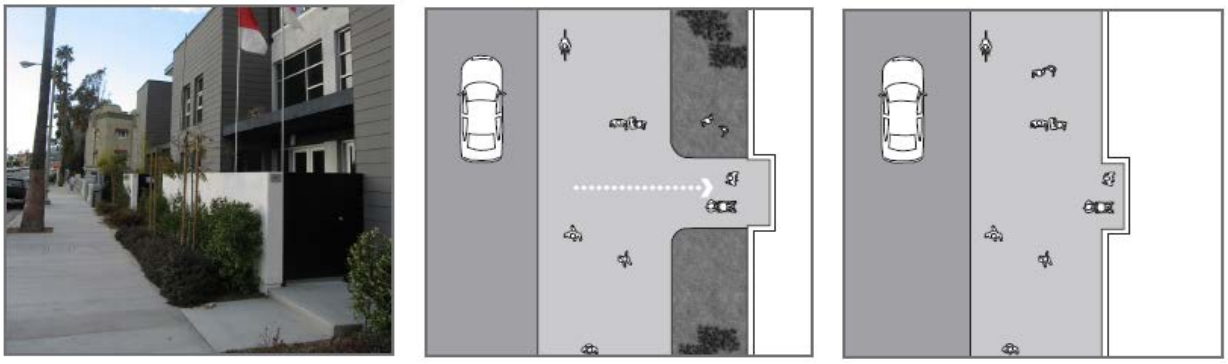


Figure 3-23, Well-defined building entrance (left and middle), and the building entrance which is not recommended (right) (Resource: LA-Walkability Checklist, 2008, p.34)

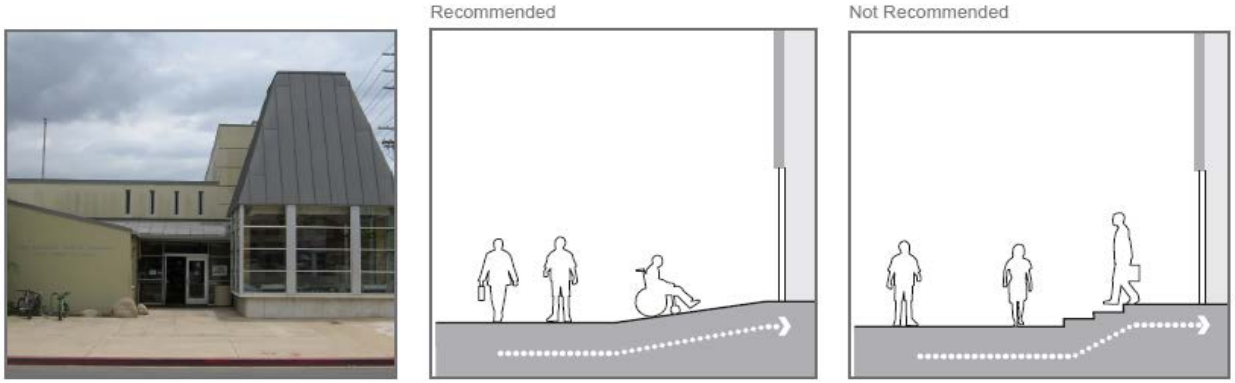


Figure 3-24, The use of ramp to be accessible by disable people (left and middle) and the building entrance which is not recommended (right) (Resource: LA-Walkability Checklist, 2008, p.34)

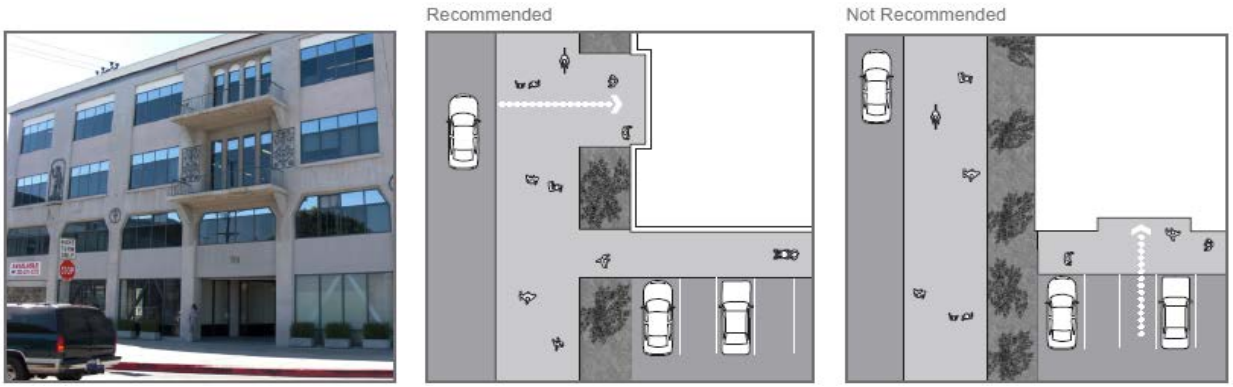


Figure 3-25, Most usable and directly accessible building entrances (left and middle) and less usable and accessible building entrance (right) (Resource: LA-Walkability Checklist, 2008, p.36)

Amsterdam's Nieuw Zuid plan, which was developed between the years of 1902 and 1920, provides a good example in terms of architectural and environmental features of walkability. The plan aims to produce a grid, connected street pattern, and to create successful commercial areas which are nourished by high pedestrian flows. Because of detailed built forms and architectural and environmental features, it is a legible city. Katwijk Boulevard, run along the coastal area of the city, accommodates cars, bicycles and pedestrians. It is a walkable street. Moreover, there is no grade separation in the boundary of sidewalk and street. The location of many special landmarks of the boulevars have also made it very legible (Bentley, 2002, pp.200-201) (Figure 3-26 and 3-27).

Figure 3-26, Katwijk Boulevard, Nieuw Zuid, Amsterdam (Resource: Google Earth, 2011; Bentley, 2002, p. 201)

Figure 3-27, Views of Katwijk Boulevard (Resource: Google Earth, 2011)

3.2.3 Attractiveness

The attractiveness of an urban environment is related to Gestalt rules. Gestalt psychology firstly was recognized by Max Wertheimer in Germany in 1910. Wertheimer realized that succession of flashing lights is seen as the motion of one light. Then, he transformed these lights in series of drawings with simple lines moving horizontally and vertically. Later on, this thought was advanced by Kurt Koffka and Wolfgang Köhler. Wertheimer believed that components of wholeness do not mean alone, but together. Thus, Gestaltists do not survey each part separately, but pay attention to the meaning of the whole (Eraydın, 2007, p.24).

Gestalt psychology claims that our brain perceives the whole meaning rather than observation of independent parts. For example, if there is a collection of simple lines and curves, we will not perceive them as lines or curves which follow together, but we will figure out the whole form (Gestalt psychology, www.answers.com, 2011). "For the Gestalt psychologists, a whole was more than the sum of its parts and the whole determines the form of any object that we see, rather than its parts" (Günay, 2005, cited in Eraydın, 2007, p.26). In brief, "we are innately driven to experience things in as good a Gestalt as possible" (Boeree, 2000, cited in Eraydın, 2007, p.25).

According to Gestalt psychologist, our perception from the environment happens in an unconscious way through four steps. At first step (*recognition of simple features*), the brain tries to discover simple characteristics of the object such as, lines, nodes, color, start and end point. The second step (*mental separation*) includes distinguishing background and the parts placed on it. The third step (*mental organization*) involves the grouping of the parts into one single object. The last step (*pattern recognition*) is identification of pattern in order to respond to 'what it is' (Eraydın, 2007, p.26).

The notion of 'attractiveness' is concerned with Gestalt principles of grouping or 'factors of coherence'. Even though what a good composition or organization of urban elements is a debatable issue, it is possible to use Gestalt principles to understand whether something we perceive is attractive or unattractive.

According to Gestalt physchologists, most essential elements that effect our perception of form are *proximity, similarity, closure, continuity, closedness,* and orientation (Eraydın, 2007, p.30). Proximity refers to closeness of the objects. So, distance between objects becomes as determinative factor in organization of the group. Thus, the near objects constitute one form (Eraydın, 2007, p.31) (Figure 3-28).

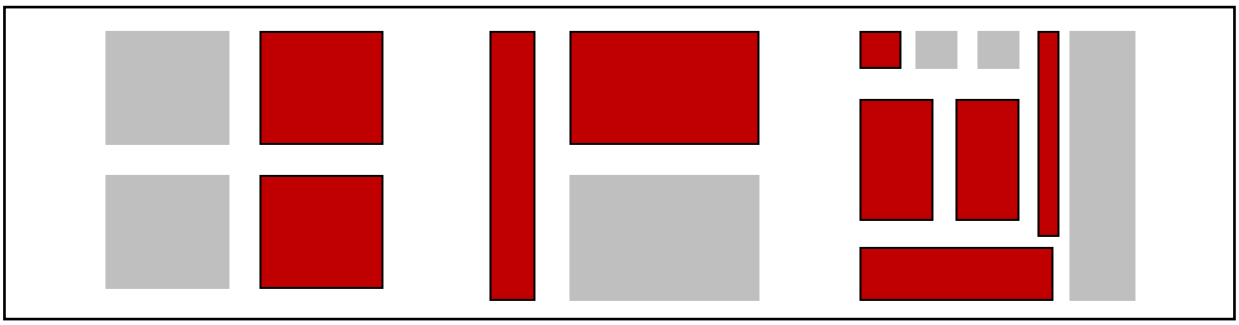


Figure 3-28, The principle of proximity (Resource: personal rendering)

The principle of similarity refers that people tend to perceive objects which are similar in terms of shape, color as a group. When objects have different physical properties, the brain groups the more similar together. In fact, there is a level of similarity. (Eraydın, 2007, p.31) (Figure 3-29).

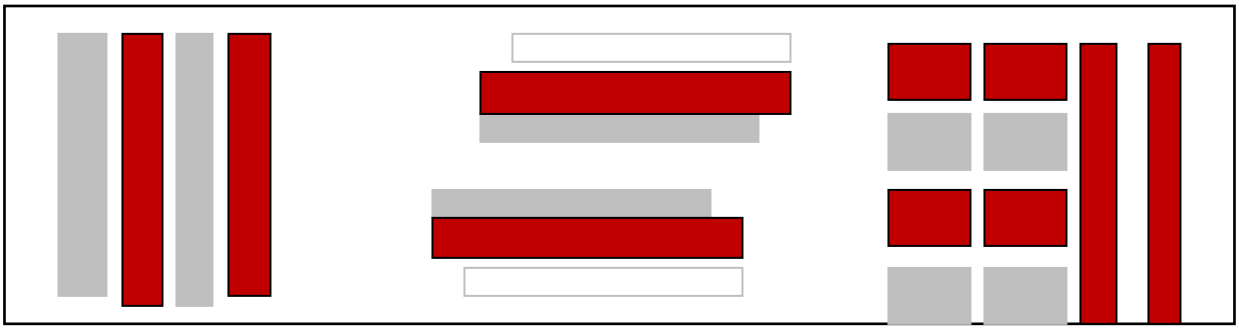


Figure 3-29, The principle of similarity (Resource: personal rendering)

The principle of closure is based on the idea that the brain of people tends to complete unfinished parts with accordance to existent information. Thus, with perception of boundary lines, the objects are confined as one group (Eraydın, 2007, p.32). As can be seen in Figure 3-

30, we will tend to see the lines in this figure as a rectangular although the lines are not completed to give the shape of a rectangular.

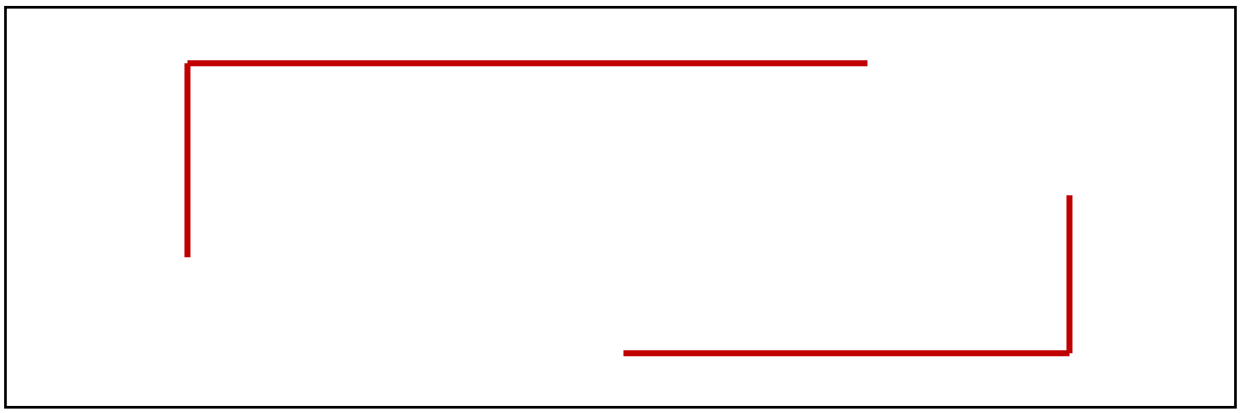


Figure 3-30, The principle of closure (Resource: Eraydın, 2007, p.32)

As for *the principle of continuity*, the elements which provide some repetition as a pattern are also perceived as a group. The eye follows connected elements in definite direction to distinguish essential nodes which make differentiation (Eraydın, 2007, p.32) (Figure 3-31).

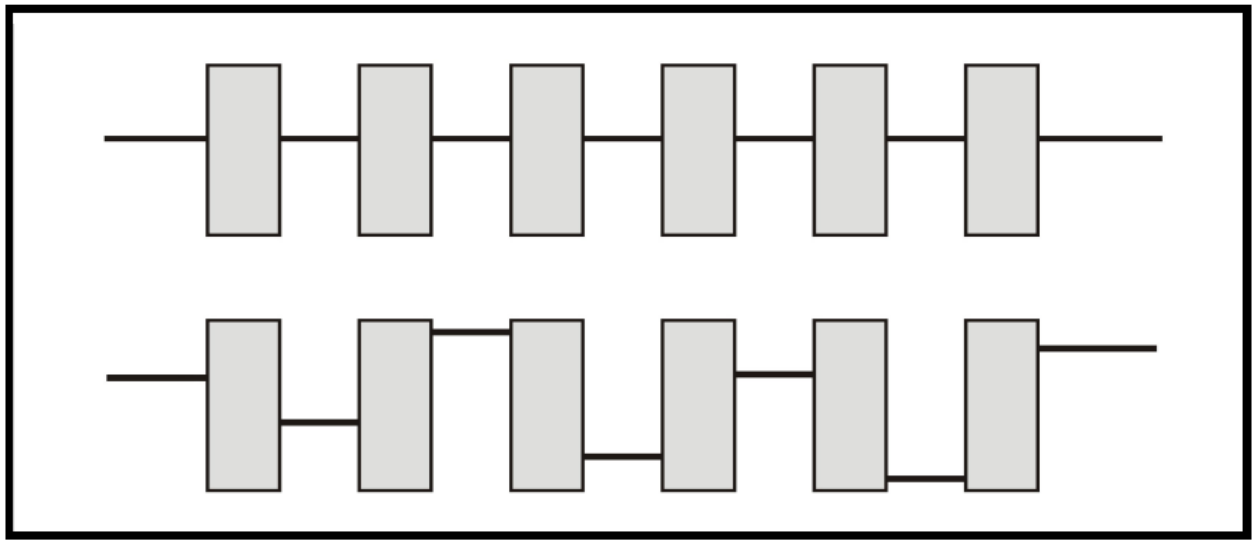


Figure 3-31, The principle of continuity (Resource: Eraydın, 2007, p.32)

The principle of common enclosure or *common ground* is based on the idea that the brain perceives an area only when its boundaries are defined more or less completely (Eraydın, 2007, p.32). Hence, an enclosure or a ground defines a field or group. Those elements within the field or ground are distinguished from what lies outside (Figure 3-32).

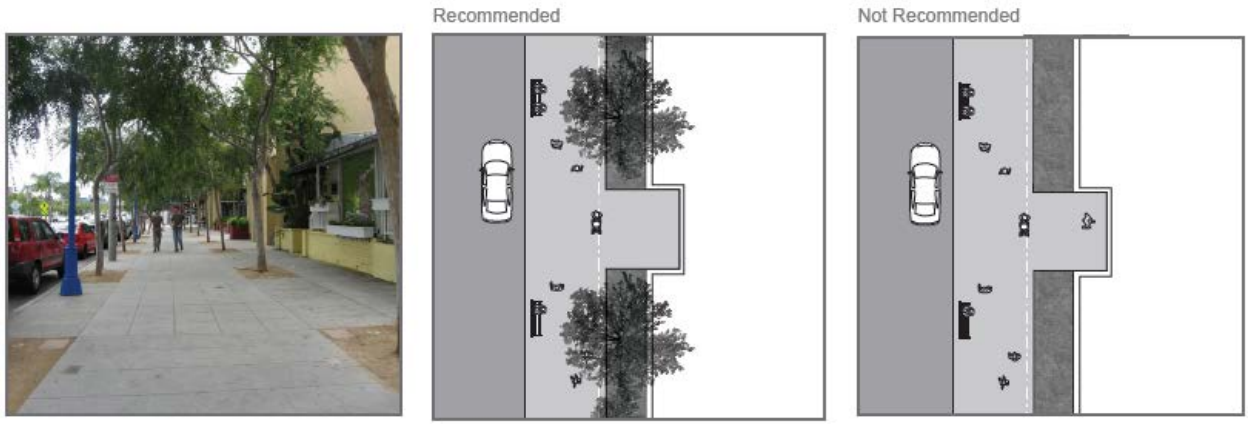


Figure 3-32, Regarding to closedness rule, trees have made the boundary of sidewalk clearer, (Resource: LA-Walkability Checklist, 2008, p.52)

Finally, *the principle of orientation* means that the brain perceives the elements which are oriented to a common direction (either through parallelism or convergence towards a void or solid) as a whole. By using these six principles, it is possible to assess the attractiveness of a place and therefore walkability of a street or a public space.

3.2.4 Comfort

Lynch (1991) defines comfort regarding *physical* and *visual* aspects. He argues that during the mutual interaction between human and environment, urban spaces should be 'physically usable' and 'visually understandable' to pedestrians (Eraydın, 2007, p.15). The absence of both qualities of urban space decreases comfort and safety feeling for pedestrians (Eraydın, 2007, p.35).

Visual understanding is connected to the *Gestalt principle of orientation, and legibility* which are discussed in previous parts of this chapter. The use of Gestalt rules to provide comfort for pedestrians has been applied in Italian cities. But, it is not put into practice all over the world and in most of the cities. We can only see these principles in covered public spaces, such as shopping centers, to create comfort for pedestrians (Akit, 2004, p.19).

Physically usability is concerned with four factors which make the comfort of walking for healthy, handicapped, early age and old age people. The first includes the preparation of public spaces which protect pedestrians from sun, rain, snow, ice, and wind. The second is

possessing clean air which is mostly provided in cities with calm traffic. The third is safety (actual and perceptual) which makes pedestrians' comfort. It is identified with attention to *street pattern*, *traffic calming measures, lightning, continuous pavement, pedestrian enclosure, separation, street trees, floor quality, street crossings, design detail, clear separation of walkways from vehicular traffic and eyes on street* factors which are discussed in safety part of this chapter. The last is accessibility which is essential factor to the comfort of both health and disabled peoples (Kolody, 2002, p. 44-45; Akit, 2004, p.37; Lambert, 2005, p.19-22; Çiçek, 2009, p.7; LA-Walkability Checklist, 2008, p.10, 11, 13, 17, 22, 36, 66, 7).

3.2.5 Diversity

There is a close relationship between physical, social and economic diversity of urban space and walkability. 'Physical diversity' refers to a variety in terms of urban physical elements, such as a variety regarding dwelling types, architectural styles, and land-use activities. 'Social diversity' signifies a mixture of people coming from different ages, family types and socio-economic status, while 'economic diversity' means a variety of building types with different property values. The presence of such diversity in urban space is important in terms of bringing different groups of people together and therefore to make them use urban public spaces. In this way, public spaces can be lively and liveable (Lambert, 2005, p. 23-24).

Diversity has different impacts on the walkability of public spaces in residential sites and commercial centers. A neighborhood with a variety of dwelling types, for example, allows people of different ages, ethnicity, family types and socio-economic status to live together and therefore let them interact each other on daily basis, strengthen the personal and civic bonds that are essential for creating liveable communities. Likewise, shops and services that provide many basic daily needs of residents do not only create local employment opportunities, but they also add visual interest for pedestrians, thus increases walkability of public spaces (Lambert, 2005, p. 23-24).

Additionally, the presence of a variety of open public spaces in a neighborhood, such as playgrounds, nature preserves, squares and plazas, is another important factor which increases the walking activities of urban space (Crowhurst-Lennard, 1987, cited in Lambert, 2005, p. 23-24).

3.2.6 Local destinations

The distance between home and destination is a key factor of 'walkability'. Because people are not interested in walking more than 10 minutes to reach at the places that satisfy their daily needs (Lambert, 2005, p. 14). According to 'accessibility' standards of Time Saver Standards, maximum walking distances in general is between 400m and 800m (i.e., between 5 and10 minutes). Figure 3-33 shows the recommended and critical distances from home to different activities to create walkable street pattern.

It is mostly possible in interconnected street pattern. Because, interrelated street pattern enables destinations to connect each other quickly and directly, distributes the traffic equally in many roads rather than a single arterial, and increases legibility. Particularly, grid-iron street pattern is highly interconnected and has potential to create more pedestrian-friendly streets than other types of street patterns. Thus, interconnected street pattern is advisable in terms of increasing accessibility and walkability of public spaces (Preiss and Shapiro, 2002, p.3; Kolody, 2002, p.50; Lambert, 2002, p.20; Marshal.S,2005, p.xii, 77, 238, 243, 247; Bentley, 2002, p.21).

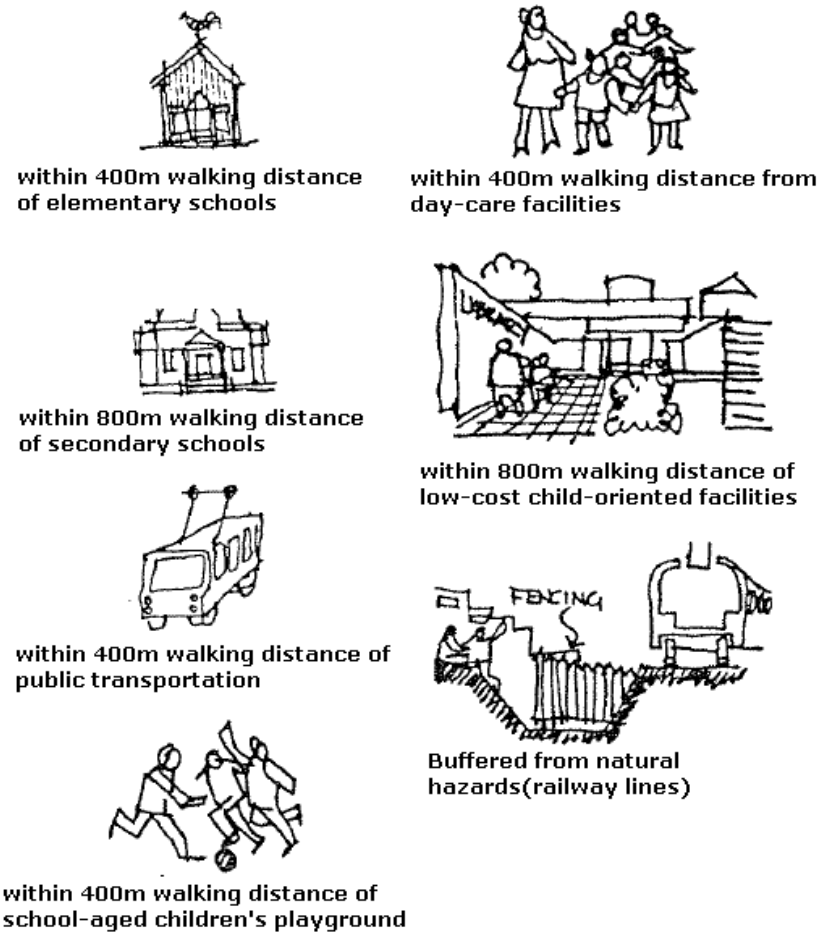


Figure 3-33**,** The standard distances between home and community facility to be accessible on foot (Resource: De Chiara, Panero and Zelnik , 1995, p. 207)

3.3. Conclusion

Walkability is one of the major qualities to create liveable urban environments. It mainly requires pedestrian convenience on public spaces. As discussed in detail, walkable and pedestrian-friendly streets contribute to *basic mobility, community liveability, community cohesion, economic development, consumer cost savings, public health,* and *efficient land use*. Therefore, the creation of walkable streets is crucial for cities. As summarized in Table 3-1, and explained in detail in this chapter, walkability has a number of attributes. By using these

attributes, it is possible to assess public spaces how far they are walkable and to make recommendations to make them more walkable.

Table 3-1, The attributes of walkability regarding public spaces

<table>
<tr><th colspan="3">THE MAJOR ATTRIBUTES OF WALKABILITY</th></tr>
<tr><td>SAFETY</td><td>• ACTUAL SAFETY
o Street pattern
o Traffic calming measures
o Lightening
o Continuous pavement
o Pedestrian enclosure
o Separation
o Floor quality
o Street crossings
o Vehicle mix</td><td>• PERCEVIVED SAFETY
o Clear delimitation between public and private space
o Building orientation towards street
o The presence of common use facilities</td></tr>
<tr><td rowspan="2">ORIENTATION</td><td>• LEGIBLE STREET PATTERN AND COMPONENTS</td><td>• LANDMARKS
o Differentiation
o Detailed building form and junctions
o Singularity</td></tr>
<tr><td>• CONTINUITY</td><td>• BUILT FORM AND ITS LOCATION</td></tr>
<tr><td></td><td>• ARCHITECTURAL AND ENVIRONMENTAL FEATURES
0 Building entrances
0 Building orientation</td><td></td></tr>
<tr><td>ATTRACTIVENESS</td><td colspan="2">• SIMILARITY
• PROXIMITY
• COMMON GROUND OR COMMON ENCLOSURE
• ORIENTATION
• CLOSURE
• CONTINUITY</td></tr>
</table>

Table 3-1, (Continued)

COMFORT	• **PHYSICAL USABILITY** o Protecting pedestrians from climatic conditions o Possessing clean air o Possessing actual and perceptual safety o Being accessible	• **VISUAL UNDERSTANDING** o The principle of orientation o legibility
DIVERSITY	• **PHYSICAL DIVERSITY** • **SOCIAL DIVERSITY** • **ECONOMIC DIVERSITY**	
LOCAL DESTINATION	• **DISTANCES BETWEEN ACTIVITIES (HOME TO SHOPS, SCHOOLS, PLAYGROUNDS, ETC)** • **INTERCONNECTED STREET NETWORK**	

CHAPTER 4

RESEARCH METHODOLOGY

This chapter is about the research methodology that was used in this study. The research employs a case study approach as an investigation method. Tunalı Hilmi Street (THS), one of the major high-steets of Ankara, is used as the unit of analysis of the research. As mentioned in Chapter 1, this research aims to examine the walkability capacity of THS and to identify the positive and negative factors which contribute to its walkability. In order to assess the THS' walkability capacity, the research identifies the main attributes or components of walkability, as explained in detail in Chapter 3. This chapter first explains the reasons to carry out the case study on THS; second, the method followed by this research on walkability capacity of THS; third, the sources of evidence which are used by the research and finally the rationale behind the questions prepared for questionnaire which is used for this study.

4.1. The reasons to carry out the case study on Tunalı Hilmi Street (THS) in Ankara

Since the early-1990s, the decentralization policies of the CBD, the suburbanization policies, the decreasing provision and service qualities of public transportation, and the increasing usage of private car in Ankara have resulted in the decreasing liveability of the city centre. While the Ankara's CBD has expanded towards the west corridor along Eskişehir Road, Ulus (the historic city centre) and Kızılay have been losing their economic and social vitality. Some neighbourhoods in the inner city, such as Kavaklıdere, Gazi Osman Paşa and Çankaya where some part of the CBD is located, and include prestigious commercial, business and residential functions, however, still keep their economic and social vitality. Despite the presence of these lively neighbourhoods in the inner city, the public space and street network in Ankara have been deteriorated due to the recent policies of Ankara Metropolitan Municipality. The boulevards, such as Atatürk Boulevard, Inönü Boulevard, have turned into motorways by the recent car-oriented transportation projects. The usage of these boulevards and many other avenues in the city centre has become more car-oriented, while pedestrians have been neglected and marginalized. The city centre of Ankara is now far away from being walkable. There are a few places pedestrianized in the 1980s, such as Sakarya Street and its surroundings, Izmir Street, and Yüksel Street, and they are still pedestrian-dominant public

spaces. The rest of the city centre and its sidewalks, however, are becoming more and more occupied by cars and car users. The impoverished public transportation services have also encouraged people to use their private cars. All these factors have decreased the capacity of walkability in the city centre and therefore decreased its liveability.

Tunalı Hilmi Street (THS), located in Gazi Osman Paşa, is one of the major high streets of Ankara. The street, which was a prestigious mix-used street before the decentralization policies of Ankara, was a lively place with many pedestrian activities. Especially because of a variety of commercial and leisure activities, the street is still a very vivid place for a variety of income, age and gender groups. As the street is close to the embassies, the user profile of the street is international. Working population in Gazi Osman Paşa, after office hours or lunch time, prefer to spend time in the cafes, restaurants and bars along the street. As THS and its surroundings accommodate a significant number of residential population, the street is also very much used by this residential community. The presence of Kuğulu Park is another important attraction for people at different age groups. Almost all days of the year, the park is very crowded with people. The vehicular traffic however is one of the major deficits of THS. The intensive use of private vehicles and taxis causes the significant traffic congestion in almost every hour of the day and every day of week. Despite the traffic congestion, THS is still intensively used by pedestrians. As an intensively used street by pedestrians and one of the fewest pedestrian precincts of Ankara, THS provides an important example to assess the walkability capacity of an inner-city street. It is important to understand how far THS is a walkable street, and to identify the factors which contribute to and hinder its walkability capacity in order to make practical recommendations for its improvement.

4.2. Method of analysis

The unit of analysis of this thesis is THS in Ankara. In the first part of the analysis, the research investigates the historical development of Ankara and the evolution of public spaces to put THS in the context of Ankara's historic development and the changes in the public space development policies. Then, the location of THS and its close proximity in Ankara, its historical evolution from the early-1920s to today, and its current land-use pattern are examined to introduce THS. This part of the analysis provided in Chapters 5 and 6.

In the second part of the analysis, the investigation focuses on the walkability dimension of THS. In this part of the analysis, the examination focuses on the area from Kuğulu Park to Hacıoğlu Street. The research particularly investigates the major attributes of walkability (safety, orientation, attractiveness, comfort, diversity and local destinations) which are identified and explained in Chapter 3 (See Table 3-1).

Safety in THS is analyzed in actual and perceptual terms. Regarding 'actual safety', *street pattern, lightening, continuous pavement, pedestrian enclosure, separation, floor quality, and street crossings* are the measures which are investigated. For the assessment of *street pattern*, the key question which is sought to answer is whether there is a continuous street pattern. The sub-questions to be answered and the research tools are presented in Table 4-1.

Table 4-1, Street pattern

Main question: Is there any continuous street pattern? **Sub-questions:** • Are there any direct and short travels with highest amount of paved surface? • Is THS connected to parallel streets in near distances? • Which street pattern is in accordance with THS and its surrounding? • Does the vehicular traffic concentrates on THS or disperses to its parallel streets?
Research tools: • Street pattern map • A map showing distances between intersections • Direct observations (photographing) • Questionnaire

THS is investigated whether any traffic calming program or tools is used to reduce car speed and volume. The sub-questions to be answered and the research tools are presented in Table 4-2.

Table 4-2, Traffic calming

Main question: Is there any traffic calming program or tools used to reduce car speed and volume? **Sub-questions:** • Are there any measures, such as low width of street, systematic on-street parking and useful design details, to reduce car speed in street? • Is there any measures taken, such as street trees, wide sidewalks and on-street parking, to make the perception of THS as narrow? • Are there any design details, such as raised or textured pavement at crosswalks,

Table 4-2, (Continued)

barriers, which help decreasing car speed?
Research tools: • Map of street furniture location • Map showing sidewalk widths • Map showing means of separation • A map showing on-street parking • Direct observations (photographing)

Regarding *lightening,* sidewalks, street, crosswalks and park areas in THS are investigated to understand the safety and security of pedestrians in darkness times. The main question which is sought to answer is whether THS is visible enough along dark hours. The sub-questions to be answered and the research tools are presented in Table 4-3.

Table 4-3, Lightening

Main question: Is THS visible along dark hours? **Sub-questions:** • Is there suitable and systematic night-time lightening system in sidewalks, streets, crosswalks, park areas and arrival points?
Research tools: • Lightening system map • Direct observations (photographing) • Questionnaire

Continuity in sidewalk pattern is examined physically and perceptually. In physical terms, the assessment seeks to answer whether the sidewalks of THS are connected properly. In perceptual terms, the key question to be answered is whether the sidewalks give the sense of continuity. The sub-questions to be answered and the research tools are presented in Table 4-4.

Table 4-4, Continuity

Main question (physical continuity): Are the sidewalks of THS connected properly? **Sub-questions:** • Are there interruptions along sidewalks? • If yes, what are the widths and qualities of intersections? • Do the physical properties of intersections let early, old age and disabled people to cross?

Table 4-4, (Continued)

• Are intersections adequately safe? **Main question (perceptual continuity):** Do the sidewalks give the sense of continuity? **Sub-questions:** • Are street furniture and urban elements situated in suitable places and distances? • Has street furniture human scale standard? • Is there a harmonious relation between elements?
Research tools: • Street pattern map • Street furniture map • Map showing intersections on THS • Direct observations (photographing) • Questionnaire

Pedestrian enclosure is related to the actual walking realm of THS. It is evaluated by the criteria of *human scale, building orientation,* and *street furniture.* The main questions which are investigated are whether THS has a definite boundary; which reasons have caused the problem of clear limit shortage in THS; and whether pedestrian enclosure is sensible with attention to human scale, building orientation and street furniture. The sub-questions to be answered and the research tools are presented in Table 4-5. Regarding *building* orientation, the assessment is made in terms of the placement of building entrances. Thus, the key issues investigated are how all the entrances are connected together, and whether they define a boundary.

By narrowing the street, slowing down the traffic and separating pedestrian realm from moving car area, *street furniture* contributes to 'actual safety'. Trees and other greeneries have the main role in protection of pedestrians. Also, other street furniture (such as benches, bicycle racks, planter boxes, trees, mail boxes, brochure bins, trash cans, vending and coffee carts, and tables and chairs) have beneficial effect on pedestrian enclosure. Hence, for the examination of street furniture, their quantity and quality values will be presented. Therefore, the placement of trees and other street furniture along THS, their density, sparseness will be investigated. Furthermore, how far street furniture acts as a buffer between pedestrian realms and moving car area will be investigated.

Table 4-5, Pedestrian enclosure

Main questions:

- Has THS a definite boundary?
- Which reasons have caused the problem of clear limit shortage in THS?
- Is pedestrian enclosure sensible with attention to human scale, building orientation and street furniture?

Sub-questions:

- Starting point of THS is definitely by Kuğulu Park; but why its end point is perceived as Esat intersection while it continues until Hacıoğlu Street?
- Regarding human scale analysis, how is the rato of useful sidewalk to height of buildings?
- Does the size of sidewalks along THS facilitate pedestrian movement and their activity?
- In which part of sidewalk, the sidewalk width cause the utilization disturbance?
- In which part of walkway of THS work properly?

Does building entrances contribute to define the boundary of pedestrian walkway?

- Does existing street furniture act as a buffer between pedestrian realms and moving car area?
- What are quantity and quality values of existent street furniture?
- Are they healthy?
- Is street furniture situated in suitable distances?
- Is the scale of street furniture in accordance with human scale standards?
- Is there harmonious relation between urban elements?

Research tools:

- Sidewalk width map
- Building entrances map
- Street furniture map
- Sections of THS (Ratio of building height to street width)
- Direct observations (photographing)
- Questionnaire

In relation to *separation*, on-street parking along THS is examined to understand the role of street parking as separator. The main question which is to be answered is whether on-street parking separates pedestrian realm from moving car area. The sub-questions to be answered and the research tools are presented in Table 4-6.

Table 4-6, Separation

Main questions: Does on-street parking separate pedestrian realm from moving car area? **Sub-questions:** • Is parking cars area arranged systematically? • Do parking cars satisfy pedestrians' safety or disturb their movement? • Why street parking on THS does not contribute to walkability?
Research tools: • A map demonstrating the placement of on-street parking • Direct observations (photographing) • Questionnaire

Regarding *floor quality,* the research investigates the pavements' material quality and their arrangement and seeks to understand whether different user groups (especially elderly, disabled people, and pushchair users) face with walking problems resulted from floor quality. The sub-questions to be answered and the research tools are presented in Table 4-7.

Table 4-7, Floor quality

Main questions: Is floor quality suitable for the use of elderly and disabled people, or users with pushchairs? **Sub-questions:** • Are level variations adequately safe? • Are floors without deformation or breaking? • Are floors without unusual obstacles or extended out elements?
Research tools: • Direct observations (photographing) • Questionnaire

THS is a narrow street and pedestrians' crossing is easy if quantity, placement, accessibility and visibility values of cross walks are taken into consideration. Thus, these issues will be surveyed in terms of *street crossings*. The main question which is to be answered is whether there are adequate and safe street crossings. The sub-questions to be answered and the research tools are presented in Table 4-8.

Table 4-8, Street crossing

Main questions: Are there adequate and safe street crossings? **Sub-questions:** • Are there sufficient street crossings placed in proper distances? • Are street crossings well situated, accessible and visible?

Table 4-8, (Continued)

Research tools:
• A map demonstrating street crossings and accessibility of pedestrians • Direct observations(photographing) • Questionnaire

Regarding *perceptual safety*, the assessment focuses on the question of whether the presence of residential, commercial, administrative and business usages on THS and their users acts as 'eyes on the street', and therefore increases the perceptual safety. The investigation also takes into account whether the perceptual safety is perceived regarding the late times of the day. The sub-questions to be answered and the research tools are presented in Table 4-9.

Table 4-9, Perceptual safety

Main questions: Is perceptual safety provided in THS? **Sub-questions:**
• Is there clear delimitation between public and private space? • Are there adequate facilities which are open until late times and act as 'eyes on street'? • Does the presence of the residential population increase perceptual safety?
Research tools:
• Land-use map • Direct observations(photographing) • Questionnaire

Regarding *orientation*, the investigation will focus on five measures: *legibility of street pattern, landmarks (differentiation*, *detailed building form* and *junctions,* and *singularity), continuity, built form and its location and architectural and environmental* features. In the analysis *of legibility,* the main issue to be investigated whether there exists a legible street pattern; in other words, whether there is a legible connection between THS and side streets which are connected to it. For the investigation, mental maps of Kevin Lynch are used. The users of THS will be asked to draw mental maps for THS and its connected street and will see whether they will be able to draw a simple pattern of the area. The sub-questions to be answered and the research tools are presented in Table 4-10.

Table 4-10, Legible street pattern

Main questions: Is the a legible street pattern in THS? **Sub-questions:** • Are there legible connections between THS and side streets connected to it? • Are users of THS able to draw a simple pattern for it?
Research tools: • Questionnaire based on mental maps

Regarding *landmarks,* mental maps drawn by the users of THS will be used. The nodes will indicate memorable built forms, junctions and the paths will demonstrate nodes which are caught when eye follow paths. If there are definite landmarks between harmonious urban textures, people will be able to define the especial nodes placed along the path. The sub-questions to be answered and the research tools are presented in Table 4-11.

Table 4-11, Landmarks

Main questions: Are there any memorable landmarks which contribute to pedestrians' orientation? **Sub-questions:** • Are pedestrians able to draw simple mental maps based on 'paths' and 'nodes'? (nodes will demonstrate memorable built forms) • Are there definite landmarks between harmonious urban textures? • Are there unforgettable landmarks in decision points?
Research tools: • A map showing street pattern and landmarks • Direct observation (photographing) • Questionnaire based on mental maps

Regarding the level of *continuity*, the main issue which is investigated is whether differen parts of public spaces in THS are well-connected or not. The sub-questions to be answered and the research tools are presented in Table 4-12.

Table 4-12, Continuity

Main questions: Is there a continuous pattern which makes different public spaces as a whole? **Sub-questions:** • How well various parts of public spaces are connected together? • What happens in connection points of different public spaces?

Table 4-12, (Continued)

Research tools: • A map showing street pattern and changing points • Sections from connection points • Direct observation (photographing)

Another measure to examine the legibility of THS are *built form* (i.e., buildings) and *their placement*. Some buildings, due to their form or/and position, become memorable for pedestrians and they contribute their orientation. The sub-questions to be answered and the research tools are presented in Table 4-13.

Table 4-13, Built form and their placement

Main questions: Which buildings contribute to pedestrians' orientation? **Sub-questions:** • Which buildings contribute to pedestrians' orientation due to their form? • Which buildings contribute to pedestrians' orientation due to their location? • Which buildings contribute to pedestrians' orientation due to their form and location?
Research tools: • A map showing memorable buildings according to the cognitive maps drawn by survey participants • Direct observation (photographing)

Regarding *architectural and environmental features, buildings entrances and their orientation* will be examined. In other words, the level of accessibility and visibility from public space will be examined. It is important whether the entrances of buildings are accessible and visible for pedestrians, especially for vulnerable groups. The sub-questions to be answered and the research tools are presented in Table 4-14.

