

Accessibility of Open Green Spaces for People with Disabilities: Case Study of Çanakkale Kepez Public Cafe and its Outdoor Surroundings*

Mahmut Can AST, University of Çanakkale Onsekiz Mart, School of Graduate Studies, Program of Landscape Architecture, mahmutcanast@gmail.com, Çanakkale, Türkiye, ORCID: 0009-0005-7628-1093

Tutku AK ERKEN, University of Çanakkale Onsekiz Mart, Faculty of Architecture and Design, Department of Landscape Architecture, tak@comu.edu.tr, Çanakkale, Türkiye, ORCID: 0000-0002-1600-3199

Abdullah KELKİT, University of Çanakkale Onsekiz Mart, Faculty of Architecture and Design, Department of Landscape Architecture, akelkit@comu.edu.tr, Çanakkale, Türkiye, ORCID: 0000-0002-5364-6425

Abstract

People may lose their mental and physical abilities partially or completely due to congenital conditions, diseases, or accidents. In order to ensure that the living conditions of affected individuals with disabilities are suitable, the cities, which serve as our living spaces, must be arranged according to the necessary standards. These arrangements should enable individuals with disabilities to participate in social life. Open green spaces, which are among the areas with high social activity in cities, must be safe and easily accessible for individuals with disabilities. To ensure accessibility, designs should consider all individuals and create spaces based on universal design principles. This study focuses on the accessibility of Kepez Public Cafe and its outdoor surroundings located in Kepez, Çanakkale. Literature review and observational analysis showed that some parts of the study site did not comply with regulations and guidelines. Results also showed that the area is not fully accessible to individuals with disabilities, lacks guidance and warning systems, and has safety issues in certain areas. Designs of landscapes should meet the needs of all individuals constituting the urban population.

Keywords: Accessibility, Çanakkale, Disability, Open Green Areas, Universal Design

*This study is not included in the study group that requires TR Index Ethics Committee Approval.

1. Introduction

Following industrial and technological developments, cities have shown progress and made significant advancements. These developments have consequently led to unplanned, rapid, and dense construction in cities. Recently, with the uncontrolled population growth in urban areas, the concept of "universal design" has gained importance. By adopting the principles of universal design, spaces that everyone can use and access should be created, taking into account individuals' age, abilities, and health conditions (Kavuran & Uslu, 2022).

All individuals in the society should have access to their homes, educational facilities, workplaces, open and green spaces, and other environments. In this process, it is essential that individuals independently and safely access and use the places and services they need (Erişebilirlik Kılavuzu, 2020).

Designs should be user-centered, and the approach of "design for all" should be adopted. In this context, with the emergence of the concept of "Universal Design," spaces must be created according to specific standards (Tuğluer & Erken, 2022).

Universal Design (UD) refers to the design and arrangement of environments to be accessible, understandable, and usable to the greatest extent, by everyone regardless of their age, size, ability, or disability. The goal is to create spaces, products, and services that accommodate the needs of all users. This effort isn't a special accommodation for a small segment of the population; it's a key aspect of good design. In addition, a major influence in the evolution of Universal Design has been the early incorporation of user needs into the design process, ensuring accessibility and usability from the start (Center for Excellence in Universal Design, 2024).

When an environment is accessible, functional, convenient, and enjoyable for all, everyone benefits. By factoring in the diverse abilities and needs of people throughout the design process, universal design ensures that both digital and physical environments, as well as services and systems, are inclusive. In essence, universal design embodies what good design should be (Center for Excellence in Universal Design, 2024).

A part of the urban environment that should be created based on universal design principles is open green spaces (Koçan, 2020). According to Ulu Akşit et al. (2020), open green spaces are defined as areas of great importance that contribute to the formation of the city's physical and social structure and support the sustainability of people's quality of life.

Open green spaces in cities hold significant social value. Walkable neighborhoods, parks, and green areas encourage outdoor activity and promote social interaction. Green streets bring nature into urban settings, offering a refreshing contrast to the rigid shapes, colors, and textures of buildings. They engage the senses through the natural simplicity of their colors, sounds, scents, and movement (Dorward, 1990).

In addition to the ecological benefits that open green spaces provide to cities, they also offer social advantages. Individuals with disabilities, however, face significant challenges in accessing open green spaces. To minimize the challenges faced by individuals with disabilities, open green spaces designed using universal design principles must be made accessible. For an urban green space to be accessible, elements such as pedestrian pathways, sidewalks, parking lots, stairs, ramps, site furnishings, and planting designs must be created with the needs of all individuals in mind. This study was conducted to assess the accessibility for individuals with disabilities at Kepez Public Cafe and its outdoor surroundings, located in the town of Kepez in Çanakkale.

2. Disability

Disability refers to any condition that hinders a person's ability to perform certain activities or limits their access to opportunities and resources within society on an equal basis (Centers for Disease Control and Prevention, 2024). Disabilities can be cognitive, developmental, intellectual, mental, physical, sensory, or

a combination of these factors. They may be present from birth or acquired later in life. Traditionally, disabilities were recognized through a limited set of criteria, but they are not binary. Each individual may experience a disability in unique ways, reflecting diverse characteristics and needs (Francis & Silvers, 2016).

