

Evaluation of the Effects of Urban Planning Decisions on Commercial Function and Site Selection Decisions: Ümraniye-Alemdağ Street Pedestrianization Project

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Abstract—Metropolitan areas need urban transformation and urban renewal in terms of their internal Dynamics. Since 1980, the İstanbul Metropolitan area has been started to urban growth, while the population was increasing and it has brought together masses that have different lifestyles and cultures. Commercial and residential areas' spatial needs and decisions are affected by these different lifestyles. As the terms shopping mall and commercial street became widespread, consumption trends had changed depending on the socio-economic characteristics of the people. Generally most people start to prefer open air design shopping malls and commercial streets with this demand the number of shopping centers has increased, while the shopping streets started to be as effective as the shopping centers and have been pedestrianized. In this article, the change in commercial area site selection by the dynamics of the population will be examined in cities that diverged from spatial-temporal limitations. In the study, the analysis of multilayered data using geographic information systems (GIS) will be used as a method. With this method, a more synthesist approach will be introduced with the collection editing, querying, and analysis of geographical data in computer-based systems. While conducting this analysis, Alemdağ Street in the Ümraniye district of İstanbul, where a pedestrian decision was made, will be evaluated in terms of changes in the commercial and residential functions before and after the pedestrianization decision.

Keywords—City planning, geographical information system, commercial site selection, Alemdağ Street, pedestrianization.

I. INTRODUCTION

ÜMRANIYE district of İstanbul established as a village in the last quarter of the 19th century and preserving its village identity until the early 1960s. However, since the 70s, due to the establishment of the organized industrial zone, it has entered into an important change process and has become one of the fastest urbanizing districts of İstanbul [1]. Today, Ümraniye is the 4th most populous district of İstanbul, besides it is the most populous district on the Anatolian side [2]. The main reasons for this increase in population are the effects of the opening of the Bosphorus Bridge in 1973 and the shift of the industry from the European side to the Anatolian side of İstanbul. After, thanks to the Üsküdar-Ümraniye Metro Line which its construction started in 2012 and completed in 2017 and continues along Alemdağ Street, the transportation network of Ümraniye was supported by the metro for the first time and became one of the important centers of the Anatolian Side. In parallel with these developments, Alemdağ Street in

Ümraniye has become one of the most important retail streets of the Anatolian Side and it has entered an important transformation process within the scope of the pedestrianization project launched by the İstanbul Metropolitan Municipality in 2012.

A. Aim of the Study

Pedestrianization projects implemented in retail streets have various effects on the differentiation of the type and intensity of the commercial activities on these streets. Accordingly, the purpose of this study is the examination of the dimensions of the sectoral changes that occurred after the pedestrianization study in Alemdağ Street, which is an important transportation axis and service center in Ümraniye district. In line with the above purpose, determining the intensity of the change in the sectors and comparing them with each other and determining the size of the differences, if any, are the main objectives of this study.

B. Data and Methodology

The aim of this study is to investigate the economic and functional change of Alemdağ Street before and after the pedestrianization project carried out by the İstanbul Metropolitan Municipality in 2018. Working area includes all the buildings that have facades along the pedestrianized part of Alemdağ Street which starting from the Ümraniye Çarşı metro station to the Ümraniye metro station.

To find out the economic and commercial impact of the pedestrianization project, the changes in the quantity and quality of commercial units that have facades from Alemdağ Street are examined. In addition to this, we conducted survey with employers of commercial units to analyze the economic impact of this change. In order to determine the demographic effect of the pedestrianization project, the demographic characteristics of the population living in the catchment area determined using Geographical Information Systems (GIS) are examined by years. Finally, survey studies are conducted in the relevant field and pedestrian density is analyzed by the pedestrian counting method to measure the effects of the pedestrianization project on the users.

Analysis of Demographic Structure: The catchment area of Alemdağ Street is determined by geographical analysis and the neighbourhoods within this area are specified. At this stage, the socio-economic conditions and demographic structures of the neighbourhoods in the catchment area are investigated to determine their relationship with the

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pedestrianization project. We employ demographic data taken from Turkish Statistical Institute (TUIK) covering 2016 and 2019.

Analysis of Economic-Commercial Structure: For the economic and commercial structure analysis, the commercial function change of the units which take frontage from the pedestrianized area of Alemdağ Street is examined. This change is revealed with the help of the historical data warehouse in Maptriks Databank. The location data of commercial units in 2016 (before the project) and 2020 (after the project) are retrieved from Maptriks Databank and digitized on a map to determine the changes in brands and the sectors on Alemdağ Street. Point data are verified by cross-queries through their detection in the site observation. Data for 2016 and 2020 are compared both geographically and numerically, and the changes after the pedestrianization project are analyzed by statistical methods.

Analysis in Terms of Users: With the data obtained from the pedestrian counting and survey studies, it is aimed to analyze the effects of the pedestrianization project for the users. Besides, the pedestrian counting method is applied to analyze pedestrian density. Pedestrians are counted along the street in 6 different time periods: morning-noon-evening and weekday-weekend. The pedestrian counting points are determined as the starting, ending, and the midpoint of the pedestrianized part of the street. With the pedestrian counting, the pedestrian user density in Alemdağ Street is measured in different time periods, and the pedestrian density in the pedestrianized and non-pedestrianized sections of the street is compared. The user survey study is carried out with 223 pedestrians on the street, and the effects and satisfaction levels of the users about the pedestrianization project are tried to be determined. In addition, the survey study conducted with 60 different commercial units selected on Alemdağ Street reveals the different aspects of the change in commercial functions. Finally, the data obtained for the study are transferred to the computer environment, and graphics showing the numerical results of the changes are prepared.

All spatial and functional analyzes are digitized and transformed into auditable data. In this way, numerical and visual contents are compared and evaluated within the example of the Alemdağ Street pedestrianization project.

II. EVALUATION OF THE HISTORICAL DEVELOPMENT OF ALEMDAĞ STREET IN ÜMRANIYE

This chapter of the study focuses on the Alemdağ Street pedestrianization project decision and the historical development process of Alemdağ Street. Thus, the development process of the most significant retail street of Ümraniye district will be summarized and this will be explanatory for the following chapters of the study.

