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Global warming, ageing of population, reduction of energy consumption, immigration flows, optimization of land use, technological innovation

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The cover image shows railway street in Hanoi, Vietnam (Source: TeMA Journal Editorial Staff).

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The relationship between walkability and landscape values in transportation. Examination of landscape values in urban area transportation axes

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Abstract

The most critical components of walkability, which expresses walking opportunities in cities, are activities and uses in the neighborhood or around neighborhoods for pedestrian areas integrated with the natural, cultural and social environment, accessibility, structuring of neighborhood street networks, pedestrian safety, attractiveness of streets for users and user density of streets. Considering that the transportation systems in cities are connected to the systems and the walkable areas integrated with these areas are a part of the city, they must be integrated with the landscape values associated with the urban identity. In this accordance, the study aimed to determine the relationship of walkability in transportation-based areas with the landscape values and to determine the potential of the area. In this context, the landscape values of Atatürk Street, which is located in the city core of Bursa and has both touristic, social, and commercial functions in pedestrian transportation, were evaluated based on walkability on the sidewalks, and a partially sufficient result was reached. As a result, landscape plans should be developed to support the use of streets that can be easily experienced by all user groups, where urban identity is emphasized in transportation axes and can respond to transportation values.

Keywords
Landscape; Walkability; Pedestrian paths.

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1. Introduction

Transportation is one of the essential components of cities. Discussing transportation as a complementary element in making cities livable is possible. While Accessibility is a critical issue for urban life, streets are essential public spaces accessible to everyone, where daily actions are carried out and communication and interaction are provided. With the increase in vehicle roads, avenues, and alleys, which make up eighty percent of urban public spaces, they have begun to turn into transition areas and have lost their functions related to pedestrian use. As the world becomes more urbanized, cities becoming less walkable comes to the fore. This situation has made us forget that pedestrians are one of the main elements in transportation. Being on foot is the most natural form of transportation and the basis of urban transportation. All journeys within the city begin and end on foot. With the emergence of different types of transportation, some problems have emerged between various modes of transportation. Vehicle-oriented planning and designs push pedestrians into the background, causing adverse effects on the shaping of urban space and the sustainability of urban landscapes. To increase urban livability and sustainability in spatial shaping in planning and design studies, pedestrians should be prioritized in transportation and circulation systems. In other words, the transportation areas of livable cities are developed by planning alternative transportation systems in which the use of private vehicles is restricted, public transportation is created, and land use decisions are made based on walking distances. Walkability is an essential element in evaluating the sustainability of urban landscapes (Beyazıt, 2007; Erel, 2007; Demir, 2008; Şenkaynak, 2010; Kaplan & Deniz, 2016; Tarakçı Eren et al., 2018; Fan et al., 2018). Walkability is a term widely used worldwide to describe the suitability of an urban walking environment (Zayed, 2016).

Walking has always been one of the essential means of transportation all over the world. Recently, walking has been supported again as one of the urban transportation methods. Solutions are being sought through research studies and professional practices to rehabilitate urban areas to make walking easier.

The focus has been mainly on macro-scale factors such as land use and street network planning. However, landscape elements such as micro-scale measures can also be essential in achieving this goal (Zayed, 2016). Some improvements should be considered to benefit from walking in urban areas. These improvements should be made in line with specific standards, considering the possibilities of the city or area where they will be implemented (Beyazıt, 2007). In this regard, some basic features exist for a walkable road network on pedestrian roads. This connectivity of the road network both locally and within the larger urban settlement, connection with other transport systems (bus, tram, metro, train), specifically for local service uses, finely fragmented and diverse land use patterns, safety from both traffic and social crime. It is the context of the road, which includes the quality of the road, including width, pavement, green spaces, marking and lighting, street design, visual interest of the built environment, transparency, spatial definition, landscaping, and general exploration (Southworth, 2005). While pedestrian transportation is supported transportation, on the other hand, regaining the green areas lost in today's cities and providing convenient, comfortable, and safe transportation opportunities for pedestrians should also be supported (Şişman & Etli, 2007). It will be possible to improve the harmful and destructive effects of the human-made environment and to emerge landscape-oriented space production practices (Baş Bütüner & Çavdar Sert, 2021).

To make cities accessible, planning studies should be carried out as a whole, together with landscape values (Yılmaz Türkoğlu, 2010). With this understanding, while creating walkable areas in cities and considering the walkability of streets, integrating each building block and landscape values should be prioritized.

In its basic conceptualization, landscape is interpreted as the environment or tool produced by the changing relationship between nature and culture.

While landscape expresses a system of spaces shaped by human construction or human intervention, it also describes the natural and cultural processes in which all living things share the same environment and shape it together. It will be possible to improve the harmful and destructive effects of the human-made environment

and to emerge landscape-oriented space production practices. Natural and cultural landscape values, socio-cultural structures, and historical features of cities form the city's identity. Urban identity should also be considered when developing transportation systems, which are essential for the town. Urban identity is defined by the city's natural and artificial resource values and the people's socio-cultural characteristics (Zorlu et al., 2010; Baş Bütüner & Çavdar Sert, 2021). In this regard, walkability in transportation should also be integrated with the urban landscape and identity.

In transportation-based areas within cities, roads, pedestrian paths, avenues, alleys, etc. Studies have been conducted to measure walkability and its relationship with landscape values and emphasize urban identity. For this purpose, Arslan et al. (2018), El kébir & Ghédira (2024), Ender (2011), Ender Altay & Pirselimoğlu Batman (2019), Ender Altay & Pirselimoğlu Batman (2021), Ersoy (1994), Gültekin & Altunkasa (2008), Gündoğdu & Dinçer (2020), Harris & Dines (1998), Lee (2016), Özkaynak & Korkmaz (2019), Pellicelli et al. (2022), Pirselimoğlu Batman & Ender Altay (2020), Spadaro et al. (2023), Southworth (2005), Woldeamanuel & Kent (2016), Yin (2013), Yıldırım & Küçük (2020), Carra et al. (2020), Lehmkühler et al. (2020), Kaplan (2021a) and Kaplan (2021b), provide examples based on walkability. Pedestrian-based areas are essential points for decarbonizing cities and providing healthier environments. In addition, landscape values and elements related to urban identity, walking areas integrated with transportation in towns, and related systems are essential parts of the city.

There is a research gap in transportation-based studies that emphasizes the relationship between walkability, landscape values, and urban identity and evaluates them as a whole. In this direction, the study was discussed based on evaluating walkability in transportation, variables in transportation, and landscape features that define these variables as a whole. It is a critical study to reveal the parameters related to the landscape values of accessible urban areas and evaluate their progress. This study determined the potential of walking in transportation-based areas by showing the relationship with landscape values. For this purpose, the walkability of the pedestrian sidewalks of Atatürk Street, which is on an important historical, cultural, commercial, and social route in Bursa, and their contribution to the urban identity with their landscaping potential were evaluated.

The study questioned the suitability of the pedestrian axes of Bursa Atatürk Street for pedestrian use and walkability. In addition, the existence and suitability of landscape values on walkable streets and their relationship with urban identity were questioned.

2. Material and Method

2.1 Material

Atatürk Street, located in the center of Bursa City, has a tourist, social, and commercial function. The study area has significant potential with the historical and touristic places it has and interacts with, and these places are used extensively in terms of pedestrian and vehicle traffic throughout the day (Fig.1).

When the climatic characteristics of Bursa province are evaluated, the average highest temperature is 34 °C, and the average lowest temperature is -4 °C. The month with the least rain is December, with 66 mm, and the month with the most rain is August, with 12 mm. The month with the most snowfall is February, with 49 mm. The windiest month is February, with 13.4 km/h. The windiest month is May (10.3 km/h).

The wind direction is NE>E>SW, the muggiest month due to humidity is July, and the least humid month is February (Bursa İKlimi, Aylık Hava Durumu, Ortalama Sıcaklığı (Türkiye) - Weather Spark, n.d.).