The United Nations Convention on the Rights of Persons with Disabilities defines persons with disabilities as “those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others” (United Nations, 2006).

A person with a disability is defined as an individual who experiences varying degrees of loss in physical, mental, psychological, emotional, and social abilities due to a congenital condition or an illness or accident acquired later in life. As a result, this individual may struggle to adapt to the normal flow of life and require protective, caregiving, rehabilitation, and support services, which are necessary for their well-being (Koca & Yılmaz, 2017).

The concept of disability can be defined in various ways by different individuals or organizations, but these definitions often converge on common points. People can become disabled due to congenital conditions, illnesses, or accidents. Additionally, circumstances such as injury, pregnancy, the use of strollers, and aging can also be considered forms of disability. When creating livable cities, it is essential for professionals in various fields—such as architecture, landscape architecture, interior design, and urban and regional planning—to adopt the philosophy of universal design and implement its principles.

2.1. Disability Types

There are various and diverse approaches to classifying different types of disabilities. Disabilities are generally examined under six main categories:

2.1.1. Orthopedic Impairment

This refers to individuals who have physical impairments that prevent them from performing daily life functions due to congenital conditions, diseases, or accidents affecting their skeletal, muscular, or nervous systems. Orthopedically disabled individuals may require assistive devices to facilitate movement (Berktaş, 2016).

One of the key design considerations for wheelchair users is ensuring accessibility. Therefore, wheelchair users need spacious turning areas, ramps with adequate width and slope, and other similar elements (Spahiu, 2014).

2.1.2. Vision Impairment

Vision impairment refers to a condition where a person’s eyesight cannot be corrected to a typical level. It may result from a reduction in visual acuity, where the eye struggles to see objects as clearly as normal. It can also be caused by a loss of visual field, where the person cannot see as wide an area as usual without moving their eyes or turning their head (University of Pittsburgh, 2024).

For visually impaired individuals, white canes or specially trained guide dogs provide assistance, but it is crucial to design environments that enable them to live independently without relying on others. In urban spaces, elements that make life easier for visually impaired people should be incorporated, such as contrasting colors, tactile writing, detectable guide surfaces, auditory warning systems, low curbs, and the use of handrails on ramps and stairs (Spahiu, 2014).

2.1.3. Auditory Impairment

Auditory impairment refers to individuals with hearing disability who require special education and treatment. Auditory impairments are categorized into two groups: deaf and hard of hearing. "Hearing disability" is the condition in which an individual's hearing ability is insufficient to perform activities like

social interaction and communication. "Hearing loss," on the other hand, refers to the inability to perceive acoustic information from speech and environmental sounds (Yıldırım, 2014).

The spatial needs of individuals with hearing impairments are less obvious compared to those with visual or mobility impairments. However, people with hearing loss perceive and experience space differently than those who can hear. Their sensory world relies heavily on sight and touch as primary tools for spatial awareness and perception. Despite this, they face challenges because their needs are often overlooked in the design of the built environment. To navigate these spaces, they must exert extra effort to adapt their surroundings to their distinct way of experiencing the world (Aspen, 2021).

2.1.4. Speech Impairment

An individual who, for some reason, is unable to speak or has impairments in speech fluency, expression, or voice is considered to have a speech impairment (Özdemir, 2020).

2.1.5. Intellectual Disability

It is a persistent condition resulting from various causes before, during, or after birth, which can later lead to aging and hereditary disorders, causing behavioral deficiencies or regression. The individual is unable to meet basic needs such as feeding, dressing, or transportation independently (Nacar, 2021).

2.1.6. Chronic Illnesses

A chronic illness is a disability that hinders an individual's ability to work and function, requiring continuous care and treatment from others (Pişkin, 2021).

2.2. Regulations and Legislation for Persons with Disabilities

The first international agreement addressing the rights of individuals with disabilities is the United Nations Convention on the Rights of Persons with Disabilities. This convention outlines regulations concerning structural and institutional aspects related to disabled individuals and details the services that the government must provide (Pişkin, 2021).

In Turkey, laws and international agreements established to protect the rights of individuals with disabilities are intended to facilitate and support their daily lives. However, the main issue lies in the lack of effective implementation of these regulations. Laws should be evaluated for their applicability, monitored, and enforced (Koca & Yılmaz, 2017).

The first legal regulation in Turkey was enacted in 1997 and it came into effect on July 12, 2000. According to this decision, adherence to the standards published by the Turkish Standards Institute (TSE) regarding accessibility for individuals with disabilities was mandated (Pişkin, 2021). The "Convention on the Rights of Persons with Disabilities," approved on July 14, 2009, holds significant value. The convention emphasizes that persons with disabilities should enjoy all human rights and fundamental freedoms on an equal basis. It also highlights the importance of utilizing universal design principles (Özkaya, 2022).

In 2013, the Accessibility Monitoring and Supervision Regulation was enacted, aiming to ensure that public areas and transportation in Turkey are accessible for individuals with disabilities. Under this regulation, an "Accessibility Commission" will be established in provinces to oversee the accessibility of public spaces and institutions (Dalkıran, 2021).