A. Physical Structure Change in the Historical Development Process of Ümraniye District

Ümraniye is a district located on the Anatolian side of Istanbul, bordered by Üsküdar from the west, Ataşehir from the south, Sancaktepe from the east and Çekmeköy and

Beykoz from the north side (Fig. 1) [4]. Ümraniye, which was founded in the late 19th century and preserved its identity like many other rural settlements of Istanbul, was exposed to intense migration after the Organized Industrial Zone was chosen in its vicinity [5]. In the periods following the establishment of the Organized Industrial Zone, new industrial sites operating in various branches were established in the district.

In parallel with the urbanization and planning process throughout Istanbul, in Ümraniye, firstly, slums appeared around the industrial sites and on the side of the roads reaching these regions. After that, these slum areas experienced transforming into apartment settlements. With the opening of the 1st Bosphorus Bridge in 1973, the development of Istanbul to the north accelerated and one of the directions of growth was the Ümraniye axis. After the 1980s, with the effect of the 1st Bosphorus Bridge and the ring roads, the development of Ümraniye and its surrounding neighbourhoods gradually increased and Ümraniye assumed "district" title in 1987. Thus, Ümraniye, which became prominent as a settlement area after 1980s, has become one of the centers of the economy for Istanbul in the 2000s. Especially after the earthquake of 1999, intense migration occurred in Ümraniye due to its solid structure. Therefore, with intense urbanization, the agriculture and animal husbandry sector which was the dominant sector of Ümraniye has left its place to the industry sector [5].



Fig. 1 Location of Ümraniye in İstanbul

B. Demographic Structure Change in the Historical Development Process of Ümraniye District

Along with the urban developments, the development of the population in Ümraniye was also very fast. Having a population of only 501 in the status of a village affiliated to Üsküdar in 1940, Ümraniye reached a population of 605,855 in the 2000 census. After the 2000's the population growth continues to increase and according to population data from TUIK, Ümraniye reached a population of 710,280. According to these data, Ümraniye is the fourth populous district of İstanbul. Looking at the distribution of the population by gender, 50.06% of the population in the district is male and 49.94% is female. When analyzed by age groups, it is possible

to say that the young and middle-aged population is predominant in the district [6].

When 2017 TÜİK education statistics for Ümraniye district are analyzed, the ratio of those who are able to read and write but do not complete a school is 6.99%, the ratio of primary school graduates is 34.27%, the ratio of secondary and high school graduates is 32.89%, the ratio of graduates of higher education is 17.04% and the rate of those who completed their master and doctorate education is 4.94% [6]. In Ümraniye, which is in the 3rd group in the quality of life of the districts in Istanbul, although the rate of paid employees is high, it is seen that the majority of these individuals belong to the C1 socioeconomic status [6].

C. Socio-Economic Structure Change in the Historical Development Process of Ümraniye District

Ümraniye, which became prominent as a residential area after 1970, has become one of the centers of the economy for Istanbul in the 2000s [7]. The fact that important companies and banks have moved their headquarters to Ümraniye in recent years increases the development trend of the district. Over 100 bank branches, insurance agencies, many architectural, engineering offices, law offices, and private security offices in the service sector carry out its activities within the borders of Ümraniye [8]. On the other hand, Ümraniye stands out especially in the sector of fabric and hijab clothing on the Anatolian side. While the district directs the fabric and hijab clothing sector, the sector creates a significant degree of employment in the district. With the large investments made in Ümraniye, where the industry sector is the leader in its economy, it has become the new “financial center” of Istanbul and in this direction; the residence, plaza and business world has started to shift to the district.

Ümraniye has gained the feature of being an important commercial center with rapid urbanization and has become a center where not only local people come but also people from the surrounding settlements come for shopping [8]. In parallel with this growth, Alemdağ Street in Ümraniye has become a center of attraction and has taken its place among significant arteries of Istanbul in terms of shopping and social activities such as İstiklal Street and Bağdat Street which are the biggest commercial volume streets of İstanbul for many years. Consequently, the transformation of Alemdağ Street into a public space with the pedestrianization project implemented by the İstanbul Metropolitan Municipality in 2018 has brought a new dimension to the identity of Ümraniye.

III. PEDESTRIANIZATION PROJECTS AND ECONOMIC EFFECTS IN URBAN PLANNING

This chapter examines the concept of pedestrianization as an urban planning decision. In this context, the purpose, objectives, and benefits of the pedestrianization and especially its economic effects will be evaluated, and this evaluation will be a basis while analyzing the Alemdağ Street Pedestrianization Project.

A. Pedestrian Areas and the Concept of Pedestrianization

Pedestrianization means that an existing road is closed to traffic at certain time intervals or completely, and it is only opened to pedestrian use. Pedestrianization, which is the subject of urban planning and urban design, has become a necessity with the undesirable effects of increasing traffic, especially in big cities.

Pedestrian zones in many cities across the world are classified according to their types. Pedestrian zones in many cities across the world are classified according to their types. These are shopping malls, shared malls, and transit malls. Retail trade takes place in shopping malls; shared malls are open to only public transportation, and sidewalks are extended in transit malls. Besides, the streets that are closed to traffic and pedestrianized are called “traditional pedestrian streets” [9]. In this context, Ümraniye Alemdağ Street, the study area, is within the scope of the “traditional pedestrian street” type.

B. Aims, Objectives and Benefits of Pedestrianization

Pedestrian areas formed as a result of pedestrianization projects provides safe and comfortable movement for people of various age groups and ensures the creation of urban open green spaces. It also allows urban spaces to be designed in accordance with the human scale, creating safe and comfortable spaces [10].

The aims of pedestrianization projects can be analyzed under three headings as urban economy, urban quality and increasing social welfare [3]:

- Urban Economy: Revitalizing the region and increasing retail trade while providing to encourage the private sector,
- Urban Quality: Making the city center more organized and usable,
- Social Welfare: Increasing the relations of people with each other and creating relaxation and resting places.

In line with these purposes, the social, urbanization, infrastructure and economic targets determined in pedestrianization projects are given in Table I. These targets will be evaluated within the scope of the Ümraniye Alemdağ Street Pedestrianization Project at the result of the study and support with survey results.

