

A Research on Street Design from Public Landscapes; Van (Türkiye) Winter City Example

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Abstract

The aim of this study is to reveal whether the relationship between the city and climate can be directed with a landscape design approach in order to make the use of public open spaces streets attractive and lively in winter months in the winter city example of Van (Turkey). In this context, Cumhuriyet Street and Maraş Street, which are the busiest and oldest streets of the winter city of Van/Turkey, were determined as the study area. In the method, questions of 17 sub-criteria within the scope of 4 main criteria, which are imageability, visual scale, ephemera and complexity, which are effective in urban design, were directed to experts with a survey study. According to the analysis result, "Imageability" and "Complexity" criteria were significantly perceived as "unfavorable" for Cumhuriyet Street. However, "Visual Scale" criterion was also significantly perceived as "unfavorable" for Maraş Street, apart from "Imageability" and "Complexity" criteria. However, in terms of "Ephemera" criterion, the expert's opinion emerged that it was at "Medium" level for both streets. In line with the evaluations made, landscape design proposals were developed by selecting 7 featured areas for the landscape design proposal projects of Cumhuriyet and Maraş Streets, aiming to improve the public landscape in a climate-based, functional and aesthetically compatible way with the winter city in order to increase the quality of urban life.

Keywords: Public open space, urban landscape, winter city, landscape design.

Kamusal Peyzajlardan Caddeler Üzerine Bir Araştırma; Van (Türkiye) Kış Kenti Örneği

Öz

Bu çalışmanın amacı, Van (Türkiye) kış kent örneğinde kamusal açık alanlardan caddelerin kullanımını kış aylarında çekici ve canlı kılmak için kent ve iklim arasındaki ilişkinin peyzaj tasarımı yaklaşımıyla yönlendirilip yönlendirilemeyeceğini ortaya koymaktır. Bu bağlamda kış kenti olan Van/Türkiye'nin en işlek ve en eski caddeleri olan Cumhuriyet Caddesi ve Maraş Caddesi çalışma alanı olarak belirlenmiştir. Yötemde ise kentsel tasarımda etkili olan görsel peyzaj kalite kriterlerinden imgelenebilirlik, görsel ölçek, efemera ve karmaşıklık toplamda 4 ana kriter kapsamında 17 alt kriterin soruları anket çalışmasıyla uzmanlara yöneltilmiştir. Analiz sonucuna göre Cumhuriyet Caddesi için "İmgelenebilirlik" ve "Karmaşıklık" kriterleri önemli derecede "olumsuz" algılanmıştır. Ancak Maraş Caddesi için "İmgelenebilirlik" ve "Karmaşıklık" kriterleri dışında "Görsel Ölçek" kriteri de önemli derecede "olumsuz" algılanmıştır. Bununla birlikte "Efemera" kriteri bağlamında uzman tarafından her iki cadde için de "Orta" düzeyde olduğu görüşü ortaya çıkmıştır. Yapılan değerlendirmeler doğrultusunda kentsel yaşam kalitesinin artırılmasına yönelik kamusal peyzajın iklim temelli, işlevsel ve estetik açıdan kış kentiyle uyumlu olarak iyileştirilmesine yönelik Cumhuriyet ve Maraş Caddeleri peyzaj tasarım öneri projeleri için 7 özellikli alan seçilerek peyzaj tasarım önerileri geliştirilmiştir.

Anahtar kelimeler: Kamusal açık alan, kentsel peyzaj, kış kenti, peyzaj tasarımı.

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1. Introduction

Urban design is an action that should be handled within team discipline as an element of planning with the physical structure of the city, together with the art of creating a place within the city (Çubuk, 2015). In this context, Moughtin (2003) stated that urban design, similar to art and architecture, is the organization of urban spaces in order to organize and protect the environment for economic and social needs. Tveit et al., (2006) define nine basic concepts and visual quality characters to describe the visual aspects of landscape in general and relate quantitative pattern analysis to qualitative landscape preferences. These nine concepts are historicity, consistency, complexity, management, deterioration, visual scale, naturalness, imageability and ephemera.

The growth of urbanization and the cold climate restrict pedestrian mobility in the city (Yılmaz et al., 2021). If the appropriate building materials are selected in multifunctional designs that allow different activities to take place in public open spaces in winter cities, these areas will also be actively used in winter months (Erskine, 1986; Urban Systems, 2000; Yannas, 2001; Bergum & Beaubien, 2009). For example, if more comfortable materials such as wood, polyethylene or metal covered with vinyl are chosen for urban furniture in parks and squares, the use of these spaces will increase in winter (City of Minneapolis, 2011; Pressman, 2015; Pressman, 2016; Tan & Giresun, 2016).

Plant species in winter cities have important roles in determining the livability level of urban areas in terms of aesthetic, ecological and functional characteristics. Open and green spaces also affect air temperature and surface temperatures (Stathopoulou & Cartalis, 2009; Hu & Jia, 2010; Dimoudi & Nikolopoulou, 2003; Johansson & Emmanuel, 2006; Coleman, 2009; Shashua Bar, et al., 2009; St. Clair, 2010; Gencer & Akpınar Külekçi, 2023).