2.3. Psychology of Persons with Disabilities and Social Structure

The pressure of social exclusion experienced by individuals with disabilities, coupled with various reasons for not sharing the most fundamental aspects of life with others, presents a serious problem (Atıcı, 2007). It is essential to design streets, squares, and green and open spaces in a way that allows everyone, including the elderly, children, and other segments of society, to use them. This ensures participation from all individuals in these areas (Koca & Yılmaz, 2017).

One example of well-intentioned initiatives in our country is the creation of spaces labeled as "blind parks," "senior parks," "women's parks," or "parks for disabled children." Such classifications can lead to discrimination and the segregation of individuals into specific groups, which ultimately aims to provide comfort for a particular segment. However, these designated areas often fail to meet their intended purpose. It is sociologically and psychologically necessary for all individuals with different characteristics to spend time together and gather in a shared space (Uslu & Shakouri, 2014).

The planning and design disciplines involved in creating public spaces should aim to bring together all members of society in a healthy manner. The components that make up society should be addressed as a whole without labeling, while also considering the needs of each individual. Landscape architecture, being a crucial discipline in this regard, should take ownership of this issue and plan and design open urban green spaces with this awareness in mind.

3. Standards to Consider in the Design Process

3.1. Pedestrian Paths and Sidewalks

The design and implementation of pedestrian paths and sidewalks should ensure accessibility for all users, including those with mobility limitations, providing a safe, obstacle-free, smooth, and appropriately wide experience (Kaplan et al., 2011).

According to the TS 12576 standard, a sidewalk that poses no barriers should have a minimum width of 150 cm, with 200 cm being the ideal width (Olgun & Yılmaz, 2014). When determining the width, it is also important to consider the density of users and the anticipated foot traffic (Erişebilirlik Kılavuzu, 2020). The height of the curb stones on pedestrian sidewalks should be no more than 15 cm (Atıcı, 2007).

The surface materials used on pedestrian paths should prevent slipping by being smooth, stable, durable, and facilitate movement for users (Olgun & Yılmaz, 2014; Erişebilirlik Kılavuzu, 2020). Efforts should avoid sudden elevation changes on pedestrian paths and sidewalks. Infrastructure elements like grates and manhole covers should be aligned with surface paving elements along the path (Pişkin, 2021).

3.2. Parking Lots

For the arrangement of parking lots, a sufficient number of spaces should be allocated for individuals with disabilities. The dimensions of these designated spaces should be suitable, particularly for wheelchair users, and the distance from the parking area to the desired point of access should be as short as possible (Kaplan et al., 2011).

According to the regulations for creating parking areas, at least one designated accessible parking space should be provided, equating to 5% of the total number of parking spaces, which should be clearly marked (Pişkin, 2021). The minimum width for a parking space reserved for individuals with disabilities is 360 cm, with an ideal width of 390 cm. Additionally, a 120 cm wide corridor is recommended for wheelchair access. These reserved spaces should be clearly marked with symbols and lighting to prevent misuse (Özdemir, 2020).

3.3. Stairways and Ramps

Stairways or ramps are often used as design solutions to address the topographical conditions of an area or elevation differences created within the space. In these solutions, it is essential to prioritize ergonomic and safe design, keeping the needs of all users, including individuals with disabilities, in mind.

Stairways and ramps should be designed according to the following guidelines in order to provide barrier-free access:

Stairways (Kaplan et al., 2011; Olgun & Yılmaz, 2014; Özdemir, 2020; Pişkin, 2021):

- Handrails should be installed on both sides of the stairs,

- Color contrasts should be used on the steps and risers to aid visibility,
- Steps must have uniform heights,
- To comply with TS 9111 standards, the maximum riser height should be 15 cm, calculated using the formula: $2 \times \text{Riser Height} + 1 \times \text{Tread Width} = 63 \text{ cm}$,
- The surfaces of the steps should have rough, non-slip materials,
- Tactile surfaces should be placed at the start and end of the steps for the visually impaired.

Ramps (Koca & Yılmaz, 2017; Özdemir, 2020):

- For wheelchair users to access ramps independently, the slope should not exceed 5-8%,
- Ramps should have a minimum width of 90 cm, and if there is two-way traffic, the width should be 180 cm,
- A single run distance for a wheelchair user should not exceed 9 meters. A landing with a length of 152.5 cm should be provided every 9 meters,
- At the beginning and end of ramps, there should be a flat and tactile surface for the visually impaired,
- Ramp surfaces should be made of hard, stable, non-slip, and slightly textured materials,
- For height differences greater than 15 cm, appropriate handrails should be installed alongside the ramps.

3.4. Urban Furniture

Urban furniture should be placed in a way that they do not restrict or obstruct the movement of people with disabilities, ensuring that appropriate spaces are created for their placement. Elements like shading structures, signage, lighting fixtures, and plants should be designed to avoid any features at head height that could harm users. For the safety of visually impaired individuals, urban furniture with elevated components should maintain a head clearance of 220 cm (Tokaç, 2017).