TABLE I
AIMS OF PEDESTRIANIZATION PROJECTS

Type of Target	Targets
Social	To provide communication and information transfer To enable social communication To make urban space more aesthetic To improve urban life To improve environmental health To improve the microclimate
Urbanization	To provide a healthy functional distribution in the city center To create a new administrative center To vitalize the city center To provide residential areas in the city center To provide functional diversity To balance the density in the city center
Infrastructure	To determine the location of the service sector

Economic	To improve commercial functions
	To provide social activities
	To regulate the traffic
	To take precautions to reduce private vehicle use
	To support retail trade
	To increase tax revenue
	To support urban image and tourism
	To decrease the operating cost

Adapted from [12].

C. Economic Impacts of Pedestrianization

Pedestrianization projects have various impacts on the environment, physical, social and economic structures. Within the scope of physical effects; there are targets for reducing the air, noise and visual pollution to the city, improving the physical image of the city, protecting historical regions, protecting cultural heritage and education, directing transportation and creating a safe circulation network. Within the scope of social effects; there are targets for improving social life, recreation areas, cultural areas, creating safe open areas and providing a safe environment for all age groups. On the other hand, the economic effects which are focused on within the scope of this study can be summarized as follows [13].

- Supporting the development of retail trade,
- Encouraging to drawing the investors to the area,
- Contributing economically to users,
- Revitalizing in the region with the increase in the number of people coming to the area and the time spent.

In addition, Table II shows the effects of pedestrianization projects on retail trades in 9 different cities around the world. Accordingly, it is observed that retail trade increased in all cities after pedestrianization. Also, it is observed that tradespeople in most cities objected to the projects at the first stage, but after the increase in sales, they are observed as satisfied [14].

TABLE II
IMPAIRMENTS OF PEDESTRIANIZATION PROJECTS ON RETAIL SECTOR

City	Size of the Project	Effects on Retail Trade	Feedbacks of Tradespeople
Dusseldorf (1967)	440m x 7m	36-40% increase	Tradespeople first objected, then accepted.
Minneapolis (1968)	1kmx25m	14% increase	Users and tradespeople are positive.
Gotenburg (1970)	2,7kmx15m	20% decrease, after 10% increase	66% of the tradespeople are satisfied.
Essen (1971)	2,3 km x9m	First slowdown, after 15-35% increase	Tradespeople first objected, then accepted.
Newcastle (1971)	265mx 21m	General increase	Users and tradespeople are positive.
Viyana (1971)	1,5kmx15m	20% increase	60% of the tradespeople are satisfied.
Köln (1972)	1,1kmx10m	25-35% increase	Tradespeople first objected, then accepted.
Leeds (1972)	1,2 kmx10m	20% increase	Users and tradespeople are positive.
Münih (1972)	1km x 25 m	40% increase	Tradespeople are positive.

Adapted from [14].

In addition to the above economic contributions and

increase in retail trade, negative situations may be encountered [11]. These possible situations listed below will be examined through surveys conducted with users and tradespeople carried out in Ümraniye Alemdağ Street.

- The decrease in users who come to the street by car,
- Recession in sales although the increase in the number of customers,
- The decrease in users with high purchasing power,
- The increase in users with low purchasing power,
- The increase in non-shopping and passive users

IV. THE EXAMPLE OF TRADITIONAL PEDESTRIAN STREET WITHIN THE CONTEXT OF PEDESTRIANIZATION PROJECT: ALEMDAĞ STREET

In this chapter, the analyses conducted in order to detect the economic and demographic changes in Alemdağ Street, which is closed to traffic with the pedestrianization project, will be explained.

A. Alemdağ Street Pedestrianization Project and Application Process

Alemdağ Street in Ümraniye is one of the main arteries on the Anatolian side of Istanbul, and it is a commercial street with the length of 17.5 km starting from Kısıklı Street in Üsküdar district to Ümraniye Kemerdere Crossroad. The length of the area where the commercial functions of Alemdağ Street are intense is approximately 2 km. There are many commercial units and social places in this dense area, and this situation makes the street an attraction point. In addition, Üsküdar-Ümraniye-Çekmeköy metro, which was put into service in 2017, is a factor that increases pedestrian traffic and street density. Until 2018, there were situations that negatively affect daily life such as traffic and parking problems on the street where vehicle traffic is dominant, and because of this situation, pedestrianization decision was made for a part of the street [4].

Accordingly, with the decision dated 03.09.2015, in order to provide a more comfortable circulation of pedestrians and to support the trade, culture and transportation sectors; pedestrianization of a part of Alemdağ Street between Suiş Street and Tunaboyu Street has been considered appropriate. In this decision, Alemdağ Street Pedestrianization Project was examined in terms of transportation and traffic, and it was reported that there were no inconveniences in the project [15]. With the decision of pedestrianization, the street was planned to be open to vehicle traffic between 22:00 and 09:00 for logistic purposes such as loading and unloading [4].

Vehicle and pedestrian entrances of other main and intermediate roads that interact with the pedestrianized part of Alemdağ Street were re-planned. In this context, the roads connected to Alemdağ Street were also closed to vehicle traffic, and it was planned to control the entrance and exits with hydraulic mushroom barriers to provide access in emergency situations. For traffic circulation, Çavuşbaşı Street expansion and regulation works have been made and planned as one-way road. These details can also be seen on the digitized map according to the vehicle and pedestrian

entrances in Fig. 2. At the same time, the "Tramway Project" to be built within the scope of the pedestrianization project by

the Municipality of Ümraniye is one of the ongoing stages of the implemented project.

