

# An Evaluation of Urban Open Spaces in the Context of Continuity of Pedestrian Mobility, The Case of Konya City Center

*By* Bilgehan Yılmaz Çakmak



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## **An Evaluation of Urban Open Spaces in the Context of Continuity of Pedestrian Mobility, The Case of Konya City Center**

### **Abstract**

Cities are organisms that live in a balance of continuity with the structures they possess and the urban open spaces that connect them. For this organism, staying alive and healthy is possible if urban dwellers, who are the users, utilize the spaces in a manner that preserves their integrity and locate each space in mental perception. **Research problem/aim;** Squares, which are one of the urban open spaces, are the breathing centers of the city that play important roles in maintaining this integrity. This study aims to test the integration and pedestrian movement for each square and for the whole historical city. **Method;** In the present study examining the squares and their relationships in the historical city center of Konya province, 7 squares that have a semantic relationship resulting from being located on a specific axis with one another were analyzed with respect to pedestrian use and the respective physical characteristics of the squares. The main criteria defined in the study constitute the 3 steps of the method. These were identified as function diversity, accessibility-form and livability – identity. Analyses were conducted based on the 3 established criteria and the 7 sub-criteria that measure the relationships among these at certain levels. Each analysis constitutes a step of the method and enables to achieve a result by using different measurement techniques.

In the light of the analyses and findings, qualitative and quantitative studies such as a questionnaire study, land use, dominant land use, function diversity, global and local accessibility, form and geometry, urban open space and symbolic elements analyses were conducted for each square.

**Findings, Conclusions;** As a result of this study carried out with the aim of reinforcing urban continuity and enhancing the relationship among squares, the primary data for each square were obtained and suggestions were presented for eliminating the deficiencies. With the implementation of these suggestions, the holistic perception of the squares, which are focal points located within the historical city center, will be stronger and these squares will have more enhanced functional and semantic connections with one another. In this way, significant contributions will be made regarding the users' getting to know the city center, the use of squares for different needs and the protection of the integrity of the historical city center with regard to cultural identity.

**Keywords:** Urban open space, pedestrian mobility, continuity, squares, Konya



## 5 1. INTRODUCTION

6 Cities are living and moving organisms that are composed of public and private structures and urban  
7 open spaces that interconnect these structures. In addition to defining urban open spaces as the  
8 spaces existing among structures, they should also be defined as spaces that connect sites, give  
9 meaning to the city with the balance between fullness and emptiness and contribute to the formation  
10 of urban identity through their unique functions. When defining the city, Gordon Cullen portrays it  
11 as a world of black and white. In this world, the roads are for movement and relationships, and the  
12 buildings are for social and business purposes. The place out-of-doors is utilized for social and  
13 business purposes (Cullen, 1961).

14 When we examine the use of urban open spaces from past to present, we see that a change  
15 has been experienced from the boundary elements that create the space to the functions that serve  
16 the open space, and this change has led to unidentifiability. This unidentifiability decreases the  
17 importance and efficiency of urban open spaces, causes uncertainties in the legibility of cities and  
18 urban identity.

19 In the current literature, as important elements of urban open spaces, squares are defined as  
20 urban spaces in which various activities are performed, pedestrian movement is maintained, and  
21 which are supported by limiting and defining elements. In this context, squares are not only points  
22 for gathering, resting and relaxation, but are also areas that maintain urban integrity and where urban  
23 identity is perceived.

24 In this paper, urban open spaces that are located in the historical city center and have strong  
25 and weak functional and contextual relationships with one another are quantitatively and qualitatively  
26 analyzed with exclusive focus on squares. These analyses aim to identify space use, pedestrian  
27 movements, pedestrian behavior and preferences, accessibility, morphological structure and  
28 integration of space with the environment. The analyses are supported with the movement tracks of  
29 the users in the squares and the present data are compared with the usage data. On the identified  
30 route, the relationship of the open spaces with the city and among one another is examined for  
31 improving the state of connectedness and continuity. In addition, the contributions of continuity to  
32 urban identity and perception are also investigated.

## 33 2. CONCEPTUAL FRAMEWORK

### 34 The Concept of Urban Open Space

35 An urban open space network, which forms the backbone of the fabric and maintains vehicle-  
36 pedestrian circulation, is the most important factor determining the fabric typology. This network  
37 system, which is formed through the end-to-end connection of the volumes outside the buildings,  
38 constitute the basic configuration of an urban fabric through the morphological clustering of point  
39 (gathering – dispersing and activity spaces) and linear (passage spaces) space elements. Point spaces  
40 can be exemplified as squares, nodes, transfer points, parks, and playgrounds; while alleys, streets,  
41 boulevards, passages, stair alleys and walkways can be examples for linear spaces. Point and linear  
42 spaces that constitute the urban open space network are also among the “image elements of urban

43 space” defined by Lynch (1960). Point spaces are identified as junctions and nodes that constitute  
44 the symbolic spots of the city and enrich the urban image, whereas linear spaces are defined as paths  
45 that enable the circulation within the city and connect the sub-regions or points to one another  
46 (Kürkçüoğlu, 2015).

47 Although discussed in different ways by several approaches, space or place in a broader sense  
48 is defined as an emptiness that separates the human from the environment to a certain extent and  
49 which is suitable for the human to continue their actions within it and the piece of space whose edges  
50 can be perceived by the observer(s). Architectural space is the piece of space or special emptiness  
51 which is horizontally and vertically separated through visible or invisible borders from the infinite  
52 space, which is difficult to grasp and perceive.

53 As it is understood from the definition of space given by Francis D.K. Ching as “Space  
54 constantly encompasses our being. Through the volume of space, we move, see forms, hear sounds,  
55 feel breezes, smell the fragrances of a flower garden in bloom. It is a material substance like wood or  
56 stone. Yet it is an inherently formless vapor. Its visual form, its dimensions and scale, the quality of  
57 its light-all of these qualities depend on our perception of the spatial boundaries defined by elements  
58 of form. As space begins to be captured, molded, and organized by the elements of mass, architecture  
59 comes into being.”, the existence of space is maintained through the perception of a volume of space  
60 by our senses in the context of continuity and mobility. Space gains meaning as long as this existence  
61 is supported by light, sound, scale, harmony and unity principles (Ching, 2014).

62 For space, the state of being closed, semi-open or open varies from micro to macro scale at  
63 various dimensions and levels. Different types of spaces that exist within this variation continuously  
64 change and develop in accordance with the needs and actions of the human and are redesigned based  
65 on different styles of perception. In this context, the existence of architectural and urban space is  
66 possible through the movement of the human who perceives and functionally utilizes it within that  
67 space.

68 In this context, it is necessary to evaluate urban open spaces socially and culturally in terms  
69 of the perception levels, views and social expectations of the users that move within them, and also  
70 physically in terms of their accessibility, legibility, and functional values. At this point, the topic needs  
71 to be addressed within the context of urban open space design criteria to be able to perform a  
72 universal evaluation.