To ensure a safe and comfortable environment, urban furniture should possess specific characteristics. According to Olgun (2019), the necessary features for urban furniture include:

- **Color Contrast:** For users with low vision, the colors used as furnishing elements should contrast with their surroundings,
- **Rounded Edges:** Furniture should not have sharp or pointed corners,
- **Tactile Materials:** To help visually impaired individuals perceive the location of furnishings, materials with tactile properties should be used.

3.4.1. Seating Elements

Seating elements should be positioned outside of pedestrian pathways or sidewalks in a way that they do not obstruct pedestrian circulation or create barriers for those with mobility limitations. They should be accessible to all users and spaced evenly at appropriate intervals (Şahin, 2017).

Key considerations for the placement and use of seating elements are outlined below (Olgun & Yılmaz, 2014; İmren, 2017; Şahin, 2017):

- **Space for Wheelchair Users:** There should be a minimum of 120 cm of space beside seating units for wheelchair users,
- **Location:** Seating elements should be placed outside of the main pedestrian pathways,
- **Spacing:** Seating should be installed at regular intervals of 100–200 meters,
- **Seat Dimensions:** The seating area of benches should be 45 cm above the ground, with the backrest at 70 cm above the ground,
- **Table Dimensions:** Tables should be 75–90 cm high, with a depth of 60 cm underneath to allow access for wheelchair users,
- **Ground Level Consistency:** The surface of the seating area should be at the same material and level as the pedestrian pathway,

- **Armrests:** Seating units should include armrests to provide support for users.

3.4.2. Lighting Elements

Lighting elements play a crucial role in the use of outdoor spaces at night and are an essential part of urban furniture. While they are important for all users, they require particular attention in their design for users with disabilities. Lighting should be especially prioritized in areas with ramps and stairs to ensure safe navigation. For accessible lighting, the recommended height is between 140–160 cm. It is important that the lighting fixtures do not cause reflections or glare. In addition to appropriate lighting levels, the surface materials used near stairs and ramps should also be chosen to minimize reflections and glare (Pişkin, 2021).

3.5. Playgrounds

Play is as essential for children's development as fundamental activities like nutrition. Through play, children enhance their creativity, problem-solving skills, social relationships, and physical resilience. One of the first environments where children start socializing outside the home is playgrounds. These areas should be designed to meet the needs of all children, considering suitability for children with disabilities and different age groups. When designing a playground, ensuring that it accommodates the needs of children with disabilities allows them to play independently and with confidence. The design should not only consider children who use wheelchairs but also those with visual, auditory, and cognitive disabilities (Şen & Öksüz, 2016).

According to Tandoğan (2021), the design criteria for inclusive playgrounds are as follows:

- Playgrounds should be located in accessible and convenient areas away from high-traffic areas,
- Entrances to playgrounds should be wide and clearly marked,
- To ensure children's safety, the boundaries of playgrounds should be defined with structural or natural landscape elements like walls, fences, or plants,
- Pathways within the playground should be at least 183 cm wide and designed to minimize physical contact,
- Similar equipment with different difficulty levels should be grouped together to allow children of the same or different ages to play in the same area,
- Games and equipment should be selected to cater to physical, sensory, and socio-cognitive play for children with different abilities,
- Play equipment should be accessible with features like wheelchair ramps, stairs, transfer platforms, or inclined ramps,
- Swings should be placed at the edge of the playground,
- Safety measures should be in place to prevent falls when playing at different heights,
- The surface of playgrounds should absorb shocks to reduce injury risks,
- Loose surface coverings should be avoided; instead, materials like poured rubber, rubber tiles, or playground grass should be used,
- Suitable materials for play equipment include wood, laminate, plywood, polyethylene, steel, aluminum, and plastic. These materials should be safe, durable, long-lasting, healthy, and easy to maintain,
- For children with autism or those sensitive to colors, careful consideration should be given to color choices. Intermediate colors should be used instead of primary colors,
- Shiny surfaces should be avoided for children with visual impairments.

3.6. Planting Design

The planting design of open green areas are one of the essential criteria for creating functional and aesthetic landscapes. The functionality provided by plants should be utilized in planting designs, alongside their aesthetic features. Each plant has unique characteristics, such as leaves, flowers, branches,

stems, and textures. These characteristics give rise to sensory features like sound, smell, taste, and touch (Olgun & Yılmaz, 2014).

For visually impaired users, fragrant plants can aid in navigation, while species with strong and contrasting colors assist those with low vision. Plants that produce sound when the wind blows or have different textures can also be used to engage the touch sense of visually impaired individuals (Pişkin, 2021).

The following considerations for planting design are based on the studies of Olgun & Yılmaz (2014), İmren (2019), Olgun (2019), and Kavuran & Uslu (2022):

- Maintenance should be provided for plants that have fallen branches or leaves that may create slippery surfaces or contribute to litter,
- Caution should be exercised when using thorny, poisonous, or slippery fruit-bearing plants, keeping them away from pedestrian pathways,
- Branches of plants that extend over pedestrian paths should be maintained and pruned regularly, particularly those within the head clearance distance for visually impaired individuals,
- Fragrant plants that will not disturb all users should be selected,
- Leafy plant species that can be perceived auditorily and can help guide visually impaired individuals should be chosen,
- The selected plants should create memory spaces for individuals with disabilities,
- Planting should not occur on sidewalks or pedestrian pathways narrower than 200 cm,
- Different textured areas should be created using plants on sidewalks and pedestrian pathways to be perceived by visually impaired individuals,
- Plants that develop surface roots should not be placed near structural surfaces,
- Plants that effectively block external noise, especially beneficial for the elderly and all users, should be selected,
- Plants that attract potentially harmful creatures, like insects, should be kept away from areas where users gather.