Table 4-14, Architectural and environmental features

Main questions: Do the architectural and environmental features on THS contribute to pedestrians' orientation? **Sub-questions:** • Are building entrances adequately accessible and visible? • Are entrances of buildings accessible for early, old age, and disabled people, and pushchair users? • Do the building entrances look to the direction of public facilities?

Table 4-14, (Continued)

Research tools: • A map showing visibility and accessibility of building entrances • Direct observation (photographing)

Regarding attractiveness, this thesis examines the criterion of 'attractiveness' based on the assumption that a street is attractive, if it is colorful, enjoyable, legible, safe, peaceful, comfortable and spacious (Pehlivanoğlu,forthcoming). There are some qualities, such as predictable and monotonous versus intriguing, surprising, mysterious and exciting, which might be desirable to some extent, but not completely. Thus, the assumption of this thesis is that a street is attractive, if it is partly predictable, monotonous and boring, and partly intriguing, surprising, mysterious and exciting. If these qualities exist in an urban area with a high degree, the attractiveness of the space will be lessened. Finally, there are negative qualities, such as suffocating. If a street is suffocating, it will not be an attractive space. The sub-questions to be answered and the research tools are presented in Table 4-15.

Table 4-15, Attractiveness

Main questions: How far THS is attractive for its users? **Sub-questions:** • How far THS is colorful, enjoyable, safe, peaceful, comfortable, legible and spacious? • How far THS is boring/monotonous, predictable, mysterious, surprising, exciting and intriguing? • How far THS is spacious and suffocating?
Research tools: • A map showing similar and dissimilar buildings in terms of architectural style • Direct observation (photographing) • Questionnaires

Regarding comfort, the examination will focus on two main questions:

1) Is THS 'physically usable'?

2) Is THS 'visually understandable'?

To answer the first question, four factors which make the comfort of walking for healthy and vulnerable pedestrian groups are examined. These are: 1) whether public spaces includes architectural urban elements which protect pedestrians from rain, sun, snow, ice and wind; 2) whether it possesses clean air (which is provided by traffic calming); 3) whether it fulfills the conditions of actual and perceptual safety, and 4) it is an accessible space for particularly all pedestrian groups.

To answer the second question, 'visual understanding' is assessed how far a public space provides a good quality of orientation and how far it is legible for pedestrians. The sub-questions to be answered and the research tools are presented in Table 4-16.

Table 4-16, Comfort

Main question: • Is THS 'physically usable'? **Sub-questions:** • Does THS include architectural urban elements which protect pedestrians from rain, sun, snow, ice and wind? • Does it possess clean air (which is provided by traffic calming)? • Does it fulfill the conditions of actual and perceptual safety? • Is it an accessible space for particularly all pedestrian groups? **Main question:** • Is THS 'visually understandable'? **Sub-questions:** • How far THS provides a good quality of orientation? • How far it is legible for pedestrians?
Research tools: • Direct observation (photographing) • Questionnaire

'Physical diversity', as mentioned earlier, means a variety of urban physical elements, such as a variety of dwelling types, architectural styles, and land-use activities. 'Social diversity' refers to a mixture of people coming from different ages, family types and socio-economic status, whereas 'economic diversity' means a variety of building types with different property values. The presence of such diversity in urban space is important in terms of bringing different groups of people together and to make them use public spaces.

Regarding diversity, the key question which is investigated is whether there exists physical, social and economic diversity in THS. The sub-questions to be answered and the research tools are presented in Table 4-17.

Table 4-17, Diversity

Main questions: Are there physical, social and economic diversity in THS? **Sub-questions:** • For physical diversity, are there a variety of urban physical elements, such as a variety of dwelling types, architectural styles and land use activities along THS? • For social diversity, does a mixture of people coming from different ages, family types and socio-economic status use THS? • For economic diversity, is there a variety of building types with different property values on THS?
Research tools: • Land-use map • Direct observation (photographing)

Regarding local destination, the assessment of connectivity between THS and side streets become important. Here, the aim is to understand how well THS can be connected to some local destinations, like shop, schools, commercial area. The sub-questions to be answered and the research tools are presented in Table 4-18.

Table 4-18: Local destination

Main questions: • Is there quick accessibility between common destinations? • What is the distance between common destinations?
Research tools: • Accessibility map • A map showing distances between common destinations • Direct observation (photographing)

4.3. Sources of Evidence

This research uses quantitative and qualitative data which are based on the four major sources of evidence. The first source of evidence includes documents which constitute written reports, books, articles, researches, formal studies or evaluations of the same site under study, articles appearing in the media and websites related to THS. Particularly this source of evidence is used for the first part of the analysis which includes the historical

development of Ankara, the evolution of public spaces, the changes in the public space development policies, as well as the location of THS in Ankara and its historical evolution.

The second source of evidence is direct observation. The case study area was visited several times to identify the land-use pattern in the first and second floors of the buildings. Also, photos were taken to identify the issues which are investigated in relation to walkability capacity of the street. Additionally, the street is analyzed through the urban design analysis tools. These tools are several maps which are presented in Tables 1-17.

The third source of evidence is the questionnaire held with the users of Tunalı Hilmi Street. 56 questionnaires were conducted with the user groups of THS. 9 questionnaires were conducted with people between 18-25; 31 questionnaires were conducted with people between 26-64; 8 questionnaires were conducted with people older than 64 (Table 4-19). 4 questionnaires were conducted with disabled people, and 4 questionnaires were conducted with parents or people who use pushchairs and those who are you children.

Table 4-19, Questionnaire groups of the research

Groups	**Number of questionnaire**
People between 18-25 years-old	9
People between 26-64	31
People older than 65	8
Disabled people	4
People with pushchair	4
TOTAL	**56**

The questionnaire also focuses on spatial cognition, which means “the thinking processes that help us “wayfind” (i.e., successfully navigate through an environment), estimate distances, recognize route cues, able to make and read maps, and generally understand the relative location in space of different places” (Gifford, 1987, p.32). Spatial cognition can be examined through *cognitive maps* which refer to how places are arranged in people’s mind. Legibility that means “the ease with which a setting may be recognized and organized by people” is also a key concept in terms of cognition (Gifford, 1987: 33). This method can also be categorized as a qualitative method. This is the fourth source of evidence used by this research.

4.4. Questionnaires

The questionnaires of this research include both closed and open-ended questions. 'Closed questions' is a form of question which can normally be answered using a simple 'yes' or 'no', a specific simple piece of information, or a selection from multiple choices (no author, 2010). As they provide limited choice, it is easier to draw statistical results afterwards. 'Open-ended questions' contrast with closed questions. They cannot be answered with a simple 'yes' or 'no', or with a specific piece of information, and which give the person answering the question scope to give the information that seems to them to be appropriate (no author, 2010). "Open-ended questions are sometimes phrased as a statement which requires a response" (no author, 2010).

In the questionnaire, there are 18 questions that provide us with the opportunity to gather both to *quantitative*[1] and *qualitative*[2] data. Qualitative data is more difficult to analyze and draw statistical results than quantitative data. However, qualitative questions are likely to produce in-depth responses, and this is particularly required for a topic, like walkability. Furthermore, these responses are likely to give efficient information about the walkability capacity of the site.

The first three questions are meant to give quantitative information about the street usage. They are closed questions which are: *"How often do you visit the street?", "For what reasons do you use the street?"* and *"Which parts of the street do you use more frequently?"*.

The next four questions are open-ended and qualitative. These are: *"Where THS starts and ends?", "Do you think, THS is a pedestrian-friendly street?"; "If yes, why it is a pedestrian-friendly street?" and "If no, why it is not a pedestrian-friendly street?".* They are not restricted with choices. Observers are free to provide their own answers.

In contrast to the last four questions explained above, there is a group of questions that provides checklists related to walkability capacity of THS. These concepts are: actual safety (including street pattern, lightning, continuous pavement, separation, floor quality, street

[1] *Quantitative research* uses numbers and statistical methods. It is based on numerical measurements.

[2] *Qualitative research* is a non-numerical method frequently used for understanding human behavior.

crossing, perceptual safety), perceptual safety, and comfort. Table 4-19 shows the groups of questions according to the issues investigated. With these questions, the purpose is to make people relate these concepts with the street. They are expected to make judgements based on three different choices: 'agree', 'partially agree', and 'disagree'. As a result, it is possible to find out how far THS is found a walkable street by its users.

After these questions, individuals are asked to sketch a map of THS in order to understand people's spatial knowledge and to analyze the street in terms of 'orientation' (more specifically, in terms of 'legibility' and 'landmarks').

There are 8 more open-ended questions that are expected to be answered freely. To understand 'pedestrian enclosure', seven questions are asked subsequently. These are: "*Which part of THS can you walk easier and more comfortably?*", "*Which part of THS you can walk more difficult and uncomfortably?*", "*How the vehicular traffic disturbs the pedestrian movement?*", "*Do you think, some parts of THS should be pedestrianized?*", "*If yes, which parts of the street should be pedestrianized?*", and "*Do you think, some parts of THS' sidewalks should be widened?*". The last open ended question is asked to see if there are more issues that the users would like to raise as a problem of the street.

In the questionnaire, there is another group of questions as checklists to understand the attractiveness of THS from the users' point of view. The concepts which are investigated are for THS: colourful, safe, comfortable, enjoyable, exciting, boring/monotonous, mysterious, intriguing, surprising, predictable, legible/clear, open/spacious, closed/suffocating, and peaceful. Again, with these questions the aim of the research was to make people relate these concepts with the street. They are expected to make judgments based on three different choices: 'applicable', 'partly applicable', 'not applicable'. As a result, it is possible to find out whether THS is safe or unsafe, comfortable or uncomfortable, enjoyable or unenjoyable, boring/monotonous or exciting, mysterious/intriguing/surprising or predictable, legible/clear or confusing, open/spacious or closed/ suffocating, and finally peaceful or restless; and therefore attractive or not.

A copy of the questionnaire is provided in Appendix A of this thesis. The examples of cognitive maps obtained through the case study are also provided in Appendix B.

Table 4-20: Groups of questions according to the walkability components

1) SAFETY
1.1. Actual safety
a) Street pattern • It is easy and comfortable to walk along the street • It is an easily accessible street from other places by walking • Vehicular traffic on the street is a problem for pedestrians to access to different parts of THS • Vehicular traffic on the parallel streets is a problem for pedestrians to access to THS
b) Lightning • It is a well-lit street at night • It is a safe street at night • Kuğulu Park is a well-lit park at night • Kuğulu Park is safe at night
c) Continuous pavement • There is no interruption for pedestrians along sidewalks • Crosswalks are safe for pedestrians • Crosswallks are safe for old people, disable people, children and parents with young children • Sidewalks are wide enough for pedestrians • Street furniture provided along the street is sufficient • The location of street furniture obscurs the pedestrian movement
d) Pedestrian enclosure • Where THS starts and ends? • Do you think, some parts of THS should be pedestrianized? Which parts? • Do you think, some parts of THS' sidewalks should be widened? Which parts? • Which part of THS can you walk easier and more comfortably • Which park of THS you can walk more difficult and uncomfortably • How the vehicular traffic distrurbs the pedestrian movement?
e) Separation

Table 4-20: Groups of questions according to the walkability components

• On-street car-parks disturbs pedestrian movement
f) Floor quality • The pavement slabs are well-laid out and do not distrurb pedestrian movement • Level variations along the sidewalks pavement (ramps, etc) are adequately safe for pedestrians • Pavement slabs along the along the sidewalks are not deformed or broken • There is no unusual obstacle for pedestrians along the sidewalks
g) Street crossing • There are sufficient street crossing along THS • The street crossings along THS are well-situated • The street crossings along THS are located on easily accessible places • The street crossings along THS are easily visible
1.2. Perceptual safety
• It is a noisy street • Noise is resulted from car trafficr • Facilities open until late night make the street safer at night • It will be a much safer street if there are more residential uses
2) ORIENTATION
a) Legibility and Landmarks • Please draw a map of THS showing its connected streets with lines and memorable buildings with nodes.

CHAPTER 5

THE DEVELOPMENT HISTORY OF ANKARA AND ITS PUBLIC SPACES

This chapter focuses on the historical development of Ankara, and the evolution of the public spaces. In doing so, it aims to put Tunalı Hilmi Street in the context of Ankara's historical development and the changes in the public space development policies.

5.1 The historical development of Ankara

Before the declaration of Ankara as the capital city of newly-founded Turkish Republic, it was a small Anatolian town. With the construction of railway to Ankara in 1892, the city gained an economic and social significance. The most important changes however happened in Ankara after the War of Independence. Following the foundation of Turkish Republic, Ankara was declared as the capital of Turkey. Afterwards, business, managerial, manufacture and service facilities started to develop in the city. Ulus, which is the old city centre, became important due to its connection to the railway station (Çakan, 2004, p.24-25). It was shaped as a linear form to accommodate both governmental and commercial buildings, and was turned into the first central business district (CBD) of Ankara.

Kızılay was envisaged as the neighboring center of Ulus, first, by Lörcher Plan (1923) and then by Jansen Plan (1928) (Çakan, 2004, p. 26-27). Lörcher Plan foresaw the need for constructing infrastructure, roads, and public squares for the development of today's Kızılay. Especially the idea of creating a number of sequential squares -Cumhuriyet-Kızılay Square, Sıhhiye Square, Zafer, Millet, Ulus, Lozan, Tandoğan Squares- in Löcher Plan was also accepted by Jansen Plan. In Jansen Plan, Ulus was foreseen as the CBD, while Kızılay was envisaged as its neighboring center including residential and administrative functions. Kızılay was seen as a center that would not affect the significance of Ulus as the CBD (Çakan, 2004, p.26-27).

In the period of 1950-1970, with the new industrial development, Ankara's population significantly increased with the migration from rural areas. This was followed by the development of illegal housing and informal jobs. Opposite to the vision of Jansen Plan, migrants settled around Ulus, and built their squatters. Both the squatter development and

informal activities that started to dominate in Ulus caused the degradation of its position as the CBD. Kızılay, on the other hand, started to be shaped as the new urban center, especially with the construction of the Ministry buildings. In 1970, Kızılay became the new CBD of Ankara, while in the late-1970s, the new CBD functions started to expand towards the direction of Kavaklıdere-Çankaya (Çakan, 2004, p.33-36). Consequently, Tunalı Hilmi Street became one of the important sub-centers of Ankara.

In the Development Plans of Ankara for 1990, 2015 and 2025, Kazıkiçi Bostanları near Ulus was foreseen as the new CBD of Ankara. But, in the late-1980s, the new parts of the CBD were developed in the south direction, in and around Tunalı Hilmi Street and Köroğlu Street, because of the high property values (Çakan, 2004, p.45). Both Tunalı Hilmi Street and Köroğlu Street acted as the multi-centers which had similar functions, but addressed to different social groups (Çakan, 2004, p.35, 43).

In the late-1980s, shopping malls started to develop in Ankara. The very first ones, Atakule Tower and Shopping Mall and Karum Shopping and Business Centre, were built to respond to various needs of high income groups. In this period, residential areas were mostly created in close proximity to mixed-use streets, commercial centers, public managerial buildings and public services. Such residential areas were developed around Ulus between 1950 and 1970, around Kızılay in the 1970s, Tunalı Hilmi Street and Köroğlu (Uğur Mumcu) Street in the 1980s, and finally in Cinnah Street in the late-1980s.

After the late-1980s until today, with the development of shopping malls, the decentralization policies based on private-car oriented transportation, suburban developments appeared. The Development Plans foresaw the south part of Ankara (including Çankaya, Kavaklıdere, Oranşehir, Gazi Osman Paşa) as the residential neighborhoods of high-income groups. The actual development of the city, however, occurred along the East-West direction. The new residential developments for high-income groups appeared in the suburban sprawl located in the West and South corridors of Ankara (Çakan, 2004, p. 38, 45, 47, 72) (Figures 5-1, 5-2, 5-3, 5-4, 5-5 and 5-6). The CBD of Ankara has also tended to develop along the West corridor (i.e., the Eskişehir Road). The proliferation of new shopping malls, the buildings of public agencies, hotels, convention centres, private hospitals have made Eskişehir Road an important extension of the CBD.

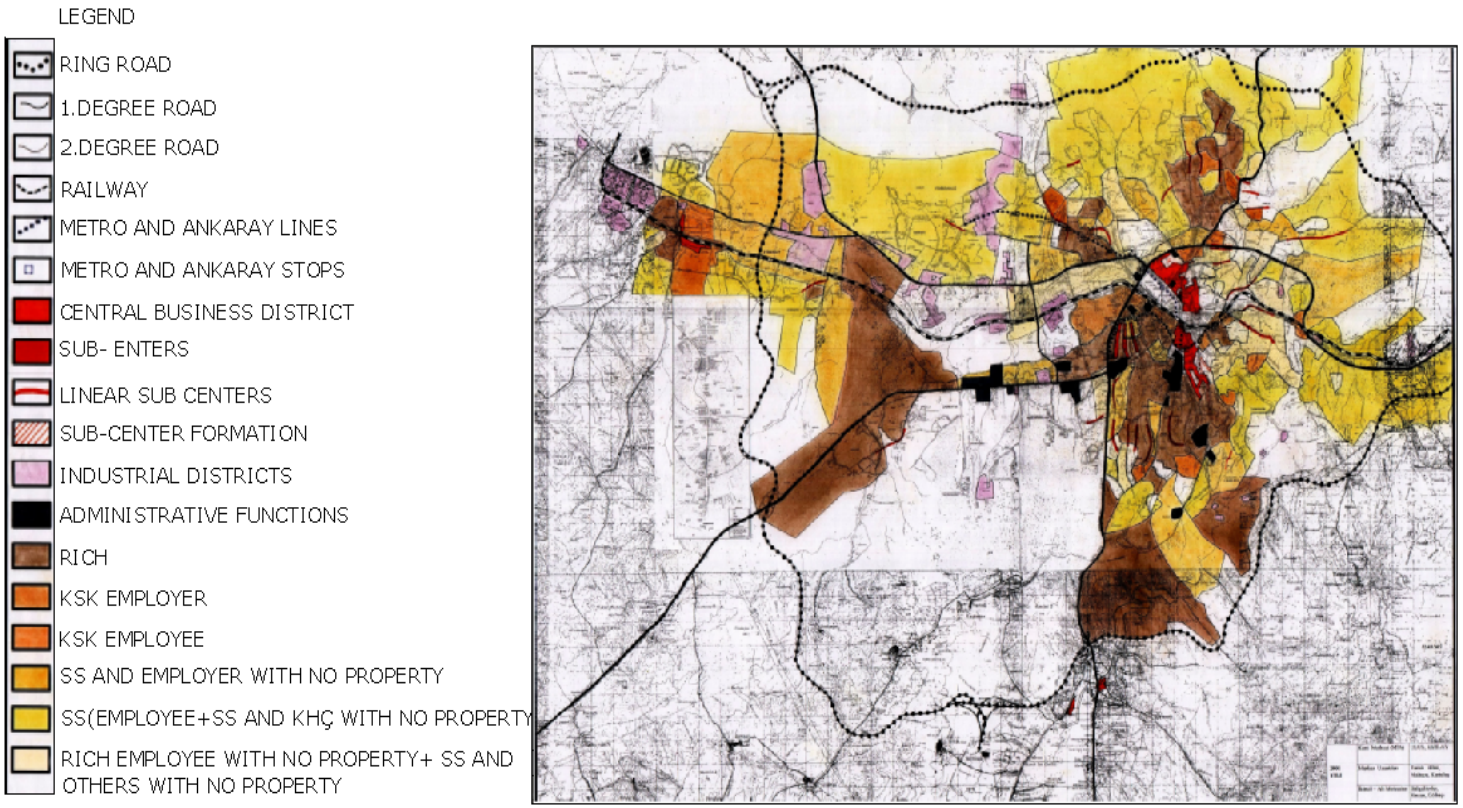


Figure 5-1, Ankara land use map in 2000 (Resource: Çakan, 2004, P.42)

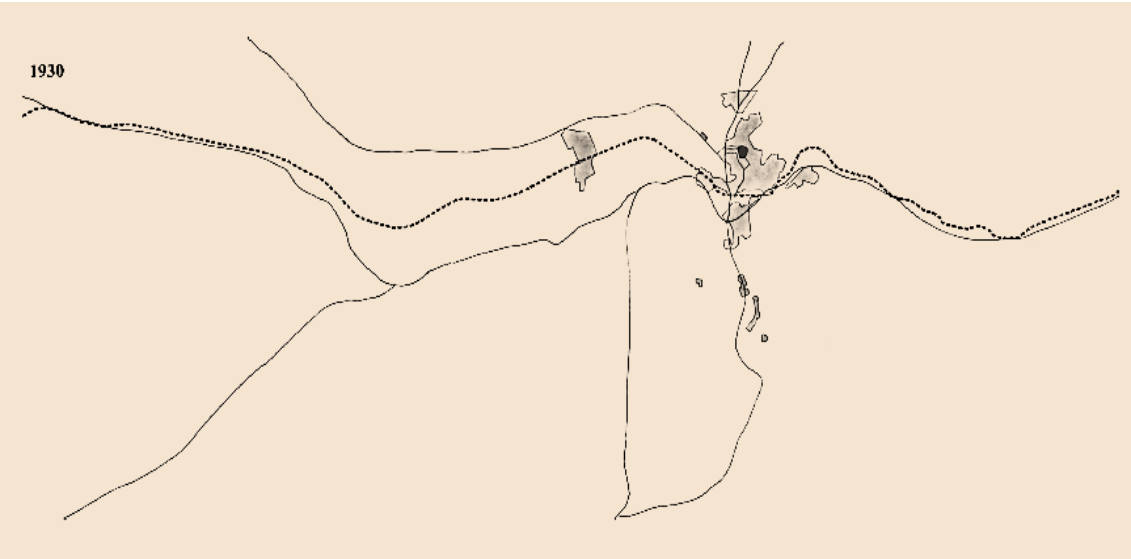


Figure 5-2, Ankara City Center in 1930 (Resource: Çakan, 2004, p.26)

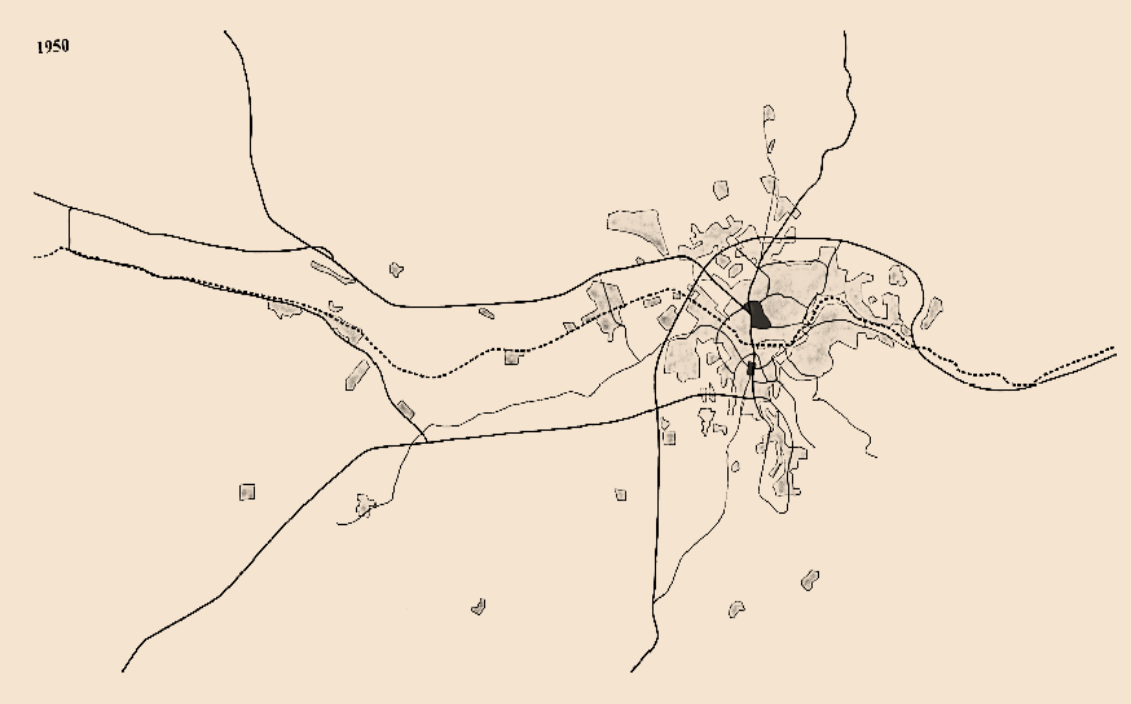


Figure 5-3, Ankara City Center in 1950 (Resource: Çakan, 2004, p.29)

Figure 5-4, Ankara City Center in 1970 (Resource: Çakan, 2004, p.32)

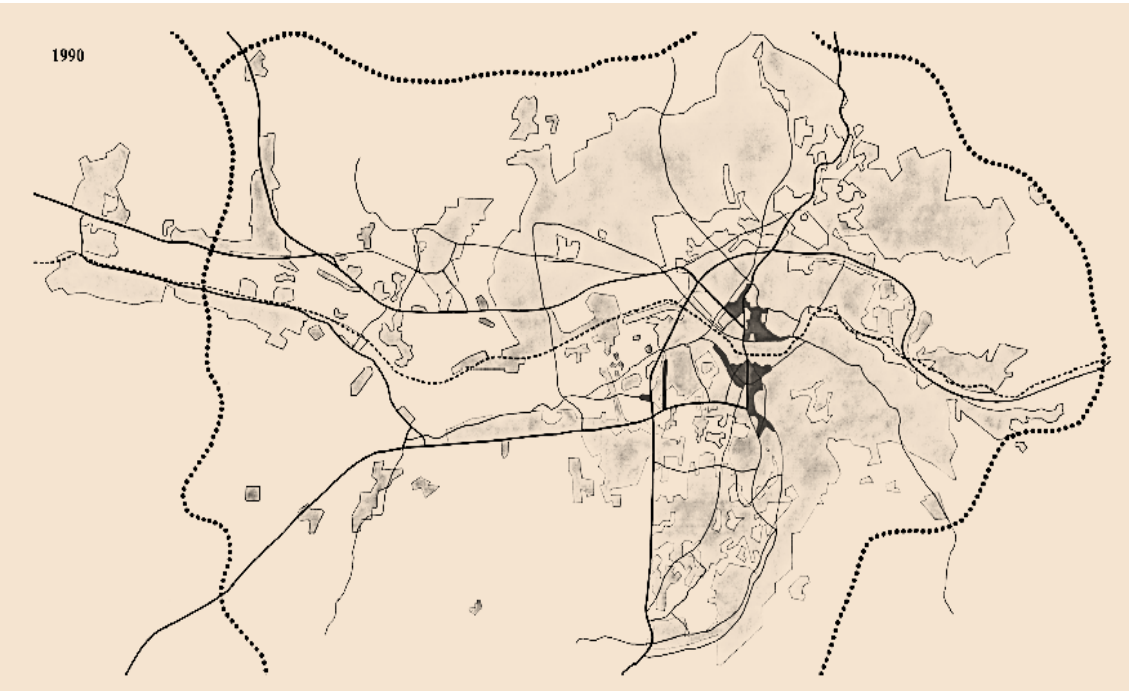


Figure 5-5, Ankara City Center in 1990 (Resource: Çakan, 2004, p.32)

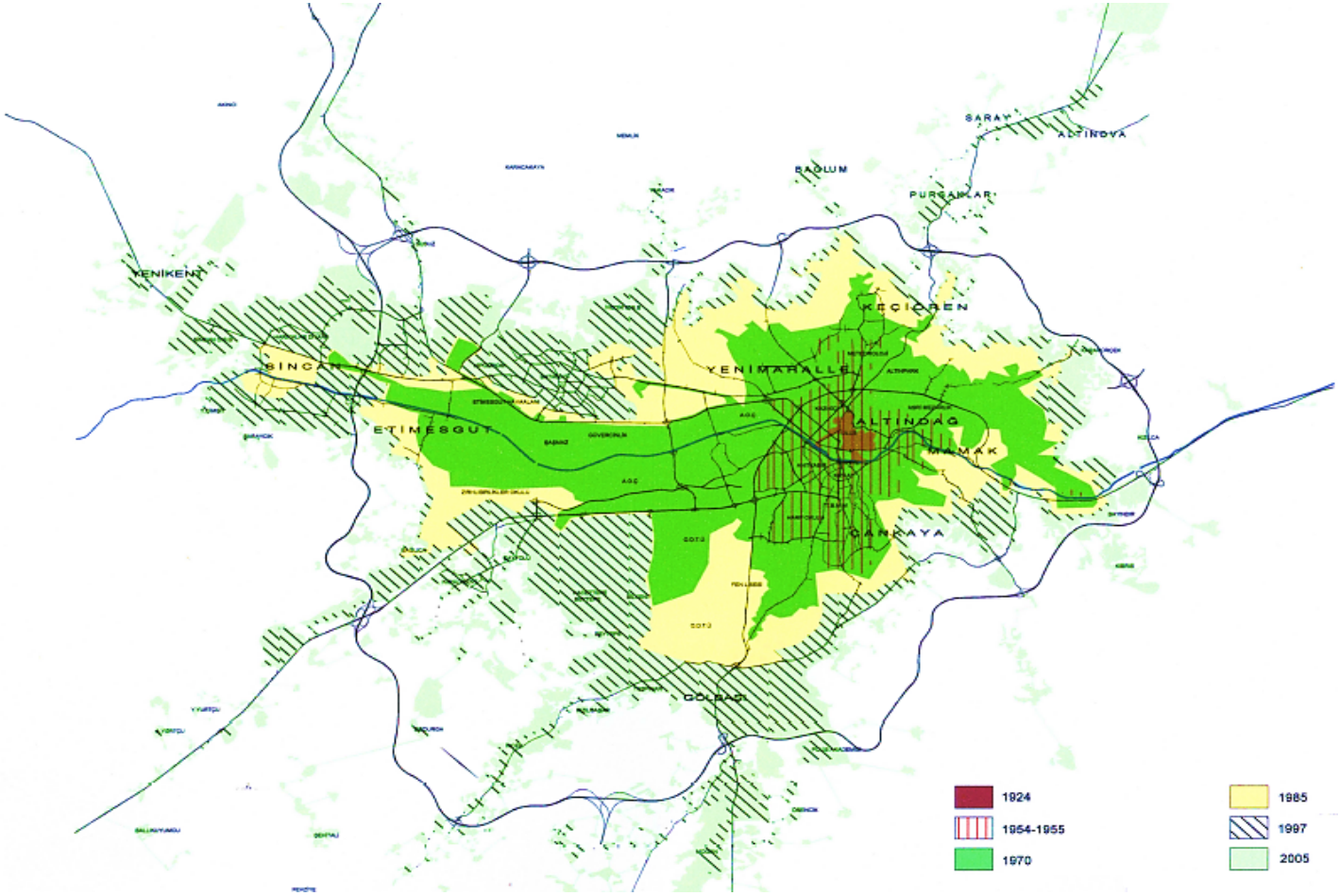


Figure 5-6, Ankara City Center during 1924-2005 years (Resource: Ankara municipality, 2006, p.68)

5.2 Evolution of Public Space Policy in Ankara

5.2.1. From the Early-Republican Period to the 1950s

In the 1930s when Ankara was developed as the capital of Turkey, the first public and trade center of the city was in and around of the south part of Ankara Castle. Here, there was a covered bazaar called 'Bedesten',which were built in Selçuk and ottoman periods and where traditionally-produced goods were sold. There were also roads encircling motels, as well as Atpazarı (Horse Market), Koyunpazarı (Sheep Market), and Samanpazarı (Haymarket) that dated back to the early period of Ankara. In a horizontal and linear form, this area was connected to the center of Ulus which included newly developed trade centers, such as Karaoğlan Bazaar and Taşhan (Ünsal, 2010, p.23).

In the early-20th century when Ankara's population was around 30.000, the major transportation means were either walking or riding horse. Then, few cars and small private buses became new means of transportation (Ünsal, 2010, p. 29).

5.2.2. From the 1950s to the 1980s

In the 1950s, the linear form of the city centre turned into a radiant form, with the development of new sub-centers around Ulus (Günay, 2007). In this period when Kızılay became a significant sub-centre, new commercial and service sectors, serving high-income groups, developed in this centre (See also Figure 5-3 and Figure 5-8). In the 1960s, Kızılay became a much more prestigious center with the development of Ministries, universities and the Parliament building (Ünsal, 2010, p.23).

In the 1950s, the public transportation services were operated by Ankara Municipality through inadequate number of buses. From the 1950s to the 1970s, the transportation policies gave priority to the accessibility of cars and public transportation vehicles. Consequently, Atatürk Boulevard, which was a two-lane avenue, was widened to four lanes by narrowing the sidewalks and cutting down the trees (Ünsal, 2010, p.25-26).

In the 1970s, the urban development extended towards the south of Kızılay (i.e., Gazi Osman Paşa-Çankaya direction) due the high land prices and rents, and topographic opportunities. The developments to the south direction, which included residential, commercial, cultural

and administrative uses, made this part of the CBD attractive for people (Ünsal, 2010, p.24) (See also Figure 5-4 and Figure 5-8).

In the same years, the transportation policies put a strong emphasis on the creation of pedestrian-oriented streets. Consequently, Sakarya Street in Kızılay, and some streets around it were pedestrianized. Likewise, Yüksel Street and its surroundings (i.e, Konur Street I, Karanfil Street I) and Izmir Street and its surrounding (i.e., Fevzi Çakmak Street I and II, Sümer Street I and II, Menekşe Street I and II, and Şehit Adem Yavuz Street) were decided to be pedestrianized. Yet, the projects for many of these streets, such as Fevzi Çakmak Street, Sümer Street, Menekşe Street, Karanfil Street, Konur Street did not become real (Okullu, 2007, p. 67). Among these pedestrianization schemes, only Yüksel Street, İzmir Street and Sakarya Precinct are still pedestrian public spaces of Ankara (See also Figure 5-9).

The transportation policies of this period also aimed to increase the use of the public transport services, thereby reducing the private-car usage. Thus, bus services became free for certain times of the day for some users. Additionally, the construction of a metro system was introduced into the public transport policy agenda of Ankara (Ünsal, 2010, p. 26)

5.2.3. From the 1980s to the first decade of the 21st century

The arcades and bazaars (çarşı) in the 1980s and the shopping malls in the 1990s which are located in both Kızılay and Gazi Osman Paşa became the important public spaces by providing a wide range of usages and facilities, being accessible to everybody in different hours of day, and being protected from climatic conditions. Zafer Bazaar, Onur Bazaar, Moda Bazaar, Kocabeyoğlu Arcade, Soysal Arcade, Kocabeyoğlu Arcade in Kızılay, Tunalı Arcade in Tunalı Hilmi Street were the popular shopping places of Ankara. Tunalı Hilmi Street developed along this development of the CBD. Until the 1980s, it was not a very preferable place due to the lack of commercial and entertainment facilities especially in covered spaces. After the 1980s, with the construction of Tunalı Arcade in the place of previous Ulus Cinema, and subsequently other

arcades, embassies, and theatres, Tunalı Hilmi Street became a place of many public activities (See also Figure 5-7). Therefore, it turned into a prestigious street with its commercial, social, cultural and administrative uses (Çapanoğlu, 2010). As such, in 1989, some streets in Kızılay (Olgunlar Street, Konur Street and Karanfil Street) were pedestrianized. Tunalı Hilmi Street

was also pedestrianized over the weekends for a short period of time, but later on, this implementation was given up.

Figure 5-7, Tunalı Arcade in 2010, 2011 (Resource: Personal Archive)

The first shopping malls in Ankara were Atakule Tower and Shopping Center on Cinnah Street (1989) and Karum Shopping and Business Center on Iran Street (1991) (Atakule hakkında ansiklopedik bilgi, 2010). Later, a number of new shopping malls were built in the inner city (such as Beğendik in Kızılay, Malltepe in Maltepe).

In the 1980s, the privatization policies became effective in Turkey; and some bus services in Ankara were privatized. Nevertheless, the idea of construction a metro system was not given up by Ankara Metropolitan Municipality. The construction of the first metro line between Kızılay and Batıkent and the light rail line (Ankaray) between Ankara's main bus terminal (AŞTI) and Dikimevi started in the early-1990s (Ünsal, 2010, p. 26) (See also Figure 5-10).

In the mid-1990s, different from the trends in the world which moved towards the creation of pedestrian-oriented streets, Ankara Metropolitan Municipality prioritized car-oriented transport policy. Consequently, the main streets and boulevards were widened to give priority to cars. A number of underpasses on the important arterial intersections were built to make sure the continuous flow of vehicular traffic, while many overpasses were constructed to provide pedestrian flow on the main heavily-loaded streets, boulevards and arterials. These overpasses however have not been used much by pedestrians, and have led to traffic congestion especially on the main streets, like Meşrutiyet Avenue, Mithat Paşa Avenue. Except Transportation Master Plan of 1992, over the last 20 years, there has been no pedestrian zone planned by Ankara Metropolitan Municipality.

Within the recent policies, pedestrians have not been considered as important user groups of streets, public spaces and urban environment. Sidewalks in the main boulevards, avenues and streets have been narrowed down to increase their capacity to accommodate cars. Even some very important and prestigious streets have not been maintained well. Pedestrians and pedestrian-friendly streets have been neglected for a long time in Ankara. There are a number of factors which discourage pedestrians to walk within the city. Some of them are the sidewalks which are not properly built and maintained, the lack of cross-walks for pedestrians, high vehicular traffic volume which cause risk, noise and pollution for pedestrians, cars which park and occupy sidewalks.