### 73 **Design Criteria in Urban Open Spaces**

74 Urban open spaces are areas that maintain the urban balance between fullness-emptiness,  
75 meaning-integrity and functionality- aesthetics in the 2<sup>nd</sup> and 3<sup>rd</sup> dimensions. From this point of view,  
76 they need to exist in an order and organization within the urban whole. The design criteria of urban  
77 open spaces can be interpreted under three main topics (Francis, 1987; Korkmaz, 2001; Southworth,  
78 1989). These are;

- 79 • *Function - Diversity*
- 80 • *Accessibility - Form*
- 81 • *Livability - Identity*

82 Among these concepts, the notion of function embodies the criteria such as the presentation  
83 of the functions existing in the space to all users under equal conditions, the organization of public  
84 transportation systems and the maintenance of a balanced distribution of the existing activities. The  
85 diversity of functions also has an important place among the design criteria of urban open spaces

86 (Francis, 1987). This is because the contemporary understanding of design looks for diversity in the  
87 space, and enables cultural enrichment by bringing together individuals of different cultural, historical  
88 and artistic backgrounds. Socioeconomic environment emerges as an important criterion in the  
89 design of urban open spaces. Maintenance of a quality social life can be evaluated in terms of control  
90 and participation, equality and liveliness. User participation is an important step in maintaining the  
91 active use of the space in the design of open spaces. User participation is necessary for determining  
92 the functions to be provided in the space and maintaining the variety of actions. A quality urban open  
93 space can be established based on an inquiry on the hours of use in the day, the frequency of use and  
94 for what purposes the area is used. In addition, it is necessary to ensure the equal use of all facilities  
95 by all urban dwellers and enable diversity with an egalitarian approach. The urban open space should  
96 offer variety also with its night and daytime use.

97 In terms of form (shape and aesthetics) the design of urban open spaces requires attention  
98 to the differences in the preferences and behavior of individuals from different socioeconomic levels  
99 that result from their different levels of perception. The basic factors that affect perception can be  
100 grouped into three as user characteristics, user behavior in the urban space and space characteristics.  
101 The characteristics of the space constitute the third group which affects perception. These  
102 characteristics embrace the elements that form the space such as the dimensions of the space  
103 elements, materials, mobility in the fronts, direction, continuity, and density of straights, having  
104 diversity or similarity as well as environmental effects (Giritlioglu, 1991). For this reason, it would be  
105 appropriate to suggest solutions that meet the expectations of each individual and give importance  
106 to the design of open spaces for urban aesthetics. The form of the space should be in a way that  
107 enables the most efficient use with the functions it includes. In geometries close to basic geometry,  
108 shared spaces and pedestrian axes are worked out more functionally. The accessibility of urban open  
109 spaces within the urban whole and their state of accessibility for the surrounding area is important  
110 for the design and use of the space.

111 The criteria that constitute the notion of livability are comfort, safety and maintenance. While  
112 sitting elements, shaded and sunny areas, wind, rain and climatic arrangements maintain the criteria  
113 of comfort, areas separated from traffic and public transport arrangements maintain the criteria of  
114 safety. The regular control and maintenance of all these arrangements, urban furniture and recreation  
115 systems implements the criteria of maintenance. The applications such as urban furniture, lighting  
116 elements, signboards and direction signs, and ground textures in the space should be identified to  
117 determine the criterion of livability (Korkmaz, 2001; Southworth, 1989).

118 The criterion of 'identity' should be evaluated in terms of legibility and meaning. The legibility  
119 of urban open spaces is related to the perceptibility of the space by its users and its meaning to  
120 individuals (Southworth, 1989).

121 As points of reference, open spaces are important for the perception of the urban whole and  
122 in terms of acting as a guide for direction finding. The cultural and historical marks that urban  
123 memory leaves in the minds of individuals should be legible and visible in urban open spaces.

#### 124 **Square as an Urban Open Space**

125 The concept of urban open space refers to urban spaces that exist outside of structures and  
126 buildings and serve certain functions. Sidewalks, vehicle stops, parks and recreation areas, car parks,  
127 vehicle and pedestrian roads and squares are elements that constitute urban open spaces. The concept  
128 of square, which is an important part of urban open spaces, will be illustrated in the study.

129 Squares are the most commonly and actively used element of urban open spaces. Squares are  
130 public spaces that are used by urbanites for general and specific purposes. Today, urban spaces fall  
131 under the pressure of the economic rationality in design, and spaces of similar character which lack  
132 identity and quality emerge as the urban image (square, street, yard, human scale, etc. as elements that  
133 define the city), and the urban culture (urbanity, awareness of being urbanite, values experienced in  
134 the city, traditions, customs,... ) of the Anatolian cities of the past are forgotten (Özer & Ayten,  
135 2005).

136 The most important function of squares is to create a social life (fabric) in the midst of  
137 buildings. Through the coexistence of more than one person in a public space, this social life enables  
138 individuals to communicate and socialize with each other, and creates a common identity. From the  
139 past to the present, squares have been meeting places for the townspeople or visitors, sites where  
140 they could take a breath to break away from the chaos of the city, find an opportunity to relax and  
141 rest, watch each other and share the events happen in the city, in short, multipurpose areas for use  
142 (Erdönmez & Apak, 2015).

143 Schulz defines the square as “the most distinct and remarkable element of the urban  
144 structure”, and states that “As a clearly delimited place it is most easily imaginable, and represents a  
145 goal for movement” (Norberg-Schulz, 1971).

#### 146 **Formation of Square in the Historical Process**

147 Squares, which have been a part of urban open spaces and at the same time public spaces in  
148 the period from the past to the present, have been named based on a certain function or a structure  
149 they contain; Market Square, Fountain Square, Pier Square, Government Square, etc.

150 In the historical process, squares were viewed as the most prestigious places of the city as  
151 areas where common life existed consciously and in an organized way. Ceremonies, celebrations,  
152 festivals, shows were generally held in squares, but squares failed to meet the needs of the urbanites  
153 and started to lose their quality because of the fast urbanization that emerged with industrialization  
154 (Çubuk, 1991). In addition to losing the quality of being prestigious areas, another important loss for  
155 squares was their integration with transportation systems and vehicle roads. Squares suffer functional  
156 losses in areas where the vehicle-pedestrian relationship cannot be maintained in an organized way.

157 In developing cities, squares have started to lose their functional and visual qualities with the  
158 developing technology and transportation systems and at the same time the density of traffic caused  
159 by fast urbanization. All these developments caused squares to lose their essential functions and turn  
160 into spaces that serve vehicle traffic and throw pedestrian use out of focus (Kılıç, 2001).

#### 161 **The Role of Squares in Urban Continuity and Sustainability**

162 The diversity and richness of the public spaces of a city, their publicness, accessibility,  
163 walkability and enabling the representation of different sections of the society makes that city and its  
164 public spaces livable and sustainable. Concerning the maintenance of urban sustainability, walkability  
165 makes the public space colorful, lively, and dynamic; walkable spaces strengthen social life by  
166 mediating social interaction; contribute to the development of harmonious and livable communities  
167 (Akkar Ercen & Belge, 2017).