4. Methodology

The primary material of this study is the Kepez Public Cafe and its surrounding area (Figure 1.), located in the coastal region of Kepez Town, in the central district of Çanakkale. The study area covers a total of 24,974 m² and is situated at the coordinates 40° 6'21.19"N and 26°23'55.55"E.



Figure 1. Study site and location (Google Earth, 2023)

This study aims to adopt the principle of universal design in the creation of spaces in developing cities like Kepez, Çanakkale, and to ensure the participation of individuals with disabilities in social life.

The research consists of three phases. In the first phase, a literature review (theses, books, articles, etc.) was conducted on accessibility, universal design in open green spaces, disability, and national and international standards for universal design.

In the second phase, a field study was carried out. The café, followed by the pedestrian pathways, sidewalks, parking lots, stairs and ramps, urban furniture, seating and lighting elements, children's play areas, and plants within the study area were examined, measured, and photographed under the framework of the data obtained from the literature.

In the final phase, the findings from the field study were evaluated, assessing the accessibility of the area by individuals with disabilities.

5. Findings

In this section of the study, information regarding the findings is given.

5.1. Pedestrian paths and pavements

In the study area, there are pedestrian pathways along the coast and the picnic area (see Figures 2a and 2b). According to the observational study conducted, the widths of the pedestrian pathways meet the established standards. The materials used do not create issues such as slipping or reflection. There are, however, no tactile surface guides for the use of visually impaired individuals. In the picnic area, there are no curbs, while the curb height in the coastal walking section is 15 cm high.



Figure 2. Pedestrian paths at a) the coast and b) the picnic area (Original, 2023)

Due to the shallow root development of plants along a section of the coastal road, the paving elements have been damaged. These deteriorations pose a danger to all users.

The observation of the sidewalks and sidewalk ramps in the study area have shown that, while they are suitable in means of the required width, at some points there are problems with certain practices. For example, the pavement surrounding the Kepez Public Cafe remains approximately 30 cm above the sidewalk level (Figure 3a). As seen in Figure 3a, while some points have no accessible ramps in order to address the height differences in the sidewalks, other points have ramp solutions unsuitable for wheelchair users. Additionally, as shown in Figure 3b, it has been observed that some sidewalk surfaces

have deteriorated. These deteriorations are considered to pose a risk, especially during nighttime use. Moreover, tactile paving has not been used on the sidewalks.



Figure 3. a) Pavements and curb ramps near the Kepez Public Cafe and b) Deteriorations in the pavement materials (Original, 2023)

5.2. Parking Lots

There is no designated parking area within the study area. The disabled parking area shown below (Figure 4) is located behind the café. The parking space is marked on the ground with paint and signage. Its distance to the Kepez Public Cafe and picnic area is close but it is situated along the roadside that has a traffic flow. The dimension of the parking space is ideal in terms of length, but its width is not suitable due to its location on the side of a busy street.



Figure 4. Parking space for individuals with disability (Original, 2023)

5.3. Stairways and Ramps

There are no significant elevation differences in the topography of the study area. Therefore, there are not many stairways and ramps within the area. The only stairway and ramp for wheelchair users is found in the Kepez Public Cafe (Figure 5). Warning surfaces are not present at the start and end points of the stairways and ramps. Different colored materials have not been used to identify the risers and steps. While the riser height of the first two steps is 15 cm, that of the last step is 20 cm. The ramp width is ideal for a single wheelchair user. As seen in Figure 5b, different paving materials are observable at the start of the ramp, which could pose a risk to the physically disabled individuals. Additionally, the placement of service tables at the end of the ramp restricts accessibility.