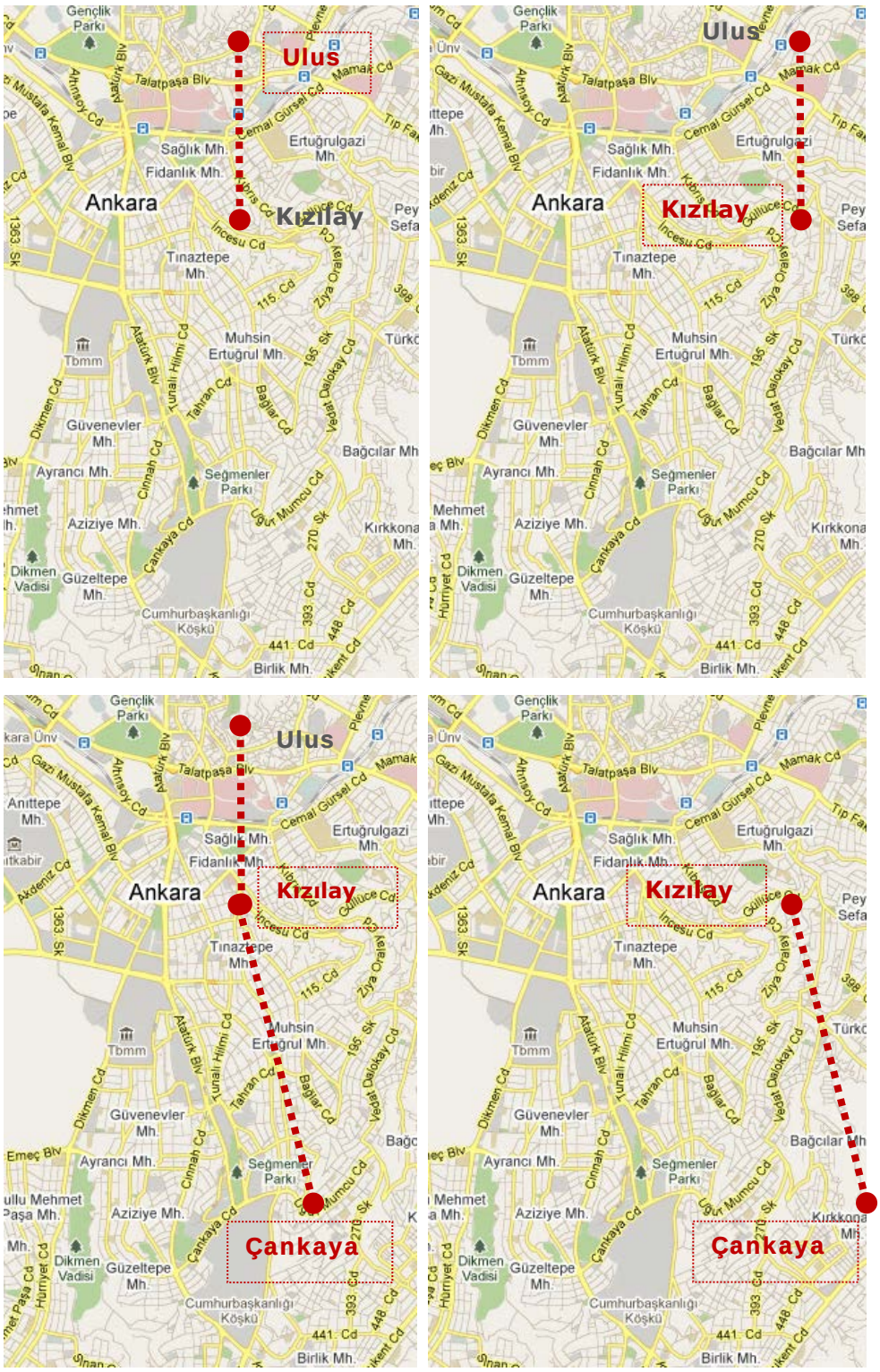


Figure 5-8, City Center in the 1930s (above left), City Center in the 1950s (above right) City Center in the 1970s (below left), City Center in the 1990s (below right)

Figure 5-9, Sakarya Street, one of the major pedestrian public spaces in Ankara (Resource: Personal archive)

Figure 5-10, The entrance of Ankaray, the light rail station in Kızılay (Resource: http://www.ankaray.com.tr, last accessed on 20,04,2011)

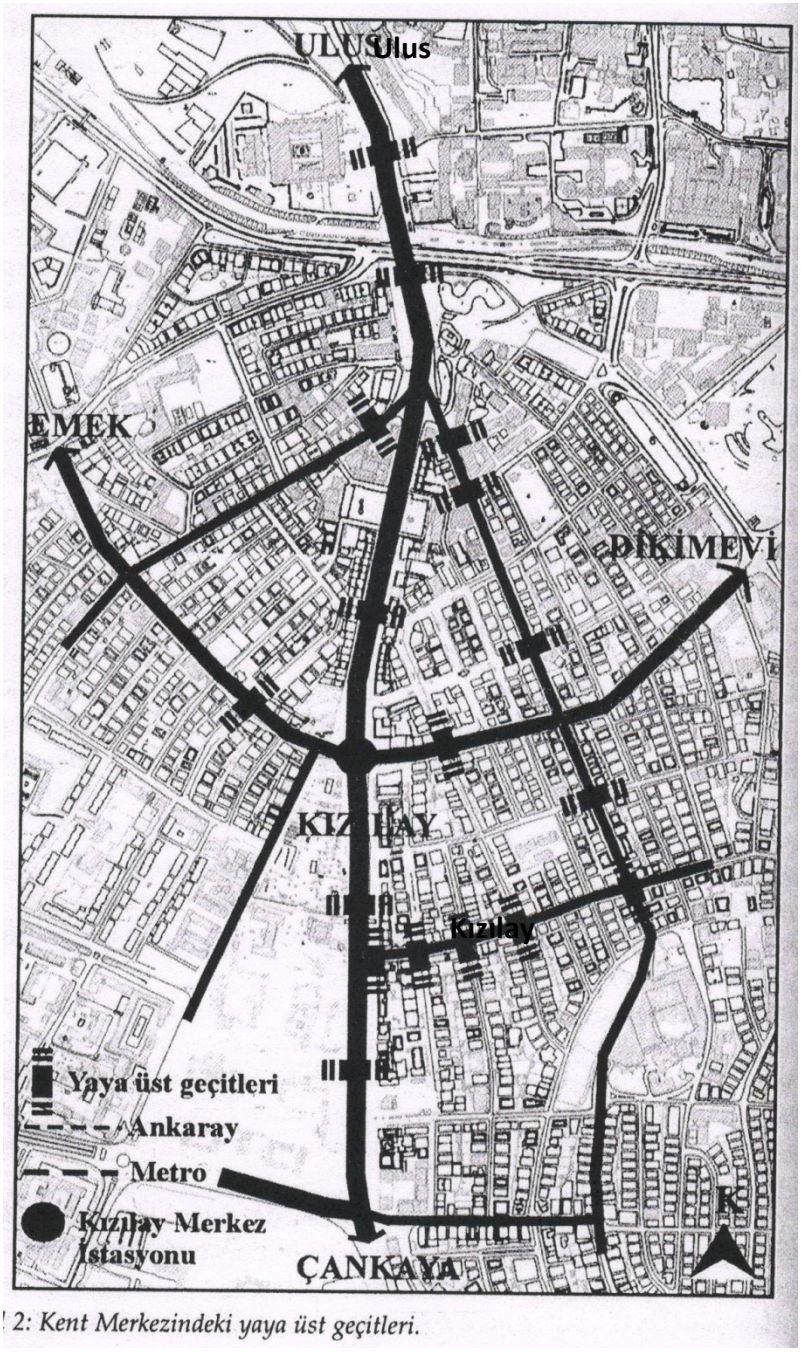


Figure 5-11, Pedestrian overpasses in Kızılay (Resource: Babalık Sutcliffe, 2005, p.296)

Figure 5-12 Barriers which hinder pedestrian accessibility in Kızılay (Resource: wowturkey.com, last accessed on 20,04,2011)

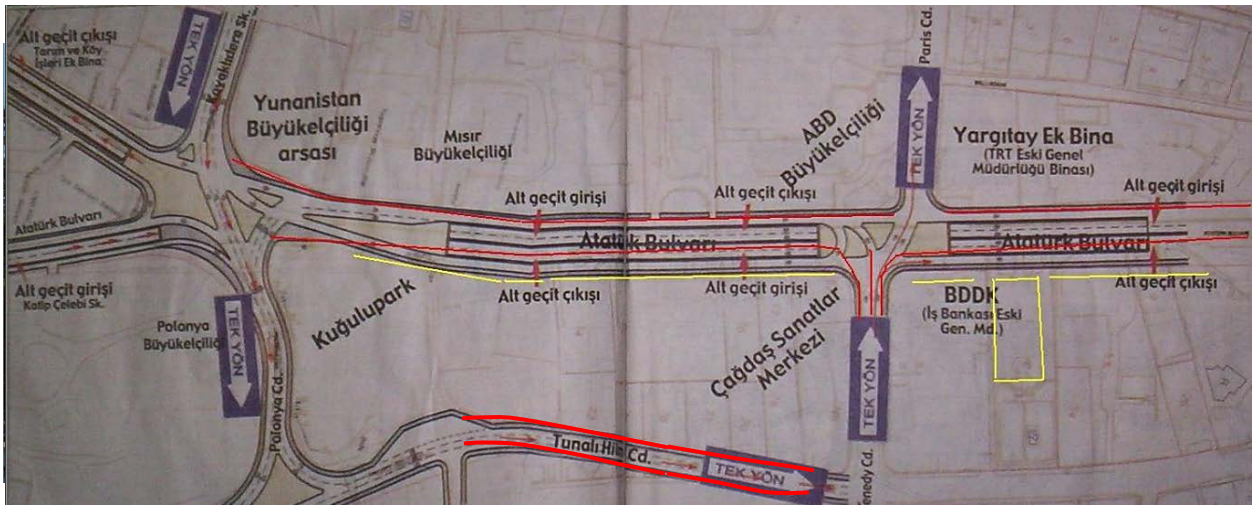


Figure 5-13, Kuğulu Underpasses on Atatürk Boulevard (Resource: wowturkey.com, last accessed on 20,04,2011)

All these policies suggest that Ankara has become more and more away from being a walkable city. On the other hand, over the last 10 years, Ankara Metropolitan Municipality has stopped investing in the construction of the new three metro lines between Kızılay and Çayyolu, Batıkent and Sincan/Törekent and Tandoğan and Keçiören. Instead, the public transport services have been provided by the municipal buses, privatized municipal buses and minibuses.

Along with the decentralization policies of the CBD, suburban sprawl and the private-car oriented transportation policies, the development of shopping malls outside of the city has

been encouraged. A number of shopping malls were built in the outer city, along the main transportation arteries, such as Armada, Cepa, Kent Park, Gordion on Eskişehir Road, Anka Mall on Konya Road, and A City on Istanbul Road. The development of these shopping malls has caused the move of many prestigious business and commercial activities from Kızılay to these commercial precincts. While the CBD of Ankara has been emptied by these functions, commercial activities serving low and low-middle income groups have occupied the vacant shops and offices in Kızılay. Although Kızılay is still a very busy part of CBD of Ankara, the middle and low-income groups have become the major users. Ulus, on the other hand, has turned into a real declining city centre of Ankara, whereas Gazi Osman Paşa and Çankaya still keep their prestige, as they are still include Embassy buildings, Parliament building, President Palace, high-income residential neighborhoods, some commercial, business and service activities serving these groups.

The recently-developed shopping malls in Ankara have attracted many users and consumers from different income groups. Consequently, the CBD and other sub-centers of Ankara have not been used as much as they used to be. The policies which are outlined above also have not encouraged people to use the CBD and sub-centres either. Particularly creating pedestrian-friendly environments in the city centre has been out of the scope of the local authorities of Ankara. As a result, Ankara's inner city has been more and more away from being a walkable and therefore liveable city.

5.3. Conclusion

In the many Western cities, with the transportation policies of the 1950s and 1960s, cars became the dominants of cities, and one of the major urban problems became the traffic congestion because of private-car usage. After the wide recognition of this problem, one of the major concerns of the many Western cities has become increasing liveability in cities. The city governments therefore produced the policies that aimed to protect city centers from car traffic and to increase pedestrian movements in mixed-used zones. In other words, these policies aimed to reduce car presence in city centers. A significant example is the introduction of high fees for car-users who will drive within the city centres.

While the recent and current transportation policies of many cities are more focused on the advancement in public transportation and pedestrian-oriented policies, the transportation policies of Ankara have prioritized the increase in car usage. Over the last 20 years, the public transport services were significantly impoverished. There have been disinvestments on the construction of new metro lines. Although the public transportation services have been provided by the municipal buses, privatized municipal buses and minibuses, and car-usage have been encouraged, particularly by making significant amount of investment on the main arterials, boulevards and avenues which were widened to accommodate more vehicular traffic. Underpasses on these arterials, boulevards and avenues and overpasses on these roads for pedestrians were constructed to provide a continuous traffic flow. However, by narrowing down the sidewalks of old streets and boulevards in city centers, the walkability of public spaces has been reduced. (see also Figure 5-11, 5-12 and 5-13)

To create liveable city centres, it is crucial to take measures for developing pedestrian-oriented streets, mixed-used streets, traffic calming programs, effective public transportation system. Such measures will decrease the demand for private-car usage, contribute to walkability and therefore liveability of the city. In Ankara, however, the transport policies over the last twenty years have not considered pedestrians' rights, and they have neglected the essential role of pedestrians in creating lively public spaces. Nowadays, pedestrians are not able to walk within the city center freely. Likewise, car users face various traffic problems, such as traffic congestion, lack of car-parking spaces. Both of them therefore prefer to go to shopping centers where they feel themselves comfortable and safe. Hence, shopping malls have started to take the place of mixed-use streets of the city center.

CHAPTER 6

INTRODUCING TUNALI HİLMİ STREET

This chapter introduces Tunalı Hilmi Street through the description of its location within the city, its development history from the early-1920s to today, and its current land-use functions.

6.1. The Location of Tunalı Hilmi Street

Tunalı Hilmi Street (THS) is located in the south of Kızılay, and is situated in Kavaklıdere neighborhood of Çankaya district (See also Figure 6-1). THS starts at Kuğulu Park to the south and ends at Hacıyolu Street and Akay Street to the north. It runs to the north-east direction. To the south, THS joins Atatürk Boulevard where Iranian, American, German, Italian, Polish, French, Austrian and Egyptian Embassies are located. The Boulevard is connected with Cinnah Street and Iran Street to the south. THS is on the route reaching to Atakule Shopping Center (the first shopping mall of Ankara) from Kızılay, and it has been developed as the CBD extension of Kızılay. For these reasons, it has become an important commercial center of Ankara. It now functions as one of the most important high streets of the city (See also Figure 6-2).

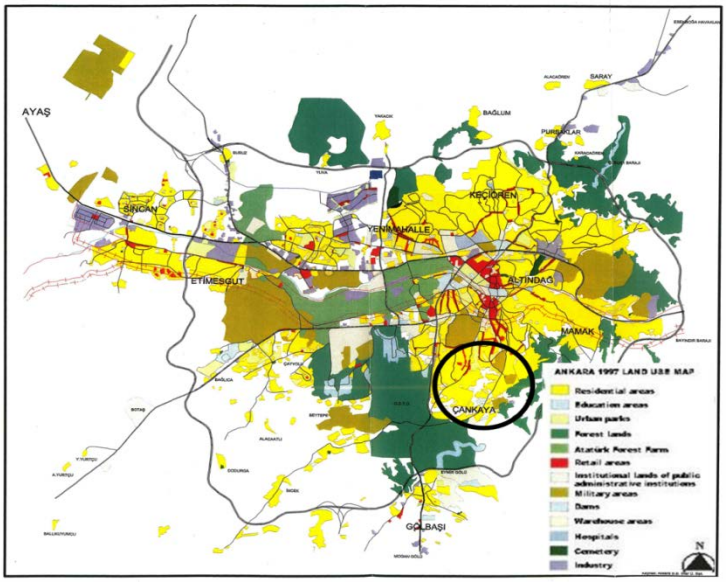


Figure 6-1, Ankara and the location of Kavaklıdere neighborhood (Resource: Personal archive of Müge Akkar Ercan)

To the south end, THS joins Arjantin Street and Karum (the second shopping mall of Ankara), both of which have functioned as the lively meeting places of relatively higher income groups. Today, commercial uses extend from THS towards Arjantin Street and Filistin Street where brand mark shops, cafes and restaurants are located on the ground floors and where aesthetic/beauty parlors and fashion houses are on the upper floors of the buildings (See also Figure 6-2 and 6-3).

.

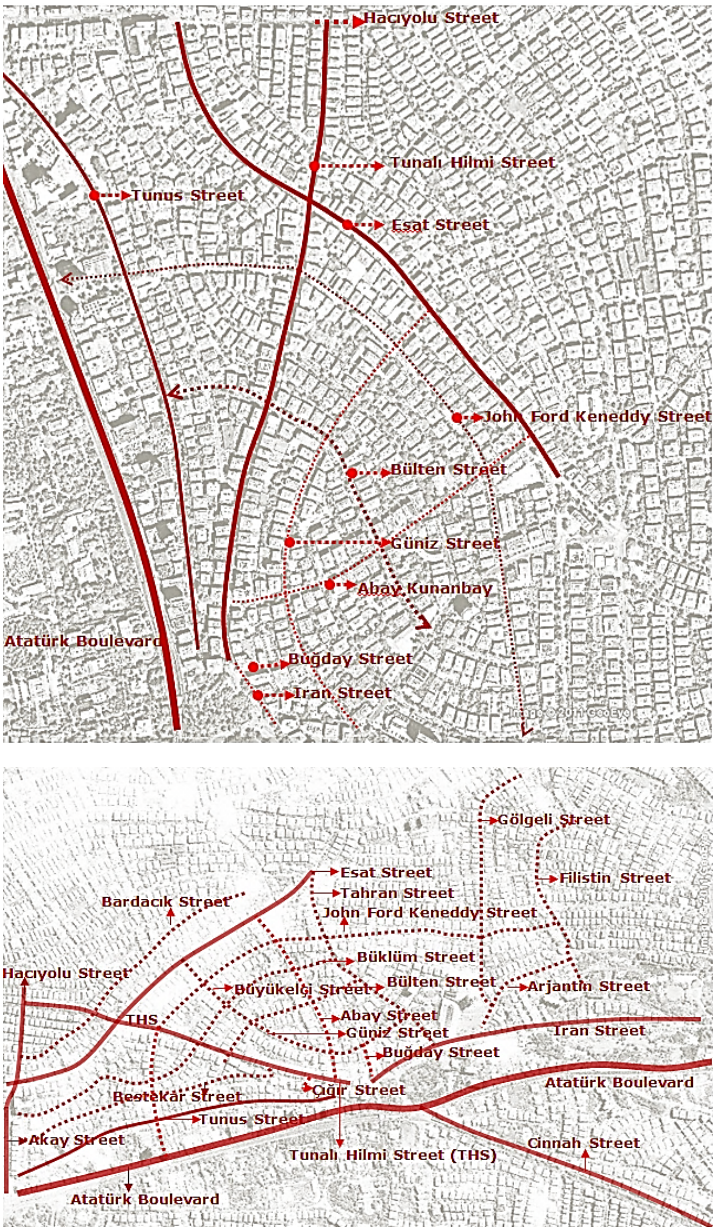


Figure 6-2, Tunalı Hilmi Street and its vicinity, (Resource: Personal study and rendering)

Kuğulu Park, which is located at the south of THS, functions as a part of green belt of Ankara. It is also one of the major open green spaces of the inner city. Other parts of this green belt

are Seğmenler Park and Botanic Park that are located on the south of THS, and Meclis Park which is situated to the north-east of the street.

Moving to the north, THS is connected to Kennedy Street which contains residential and office uses, two petrol stations, as well as Modern Art Center (Çağdaş Sanatlar Merkezi) and Chamber of Industry Building that are located on the intersection of Kennedy Street and Atatürk Boulevard. On the east, Güniz Street runs parallel to THS. It is a residential street with few cafes and restaurants on the ground floors and few offices on the upper floors. On the west, Tunus Street runs parallel to THS. It is an important street with commercial uses, such as cafes, restaurants, bars, and office functions. On Tunus Street, there are also important landmarks, such as the factory outlet of Kavaklıdere Wines, Şinasi Theater, TUBITAK (The Scientific and Technological Research Council of Turkey), offices and office buildings, a hospital (World Eye Center) and a five-star-hotel (Rixos Hotel). Bestekar Street runs between Tunus Street and THS, and reaches at Kennedy Street. It is particularly popular with its cafes, restaurants and bars. As Altay (2004: 3) claims, Bestekar Street is always crowded with young people, because of a minibar -the space created in the leisure practice of a group of young people- and hotel buildings. Esat Street, Bardacık Street, Büklüm Street, Çığır Street, Bülten Street, Abay Street, Buğday Street and Hacıyolu Street are other streets which intersect THS. (See also Figure 6-2 and 6-3)

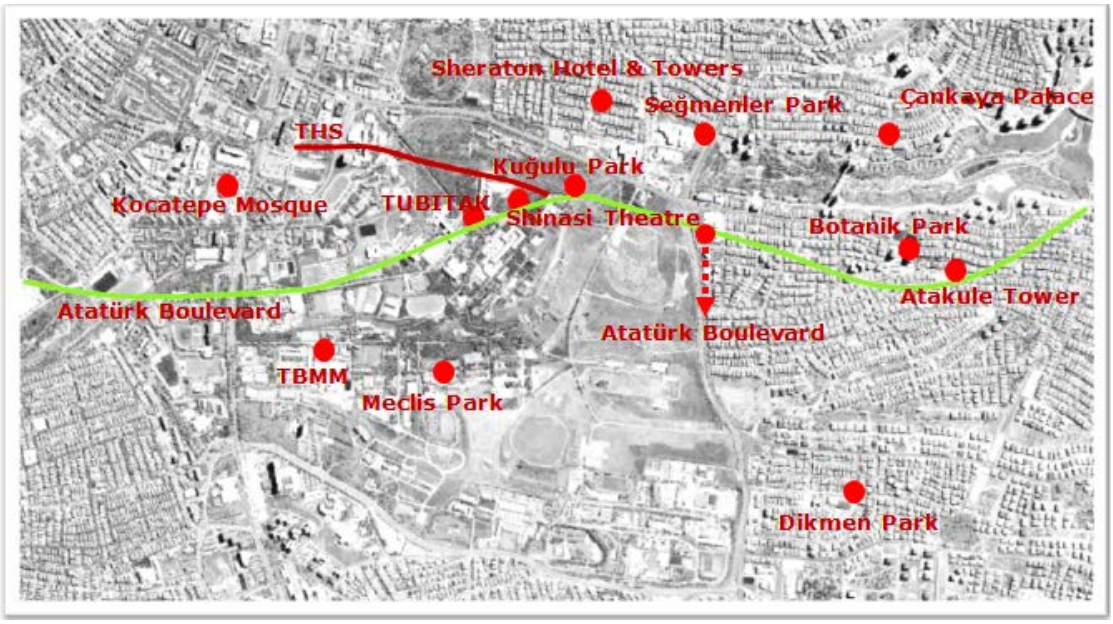


Figure 6-3, Tunalı Hilmi Street and its landmarks, (Resource: Personal study and rendering)

6.2. The History of Tunalı Hilmi Street and its surroundings

6.2.1. Tunalı Hilmi Bey

Tunalı Hilmi Bey, who lived between 1871 and 1928, gave his name to this street. He was one of the leading members of Young Turks and Turkism activities, and a respectable personality in the foundation years of the Turkish Republic.

The Young Turks were a coalition of various groups favoring reformation of the administration of the Ottoman Empire. The movement was against the monarchy of Ottoman Sultan and favored a re-installation of the short-lived Kanûn-ı Esâsî constitution. The Young Turks were the members of the Ottoman society who were progressive, modernist and opposed to the status quo. The movement built a rich tradition of dissent that shaped the intellectual, political and artistic life of the late-Ottoman period. Many Young Turks were not only active in the political arena, but were also artists, administrators, or scientists. (http://en.wikipedia.org/wiki/Young_Turks)

Tunalı Hilmi Bey and his family migrated from the Danube River to first Istanbul in 1877 due to Ottoman-Russian War (No author, 2010). He was the author of many articles for the periodicals of Young Turks (No author, 2010). Also, he worked as a writer and policy maker in different establishments of editorial offices or press of a newspaper, journals, associations and divisions (No author, 2010). Furthermore, he worked as an inspector, chief secretary, district governor and member of the Parliament of Turkish Republic and Ottoman Empire Assembly (No author, 2010). He and his family moved to Ankara and settled down in Kavaklıdere neighborhood (No author, 2010). He donated all his belongings to the state. For this reason, his name was given the main street of the neighborhood in the 1970s (No author, 2010).

6.2.2. Development of Tunalı Hilmi and its surroundings from the early-1920s to today

The history of THS and Kavaklıdere neighborhood goes back to the foundation years of Ankara as the new capital city of the Turkish Republic. In the 1930s, there was a creek and poplar trees along it. This creek, which was called ‘Kavaklıdere’ that means ‘a creek with poplar

trees', gave the neighborhood its name (Kavaklıderem Derneği, 2010). The creek used to originate from the lower boundary of the Presidential Palace (Çankaya Palace), run through today's Tunus Street and disappeared when it reached at today's Kennedy Street (Figure 4) (Kavaklıderem Derneği, 2010).

Back in the 1930s and 1940s, there were 8 or 10 houses and vineyards along the creek (Kavaklıderem Derneği, 2010). Those vineyards were irrigated with the water of the creek (Kavaklıderem Derneği, 2010). Around Iran Street, there were vineyards and wineries (Kavaklıderem Derneği, 2010). Kavaklıdere Wine Factory was located on the place of today's Sheraton Hotel and Karum shopping mall (Eker, 2006; Kavaklıderem Derneği, 2010). Along Kavaklıdere creek, there were also embassies whose entrances faced to Atatürk Boulevard and whose gardens were directed to the creek (Kavaklıderem Derneği, 2010). Kavaklıdere Tennis Club and its courts were also located there (Kavaklıderem Derneği, 2010). In the place of today's Kuğulu Park area, there was a bridge, the other side of which the house of the owners of Kavaklıdere Wines –Sevda and Cenap And- was situated (Kavaklıderem Derneği, 2010). Beyond, there was the two-storey house of Celal Bayar -the third president of Turkish Republic (Kavaklıderem Derneği, 2010).

A water reservoir was located in the place of today's Modern Art Center (Kavaklıderem Derneği, 2010). The creek flowed through the place where today's Tunus Street is located. Kennedy Street that had been lying in front of the water reservoir, had ended at the intersection with Atatürk Boulevard (Kavaklıderem Derneği, 2010). Kavaklıdere creek, which reached to Akay Street, disappeared into the underground drainage (Kavaklıderem Derneği, 2010).

At that time, THS till the intersection with Bülten Street was named as Özdemir Street (Kavaklıderem Derneği, 2010). This name was changed in the 1970s. The street which was two-lane width was very quiet. Even a car passing on this street in an hour could hardly be seen (Çapanoğlu, 2010; Eker and Eker, 2008). On Özdemir Street from Kuğulu Park to Akay Street, there were a few houses, orchards, a large vineyard and empty terrains. The water of Kavaklıdere creek was clean enough to drink (Kavaklıderem Derneği, 2010). It existed until the 1960s as an important element of the identity of Özdemir Street (Kavaklıderem Derneği, 2010). In the 1950s and 1960s, Özdemir Street kept its residential character, while it started to develop as a commercial center in the 1970s.

In the 1940s and 1950s, new two or three storey appartment buildings and small shops started to develop on Özdemir Street. Two-three storey blocks on Boğaz Street and orange Sümer Bank buildings in the intersection of Tahran Street and Kennedy Street (in the place of present Tike building) are some of them (Çapanoğlu, 2010; Eker and Eker, 2008). Üniversite Apartment was built in 1957 in the intersection of Özdemir Street and Bestekar Street by Ankara University (Abaç, 2002). In the early years, the employees of Ankara University did not settle down in the flats of Üniversite Apartment because of the danger of wolves, and they were rented out to the American soldiers (Çapanoğlu, 2010). American soldiers used the empty land opposite to the building (in the area where today's Çelikler Arcade is now located) to play baseball (Çapanoğlu, 2010). Some of these buildings are still remained, while others were demolished and new buildings were developed in their places.

With the new developments, the first commercial acitivities started to appear on Özdemir Street. Flamingo Patisserie, the florist Yasemin, Antique Tuğra, and Subora Stationnery are some of these businesses which have served the inhabitants here from these years to today. Tunalı Hotel, that was designed by Vedat Dalokay in 1969, is also one of the oldest buildings still standing on the street. There was a supermarket called Balkanerler in the place of today's Marks & Spencer (Eker, 2008). A gas station was located in the place of Kuğulu Arcade in the mid-1940s (Çapanoğlu, 2010). In 1964, four cinemas were opened in this area. Kavaklıdere Cinema was first opened on Özdemir Street. Then Ulus Cinema in the place of today's Tunalı Arcade, Batı Cinema in the Place of Tuna Arcade, Ses Cinema in the place of today's Tapas Restaurant (Çapanoğlu, 2010). All of them which enriched the cultural life of Özdemir Street, closed down until the 1980s, except Kavaklıdere Cinema that survived until 2007 (Çapanoğlu, 2010). After the closing of Kavaklıdere Wine Factory, the site functioned as a vinegar factory for a few years. There was also Kavaklıdere Primary School around Bülten Street (Abaç, 2002).

In the 1950s, Turkish, American and French used to live in this area. There was a strong neighborhood relations between the Turkish homeowners and their American and French tenants and a cultural exchange between them (Eker and Eker, 2008). For instance, all children of Özdemir Street joined together on Halloween Day evenings and celebrated this day by wearing witch costumes and walked around from one door to another (Eker and Eker, 2008).

In the 1950s, the place of today's Kuğulu Park was a wood yard with a natural lake and poplar trees and it was called Kavaklıdere Park (Kavaklıdere Derneği, 2010). Households used to store their woods there (Çapanoğlu, 2010). Next to the park, the Polish Embassy which was one of the first embassies in Ankara, was located (Memlük, 2009; Kuğulu Park Competition Guidelines, date?). In 1957, Ankara Municipality demanded an area of 811 m^2 from the Polish Embassy in order to widen Atatürk Boulevard. In return, the Municipality offered a part of Kavaklıdere Park to the Embassy. But, at that time, the residents of old Ankara suggested using this area as a park (Kavaklıderem Derneği, 2010). As a result, the Municipality turned the site into a park in 1958 (Kavaklıderem Derneği, 2010). In 1975, Vedat Dalokay who was an architect and the mayor of Ankara between the years of 1973 and 1977, redesigned the park and the park took its current form (Memlük, 2009). With the new design, a new road, called Polonya Street, was built to separate the park and the Polish Embassy. The southern part of this street was given to the Polish Embassy and a part of the Embassy's site on the north was used for Kavaklıdere Park. Also, the road that situated in front of the house of Sevda and Cenap And (now, the house of their foundation) and that would connect Gaziosmanpaşa to Atatürk Boulevard was turned into a pedestrian road. The size of the park was consequently reduced from 21 m^2 to 17 m^2 (Çapanoğlu, 2009). (See also Figure 6-4)

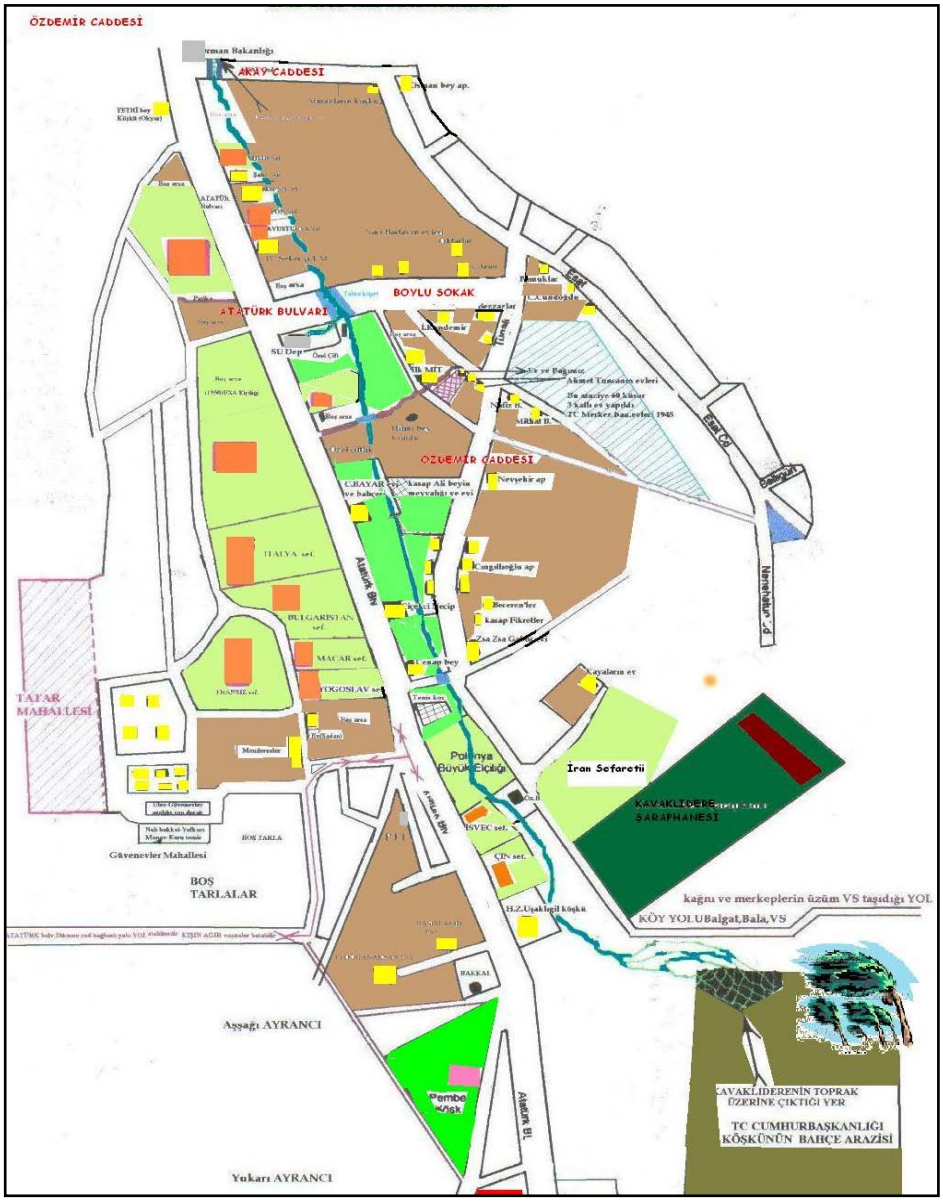


Figure 6-4, The layout of old Tunalı Hilmi Street and its surroundings by İlhami Atayolu between the 1940s and 1950s (Resource: Kavaklıderem Derneği, 2010)

The road that separated the greenery and the north-south continuity of the park was later damaged. Nevertheless, with these new arrangements, a pool, a new cafe, sitting elements, a children's playground were built. With its new design, Kavaklıdere Park has become much more popular for the inhabitants of the area. But, the new road has negatively affected the poplar trees of the park, and has made them dry (Öztan, 2002).

In the 1970s, the ambassador of Vienna sent eleven swans as a gift for Kavaklıdere Park (Çapanoğlu, 2009). After these swans started to live in this park, the name of the park was changed into Kuğulu (Swan) Park (Çapanoğlu, 2009). Since then, these swans have become the most famous and well known feature of the park and the area. In the same years, the gas station across the park was demolished and an arcade which was called Kuğulu Arcade was built. In these years, Vedat Dalokay also changed the name of the street from Özdemir Street to THS. In 2006, the Municipality of Çankaya and Collectors Association erected a statue of Tunalı Hilmi Bey in Kuğulu Park.

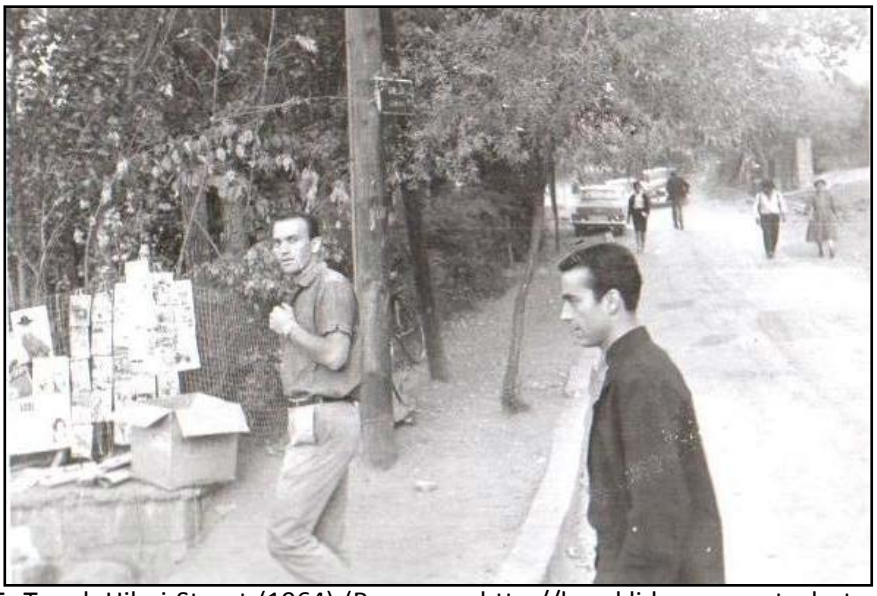


Figure 6-5, Tunalı Hilmi Street (1964) (Resource: http://kavakliderem.org.tr, last accessed on 12, 10, 2010)

Before the 1980s, THS and its surroundings were not as lively as today. Despite the presence of cinemas and embassies, the street lacked covered places for shopping, eating and resting, whereas there were many such places in Kızılay, Koza Street, Nene Hatun Street and Uğur Mumcu Street (Eker and Eker, 2008). After the 1980s, however, the developments of arcades (unfortunately in the place of cinemas), growing restaurants and bars made the street one of the important and lively commercial centre of Ankara (Eker and Eker, 2008). Afterwards, trade extended to the neighboring streets of THS. Çapanoğlu (2010) claims that Kavaklıderem Association made a significant deal of effort for keeping these streets as residential streets. For him (2010), otherwise, the residential presence of the street would have been lost and there would not have been consumers to keep the business on the street lively.

In 1991, Sheraton Hotel and Towers, and Karum Shopping Mall were built by Koray-Kavala investor group in the place of Kavaklıdere Vineyard (Çapanoğlu, 2010). Consequently, the land-values and the prestige of THS have increased. Today, THS and its surroundings are still very prestigious places with high land and property values. But, because of high car traffic and walkability problems, the users of the street have faced many problems. Additionally, walkability standards have decreased day-by-day due to the superficial solutions of the Municipality to traffic problems of the street. For instance, Kuğulu Intersection Project made significant changes in the area. The road was widened for vehicular traffic flow, while sidewalks were narrowed down. In some places, sidewalks were even disappeared. Thus, the pedestrian usage of the street and its surroundings was undermined whereas the car usage was prioritized. Likewise, the changes on Arjantin Street which made the street one-way to connect Filistin Street to Iran Street has caused Filistin Street more accessible than Arjantin Street. As a result, while the businesses on Arjantin Street have lost their importance, the cafes and restaurants have become more popular (Ünsal, 2010, p. 59).

6.3. The Current Land-use Functions in Tunalı Hilmi Street

THS, as a mixed-use street, encompasses a variety of commercial, office and residential uses (See also Map 7-2). For this reason, it attracts significant number of users and consumers from all parts of the city.

The ground floors of most buildings on the street are used for commercial purposes, while the upper floors are used for residential and office purposes. Along the street, the ground floors are occupied by shoe-shops, bookstores, jewelery stores, perfumeries, confections, glasswares, stationeries, small supermarkets, home appliance shops, pharmacies, banks, cafes, restaurants, patisseries, souvenir shops, buffets, a top seller, a photographer, a dry cleaner, a tobacco shop, and a herbalist (See also Map 7-2). The part between Kuğulu Park intersection and Kennedy Street intersection is the core of the street in terms of commercial activities. Kuğulu Park, as an important landmark of the city, plays a prominent role in the identity of the street. Furthermore, it is an important public space gathering all people with different age groups throughout the year. It also hosts various events and festivals. Kavaklıdere Cinema which used to be another important landmark of the street is currently out of use, after 2007.

Sheraton Hotel and Karum Shopping Mall which are located on Iran Street are other important landmarks of the site. Especially the corporate plaza in front of Karum shopping mall provides an important gathering and meeting place for people. The Polish Embassy on Cinnah Street and Kavaklıdere Tennis Club in the intersection of Kuğulu Park are also located in this part of the street. The lower part of THS from the intersection of Kennedy Street to the roundabout of Küçükesat Street are occupied by banks and by other commercial activities that are not as popular as those in the middle and south parts of the street.

There are also twelve arcades along the street. Walking from the north to the south, the arcades are locates as: Necatibey Arcade on the Küçükesat intersection, Beyoğlu Arcade on the left side near Küçükesat intersection, Tunalı Arcade, Çelikler Arcade, Aynalı Arcade and Gümüşsoy Arcade on the left side of the street, Ertuğ Arcade on the right side, Kavaklıdere Arcade and Yetkin Arcade on the left side, Demirdöven Arcade and Seğmen Arcade on the right side, and Kuğulu Arcade on the right side of the street.

Ramada Hotel on the intersection of Büklüm Street and Tunalı Hotel near Kuğulu Park are two hotels located on THS. There are also some other hotels in close proximity of THS which are: Neva Palas Hotel in Esat Street, Gordion Hotel, Dedeman Hotel and Ankara Royal Hotel in Büklüm Street, Hotel 2000 and Class Hotel in Bestekar Street, Midas Hotel in Tunus Street, Aldino Hotel in Bülten Street, Hilton Hotel in Tahran Street and Sheraton Hotel in Noktalı Street.

The upper floors of the buildings on THS are occupied by a variety of commercial and office uses. In the part between Arjantin Street and Kuğulu park, upper floors on Iran Street, are occupied by aesthetic and beauty parlors, fashion houses, hairdressers, doctor’s and lawyer’s offices. Between Kuğulu Park and Kennedy Street, upper floors are used by educational institutions, such as language schools, driving courses, travel agencies, real estate agencies, insurance offices, financial consultant offices. Besides, the centers of some NGOs, some art centers, a few restaurants or pubs also use the upper floors of the buildings in this part. The upper floors of the buildings in the south end are mostly residential uses. Nevertheless, few doctor’s or lawyer’s offices and financial consultant offices occupy the upper floors of the buildings in this part of the street.

As described above, the street is divided into three parts from the Kuğulu Park to the intersection of Hacıyolu Street. But, this research will examine the walkability of the street by dividing THS into two parts: The first part is from the intersection of Kuğulu Park to Esat Street. The second part is from Esat Street to the intersection of Hacıyolu Street (Figure 6-6). The wide Esat Street creates a discontinuity between the two parts of THS. These two parts of the street acquires differences in terms of walkability, and thereby liveability measures.