168 As parts of urban open spaces, streets and squares are places where human mobility is  
169 observed, and which are organic parts of the city. The common point of the studies conducted on  
170 this topic is seen to be the certain significant qualities of squares such as being social production  
171 areas, meeting physical, perceptive and social needs and being accessible. With all these qualities,

172 squares as urban spaces are of vital importance for sustainable cities with their psychosocial, spatial  
173 and ecological qualities (Eren, 2006).

174 When reviewing the sustainability of the squares in Turkey, one of the most important  
175 problems that emerge is the change observed in the form of social and spatial organization. The  
176 'modern' urban design and planning studies which started with the Tanzimat reforms of the Ottoman  
177 period were in the form of formal 'transfers', and the lack of correspondence between the logic  
178 behind the creation of these new forms and the formation of the square on which they were built  
179 has constituted one of the most important sources of the problems that have existed up to the present  
180 time (Eren, 2006).

181 The urban open spaces, especially the squares in the historical city center in Konya have  
182 significant importance in the formation of urban identity in the context of urban continuity and the  
183 sustainability of squares. Squares are spaces where especially local and foreign tourists gain an  
184 impression regarding the urban whole and urban spirit. The behavior of the local people, local culture  
185 and lifestyle, socioeconomic structure and historical fabric are legible in the squares and cultural codes  
186 are transferred to future generations.

187 In this context, 7 squares from among the urban open spaces located in the Konya historical  
188 city center were selected as the study area and analyzed. The relationship of these squares among one  
189 another and with all urban spaces will be examined and suggestions will be offered regarding  
190 maintaining urban continuity.

### 191 3. METHOD

192 The squares selected as sampling area for the aim of maintaining the continuity of squares  
193 targeted within the scope of the study were examined based on the criteria determined within the  
194 theoretical framework. These criteria were identified as function diversity, accessibility-form and  
195 livability-identity (Figure 1).

196 Within this scope, data were obtained for each criterion by using different measurement  
197 techniques. In analyzing the functional use of squares, frequency of use for each square was  
198 determined through a questionnaire study and function diversity was determined by means of land  
199 use analyses. Land use levels in the immediate environment of the squares were analyzed and  
200 dominant land use was determined in percentages. Afterwards, spatial accessibility values were  
201 calculated by using the space syntax method to determine the degree of spatial accessibility for the  
202 squares within the historical district. As to the criterion of form, the squares were assessed within the  
203 scope of determined geometric approaches. The criterion of livability was determined through urban  
204 open space analyses (urban furniture, landscape, lighting elements, ground covering materials, etc.)  
205 and on-site analyses for degree of use. The criterion of identity was quantitatively interpreted in the  
206 context of the monumental structures, symbolic elements and activities of memorial value around  
207 the squares in the historical district.

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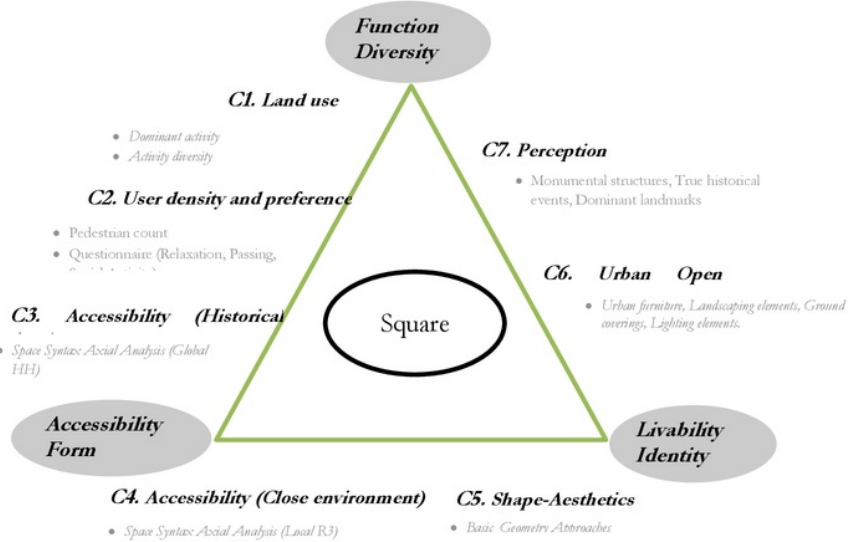
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218 **Figure 1.** Evaluation criteria and method used in the study

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#### 220 4. FIELD STUDY

##### 221 Konya Historical City Center: Content and Fringes

222 The part of Konya characterized as the traditional market and historical city center and where  
223 commercial, civil and historical buildings are concentrated is located within the town of Selçuklu to  
224 the east of Alaaddin Hill. A large part of the area consists of the historical city center, which developed  
225 and was used during the Seljuk period.



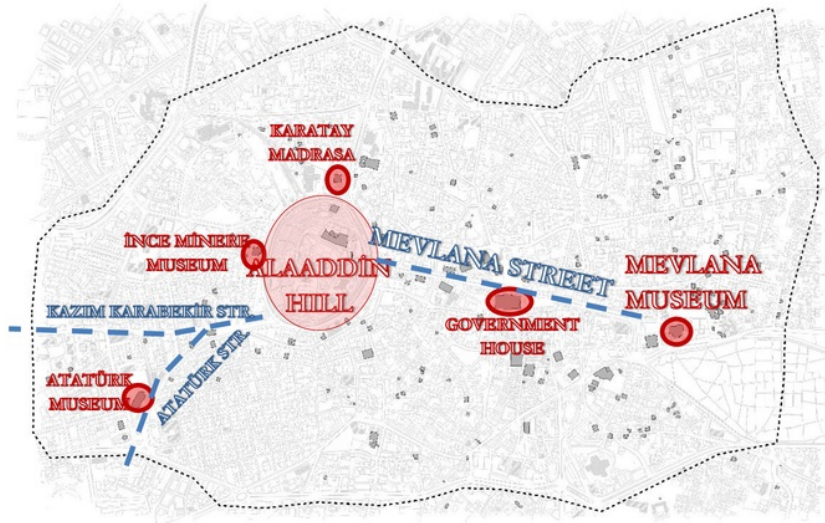
226 **Figure 2.** Konya Alaaddin Hill

227 (<http://www.superaktif.net/gezi/konya-alaaddin-tepesi>)

228 Alaaddin Hill and its surroundings served as a hub which was used as the city center  
(or downtown) in the 15<sup>th</sup>-16<sup>th</sup> centuries. These areas included the main commercial spaces of  
the city in the Seljuk and Ottoman periods. When Konya was conquered, the city was  
located within the fortifications that surrounded the Alaaddin Hill. After the city walls were  
restored, a palace was built on the northern skirt of the hill, and Ulu Mosque (Alaaddin Mosque)  
was constructed in the middle of the hill (Figure 2).

226 In the study, Konya historical city center is described as the district bordered by the outer  
227 castle walls and its close surroundings. Within these borders, there is the Alaaddin hill and the vehicle  
228 axis surrounding it, historical buildings located on this axis and pedestrian and vehicle axes extending  
229 up to the Mevlana Museum (Figure 3).