Bursa is located where earthquake activity has been observed for many years, originating from the North Anatolian Fault System and the faults in the Southern Marmara region.

The most critical fault that can cause an earthquake is the Bursa fault. Bursa fault is an east-west trending forward-slip fault, approximately 45 km long, located between Derekızık - Burhaniye villages in the east and Uluabat in the west (IRAP, 2022).

Soğukpınar, Kaplıkaya, Değirmendere, and Madendere in Bursa and Gökdere (Fig.2), Kırkpınar and Balıklı streams originating from the north of Uludağ all join Nilüfer and flow into the Marmara Sea (Nilüfer Çayı, 2024).

The stream is at risk of drying up. At a point close to Atatürk Street is the historical Irgandı Bridge over the stream. The land slope in this area is 0-2% (Çetinoğlu Çınar, 2023) (Fig.2).

Fig.1 Atatürk Street location

When the residential areas and neighborhoods around the study area and interacting are examined, their populations are Şehreküstü District: 419 inh., Tahtakale District: 1,356 inh., Orhanbey District: 272 inh., Alacamescit District: 309 inh., Kayhan District: 1,175 inh., Hocaalizade District: 1,803 inh., Maksem District: 4,426 inh., Alipaşa District: 2,380 inh., İvazpaşa District: 2,796 inh., Pınarbaşı District: 2,301 inh., Kavaklı District: 1,304 inh., İbrahimpaşa District: 2,214 inh., Mollagürani District: 800 inh., Nalbantoğlu District: 1,446 inh., Tuzpazarı District: 358 inh., Ebu İshak District: 1,014 inh. (Fig.2) (Türkiye Nüfusu İl İlçe Mahalle Köy Nüfusları, 2023).

The historical buildings around the study area that interact with each other are Pirinç Han, Koza Han, İpek Han, Kapan Han, Emir Han, Fidan Han, Tuz Pazarı Han, Uzun Çarşı, Ulu Mosque, Kubbeli Han, Çukur Han, Balibey Han, Geyve Han, Orhan Mosque, Tayyare Cultural Center, Metropolitan Municipality Historical Building, Sculpture Clock Tower, Çakır Bath, Şengül Bath, Galle Pazarı Inn (Fig.2).

The means of transportation around and on Atatürk Street are tram, minibus, bus, taxi, and private vehicles.

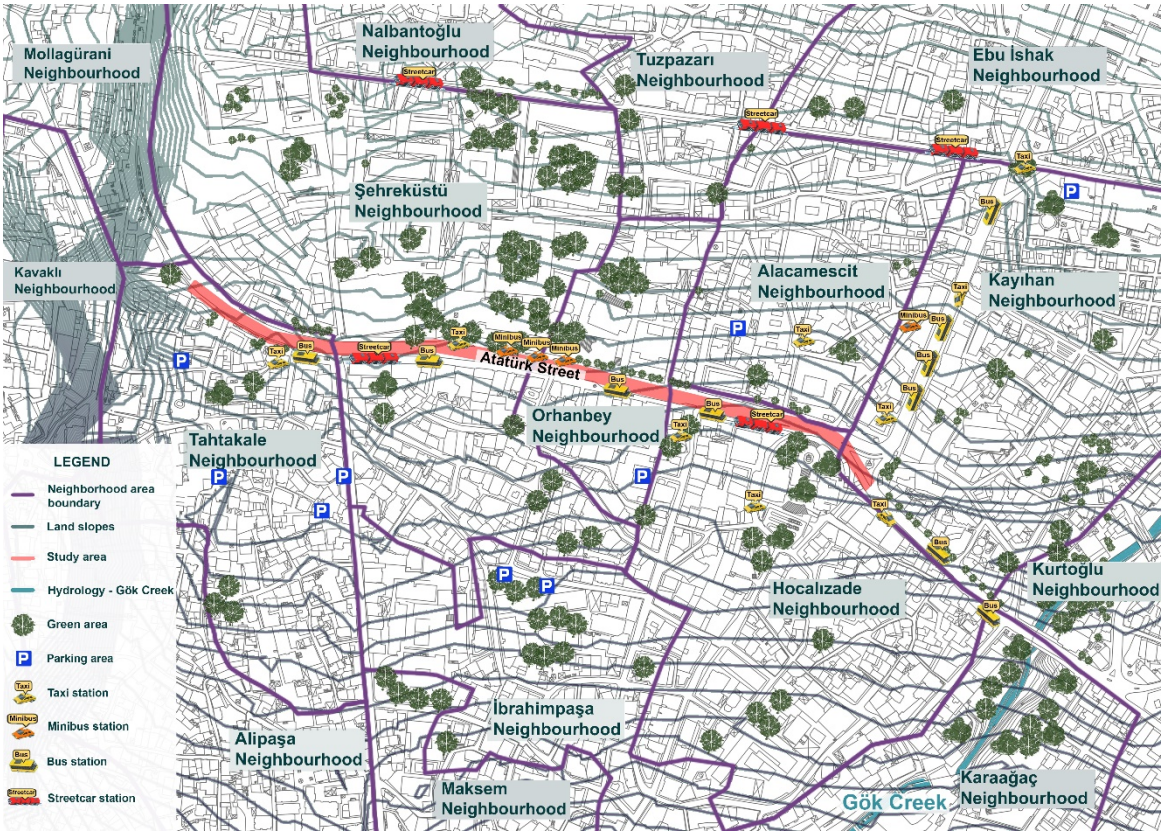


Fig.2 Current status of study area

2.2 Method

In the study, an evaluation was made on the relationship with landscape values based on the main headings of walkability in transportation. In this direction, Ersoy (1994), Harris & Dines (1998), Southworth (2005), Gültekin & Altunkasa (2008), Ender (2011), Yin (2013), Ender Altay & Pirselimoğlu Batman (2019), Gündoğdu & Dinçer (2020), Pirselimoğlu Batman & Ender Altay (2020), Ender Altay & Pirselimoğlu Batman (2021), according to the studies of the relationship with landscape values and the measurement of walkability (in pedestrian transportation) in the street, which is a transportation-based area, was discussed. In this line, the idea of an original method in which landscape values are scored in the walkability criteria in transportation has been developed. In the content of the method, the ciıteria for walkability in transportation are associated with the landscape character integrity and landscape values by the variables.

The study consists of two parts in which qualitative and quantitatıve evaluations are made. In the first chapter, data were obtained by using on-site observation, survey, literature research, and user interview techniques to present the current data of the field. These data are the mainland use type in accessibility, the presence of showcases in accessibility, pedestrian use in accessibility, security in accessibility, spatial aesthetics in accessibility, obstacle-free roads, and equipment elements in accessibility. To be accessible, the live material has been published in the titles. In the second part, based on the studies of Ersoy (1994), Harris & Dines, (1998), Southworth (2005), Gültekin & Altunkasa (2008), Ender (2011), Yin (2013), Zayed (2016), Ender Altay & Pirselimoğlu Batman (2019), Gündoğdu & Dinçer (2020), Pirselimoğlu Batman & Ender Altay (2020), Ender Altay & Pirselimoğlu Batman (2021), the variables of the walkability status of the area in transportation are determined, and the related features emerge it has been placed.

The importance level scores of the criteria created by the relationships were questioned using a scale ranging from -1 to 5. One is the lowest severity score, and 5 is the highest importance score. After this process, the highest score for the Street was determined, and the proportional value (%) was calculated according to the total result. This value determined the street's adequacy regarding walkability and landscape values. In this

line, the highest value a field can receive is 35 points and 100% qualification. This qualification is considered in line with the three-three range value. According to the proportional value of the score obtained, 0-35% was evaluated as inadequate, 36-70% as partially adequate, and 71-100% as sufficient (Tab.1).