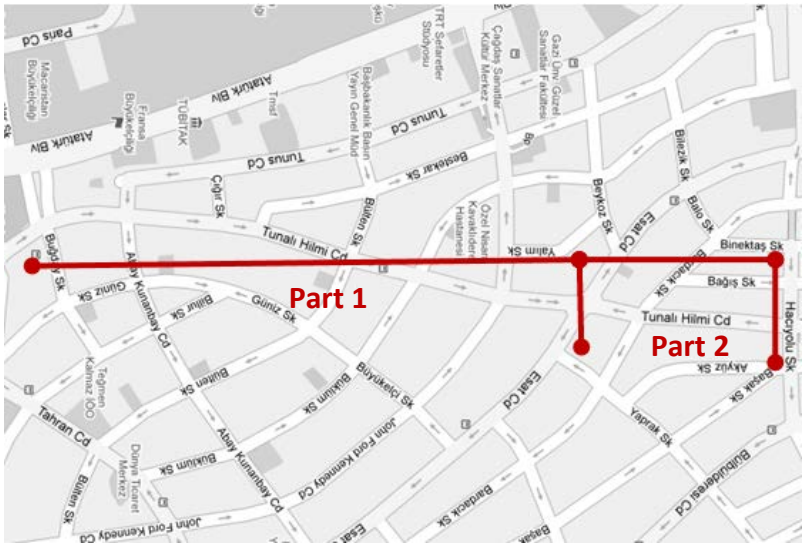


Figure 6-6, Tunalı Street Division (Resource: www.cankaya.haritasi.com and personal Rendering)

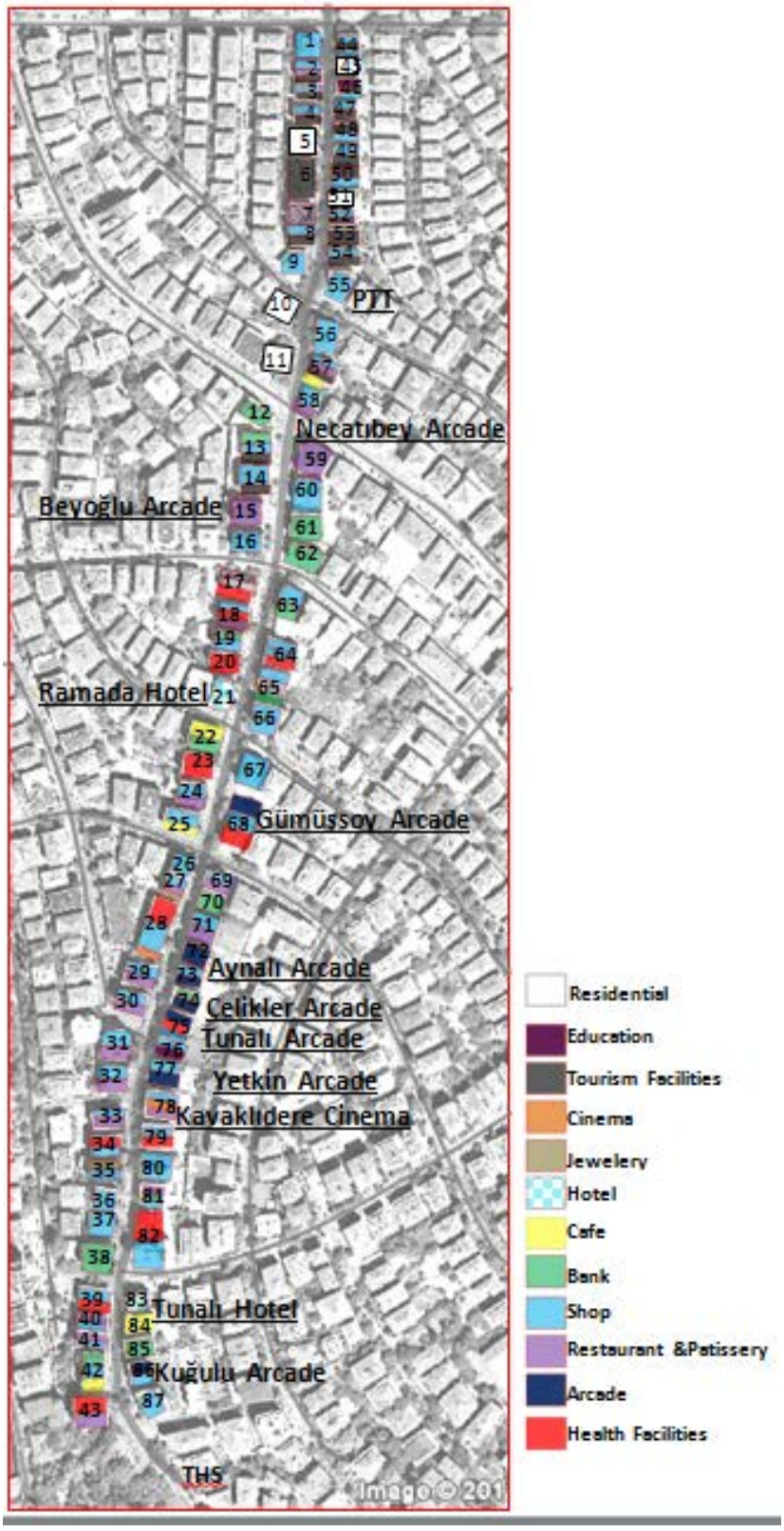


Figure 6-7, Land use map of THS

CHAPTER 7

HOW FAR TUNALI HILMI STREET IS A WALKABLE STREET?

This chapter aims to evaluate THS regarding its walkability capacity based on the attributes of walkability which are explained in detail in Chapter 3 (Table 3-1). It first explains the essential features of THS. Then it examines the walkability capacity of THS according to the criteria of safety, orientation, attractiveness, comfort, diversity, and local destination.

7.1. Essential Features of THS

THS is 1.2 km in length and 16.10- 29.53 m in width. The depth of building plots on THS is about 26 m and the sidewalk width is about 3.67 m (Figures 7-1, 7-2, 7-3, and 7-4). THS divides into two parts. The first part is the part from Kuğulu Park (KP) to the intersection of Esat Street and the second part is the part from Esat Street to the intersection of Hacıyolu Street. The first part of THS is much more used by pedestrians than the second part. This is mainly because of the commercial and business functions that serve the daily needs of pedestrians. The second part of THS is much more residential. Also, the commerce on the ground floor is more specialized (Figure 7-5). As described in Chapter 6, THS contains 224 shops, 16 banks, and 11 arcades, together with administrative, residential, and business usages. There are a number of brand mark shops, such as Marks & Spencer, Collezione, Tüzün, Mado, Mac Donalds, Burger King (Figure 6-7). One of the major problems, which becomes an obstacle in terms of walkability of THS is the high vehicular traffic running during week and weekend days. Traffic volume is heavier in the first part than the second part. According to a one-day observation, the traffic volume on THS (between 7.00 am and 11.00 pm) is 22500 for the first part, and 13000 for the second part (Table 7-1).

Table 7-1, Essential features of THS, (Resource: personal study)

Length:	1200(m)
Width:	9-11 m
Average sidewalk width:	3.67

Table 7-1, (Continued)

Number of Shops:	224
Number of Banks:	16
Number of Arcades:	11
Traffic Volume from Kuğulu Park to Esat Street(counted on 16 February 2011, Wednesday, 7:00-23:00):	22500
Traffic Volume from Esat Street to Hacıoğlu Street (counted on 16 February 2011, Wednesday, 7:00-23:00)	13000
Number of Bus Stops:	2

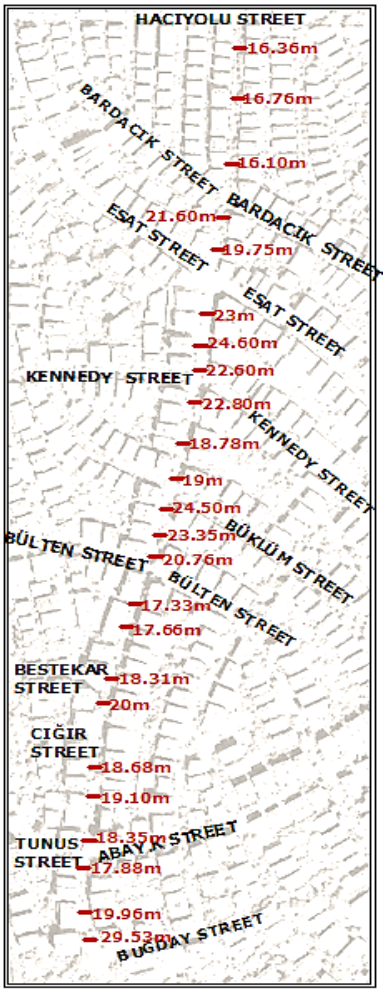


Figure 7-1, The width of THS horizontally from one building to another in different parts of the street (Resource: Personal study and rendering)

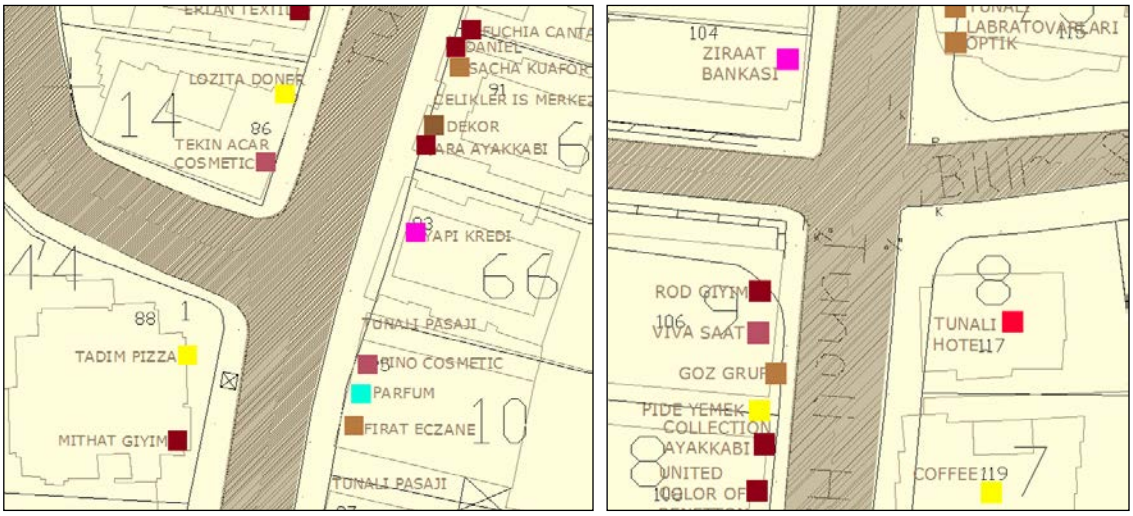


Figure 7-2, Space devoted to cars in THS (Resource: Personal study and rendering)

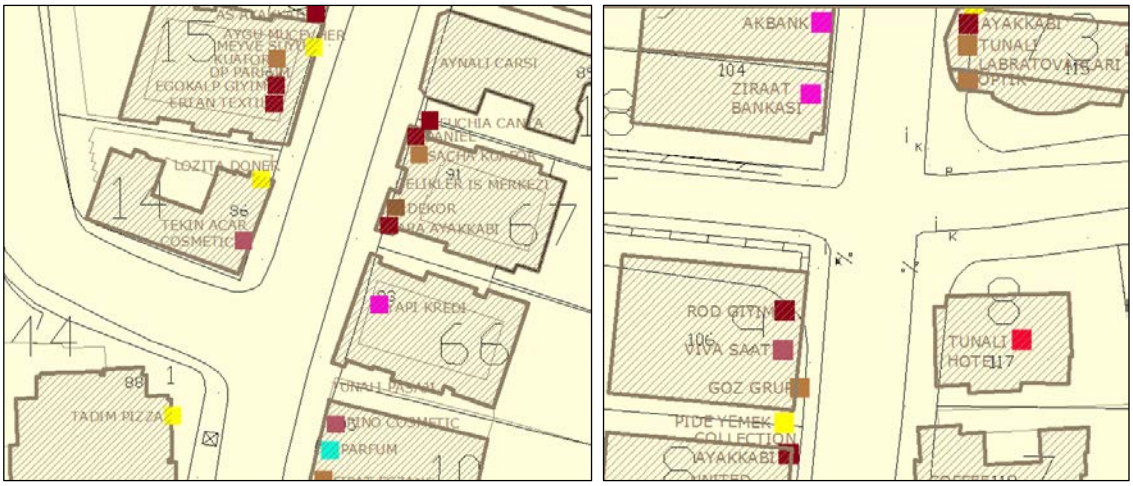


Figure 7-3, Width of building plots in THS (Resource: Personal study and rendering)

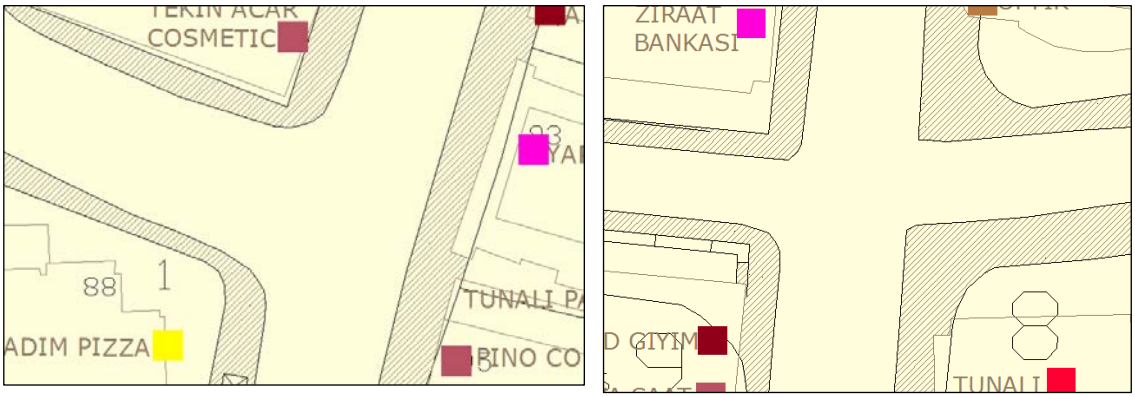
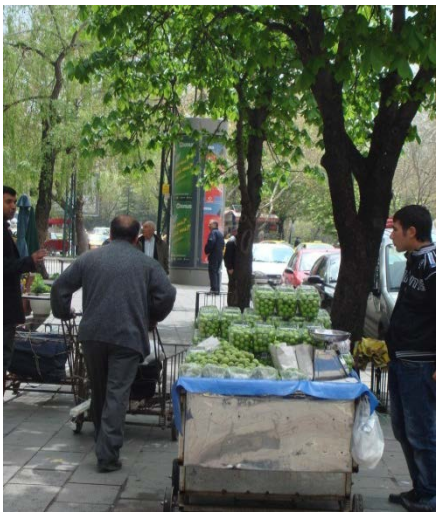


Figure 7-4, Sidewalks in THS, (Resource: Personal study and rendering)

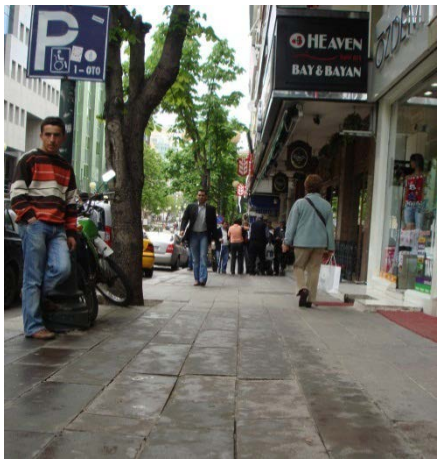
Observer

Socializers

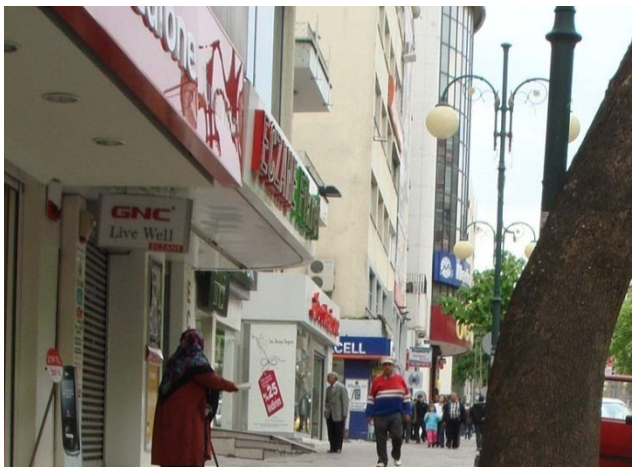
Customers



Worker



Waiter



Beggar

Figure 7-5, Various pedestrian activities in the first part of THS (Resource: Personal archive)

7.2. Actual Safety

7.2.1. Street Pattern

As discussed in Chapter 3, connected street pattern, such as grid or modified grid, is more walkable, because it includes shortest trips and highest amount of paved surface; it also ensures pedestrian's accessibility to parallel streets in a short time; it makes approachability to public services; and it is also safer as the intersections slow down car speed.

Figure 7-6, Street pattern of THS (Resource: Personal study and rendering)

The street pattern around THS is similar to a modified grid, as seen in Figures 7-6 and 7-7. The streets around THS provide direct and short travels for pedestrians. THS is connected to parallel streets in near distances. Therefore, the street pattern around THS provides a high level of walkability and liveability in this sense. But, as THS, the paved surface (or floor quality) and narrow sidewalks of these streets do not provide a high quality of walkability for pedestrians. Also, high vehicular traffic almost all day long during week and weekend days discourage people to walk in THS and the streets around THS.

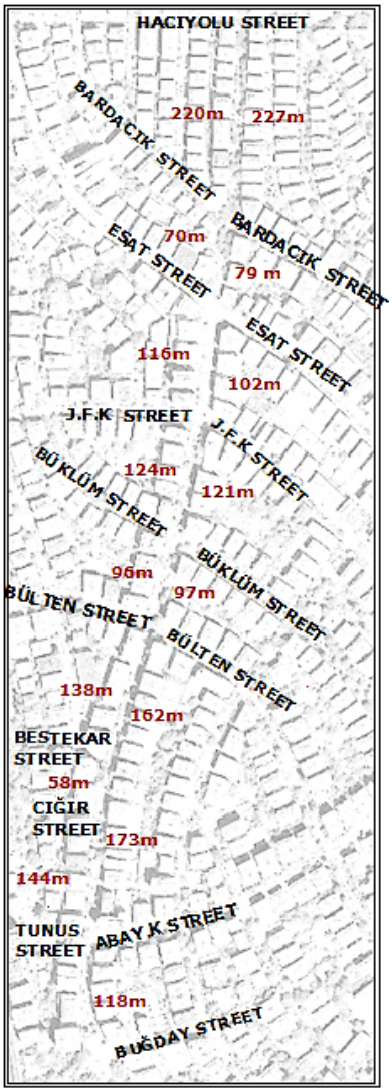


Figure 7-7, Distance between intersections (Resource: Personal study and rendering)

As for the survey carried out on THS' users, three questions were asked:

- 'Is THS easy and comfortable to walk along the street?';
- 'Is THS an easily accessible street from other places by walking?';

- ‘Is vehicular traffic on the street a problem for pedestrians to access to different parts of THS?’

Regarding the first question, as shown in Figure 7-8, twenty-eight persons (50%) claimed that THS is not an easily walkable street. They expressed that although THS is their favorable street and use this street frequently, high vehicular and pedestrian traffic volumes on the street, and low quality pavements make their walking uncomfortable. Most of old and disabled people and parents with pushchairs also do not see THS as a comfortable street, expressing that although stony pavement of Kuğulu Park is not very comfortable, they prefer to use the park rather than other parts of THS; because it is safer and more enjoyable. In addition, thirteen respondents (23%) defined that only traffic congestion and some problems which exist in pavements make their walking partly uncomfortable. On the other hand, fourteen respondents (25%) claimed that THS is an easily walkable street.

Regarding the second question, most users (thirty-three persons; 59%), who access THS by car or walking, claimed that THS is an easily accessible street (Figure 7-9). Especially car drivers see the lack of parking area and traffic congestion as tiring. Ten people (17%) claimed that THS is a partially accessible street by walking, while nine respondents (16%) expressed that THS is not an easily accessible street for pedestrians anymore due to the new urban policy on vehicular circulation, which has augmented traffic problem on THS and its surrounding area.

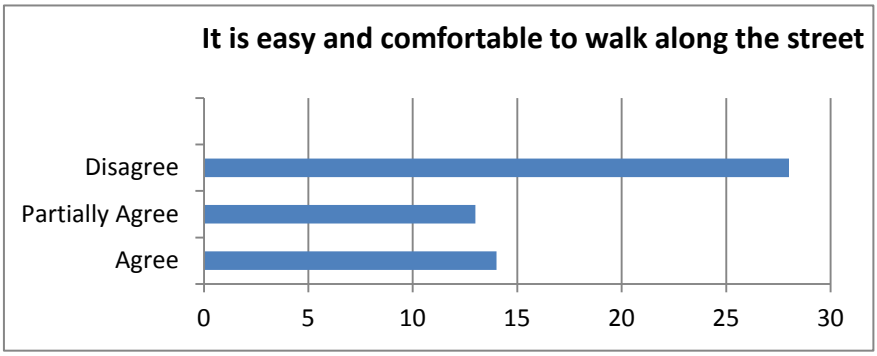


Figure 7-8, The walkability quality of THS regarding the users’ point of view

As for the last question, thirty seven respondents (66%) agree that high vehicular traffic volume on the street is a problem for pedestrians to access to different parts of THS (Figure 7-10). Nine respondents (16%) stated that car traffic partially disturbs their accessibility to various facilities available on THS, whereas eight people (14%) expressed their disagreement. The latest group mostly comprises pedestrians who work or live in THS and get used to the existent traffic problem on THS.

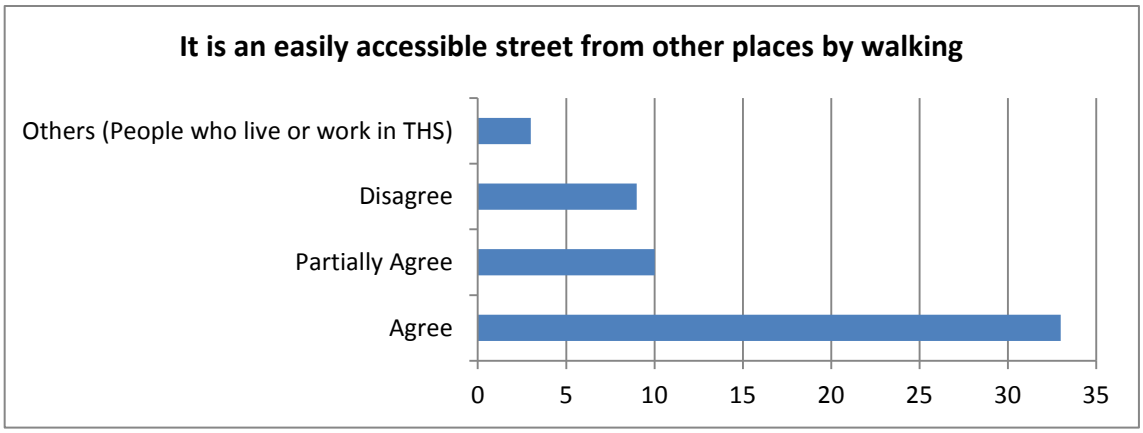


Figure 7-9, The accessibility quality of THS regarding the users' point of view

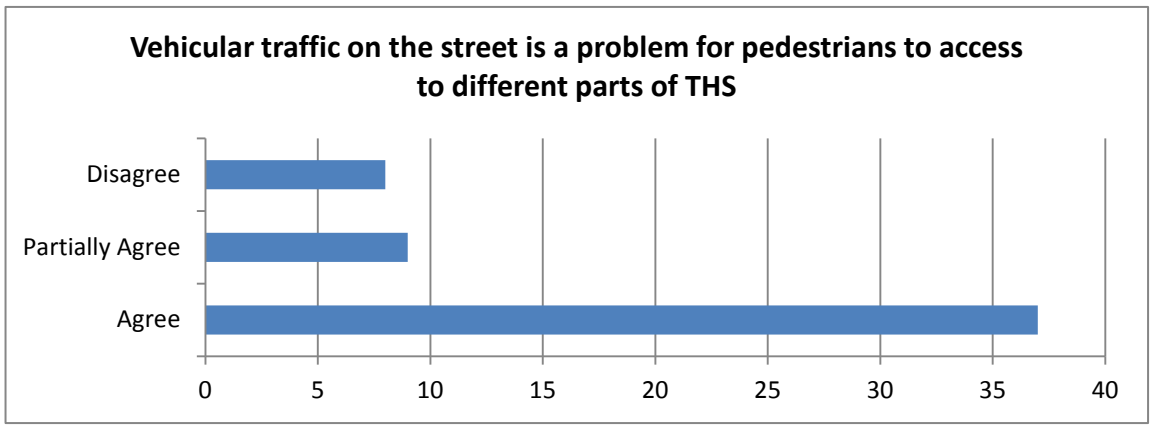


Figure 7-10, The relationship between the accessibility of THS and vehicular traffic on the street regarding the users' point of view

In brief, the analysis and survey results show that although the street pattern around THS provides a high level of walkability and liveability, the walkability for pedestrians is impoverished by the low-quality paved surface, narrow sidewalks of THS and the streets around THS, and vehicular traffic. As suggested by many survey participants, high vehicular traffic almost all day long during week and weekend days discourage people to walk in THS and the streets around THS. Even though THS is an easily accessible street by walking for

pedestrians, vehicular traffic on the street and its environs becomes the major obstacle for pedestrians to access THS from surrounding places and from different parts of THS.

7.2.2. Traffic Calming Measures

Traffic calming measures include factors, which decrease car speed in streets, such as *low width of street, systematic on-street parking* and *useful design details*. Street may be *narrow* or it may be perceived narrow. *Street trees, wide sidewalks* and *on-street parkin*g are the factors effecting the perception of a street as narrow. THS has a width of about 16.10- 29.53 metres. It does not include wide sidewalks and adequate shady trees. There is only unsystematic street parking that decreases perceptual width of THS, but creates serious problems for car and pedestrian movements (Figures 7-14 and 7-19).

Systematic on-street parking with adequate and appropriate street crossings lessens car speed and therefore increases safety of streets. In THS, unsystematic on-street parking without appropriate and sufficient street crossings decreases car speed, but causes a considerable traffic congestion and disturbance in pedestrian crossings (Figures 7-30 and 7-31).

Finally, *design details,* such as raised or textured pavement at crosswalks, barrier effect, are the important traffic calming measures, which decrease car speed especially in street crossings. THS is, however, poor in terms of such design details which will provide traffic calming.

7.2.3. Lightning

Appropriate and adequate lightening of streets and crosswalks increases the visibility of sidewalks and improves the safety of pedestrians and drivers. On THS, the part between Kuğulu Park and Esat Street, there are 71 street lights with a height of 6 meters (Figures 7-11 and 7-12). The distance between street lights depends on the types of street light. Although the ideal distance between two street lights is 6 m, this distance in the case of THS varies from 5 m to 50 m. Furthermore, in the second part of THS, there are fewer street lights than

the first part. In brief, the first part of THS is partly lit and visible and the second part is not well-lit and visible.

Figure 7-13 shows the survey results about the perception of pedestrians on THS' lightning quality. Twenty persons (36%) claimed that THS is a well-lit street, whereas twenty-one respondents (37%) thought that THS is a partially well-lit street; and twelve people (21%) disagreed with this statement. Regarding the lightning quality of Kuğulu Park, the results are rather similar. Sixteen people (29%) identified Kuğulu Park as a well-lit area and twenty-four pedestrians (43%) thought as a partially lightened green space. However, twelve persons (21%) declared that KP is not an illuminated area (Figure 7-13). In brief, most of pedestrians were not satisfied with lightning quality of THS and KP.

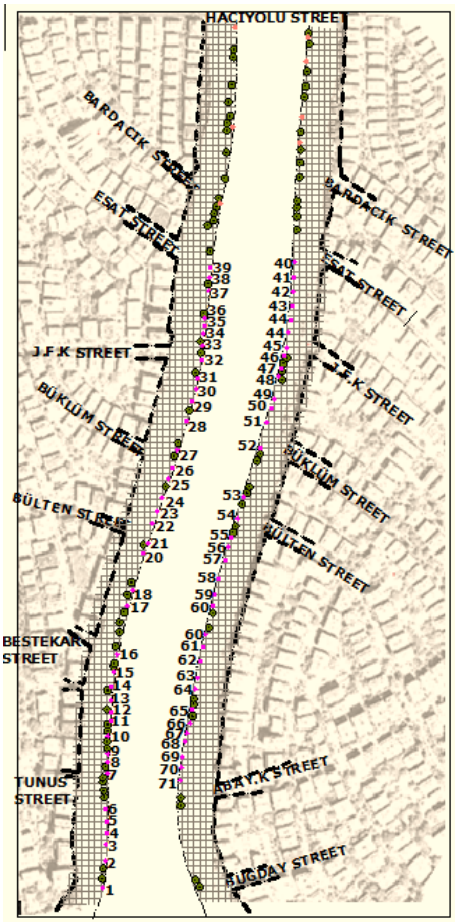


Figure 7-11, Lightning system of THS (Resource: Personal study and rendering)

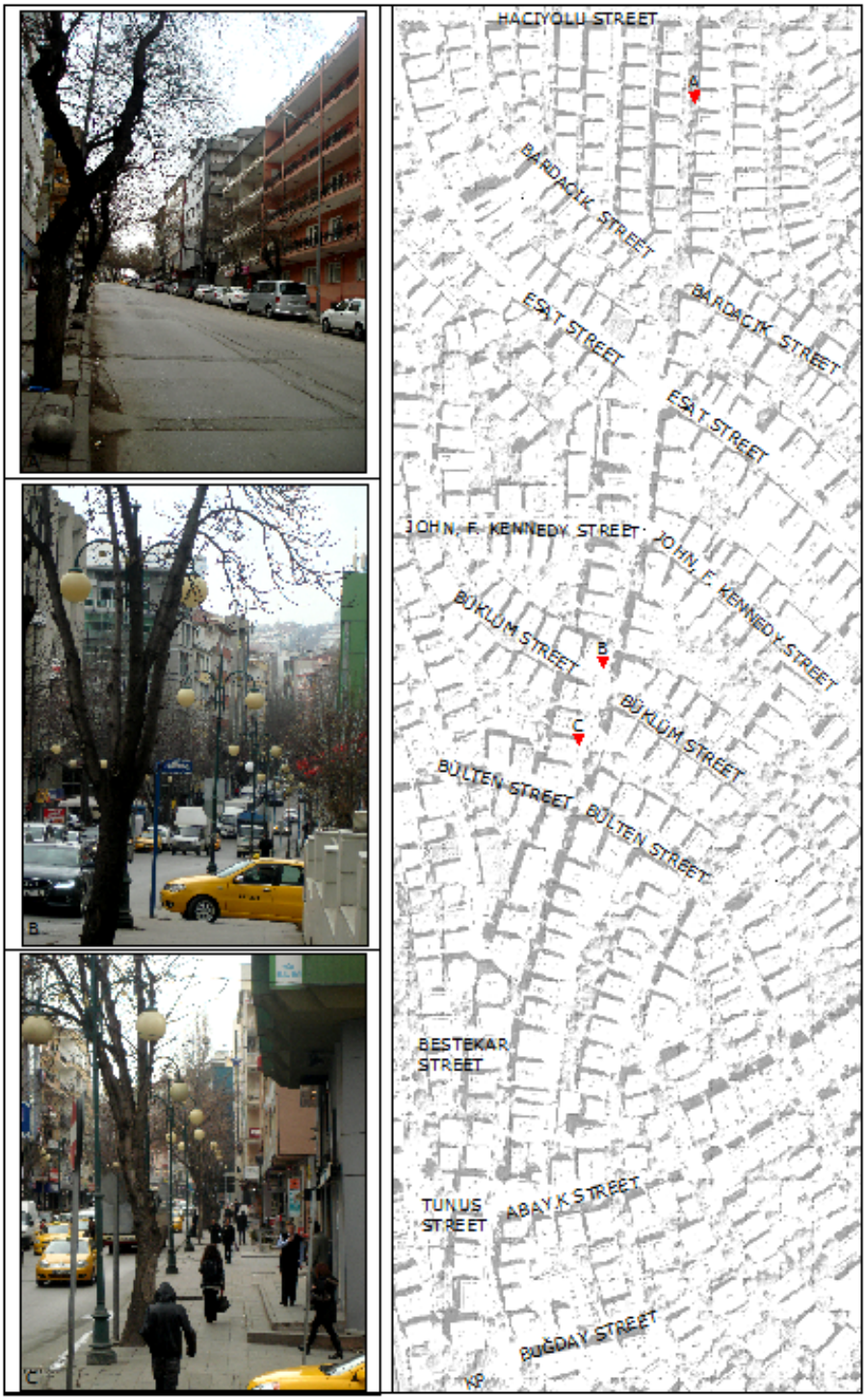


Figure 7-12, Lightning system of THS.

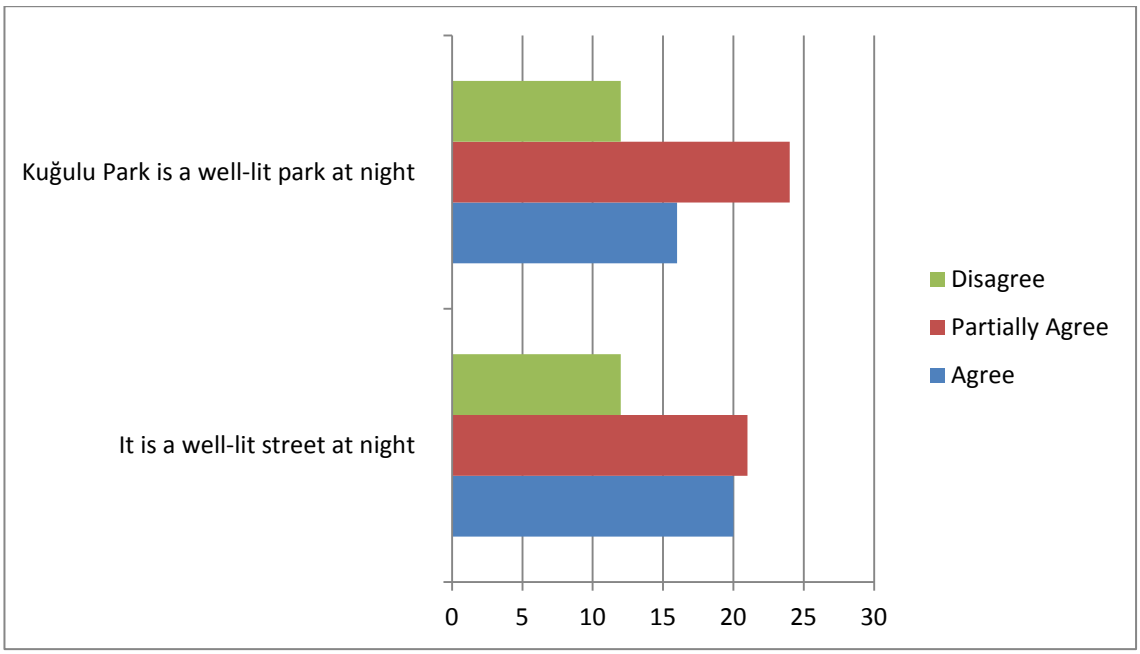


Figure 7-13, The lightning quality of THS and Kuğulu Park according to the THS' users

To conclude, the analysis shows that the lightning quality of THS and Kuğulu Park differs. The first part of THS is partly lit and visible; and the second part is relatively poor in terms of street lightning and visibility. Pedestrians, mostly, are not happy about the lighting quality of the street and the park.

7.2.4. Continuous sidewalk pattern

As discussed in Chapter 3, *continuity of sidewalks* can be strengthened physically and perceptually. 'Physical continuity' is provided by minimizing interruptions on the paths, while perceptual continuity is provided by harmonious street furnishings along sidewalks. The modified grid street pattern around THS offers more continuous, therefore, walkable sidewalks for pedestrians. But, the continuous sidewalk pattern on THS is interrupted by the street intersections of Bardacık, Esat, Kennedy, Büklüm, Bülten, Bestekar, Cığır, Tunus, Abay.K and Buğday Streets. The width of each street crossing differs from 2.80 m to 13.50 m. No street crossings are adequately visible and safe for disabled and elderly people, and parents with young children. There are traffic lights on THS only on the intersections of Esat, JFK, Tunus and Abay.K Streets, and these intersections are safer for pedestrians (Figures 6-7, 7-15, and 7-16).

In addition, inharmonious rhythm of street furniture located on THS decreases its perceptual continuity; especially in the second part which is very poor in qualified street furniture (Figure 7-14).

Figure 7-14, Inharmonious distance between street furniture in THS (Resource: Personal study)

To learn the THS pedestrians' views, six questions were asked:

- Is there any interruption on THS for pedestrians along sidewalks?;
- Are, crosswalks safe for pedestrians?;
- Are crosswalks are safe for old people, disable people, children and parents with young children?;
- Are sidewalks wide enough for pedestrians?; (It is discussed in '7.2.5. Pedestrian enclosure' part of this chapter)
- Is, street furniture provided along the street sufficient?
- Does the location of street furniture obscure the pedestrian movement? (It is discussed in '7.2.5. Pedestrian enclosure' part of this chapter)

Regarding the first question, survey results show that twenty-seven persons (48%) claimed that there are many interruptions for pedestrians along the sidewalks, and thirteen persons (23%) expressed that there are some interruptions (such as intersections of streets and elements) which decrease the continuity of THS (Figure 7-17). Fourteen people (25%) asserted that THS is a continuous street and there is no interruption along it.

Regarding the second question, twenty-nine respondents (52%) thought that crosswalks are not safe for pedestrians, and eleven respondents (20%) partially accept the presence of safe crosswalks. But, fourteen people (25%) declared that pedestrian crossings are adequately safe for pedestrians (Figure 7-17). On the other hand, thirty-two persons (57%) claimed that existing crosswalks on THS are not safe for old and disabled people, and parents with pushchairs. This group of respondents stated that level variations on sidewalks and roads, low visibility, and lack of traffic lights in the intersections of streets make their crossing very difficult. Eleven persons (20%) partially accepted that crosswalks are adequately safe for crossing of all groups of pedestrians, whereas twelve people (21%) identified that crosswalks are sufficiently safe for all groups of pedestrians (Figure 7-17).

Regarding the adequacy of street furniture, thirty-eight pedestrians (68%) emphasized that there is a serious lack of street furniture in THS, which causes cleanliness and resting problems (Figure 7-17). They claimed that they could find adequate street furniture only within Kuğulu Park. Sixteen people (29%) thought that there is adequate street furniture on THS, whereas only two people who live in THS (4%) declared that there is sufficient street furniture along THS.

Regarding the question of whether the location of street furniture obscures the pedestrian movement, ten pedestrians (18%) described that the location of street furniture don't disturb their movement. Seventeen people (30%) declared that some wrong placed street furniture obscure their movement. Furthermore, seventeen people (30%) claimed that this less amount of street furniture don't interrupt pedestrian movement.

To sum up, although the modified grid street pattern around THS offers more continuous, therefore, walkable sidewalks for pedestrians, the continuous sidewalk pattern on THS is interrupted by a number of streets crossings which are not adequately visible and safe for pedestrians, especially disabled and elderly people, as well as parents with young children. Unfortunately a few street crossings with traffic lights are not enough to provide such a continuous and safe sidewalk pattern on THS. Besides, the perceptual continuity of the street is impoverished by inharmonious rhythm of street furniture located on THS. The survey carried out among the pedestrians also show similar results. Pedestrians are considerably disturbed by the interruptions along the sidewalks, unsafe crosswalks (particularly for

vulnerable pedestrian groups) and insufficient street furniture which do not serve adequately their daily needs on the street and which do not provide a sufficient perceptual continuity.

Figure 7-15, Photos from the intersections on THS

Figure 7-16, The intersections on THS

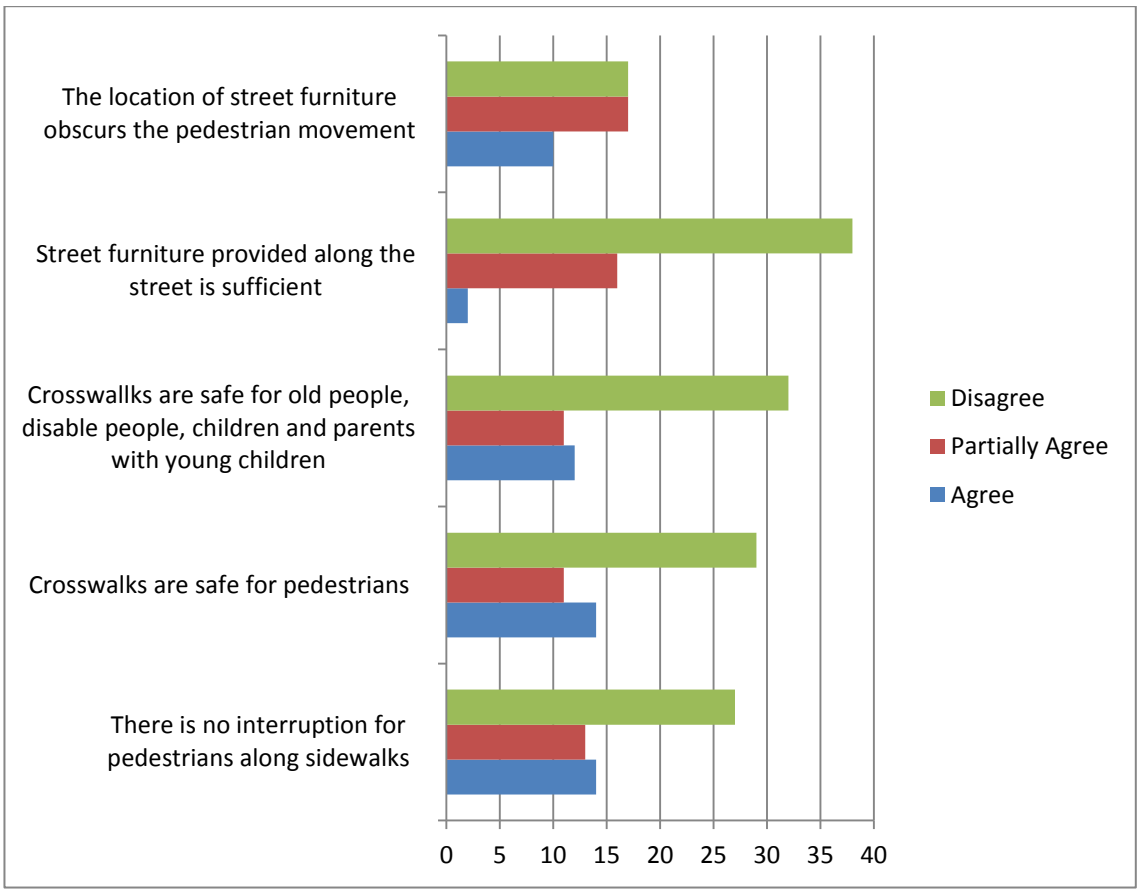


Figure 7-17, The views of THS' users on the continuity of pavements of THS

7.2.5. Pedestrian enclosure

Generally, pedestrian enclosure relates to definiteness of start and end of a street. In the case of THS, Esat Street, as the widest intersection, divides THS into two parts. The first part is from Kuğulu Park to Esat intersection and the second part is from Esat intersection to Hacıyolu intersection (Figure 7-18). Because of usages, physical and perceptual qualities, the second part is not favourable by pedestrians.