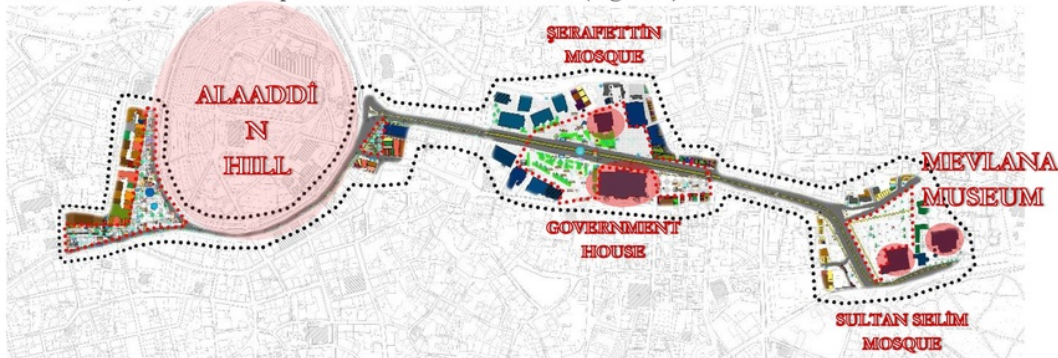




**Figure 3.** Edges of Konya historical city center

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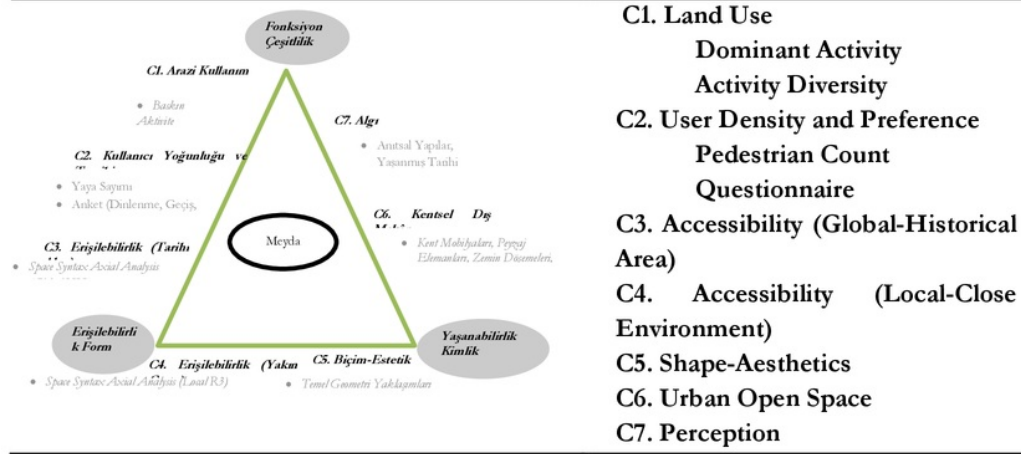
The urban open spaces (squares) located in the area defined as the historical city center, on Mevlana Street and around Alaaddin Hill were selected as the study area. Considering the significance of the historical city center in urban continuity, the role and importance of the selected area and squares becomes more evident. The axis on which the squares have been erected is the one located between the Alaaddin Hill and Mevlana Museum and important focal points such as the Government House and Şerafettin Mosque are connected to this axis (Figure 4).



**Figure 4.** Edges of the Study Area

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On the designated area, 7 different studies were conducted under 3 main topics in line with the urban open space design criteria and analyses and data collection for each square were performed within the scope of the determined method. These studies are as follows;



### C1. Land Use

Dominant Activity

Activity Diversity

### C2. User Density and Preference

Pedestrian Count

Questionnaire

### C3. Accessibility (Global-Historical Area)

### C4. Accessibility (Local-Close Environment)

### C5. Shape-Aesthetics

### C6. Urban Open Space

### C7. Perception

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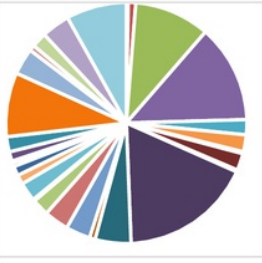
### 250 C1. LAND USE

251 Land use analyses were carried out through determining the functions located in and around each  
252 square. The analyses were obtained by labeling the functions on the maps of the squares and showing  
253 the percentages on pie charts. Dominant activities and activity diversity were also presented in the  
254 same table (Table 1).

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256 **Table 1.** Land use, dominant land use and activity diversity analyses

	<i>Forms of land use in and around the squares</i>	<i>Pie chart for dominant land use around the squares</i>	<i>Dominant land use percentages</i>	<i>Diversity</i>
<b>ZAFER</b>			%23 Café, Restaurant %15 Clothing %10 Communication %7 Housing	<b>38</b>
<b>RAMPALI</b>			%28 Clothing %12 Café, Restaurant %6 Communication %6 Food %6 Stationary	<b>26</b>

KAYALIPARK-SARRAFLAR-ŞERAFETTİN-HÜKÜMET			<p>%25 Clothing %12 Jeweler %11 Communication %10 Shoe store</p>	28
MEVLANA			<p>%18 Souvenir %13 Restaurant %10 Delicatessen %9 Handcraft</p>	30

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258 **Land Use Findings;** An analysis of the forms of land use and activity diversity around the squares,  
259 which determine the purpose of use of the squares, showed that functions of clothing, food and  
260 beverage, communication and stationary were dominant in Zafer and Rampalı squares, which are the  
261 centers of the city and trade. Since Kayalıpark-Sarraflar-Şerafettin and Hükümet squares had an  
262 integrated functional relationship with one another, land use analyses were jointly conducted. The  
263 functions of clothing, jeweler and shoe store functions were found to mainly exist around these  
264 squares, which are located close to the Bedesten and Sarraflar bazaars and have strong functional  
265 relationships with these bazaars. Because of its relationship with the mausoleum, Mevlana Square  
266 mainly accommodates functions such as souvenir, restaurant and handcraft.

## 267 C2. User Density and Preference

268 In the study, pedestrian density counts were carried out at specified times of the day on weekdays  
269 and at the weekend in order to determine the usage density of the squares. The analyses performed  
270 are shown in Table 2.

271 **Table 2.** Table of pedestrian count for the usage density of squares, weekdays-weekend

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**Table 3.** Questionnaire results on the frequency of use of the squares, purpose and means of coming to the square and reason for preferring the square

Name of Square	Frequency of use of the square	Purpose of coming to the square	Means of coming to the square		reason for preferring the square
			Pedestrian	Public Transport	
ZAFER	Very often 61%	relaxation 50%	25%	53%	25% workplace ,home ,dormitory
RAMPALI	Very often 25%	relaxation 67%	37%	47%	32% central and on the way
KAYALIPARK	Very often 22%	relaxation 76%	36%	56%	30% business 30% relaxation
SARRAFLAR	Very often 58%	relaxation 72%	62%	16%	32% business 36% shopping 32% relaxation
ŞERAFETTİN	Very often 66%	relaxation 42%	39%	56%	54% relaxation
HÜKÜMET	Very often 22%	relaxation 70%	32%	30%	24% business
MEVLANA	Very often 27%	relaxation 40%	41%	16%	40% to visit the mausoleum

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**Pedestrian count analysis:** According to the conducted pedestrian counts, the busiest square at morning, noon and evening hours during weekdays and weekends was Zafer Square. Pedestrian densities of Rampalı, Kayalıpark and Sarraflar squares were also observed to increase on weekdays at noon hours. In addition, pedestrian density was also seen to increase at evening hours on weekdays and at weekends in Rampalı and Sarraflar squares.