The relationship and adequacy of landscape values in pedestrian transportation

Walkability in transportation	Variables	Assessment features	
Land use type for accessible area	**Activities** Restaurants and other food and beverage areas, grocery stores, retail stores, parks, parkways, schools, libraries, bicycle paths, hospitals, tree-lined streets, cultural centers, parking lots, historical areas	The situation of the existence of food and beverage areas, sales units, cultural centers, historical areas, public areas, public buildings, libraries, museums, bicycle paths, car parks, schools, and hospitals at the same time in the area.	5
		The situation in which some of the food and beverage areas, sales units, cultural centers, historical areas, public spaces, public buildings, libraries, museums, bicycle roads, car parks, shops and hospital exist in the area at the same time.	4
		The existence of restricted public areas in the area	3
		The case of only privately owned areas existing in the area	2
		The situation of the existence of a protected/protection priority area/limited use situation in the area	1
Showcase presence in accessible area	**Sociability** Area usage diversity, Number of people using the area Street appeal and popularity among users	The high density of users in the showcase area	5
		Medium density of users in the showcase area	4
		The low density of users in the showcase area	3
		A sparse number of users in the showcase area	2
		User density is not in the showcase area but has no connection with the showcase area	1
Pedestrian use in accessible area	**Accessibility** Connectivity, Integration, Street connections, 10 min., Areas within walking distance	Number of intersections and connections 5 and more per 200 m along the street boundaries	5
		4 intersections and number of connections per 200 m along the street boundaries	4
		3 intersections and number of connections per 200 m along the street boundaries	3
		2 number of intersections and connections per 200 m along the street boundaries	2
		1 number of intersections and connections per 200 m along the street boundaries, or the existence of areas without intersections and connections	1
Security in accessible area	**Image and security** Crime statistics, vacant lots, derelict vacant buildings Safety on the sidewalk	According to the actions related to use, there should be no crime statistics, empty parcels, or abandoned vacant buildings. Physically, the pedestrian pavement is arranged by the standards and is very safe for use	5
		According to the actions related to use, there should be very few crime statistics, empty parcels, and abandoned vacant buildings. Physically, the pedestrian pavement is arranged according to the standards and is safe for use	4
		According to usage-related actions and crime statistics, empty parcels and abandoned vacant buildings are low. The standards physically arrange the pedestrian pavement, which is moderately safe for use	3

The relationship and adequacy of landscape values in pedestrian transportation			
Walkability in transportation	**Variables**	**Assessment features**	
		Use-related actions include crime statistics, vacant parcels, derelict vacant buildings, and the middle of the road; physically, the pedestrian pavement is arranged by the standards and is less safe for use	2
		The presence of crime statistics according to the activities related to the use, the presence of vacant parcels, abandoned vacant buildings, physical pedestrian pavements not being arranged by the standards, and the absence of a safe area	1
Spatial aesthetics in accessible area	**Urban identity**	The presence of a high level of comfort and attractiveness elements align with the uses within the area's boundaries and the presence of many elements that contribute to the urban identity	5
		The presence of elements of medium-level comfort and attraction by the uses within the area borders and the presence of at least one element that supports the urban identity	4
		The presence of elements of low level of comfort and attraction by the use within the limits of the area	3
		Within the area's limits are images that restrict comfort, noise, odor, etc. Finding the conditions	2
		Use within the limits of the area: image, noise, odor, etc. That negatively affect comfort. Finding negatives	1
Barrier-free roads and equipment in accessible area	Pavement width on boulevards and streets connecting to the area Available pavement widths Availability of disabled accessibility: Road widths suitable for physically disabled transportation. Pedestrian path width according to TSE 12576 standards Ramps suitable for physically disabled transportation. According to TSE 12,576 standards, the width of the ramps is min. It should be 90cm and the slope should be 8% (Ender, 2011). Suitability of the selected material for use in transportation - Floor coverings,	Areas completely separated from motor vehicle traffic, suitable for pedestrian use, compliant with design criteria for everyone, with appropriate street and sideway width, with suitable surface and materials, and with sufficient reinforcement elements	5
		Areas suitable for closing vehicle traffic at certain hours and pedestrian use, partially meeting design criteria for everyone, partly with appropriate street and sideway width, partly with suitable surface and materials, partly with sufficient reinforcement elements	4
		Areas suitable for a separate pedestrian lane arrangement, with insufficient design criteria for everyone, with irregular street and sideway width, with the presence of unsuitable irregular surfaces and materials, and with insufficient reinforcement elements	3
		Reinforcement elements that are not suitable for a separate pedestrian strip, without design criteria for everyone, with inappropriate street and sideway width, with defective surfaces and materials	2

The relationship and adequacy of landscape values in pedestrian transportation			
Walkability in transportation	**Variables**	**Assessment features**	
	Suitability of material properties Seating units, Lighting elements, Border elements, Plastic objects (sculptures, etc.), Covering Units, Guidance-signs, Garbage bins, Flowerpots, Water features, Fountains, Service units (Sales units, kiosks, flagpoles, etc.) , Stops for public transport, border elements	Not suitable for organizing a separate pedestrian lane, not having enough space to design for everyone, ideal for lane regulation, insufficient design criteria for everyone, having inappropriate street and sideway width. Areas with defected surfaces and materials and no reinforcement elements	1
Live material in accessible area	**Plant material** Emphasizing with plants shading with plants Distinguishing between plants and pedestrian and vehicle traffic Taking precautions to alleviate accidents with plants	Presence of dense trees within the area boundaries, maintenance areas, suitable species selection, having vegetation design criteria by street standards	5
		Presence of medium dense trees within the area boundaries, well maintained areas, appropriate species selection, having appropriate vegetation design criteria	4
		The area has sparse trees, well-maintained areas, and partially suitable vegetative design criteria	3
		There are shrubs within the area's boundaries, poorly maintained areas, and irregular vegetative design features.	2
		Within the area limits no road afforestation, non-maintenance areas, no vegetable design features	1
		Total	**35**
		Total Score	**100%**

Tab.1 Observation Form and Evaluation Criteria [Ersoy (1994), Harris & Dines (1998), Soutworth (2005), Gültekin & Altunkasa (2008), Ender (2011), Yin (2013), Zayed (2016), Düzenli et al. (2017), Ender Altay & Pirselimoğlu Batman (2019), Gündoğdu & Dinçer (2020) Pirselimoğlu Batman & Ender Altay (2020), Ender Altay & Pirselimoğlu Batman (2021)]

3. Results

Within the scope of the research, Atatürk Street, located in the city core of Bursa, was evaluated according to land use, suitability for pedestrian use, security, spatial aesthetics, presence of showcases, barrier-free roads, equipment and living material factors based on walkability in transportation.

3.1 Land use type for accessible area

The predominant land use type is generally commercial, religious, and historical. Many historical buildings house different commercial activities and serve tourism. To the south of the Street, towards the slopes of Uludağ, a dense residential texture can be seen. The commercial buildings south of the Street had 7-8 floors (Demir, 2019). Accessibility to existing land use types is easily possible on foot and in transportation. However, due to the combination of many functions, there is much density at some times of the day, especially after work hours (Fig.3). Food and beverage venues on the street (restaurants, patisseries, cafes, etc.), shopping units (clothing stores, home-furniture sales stores, etc.), banks, cultural centers, historical and cultural areas,

and buildings, theaters, exhibitions, parking lots, etc.) while residences, schools, etc. The uses are located in areas where the street interacts.

In this case, according to the evaluations in Tab.3, according to the presence of activities in the area: "food and beverage areas, sales units, cultural centers, historical areas, public areas, public buildings, libraries, museums, bicycle paths, parking lots, schools, hospitals, some of them are in the area at the same time. It answers, "the case of happening".