The first quantitative classification of world climate was developed by Wladimir Köppen in 1900 (Kottek et al., 2006). With the development of different classifications since then, modifications based on Köppen's original approach are still one of the most used classifications (Belda et al., 2014). As a result of the research on the study area, the Ministry of Agriculture and Forestry, General Directorate of Meteorology (2018) and Öztürk et al. (2017) it is revealed that Van/Türkiye is in the Dcbo climate class in Climate Type and Climate Characteristics According to Köppen-Trewartha. In this context, Cumhuriyet Street and Maraş Street, which are located in the city center of Van, are one of the oldest streets in Van, have very intense usage and are known by the public, have been examined. In the study; Within the scope of landscape design for public open spaces, within the scope of visual landscape quality criteria, in line with expert opinions, it is the development of suggestions for making the open spaces on these streets attractive in the winter months and revitalizing them. At the same time, it draws attention to the climate-effective design principles that must be followed for public open spaces in winter cities during the urbanization process and reveals alternative landscape design proposals for winter city life quality standards.

2. Material and Method

The main material of this study consists of Cumhuriyet and Maraş streets, which are located in the İpekyolu district and are important streets in the İpekyolu central district of Van (Figure 1).

On Cumhuriyet Avenue, which is approximately 3 km long, there are important structures such as the Tekel building, one of the civil architectural structures of Van's early Republican period, the Government House and the Central Bank from the recent past. Located in the city center of Van, Maraş Street is a street with heavy pedestrian and vehicle traffic and its length is approximately 1.80 km. Since most of the commercial activities in the city are located here and shopping areas are located on this street, it is a public space that serves the city's users.

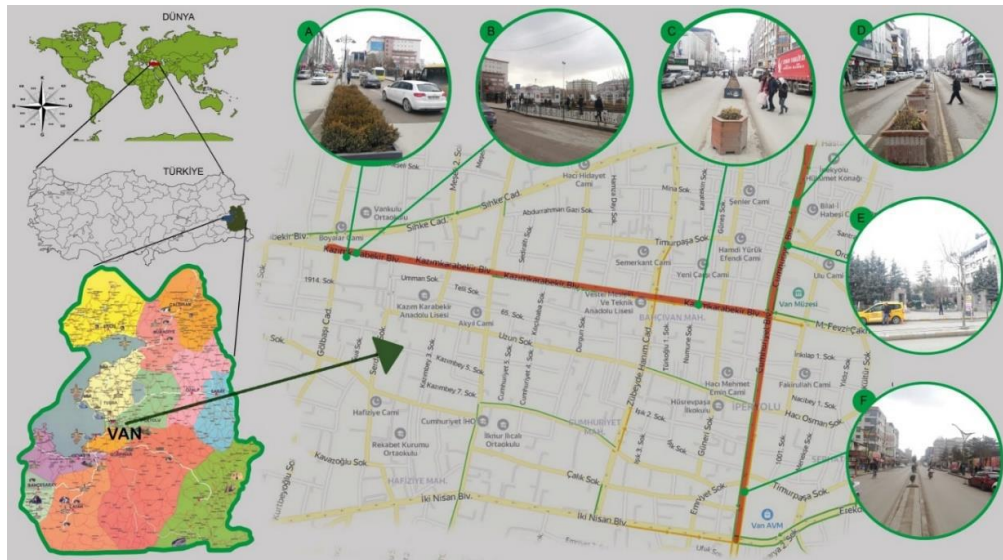


Figure 1. Location of the study area (original)

In laying out the method Hanyu (2002), Ewing (2006), Tveit et al. (2006), Rehan (2013), Hansen (2014); Bereitschaft (2017), Cengiz & Keçecioğlu (2017), Cengiz et al. (2018), and Yazici & Aşur (2021) studies were used. In line with the urban design visual quality criteria, from the relevant occupational groups living in Van; Survey questions were applied to a total of 25 experts, including Landscape Architect (10 persons), Architect (6 persons), City Planner (5 persons), Survey Engineer (4 persons) and so on.

The questionnaires were arranged according to the 5-point Likert scale. Experts made their selection based on a rating between very unfavorable and extremely beautiful with corresponding photos. Questionnaires were conducted via e-mail and oral interviews. The questionnaires were evaluated with Frequency Analysis in SPSS 22 package program. The questionnaire consists of two parts, a total of 22 questions. The first part consists of 5 questions about the demographic structure for experts, and the second part consists of a total of 17 questions about the quality criteria of urban design. In this evaluation, questions of 17 sub-criteria were asked within the scope of 4 main criteria in total: imaginability (5 questions), visual scale (4 questions), ephemera (4 questions) and complexity (4 questions).