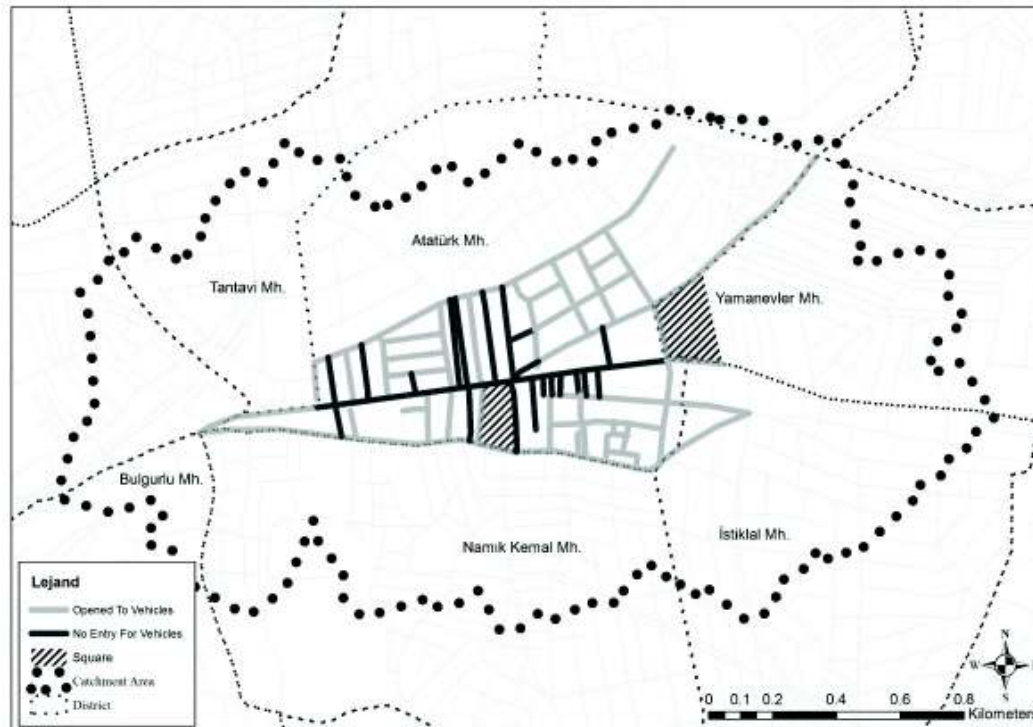


Fig. 2 Pedestrianized Streets within the Context of the Project

B. Evaluation of the Effects of the Pedestrianization Project by Demographic Structure

Within the scope of the pedestrianization project of Alemdağ Street, the demographic structure of the neighbourhoods in the catchment area of the street is examined. With this study, it is aimed to determine the development direction in terms of demographics and evaluate the effects on the economic-commercial structure and demographic structure as a whole. For this purpose, it is necessary to identify the districts within the catchment area along the pedestrianized part of Alemdağ Street. As a method for determining catchment area, the starting, middle and

endpoints of pedestrianized parts of Alemdağ Street are numerically marked and their catchment areas are determined by considering the 10-minute walking distance [16] around these points. This method is known as "Catchment Analysis" and refers to the calculation of a road-based access area depending on the time or distance to a selected point on foot or by vehicle. After that, the boundaries are drawn for the 3 marked points are combined and the total catchment area is created. In this way, the demographic information related to the pedestrianization project of the neighbourhoods within this area is examined (Fig. 3).

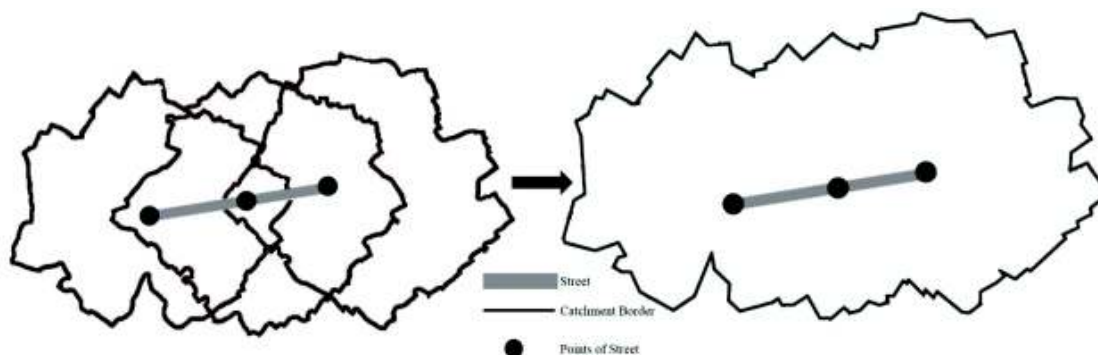


Fig. 3 Method for Creating the Catchment Area

Neighbourhoods within the catchment area are Atatürk, Elmalıkent, İnkılap, İstiklal, Namık Kemal, Tantavi and Bulgurlu and Yamanevler neighbourhoods in Ümraniye district and Bulgurlu and Kısıklı neighbourhoods in Üsküdar district. Table III shows how much of these neighbourhoods are included in the catchment area. In addition, Fig. 4 shows the demonstration of the neighbourhoods in the catchment area on the digitized map.

TABLE III
AREAS OF THE NEIGHBORHOOD IN THE CATCHMENT AREA

Neighbourhoods in the Catchment Area	Area (%)
Atatürk	87.5
İnkılap	0.7
Namık Kemal	0.1
Yamanevler	27
Kısıklı	48.1
Elmalıkent	31.2
İstiklal	35
Tantavi	6.3
Bulgurlu	7.2