(a)

(b)

Fig.3 (a) Atatürk Street - Ulu Mosque and (b) Atatürk Street - Bus Stops (Office hours)

3.2 Showcase presence inaccessible area

The presence of showcases on the Street encourages users to walk. Places such as bakeries, cafeterias, and ready-to-wear commercial stores encourage walking more than other uses. While there are primarily ready-made clothing stores and banks on the ground floors of the buildings in the southern part of Atatürk Street, there are food and beverage venues and banks on the northern side. In this regard, some uses can encourage walking along the Street (Demir, 2019). The presence of a showcase during night use of the Street encourages users to walk safely and comfortably in the area with lighting solutions. It also contributes to aesthetic value (Fig.4). With a showcase in Accessibility, the number of people using the area will increase directly to its value. With its window appeal, the area will be used more intensively. It will be a transit axis, and time will be spent there. The attractiveness of pedestrian paths on the Street and the popularity of existing stores affects the use density. Additionally, with the lighting factor, it will be possible to use the area at night. Since the Street is located in the city center, it is hectic after work, on weekends and holidays.

(a)

(b)

Fig.4 (a) Showcase presence and (b) night view

Observations made along the Street in our area (detections were made at some points within the area in the morning-noon-evening on weekends, morning/noon/evening on weekdays; in front of the Teyyare Cultural Center-in front of the post office front of the Ahmet Vefik Pasha Theatre, at the connection points of the Ulucami-Orhangazi Square on the Street). It has been determined that weekends and rush hours are the busiest. There are many elements of high attractiveness in the area. These: historical and cultural buildings

(Ulucami – Kozahan - Orhangazi Square), public institutions (Historical town hall), Tayyare Cultural Center, Kebapçı İskender, Ahmet Vefik Pasha Theatre, patisseries, sculpture, post office, banks, hotel, shopping (clothing-furniture-white goods etc.) stores. Equal intense use has not been detected in the area at all hours and days. In this case, the social dimension of the area has been evaluated as "a medium density of users in the showcase reach", according to the evaluation in Tab.3.

3.3 Pedestrians use in accessible areas

When the pedestrian use situation for Atatürk Street is evaluated, the pedestrian possibility is pavement. Green areas on the pavement do not constitute an obstacle to pedestrian flow. The tram line and the pedestrian path are side by side. There are parking lots, side roads, etc., on both sides of the carriageway. There are sidewalks divided in this way. Pedestrian facilities are fragmented on both sides of the Street (Demir, 2019). There are 4 underpasses on the Street: Atatürk Underpass, Osmangazi Underpass, Yıldırım Beyazid Underpass and Orhangazi Underpass. There are various commercial spaces inside the underpasses (Fig.5).

When pedestrian use is evaluated in terms of Accessibility for the area, the connection and integration feature on the Street and the axes connecting the Street to different streets and the points where it meets can be evaluated. The streets support this situation at the beginning and end of Atatürk Street (Cemal Nadir Street and İnönü Street). In addition, the connection and integration feature can be expressed as integrating pedestrian paths with squares (Orhangazi Square, Ataturk Statue and its surroundings). Similarly, entrances and exits on the pedestrian paths of underpasses support the connection and integration feature. There are underpasses with shopping units on both sides of the road. Pedestrian crossings are areas where pedestrians and vehicles intersect (TS 12576; TS 9111). Again, 3 street connection points connect perpendicularly to the street on both sides. These are roads and streets with vehicle-pedestrian use and highways and streets with pedestrian use only (Fig.6). Atatürk Street is also where historical and cultural values are located in the city center. Important historical and cultural values for Bursa are also located on the Street and its surroundings. These are located within a 10-minute walk. Orhangazi-Osmangazi Tombs, Tophane Clock Tower, Green Tomb, Irgandi Bridge, some inns, Grand Bazaar, shopping areas, shopping center, city museum, etc. The presence of these features intensifies pedestrian flow in the area.

(a) **(b)**

(c) **(d)**

Fig.5 Atatürk Underpass: (a) Osmangazi Underpass, (b) Orhangazi Underpass, (c) Yıldırım Beyazid Underpass

When the intersections on Atatürk Street are taken into consideration, pedestrian flow axes on both sides of the traffic flow are considered separately. When these data in the area are evaluated, based on accessibility, it was evaluated as "3 number of intercessions and connections per 200 m along the street boundaries".

3.4 Security in accessible area

Security is an essential factor for Accessibility. Being in an unsafe place, especially as a pedestrian, is a situation that people do not prefer. Exposure to crime while walking on the Street also negatively affects walking activity. For users to move quickly on pedestrian sidewalks, there should be no negativities that may pose a risk. In pavement arrangements, irregular level differences in floor coverings, differences in flooring, visually impaired people, wheelchair users, children's strollers, canes, etc. There should be no incorrect grill applications that may pose a danger to users. In addition, there should not be parking chains stretched across the road or any compelling or obstructive elements that would stop walking in the flow or change direction. Shop items overflowing onto the pedestrian path should not obstruct human movement (Çetinkale Demirkan, 2020). Pedestrian sideways going parallel to vehicle traffic must be created to appropriate standards.

The fact that business owners and tradespeople on Atatürk Street close their shops at early hours (around 21:00 o'clock) affects night walking and creates a feeling of insecurity for the users at those hours. The fact that buildings have street frontage and that the streets can be viewed from the buildings is a factor that reduces criminal activities. The density of pedestrians and vehicles during the day creates a deterrent feature. Deserted at night creates an environment for crime (Demir, 2019). There are no vacant parcels or vacant buildings in our first-degree impact area. In crime statistics, general city statistics were evaluated.

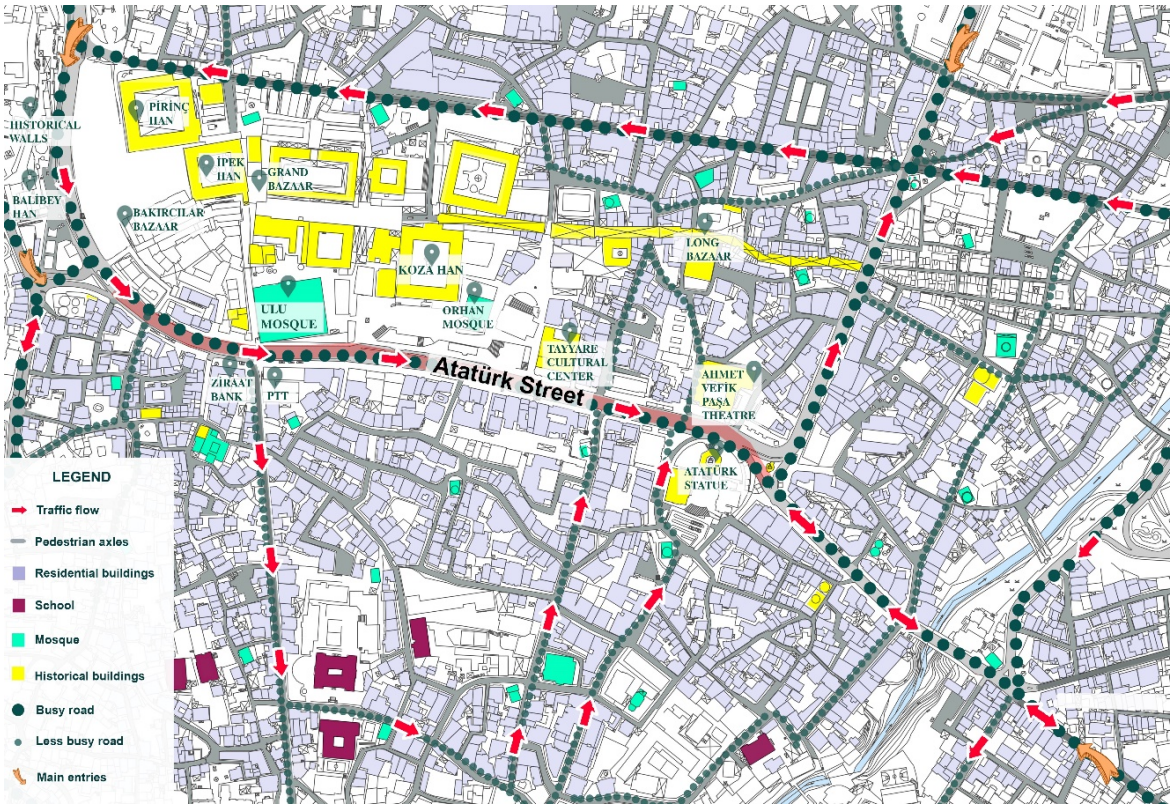


Fig.6 Pedestrian axes

Deformations on the ground and the lack of continuity of pavements negatively affect walkability. Vehicles use streets and intersections for parking purposes in the region, and the lack of organized bicycle paths disrupts the fluidity in terms of functionality and walkability (Çetinoğlu, 2023).