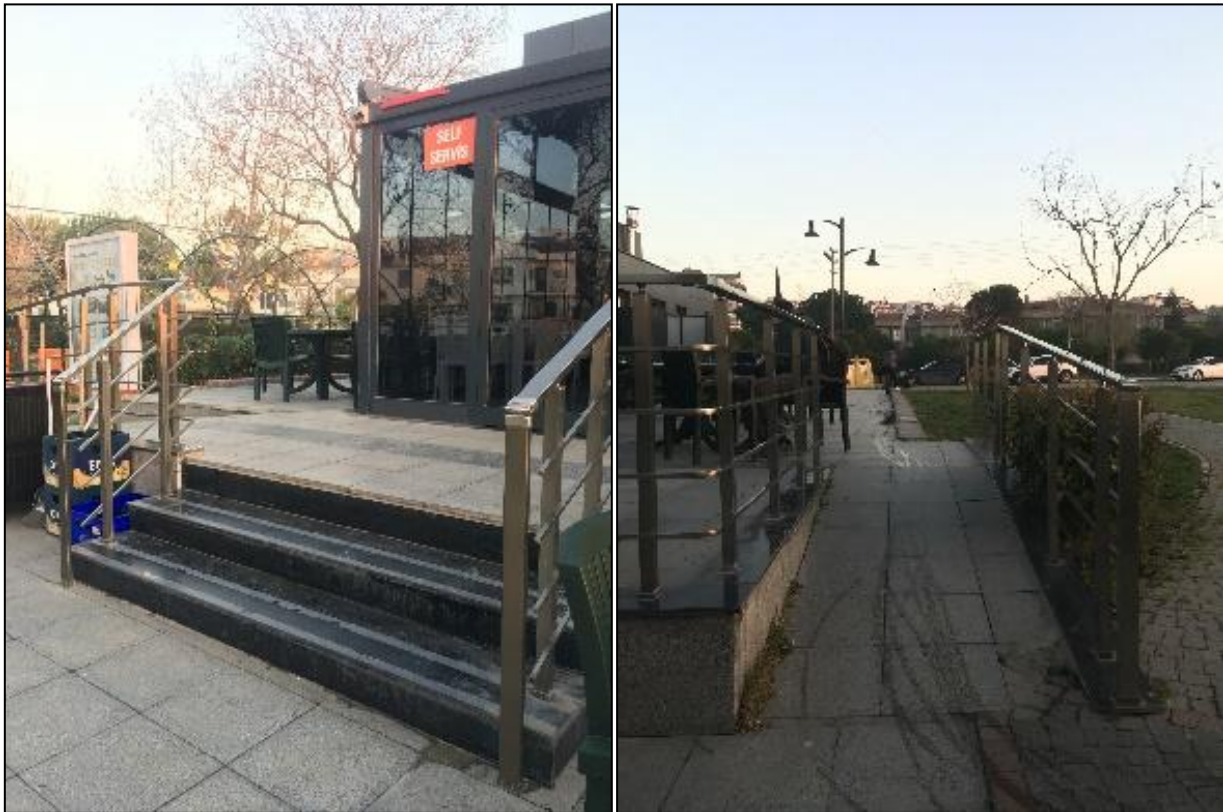


Figure 5. a) The stairway and, b) the wheelchair ramp leading to the Kepez Public Cafe (Original, 2023)

5.4. Urban Furniture

5.4.1. Seating Elements

The Akasya Picnic Area within the study area is a relatively wide space and is one of the most frequently used areas by the public. The seating units in the picnic area make it difficult for wheelchair users to use the space. As shown in Figure 6, the necessary space for a wheelchair to approach the picnic table has been provided. However, the width of the paved area around the table restricts the space available for wheelchair users. Along the pedestrian walkways, neither suitable areas for resting nor benches have been provided.

5.4.2. Lighting Elements

Examples of lighting elements used in the area are provided in Figure 7. Two different types of lighting and lighting elements with different designs are present in the study area. The lighting from the Kepez Public Cafe provides a safe environment. However, the lighting in the pedestrian area is insufficient for visually impaired individuals. The lighting does not provide a safe environment for nighttime use in the study area.



Figure 6. Seating elements in the picnic area (Original, 2023)



Figure 7. Lighting elements (Original, 2023)

5.4. Playgrounds

There are three playgrounds in the study area. One of the playgrounds is located right next to the Kepez Public Cafe, while the other two named Zeki Erdoğan Playground and Aycibin Disabled Park are located further north. The playgrounds are not designed as complex structures that would develop the various skills of children.

In the study, the Aycibin Disabled Park, designed for children with disabilities, was examined in more detail. Figure 8a shows the entrance path to the playground for wheelchair users, which is too narrow according to the standards. Additionally, the entrance to the park is positioned in connection with the bike path, creating a safety hazard.

Deteriorations are observed in the playground equipment and the pedestrian paths leading to the playground, posing problems for users. The colors used in the playground equipment are distinguishable. There are no rest areas or seating elements, however, near the playgrounds. Moreover, there are no warning surfaces around the existing plant trunks within the playground area (Figure 8b), which poses a significant problem, especially for visually impaired individuals.



Figure 8. a) Aycibin Disability Park entrance and b) the surface around the plants in the playground (Original, 2023)

5.5. Planting Design

The planting practices in the study area (Figure 9) show that the hedge plants growing on the side of the pedestrian sidewalk restrict access. Additionally, the branches and leaves of the *Thuja orientalis* (Oriental Arborvitae) plants used in the coastal region are within head clearance distance. The plant used here has a larger crown structure than the boundaries of the green space. The height of the hedge plants is also too high, hindering the perception of the space around and obstructing the passage of users due to the plants extending towards the sidewalk.

The plants used in the playground area consist of both evergreen and deciduous species. The intensive use of evergreen plants in the playground area prevents benefiting from sunlight during the winter season. The dense tree cover, however, gives a sense of enclosure in the playground. A guiding material on the ground surface does not exist around the tree trunks to warn visually impaired children or prevent them from bumping into the tree trunks.