Pedestrian enclosure is also evaluated by the criteria of *human scale, building orientation, and location of street furniture*. In terms of *human scale, sidewalk width and the ratio of* height of buildings to street width should be examined. Appropriate sidewalk width is determined according to pedestrian volume. The suitable ratio of height of buildings to street width is identified by Jacobs (1993) as 1:2, and by Greenbie (1981) as 1:4.

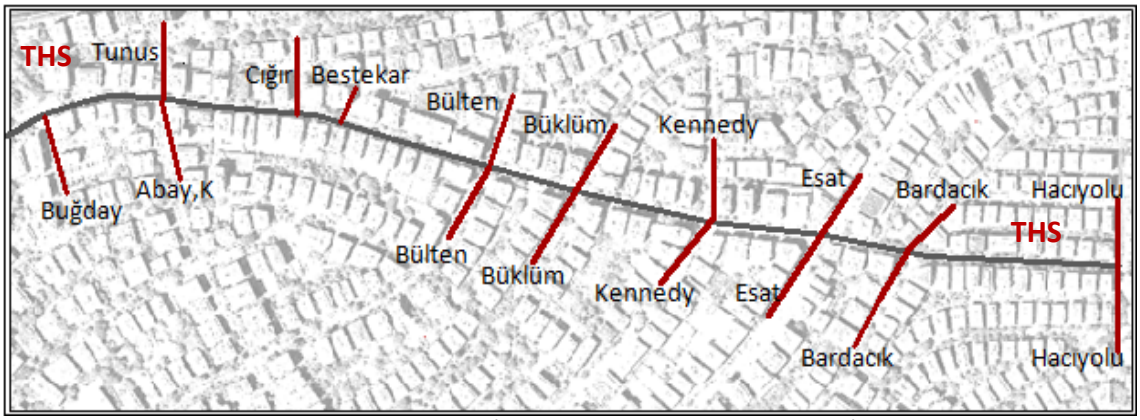


Figure 7-18, THS and intersecting streets (Resource: Personal rendering)

The width of sidewalks on THS varies between 1.90 m and 5.30 m (Figure 7-19 and 7-20). As far as high pedestrian volume in the first part of THS is taken into account, pedestrians are not able to move freely, except for quiet hours of week days. It is possible to assert that the pedestrian volume in the second part is very low. Thus, the sidewalk width is adequate in this part. The ratio of street width to height of buildings is 1:1 and 1:2 in some places such as in front of Tekin Acar building and Ramada Hotel. It is in accordance with 1:2 ratio identified by Jacobs (1993). But the ratio of sidewalk width to height of building is 1:5 which is in insufficient due to high pedestrian volume in the first part of THS. Therefore, in terms of human scale standards, the first part of THS is insufficient. (Figure 7-21 and 7-22).

Regarding *building orientation,* the analysis assesses whether most buildings and shops are oriented to the main sidewalks of THS and they therefore intensify pedestrian enclosure. As one can see from Figures 7-43 and 7-44, the entrances of most buildings on THS are oriented to the same sidewalk.

Finally, as discussed earlier, inharmonious distance between *street furniture* weakens pedestrian enclosure of THS, especially in the second part of THS (Figure 7-14).

Figure 7-19, Sidewalk widths in THS (Resource: Personal study and rendering)

Figure 7-20, Inconsistent widths of sidewalks in different parts of THS (Resource: Personal archive and rendering)

Figure 7-21, Ratio of building height to street width

Figure 7-22, Ratio of building height to street width

Regarding the pedestrian enclosure, the users were asked where THS starts and ends. Twenty-eight people (50%) including those who live, work in THS or who are the visitors expressed that THS starts at Kuğulu Park and ends at Esat Intersection. Eighteen respondents (32%) claimed that THS starts at Kuğulu Park and ends at Hacıyolu Intersection. Ten users (18%) had various responses which are different from these two options. Therefore, only eighteen people acquire the right information about the THS boundary (Figure 7-23).

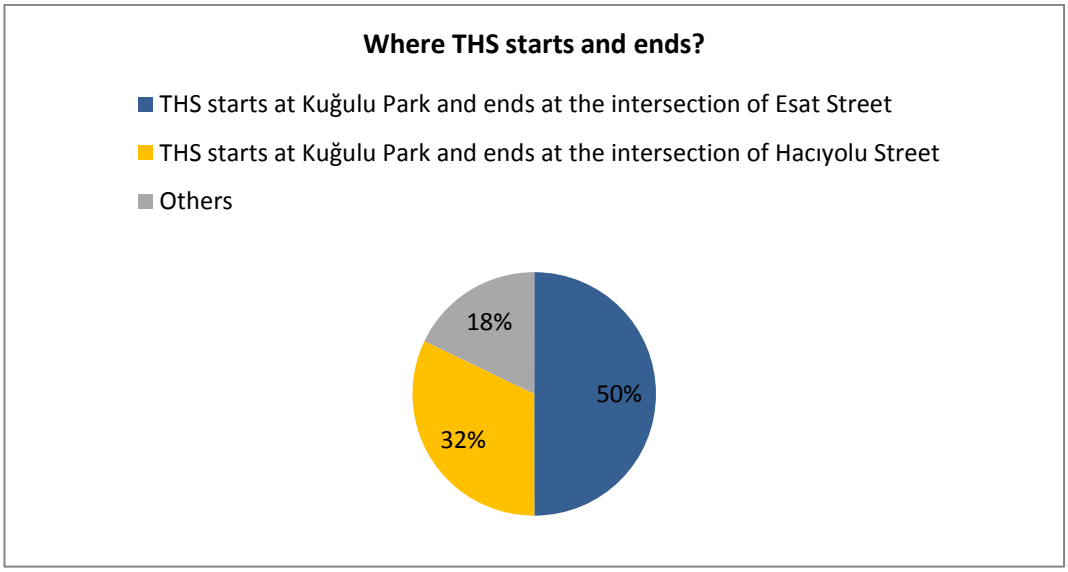


Figure 7-23, The views of THS' users about the boundary of THS

Another question asked to the users of the street was whether some part of THS should be pedestrianized. Nineteen respondents (34%) desired the pedestrianization of THS, but they could not to provide any idea about the boundary of this pedestrianized site. On the other hand, seventeen respondents (30%) suggested that THS from Kuğulu Park to Esat Intersection should be pedestrianized, as this part is mostly preferred by pedestrians, but high traffic value disturbs their comfort. Six respondents (11%) (comprising either old people or parents who use to take their children to Kuğulu Park) recommended that about 400 m walking distance from Kuğulu Park should be pedestrianized. Eight respondents (14%) desired the pedestrianization of THS either from Kuğulu Park to Kennedy Street or from Buğday Street to Bülten Street. They claimed that, although the east side of the street is crowded with pedestrians, they prefer walking in this part, because it is much more enjoyable for them. Hence, they desired the pedestrianization of the east side of THS, especially between Kuğulu

Park and Kennedy Street and Buğday and Bülten streets. Finally, six respondents (11%) stated that the pedestrianization of the street might cause many problems. Therefore, they suggested the widening of the sidewalks that would decrease car numbers (Figure 7-24)

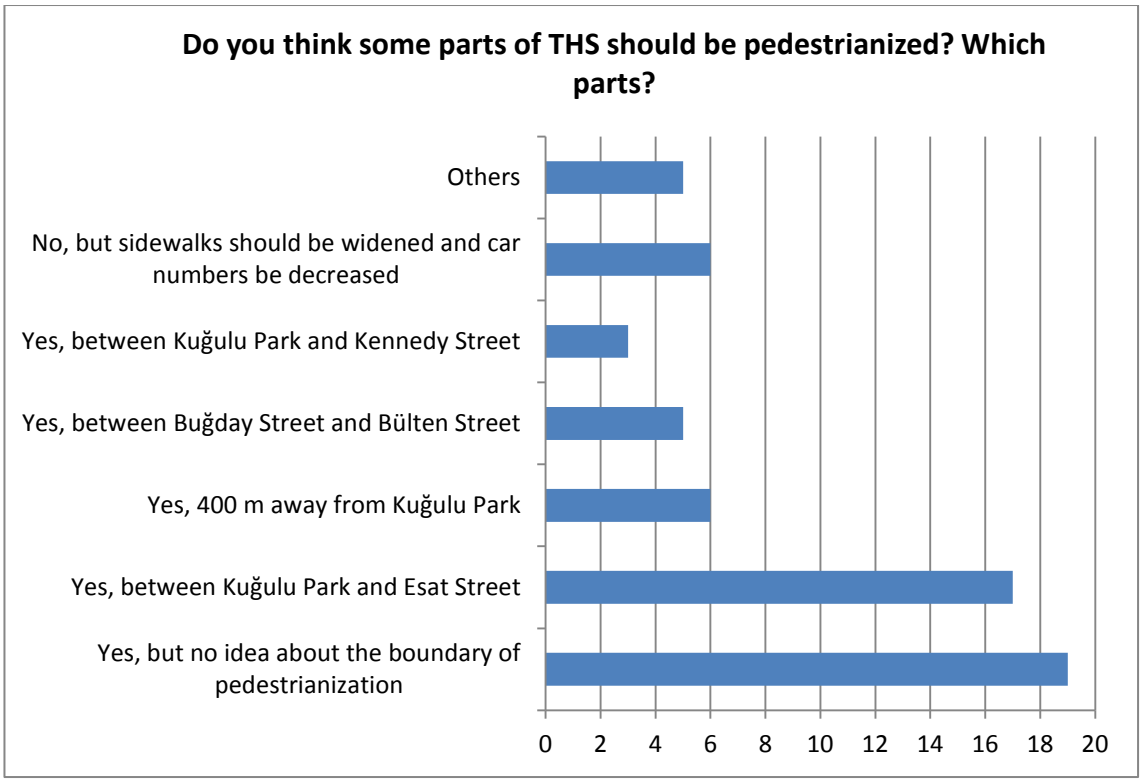


Figure 7-24, The preferences of pedestrians about the pedestrianization of THS

When pedestrians were asked whether some parts of THS' sidewalks should be widened, thirty three respondents (59%) gave positive responses, while fifteen persons (27%) claimed that it would not be feasible and five persons (9%) asserted that sidewalk widths are adequate and it is not necessary to be widened (Figure 7-25). From thirty-three respondents who stated that sidewalks should be widened, *eleven* people (20%) suggested that both sides of THS from Kuğulu Park to Esat intersection should be widened. Also, *seven* respondents (12%) claimed that the east) side of THS' sidewalks between Kuğulu Park to Esat Street is more enjoyable, but there is pedestrian congestion. Thus, they demanded widening of this part of sidewalk. Furthermore, *six* people (11%) recommended the widening of sidewalks in crowded points, such as frontages of café and restaurants placed in east side of THS between Kuğulu Park and Esat Street. They suggested the re-design of this widened sidewalks as sitting

places which are beautified with flower pots, and other street furniture, and in this way, THS will become very comfort and attractive.

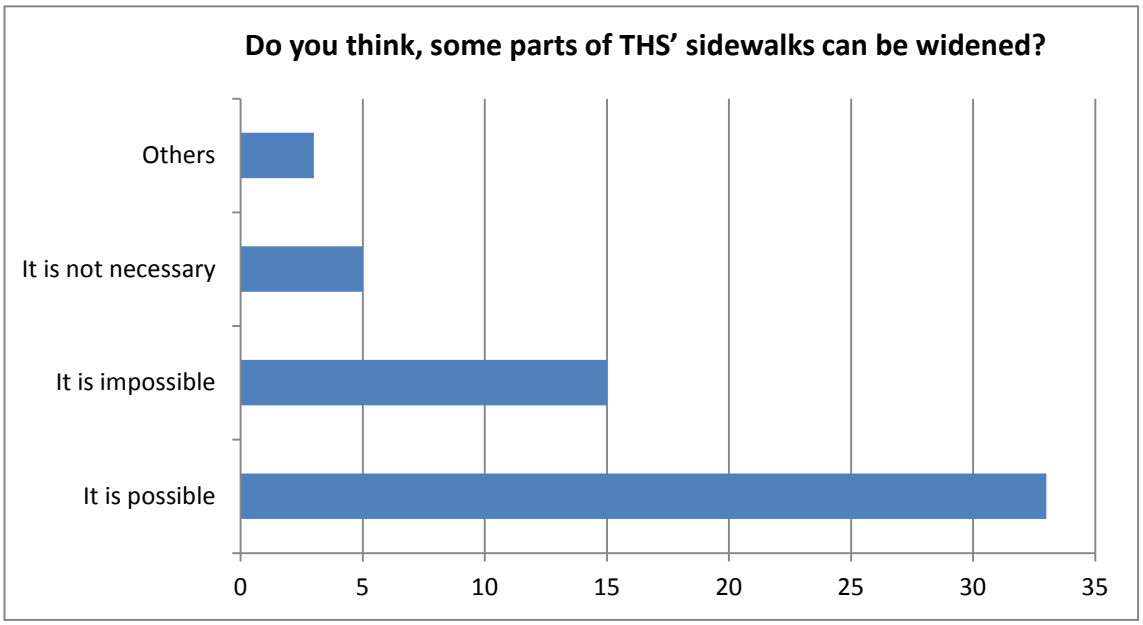


Figure 7-25, The views of THS' users about whether some parts of THS' sidewalks should be widened

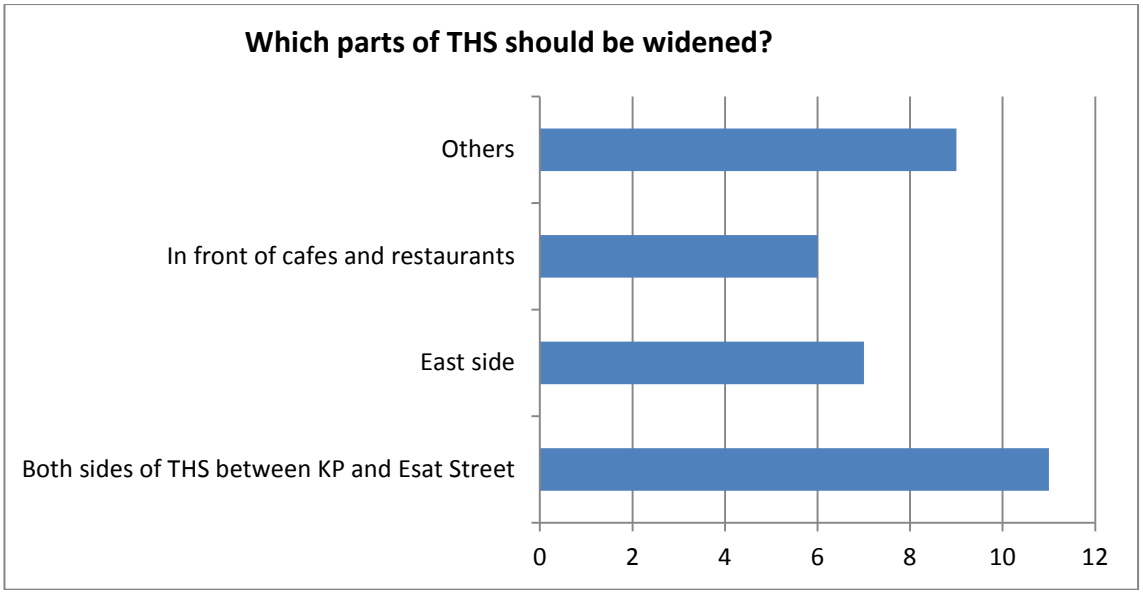


Figure 7-26, The views of THS' users about the question of which parts of THS should be widened

When pedestrians were asked in which parts of THS they can walk easily and comfortably, the majority (eighteen respondents, 32%) stated that although stony pavement of Kuğulu Park is

not very comfortable, walking in the park is safer as it is cleaner and peaceful. Therefore, they walk more comfortably and easier in Kuğulu Park than other parts of THS. Old people and parents with children suggested that they particularly preferred Kuğulu Park because of the safety reason. They therefore use it very often. In addition, *six* respondents (11%) claimed that they walk comfortably on the WEST side of THS. They explained that pedestrian congestion on the east side of the first part of THS is high, so they prefer walking on the West side of the street. Also, *seven* persons (12%) stated that they have comfortable walking on the WEST side of THS between Tunus-Esat intersections. *Nine* respondents (16%) however expressed that they cannot walk comfortably in any part of THS. (Figure 7-27)

When pedestrians were asked in which parts of THS they walk with difficulty, *thirteen* persons (23%) claimed that, because of narrow and low-quality sidewalks and high traffic volumes, they are not able to walk comfortably in any part of THS. *Sixteen* respondents expressed that pedestrian congestion on the east side of the first part of THS makes walking very difficult, especially between Buğday and Bülten Streets. Five respondents (9%) claimed that the lack of safe and visible street crossings and high traffic volume make their crossing very difficult. Additionally, two people (4%) delineated that low pavement quality on THS between Esat and Hacıyolu Streets make walking in this area uncomfortable. Finally, five respondents (9%) claimed that they walk in each part of THS comfortably. (Figure 7-28)

When pedestrians were questioned how the vehicular traffic disturbs their movement, twenty-nine people (52%) claimed that high traffic volume and unsuitable and unsafe street crossings make their crossing unsafe. They described that they cannot perceive street crossings. Moreover, nine respondents (16%) declared that high traffic volume and narrow sidewalks make them feel suffocating. Five respondent (9%), especially old people, stated that vehicular traffic creates noise and air pollution, and the only clean and peaceful place for them is Kuğulu Park. Three people (5%) also expressed that high car traffic, and cars driving and parking on the sidewalks, become dangerous for pedestrians. (Figure 7-29)

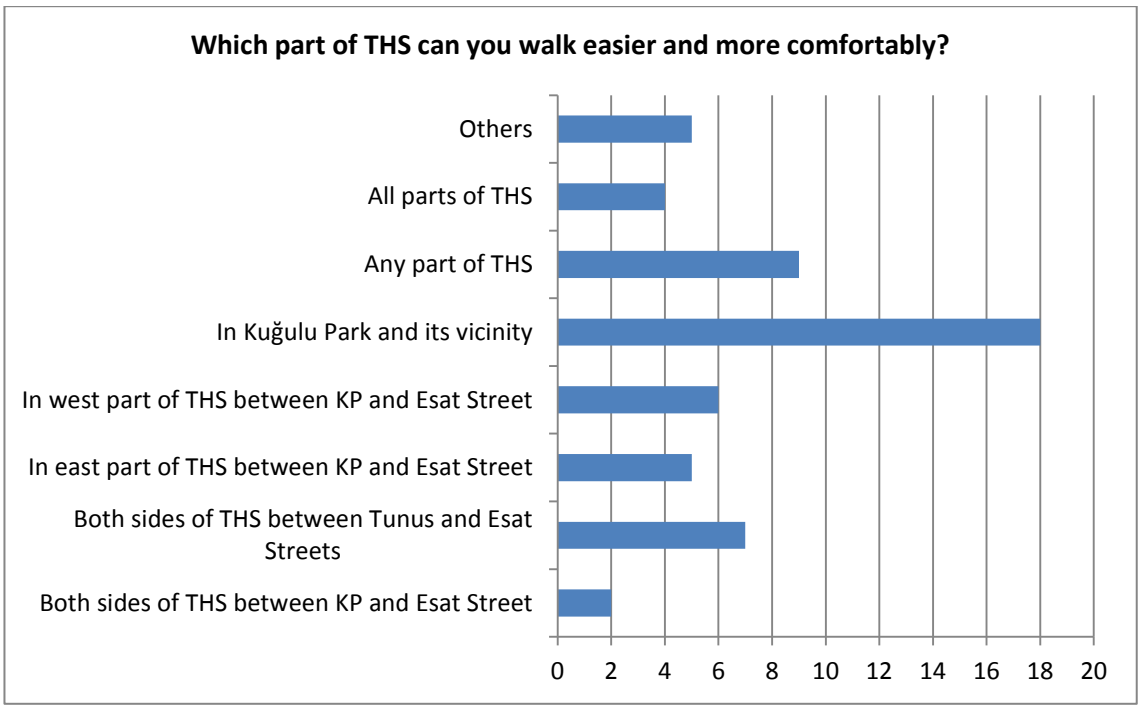


Figure 7-27, The views of THS' users on the question of which part of THS they can walk easier and more comfortably

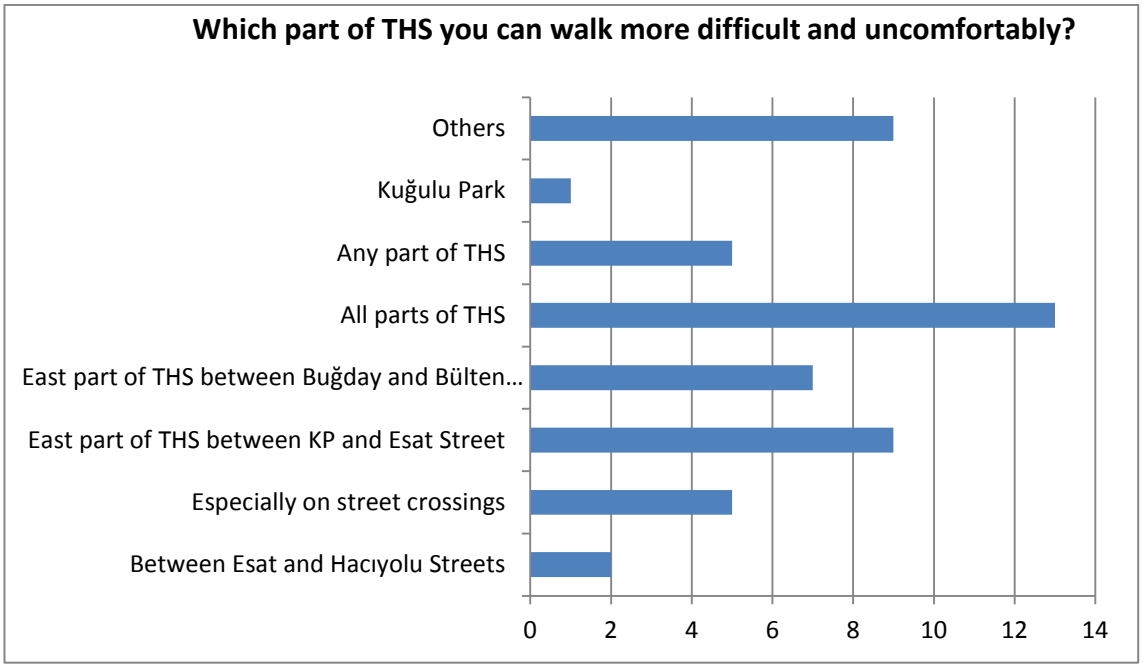


Figure 7-28, The views of THS' users on the question of which part of THS they can walk more difficult and uncomfortably

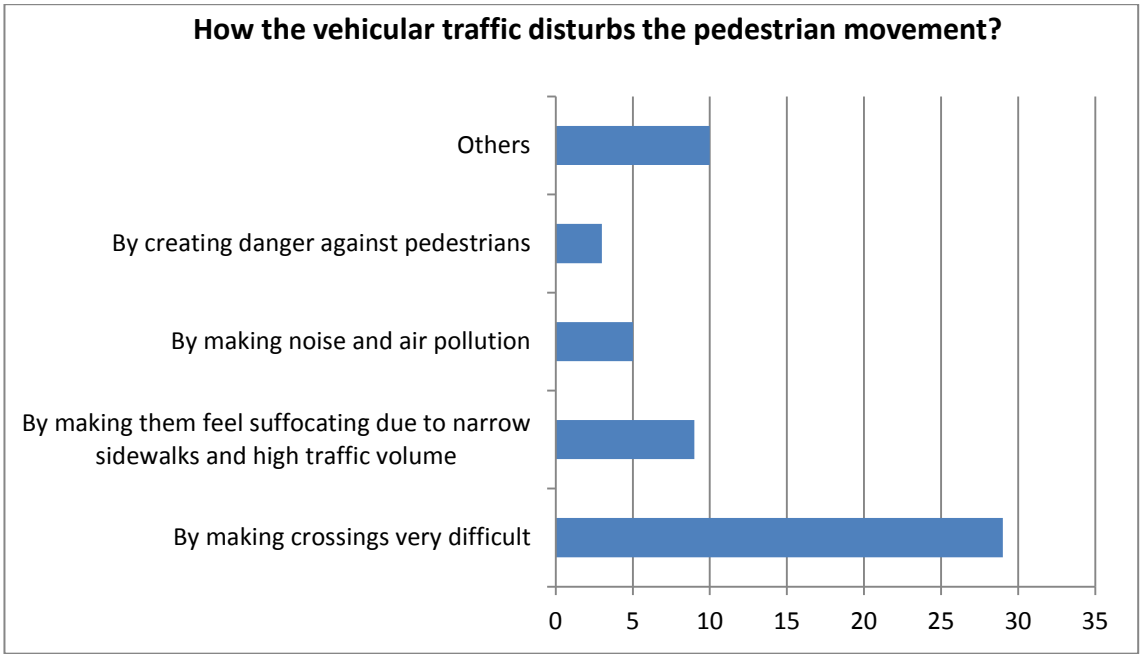


Figure 7-29, The views of THS' users on the question of how the vehicular traffic disturbs the pedestrian movement

To sum up, the analysis of pedestrian enclosure shows that the majority of pedestrians do not have a right idea about the boundary of THS. Because of the intensity of multi-purpose usages and high volume of vehicular and pedestrian traffic, the general recognition about the boundary of the street is from Kuğulu Park to the intersection of Esat Street. High pedestrian volume in the first part of THS also effects the comfortable movement of pedestrians on THS, except for quiet hours of week days. Together with the analysis on the ratio of height of buildings to the pedestrian volume and the pedestrian volume, the investigation show that pedestrian enclosure in the first part of THS is inadequate. This creates a suffocating street. In the second part of the street, however, the pedestrian enclosure (therefore, the sidewalk width) is adequate particularly due to the low pedestrian volume. Regarding *building orientation,* the analysis shows that most buildings and shops are oriented to the main sidewalks of THS and they therefore intensify pedestrian enclosure. Nevertheless, inharmonious distance between *street furniture* weakens pedestrian enclosure of THS,

The survey on the users of THS shows that the majority of pedestrians agreed on the idea of pedestrianization of THS, especially from Kuğulu Park to the intersection of Esat Street. If the street cannot be pedestrianized, the majority of survey participants agreed on the idea of widening the street sidewalks, especially on both sides of THS between Kuğulu Park and the intersection of THS. The main reason for this idea lies behind the views of the users about the

uncomfortable walking conditions of the sidewalks. The only parts which they find comfortable for walking are Kuğulu Park and its vicinity. The survey also shows that particularly vehicular traffic on street crossing disturbs the pedestrian movement.

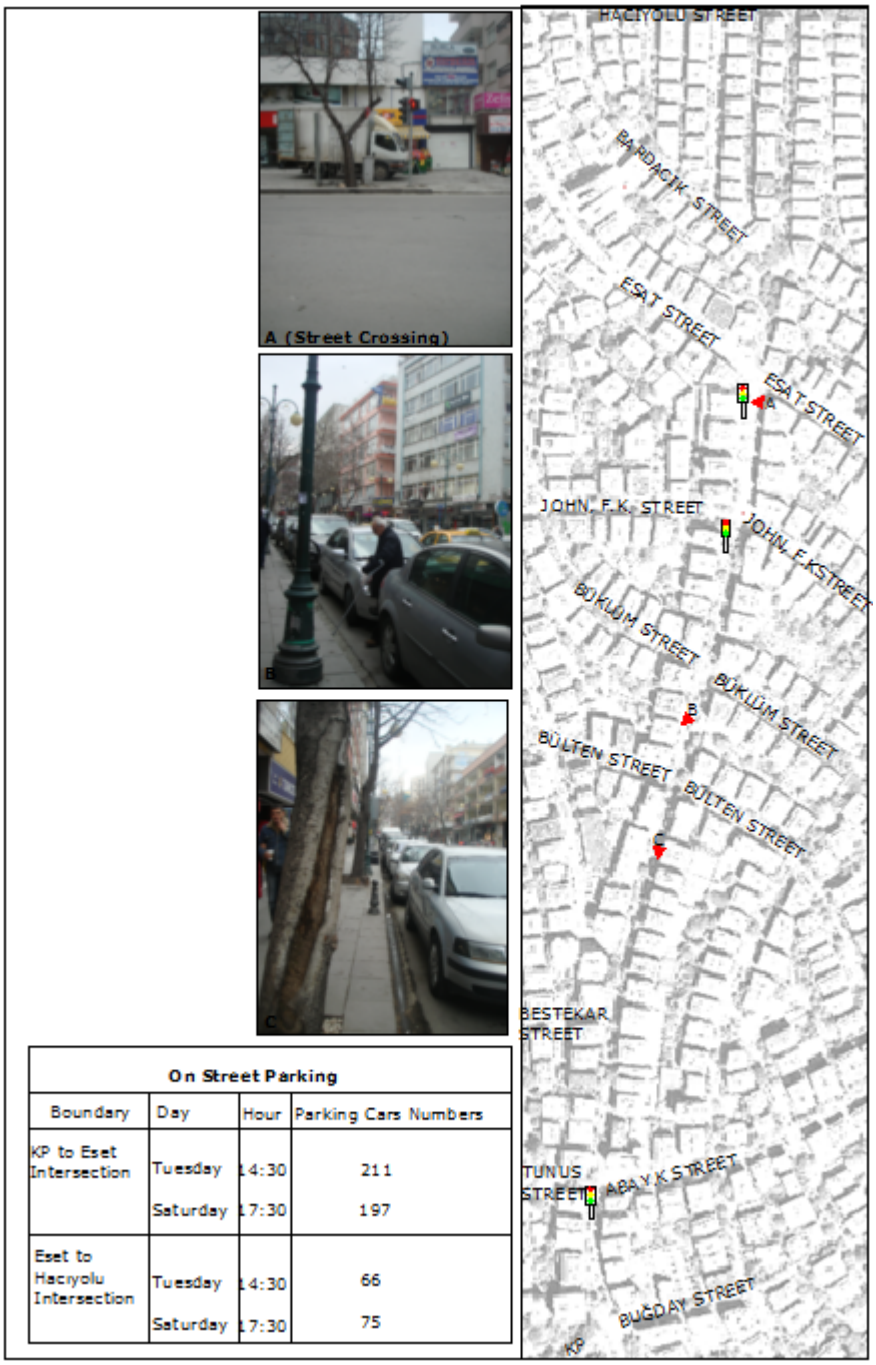
7.2.6. Separation

Sidewalks, medians, boulevards, on-street parking, and parallel routes that allow pedestrians to avoid arterials function as 'separation' and they provide obvious limitation between pedestrians and vehicle area and contributes to pedestrians' safety. In the case of THS, especially on-street parking provides a significant separation between pedestrians and vehicle area. For both the first and second parts of THS, only one side of the street is dedicated for on-street parking. On-street parking along the first part accommodates about 160-170 car-parking lots, while that of the second part includes 65 car-parking lots. Although on-street parking provides a separation between pedestrian and vehicular area, there are always cars parking and occupying the second lane of the street (i.e., the lane which is next to the on-street parking lots). This creates important obstacles for pedestrians crossing on THS, disturbs their movement and endanger their safety. Besides, both the lack of street crossings and high number of cars parking on THS as the second lane cause traffic congestion (Figure 7-30 and 7-31).

When pedestrians were asked whether on-street car-parks disturb their movement, *forty* people (71%) agreed, stating that they are particularly annoyed by the cars which are parked next to the on-street parking lots as the second lane which make street crossing for pedestrian even more uncomfortable. *Four* respondents (7%) partially agreed, as they particularly tend to cross on the street crossings which make them feel almost safe. On the other hand, *ten* people (18%) claimed that on-street car-parking do not disturb their movement (Figure 7-32).

In brief, although the on-street parking of THS provides a significant separation between pedestrians and vehicle area, the cars parking next to these parking lots hinder pedestrians crossing and movement, and endanger their safety. They also create traffic congestion on THS. Thus, new controlling regulation that prohibits such parking is necessary for THS to ensure pedestrians' safety and to increase the walkability of THS.

Figure 7-30, Separation on THS



On Street Parking			
Boundary	Day	Hour	Parking Cars Numbers
KP to Eset Intersection	Tuesday	14:30	211
	Saturday	17:30	197
Eset to Hacıyolu Intersection	Tuesday	14:30	66
	Saturday	17:30	75

Figure 7-31, On street parking

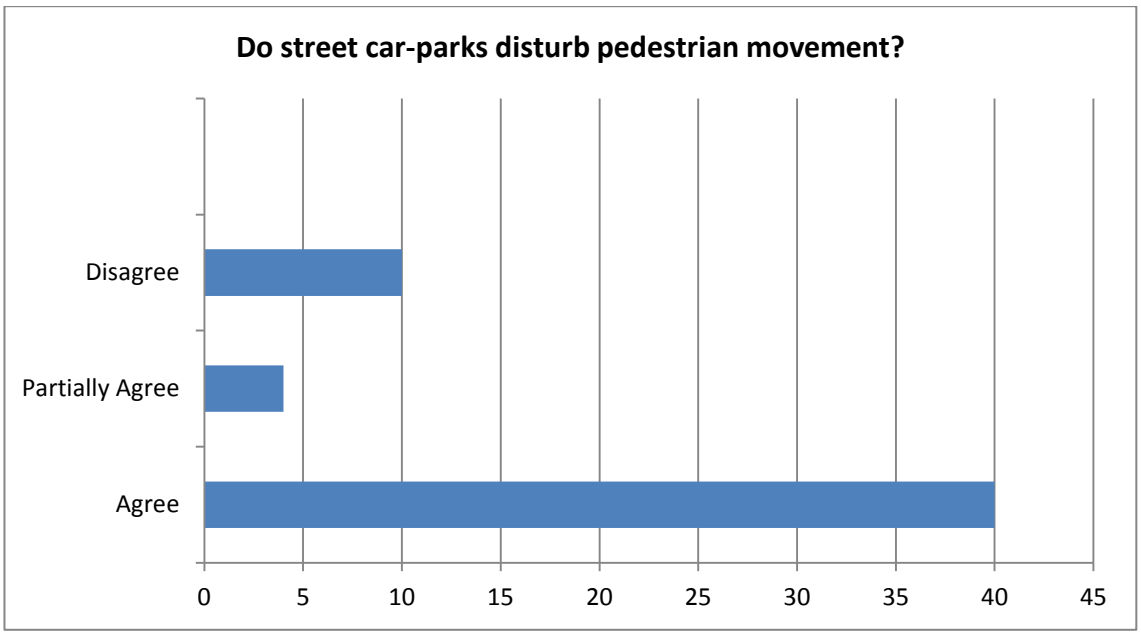


Figure 7-32, The views of THS' users on the question of whether existing on-street parkings disturb their pedestrian movement

7.2.7. Floor quality

Qualified street floor makes walking more comfortable and pleasant for all groups of healthy and handicapped pedestrians. Thus, the material of floorscape, quality of pavements, removal of unusual obstacles on sidewalks, sidewalk ramps with safe level variation, suitable parapets selected according to climate features are important in terms of creating safe sidewalks for pedestrians.

For the case of THS, however, floor quality is very poor. Broken pavement slabs, unsafe level variations of sidewalks, which range from 0.3 m to 2.70 m, and unusual obstacles along sidewalks have made THS unsuitable for pedestrians (Figures 7-33, 7-34, and 7-35).

Figure 7-33, Floor quality of THS (Resource: Personal archive)

Figure 7-34, Obstacles along sidewalks on THS (Resource: Personal archive)

7-35, Unsafe level variations on THS (Resource: Personal archive)

Four questions were asked the THS' pedestrians about the floor quality of the street. The first question was whether pavement slabs are well-laid out and they do not disturb pedestrian movement. *Thirty* respondents (54%) expressed that pavement slabs are not well-laid out and they disturb pedestrian movement, and *twelve* people (21%) think that they partially agree with this statement, whereas *thirteen* people (23%) claimed that sidewalk slabs are well laid out and do not disturb pedestrian movement (Figure 7-36). The second question was whether level variations along the sidewalks pavement (ramps, etc.) are adequately safe for pedestrians. *Twenty-nine* respondents (52%) disagreed with this statement; *sixteen* people (29%) partially agreed and *ten* people (18%) agreed with this statement (Figure 7-36). The third question was whether pavement slabs along the sidewalks are not deformed or broken. *Thirty-two* respondents (57%) disagreed; *fourteen* persons (25%) partially agreed and *eight* respondents (14%) agreed. Finally, the fourth question was whether there is no unusual obstacle for pedestrians along the sidewalks. *Thirty-two* respondents (57%) disagreed; *thirteen* persons (23%) partially agreed; and *nine* people (16%) agreed (Figure 7-36).

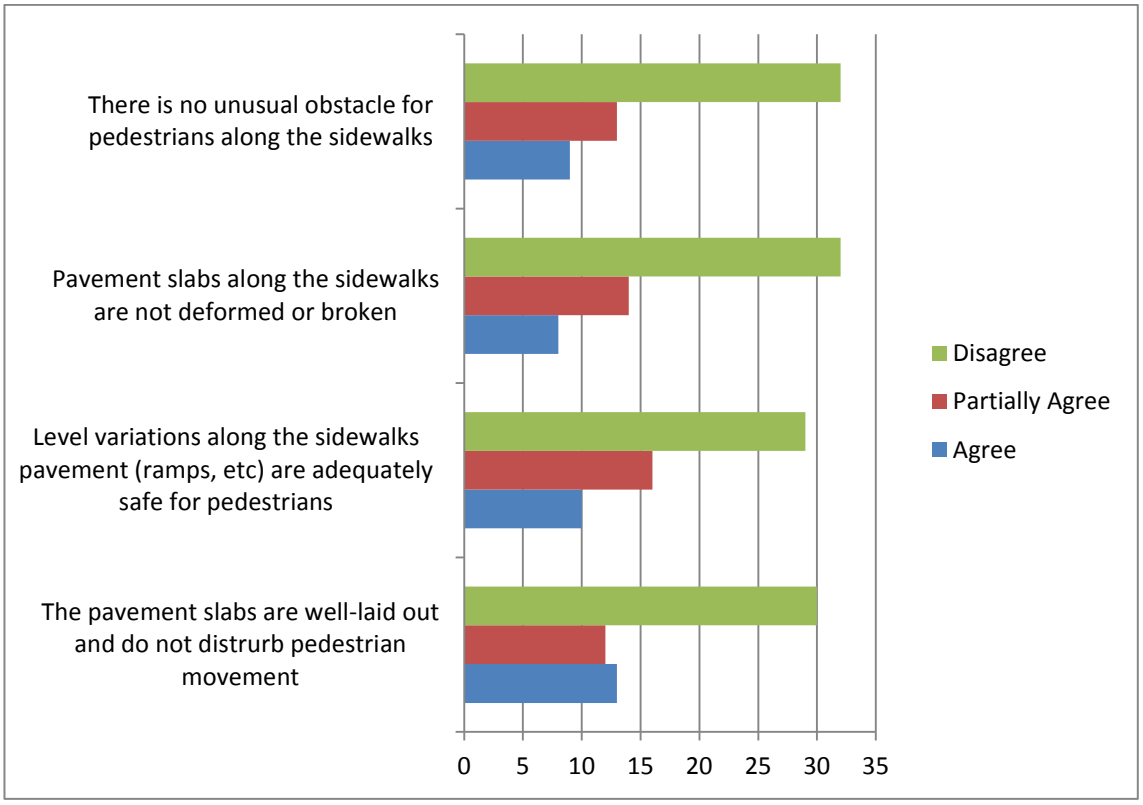


Figure 7-36, The views of THS' users on the floor quality of THS

To sum up, the floor quality of THS is significantly poor. The results of the direct observation shows that broken pavement slabs, unsafe level variations of sidewalks, obstacles along the sidewalks makes walking more uncomfortable and unpleasant for all groups of pedestrians. The majority of survey participants agreed that the pavement slabs, which are not well-laid out, which are deformed or broken, unusual obstacles along sidewalks endanger the pedestrians' safety.

7.2.8. Street crossing

As explained in Chapter 3, street crossings should be short and visible to be safe for pedestrians. As THS is a long street intersected by a number of streets, there are a number of street crossings along it. The only street crossings with traffic lights are located on the intersections of THS with Abay K. Street, JFK Street and Esat Street (Figures 7-15 and 7-16). These three street crossings help pedestrians of THS to cross from east to west, or vice versa (but not from north to south, or vice versa). The street crossings are direct and short, but they are not adequately safe for pedestrians because of high level of ramps and lack of their visibility. Some ramps on street crossings are also deformed. There is no sign on the road surface showing pedestrians the location of the street crossing. Although traffic lights help pedestrians cross the street, there are no special types of pavement on sidewalk to indicate street crossings for disabled people (such as, tactile pavement) or on the road for reducing car speed. Together with high number of cars parking on THS and unfit street crossings, pedestrians' safety is in danger (Figure 7-37).