Based on these data, the street has been evaluated based on image and safety variables according to Tab.3: "Crime statistics, empty parcels, and abandoned vacant buildings are deficient according to usage-related actions. The standards arrange physical pedestrian pavements and are safe for use".

3.5 Spatial aesthetics in accessible area

Urban equipment elements should integrate with the city and contribute visually and aesthetically (Çetinkale Demirkan, 2020). Urban facilities and plant materials contribute to the urban identity. Visual, aesthetic values, and landscape are other criteria that increase pedestrians' desire to walk. These values are of profound importance for a touristic region. When people see visuals that can contribute to and enjoy the place, it increases the number of visitors. Increasing the number of visitors provides economic benefits. Since the Khans area is one area that forms the urban identity, spatial aesthetics should be at the forefront. Since Atatürk Street passes almost over this region, it has a high potential to affect the urban identity. All historical buildings on Atatürk Street create an aesthetically attractive area. Buildings such as the Clock Tower and Atatürk Statue on the Street also contribute to the Street aesthetically. These elements encourage people to walk. The frequent lack of vegetal designs, green areas on the Street, and heavy traffic negatively affect spatial aesthetics and Accessibility. Again, the sinister appearance of the facades of some buildings on the Street negatively impacts the aesthetic value (Fig.7).

According to these data, according to the values in Tab.3 based on city identity, the answer is "the presence of medium level comfort and attractive elements by the use within the area boundaries, and the presence of at least one element that supports the urban identity".

(a)

(b)

Fig.7 (a) Clock Tower and (b) Atatürk Statue

3.6 Barrier-free roads and equipment in accessible areas

There are different uses where pedestrian-vehicle separation exists in the horizontal plane. These are pedestrian paths on pavements, roads closed to vehicles in traditional texture, roads designed for pedestrians only, pedestrian paths along streams, and pedestrian axes indoors in shopping malls (Kılınçasalan, 2017).

Our area has a pedestrian feature on the sidewalks, depending on the usage of these pedestrian paths. In this case, the features and criteria of pedestrian paths on the pavement were evaluated.

Paved pedestrian paths are applied on both sides of the vehicle roads. On roads with a property width of 15 m, the carriageway is determined as 11 m. The sidewalk widths on both sides are regulated as 2 m. Or sidewalk at most 1.5 m. While sidewalks can be 2.5 m in areas with high pedestrian density, this width must be 4.5 m in commercial areas. In addition, there are road warning signs, road lighting poles, fire water pumps, bus and tram stops, sales units, seating units, green areas, etc., constantly located along the sidewalks. Although all of these serve a purpose, they are equipment that prevents walking on the sidewalks and narrows the road. Pavement widths should be considered by considering these reinforcements (Kılınçaslan, 2017).

Pedestrian paths and sidewalks should be safe, understandable, barrier-free, and of appropriate dimensions and provide transportation for everyone. TS 12576 urban roads - design rules for structural measures and markings on streets, avenues, squares, and roads for disabled and older adults require a 50 cm safety strip, including a 25 cm curb stone next to the property, and the net size of the pedestrian sidewalks. Road widths should be considered when arranging pedestrian sidewalks, considering wheelchair maneuvering areas for disabled individuals and wheelchair users. In addition, for comfortable use, the slope of the road should not be less than 2% (Çetinkale Demirkan, 2020).

The materials used for surface coverings on sidewalks and pedestrian paths are essential for ease of walking, durability, and visuality. The materials mainly used in floor coverings are concrete, asphalt, brick, and stone coverings (Kılınçaslan, 2017). Materials must have surface properties that do not affect pedestrian use (excessive roughness, potholes, bumps, etc.), appropriate joint spacing and density, reflection properties on the surface (albedo), have properties suitable for rainy weather (not being slippery), and ensure that the road constructed has appropriate infrastructure features (they must have features such as compressed soil, stabilized fill, blocking, etc. (Ender, 2011). According to TS 12576, surface coverings on pedestrian sidewalks must prevent slipping and facilitate navigation. The floor must be level. Steps, maintenance hole covers on the road surface, etc. Such structures should not create height differences or sudden elevation differences. The ground must be continuous and level. Uncompressed-free gravel surfaces should not be preferred; for the visually impaired, perceptible surfaces should be designed with colored natural guidelines parallel to the curb stone, where they can move quickly with a cane. United Nations (2004) guide tracks for the visually impaired should be arranged and understandably. Again, the criteria they determined for this purpose are that it should be parallel to the main pedestrian movement, be 60 cm wide, be located away from maintenance holes or drainage channels, be contrasted with other surface colors, and be at a height that will not hinder wheelchair users (Çetinkale Demirkan, 2020). Considering the material properties, the surfaces should not restrict pedestrian use (excessive roughness, potholes, bumps, etc.), Appropriate joint density and width, Reflection feature of the surface (albedo), Not slippery in rainy weather, Adequacy of the road infrastructure (compacted ground, stabilized filling or blocking, etc.) Criteria such as these are discussed (Ender, 2011).

Along with road widths and materials, ramps are another critical issue for pedestrian paths and sidewalks. Ramps are arranged to appeal to all user types to overcome the elevation differences encountered in pedestrian use easily. The dimensions of the ramps to be built vary depending on the elevation difference and the kind of ramp chosen that aligns with the land conditions. According to TS 12576, ramps should not exceed 8% slope. If there is a level difference of more than 20mm from the floor level, it is recommended to build a ramp (Çetinkale Demirkan, 2020; Ender, 2011). There are elements of urban equipment on pedestrian paths that do not disrupt the flow and support walking and transportation. These include seating units, lighting components, garbage bins, fountains, bus stops, garbage bins, border elements, plastic objects, cover units, directional signs, flower beds, and water elements.

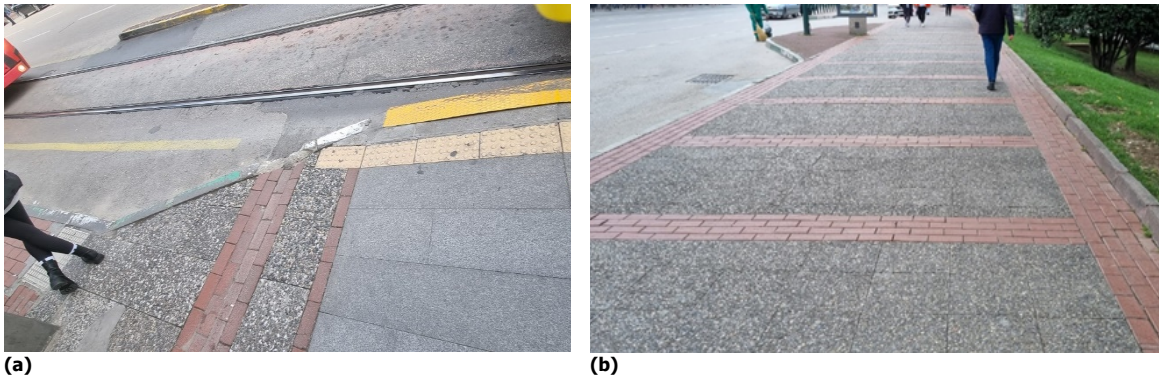
Reinforcement elements used on pedestrian paths and sidewalks should be designed based on design principles for everyone. On this basis, there should be reinforcement elements of appropriate standards and sizes that everyone can easily access and use.