When the planting design in the study area is evaluated based on the above criteria, it is observed that *Rosa sp.* (Rose), which is a thorny species, is used in the landscapes created along pedestrian paths. Since it was not the blooming season for most plants during the study time, their scents could not be evaluated. In general, the use of similar plant species throughout the area has prevented the creation of memory spaces. Plants with shallow root systems close to the structural surfaces have been used in the area, which has led to the deterioration of the structural surfaces.



Figure 9. Areas with problematic planting (Original, 2023)

6. Conclusion

The objective of this study was to evaluate the accessibility of the Kepez Public Cafe and its outdoor surroundings, located in the Kepez district of Çanakkale. The research and assessments have revealed that certain areas of the study site contain infrastructure and deterioration that do not comply with regulations. This situation can impact the access and use of open green spaces by individuals with disabilities. It affects not only individuals with disabilities but also other community members, including children, the elderly, pregnant women, and others.

Through the observation of the pedestrian circulation systems, it was found that the widths of the pedestrian paths are sufficient, but there are deteriorations in the pavement materials in some areas. While evaluating the stairways and wheelchair ramps, it was observed that, despite the lack of elevation differences due to topography, there are elevated ledges in the pavement surrounding the café providing risk for falling.

Seating units are not provided at regular intervals within the circulation system for people with disabilities. The need for sitting is met by the furniture used in the café or picnic area, which poses a problem for users with disabilities because they are not always at a close distance.

There is a designated parking area around the study site. Although there is one parking space for individuals with disabilities, it does not meet regulatory standards. Additionally, memory spaces have not been created within the open green space using plant materials to support accessibility.

One particular area that needs attention is the Aycibin Disabled Park. The designation of the children's parks as a park for the disabled, contradicts the concept of universal design by socially separating the children with disabilities. Moreover, there are issues that restrict access in the location of the children's playground within the open green space, in accessing it, and within the area itself. A safe environment should be established for the use of children in such areas. The characteristics of the pavement and plant materials should be reassessed considering the movements and needs of children with disabilities. Children's playgrounds should be designed through inclusive design approaches.

Following the evaluations of Kepez Public Cafe and its outdoor surroundings, it is concluded that the area is not accessible for certain groups of individuals with disabilities. There are no guidance and warning systems, and safety issues have been identified in some areas. Open green areas, which are considered to be social spaces, should be designed to be suitable for the use of all individuals.

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References

- Aspen (2021). Architectural designs for individuals with hearing loss. Accessed Address (09.10.2024): <https://www.aspen.com.tr/en/blog/architectural-design-for-individuals-with-hearing-loss>
- Atıcı, İ. (2007). *Fiziksel engelliler ve kentsel mekânın kullanımı* (Master's Thesis). Gazi Üniversitesi, Sosyal Bilimler Enstitüsü, Ankara.
- Berktaş, T. G. (2016). *Engelliler için erişilebilirlik: Maltepe Üniversitesi ve Sabancı Üniversitesi örneği* (Master's Thesis). Maltepe Üniversitesi, Fen Bilimleri Enstitüsü, İstanbul.
- Center for Excellence in Universal Design (2024). About universal design. Accessed Address (09.10.2024): <https://universaldesign.ie/about-universal-design>
- Centers for Disease Control and Prevention (2024). Disability and health overview. Accessed Address (09.10.2024): <https://www.cdc.gov/ncbddd/disabilityandhealth/disability.html>
- Dalkıran, Ç. (2021). *Ankara Atatürk Bulvarı ve çevresinde görme engelli bireylerin kent ve sosyal çevreye erişilebilirliği* (Master's Thesis). Ankara Üniversitesi, Sosyal Bilimler Enstitüsü, Ankara.
- Dorward, S. (1990). *Design for mountain communities: A landscape and architectural guide*. New York: Van Nostrand Reinhold.
- Erişilebilirlik Kılavuzu (2020). *Erişilebilirlik Kılavuzu* (Editör: Deniz Çağlayan Gümüş). Ankara: Aile, Çalışma ve Sosyal Hizmetler Bakanlığı Engelli ve Yaşlı Hizmetleri Genel Müdürlüğü Yayını. Accessed Address (09.10.2024): https://ailevecalisma.gov.tr/media/54952/erisilebilirlik_kilavuzu.pdf
- Francis, L. & Silvers A. (2016). Perspectives on the meaning of disability. *AMA Journal of Ethics*, 18(10), 1025–1033.
- Google Earth Pro (2023). Location of the study site. Accessed Address (23.01.2023): Google Earth Pro application.
- İmren, Ö. T. (2019). *Kent parklarının kullanım olanaklarının engelliler açısından irdelenmesi: İstanbul ili Zeytinburnu ilçesi Çırpıcı Şehir Parkı örneği* (Master's Thesis). Tekirdağ Namık Kemal Üniversitesi, Fen Bilimleri Enstitüsü, Tekirdağ.
- Kaplan, H., Yüksel, Ü., Gültekin, A.B., Güngör, C., Karasu, N. & Çavuş, M. (2011). *Yerel yönetimler için ulaşılabilirlik temel bilgiler teknik el kitabı*. T.C. Aile ve Sosyal Politikalar Bakanlığı, Özürlü ve Yaşlı Hizmetleri Genel Müdürlüğü Yayını, Ankara.
- Kavuran, D. & Uslu, A. (2022). Kamusal mekânlarda görme engelli kullanıcılar için erişilebilirliğin değerlendirilmesi: Ankara Batı Adalet Sarayı örneği. *Türkiye Peyzaj Araştırmaları Dergisi*, 5(1), 11–26.