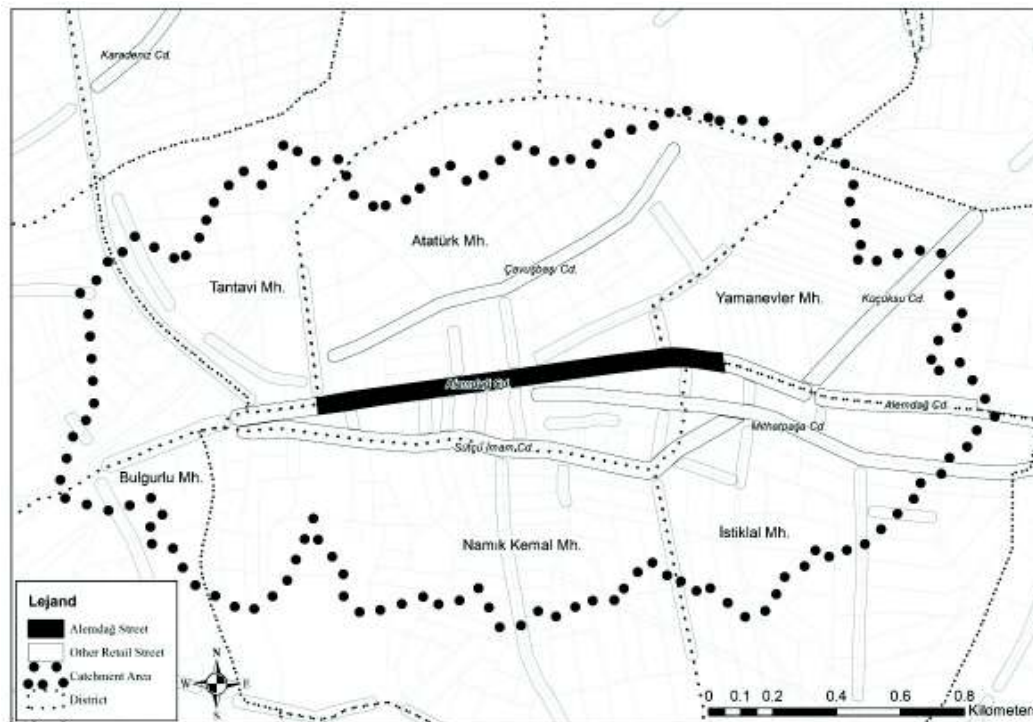


Fig. 4 Neighbourhoods in the Catchment Area

The demographic features before and after the pedestrianization project are analyzed to reveal the change in the catchment area. For this purpose, population, age distribution, educational status, residential and commercial densities have been examined in the relevant neighbourhoods. As a result of these examinations, it is seen that the residential density has increased in the neighbourhoods in the catchment area, and in parallel with the residential density, there has been an increase in the graduation rate of high school level and higher (Fig. 5).

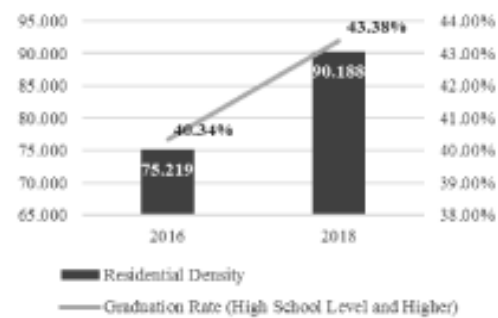


Fig. 5 Residential Density and Graduation Rate of Neighbourhoods in the Catchment Area by Years

The number of people who are related to the street is predicted with the information of the total population in the related neighbourhoods. Looking at the share of the neighbourhood populations within the district population

(Table IV), it is seen that some neighbourhoods in the catchment area have the majority of the population in the district.

TABLE IV
SHARES OF THE DISTRICT POPULATION OF THE NEIGHBOURHOODS IN THE CATCHMENT AREA

District	Neighbourhood	Neighbourhood Population	District Population	Neighbourhood /District Population (%)
Ümraniye	Atatürk	23.988	690.193	28.8
Ümraniye	Elmalıkent	21.496	690.193	32.1
Ümraniye	İnkılap	29.779	690.193	23.2
Ümraniye	İstiklal	46.072	690.193	15.0
Ümraniye	Namık Kemal	28.291	690.193	24.4
Ümraniye	Tantavi	10.239	690.193	67.4
Ümraniye	Yamanevler	13.716	690.193	50.3
Üsküdar	Bulgurlu	31.194	529.145	17.0
Üsküdar	Kısıklı	19.935	529.145	26.5

The data are adapted from [18].

The demographic analysis will be evaluated together with the user surveys conducted in the street and will be discussed as a result of the study.

C. Evaluation of the Effects of the Pedestrianization Project by Economic-Commercial Structure

Analysis of the changing economic and commercial situation with the Pedestrianization Project of the Alemdağ Street is directly related to the main purpose of the study. Therefore, existing functional distribution is analyzed by examining the commercial units. Current functional distribution is compared with the situation before the pedestrianization Project at Alemdağ Street. In addition, with Retail Food Index, which is Maptriks patented product, Alemdağ Street score is analyzed.

Retail Food Index Analysis: Retail Food Index is a patented model named “Geographical Information System, Site

Selection and Location Assessment System” [17] which is developed by Maptriks. The method used in model scoring is specified in Fig. 6 and (1). The model uses mainly two parameters while calculates the retail score of the street: commercial potential on the street and street impact area.

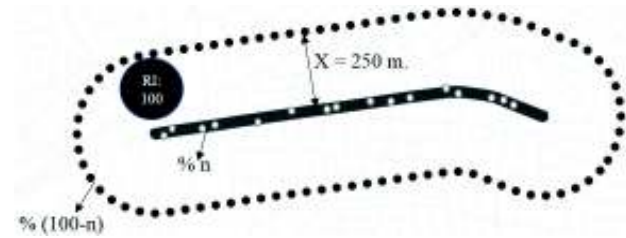


Fig. 6 Method for Retail Food Index Analysis: RI: Street Score; x: Street Impact Area; n: The Effects of Commercial Density on the Street; 100-n: The Effects of Commercial Density around the Street

In order to compare the scores produced as a result of the model, they are indexed between 1 and 100. The following formula is used for indexing:

$$\text{Retail Index} = \text{Total Street Score} / \text{TR Max Score} * 100 \quad (1)$$

Method for Retail Food Index Analysis gets 100 score for the project area is Alemdağ Street. According to the Maptriks Databank information system, when compared to previous years, Alemdağ Street has got a 100/100 score since 2016. Table V shows that the other 100 score streets in Istanbul. When the average household income information of the districts where streets gets 100 score are located is examined, only Ümraniye and Sultangazi districts have an income below the average. The fact that Ümraniye district has an income below the average indicates that Alemdağ Street also has users outside the district.