Considering the principle of equality between individuals, which is the basis of modernity, a modern state must offer opportunities for all its citizens to live humanely, without any discrimination. For this reason, the problems of disabled people, who are an integral part of social life, must be addressed realistically and integrated into society (Özcan, 2008).

Pedestrian opportunities on Atatürk Street are fragmented on both sides of the Street. Surface quality and width were evaluated as sufficient. It is seen that the pavements are fragmented in some parts of the area (Demir, 2019). Although it is seen that the pavements on Atatürk Street are broad, they are narrow in places where there are historical buildings. On average, the sidewalks north of the Street are between 3.5 and 4.5

meters, and a narrowing is observed towards the sidewalks in front of Ulucami. The sidewalks in the south are, on average, between 4.5 and 5.5 meters. Equipment designed for disabled individuals (floor coverings, auditory aids, ramps, etc.) should be available everywhere. It is observed that sufficient precautions are not taken for disabled individuals on Atatürk Street. There are no adequate solutions for disabled individuals in the underpasses on the Street (Fig.8). There are ramps and embossed floors at tram stops, but they end at the point where the stop ends.

In this context, pavement width on the boulevards and streets connected to the area, accessibility for the disabled, suitability of the material chosen for transportation, reinforcement elements over variables area "suitable for a separate pedestrian lane arrangement, insufficient design criteria for everyone, with irregular street and sideway width, unsuitable irregular surface and presence of materials and insufficient equipment are assessed as "areas with elements".



(a) **(b)**

Fig.8 (a) End point of the tram stop and (b) suitability for pedestrian use

3.7 Live material in accessible areas

Vegetated areas on the roads and squares within the city are essential open and green areas in the development of cities. Trees constitute living material in forming city pedestrian zones and are the most critical design element. Road afforestation contributes to traffic technique, urban health, and urban landscape.

To understand planting on pedestrian sidewalks and along the roadside, species and forms suitable for climatic conditions, compatible with the environment, support accessibility, and easy to use should be used. Pedestrian paths and sidewalks are open to climate and weather conditions. This is the factor that affects pedestrians' comfort and transportation preferences. Planting on pedestrian paths and sidewalks, which are spatial channels, not only protects the climatic characteristics but also supports green system continuity along road intersections, creating microclimates, reducing heat island effects, increasing air quality, and being resistant to situations such as wind and storm (Hamamcioğlu & Akın, 2015; Kaplan & Deniz, 2016; Sandal Erzurumlu, 2020). In this case, the use of trees with a frequency appropriate with the sideway dimensions should be preferred. Tree density on the street is related to the planning spacing and tree number. Planting interval crown structure, crown height, effect on structure lighting, vehicle, and pedestrian road width, relationship between the maximum height of the tree and the average building height along the road and the expected design effect from the tree and the speed at which the tree reaches this effect. It is being fired. Accordingly, there is a varying range between 6-15 m (Şahin & Kurum, 2006). Urban road afforestation created at appropriate spaces according to selected species will provide a dense texture.

The characteristics that plant material must have in the use of living material to be accessible (Döllük, 2005):

- to create a natural and aesthetic texture, to create a color effect that changes according to the seasons, and to provide the opportunity to observe the seasons;

- creating a sense of orientation and movement, encouraging walking by creating alleys, emphasizing the transitions in vehicular and pedestrian connections, the presence of planting and signaling means that the plants should be designed to make the entrances clear and to have a guiding feature along the road;
- protection from the harmful rays of the sun in the space with shading;
- separating pedestrian and vehicle traffic, providing safe transportation for pedestrians;
- to alleviate accidents, create a barrier, prevent adverse effects from the environment;
- to screen the harsh, wrong views of buildings.

It is not in direct contact with the Street. It is also possible to see street trees (about 80) in the land use of the Street.

It is possible to see one-sided tall trees along the borders of our working area. It is not possible to see a dense and continuous enough wood texture. It has been determined that the vegetable materials used along the street are not arranged according to appropriate design features. In this case, the area was evaluated according to the vegetable material variable as "presence of sparse trees within the area boundaries, maintenance areas, partly having suitable vegetable design criteria".

The relationship and Adequacy of landscape values in pedestrian transportation and walkability in transportation were determined on Atatürk Street and calculated in line with the observation form and evaluation criteria (Tab.2).

Walkability in transportation	**Variables**	**Assessment features**		
Land use type for accessible area	**Activities** Restaurants and other food and beverage areas, grocery stores, retail stores, parks, parkways, schools, libraries, bicycle paths, hospitals, tree-lined streets, cultural centers, parking lots, historical areas	The situation of the existence of food and beverage areas, sales units, cultural centers, historical areas, public areas, public buildings, libraries, museums, bicycle paths, car parks, schools, and hospitals at the same time in the area.	5	4
		The situation in which some of the food and beverage areas, sales units, cultural centers, historical areas, public spaces, public buildings, libraries, museums, bicycle roads, car parks, shops and hospital exist in the area at the same time.	4	
		The existence of restricted public areas in the area	3	
		The case of only privately owned areas existing in the area	2	
		The situation of the existence of a protected/protection priority area/limited use situation in the area	1	
Showcase presence in accessible area	**Sociability** Area usage diversity, Number of people using the area Street appeal and popularity among users	The high density of users in the showcase area	5	4
		Medium density of users in the showcase area	4	
		The low density of users in the showcase area	3	
		A sparse number of users in the showcase area	2	
		User density is not in the showcase area but has no connection with the showcase area	1	

Walkability in transportation	Variables	Assessment features		
Pedestrian use in accessible area	**Accessibility** Connectivity, Integration, Street connections, 10 min., Areas within walking distance	Number of intersections and connections 5 and more per 200 m along the street boundaries,	5	3
		4 intersections and number of connections per 200 m along the street boundaries,	4	
		3 intersections and number of connections per 200 m along the street boundaries,	3	
		2 number of intersections and connections per 200 m along the street boundaries,	2	
		1 number of intersections and connections per 200 m along the street boundaries, or the existence of areas without intersections and connections	1	
Security in accessible area	**Image and security** Crime statistics, vacant lots, derelict vacant buildings Safety on the sidewalk	According to the actions related to use, there should be no crime statistics, empty parcels, or abandoned vacant buildings. Physically, the pedestrian pavement is arranged by the standards and is very safe for use.	5	4
		According to the actions related to use, there should be very few crime statistics, empty parcels, and abandoned vacant buildings. Physically, the pedestrian pavement is arranged according to the standards and is safe for use.	4	
		According to usage-related actions and crime statistics, empty parcels and abandoned vacant buildings are low. The standards physically arrange the pedestrian pavement, which is moderately safe for use.	3	
		Use-related actions include crime statistics, vacant parcels, derelict vacant buildings, and the middle of the road; physically, the pedestrian pavement is arranged by the standards and is less safe for use.	2	
		The presence of crime statistics according to the activities related to the use, the presence of vacant parcels, abandoned vacant buildings, physical pedestrian pavements not being arranged by the standards, and the absence of a safe area.	1	
Spatial aesthetics in accessible area	**Urban identity**	The presence of a high level of comfort and attractiveness elements align with the uses within the area's boundaries and the presence of many elements that contribute to the urban identity.	5	3
		The presence of elements of medium-level comfort and attraction by the uses within the area borders and the presence of at least one element that supports the urban identity	4	
		The presence of elements of low level of comfort and attraction by the use within the limits of the area	3	
		Within the area's limits are images that restrict comfort, noise, odor, etc. Finding the conditions	2	