Four questions were asked the THS' pedestrians, first of which was whether there are sufficient street crossings along THS. Twenty-nine pedestrians (52%) claimed that there are not adequate street crossings, whereas eight respondents (14%) disagreed and fifteen respondents (27%) partially agreed. The second question was whether the street crossings along THS were well-situated. Twenty-seven respondents (48%) disagreed; fifteen people (27%) partially agreed; and ten people (18%) agreed (Figure 7-38). The third question was whether street crossings along THS are located on easily accessible places. Twenty-eight respondents (50%) completely disagreed; sixteen people (29%) were partially agreed; and nine respondents (16%) agreed (Figure 7-38). Finally, pedestrians were asked whether street

crossings along THS were easily visible. Twenty-five pedestrians (45%) disagreed; nineteen respondents (34%) partially agreed; and eight people (14%) agreed (Figure 7-38).

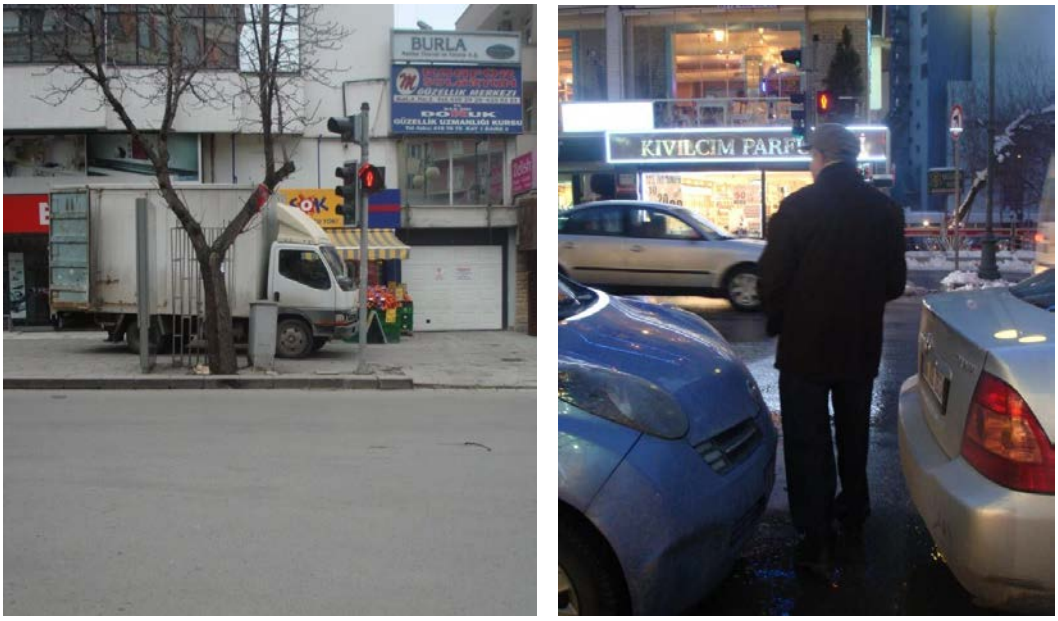


Figure 7-37, Street crossings in THS (Resource: Personal archive)

To conclude, the investigation on the street crossings of THS and survey results show that the street crossings with traffic lights are not sufficient to create a safe and walkable street. The majority of the survey participants agreed that the street crossings are not well-situated, easily accessible and visible. They also think that the street crossings with traffic lights along THS are insufficient. Therefore, the results of this investigation point out an urgent need for re-designing all the street crossings on THS as a continuity of the sidewalks to ensure the safety of all groups of pedestrians. Necessary standards should be implemented to the design of ramps, floor materials, signs that will ease the movement and comfort of pedestrians, and increase their safety. In this way, they will be easily visible (or perceivable) by everybody, as well.

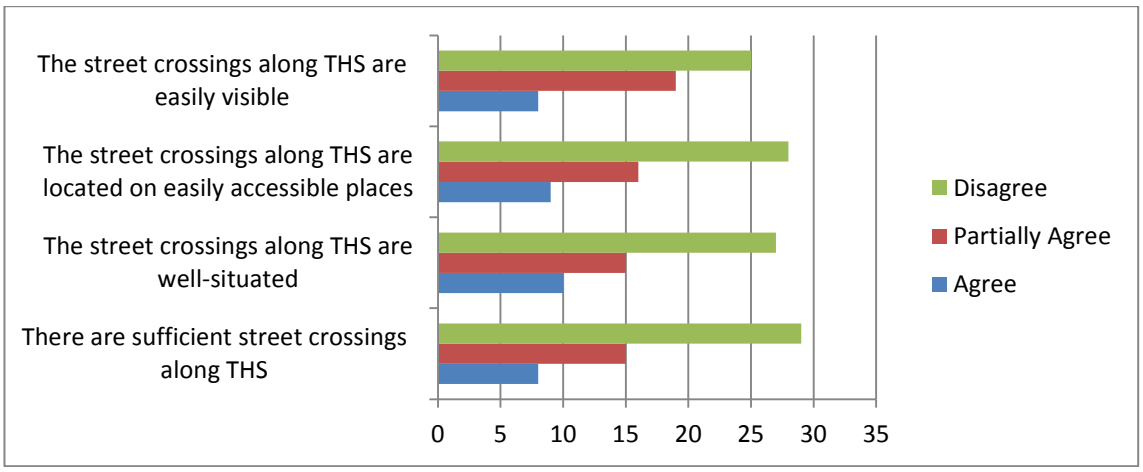


Figure 7-38, The views of THS' users on the street crossings of THS

7.3. Perceptual Safety

As discussed in Chapter 3, Jacobs (1961) identifies three main qualities necessary for perceptual safety: i) a clear delimitation between public and private space, ii) building orientation towards the street to provide 'eyes on street' and iii) common use facilities to add more 'eyes on street'.

First, the delimitation between public space (streetscapes, sidewalks, public facilities) and private space (yards, shopping malls, gated communities, and private clubs) of THS is sometimes unclear. For example, in the first part of THS, it is common to see the entrances of some buildings and some parts of sidewalks are occupied by cars and trucks parked. Sometimes, it is possible to see tables and chairs of cafes and restaurants occupying the sidewalk. Thus, along THS, it is hard to know which part of sidewalk belongs to the public space and which part is the private premise.

Regarding the second and third measures, all buildings are oriented towards THS, and THS is a mix-use street. In this sense, it is possible to argue that THS might be perceived as a safe street during day time, as there are a number of people who work and live on THS might act as 'eyes on the street'.

The majority of commercial premises open until 8.00 pm. Only some cornershops, tobacco shops, cafes, restaurants and bars that are mostly located in the first part of THS are open late night. In this part of the street, the residential usage is less than the second part. Therefore, in

the first part of THS, the perceptual safety of night time can be seen lower than that of day time (Figure 7-40).

The second part of THS includes mostly residential uses, repair and tourism facilities, and a few groceries. Because of its usages and physical properties, this part is not preferable by pedestrians. It is possible to argue that, compared to the first part, the perceptual safety in the second part of THS might be seen higher at day time. Because this part of the street is not as busy as the first part; there are a few pedestrians or strangers; and the residential and working population act as 'eyes on the street' during day time. At night time, only residential population acts as 'eyes on the street'. Therefore, the perceptual safety at night time might be lower than day time. Nevertheless, the perceptual safety of this part of THS at night is higher than that of the first part due to the presence of high residential population.

Regarding the 'perceptual safety', six questions were asked to the users of THS. The first question was whether THS is a noisy street. Forty respondents (71%) perceived it as noisy street; ten people (18%) replied that it is a partially noisy street; and four people (7%) declared that THS is adequately peaceful (Figure 7-39). The second question assesses the idea of the pedestrians about the origin of the noise on THS. They were asked whether the noise of the street was resulted from car traffic. Forty-three respondents (77%) agreed on this reason; three people (5%) thought that the noise arises from both car and pedestrian traffic; whereas five people (9%) believed that there is not any car traffic noise on THS.

The third question mainly assesses the perception of 'safety at night'. Pedestrians were asked whether facilities open until late night make the street safer at night. Eleven respondents (20%) stated that they did not perceive THS as a safe street at night. Especially those who live in THS claimed that, after late night when all businesses were closed, THS became an unsafe street. They pointed out the lack of pedestrian presence at night, which is essential factor in perceptual safety. They also complained about the lack of police patrolling on the street and the surrounding streets at night. Twenty-seven respondents (48%) claimed that THS is partially safe during night-time, whereas fourteen people (25%) considered it as a safe street at night. Regarding Kuğulu Park, twenty-six respondents (46%) stated that it is unsafe at night. Twenty people (36%) believed that Kuğulu Park is partially safe at night, while seven respondents (12%) claimed that KP is a safe area at night (Figure 7-39).

Another question was whether facilities open until late night make the street safer at night. Thirty-five survey participants (62%) agreed on this idea; while twelve respondents (21%) claimed that besides open facilities, the pedestrian presence on THS is needed at night time to be perceived safe. Thus, for them, open usages partially contribute to their safety. Five respondents (9%), however, disagreed on this idea; expressing that the presence of pedestrians and police is much more important for them to feel safe on the street, rather than facilities open until late night (Figure 7-39).

Finally, the users of THS were asked whether THS would be much safer if there are more residential uses (or residential population). Eighteen participants (32%) claimed that more residential uses (or population) will increase safety at night. Nineteen people (34%) claimed that the presence of residential usages are partially effective for them to consider the THS safe, adding that other factors such as open facilities late night and pedestrian presence, are essential, too. On the other hand, fifteen respondents (27%) claimed that residential usages did not have any effect in their safety because the inhabitants of THS were not particularly interested in what happened on the street (Figure 7-39).

To sum up, the perceptual safety is weak regarding the delimitation of public and private space, as it is not clear which part of sidewalk belongs to the public space and which part is the private premise. Regarding the building orientations, the perceptual safety is strong, as all buildings are oriented towards THS, and THS is a mix-use street. Therefore, THS might be perceived as a safe street during day time, as there are a number of people who work and live on THS might act as 'eyes on the street'. In the first part of THS, the perceptual safety of night time can be seen lower than that of day time, as the residential usage is less than the second part. In the second part of THS, the perceptual safety at night time might be lower than day time. Nevertheless, the perceptual safety of this part of THS at night is higher than that of the second part due to the presence of high residential population. As for the survey results, the respondents generally agreed that THS is a partially safe street at night, except Kuğulu Park which is considered unsecure at night. The majority of the survey participants claimed that facilities open until late night might make the street perceived safe. Nevertheless, there is no clear idea about whether THS will be a much safer plave if there is a higher ratio of residential population.

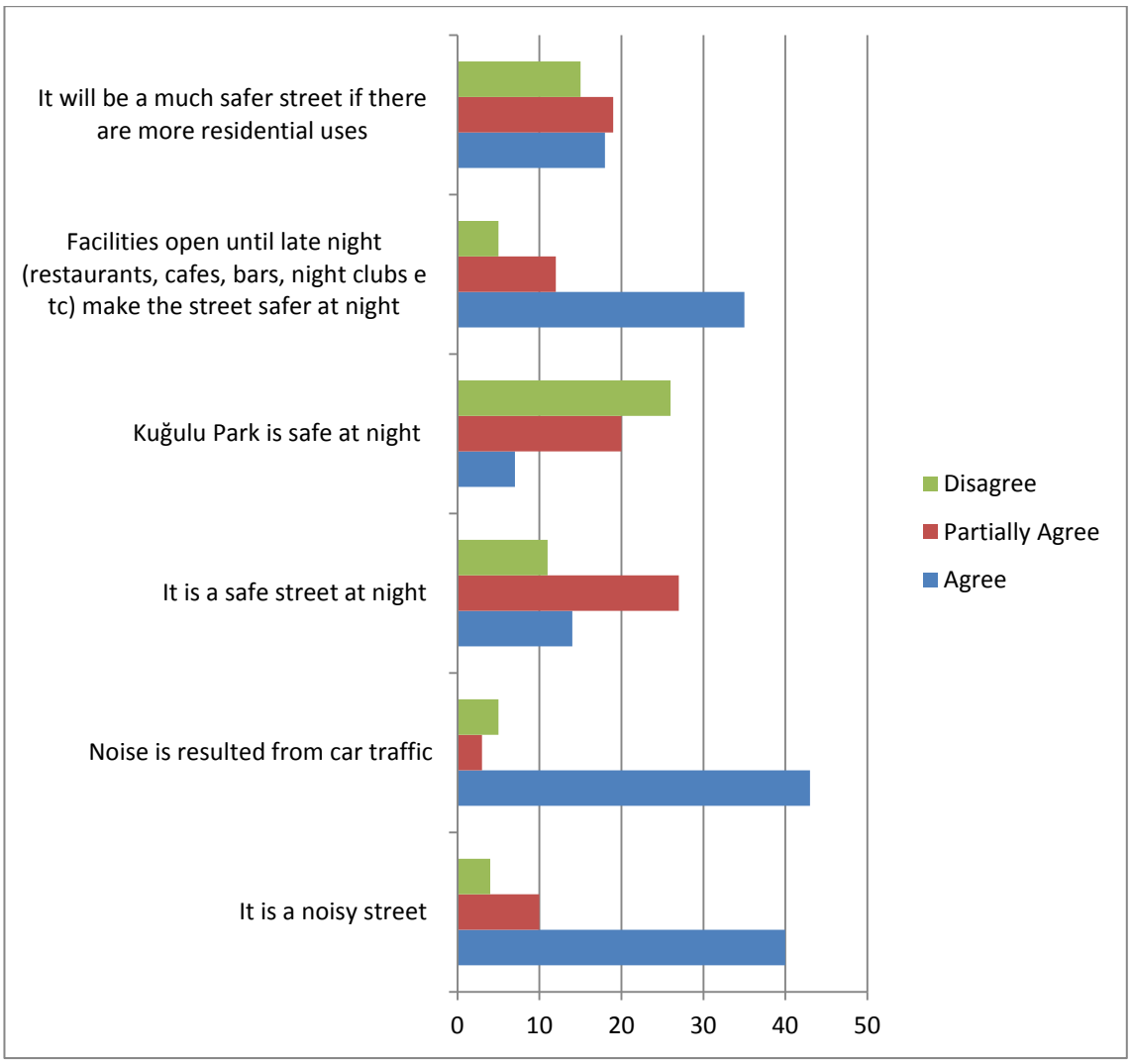


Figure 7-39, The views of the THS' users on the perceptual safety of the street

Figure 7-40, The first part of THS at night (Resource: Personal archive)

Table 7-2, The assessment of safety in THS

THE EVALUATION OF SAFETY IN THS			
ACTUAL SAFETY	Assessment results	PERCEIVED SAFETY	Assessment results
1) Street pattern	Modified grid, high amount of paved surface, accessible, unqualified pavement slabs, high vehicular traffic	*1) Clear delimitation between public and private space*	Unclear delimitation
2) Traffic calming measures	Poor value of design detail measurements	*2) Building orientation towards street*	Buildings are oriented to common pedestrian realm
3) Lightening	partly qualified lightning system	*3) The presence of common use facilities*	Many various usages are closed at night
4) Continuous pavement	Continuous street pattern, unsafe street crossings, inharmonious street furniture		
5) Pedestrian enclosure	Well-oriented buildings, less ratio of sidewalk width to height of buildings, inharmonious street furniture		
6) Separation	Highly developed unsystematic parking		
7) Floor quality	poor		
8) Street crossings	Direct, short, invisible, and unsafe street crossings		

7.4. Orientation

Orientation is a quick recognition of public space network. Hence, if pedestrians are able to imagine a simple network map and its unforgettable points, it is a well-oriented street. The criterion of *orientation* for THS is examined under five factors: *legibility of its street pattern,*

landmarks, continuity, built form and its location and architectural and environmental features.

7.4.1. Legibility

As I explained in Chapter 3, *legibility* refers to a quick understanding of a neighbourhood plan. Simple, regular and highly connected street patterns are more legible. Street pattern around THS is a modified grid pattern and THS is regularly linked to its side streets through Bardacık, Esat, JFK, Büklüm, Bülten, Bestekar, Çığır, Tunus, Abay.K and Buğday Streets (Figure 7-6, , 7-15, 7-16, and 7-18).

When the cognitive maps drawn by the survey participants are examined, it is possible to see that the respondents easily perceive the modified grid street pattern (Appendix B). Looking at these maps, it is possible to see that most pedestrians perceive THS and the surrounding street pattern as legible.

7.4.2. Landmarks

Landmarks increase the legibility of the environments, create a memorable and familiar image in pedestrians' minds, and thus help pedestrians to realize where they are or whether they are in the right way or not. As explained before, landmarks in the mind of pedestrians can be evaluated through mental maps. *Differentiation, detailed building form and junctions and singularity as suggested by* Gestalt rules and Lynch, help the formation of simple mental maps in people's mind and fix unforgettable landmarks in their memory.

Regarding the evaluation of landmarks, the cognitive maps were used. The survey participants were asked to draw and note the memorable buildings or usages on THS. The landmarks of THS according the responses of the survey participants are shown in Figure 7-41. As can be noted from Figure 7-41, THS is very rich in terms of landmarks. Nevertheless, as claimed by thirty respondents (54%), Kuğulu Park is still considered as the most important landmark of THS. This is followed by Mac Donalds (thirteen participants, 23%), Karum Shopping Center

(eleven participants, 20%), and Kuğulu Arcade (ten participants, 18%). D&R, Mado, and Öğütler Market are the third-grade landmarks for the survey participants.

7.4.3. Continuity

Continuity expresses that how well the boundary of different parts of urban spaces are defined and how well different parts of public spaces are connected through architectural urban elements. For example, a well-connected grid street pattern might create a continuity of sidewalks. Likewise, harmonious street furniture might also contribute to the continuity of sidewalks. Particularly street furniture which is grouped together and repeated along sidewalks, can contribute to the continuity of sidewalks. Furthermore, various types of street furniture should have definite height. For example, the height and width of street trees which are trimmed in the same width and height will be harmonious, and thus will contribute to the continuity of sidewalks.

As explained in the section 7.2.4, the modified grid street pattern around THS offers more continuous, therefore, walkable sidewalks for pedestrians. Subsequently located shops create a frontage continuity on both sides of THS. But, the continuous sidewalk pattern on THS is interrupted by a number of intersecting streets. Low quality of sidewalk floor (broken slabs), and inharmonious rhythm of street furniture located on THS decrease its perceptual continuity (Figure 6-7).

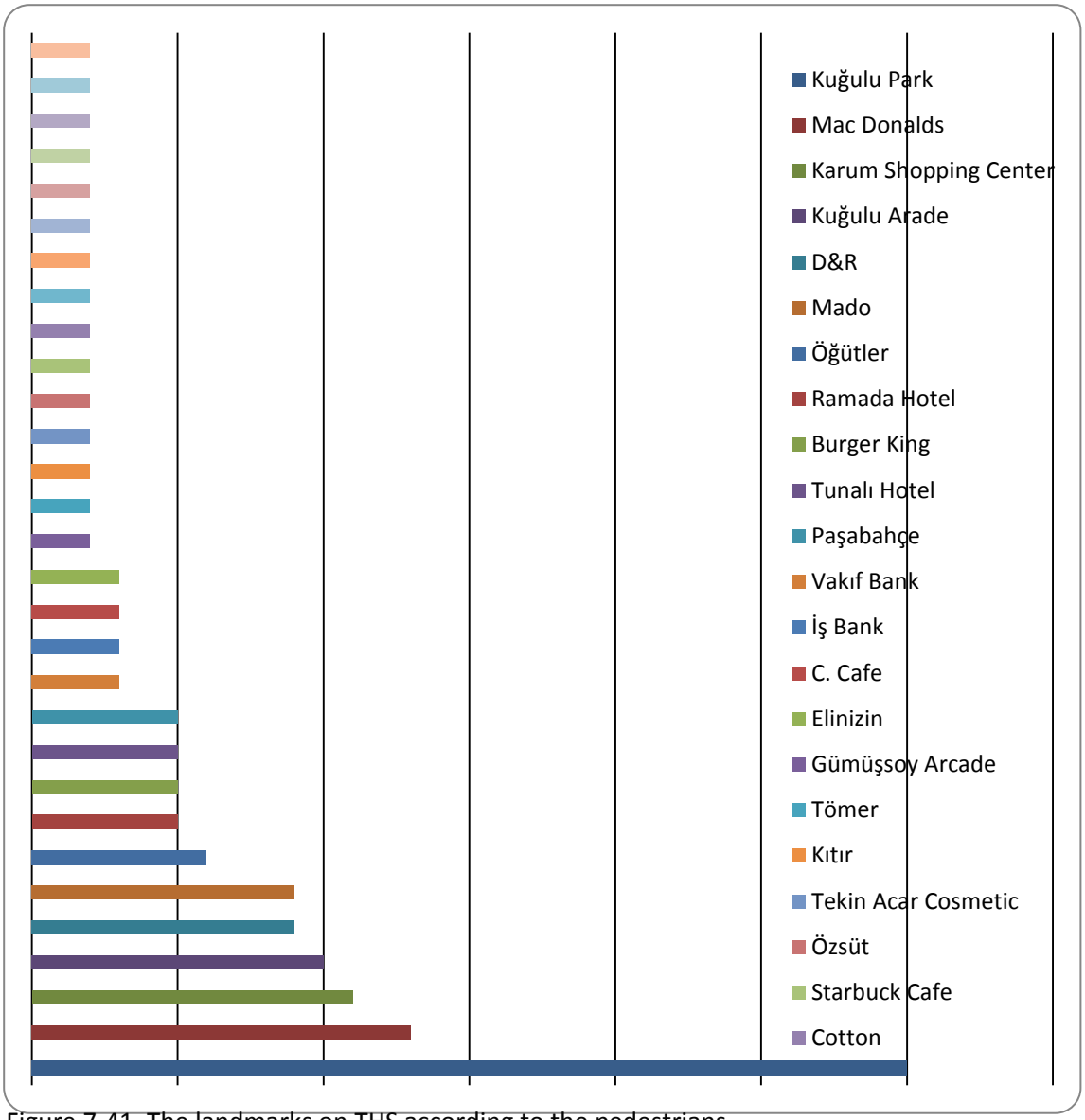


Figure 7-41, The landmarks on THS according to the pedestrians

7.4.4. Built form and its location

The placement and form of some buildings are important in terms of increasing their legibility, as pedestrians can perceive them easily. According to the survey results shown in Figure 7- 41, it is possible to argue that the location of Kuğulu Park is one of the major reasons which turns it into a landmark in the mind of pedestrians. First of all, it is very close to the bus stops; it is therefore very accessible for bus passengers. As it is a public open space, it is accessible by everyone, and it is used for different activities (meeting, relaxing, exercising,

socializing space, etc). This makes people to know and use it for different purposes, therefore, to recognize it as the main landmark of THS.

Kuğulu Park is the most memorable landmark, because it ensure safe and relaxing place for most groups of pedestrians. In addition, its placement at the start point of THS and its greenary and well-known swans make it very memorable. Kuğulu Arcade, Mac Donalds and Karum are important landmarks, because they provide safe and comfortable places for pedestrians to meet due to their covered areas which protect them from bad climatic conditions. Karum shopping mall and Mac Donalds are important landmarks because of their distinguished architectural style. Besides, Mac Donalds is seen as a memorable building due to its location on THS.

Mado and D&R are third-grade landmarks. They provide protected places for people to sit, eat and drink something, while waiting for somebody. The location of Mado is also influential in terms of being a memorable place of THS in the mind of people. As for Öğütler, as it is next to Mac Donalds and the architectural style of the building, it is also recognized as a landmark of THS.

7.4.5. Architectural and environmental features

As explained in Chapter 3, building entrances and building orientation become important in terms of understanding how far architectural and environmental features contribute to walkability of a street. Building entrances should be visible, and accessible by all pedestrian groups (such as, wheelchair users, old people and pedestrians with strollers). In addition, buildings should be oriented to most preferable sidewalks.

In the case of THS, the entrances of shops and apartment buildings are visible by pedestrians, but they are not defined perfectly by architectural or urban elements (Figure 7-42). Some of them are not very accessible for vulnerable pedestrian groups, such as Üniversite Apartment and Ertuğ Building (Figure 7-43 and 7-44). These buildings entrances need particularly ramps, or some pavement treatments on the floor to fix floor level variations.

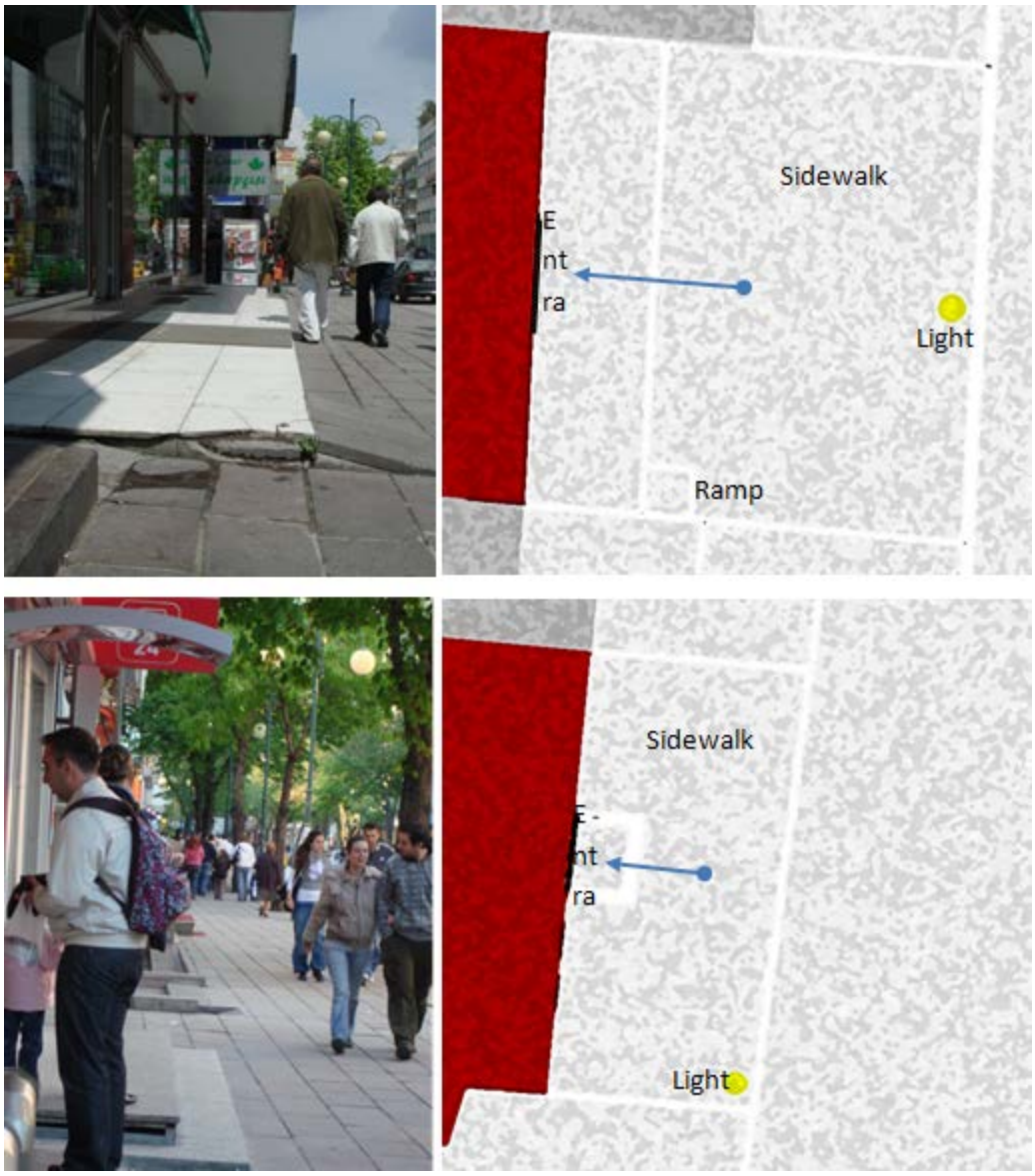


Figure 7-42, Undefined building entrances along THS, (Resource: Personal study and rendering)

Figure 7-43, Accessibility and visibility of some building entrances on THS

Figure 7-44, Accessibility and visibility of some building entrances on THS

To sum up, when the criterion of orientation is considered, it is partly successful and partly unsuccessful. THS and its surroundings is highly legible environment due to its modified grid pattern and pedestrians easily perceive this pattern. Even though THS is very rich in terms of landmarks, Kuğulu Park is the most important landmark of the area. Following this, Mac Donalds, Karum Shopping Center and Kuğulu Arcade are among the memorable buildings of THS. D&R, Mado, and Öğütler Market are the third-grade landmarks of THS. There are a number of reasons for the choice of these buildings or sites as the landmarks. Kuğulu Park is the most essential landmark because it provide safe, comfort, and attractive environment for pedestrians. Mac Donaldsand Öğütler, because of their distinguished colour and architectural style are memorable places. Besides, Mac Donalds, Mado, and D&R provide covered places to people to sit, eat, and drink something, while waiting for somebody. Karum Shopping Center and Kuğulu Arcade as covered spaces protect pedestrians from bad climatic conditions. In addition, the situation and building style of Karum Shopping Center make it more memorable. As for the continuity, the modified grid street pattern around THS offers more continuous, therefore, walkable sidewalks for pedestrians. Subsequently located shops create a frontage continuity on both sides of THS. But, the continuous sidewalk pattern on THS is interrupted by a number of intersecting streets. Likewise, the perceptual continuity of THS is impoverished by the low quality of sidewalk floor and inharmonious rhythm of street furniture.

In the case of THS, the entrances of shops and apartment buildings are visible by pedestrians, but they are not defined perfectly by architectural or urban elements. Some of them are not very accessible for vulnerable pedestrian groups, as well. These buildings entrances need particularly ramps, or some pavement treatments on the floor to fix floor level variations.

7.5. Attractiveness

As explained in Chapter 4, this thesis examines the criterion of ‘attractiveness’ based on the assumption that a street is attractive, if it is colorful, enjoyable, legible, safe, peaceful, comfortable and spacious. There are some qualities, such as predictable and monotonous versus intriguing, surprising, mysterious and exciting, which might be desirable to some extent, but not completely. Thus, the assumption of this thesis is that a street is attractive, if it is partly predictable, monotonous and boring, and partly intriguing, surprising, mysterious and exciting. If these qualities exist in an urban area with a high degree, the attractiveness of the

space will be lessened. Finally, there are negative qualities, such as suffocating. If a street is suffocating, it will not be an attractive space.

Regarding the facades of the buildings on THS, although many buildings are old and have lost their fresh color, they provide THS with a colourful scene (Figure 7-45). There is no specific codes that regulate the colours which can be used for buildings and shopfronts. Nevertheless, there is a color harmony among the buildings which were built between the 1960s and 1990s. Yet, the new ones are generally very different from the earlier buildings regarding their building materials and thus façade colours (Figure 7-46). They decrease the visual harmony of the street in terms of colors. Besides, as the signboards of the shops and offices on THS are not regulated, in some parts of the street, especially between Kuğulu Park and Esat Street, they also impoverish the visual harmony of the street (Figure 7-46).

Figure 7-45, Facades of some buildings in Esat-Hacıyolu boundary in THS, (Resource: Personal archive)

Figure 7-46, The facades of some buildings on THS between Kuğulu Park and Esat Street (Resource: Personal archive)

As explained in 7.2 and 7.3, in terms of actual and perceptual safety, THS is not a safe street for pedestrians in many senses. Nevertheless, because of the street pattern and landmarks, it is highly legible for pedestrians, as explained in 7.4.1. and 7.4.2.

THS is a street containing the buildings with different architectural style, as shown in Figure 7-47. The buildings with similar architectural style may create a monotonous scene. As there are buildings with different architectural style, especially between Kuğulu Park and Esat Street, it is possible to argue that THS does not provide pedestrians with a monotonous scene. Also, the shops and shopwindows make it a very interesting place, particularly for pedestrians (Figure 7-47, 7-48, and 7-49 and Map 6-8)

Figure 7-47, Dissimilar and interesting buildings on THS according to their architectural style (Resource: Personal study and rendering)

As explained in 7.2.5 in detail, pedestrian enclosure in the first part of THS is inadequate. This creates a suffocating street. In the second part of the street, however, the pedestrian enclosure (therefore, the sidewalk width) is adequate particularly due to the low pedestrian volume.

There are a number of visual elements, such as dirty advertisement boards, unsafe urban elements, and inappropriate placement of air conditioners along sidewalks, broken pavement slabs, different level variations on sidewalks, improperly built street ramps, which impoverish the attractiveness of the street (Figure 7-41).

As for the views of the THS' users, the survey participants were asked whether THS is *colourful, safe, comfortable, enjoyable, exciting, monotonous, mysterious, intriguing, surprising, predictable, legible, spacious, suffocating, and peaceful* (Figure 7-42). Twenty-five people (45%) found THS colourful, and thirteen people (23%) claimed that it is partially colourful.

Thirteen respondents (23%) defined THS as safe, and twenty five participants (45%) found it partially safe. Nine people (16%) stated that THS is peaceful, and twenty-nine people defined it as a partially peaceful street. Eleven respondents (20%) claimed that THS is a comfortable street and twenty-six persons (46%) considered it a partially comfortable street. Furthermore, twenty-one people (37%) agreed that it is a comfortable street, and fourteen respondents (25%) partially agreed. Thirteen pedestrians (23%) responded that THS is an 'exciting' street and sixteen people (29%) defined it as a partially exciting street.

On the other hand, twenty-five respondents (45%) claimed that THS is not monotonous and thirteen people (23%) defined it as partially boring. Twelve people (21%) did not find THS as intriguing while twenty-three participants (41%) claimed that it is partially intriguing.

Twenty-one respondents (37%) considered THS as predictable, and eighteen people (32%) considered it as partially predictable. For twenty-five respondents (45%), THS is legible, and for fifteen people (27%), it is partially legible.

Twenty-one people (37%) defined that THS is not spacious, and nineteen people (34%) considered it as partially spacious. These survey results are complemented with the evaluation of the street regarding suffocating. Eleven respondents (20%) defined THS as suffocating, and twelve people (21%) claimed that it is partially suffocating, and the majority of the survey participants did not find it suffocating.

To sum up, the majority of the survey participants claimed that THS is a colorful, enjoyable, predictable and legible street. They also stated that it is a partially safe, peaceful, comfortable, and intriguing street. Finally, they claimed that THS is not an exciting, mysterious, and surprising street, but they did not find THS boring/monotonous either. Additionally, the survey participants claimed that THS is not spacious, but not a suffocating street either.

According to the surveyed pedestrians, these findings can be interpreted as follows:

- THS is an attractive street in terms of the colours, joy, legibility and predictability it provides.
- THS is an attractive street to a certain extent regarding the safety, peace, comfort and intriguing that it partially offers.
- THS is not attractive, as it cannot provide an exciting, mysterious and surprising scene and it is not a spacious street. But, it is not disattractive either, as it is not a boring/monotonous and suffocating street.

Figure 7-48, Buildings with different architectural style creating a dissimilarity and thus provide pedestrians with an interesting scene

Figure 7-49, Buildings with different architectural style creating a dissimilarity and thus provide pedestrians with an interesting scene

Figure 7-50, Urban elements which impoverish the visual attractiveness of THS (Resource: Personal archive)

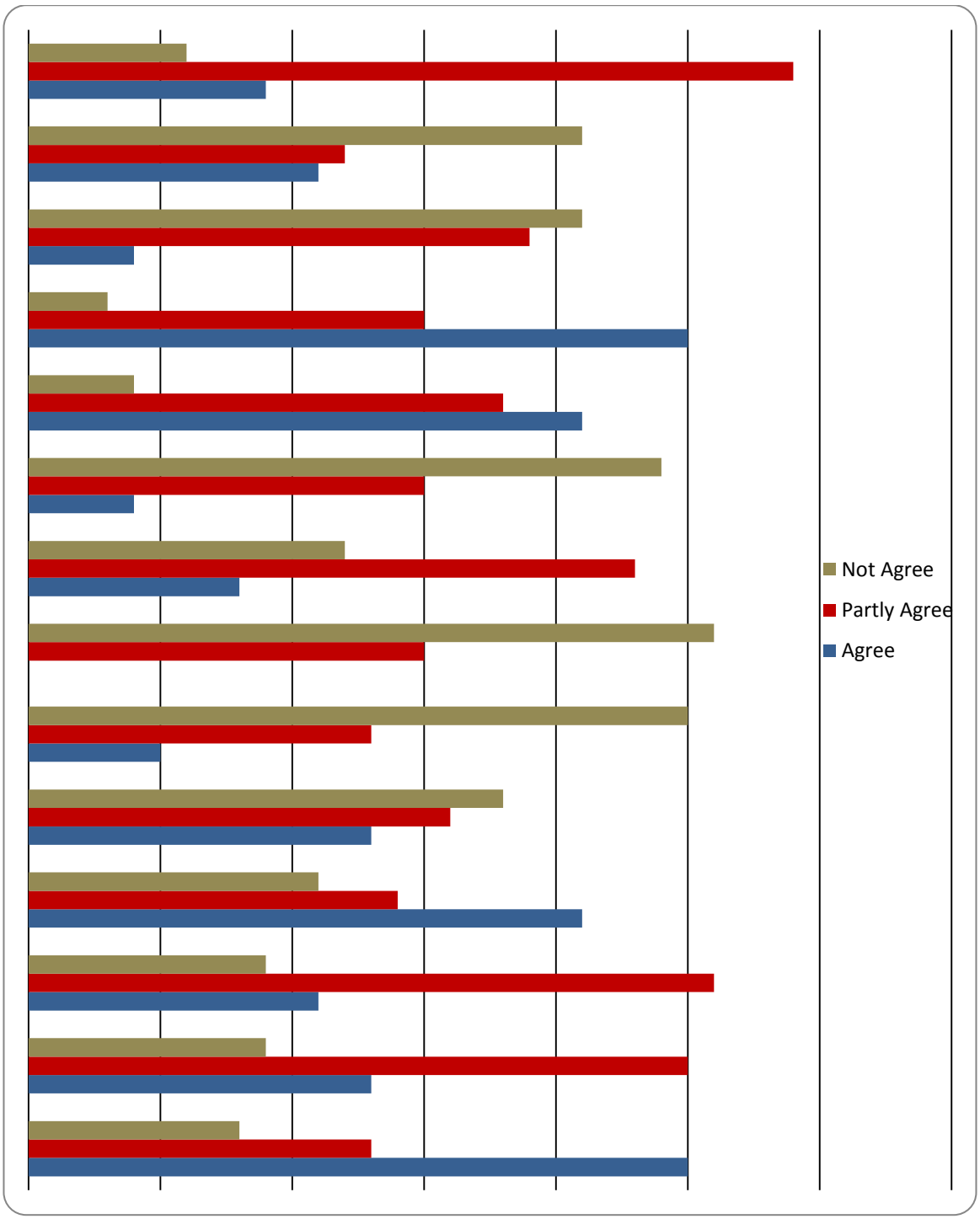


Figure 7-51, The evaluation of attractiveness according to the THS' pedestrians

7.6. Comfort

As discussed in Chapter 3, comfort is evaluated physically and visually. Urban spaces should be 'physically usable' and 'visually understandable' to be comfortable for pedestrians.

‘Physical usability’ of an urban space depends on four factors which make the comfort of walking for healthy, handicapped, early-age and old-age people. These factors are: 1) whether public spaces include architectural urban elements which protect pedestrians from rain, sun, snow, ice and wind; 2) whether it possesses clean air (which is provided by traffic calming); 3) whether it fulfills the conditions of actual and perceptual safety, and 4) whether it is an accessible space for particularly all pedestrian groups. ‘Visual understanding’ is assessed how far a public space provides a good quality of orientation and how far it is legible for pedestrians.

Regarding ‘physical usability’ of THS, the facades of some buildings provide architectural and urban elements which help the protection of pedestrians from climatic conditions (Figure 7-52). Nevertheless, there is no specific regulation to provide canopies for all the buildings along THS by the local authority. Second, a high traffic volume on the street causes air pollution. Also, insufficient number of street trees is not enough to clean polluted air in the street. Third, the assessment on actual and perceptual safety shows that THS does not provide a safe place (Table 7-3). Finally, there are four seats along THS. But Kuğulu Park provides alternative rest places and seats for the public. There are also cafes and restaurants located along THS and they provide some rest places for the people who can afford (Figure 7-53 and 7-54).

As for the accessibility of THS, it is rather debatable. THS and the streets around it, comprises commercial and residential usages. Their ground floors are more devoted to commercial shops, and other floors are used as residential and commercial usages. Therefore, all facilities placed in THS and around it are easily accessible for their residents. In fact, the liveability of THS is greatly supported by the presence of residential functions or the inhabitants living on the street and the neighboring streets.

Regarding public transportation services, there are many bus stops along Atatürk Boulevard and some of them are located on THS. Yet, it is very difficult to pass through THS due to high traffic volumes resulted from both public and private vehicles in almost every hour of day. This is also relevant for pedestrians. Because of both pedestrian and vehicular traffic, it is hard for pedestrians to walk on THS and to cross it in different parts of the street during both the week days and weekend days.