TABLE V
AVERAGE HOUSEHOLD INCOME OF ISTANBUL RETAIL STREETS AND DISTRICTS

Street Name	Province	District	Neighbourhood	Retail Index	Average Household Income
Abdi İpekçi Cd.	İstanbul	Şişli	Harbiye	100	10.300
Alemdağ Cd.	İstanbul	Ümraniye	Atatürk	100	6.700
Bağdat Cd.	İstanbul	Kadıköy	Fenerbahçe	100	12.900
Bağdat Cd.	İstanbul	Kadıköy	Suadiye	100	12.900
Bağdat Cd.	İstanbul	Maltepe	Altayçeşme	100	7.900
Eski Edirne Asfaltı Cd.	İstanbul	Sultangazi	Uğur Mumcu	100	4.900
Fatih Blv.	İstanbul	Sultanbeyli	Abdurrahmangazi	100	4.100
Fevzipaşa Cd.	İstanbul	Fatih	Akşemsettin	100	7.000
General Asım Gündüz Cd.	İstanbul	Kadıköy	Caferağa	100	12.900
Halaskar Gazi Cd.	İstanbul	Şişli	Meşrutiyet	100	10.300
İstiklal Cd.	İstanbul	Beyoğlu	Katipmustafa Çelebi	100	8.100
Mühürdar Cd.	İstanbul	Kadıköy	Caferağa	100	12.900
Rumeli Cd.	İstanbul	Şişli		100	10.300
Söğütözü Cd.	İstanbul	Kadıköy	Osmanağa	100	12.900
Şemsettin Günaltay Cd.	İstanbul	Kadıköy	19 Mayıs	100	12.900
Turgut Özal Cd.	İstanbul	Fatih	Haseki Sultan	100	7.000
Vali Konağı Cd.	İstanbul	Şişli	Teşvikiye	100	10.300
İstanbul Average Household Income					8.095

The data are adapted from [17].

Commercial Functional Distribution Analysis: Alemdağ Street was pedestrianized in 2018 by Istanbul Metropolitan Municipality department of Transportation Coordination Center (UKOME) decision. In order to understand the effects of the pedestrianization decision on Alemdağ Street, commercial function distribution on the street is analyzed according to 2016 data (2 years before the pedestrianization project) and 2020 data (2 years after the pedestrianization project). Fig. 7 shows the current locations of commercial units in the pedestrianized part of Alemdağ Street. The commercial locations are classified according to generally accepted sectoral categories. The sectoral units on Alemdağ Street are as given Table VI: accessory & jewelry, shoes & bags, household goods & decoration, finance, cosmetics &

care, fashion & textile, technology & communication, food & beverage places. As stated above, the changes in the distribution of commercial functions between 2016 and 2020 are considered. The sectors with an increase are as follows: accessory & jewelry 3%, fashion & textile 4% and food & beverage 1%. The sectors with a decrease are as follows: shoes & bags 1%, finance 4%, technology & communication 3%. Household goods & decoration and cosmetics & care vectors remained stable within 4 years.

Major retail brands in Alemdağ Street in 2016 are Koton, Defacto, Penti, LTB, Armine, Turkcell and Vodafone as chain brands; Armağan Giyim Cepmax, Pudra and Tuğba Giyim as local brands.

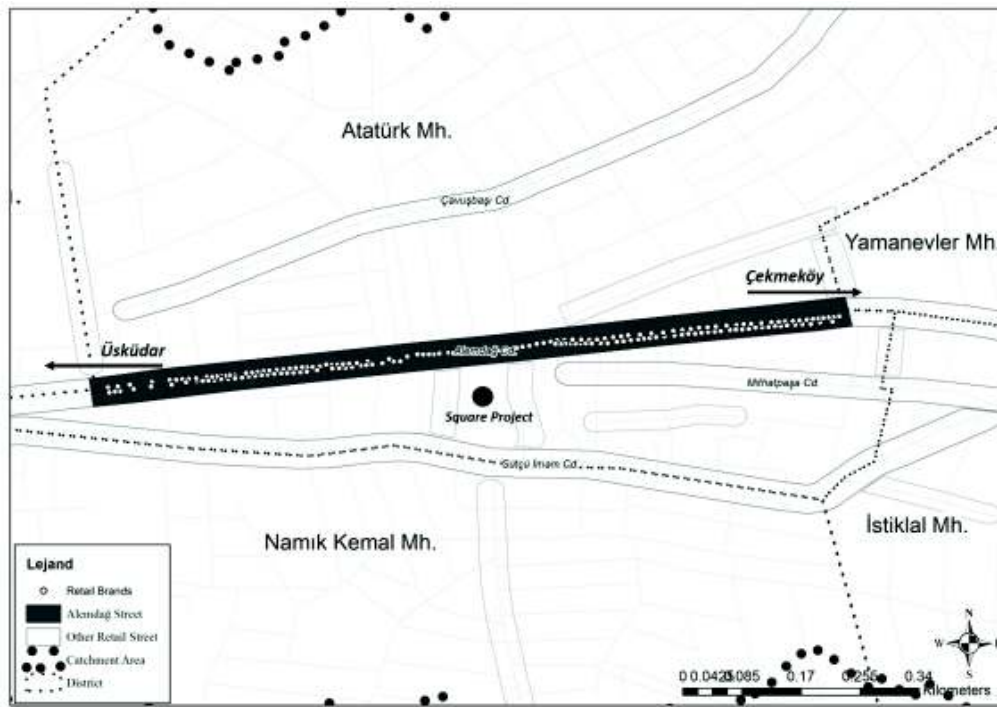


Fig. 7 Current Locations of Commercial Units in Alemdağ Street

TABLE VI
2016-2020 SECTORAL DISTRIBUTION

Sector	Commercial Distribution 2016 (%)	Commercial Distribution 2020 (%)
Accessory & jewelry	13	16
Shoes & Bags	8	7
Household Goods & Decoration	7	7
Finance	14	10
Cosmetics & Care	4	4
Fashion & Textile	36	40
Technology & Communication	7	4
Food & Beverage Places	11	12

D. User Evaluation of the Effects of the Pedestrianization Project

The pedestrianization project on Alemdağ Street is effective

in closing 800-meter axle to vehicle traffic. Pedestrians are counted on the Alemdağ Street which is closed to vehicle traffic. The start point for the pedestrian counting is determined as Üsküdar direction, the midpoint is determined as the square project area and the endpoint is determined as Çekmeköy direction. As a result of counts, evening hours on weekdays are more crowded and lunch and evening hours at the weekend are more crowded. Morning hours on weekdays and weekends similar number of pedestrian are observed. The busiest visit is done at noon on the weekend while the weekend attracted more users than during week (Fig. 8).

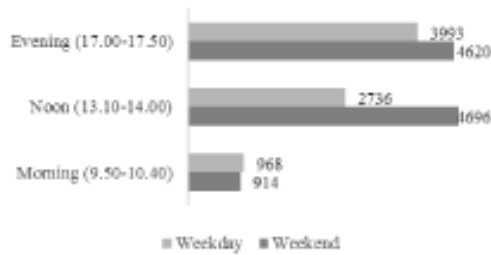


Fig. 8 Pedestrian Counting Result

In consonance with Alemdağ Street pedestrianization project analysis, survey is conducted with major actors who are affected on the street transformation: Users and Tradespeople. The survey is conducted with the participation of 60 tradespeople who work in 9 different sectors and 230 users.