Walkability in transportation	Variables	Assessment features		
		Use within the limits of the area: image, noise, odor, etc. That negatively affect comfort. Finding negatives	1	
Barrier-free roads and equipment in accessibLe area	Pavement width on boulevards and streets connecting to the area Available pavement widths Availability of disabled accessibility: Road widths suitable for physically disabled transportation. Pedestrian path width according to TSE 12576 standards Ramps suitable for physically disabled transportation. According to TSE 12576 standards, the width of the ramps is min. It should be 90cm and the slope should be 8% (Ender, 2011). Suitability of the selected material for use in transportation Floor coverings, Suitability of material properties Seating units, Lighting elements, Border elements, Plastic objects (sculptures, etc.), Covering Units, Guidance-signs, Garbage bins, Flowerpots, Water features, Fountains, Service units (Sales units, Kiosks, flagpoles, etc.), Stops for public transport, Border elements	Areas completely separated from motor vehicle traffic, suitable for pedestrian use, compliant with design criteria for everyone, with appropriate street and sideway width, with suitable surface and materials, and with sufficient reinforcement elements,	5	3
		Areas suitable for closing vehicle traffic at certain hours and pedestrıan use, partially meeting design criteria for everyone, partly with appropriate street and sideway width, partly with suitable surface and materials, partly with sufficient reinforcement elements	4	
		Areas suitable for a separate pedestrian lane arrangement, with insufficient design criteria for everyone, wıth irregular street and sideway width, with the presence of unsuitable irregular surfaces and materials, and with insufficient reinforcement elements,	3	
		Reinforcement elements that are not suitable for a separate pedestrian strip, without design criteria for everyone, with inappropriate street and sideway width, with defective surfaces and materials.	2	
		Not suitable for organizing a separate pedestrian lane, not having enough space to design for everyone, ideal for lane regulation, insufficient design criteria for everyone, having inappropriate street and sideway width. Areas with defected surfaces and materials and no reinforcement elements	1	
Live material in accessible area	**Plant material** Emphasizing with plants Shading with plants	Presence of dense trees within the area boundaries, maintenance areas, suitable species selection, having vegetation design criteria by street standards.	5	3
		Presence of medium dense trees within the area boundaries, well maintained areas, appropriate	4	

Walkability in transportation	Variables	Assessment features		
	Distinguishing between plants and pedestrian and vehicle traffic Taking precautions to alleviate accidents with plants	species selection, having appropriate vegetation design criteria		
		The area has sparse trees, well-maintained areas, and partially suitable vegetative design criteria.	3	
		There are shrubs within the area's boundaries, poorly maintained areas, and irregular vegetative design features.	2	
		Within the area limits no road afforestation, non-maintenance areas, no vegetable design features	1	
		Total	**68.5%**	**24**
		The Overall Total	**100%**	**35**

Tab.2 The relationship and Adequacy of landscape values in pedestrian transportation of Atatürk Street

4. Discussion and Conclusion

It is possible to think together with the urban identity when arranging the roads, pedestrian paths, and pedestrian areas shaped by the natural structure and topography of the city. Also these areas, roads, connections etc. The equipment that will provide integrity should also be considered in relation to the city's natural, cultural, and historical structure. While walkable cities make the city more livable, planning and designs should be carried out by keeping the city's identity in the foreground. Pedestrian roads, pedestrian zones, and pedestrianized area arrangements that will integrate with the natural resource values of the city will support revealing the city's identity. Again, the integration of these pedestrian-intensive areas with cultural venues and building environments, color, texture, form, etc. Planning it holistically will reveal more of the identity structure of the city. When planning pedestrian-dense areas, walkability criteria such as the connections of the roads, their directness, continuity, landscape values, quality of the streets, visual diversity, security, and types of land use should be considered. Arranging urban equipment elements as a whole with walkability variables, which will be developed by the city identity and applied in the plans and designs of pedestrian-dense areas, will further support the walkability of the areas (Pirselimoğlu Batman & Ender Altay, 2020). It is essential that areas such as sidewalks, streets, or squares, which belong only to pedestrians and offer safe and comfortable movement away from the adverse effects of traffic, are accessible to everyone (Kul & Tutal, 2016). This importance will lead to the effective use of design elements for landscape planning and design studies with holistic planning, starting from pedestrian transportation areas and including vehicle transportation areas. As a result, it will be possible to see designs that are integrated with transportation in cities and have binding and continuity (Yılmaz Türkoğlu, 2010).

When Forsyth (2015) examined the studies including the expression of walkability, he detected that the areas that included walkability are better and preferred areas than many areas. The study shows that walkability represents a holistic solution in the improvement of urban areas, defining slower pace, more human scale, healthier, happier areas. In his study, Zayed (2016) emphasized the importance of walkability for pedestrian roads. The researcher stated that the foundations of walkability depend on micro-scale factors more than macro-scale factors. At this point, it has been revealed that in addition to macro factors such as land use distribution and street network planning, road profile, road anotomy, and landscape elements are more noticed by pedestrians and affect them directly.

Supporting pedestrian transportation is the most crucial step for urban transportation to be functional for city livability (Beyazıt, 2007). For this purpose, Gündoğdu & Dinçer (2020) determined the walkability criteria in their study. In line with these criteria, the importance of pedestrian movement formation and the relationship

between urban formation characteristics and pedestrian movement has been revealed. Gültekin & Altunkasa (2008) revealed the criteria determining the suitability level for pedestrian use on urban roads. In their study, Bekçi & Sipahi (2023) evaluated whether pedestrian accessibility can be achieved by walking in urban landscape areas and, if so, what the accessibility criteria are on the pedestrian route with different user groups. Bursa-Atatürk Street was evaluated to examine walkable areas in transportation areas in terms of landscape architecture and reveal the potential of the walkable regions in Accessibility. Within the scope of the evaluation, the Adequacy of the Street in terms of walkability was revealed by presenting criteria, variables, and evaluation features based on walkability in transportation. According to the evaluation, the first criterion regarding walkability in transportation is predominantly land use. The area used on Atatürk Street (restaurants, shops, cultural centers, etc.) was determined and received "4 points" according to the evaluation features scoring. The second criterion in evaluation is the presence of a showcase in Accessibility. With this criterion, the diversity of area usage, the number of people using the area, street attractiveness, and popularity among users were evaluated in the context of the sociality of the area. In this evaluation, the study area received "4 points". The third criterion for Accessibility is pedestrian use. At this point, Accessibility for pedestrian use; connection, integration, street connections, 10 min. When evaluated within the scope of the presence of areas within walking distance, it received "3 points". The fourth criterion is security in Accessibility. This criterion was evaluated in the context of image and security and received "4 points". The fifth criterion in evaluation is Spatial aesthetics in Accessibility.

In this regard, when Atatürk Street was evaluated in terms of living and inanimate elements reflecting the urban identity, it received "3 points". The sixth criterion is Accessibility and barrier-free roads and equipment. In this criterion, the existing sidewalk width on the boulevards and streets connecting to the area, the presence of disabled Accessibility, and Road widths suitable for transportation of the physically disabled. Pedestrian path width according to TS 12576 standards. Ramps are ideal for the transportation of the physically disabled. Width of ramps according to TS 12576 standards. Min. It should be 90cm, and the slope should be 8% (Ender, 2011).