As the inhabitants and users of THS include middle and high-income groups of people, they generally have cars, and the need for parking spaces for the private car-owners living in this area and those visiting the area is significantly increasing. This therefore creates more traffic congestion along the day. Especially in peak hours, neither visitors, nor the residents of THS and its surrounding streets can easily move by their cars or find parking places for their private cars. Even the sidewalks of the streets are occupied by cars. Therefore, although THS is situated in the central part of this area, and it is well-connected to many streets, traffic congestion, the cars parking on sidewalks, and the crowded street discourage people to drive and walk on THS. These factors make THS an uncomfortable street.

As for 'visual understanding' of THS, the street is partly successful and partly unsuccessful. THS and its surroundings is highly legible environment due to its modified grid pattern and pedestrians easily perceive this pattern. Even though THS is very rich in terms of landmarks, Kuğulu Park is the most important landmark of the area. Following this, Mc Donalds, Karum Shopping Center and Kuğulu Arcade are among the memorable buildings of THS. D&R, Mado, and Öğütler Market are the third-grade landmarks of THS. Three factors are important for the choice of these buildings or sites as the landmarks: their built form, location and usage (or function).

Regarding the continuity, the modified grid street pattern around THS offers more continuous, therefore, walkable sidewalks for pedestrians. Subsequently located shops create a frontage continuity on both sides of THS. But, the continuous sidewalk pattern on THS is interrupted by a number of intersecting streets. Likewise, the perceptual continuity of THS is impoverished by the low quality of sidewalk floor and inharmonious rhythm of street furniture.

As for the participants survey, pedestrians were questioned whether there are enough sheltering provided by building canopies on THS for pedestrians to be protected from sun light, rain, snow and wind. Twenty-three respondents (41%) claimed that there are not any measure taken to protect pedestrians from climatic conditions, while eighteen participants (32%) stated that there were some measures taken, and thirteen people (23%) claimed that there are sufficient measures taken (Figure 7-55).

Pedestrians were also asked whether there is adequate rest places on the street. Thirty-four respondents (61%) claimed that there are not enough rest places along THS, except for KP boundary. Seven participants (12%) expressed that rest places are partially enough and eleven (20%) respondents declared that rest places are completely enough (Figure 7-55).

To sum up, the examination of THS regarding its comfort shows that the physical usability of the street is low. Because, it partly offers artchitectural elements that protect pedestrians from climatic conditions, as also supported by the pedestrians surveyed. There is no systematic regulation for the street about the canopy or other architectural elements that will protect pedestrians from climatic conditions. THS does not possess clean air due to the high traffic volume on the street and insufficient greenery. THS does not fulfill the conditions of actual and perceptual safety either. It is an accessible street for pedestrians by walking, public transport means or private car. THS, however, is not an easily accessible place for vulnerable groups. Besides, the major difficulty for all groups is to move through THS. Although THS is situated in the central part of this area, and it is well-connected to many streets, traffic congestion, the cars parking on sidewalks, and the crowded street discourage people to drive and walk on THS. These factors make THS an uncomfortable street.

As for 'visual understanding' of THS, the street is partly successful and partly unsuccessful. THS and its surroundings is highly legible environment due to its modified grid pattern and pedestrians easily perceive this pattern. Even though THS is very rich in terms of landmarks, Kuğulu Park is the most important landmark of the area. Following this, Mc Donalds, Karum Shopping Center and Kuğulu Arcade are among the memorable buildings of THS. D&R, Mado, and Öğütler Market are the third-grade landmarks of THS. Three factors are important for the choice of these buildings or sites as the landmarks: their built form, location and usage (or function).

Regarding the continuity, the modified grid street pattern around THS offers more continuous, therefore, walkable sidewalks for pedestrians. Subsequently located shops create a frontage continuity on both sides of THS. But, the continuous sidewalk pattern on THS is interrupted by a number of intersecting streets. Likewise, the perceptual continuity of THS is impoverished by the low quality of sidewalk floor and inharmonious rhythm of street furniture.

Figure 7-52, Architectural elements protecting pedestrians from climatic conditions (Resource: Personal archive)

Figure 7-53, Pedestrian presence in the rest places, cafes and restaurants on THS Resource: Personal archive

Figure 7-54, Rest Places in THS (Resource: Personal archive)

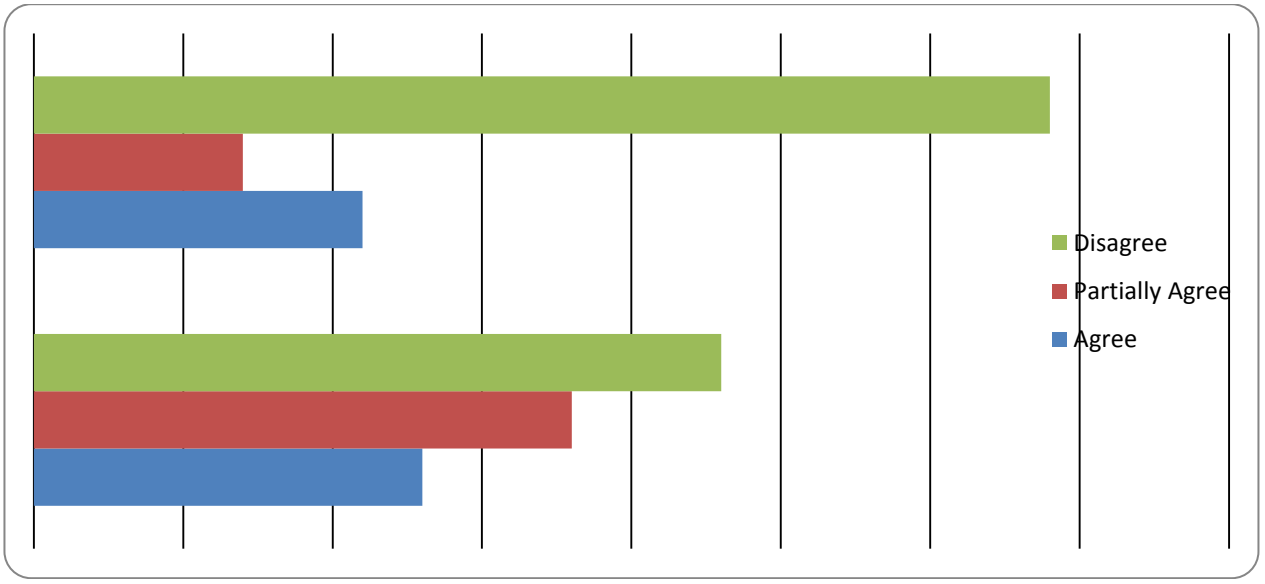


Figure 7-55, The assessment of comfort provided by THS according to the THS' users

7.7. Diversity

Diversity in urban space which includes physical, social and economic diversity has a close relation with walkability. 'Physical diversity', as mentioned earlier, means a variety of urban physical elements, such as a variety of dwelling types, architectural styles, and land-use activities. 'Social diversity' refers to a mixture of people coming from different ages, family types and socio-economic status, whereas 'economic diversity' means a variety of building types with different property values. The presence of such diversity in urban space is important in terms of bringing different groups of people together and to make them use public spaces.

With respect to physical diversity, the first part of THS includes dwelling types for middle and high income groups. In addition, this part comprises many different land-use activities which attract many pedestrian groups (Figure 7-5, 7-56). The presence of Kuğulu Park on this part of THS is another factor which increases the walking activities of THS. However, the second part of THS does not include as many land use facilities as the first part (Figure 6-6). In the second part, the property values are lower than those of the first part. Therefore, the dwellers in the second part are generally middle-income groups.

In terms of social diversity, THS is used by a variety of groups coming from different ages, socio-economic status and family types. As there are various shops serving daily needs, the inhabitants of the street and nearby residential quarters who are families and single people, as well as people who work on the commercial premises on the street or nearby places come to THS for shopping. Also, many young Turkish and international people come to restaurants, bars and cafes on the street or those located on the streets close to THS. Because of the hotels located on THS and nearby streets, it is possible to see many tourists at different ages, social and ethnic background. But, it should be noted that social diversity is mainly seen in the first part of the street which is much more lively than the second part.

Regarding economic diversity, the property values in the first part are generally higher than those in the second part. It is possible to observe more middle- and high-middle income groups in the first part, while the second part accommodates much more middle and low-middle income groups.

In conclusion, although the inhabitants living on THS and its surrounding streets are generally from middle and high-middle income groups, THS accommodates physical, social and economic diversity because of a variety of land-use functions which attract social groups from different quarters of the city, as well as the international tourists. If the walkability capacity of THS is improved, then social and economic diversity of the area will be much richer.

Figure 7-56, Pedestrians with different age groups on THS (Resource: personal archive)

7.8. Local Destination

The distance between home and destination is a key factor of 'walkability'. People are not interested in walking more than 10 minutes (between 400-800m) to reach at the places that satisfy their needs. The interconnected street pattern, which is provided by grid-iron pattern, is important in terms of connecting destinations between each other. As discussed in 7.2.1, the street pattern around THS is based on modified-grid pattern. Thus, it provides pedestrians with a highly interconnected and highly walkable street network. Hence, accessibility to destinations which are in walking distance from THS becomes easy (Figure 7-57). Figure 7-48 also shows that many common facilities located on THS around THS is within walking distance. They therefore increase the liveability of this neighbourhood. As mentioned earlier, if other walkabillity measures are provided satisfactorily, the walkability, therefore, liveability of the site will be highly improved.

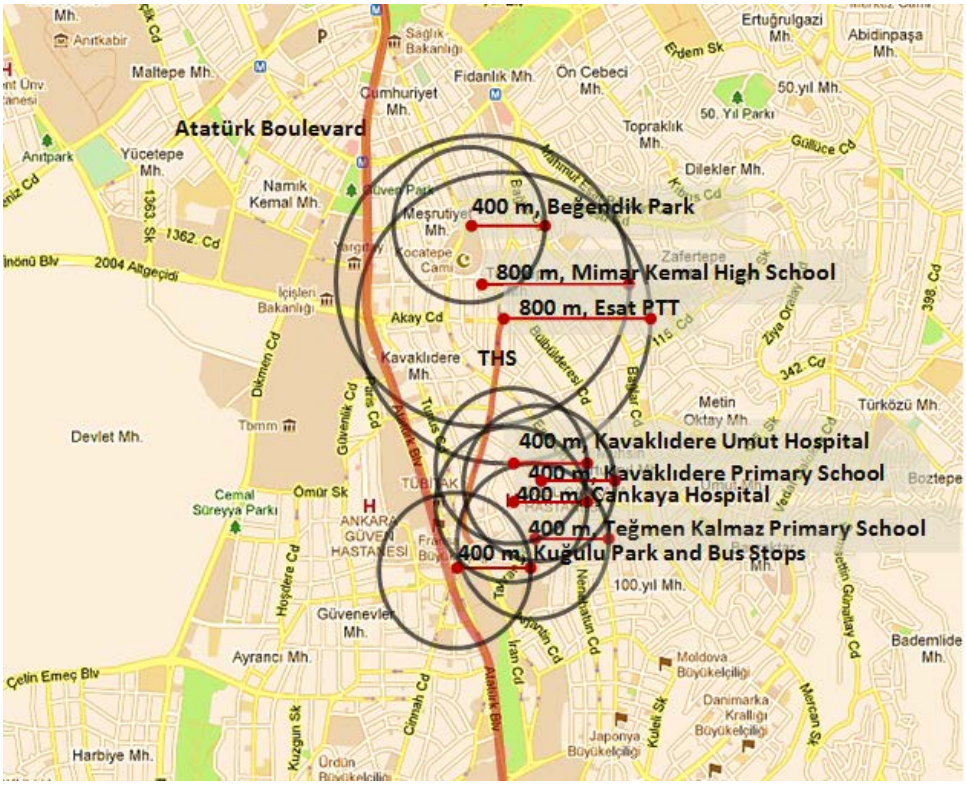


Figure 7-57, The analysis of THS to understand whether the common facilities are located in walking distance (Resource: Personal study)

CHAPTER 8

CONCLUSION

8.1. Overview of the research

Liveability and walkability have become one of the major recent policy topics in the agenda of many cities all over the world. Many local authorities and municipalities have been taking measures to improve walkability and liveability of the city centers in order to ensure sustainable development of cities. Over the last twenty years, however, the urban development policies of Ankara have resulted in the decreasing liveability and walkability of the city center. Along with the decentralization policies, the CBD has been losing its economic and social vitality. With the recent public space policies, the city has been re-structured as a car-oriented city, while pedestrians have been neglected and marginalized. Poor public transportation services have also encouraged people to use their private cars. All these factors decreased the capacity of walkability of the city centre and therefore decreased its liveability.

Despite these policies, there are a few pedestrian precincts in the CBD of Ankara. One of them is THS which is investigated within the context of this thesis. This mix-used street, which is a considerably lively place with many pedestrian activities, has been impoverished and loosing its capacity of walkability by the recent policies of Ankara Metropolitan Municipality. This research therefore investigated how far THS is a walkable street and what factors have decreased the walkability of the street. These questions are important research issues that need to be investigated.

To do so, the research explains the notion of 'walkability' as one of the indicators of liveability, and identifies *safety, orientation, attractiveness, comfort, diversity and local destination* as the measures of walkability in urban public space. It also explains the development history of Ankara and its public spaces, and how far the urban policies have tended to develop a walkable city. Then the study focuses on THS within Ankara, its spatial characteristics before the in-depth investigation of its walkability capacity. Finally, it makes an

in-depth analysis on THS regarding the measures of walkability, as well as the factors which effect its walkability.

8.2. Findings of the research

Safety which is defined as 'actual safety' and 'perceptual safety' is an important quality of walkable public spacces. Regarding the ***actual safety***, the analysis and survey results show that although the *street pattern* around THS provides a high level of walkability and liveability, the walkability for pedestrians is impoverished by high volume of vehicular traffic, low-quality paved surface, narrow sidewalks of THS and the streets around THS. As suggested by many survey participants, high vehicular traffic almost all day long during week and weekend days discourage people to walk in THS and the streets around THS. Even though THS is an easily accessible street by walking for pedestrians, vehicular traffic on the street and its environs becomes the major obstacle for pedestrians to access THS from surrounding places and from different parts of THS.

THS is poor in terms of *traffic calming measures*. THS is poor in terms of design details on traffic calming, such as raised or textured pavement at crosswalks, barriers that would decrease car speed especially in street crossings. . Besides, although there is unsystematic street parking that decreases the perceptual width of the street, and therefore reduces car speed, it causes a considerable traffic congestion and disturbance in pedestrian crossings. It also creates serious problems for car and pedestrian movements.

The *lightning quality* is another important variable which affects the actual safety of a public space. It differs in the different parts of THS. The first part of THS is partly lit and visible, whereas the second part and Kuğulu Park are relatively poor in terms of street lightning and visibility. Pedestrians generally are not happy about the lighting quality of the street and the park. THS therefore needs a considerable improvement in terms of street lightning.

Continuous sidewalk pattern is an essential feature of a well-designed pedestrian system which increases walkability. Although the modified grid street pattern around THS offers more continuous, therefore, more walkable sidewalks for pedestrians, the sidewalk pattern is interrupted by a number of streets crossings which are not adequately visible and safe for

pedestrians, especially for vulnerable groups. Unfortunately a few street crossings with traffic lights are not enough to provide such a continuous and safe sidewalk pattern on THS. Besides, the perceptual continuity of the street is impoverished by inharmonious rhythm of street furniture located on THS. The survey carried out among the pedestrians also show similar results. Pedestrians are considerably disturbed by the interruptions along the sidewalks, unsafe crosswalks (particularly for vulnerable pedestrian groups) and insufficient street furniture which does not serve adequately their daily needs on the street and which do not provide a sufficient perceptual continuity.

Pedestrian enclosure also effects pedestrians' safery, physically and perceptually. The analysis of pedestrian enclosure shows that the majority of pedestrians does not have a right idea about the boundary of THS. Because of the intensity of multi-purpose usages and high volume of vehicular and pedestrian traffic, the general recognition about the boundary of the street is from Kuğulu Park to the intersection of Esat Street.

High pedestrian volume in the first part of THS effects the comfortable movement of pedestrians on THS, except for quiet hours of week days. Together with the analysis on the ratio of building height to street width and the pedestrian volume, the investigation shows that pedestrian enclosure in the first part of THS is inadequate. This creates a suffocating street. In the second part of the street, however, the pedestrian enclosure (therefore, the sidewalk width) is adequate particularly due to the low pedestrian volume. Regarding *building orientation,* the analysis shows that most buildings and shops are oriented to the main sidewalks of THS and they therefore intensify pedestrian enclosure. Nevertheless, inharmonious distance between *street furniture* weakens pedestrian enclosure of THS.

The survey on the users of THS shows that the majority of pedestrians agreed on the idea of pedestrianization of THS, especially from Kuğulu Park to the intersection of Esat Street. If the street cannot be pedestrianized, the majority of survey participants agreed on the idea of widening the street sidewalks, especially on both sides of THS between Kuğulu Park and the intersection of THS. The main reason for this idea lies behind the views of the users about uncomfortable walking conditions of the sidewalks. The only part which they find comfortable for walking is Kuğulu Park and its vicinity. The survey also shows that particularly vehicular traffic on street crossing disturbs the pedestrian movement.

Separation is another component of actual safety of pedestrians. Although the on-street parking of THS provides a significant separation between pedestrians and vehicle area, the cars parking next to these parking lots hinder pedestrians crossing and movement, and endanger their safety. They also create traffic congestion on THS. Thus, new controlling regulation that prohibits such parking is necessary for THS to ensure pedestrians' safety and to increase the walkability of THS.

Floor quality is also very important in terms of enhancing the actual safety of pedestrians. The floor quality of THS is significantly poor. The results of the direct observation shows that broken pavement slabs, unsafe level variations of sidewalks, obstacles along the sidewalks makes walking more uncomfortable and unpleasant for all groups of pedestrians. The majority of survey participants agreed that the pavement slabs, which are not well-laid out, which are deformed or broken, unusual obstacles along sidewalks endanger the pedestrians' safety.

Street crossing is a crucial factor in safety evaluation. The investigation on the street crossings of THS and survey results show that the street crossings with traffic lights are not sufficient to create a safe and walkable street. The majority of the survey participants agreed that the street crossings are not well-situated, easily accessible and visible. They also think that the street crossings with traffic lights along THS are insufficient. Therefore, the results of this investigation point out an urgent need for re-designing all the street crossings on THS as a continuity of the sidewalks to ensure the safety of all groups of pedestrians. Necessary standards should be implemented to the design of ramps, floor materials, signs that will ease the movement and comfort of pedestrians, and increase their safety. In this way, they will be easily visible (or perceivable) by everybody, as well.

Perceptual safety is another important factor which effect the walkability capacity of public spaces. The perceptual safety of THS is debatable in various terms. Regarding the *delimitation of public and private space*, the perceptual safety is poor, as it is not clear which part of sidewalk belongs to the public space and which part is the private premise. Regarding the *building orientations*, however, the perceptual safety is strong, as all buildings are oriented towards THS, and THS is a mix-use street. Therefore, THS might be perceived as a safe street during day time, as there are a number of people who work and live on THS might act as 'eyes

on the street'. In the first part of THS, the perceptual safety of night time can be seen lower than that of day time, as the residential usage is less than the second part. In the second part of THS, the perceptual safety at night time might be lower than day time. Nevertheless, the perceptual safety of this part of THS at night is higher than that of the second part due to the presence of high residential population. As for the survey results, the respondents generally agreed that THS is a partially safe street at night, except Kuğulu Park which is considered unsecure at night. The majority of the survey participants claimed that facilities open until late night might make the street perceived safe. Nevertheless, there is no clear idea about whether THS will be a much safer place if there is a higher ratio of residential population.

Orientation is crucial part of safety and walkability, as it enables pedestrians to realize public space network, to recognize the most important public places, to avoid from the fear of being lost, and therefore to have the tendency of walking. It is assessed in terms of legibility of street pattern and urban components, landmarks, continuity, built form and location, architectural and environmental features.

Regarding the criterion of orientation, THS is partly successful and partly unsuccessful. THS and its surroundings are highly legible due to the modified grid pattern and pedestrians easily perceive this pattern. Even though THS is very rich in terms of landmarks, Kuğulu Park is the most important landmark of the area. Following this, Mac Donalds, Karum Shopping Center and Kuğulu Arcade are among the memorable buildings of THS. D&R, Mado, and Öğütler Market are the third-grade landmarks of THS. The location, function and built form are the prominent reasons for the choice of these buildings or sites as the landmarks. Kuğulu Park is seen as the most important landmark because of its location. As it is very close to the public transport stops, it is very accessible for the users of public transport. Also, as a public open space, it is accessible by everyone, and it is used for different activities (meeting, relaxing, exercising, socializing space, etc). This makes people to know and use it for different purposes, therefore, to recognize it as the main landmark of THS. Kuğulu Arcade, Mac Donalds and Karum are other important landmarks, because they provide safe and comfortable places for pedestrians to meet due to their covered areas which protect them from bad climatic conditions. Likewise, Karum shopping mall and Mac Donalds are important landmarks because of their distinguished architectural style. Besides, Mac Donalds is seen as a memorable building due to its location on THS. Mado and D&R are third-grade landmarks.

They provide protected places for people to sit, eat and drink, while waiting for somebody. The location of Mado is also influential in terms of being a memorable place of THS in the mind of people. As for Öğütler, it is also recognized as a landmark of THS, because it is next to another important landmark -Mac Donalds- and the architectural style of the building where it is situated is rather distinguished for most pedestrians.

As for the *continuity*, the modified grid street pattern around THS offers more continuous, therefore, walkable sidewalks for pedestrians. Subsequently located shops create a frontage continuity on both sides of THS. But, the continuous sidewalk pattern on THS is interrupted by a number of intersecting streets. Likewise, the perceptual continuity of THS is impoverished by the low quality of sidewalk floor and inharmonious rhythm of street furniture.

In the case of THS, the entrances of shops and apartment buildings are visible by pedestrians, but they are not well-defined by architectural or urban elements. Some of them are not very accessible for vulnerable pedestrian groups, as well. These buildings entrances need particularly ramps, or some pavement treatments on the floor to fix floor level variations.

Attractiveness is another important factor that should be considered in terms of walkability of public spaces. There are a number of factors affecting attractiveness of a place. This research is opted to examine it regarding the concepts of colorful, enjoyable, legible, safe, peaceful, comfortable, spacious, predictable, monotonous, intriguing, surprising, mysterious, exciting and suffocating.

Regarding THS, there is a color harmony among the buildings which were built between the 1960s and 1990s. Yet, the new ones are generally very different from the earlier buildings regarding their building materials and thus façade colors. They decrease the visual harmony of the street in terms of colors. Besides, as the signboards of the shops and offices on THS are not regulated, in some parts of the street, especially between Kuğulu Park and Esat Street, they also impoverish the visual harmony of the street. In terms of actual and perceptual safety, THS is not a safe street for pedestrians in many senses. Nevertheless, because of the street pattern and landmarks, THS is highly legible for pedestrians. THS is a street containing the buildings with different architectural style. The buildings with similar architectural sytle may create a monotonous scene. As there are buildings with different architectural style, especially between Kuğulu Park and Esat Street, it is possible to argue that THS does not

provide pedestrians with a monotonous scene. Also, the shops and shop windows make it a very interesting place, particularly for pedestrians.

Pedestrian enclosure in the first part of THS is inadequate. This creates a suffocating street. In the second part of the street, however, the pedestrian enclosure (therefore, the sidewalk width) is adequate particularly due to the low pedestrian volume. Besides, there are a number of visual elements, such as dirty advertisement boards, unsafe urban elements, and inappropriate placement of air conditioners along sidewalks, broken pavement slabs, different level variations on sidewalks, improperly built street ramps, which impoverish the attractiveness of the street.

According to the survey, the majority of the participants claimed that THS is a colorful, enjoyable, predictable and legible street. They also stated that it is a partially safe, peaceful, comfortable, and intriguing street. Finally, they claimed that THS is not an exciting, mysterious, and surprising street, but they did not find THS boring/monotonous either. Additionally, the survey participants claimed that THS is not spacious, but not a suffocating street either.

The resultes of the survey can be interpreted as follows:

- THS is an attractive street in terms of the colours, joy, legibility and predictability it provides.
- THS is an attractive street to a certain extent regarding the safety, peace, comfort and intriguing that it partially offers.
- THS is not attractive, as it cannot provide an exciting, mysterious and surprising scene and it is not a spacious street. But, it is not disattractive either, as it is not a boring/monotonous and suffocating street.

Comfort is another component which effect the walkability capacity of public spaces. The examination of THS regarding its comfort shows that the ***physical usability*** of the street is low. Because, it partly offers artchitectural elements that protect pedestrians from climatic conditions, as also supported by the pedestrians surveyed. There is no systematic regulation for the street about the canopy or other architectural elements that will protect pedestrians from climatic conditions. THS does not possess clean air due to the high traffic volume on the

street and insufficient greenery. THS does not fulfill the conditions of actual and perceptual safety either. It is an accessible street for pedestrians by walking, public transport means or private car. THS, however, is not an easily accessible place for vulnerable groups. Besides, the major difficulty for all groups is to move through THS. Although THS is situated in the central part of this area, and it is well-connected to many streets, traffic congestion, the cars parking on sidewalks, and the crowded street discourage people to drive and walk on THS. These factors make THS an uncomfortable street.

As for '***visual understanding***' of THS, the street is partly successful and partly unsuccessful. THS and its surroundings is highly legible environment due to its modified grid pattern and pedestrians easily perceive this pattern. Even though THS is very rich in terms of landmarks, Kuğulu Park is the most important landmark of the area. Following this, Mac Donalds, Karum Shopping Center and Kuğulu Arcade are among the memorable buildings of THS. D&R, Mado, and Öğütler Market are the third-grade landmarks of THS. Three factors are important for the choice of these buildings or sites as the landmarks: their built form, location and usage (or function). Regarding the continuity, the modified grid street pattern around THS offers more continuous, therefore, walkable sidewalks for pedestrians. Subsequently located shops create a frontage continuity on both sides of THS. But, the continuous sidewalk pattern on THS is interrupted by a number of intersecting streets. Likewise, the perceptual continuity of THS is impoverished by the low quality of sidewalk floor and inharmonious rhythm of street furniture.

Diversity *(physical, social and economic diversity of urban space)* is another factor affecting walkability of public spaces. Although the inhabitants living on THS and its surrounding streets are generally from middle and high-middle income groups, THS accommodates physical, social and economic diversity because of a variety of land-use functions which attract social groups from different quarters of the city, as well as the international tourists. If the walkability capacity of THS is improved, then social and economic diversity of the area will be much richer.

Finally, **the distance between home and destinations** (i.e., local destinations) is a key factor of walkability. As the street pattern around THS is based on modified-grid pattern, it provides pedestrians with a highly interconnected and highly walkable street network. Hence,

pedestrians can easily access to many public facilities, such as nurseries, schools, medical centers, commercial facilities, public transport stops, which are in walking distance from THS. This is one of the major aspects which increases the liveability of this neighbourhood. As mentioned earlier, if other walkabillity measures are provided satisfactorily, the walkability, thus the liveability of the site, will be highly improved.

8.3. Recommendations

This research concludes that the walkability capacity of THS is low, but THS has several strong sides and opportunities to improve its walkability, and therefore to increase the liveability of this area. To increase the walkability of THS, the prominent priority issues should be to reduce privately owned car usage (including taxi traffic) and to increase public transportation means to access THS from other parts of the city. Although this seems to be a reasonable strategy, it should be noted that it is a city-level strategy. As noted in Chapter 5 and 6, the low walkability capacity of THS is related to the transportation policies at the city level. To resolve this problem, it is necessary to develop the city-level strategies and policies of transportation which will prioritize the public transportation services and investments and walkability of pedestrians, and which will reduce the private-car usage within the city. Without comprehensive and holistic approaches on the urban transportation, the pedestrian precincts and the commercial streets serving both vehicular and pedestrian traffic in Ankara, it is not possible to resolve the problems of localities (such as, THS) through partial interventions.

As underlined by this research, to increase the walkability of an urban area or a street, the necessary intervention should be on the issues of safety, orientation, attractiveness, comfort, diversity and local destinations. Regarding safety, it is crucial to reduce vehicular traffic, while increasing public transport means to access to THS and to take the measures for pedestrians' safety. As THS is an important arterial street, it is not easy to close it down to vehicular traffic and to pedestrianize it. But, a number of measures can be taken to reduce vehicular traffic volume. These are as follows:

- To narrow down the size of the road and to turn it into a two-lane street (Figure 8-2)
- To widen the sidewalk of the street;

- To deter private car drivers to access THS by car by reducing the number of on-street car parking on the east side of the street (which should be the only part for on-street parking), by regulating on-street car parking through dedicated parking plots, by increasing car parking fees, by monitoring and controlling the cars standing on the second lane of the street and charging them high penalties;
- To introduce traffic calming measures, such as raised or textured pavement at crosswalks, speed barriers that will decrease car speed especially in street crossings for both THS and its surrounding streets (Figures 8-3 and 8-4);
- To continue the implementation of the existent one-way mazed traffic system on all the streets around THS;
- To improve the lightning of the first and second parts of the street, as well as Kuğulu Park;
- To provide continuous and safe sidewalks on THS for pedestrians by creating a visually and perceptually continuous pedestrian zone (Figure 8-5). The visual continuity for THS' sidewalk can be provided by renewing the pavement of sidewalk and by improving floor quality. The sidewalk should be divided into two parts: 1) Curb zone (i.e., the part between on-street car-parking lane and pedestrian zone); 2) Pedestrian zone. For pedestrian zone, a paved road with a high quality material that will be dedicated only for pedestrians, free from unnecessary elements, such as street furniture, etc. should be built. At the street intersections or crosswalks, the same paved road with extra textured materials should continue to ease the movement of pedestrians and to reduce the vehicular speed. Ramps at the crosswalks should be properly built according to the standards. Curb zone that will be only dedicated for trees and street furniture should be built. In some parts of the sidewalk, few dedicated sites can be rented to the commercial usage of restaurants and cafes. They can be on raised platforms or the street level (Figure 8-6)**.** The building zone which is currently used as the business premises, such as the zone in front of Cevz, Mado or Ramada Hotel, should be redesigned to widen pedestrian zone. Some part of this zone can be expropriated for this purpose. Street cafes can be only run on the dedicated zones.
- For the perceptual continuity of the sidewalk, the height and type of light poles should be the same along THS. In terms of consistency, this type of lightning should

be used on Iran Street. An urban code should be introduced to create coherent canopies for all the buildings, street benches and bins (Figures 8-1 and 8-6).

- Street crossings with traffic lights on THS should be increased. This will help to reduce traffic speed and volume, and act as a traffic calming measure.
- To increase perceptual safety of THS, there should be a building regulation for THS. The color, materials and architectural style to be used for buildings should be identified. The facades of the buildings which are not in harmony with the rest of the buildings should be modified. There should be also regulations on the shop windows and signboards of shops and offices (Figure 8-1). Important landmarks of THS should be emphasized. All these regulations will also improve the attractiveness of the street.
- The entrance of all buildings should be visible and accessible for all pedestrian groups, especially for vulnerable groups. Necessary ramps and pavement treatment to fix the level variations should be built. In some building entrances, there are considerable difference between street level and building plots. Necessary fences should be built to ensure the safety of people. There should be necessary regulation on the lettering of name and number of apartment buildings.
- To create an attractive street, there should be regulations on the advertisement boards, public transport stops, street furniture, all signs and signage;
- Street furniture should be located on the street to create a harmonic rhythm;
- The walkability for other streets, especially for those which lead to the public facilities, should be considered and special concern (just like on THS) should be taken.

Figure 8-1, An urban design project by DPZ which regulates shop windows, street furniture, trees, and seeks to provide a continuous sidewalk for the main shopping street of Edinburgh

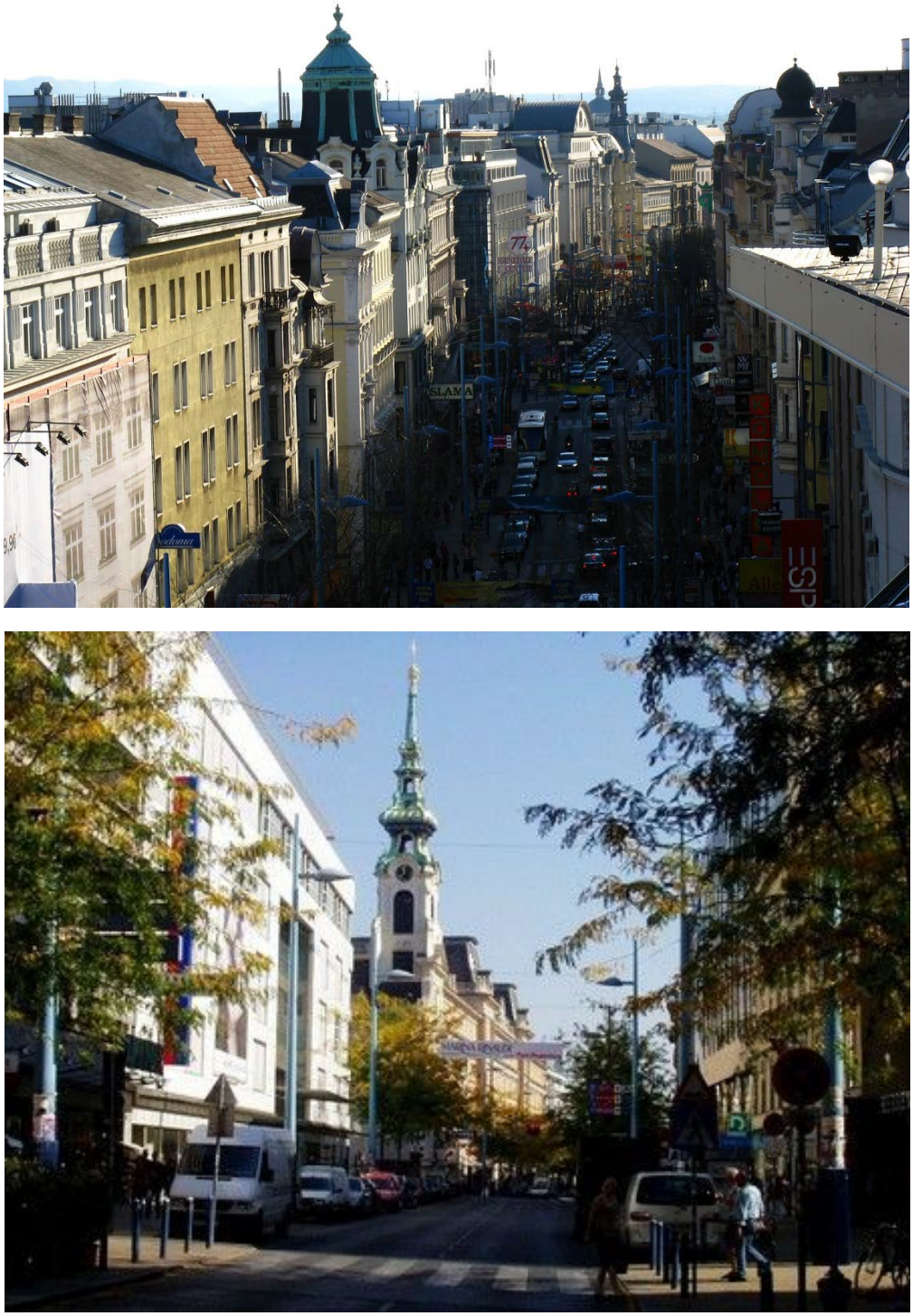


Figure 8-2, Mariahilfer Street in Vienna is a good example of a shopping street for a two-lane of vehicular traffic, large sidewalks, safe street crossings and limited car-parking lots strictly regulated by the City of Vienn

Figure 8-3, Safe crossings with street lights on Mariahilfer Street, Vienna

Figure 8-4, Safe street crossings with necessary traffic signage and textured pavement materials

Figure 8-5, Continuous sidewalk which provides safe street crossing and safe walking site for all groups

Figure 8-6, Small street cafes which might be located on the curb zone

Figure 8-7, Canopies that can be used on a shopping street like THS

REFERENCES

2023 Başkent Ankara Nazım İmar Planı, 2006, Ankara Büyükşehir Belediyesi, İmar ve şehircilik Dairesi Başkanlığı: Ankara.

Akit, M., 2004, Pedestrian Experiences in Bahçelievler 7th Street: Setting the Design Criteria for the Enhancement of Urban Public Realm, A master thesis to be submitted to Department of City and Regional Planning, METU: Ankara.

Anderson, S., 1978, On streets, MIT Press: Cambridge.

Appleyard , B., 2006, At Home in the Zone, Planning 72, No. 9: 30-35.

Appleyard, D., Sue Gerson, M., Lintell, M., 1981, Livable Streets, University of California Press: Berkeley.

Barlas, A., 2006, Urban Streets and Urban Rituals, METU Faculty of Architecture: Ankara.

Bentely, J., 2002, Urban Transformations, Power, People and Urban Design, Routledge: London and New York.

Ben-Joseph, E., 1995, Changing the residential street scene - Adapting the shared street (Woonerf) concept to the suburban environment, Journal of the American Planning Association 61(4): 504-515.

Ben-Joseph, E. and Southworth, M., 2003, Streets and the Shaping of Towns and Cities, Island Press.

Breines, S., Dean, W.J., 1974, The Pedestrian Revolution: Streets Without Cars, Vintage Books: New York.

Burden, D., no date, Ten Keys to Walkable Communities, Accessed at www.planetizen.com/node/21, Retrieved on 17/3/2010.

Calthorpe, P., 1993, The Next American Metropolis: Ecology, Community, and the American Dream, Princeton Architectural Press: New York.

Cerver, F.A., no date, City Planning: Urban Architecture, Accessed at http://www.pdfxp.com/cerver-pdf.html, Retrieved on 26/3/2010.

Ceylan, A., no date, Drought Management Plan for Ankara, Turkish State Meteorological Service, Accessed at http://www.tn.gov/environment/dws/pdf/droughtmgtplan.pdf, Retrieved on 24/3/2010.

Commita, T.J., 2000, A range of parks, from tot lots village greens to ballfields and community gardens, should be distributed within neighbourhoods. Conservation areas and open lands should be used to define and connect different neighbourhoods and districts., M.Leccese and McCormik (Eds.), Charter of New Urbanism. McGraw-Hill: New York.

Çakan, A., 2004, Central Business District Problems in Ankara: Transformations in Kazikçı Bostanları, A master thesis to be submitted to Department Of City and Regional Planning, METU: Ankara

Çapanoğlu, İ., 2010, A member of Kavaklıderem Association.

Çiçek, B.E., 2009, Pedestrian Safety Around Elementary Schools, A master thesis to be submitted to Department Of Psychology, METU: Ankara

Daisy Bank Walking Group, 2006, Mental Health, Getting out of the Day Centre, WHI: Manchester, North West, Accessed at http://www.wfh.naturalengland.org.uk/uploads/documents/2335/Mental%20Health%20pdf%2012%20Jan%2006%20final.pdf . Retrieved on 19/3/2010.

De Chiara, J., Panero, J. And Zelnik, J., 1995, Time Saver Standards for Housing and Residential Development, McGraw-Hill: New York.

Dixon, J.M., FAIA, Patel, H.K., 2001, Urban Spaces, the Design of Public Places, New York: Visual Reference Publications ; Urban Land Institute: Washington, DC.

Durning, A.T., Callister,B., Christopher,C., and Valdez,L., 1996, The Car and the City: 24 Steps to Safe Streets and Healthy Communities , Wash,S., Northwest Environment Watch.

Dumbaugh, E., 2005, Safe Streets, Livable Streets, Journal of the American Planning Association 71(3): 283-298.

Eker, A. and Eker, F., 2008, Oral History, Kavaklıderem Associaiton, Accessed at http://www.kavakliderem.org.tr/. Retrieved on 15/9/2010.

Eraydın, Z., 2007, Building A Legible City: How Far Planning is Successful in Ankara, A master thesis to be submitted to Department of City And Regional Planning, METU: Ankara

Evans, G., 2009, Accessibility, Urban Design and the Whole Journey Environment, Built Environment, 35(3) 365-385, Accessed at www.citiesinstitute.org . Retrieved on 17/9/2010.

Forkenbrock, D., Weisbrod, G., 2001, Guidebook for Assessing the Social and Economic Effects of Transportation Projects, Accessed at http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_456-a.pdf. Retrieved on 19/3/2010.

Fyfe, N.R., 1998, Images of the Street: Planning, Identity, and Control in Public Space, London; Routledge: New York.

Gehl, J., 1987, Life between Buildings: Using Public Space, Van Nostrand Reinhold: New York.

Gülsah, A., 2004, Automobile Travel Reduction In Urban Areas And City Centers, A master thesis to be submitted to Department of Civil Engineering, METU: Ankara

Günay,B., 2007, Baykan Günay ile Ankara Üzerine..., Accessed at http://www.arkitera.com/s74-baykan-gunay-ile-ankara-uzerine.html. Retrieved on 19/3/2010.

Haughey, R., 2008, Getting Density Right, Tools for Creating Vibrant Compact Development, Urban Land Institute: National Multi Housing Council: Washington, D.C.