User Survey

Alemdağ Street is one of the biggest commercial potential streets in Istanbul's top 10 streets as shown Table V. As reported by user survey, 61% of the users are resided in the Ümraniye district. The neighbourhood where residents reside in Ümraniye are respectively Atatürk, Namık Kemal, İstiklal, Armağanvler and Elmalıkent. As shared by Table IV, neighbourhoods included in the Alemdağ Street catchment area rate of 32% Elmalıkent neighbourhood, 28% Atatürk neighbourhood, 23% İnkılap neighbourhood and 15% İstiklal neighbourhood. The neighbourhood rates in the catchment area analysis and the residential areas in the user survey are the same. In the meanwhile, survey conclusion set out that 43% of users come Alemdağ Street on foot. Residence information, catchment area information and users' preferred mode of transportation type indicate that user's profile in Alemdağ Street live in Ümraniye (Fig. 9) and especially in the Atatürk neighbourhood, Namık Kemal neighbourhood, İstiklal neighbourhood and other neighbourhoods located within the street catchment area (Table VII).

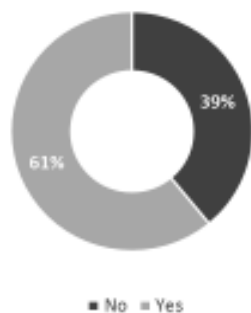


Fig. 9 "Do you live in Ümraniye?" answers of Participation User Survey

TABLE VII
NEIGHBOURHOOD AREAS IN THE ALEMDAĞ STREET CATCHMENT AREA

Neighbourhood	Rate (%)
Atatürk Neighbourhood	13
Namık Kemal Neighbourhood	8

İstiklal Neighbourhood	4
Armağanvler Neighbourhood	4
Elmalıkent Neighbourhood	2

Users are asked whether they know the street before the pedestrianization project. 83% of users in the street know the street before the Alemdağ Street pedestrianization project in 2018. According to survey results the rate of users who are satisfied with the pedestrianization project is 88% (Fig. 10). User survey information indicates that most people who come to the street know the old structure of the street and pleased with revision of pedestrianization project.

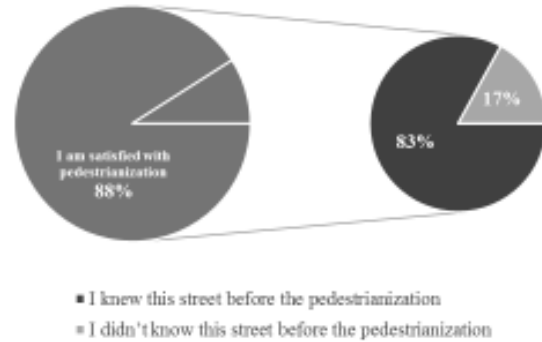


Fig. 10 "Are you satisfied with the pedestrianization project?" answers of participation user survey

The first three reasons why users are satisfied with the pedestrianization project are respectively: rate of 51% said that walking is easier, 12% said that shopping is more comfortable and 11% said that pedestrian safety increased. Meanwhile, pedestrian safety which increases with pedestrianization has brought the option to shop on the more street for different age groups and families with children, compared to before pedestrianization.

As can be seen in Fig. 11 the reasons of users preferred to Alemdağ Street are examined: 62% of users prefer to Alemdağ Street for shopping, 21% come to the street for working and 16% prefer to Alemdağ Street for friends meeting.

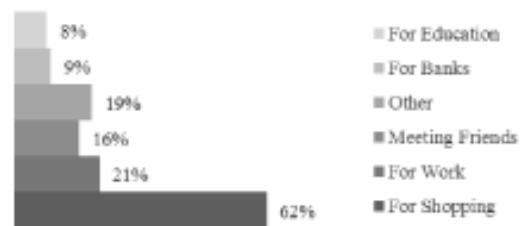


Fig. 11 Reasons for Users Come to Street

In order to measure the demands of the users and to see the distribution of the progress made by the sector, the users are asked whether users prefer local brands or chain brands on the Alemdağ Street. 51% of users prefer chain brands because they think products are safer and more quality through brand awareness (Fig. 12).



Fig. 12 Brand Preferences of Users in Alemdağ Street

LC Waikiki and Koton stores are located at the top of the chain brands with two branches in Alemdağ Street. Gencallar is the third preferred brand in the category of household goods & decoration shops.

31% of the users stated that they prefer local brands because they want to have relationships with tradespeople. 9% of the users said that regardless of the brand, they prefer the products that they like and can afford. More development is expected by users in the food & beverage and shoes sectors at Alemdağ Street.

Tradespeople Survey

Tradespeople survey is conducted with the participation of 60 tradespeople who work in 9 different sectors in terms of sectoral diversity. Accordingly, Table VIII shows the majority of the surveyed tradespeople are under the categories of food and beverage (19 stores), fashion and textile (13 stores) and household goods and decoration (10 stores).

TABLE VIII
SECTORAL DISTRIBUTION OF TRADESPEOPLE SURVEY

Sectoral Distribution	Stores
Food & Beverage Places	15
Fashion & Textile	13
Household Goods & Decoration	10
Accessory & Jewellery	7
Technology & Communication	5
Shoes & Bags	4
Services	3
Finance	2
Cosmetics & Care	1

29% of 60 surveyed tradespeople have been in Alemdağ Street for 3-5 years and 22% have been 1-2 years. In consequence, more than half of surveyed tradespeople have been located on Alemdağ Street for the last 5 years. The tradespeople that have been on the street for more than 10 years constitute 24%. 45 (76%) tradespeople surveyed stated that there is a change in sales with the pedestrianization project completed in 2018. On the other hand, the remaining 14 tradespeople said that any change is not observed with the project (Fig. 13). Moreover, the tradespeople are asked whether there is any change in the number of users after pedestrianization. Accordingly, 54 (90%) of 60 tradespeople stated that there is a change in the number of users.