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**Questionnaire Study:** The questionnaire study was conducted on 60 participants for each square. According to the questionnaire study conducted to analyze the pedestrians' frequency of use of the squares, their purpose of coming to the square, means of visiting the square and reason for preferring the square, it was determined that the most frequently used were Zafer, Sarraflar and Şerafettin squares.

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It was found out that the squares were generally used for relaxation purposes and the users relaxed the most frequently in Kayalıpark and Sarraflar squares.

Regarding the means of coming to the square, it is seen that while Şerafettin, Kayalıpark, Zafer and Rampalı squares were mainly accessed by public transport, pedestrian access was more frequent to the other squares.

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When the reasons for preferring the squares were examined, it was seen that Kayalıpark, Sarraflar and Şerafettin squares were the most preferred for relaxation, Zafer and Hükümet squares were preferred for business, Rampalı was preferred for being on the way and passing, and Mevlana was preferred for visiting the mausoleum.

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### C3. Accessibility (Global-Historical Area), C4. Accessibility (Local-Close Environment)

The criterion of accessibility was measured using the space syntax method. The space syntax method is a mathematical model used for discovering and comparing features such as natural mobility and density of use based on the examination of urban open spaces. By means of this method, it is possible to compare different urban spaces or urban spaces in different processes especially based on the phenomenon of mobility. The space syntax method, which examines and explains the relationships between urban spaces and buildings, was developed at "The Unit for Architectural Studies, University College London" (Hillier & Hanson, 1984). This method reveals the integrated urban structure not

304 based volumes, but by examining the open space where urban life occurs among these volumes. This  
305 method is supported with the concept of accessibility in terms of topological and geometric  
306 terminology (Hillier, 2007; Hillier & Hanson, 1984; Oliveira, 2013). Syntactic maps are developed  
307 and statistical data are obtained based on an “axial map” consisting of the fewest and longest axes in  
308 the urban whole. The most important finding obtained through space syntax analysis on an axial map  
309 is “Integration value” and “Integration map”. Through this map, the axes that are in line for the  
310 densest use or are currently used most within the system are instantly seen while the spaces that were  
311 isolated and out of use can also be seen.

312 An axial map was created for the area within the borders of the historical district of the city of Konya  
313 that comprises the squares to measure and compare the accessibility values of the squares. Integration  
314 values were calculated on the generated axial map by using Depthmap software (global HH and local  
315 r3) and integration maps were produced (Figures 5, 6). Afterwards, the accessibility among the  
316 squares whose integration values were selected as sample and the accessibility between these squares  
317 and the whole historical city center were mapped in detail and integration values were calculated  
318 (Table 4).



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**Figure 5.** “Global” integration map of the historical district



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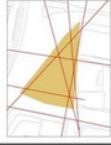
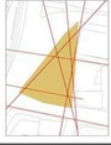










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**Figure 6.** Local integration map of the historical district

**Table 4.** Mean global and local integration values for the squares selected as sample

	Sample Squares (Global Integration Values HH)	(Global Integration Values HH) Mean	Sample Squares (Local Integration Values R3)	(Local Integration Values R3) Mean
Zafer		1.367295455		2.785167673
Rampalı		1.786786333		2.869598617
Kayalı park		1.677099833		2.957395967
Sarraflar		1.760932943		3.1642814
Şerafettin		1.67260984		2.93971096
Hükümet		1.6985555		2.96909948
Mevlana		1.6675782		3.015900286
<b>Historical Area General</b>		(0.754428 – 2.09895) Mean: 1.21486		(0.49860 – 3.97454) Mean: 2.011589

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In the space syntax analysis conducted for accessibility, the global integration analysis of the historical district of Konya revealed that the integration values were between 0.75428 and 2.098959, and the mean global integration value was found to be 1.21486 (Figure xx). When we examine the mean global integration values of the squares (*Zafer*; 1.36729, *Rampalı*; 1.78628, *Kayalıpark*; 1.67709, *Sarraflar*; 1.76093, *Şerafettin*; 1.67260, *Hükümet*; 1.69855, *Mevlana*; 1.66757), we can see that the integration values for all the squares were higher than the mean value (Figure xx). The comparison of the global accessibility of the squares showed that Rampalı and Sarraflar squares had the highest accessibility, whereas the Zafer square had the lowest accessibility.

The local integration analysis of the squares showed that the integration values in the historical district were between 0.498604 and 3.974535, and the mean local integration value was calculated as 2.011589. If we examine the mean local integration values of the squares (*Zafer*; 2.785167, *Rampalı*;

338 2,869598, Kayalpark; 2.957395, Sarraflar; 3.164814, Şerafettin; 2.939710, Hükiimet; 2.969099, Mevlana;  
339 3.01590), we can see that the integration values of all the squares were higher than the mean value  
340 also at the local scale. When we compare the local accessibility of the squares, we see that Mevlana  
341 and Sarraflar were squares with the highest accessibility, whereas Zafer square had the lowest  
342 accessibility among the selected squares.

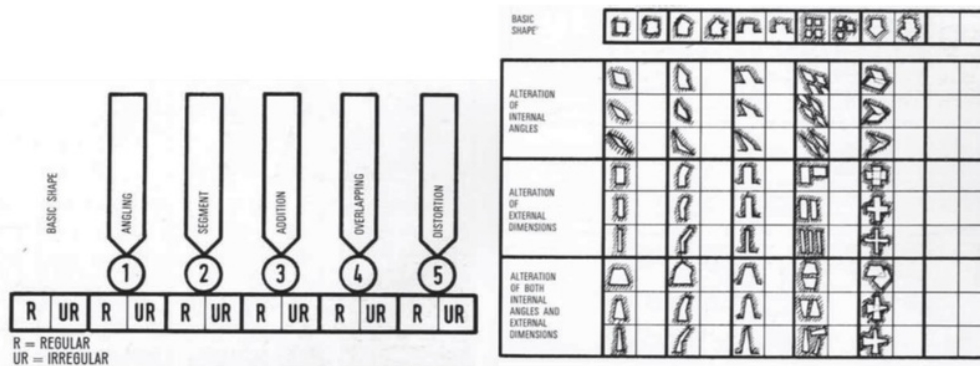
343 As a general assessment, we can say that the accessibility of the squares other than Zafer Square was  
344 at levels close to each other and at high values, and interventions to increase the accessibility between  
345 Zafer square and other squares would result in a more sustainable relationship among the squares.

### 346 C5. Shape-Aesthetics

347 The geometric exploration of the city gives us some basic ideas. Different cities with similar  
348 geometries individually exhibit exclusive and unique characteristics. The conglomeration of roads and  
349 buildings serve to define the atmosphere of the space as in the three dimensional formation.  
350 Definition of the urban structure is connected to the definition of the basic fabric. This is very  
351 important for the intelligibility of the city. The squares in the urban fabric, communal spaces and the  
352 links that connect them are each a touchstone in this definition of identity (Cohen, 1999).