- Koca, D. & Yılmaz, M. (2017). Engelliler için mekân düzenlemelerinde kapsayıcı tasarım. Ankara: Yükseköğretim Kurumu, Ankara.
- Koçan, N. (2020). Bayburt kenti kentsel açık yeşil alan yeterliği üzerine bir araştırma. *Fırat Üniversitesi Fen Bilimleri Dergisi*, 33(1), 21-29.
- Nacar, A. (2021). *Kahramanmaraş kenti yeşil altyapı sisteminin değerlendirilmesi* (Master's Thesis). Kahramanmaraş Sütçü İmam Üniversitesi, Fen Bilimleri Enstitüsü, Kahramanmaraş.
- Olgun, R. (2019). Görme engelliler için kent parklarının erişilebilirliğini arttırmaya yönelik peyzaj tasarım yaklaşımları. *Turkish Journal of Forest Science*, 3(2), 170 – 181.
- Olgun, R. & Yılmaz, T. (2014). Parkların erişilebilirlikleri üzerine bir araştırma: Niğde Kızılelma Parkı örneği. *Orman Fakültesi Dergisi*, 15(1), 48 – 63.
- Özdemir, R. N. (2020). *Fiziksel engelli bireylerin erişilebilirliğinin belirlenmesi ve değerlendirilmesi: Düzce İstanbul caddesi örneği* (Master's Thesis). Düzce Üniversitesi, Fen Bilimleri Enstitüsü, Düzce.
- Özkaya, S. (2022). *Görme engellilerde kent simgesi: Eskişehir örneği* (Master's Thesis). Ankara Üniversitesi, Sosyal Bilimler Enstitüsü, Ankara.
- Pişkin, B. A. (2021). *Bursa ili kent parklarının engelliler tarafından kullanım olanaklarının değerlendirilmesi* (Master's Thesis). Bursa Uludağ Üniversitesi, Fen Bilimleri Enstitüsü, Bursa.
- Spahiu, M. (2014). *Engelliler için kent fiziki mekanının değerlendirilmesi-Kosova örneği* (Master's Thesis). Trakya Üniversitesi, Fen Bilimleri Enstitüsü, Edirne.
- Şahin, F. (2017). *Kentsel tasarımda kent parklarının engelli hareketliliği: Kastamonu örneği* (Master's Thesis). Kastamonu Üniversitesi, Fen Bilimleri Enstitüsü, Kastamonu.
- Şen, E. B. & Öksüz, Ç. (2016). Ankara'daki engelsiz parkların engelli çocukların kullanımına uygunluğunun değerlendirilmesi. *Ergoterapi ve Rehabilitasyon Dergisi*, 4(1), 15 – 26.
- Tandoğan, O. (2021). Kapsayıcı çocuk oyun alanları için tasarım ölçütleri. *Artium Dergisi*, 9(1), 11 – 20.
- Tokaç, D. (2017). *Giresun ilinde engellilerin ulaşım imkanlarının erişilebilirlik açısından incelenmesi* (Master's Thesis). Ondokuz Mayıs Üniversitesi, Fen Bilimleri Enstitüsü, Samsun.
- Tuğluer, M. & Erken, E. (2022). Kentsel açık yeşil alanların engelliler için evrensel standartlar kılavuzu kapsamında değerlendirilmesi: Kahramanmaraş Engelliler Sevgi Parkı örneği. *Turkish Journal of Forest Science*, 6(2), 588-603.
- Ulu Akşit, A., Yücedağ, C., Kaya, L. G. & Aşıkkutlu, H. S. (2020). Burdur kenti açık-yeşil alan potansiyelinin belirlenmesi. *Artvin Çoruh Üniversitesi Orman Fakültesi Dergisi*, 21(2): 284-291.
- United Nations (2006). Convention on the Rights of Persons with Disabilities. Adopted by the sixty-first session of the General Assembly by resolution, A/RES/61/106. Accessed Address (09.10.2024): <https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-rights-persons-disabilities>
- University of Pittsburgh, (2024). What is vision impairment? Accessed Address (09.10.2024): <https://ophthalmology.pitt.edu/vision-impairment/what-vision-impairment>
- Uslu, A. & Shakouri, N. (2014). Kentsel peyzajda engelli/yaşlı birey için bağımsız hareket olanağı ve evrensel tasarım kavramı. *Kastamonu University Journal of Forestry Faculty*, 14(1), 7-14.
- Yıldırım, H. (2014). *Kamu ve özel sektörde hizmet veren kurum ve kuruluş binalarının engelli bireylere uygunluğunun incelenmesi: Elazığ il örneği* (Master's Thesis). İnönü Üniversitesi, Sağlık Bilimleri Enstitüsü, Malatya.