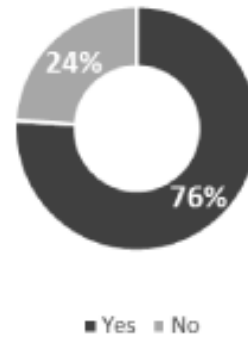


Fig. 13 "Has there been any change in sales with pedestrianization?" answers of Participation Tradespeople Survey

More than half of the respondents (58%) are satisfied with the pedestrianization project implemented in Alemdağ Street while 42% tradespeople stated that they are not convinced. When asked why tradespeople are satisfied, the larger part of people said that the visibility of stores increased considering the pedestrianization project and therefore attracted more customers (Fig. 14). Contrarily, 32% of the tradespeople that are not satisfied with pedestrianization stated that parking and logistics problems are unresolved while other 32% mentioned that the number of the customers coming from outside of Ümraniye decreased (Fig. 15).

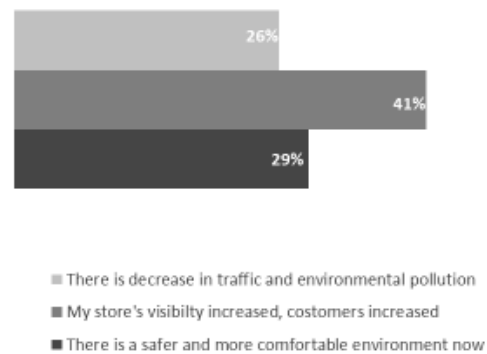


Fig. 14 Reasons for Satisfaction of Tradespeople with Pedestrianization

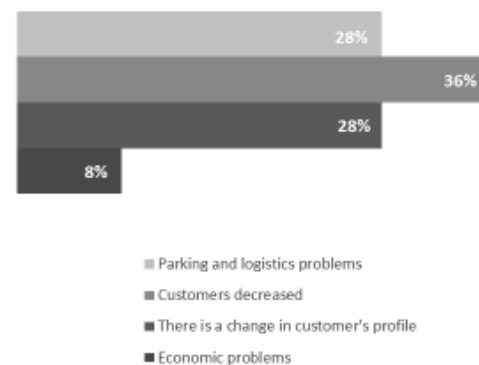


Fig. 15 Reasons for Dissatisfaction of Tradespeople with Pedestrianization

In both tradespeople and user surveys, people are asked about the environmental complaint about the pedestrianization project. The responses received are collected under 10 categories seen in Table VIX. The most frequent response of people is “lack of sidewalk and pedestrian road arrangements”. However, “lack of green space” is other most frequent responses given by users, while only 7% of tradespeople stated. Additionally, the lack of urban furniture elements such as bench and garbage containers becomes one of the common responses by both users and tradespeople (Table VIX).

TABLE VIX
ENVIRONMENTAL PROBLEMS ACCORDING TO SURVEY RESPONSES

Environmental Issues	User Survey	Tradespeople Survey
Lack of Lighting	3%	10%
Environmental Pollution	8%	20%
Lack of Control	3%	12%
Lack of Urban Furniture Elements (Bench, garbage etc.)	24%	28%
Sidewalk and Pedestrian Path Arrangement	34%	47%
Logistic Issue	-	7%
Lack of Car park	3%	8%
Lack of Green Area	34%	7%
Lack of Transport and Infrastructure	3%	5%
Maintenance Free Buildings	3%	-

V.CONCLUSION

Pedestrianization projects implemented in retail streets have various effects on the differentiation of the type and intensity of commercial activities on these streets. Accordingly, the example of Alemdağ Street seems like an appropriate example to examine the effects of pedestrianization projects on commercial function and socio-economic structure around the street. It is known that Alemdağ Street, which has a high commercial attraction, could not accommodate the maximum number of pedestrians and visitors in the area before pedestrianization. Pedestrian access, which continues only on the sidewalks before pedestrianization, obliges users to spend time in a limited area. For this reason, the pedestrianization project implemented in 2018 is seen as an important step in terms of utilizing the potential of Alemdağ Street. According to the results of the study, this change has been observed to affect the commercial function distribution and socio-economic structure in Alemdağ Street. When looking at the sectoral distribution of commercial functions before pedestrianization (2016), the accessories & jewelry sector ranks with 13%, the financial sector ranks with 14% and the fashion & textile sector ranks first with 36%. Technology & communication and home products & decoration take the last place with 7%. Considering the sectoral distribution of commercial functions after pedestrianization (2020), the fashion & textile sector becomes the dominant sector in Alemdağ Street with 40%. However, today, the accessories & jewelry sector is in second place with 16% and the food & beverage sector is in third place with 12%. To sum up, we observe an increase in the fashion & textile, food & beverage

and accessories & jewelry sectors with the pedestrianization project.

In line with the results of the user surveys, it is possible to say that the reason for pedestrian users to come to Alemdağ Street is mostly shopping. Also, as the users pointed out, the brands that are expected to be here are chain shopping brands. It is observed that the increase in the commercial distribution mentioned above is mostly in retail brands due to its high brand awareness and the trust they create. This situation is supported by the results of the user surveys conducted in the study area. According to the results from the surveys of users and tradespeople, there is an increase in the pedestrian density on the street with the pedestrianization project. This increase reflects a higher demand in the developing sectors on the street.

Besides commercial function, Alemdağ Street started to become an area that creates socialization and gathering place for people and is surrounded by squares and transportation with pedestrianization project. As stated in the user surveys, food & beverage sector is one of the underdeveloped sectors comparing the others in Alemdağ Street. However, the current increase in the food & beverage sector is considered as a potential for Alemdağ Street. Thanks to this increasing trend, food & beverage sector can be one of the dominant sectors in Alemdağ Street in the future. According to developments with pedestrianization, Alemdağ Street has undergone some environmental transformations. The results of both user and tradespeople survey stated that the sidewalk and pedestrian road arrangements of Alemdağ Street are common needs for people. Issues such as the irregularity of the pedestrian road seen in most of the responses and the occupation of the pedestrian roads of the stands can be solved with local scale projects and can have a major impact on the more active use of Alemdağ Street. Besides, according to the results of the users' survey, Alemdağ Street has a lack of green areas and landscape elements. However, green areas and landscape elements created in unity with urban reinforcement elements can make Alemdağ Street more livable area for users.

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