353 In urban open spaces, the shape-aesthetics analysis of the square is conducted by classifying the  
354 changes that occur in its basic geometry. In his book entitled Urban Space, Krier (1979) typologically  
355 classifies the alternatives for the regular and irregular change of the morphological structure of the  
356 square. This classification is categorized as angling, segment, addition, overlapping and distortion.  
357 The variation in basic geometry is classified in 3 main categories as the alteration of internal angles,  
358 alteration of external dimensions, and alteration of both internal angles and external dimensions  
359 (Figure 7).

360



361

362 **Figure 7.** Concepts regarding basic form and the mode of change in form (Krier & Rowe, 1979)

363

364 The formal geometries of the squares are defined based on Krier's classification criteria (Table  
365 5). Qualities of the form of the square will be interpreted together with the other analyses and their  
366 relationship with use, preference and accessibility values will be evaluated (Table 6).

366

**Table 5.** Analysis criteria for the squares located in the study area

<i>BASIC FORM</i>	<i>STATE OF REGULARITY</i>	<i>STATE OF ALTERATION</i>
<i>Angling</i>		<i>alteration of internal angles</i>
<i>Segment</i>	<i>Regular</i>	<i>alteration of external dimensions</i>
<i>Addition</i>	<i>Irregular</i>	




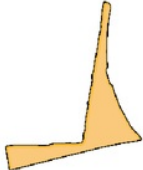

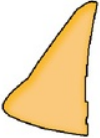

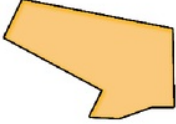



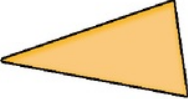

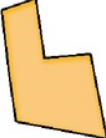
Overlapping  
Distortion

alteration of both internal angles and  
external dimensions

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368

**Table 6.** Form analysis of the squares located in the study area

Name and location of the square	Geometry of the square	Form, regularity and alteration criteria
<p>ZAFER</p> 		<ul style="list-style-type: none"> <li>• Addition</li> <li>• Irregular</li> <li>• Alteration of both internal angles and external dimensions</li> </ul>
<p>RAMPALI</p> 		<ul style="list-style-type: none"> <li>• Angling</li> <li>• Regular</li> <li>• Alteration of external dimensions</li> </ul>
<p>KAYALIPARK</p> 		<ul style="list-style-type: none"> <li>• Addition</li> <li>• Irregular</li> <li>• Alteration of both internal angles and external dimensions</li> </ul>
<p>SARRAFLAR</p> 		<ul style="list-style-type: none"> <li>• Angling</li> <li>• Regular</li> <li>• Alteration of both internal angles and external dimensions</li> </ul>
<p>ŞERAFETTİN</p> 		<ul style="list-style-type: none"> <li>• Addition</li> <li>• Regular</li> <li>• Alteration of external dimensions</li> </ul>
<p>HÜKÜMET</p> 		<ul style="list-style-type: none"> <li>• Addition</li> <li>• Regular</li> <li>• Alteration of external dimensions</li> </ul>



369

370 **Shape-Aesthetics Analysis** Results of the analyses on the geometric structures of the squares  
371 examined in the study showed that while Zafer, Kayalpark and Mevlana squares have irregular  
372 geometric forms, Hükümet, Şerafettin, Sarraflar and Rampalı squares have regular geometric forms.  
373 Sarraflar and Rampalı squares have angling, whereas the other squares have additional forms. In the  
374 light of the findings, it was determined that squares with regular forms similar to the basic geometry  
375 are more suitable in terms of urban space arrangement, accessibility, and user preference and  
376 behaviors.

### 377 C6. Urban Open Space and C7. Perception

378 An important concept in determining the quality of an urban open space is livability. Livability  
379 is a concept related to the presence of certain factors existing in a square such as urban furniture,  
380 lighting elements, quantity of green space and landscaping elements and the safe use of these  
381 elements. The urban furniture and arrangements sought in the squares for the study are presented  
382 below.

383 **Table 7.** Criteria Sought in Urban Open Space Analysis

<i>Criteria Sought in Urban Open Space Analysis</i>			
<i>Green fabric</i>	<i>Ground/square clock</i>	<i>Charging pole</i>	<i>Stone paved road</i>
<i>Traffic lights</i>	<i>Lamp post</i>	<i>W.C.</i>	<i>keystone road</i>
<i>ATMs</i>	<i>Sitting element</i>	<i>Fountain</i>	<i>Sidewalk</i>
<i>Barrier</i>	<i>Hut</i>	<i>Bus stops</i>	<i>Tramway road</i>
<i>Electric transformer</i>	<i>Billboard</i>	<i>Bicycle parking areas</i>	<i>Car park</i>
<i>Flower tubs</i>	<i>Phone box</i>	<i>Pool</i>	<i>Tramway stop</i>
<i>Waste bins</i>	<i>Fireplug</i>	<i>Asphalt road</i>	
<i>Recycling bins</i>	<i>Signboard</i>	<i>Guide track</i>	





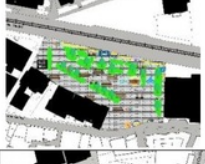



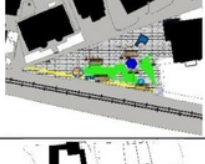

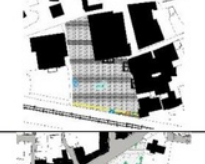

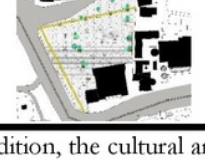
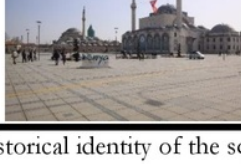
384

385 The equipment and applications existing in the spaces were determined within the scope of  
386 the urban open space analysis. Urban open space analyses conducted for each square showed that  
387 urban furniture, shade elements and functional equipment were effective in the pedestrians'  
388 frequency of use and preferences.

389 The obtained data were identified on maps through urban open space analyses and adequacy  
390 levels were specified. The results of the analysis for these values and the states of adequacy are  
391 presented in Table 8.

392 **Table 8.** Urban open space value analyses

<i>URBAN OPEN SPACE ANALYSIS</i>	<i>VISUAL OF THE SPACE</i>	<i>CRITERIA</i>
----------------------------------	----------------------------	-----------------








ZAFER			<p>Urban furniture Lighting Signs Flower tubs Pool Stop Car park</p>	<p>Adequate available available not available not available not available available available not available</p>
RAMPALI			<p>Urban furniture Lighting Signs Flower tubs Pool Stop Car park</p>	<p>Inadequate available available not available not available not available available not available</p>
KAYALPARK			<p>Urban furniture Lighting Signs Flower tubs Pool Stop Car park</p>	<p>Adequate available available not available available available available not available</p>
SARAFILAR			<p>Urban furniture Lighting Signs Flower tubs Pool Stop Car park</p>	<p>Adequate available available not available available available available not available</p>
ŞERAFETTİN			<p>Urban furniture Lighting Signs Flower tubs Pool Stop Car park</p>	<p>Adequate available available not available available not available available not available</p>
HÜKÜMET			<p>Urban furniture Lighting Signs Flower tubs Pool Stop Car park</p>	<p>Inadequate not available not available not available not available not available not available available available not available</p>
MEVLANA			<p>Urban furniture Lighting Signs Flower tubs Pool Stop Car park</p>	<p>Inadequate not available available not available not available not available not available available not available</p>

393 In addition, the cultural and historical identity of the squares also affects pedestrian use and  
394 preferences. For this purpose, the cultural and historical landmarks that the squares possess were  
395 evaluated through visuals and a questionnaire study. In the questionnaire study, questions regarding  
396 the semantic value of the squares were asked to 60 participants for each square and the results shown  
397 in Table 9 were achieved through the categorization of the responses.