Suitability of the selected material for use in transportation - floor coverings, material properties suitability, seating units, lighting elements, border elements, plastic objects (sculptures, etc.), cover units, directional signs, garbage bins, flower beds, water elements, fountains, service units (sales units, kiosks, flagpoles, etc.), stops for public transportation, and border elements were evaluated. According to these variables, Atatürk Street received "3 points". The seventh and final criterion in evaluation is the presence of living material in Accessibility. In line with this criterion, the presence of living material was evaluated in line with variables such as emphasizing plants, shading with plants, separating pedestrian and vehicle traffic with plants, and taking measures to alleviate accidents with plants. As a result of the evaluation, this criterion received "3 points". In this regard, the overall Adequacy of the area is "24 points" based on the area's walkability in transportation and its relationship with landscape values. In this case, it was concluded that it was partially sufficient with 68.5%.

As a result, Atatürk Street shows a vibrant structure in terms of land use since it is both in the city center and a historical and cultural region. In addition, the density of storefronts on the Street due to the use of space increases the area's attractiveness. Again, since the Street is in the city core and a historical and cultural zone, it causes attractive land uses not only on the Street but also within a 10-minute walk of the Street. This situation has caused the number of street users to increase. It is possible to see intense human use on weekdays and weekends due to the presence of workplaces and historical-cultural-touristic places. User density on the pedestrian paths on both sides of the Street. It is possible to see both vehicle and pedestrian connection points on the Street. However, the number of connections with sufficient permeability is not available. There are no empty or abandoned buildings or spaces in the area. However, when viewed on a walking basis, it is possible to see sidewalks that do not separate vehicles and pedestrians.

Regarding comfort and attractiveness on the Street, it does not offer integrity with its land uses, landscape values, structural solutions, and historical and cultural values. This solution, which is unique to each of them, does not offer visual appeal. The presence of essential elements that support the urban identity endorses understanding the area as walkable.

Liu et al. (2016) found in their study that there are strong relationships between street centrality and land use density. While expressing the existence of spatial heterogeneity, they stated that street centrality plays an essential role in shaping the urban structure and land use density and supporting the formation of urban textures. Ding et al. (2016) stated in their study that Accessibility has a significant and positive effect on the development of shopping activity, which is related to the presence of storefronts. They emphasized that such land use should take into account human spatio-temporal constraints.

Shuvo et al. (2021) state in their studies that an ideal living space should be green and walkable. Besides this, Fan et al. (2018) stated that walkability is an important element in assessıng urban landscapes ' sustainability. Variables such as the barrier-free Accessibility of the roads and the ease of use by everyone were evaluated on the field. Pavement width on the boulevards and streets connecting to the area, Existing pavement widths, Disabled Accessibility: Road widths suitable for Physically Disabled Transportation, Ramps suitable for Physically Disabled Transportation, Suitability of the selected material for use in transportation - Floor coverings, Material properties suitability variables are discussed within the boundaries of the study area. Since the Street is located within the old city fabric, the pedestrian paths perpendicular to the Street connecting to the Street vary from place to place. However, the pedestrian connections are wide enough for an average of 1 person to walk. In the changing streets and roads following the Street, the pedestrian sidewalk width has a feature that is continuous with the current state of the Street. In the current state of the Street, pedestrian sidewalk widths vary from place to place and range between (3.5 m - 5.5 m). As for disabled Accessibility, although the road widths are suitable, there is no continuity in other elements that will support physically disabled individuals and visually impaired individuals. Guide tracks to help visually impaired people in walking are only available at the tram stop.

Moreover, these guide tracks need more continuity on the pavements. There are no ramps for physically disabled people at the starting and ending points of the sidewalks. This situation not only challenges people with disabilities but also applies to older people and pedestrians with baby strollers. In this regard, the sidewalks on both sides of the Street must have sufficient features. In addition, disabled, elderly, individuals with baby strollers, children, etc., who want to cross from one side of the Street to the other. There is only one elevator connected to an underpass. In the study of Bekçi (2012), in ergonomic and accessible outdoor arrangements, standards-compliant uses such as pedestrian sidewalks, floor coverings, signs and lighting signs, intersections, stairs, ramps, etc., that will provide comfortable use of physical obstacles should be recommended. In addition, he emphasized that the physical environmental arrangements to be made for disabled individuals should ensure that they are accessible not only to physically disabled people but also to people with temporary disabilities, such as the elderly, pregnant women, strollers, children, etc.

Standards should be considered in the design and application of road landscapes, which are essential city elements (Polat & Önder, 2012). When the materials are evaluated, it is seen that the material properties are not restrictive, such as roughness, potholes, bumps, etc., when pedestrians use the area. When the appropriate joint density and width feature is evaluated, rare situations do not progress in a particular order and differ occasionally. Additionally, the surface has no reflection property (albedo). No adverse effects were detected in rainy weather. The adequate road infrastructure (compacted soil, stabilized filling or blocking, etc.) is at an appropriate level. Another element that supports surface elements is drainage. No drainage problems that prevent walking on the Street have been detected.

To work efficiently, some issues need to be considered in transportation planning for living and non-living materials on the roads with high vehicle and pedestrian density in cities. These are trust in users, convenience, ecological benefit, and comfort parameters (Yılmaz Türkoğlu, 2010).

Considering the walkability of the working boundaries along with the presence of reinforcement elements for Accessibility, such as seating units, stops, flower beds, garbage bins, lighting components, border elements, notice and direction boards, traffic lights, poles for trams, sales units, cover units, plastic objects. There are many donor people. Although this situation increases the walkability value of the area, these donors need to show a holistic approach. Each of them has a different character. In addition, in this area, located in the city core and is an important historical and tourist center, the donors need a common language and an approach that reflects the city's identity.

An essential component of the urban open green space system is road trees. While road trees give identity and continuity to the city and the route it creates, they create the effect of continuity and occupancy. It eliminates the boredom of the roads, adds interest to them, and makes effective routes. In addition, when road trees are used correctly, they will positively contribute to the urban ecosystem (Kurdoğlu & Pirselimoğlu, 2011). Seyidoğlu Akdeniz et al. (2019), in their study on urban boulevards, emphasized that plants in road afforestation are essential regarding their design features and other factors such as temperature, salt, drought, and pollution. They stressed the importance of ecological suitability, the suitability of plants, and design features.

Another substantial landscape supporting walking inaccessibility is the area integrated with plant material. Emphasizing plants, shading with plants, separating pedestrian and vehicle traffic with plants, and taking precautions to alleviate plant accidents are essential variables related to street plant materials. In this regard, when the boundaries of the study area were evaluated, the emphasis on the road with plants could have been made more effective. There is a presence of trees that can be interpreted as sparse. It has also been observed that a practical shade effect cannot be achieved with trees. Pedestrian and vehicle separation is not provided with plant material. There is no use of any herbal material to prevent or alleviate accidents. Plant material is most densely seen around the Statue, its surroundings, and the Ulu Mosque-Kozahan-Historical Municipality Building. Very few of these have an impact on the Street.

As a result, Atatürk Street and its surroundings are preferred areas for people living in Bursa and visiting Bursa, as it is in the city center and has historical and tourist areas and structures. Shopping, dining, visiting historical sites, participating in cultural activities, socializing, bank visits, public institution-related work, etc. It is possible to see many different usage purposes. It is an area with many users for various purposes. This Street, which has pedestrian axes broad enough for its intensive users, is not fully adequate regarding walkability variables. This area, at an important historical and cultural point, cannot reflect the city's identity. In this case, the fact that the donated elements display different characters does not support the emphasis on urban identity. It is seen that transportation values and urban identity are not integrated. Plant material and structural material are not used in balance and do not provide a comfortable walking area for pedestrians. At the same time, it does not contribute to the landscape ecology in this area, where there is dense construction and hard surfaces. At the same time, the use of the Street does not comply with the design criteria for everyone. In this case, it does not support comfort and safety in pedestrian use. Based on these negativities, if the Street is walkable for transportation, it should be recommended to use a street that reflects the urban identity, creates a green corridor with a vegetal axis moving with the pedestrian axis, and is based on comfort and safety while walking.

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