Johns, P., Roberts, M., and Morris, L., 2007, Rediscovering Mixed-Use Streets, Joseph Rowntree Foundation, The Policy Press, Bristol.

Kaiser, E.J., Lawrence D.F., Peter O.E., and Thomas L.S., 2003, Health and Community Design, University of Illinois Press, Urbana, Illinois.

Kaiser, E.J., Godschalk, D.R., and Stuart Chapin, F., 2006, Urban Land Use Planning, University of Illinois Press, Urbana, Illinois.

Kazimee, B.A., 2002, Sustainable Urban Design Paradigm: Twenty-five Simple Things to do to Make an Urban Neighbourhood Sustainable, School of Architecture and Construction Management, Washington State University, USA, Accessed at www.arch.wsu.edu. Retrieved on 17/1/2011.

Kolody, A.D., 2002, Planning for Physical Activity: The Need for Comfortable and Convenient Pedestrian Movement in the Urban Form, A master thesis to be submitted to Faculty of Environment Design, University of Calgary.

Lambert, K., 2005, Critical Evaluation of Livability in Garisson Woods, A master thesis to be submitted to Faculty of Environment Design, University of Calgary.

Lennard, S.H.C., and Lennard, H.L., 1995, Livable Cities Observed: A Source Book of Images and Ideas for City Officials, Community Leaders, Architects, Planners and All Other Committed to Making Their Cities Livable, Gondolier Press: CA.

Leyden, K.M., 2003, Social Capital and the Built Environment: The Importance of Walkable Neighbourhoods, Accessed at http://geography.ssc.uwo.ca/faculty/baxter/readings/Leyden _AJPH_walkable _social_capital_2003.pdf. Retrieved on 30/3/2011.

Leyden, K.M., 2003, Social Capital and the Built Environment: The Importance of Walkable Neighbourhoods, American Journal of Public Health, 93: 1546–1551, Accessed at http://ajph.aphapublications.org/ or http://geography.ssc.uwo.ca Retrieved on 30/3/2010.

Litman, T.A., 2011, Evaluating Non-motorized Transport, Benefits and Costs, Victoria Transport Policy Institute (VTPI), Accessed at http://www.vtpi.org/walkability.pdf. Retrieved on 25/2/2011.

Litman, T.A., 2009, Transportation Cost and Benefit Analysis Techniques, Economic Value of Walkability, Accessed at http://www.vtpi.org/walkability.pdf. Retrieved on 19/3/2010.

Litman, T.A., 2009, Transportation Cost and Benefit Analysis Techniques, Health and Safety, Estimates and Implications, Accessed at http://www.vtpi.org . Retrieved on 30/3/2010.

Lucy, W.H., Phillips, D.L., 2006, Tomorrow's Cities, Tomorrow's Suburbs, American Planning Association, Chicago.

Margaret, M.C., Song, Y.Ch., Wu, J., 2008, Ecology, Planning, and Management of Urban Forests: International perspective, University of Louisville (USA), East China Normal University (Shanghai), School of Life Sciences (USA).

Marshall, S., 2005, Streets and Patterns, Spon: London, New York.

Moudon, A.V., and Appleyard, D., 1987, Public Streets for Public Use, Van Nostrand Reinhold: New York.

Moudon, A.V., and Appleyard,D., 1991, Public Streets for Public Use, Columbia University Press: New York.

Mutlu, Ö., 2006, Understanding City as an Architectural and Non-Architectural Program: Learning From Ankara, A master thesis to be submitted to Department of Architecture, METU: Ankara.

Nozzi, D., 2010, Ingredients of a Walkable Street, Accessed at http://www.metrojacksonville.com/article/2010-dec-ingredients-of-a-walkable-street Retrieved on 24/11/2010.

No author, 2010, Closed ended questions, The website of Wikipedia, Accessed at http://en.wikipedia.org/wiki/Open-ended_question, retrieved on 15th December, 2010.

No author, 2004, Making London a walkable city, The Walking Plan for London February, Accessed at http://www.tfl.gov.uk/assets/downloads/corporate/walking-plan-2004.pdf Retrieved on 26/3/2010.

Okullu, S.G., 2007, Non-Motorized Transport for Mobility Planning in City Centres: An Assessment of Opportunities for Transforming Ankara, Tunali Hilmi Street into A Pedestrian-Friendly Area, A master thesis submitted to Department of Urban Policy Planning and Local Governments, METU, Ankara

Pacione, M., 1990, Urban Problems: An Applied Urban Analysis, Routledge: London.

Pehlivanoğlu, Y., forthcoming, Understanding Perceptions Regarding the Aesthetics of Urban Public Space: Tunalı Hilmi Street, Ankara. A master thesis to be submitted to the Department of City and Regional Planning, METU: Ankara.

Rapoport, A., 1987, Pedestrian Street Use: Culture and Perception: Public Street for Public Use, Mc Millan: Agincourt Ontario, Canada.

Reeves, D., 2005, Planning for Diversity, Policy and Planning in a World of Difference, The RTPL Library Series: London.

Residential Streets, 1990, New York, N.Y., American Society of Civil Engineers; Washington, D.C., National Association of Home Builders: Urban Land Institute.

Stevens, Q., 2009, 'Broken' public spaces in theory and in practice, TPR Journal Article, no 3: 371-391.

Southworth, M. and Ben-Joseph, E., 1995, Street Standards and the Shaping of Suburbia, Journal of the American Planning Association 61(1): 65-81.

Southworth, M., 2005, Designing the Walkable City, Journal of Urban Planning and Development- Asce 131(4): 246-257.

Southworth, M., Owns, P.M., 1993, Evolving metropolis: studies of community, neighbourhood, and street form at the urban edge, Journal of the American Planning Association, 59(3): 217-87.

Southworth, M., 1997, Walkable suburbs: An Evaluation of neotraditional communities at the urban edge, Journal of the American Planning Association, no 63(1): P.28-44

Söderholm, D., 2008, The Commercial Structure of Pedestrian Streets and Shopping Districts, A master thesis submitted to Department of Geography, University of Helsinki.

Steuteville, R., Langdon, P., and other special contributors, 2003, New Urbanism: Comprehensive Report and Best Practices Guide, Third edition, New UrbanPpublications: Ithaca, NY.

Sutcliffe, E.B., 2005, Kent merkezi ulaşim planlama ilkeleri çerçevesinde Ankara kent merkezi. Cumhuriyet'in Ankarasi. T. Şenyapılı (der). ODTÜ Yayıncılık: Ankara. pp. 287-308.

Untermann, R., Moudon, A.V., and Appleyard, D., 1987, Changing Design Standards for Streets and Roads: Public Streets for Public Use, In: Moudon, Anne Vernez (ed). 1991. Public Streets for Public Use. Columbia University Press: New York. pp. 255-60.

Ünsal, B.B., 2010, An Analysis Of Street As a Shopping Precinct: Tunali Hilmi Street Vs Shopping Centres, A master thesis to be submitted to Department of City and Regional Planning, METU: Ankara.

Victoria Transport Policy Institute (VTPI), 2010a, Community Livability, Accessed at http://www.vtpi.org/tdm/tdm97.htm. Retrieved on 25/11/2010.

Victoria Transport Policy Institute (VTPI), 2010b, Evaluating Non-motorized Transport, Accessed at http://www.vtpi.org/tdm/tdm63.htm. Retrieved on 25/11/2010.

Victoria Transport Policy Institute (VTPI), 2011c, Evaluating Non-motorized Transport, Benefits and Costs, Accessed at http://www.vtpi.org/walkability.pdf. Retrieved on 25/2/2011.

Victoria Transport Policy Institute (VTPI), 2010b, Evaluating Non-motorized Transport, Techniques for Measuring Walking and Cycling Activity and Conditions. Accessed at http://www.vtpi.org/tdm/tdm63.htm. Retrieved on 25/11/2010.

Walkability Checklist Guidance for Entitlement Review, City of Los Angeles Department of City Planning, Accessed at http://www.urbandesignla.com/walkability/Offstreet_Parking.pdf . Retrieved on 26/3/2010.

Wall, H.J., 1999, Voting With Your Feet and Metro-Area Livability, Accessed at www.stls.frb.org/publications/re/1999/b/re1999b4.html. Retrieved on 30/3/2010

We need more pedestrian walkways like this, Accessed at http://anilnetto.com/development-issues/we-need-more-pedestrian-walkways-like-this. Retrieved on 11/10/2010.

Weissman, S., and Corbett, J., 1992, Land Use Strategies for More Livable Places, Accessed at http://www.lgc.org. Retrieved on 19/3/2010.

Wheeler, S.M., and Deakin, E., Livable Communities: Creating Safe and Livable Neighbourhoods, towns, and regions in California, Accessed at http://escholarship.org/uc/item/8xf2d6jg . Retrieved on 17/3/2010.

Wheeler, S., 2001, Livable Communities: Creating Safe and Livable Neighborhoods, Towns and Regions in California, Accessed at http://escholarship.org/uc/item/8xf2d6jg. Retrieved on 30/3/2010.

Williams, D.E., 2007, Sustainable Design: Ecology, Architecture and Planning, Wiley: Hoboken.

Yasdag, S., 2006, Achieving A Pedestrian Oriented Transportation System In Ankara, A master thesis to be submitted to Department of City and Regional Planning, METU: Ankara.

APPENDICES

APPENDIX A

The questionnaire of the case study of Tunalı Hilmi Street

TUNALI HİLMİ STREET QUESTIONNAIRE

Age: _____

Sex: _____

Profession: _____

1. How often do you visit Tunalı Hilmi Street (THS)?

- ☐ Everyday
- ☐ 3-4 times a week
- ☐ Once a week
- ☐ Twice a month
- ☐ Once a month
- ☐ Once in every few months
- ☐ Other (specify)

2. What do you use the street for?

- ☐ Shopping
- ☐ Walking
- ☐ Meeting friends
- ☐ Using cafés and restaurants
- ☐ I live on T HS
- ☐ I work on THS
- ☐ Other (specify)

3. Which parts of the street do you use n

- ☐ Cafés and restaurants
- ☐ Stores
- ☐ Karum and surroundings
- ☐ Kuğulu Park and surroundings
- ☐ Other (specify)

4. Where THS starts and ends?

5. Do you think, THS is a pedestrian-friendly street?

6. If yes, why it is a pedestrian-friendly street?

7. If no, why it is not a pedestrian-friendly street?

Table 8-A, To what degree do you agree to the following statements?

	Agree	Partially Agreee	Disagree
It is easy and comfortable to walk along the street			
It is an easily accessible street from other places by walking			
Vehicular traffic on the street is a problem for pedestrians to access to different parts of THS			
Vehicular traffic on the parallel streets is a problem for pedestrians to access to THS			
It is a well-lit street at night			
It is a safe street at night			
Kuğulu Park is a well-lit park at night			
Kuğulu Park is safe at night			
There is no interruption for pedestrians along sidewalks			
Crosswalks are safe for pedestrians			
Crosswallks are safe for old people, disable people, children and parents with young children			
Sidewalks are wide enough for pedestrians			
Street furniture (bins, benches, bollards, lighting lambs, kiosks, etc) provided along the street is sufficient			
The location of street furniture obscurs the pedestrian movement			
On-street car-parks disturbs pedestrian movement			
The pavement slabs are well-laid out and do not distrurb pedestrian movement			
Level variations along the sidewalks pavement (ramps, etc) are adequately safe for pedestrians			
Pavement slabs along the along the sidewalks are not deformed or broken			
There is no unusual obstacle for pedestrians along the sidewalks			
There are sufficient street crossing along THS			
The street crossings along THS are well-situated			
The street crossings along THS are located on easily accessible places			
The street crossings along THS are easily visible			
It is a noisy street			
Noise is resulted from car traffic			
Facilities open until late night (restaurants, cafes, bars, night clubs e tc) make the street safer at night			
It will be a much safer street if there are more residential uses			
There are enough sheltering provided by building canopies for pedestrians to be protected from sun light, rain, snow and wind			
There are enough restplaces for pedestrians along THS			

9. Please draw a simple map of THS showing its connected streets with lines and memorable buildings with nodes.

10. Which part of THS can you walk easier and more comfortably?

11. Which park of THS you can walk more difficult and uncomfortably?

12. How the vehicular traffic distrurbs the pedestrian movement?

13. Do you think, some parts of THS should be pedestrianized?

14. If yes, which parts of the street should be pedestrianized?

15. Do you think, some parts of THS' sidewalks should be widened?

16. If yes, which parts of THS' sidewalks should be widened?

17. Is there any other issue you would like to add as a problem of THS concerning pedestrians?

Table 18-A, To what extent do you believe the following statements are applicable to THS? (Resource: Pehlivanoğlu, forthcoming)

	Applicable	**Partly Applicable**	**Not Applicable**
a) Colorful			
b) Safe			
c) Comfortable			
d) Enjoyable			
e) Exciting			
f) Boring/monotonous			
g) Mysterious			
h) Intriguing			
i) Surprising			
j) Predictable			
k) Legible/clear			
l) Open/spacious			
m) Closed/suffocating			
n) Peaceful			

APPENDIX B

The cognitive maps of the case study of Tunalı Hilmi Street

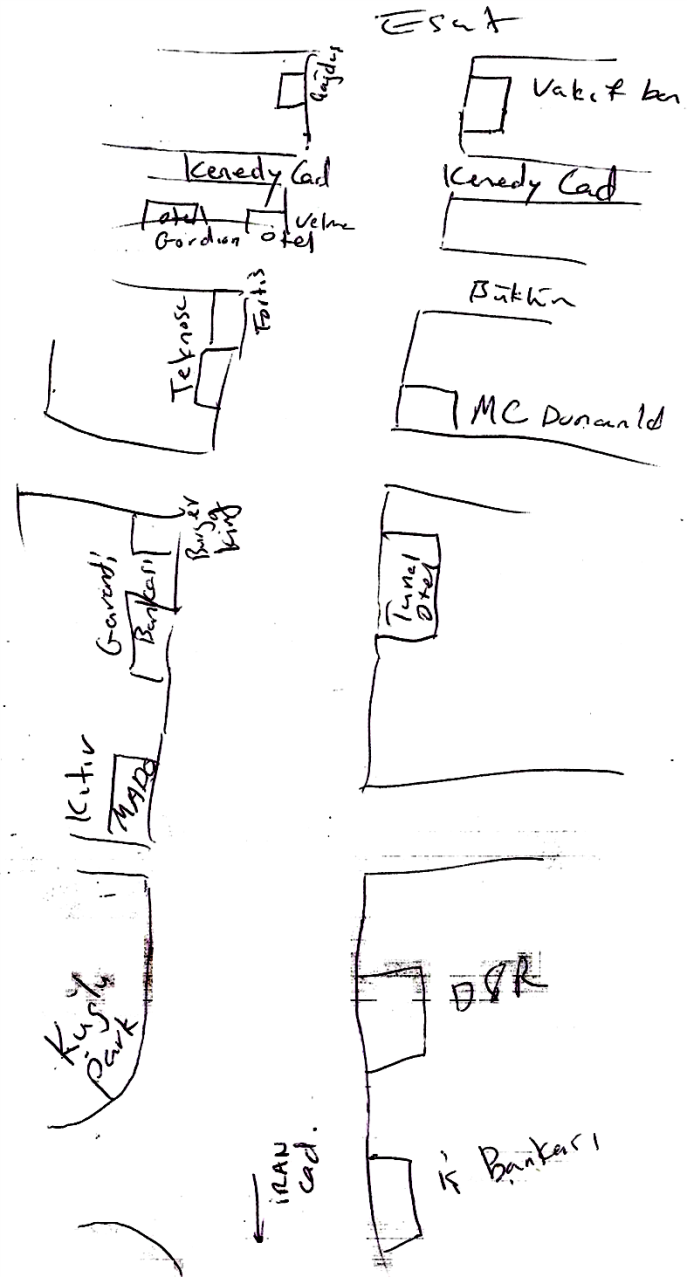


Figure B-1, Cognitive map

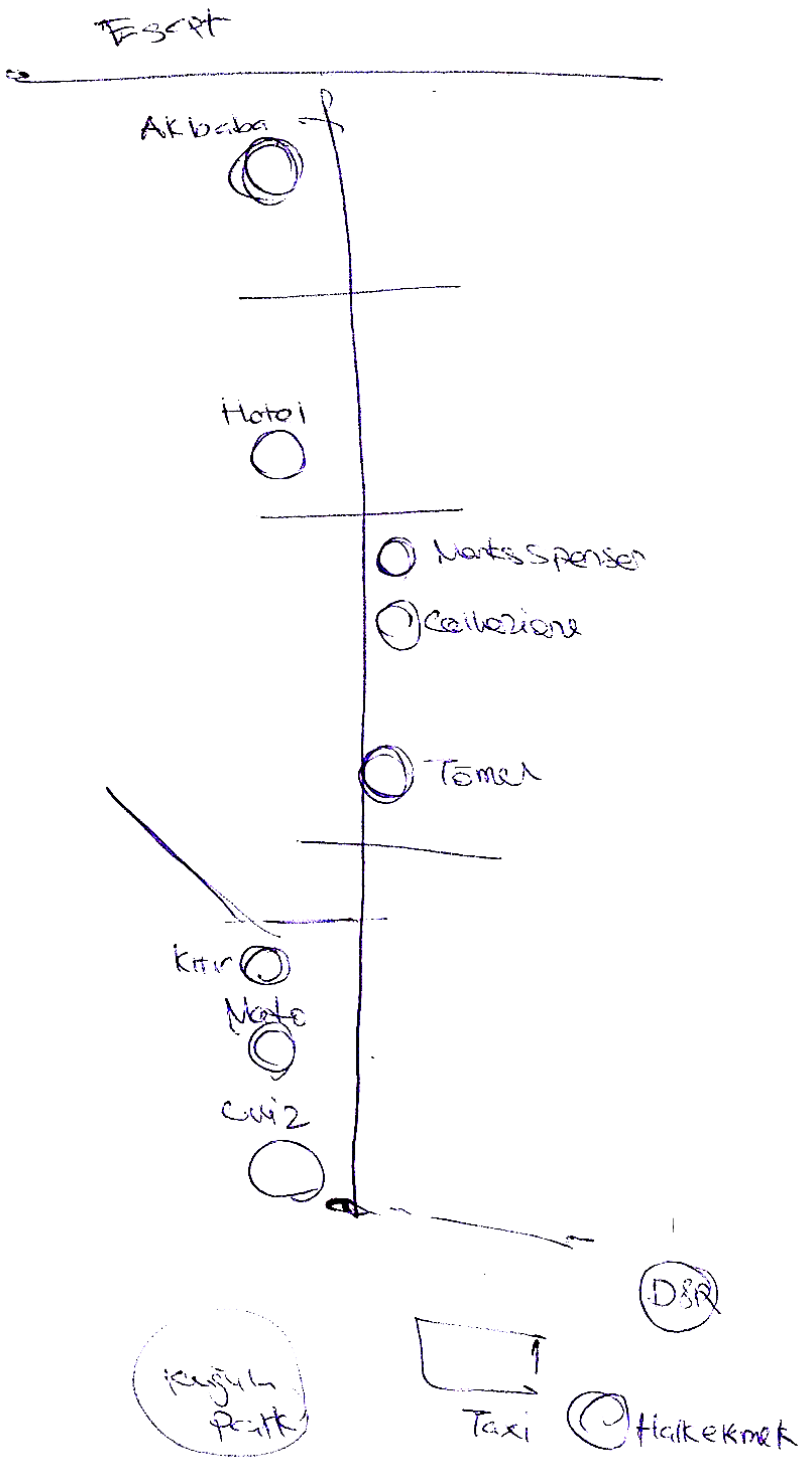


Figure B-2, Cognitive map

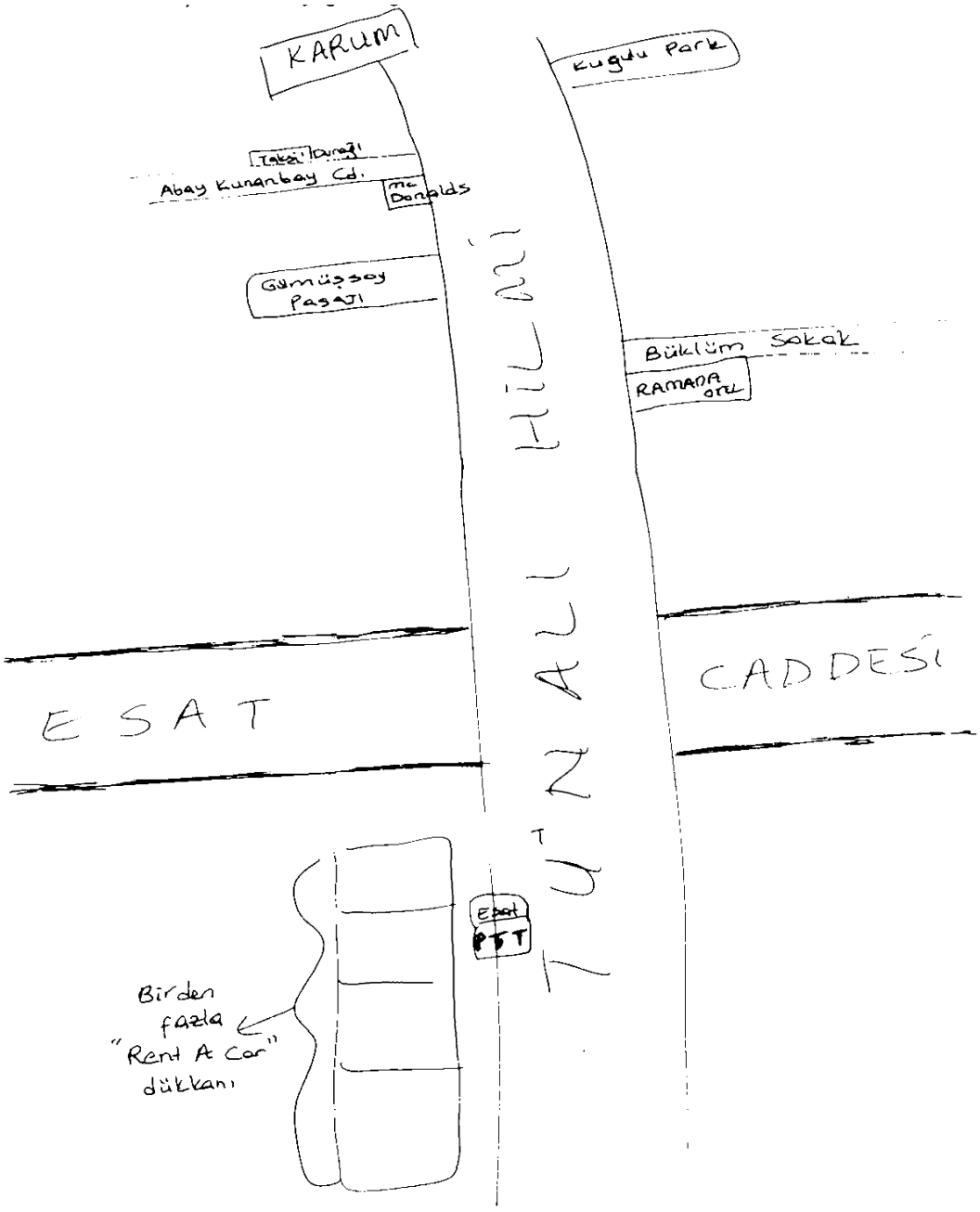


Figure B-3, Cognitive map

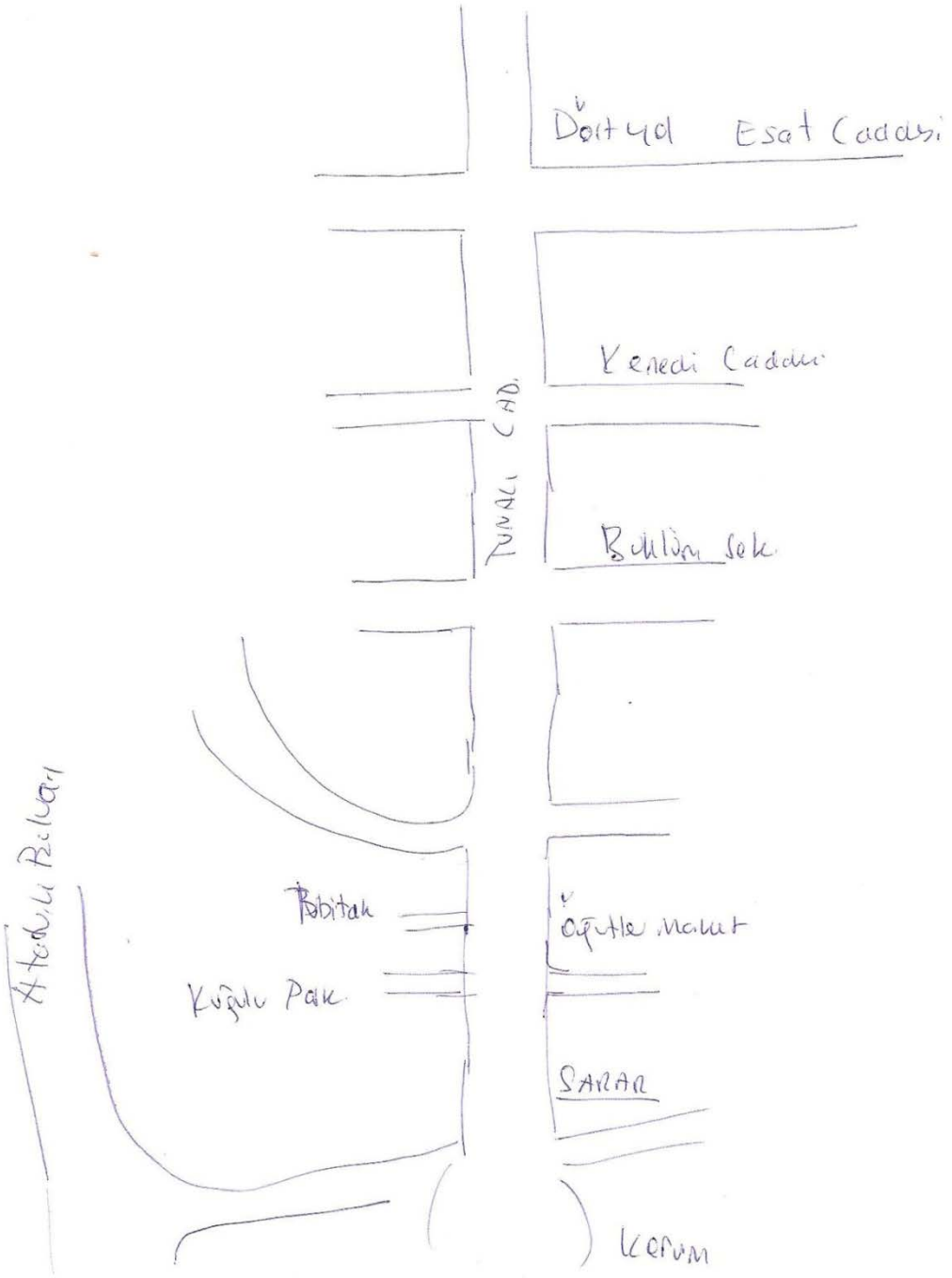


Figure B-4, Cognitive map

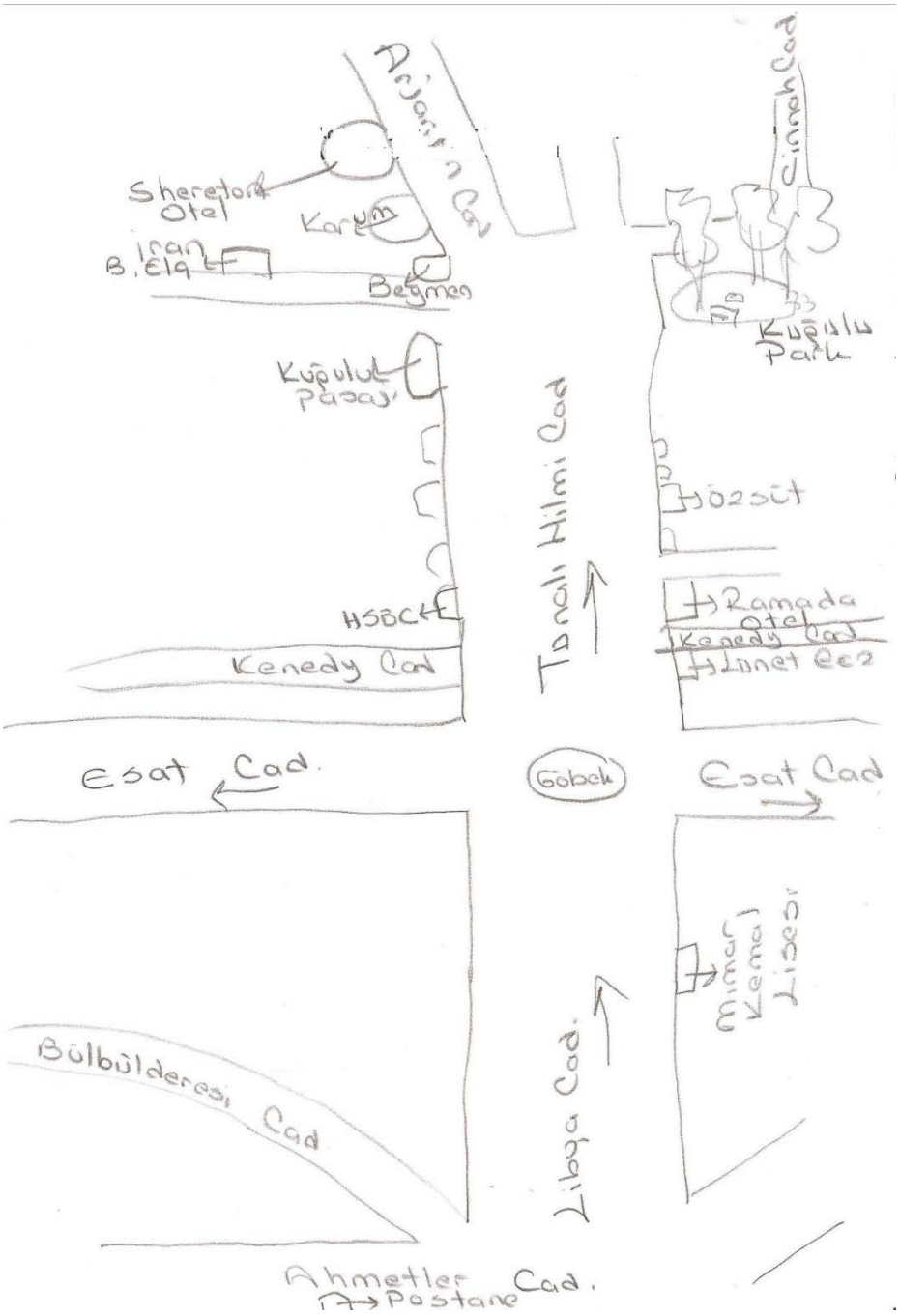


Figure B-5, Cognitive map

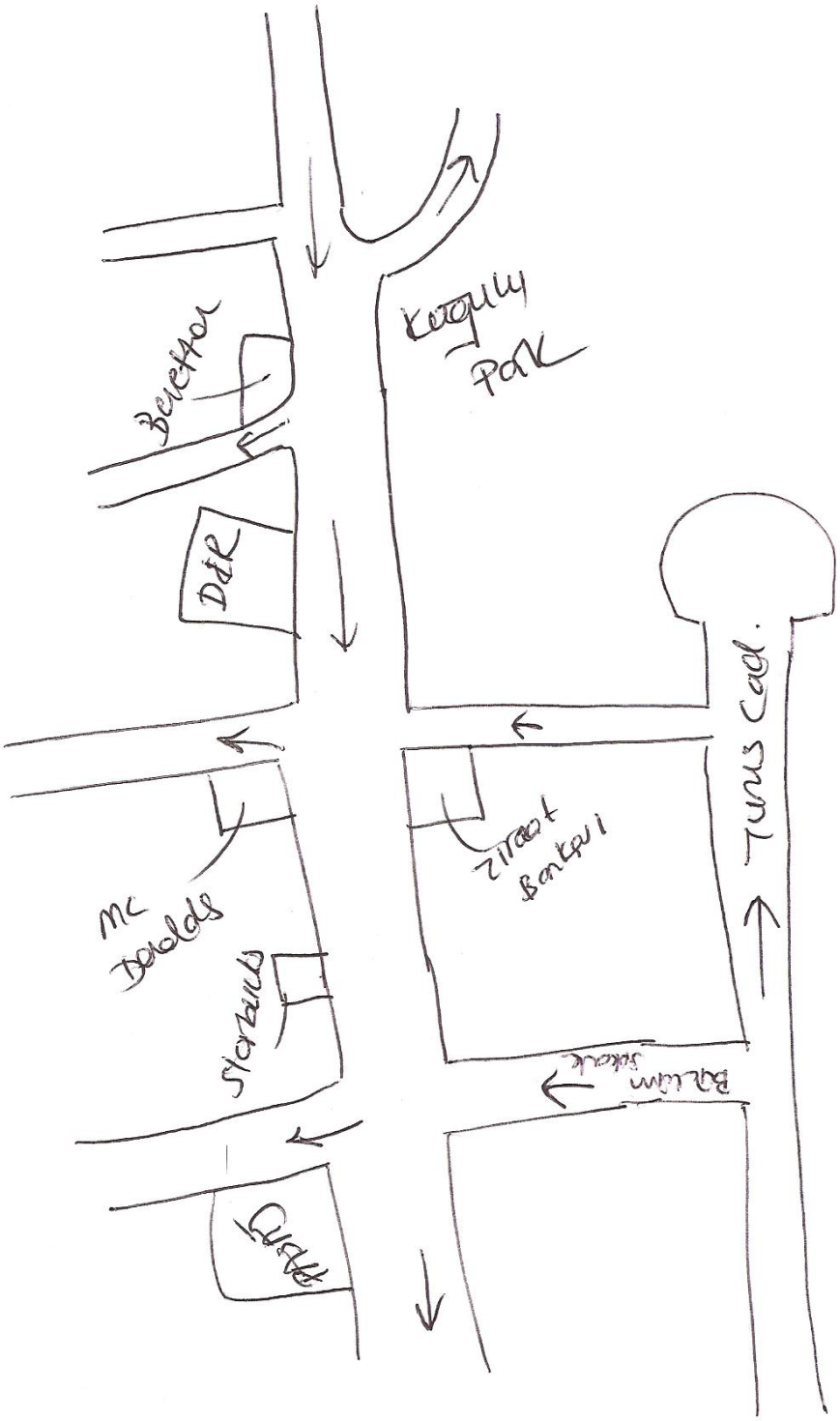


Figure B-6, Cognitive map

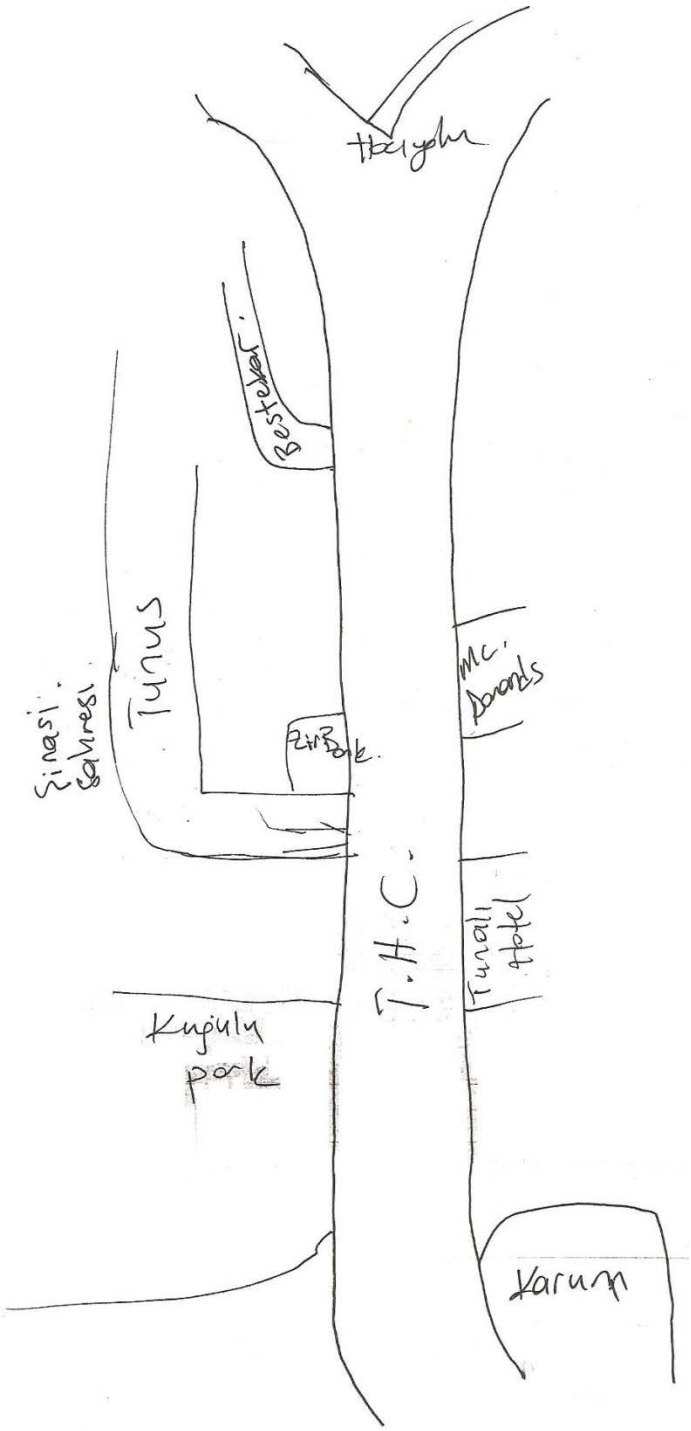


Figure B-7, Cognitive map

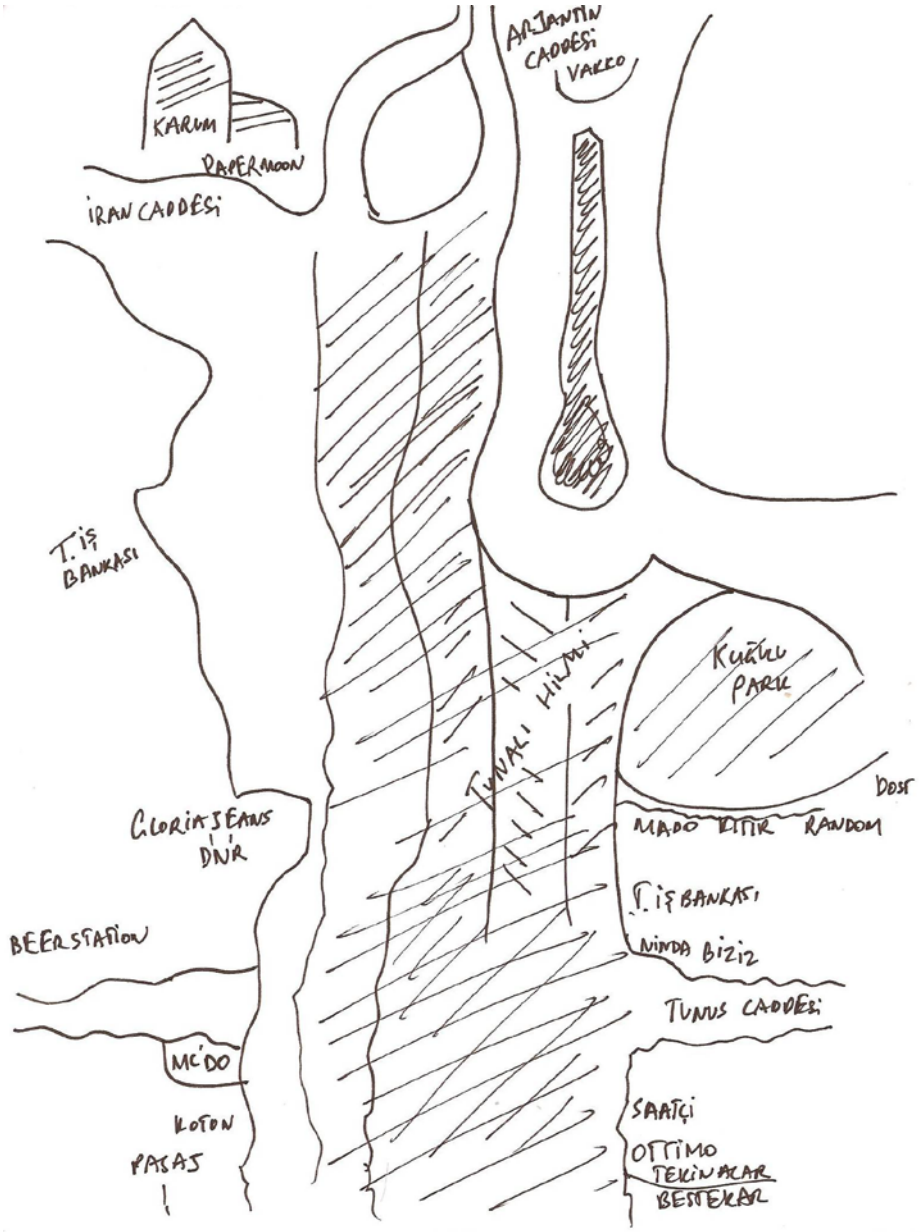


Figure B-8, Cognitive map