398  
399

**Table 9:** Table of values representing the place of squares in the memory

<i>VISUAL OF THE SPACE</i>	<i>CULTURAL- HISTORICAL LANDMARKS</i>	<i>SPACE FEATURE/ PLACE IN THE MEMORY</i>
----------------------------	-----------------------------------------------	---------------------------------------------------

ZAFER		<i>Sundial Alaaddin Hill Camlı Köşle Zafer Tramway stop</i>
RAMPALI		<i>Alaaddin Hill Rampalı Çarşısı Zafer Tramway stop İş Bank Building</i>
KAYALIPARK		<i>Stone element and pool Bus stop Ziraat Bank Building Government House İplikçi Mosque</i>
SARRAFLAR		<i>Sarraflar underground market Government House Statue Pool</i>
ŞERAFETTİN		<i>Şerafettin Mosque Old Industrial School Building Government House</i>
HÜKÜMET		<i>Pool Pigeons Şerafettin Mosque Yapı Kredi Bank Building</i>
MEVLANA		<i>Mevlana Museum Tourism</i>

400

401 **Urban Open Space Analysis and Cultural-Historical Analysis:** Considering the pedestrians'  
402 preferences and diversity of functional use for the adequacy of urban equipment and arrangements,  
403 the urban open space analysis showed that Zafer and Kayalıpark squares had an adequate level of  
404 equipment and arrangements, whereas the other squares could not sufficiently meet the needs of the  
405 users. Şerafettin and Mevlana squares were insufficient in terms of urban equipment serving the  
406 function of shaded sitting and relaxation, the former for being located on a transit route, and the  
407 latter for being a square used by pedestrians for visiting and passing by on their way.  
408 In terms of the symbolic elements and semantic value that the squares possess, Zafer square with the  
409 sundial, Kayalıpark square with the stone-shaped pool, and Hükümet square with pigeons and pool,

410 hold a place in the memories in terms of semantic value. It is seen that Rampalı Square is remembered  
 411 for the Rampalı Çarşı on its side, Şerafettin Square for the Şerafettin Mosque, and Mevlana Square  
 412 for the Mevlana Museum, and the powerful historical structure nearby adds meaning and memory  
 413 value to the square.

414 When examined from this point of view, it is seen that the structures with strong symbolic value and  
 415 high semantic value located in the historical city center add value to the squares nearby in terms of  
 416 name, memory, and also in urban direction finding.

#### 417 5. CONCLUSION

418 In the study, continuity and sustainability of squares is evaluated in the context of the concepts of  
 419 function diversity, accessibility-form and livability-identity and specific to selected squares. In  
 420 addition, suggestions are offered regarding the concept in terms of which the squares selected as  
 421 sample should be improved to maintain the continuity among the squares and to achieve a more  
 422 integrated pedestrian mobility in the historical district. The findings regarding the squares obtained  
 423 within the scope of the 7 criteria of the study are summarized in Table 10.

424 **Table 10:** Findings obtained in line with the method of the study

		ZAFER	RAMPALI	KAYALIPAR K	SARRAFLAR	ŞERAFETİ N	HÜKÜME T	MEVLAN A	
<b>C1. Land use</b>		Type: 38 Dominant: 23% café	Type:26 Dominant: 28% clothing	Type: 28 Dominant: 25% clothing	Type: 28 Dominant: 25% clothing	Type: 28 Dominant: 25% clothing	Type: 28 Dominant: 25% clothing	Type: 30 Dominant: 18% Souvenir	
<b>C2. User Density and Preference</b>	<b>WEEKDAYS</b>	<b>Morning</b>	8000	3209	2985	3229	1046	2174	1302
		<b>Noon</b>	22444	9916	9119	10922	1770	5130	5295
		<b>Evening</b>	28235	7293	4602	7453	2360	4139	2957
	<b>WEEKEND</b>	<b>Morning</b>	3214	1133	1295	1182	574	1218	1132
		<b>Noon</b>	21468	7011	3016	5872	2139	5784	7687
		<b>Evening</b>	30695	9089	2876	7243	2091	4914	4475
<b>Freq. of use Purpose Preference</b>		Max 61% - 25% business	- 67% relaxation %32 central	- 76% relaxation %30 relaxation	Max 58% 72% relaxation %36 shopping	Max 66% 42% relaxation %54 relaxation	- - 24% business	- - %40 visitation	
<b>C3. Accessibility(Historical city center)</b>		Low intg.val.	High intg.val.	-	High intg.val.	-	-	-	
<b>C4. Accessibility(Close environment)</b>		Low intg.val.	-	-	High intg.val.	-	-	High intg.val.	
<b>C5. Shape-Aesthetics</b>		Irregular	Regular	Irregular	Regular	Regular	Regular	Irregular	
<b>C6. Urban Open Space</b>		Adequate	Inadequate	Adequate	Inadequate	Adequate	Inadequate	Inadequate	
<b>C7. Perception</b>		Sun clock	Rampalı old book store	Rock pool	Underground Jeweler market	Şerafettin Mosque	Government House	Mevlana Museum	

425  
 426 Zafer Square has an irregular and articulated geometric form, which is different from the basic  
 427 geometry. In this context, it is perceived as two separate areas and creates a weak perception in terms  
 428 of spatial integrity. Regarding urban open space analysis, it is seen that the existing urban furniture is  
 429 adequate and provides a suitable environment to the users of the square in terms of quality of  
 430 livability. Among all the squares, Zafer square is the one with the lowest local and global accessibility  
 431 values. In terms of land use, it is the square where dominant functions center upon food and beverage  
 432 and which has the 2<sup>nd</sup> highest frequency of use with a rate of 66%. It accommodates 38 different

433 types of functions. The users' reason for preferring the square was determined as business-shopping  
434 and education with a rate of 25%. When we associate function diversity and preference of use with  
435 pedestrian counts, we see that Zafer square has on average two times more pedestrian use compared  
436 to other squares. The urban landmarks present in the square are sundial, Camlı Köşk and Zafer  
437 Tramway Stop.

438 For maintaining the continuity of Zafer square with all the other squares, the perception of geometric  
439 arrangement as two different squares and the arrangement of the urban furniture in this way would  
440 increase the use of the square. Another suggestion is related to the urban transformation works to be  
441 conducted in the historical district. The design of open spaces that will increase the spatial integration  
442 between Zafer square and Mevlana square will also increase the low level of integration of Zafer  
443 square. This could be possible through forming a new open space on the axis between Rampalı  
444 Square and Zafer Square. In this way, connection will become shorter, the number of fragmented  
445 axes will decrease, and the level of relationship will increase.

446 *Rampalı Square* has a regular triangular form in geometric terms, yet the urban equipment it holds is  
447 inadequate. Its central and accessible location increases the frequency of use and serves as the reason  
448 for preference. Rampalı Square has higher global accessibility compared to Zafer Square. While the  
449 dominant functions are on clothing, the square is mostly used for relaxation with a rate of 67%. The  
450 users stated their reason for preferring the square as being located on a transit route and having a  
451 central location with a rate of 37%. The urban landmarks existing in the square are Rampalı Çarşı  
452 and Alaaddin Hill.

453 Improving the urban furniture and ground arrangements and increasing the function diversity, which  
454 is currently 26, will be adequate for the continuity of Rampalı Square with the all the other squares.

455 Although *Kayaltpark Square* has a form close to the basic geometry, its added form affects the  
456 perceptual organization of the square. In this sense, it has an irregular geometric form. Urban  
457 equipment is at an adequate level and this maintains the preference and frequency of use of the  
458 square. The dominant function in the square is clothing. The number of functions in the area is 28,  
459 which is the smallest among all the squares. The urban landmarks in the square are the stone pool  
460 located in the middle and the bus stops. Increasing the diversity will increase the use and the users'  
461 preference of the square, and hence continuity.

462 *Sarraflar Square* has a regular geometric form, and this positively affects the perception of the square.  
463 Although urban equipment was found to be adequate, the number of shade elements should be  
464 increased. The square has high global and local accessibility. Pedestrian density was observed to  
465 increase especially during evening and noon hours. The square has the 3<sup>rd</sup> highest frequency of use  
466 with a rate of 58%. The users stated that they preferred the square for relaxing before and after  
467 shopping with a rate of 72%. Jeweler and clothes shops are dominant in terms of land use and  
468 function.

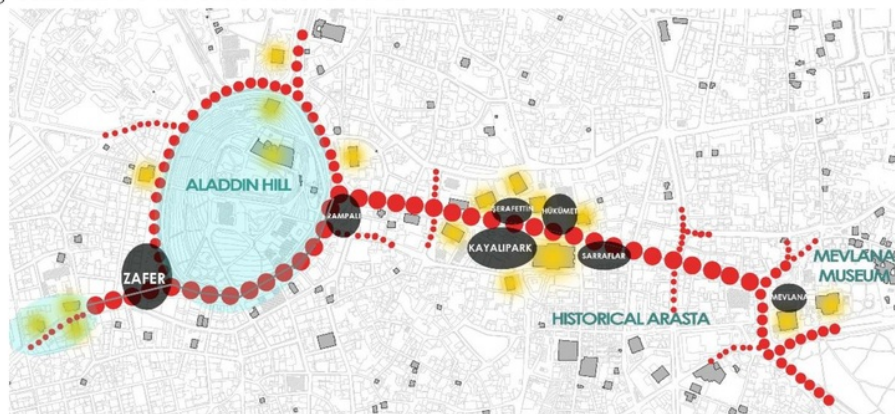
469 *Serafettin Square* is perceived to have a form which is both angled and regular in terms of geometric  
470 form. The square is adequate in terms of urban equipment and landscaping. Pedestrian density was  
471 observed to increase especially at evening and noon hours. The square has the highest frequency of  
472 use with a rate of 66%. The most stated purpose of use was relaxation with a rate of 42%. In terms  
473 of urban landmarks, it is in a location among the Old Industrial School, Şerafettin Mosque and the  
474 Government House, surrounded by historical buildings. We can say that the square has a positive  
475 status in terms of continuity among the squares.

476 *Hükümet Square* exhibits a regular form in terms of geometry. The insufficiency of urban equipment  
477 can be understood from the results of the conducted analyses. Pedestrian mobility in the square was  
478 observed to increase at noon and evening hours. When evaluated in terms of spatial accessibility,  
479 global and local integration values are above the average and high. This shows that the square has a  
480 good level of accessibility within the spatial construct. It is the square with the lowest frequency of  
481 use with a rate of 22%. It was found out that the users preferred the square as a transit route to get  
482 to work at a rate of 24%.

483 It is considered that improving the urban furniture and ground arrangements of the Hükümet square  
484 and increasing the functional diversity in the immediate surroundings will help to increase the period  
485 and frequency of use of the space. This will have a positive effect on the continuity of Hükümet  
486 square with all the other squares.

487 *Mevlana Square* has an irregular and articulated geometric form, which is different from the basic  
488 geometry. Despite its articulated form, it has a high level of perception because of being close to basic  
489 geometry. When examined in terms of urban open space analysis, it is seen that the existing urban  
490 furniture is inadequate and does not provide a suitable environment to the users of the square in  
491 terms of quality of livability. The square has high global and local spatial accessibility. Pedestrian  
492 density was observed to increase especially at noon hours. It has a low frequency of use with a rate  
493 of 27%. It is understood to have a high rate of use for the purpose of relaxation with 40%. In terms  
494 of functional diversity, souvenir and food and beverage are dominant functions with rates of 18%  
495 and 11%, respectively. It was found out that the users come to the square for visiting the historical  
496 space (mausoleum).

497 As in the case of Hükümet Square, improving the urban furniture and ground arrangements of the  
498 Mevlana Square and increasing the functional diversity in the immediate surroundings are also  
499 considered to provide an increase in the period and frequency of use of the space. When considered  
500 in terms of the continuity among all of the squares, Mevlana and Zafer squares also have the  
501 characteristics of being the starting and ending points for the squares in the historical district for  
502 being located at the two extremes of the area.



503  
504 **Figure 8.** Squares and their relationships in the historical city center  
505

506 In conclusion, for the perception of the 7 squares located in the historical city center within urban  
507 integrity and continuity, it is necessary to protect and improve the strong axis that connects these  
508 squares to one another. In this context, the 1<sup>st</sup> axis which passes around Alaaddin Hill needs to be

509 strengthened and its connection with the 2<sup>nd</sup> axis should be reinforced. This connection will get  
510 stronger with a new square that will be designed between Zafer and Rampalı squares. The close  
511 locations of Kayalıpark, Sarraflar, Şerafettin and Hükümet squares cause them to be perceived as a  
512 single square and weaken their effects. It is also possible to maintain the continuity and protect the  
513 unique quality of these squares by means of urban equipment and functional differentiation. Despite  
514 its strong effect and semantic value, Mevlana square is inadequate in terms of urban equipment. The  
515 enrichment of its functions and improvement of the equipment and materials will enable this square  
516 to have an effective part in the continuity of the historical and touristic axis.  
517 It is possible for the historical city center of Konya to be an effective component of urban identity  
518 only through the continuity of urban open spaces. The reinforcement of the relationship among the  
519 squares, which is defined in this study and needs to occur, and the contribution of this relationship  
520 to urban identity will be realized through the suggested arrangements. In this way, squares will be  
521 enabled to become a setting where urban identity is visible and the spirit of belonging to the place is  
522 felt, rather than being a space of passage.

523

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