3. Findings and Discussion

3.1. Expert Evaluation According to Urban Design Visual Quality Criteria

The survey results of the expert evaluation of the selected photographs for 17 sub-criteria within the scope of the definitions of the urban design quality criteria “Imaginability”, “Ephemera”, “visual scale” and “complexity” are given in this section.









The images related to “Imaginability” of Cumhuriyet Street are given in Table 1. The table includes areas that express an urban area, unique identity or “sense of space”.

Table 1. Images of Cumhuriyet Street according to the "Imaginability" criteria (original)

	1st Section of Cumhuriyet Street	2nd Section of Cumhuriyet Street
Vitality		
Spirit of place		
Structures with identity		
landscape element attribute		
Square, pocket park		

The images related to "Visual Scale" of Cumhuriyet Street are given in Table 2. The table includes areas that reflect visibility and openness experience with perceptual units, visibility dimensions, number of objects that block depth of view, displayed size, potential indicators.

Table 2. Images of Cumhuriyet Street according to the "Visual Scale" criteria (original)

	1st Section of Cumhuriyet Street	2nd Section of Cumhuriyet Street
Openness		
Visibility		
Perspective fields		
Average building height		




The images related to "Ephemera" of Cumhuriyet Street are given in Table 3. The table includes images that reflect short-term effects that contribute to landscape perception in response to landscape changes and seasons and weather conditions throughout the year.

Table 3. Images of Cumhuriyet Street according to the "Ephemera" criteria (original)

	1st Section of Cumhuriyet Street	2nd Section of Cumhuriyet Street
Winter images		
Spring images		
Night images		
Daytime images		

Some images related to "Complexity" of Cumhuriyet Street are given in Table 4. The table provides images of regular complexity or irregular complexity in terms of the number of different visual elements from the area.

Table 4. Images of Cumhuriyet Street according to the "complexity" criteria (original)

	1st Section of Cumhuriyet Street	2nd Section of Cumhuriyet Street
Color harmony of buildings		
Distribution of structures		
Artistic elements		
Harmony of structures		

The visuals related to "Imaginability" of Maraş Street are given in Table 5. The table includes areas that express an urban area, unique identity or "sense of space". The visuals related to "Visual Scale" of Maraş Street are given in Table 6.

Table 5. Images of Maraş Street according to the “Imaginability” criteria (original)









Maraş Street			
Vitality		Spirit of place	
Structures with identity		Landscape elements	
Square, pocket park			

Table 6. Images of Maraş Street according to the “Visual scale” criteria (original)

Maraş Street			
Openness		Visibility	
Perspective fields		Average building height	

The images related to “ephemera” of Maraş Street are given in Table 7. Some images related to “Complexity” of Maraş Street are given in Table 8.

Table 7. Images of Maraş Street according to the "Ephemera" criteria (original)









Maraş Street			
Winter images		Spring images	
Night images		Daytime images	

Table 8. Images of Maraş Street according to the "complexity" sub-criteria (original)

Maraş Street			
Color harmony of buildings		Distribution of structures	
Artistic elements		Harmony of structures	

3.2. Evaluation Results For Cumhuriyet And Maraş Streets

Regarding the expert evaluation of urban design quality criteria, landscape architects participated in the survey at the highest rate with 40%, and survey engineers at the lowest rate with 16%.

-Reviews results for Cumhuriyet Street: One of the sub-criteria of the imaginability criterion for Cumhuriyet Street; According to the answers given in the categories of vitality, spirit of place (Genius loci), adequacy of the number of buildings with an identity on the street, quality of landscape elements, square on the street, pocket park, adequacy of parks, it was evaluated as "unfavorable" with a rate of 41% in terms of imageability. The spirit of place (Genius loci), one of the sub-criteria, was perceived as "moderate" with a high rate of 68%. Likewise, with a high rate of 68%, the adequacy of squares, crossroads, pocket parks and parks on the street were described as "unfavorable" in terms of sub-criteria. One of the sub-criteria of the visual scale criterion for Cumhuriyet Street: openness, visibility, distribution of the areas forming perspective, according to the answers given in the categories of average building height on the street, in terms of visual scale, 43% were evaluated at "moderate" level. In terms of the distribution of the perspective areas, among the sub-criteria, as high as 60% were described as "unfavorable".

According to the answers given in the sub-criteria of the ephemera (temporariness) criterion for Cumhuriyet Street: spring images, winter images, night images, day images, it was evaluated as

"moderate" in terms of Ephemera with a rate of 47%. Among the sub-criteria, Seasonal change: spring images were perceived as "moderate" by 64%. In the scoring made according to the "Night images" sub-criterion among the images for Cumhuriyet Street, the "beautiful" option was marked at the highest rate of 44%.

According to the answers given in the sub-criteria of the complexity criterion for Cumhuriyet Street: color harmony of the buildings in the whole street, distribution of the buildings in the whole street, number of artistic elements, general combination/harmony of the buildings with each other, it was evaluated as "unfavorable" with a rate of 63% in terms of complexity. Among the sub-criteria: distribution of buildings in the whole street, number of artistic elements, and general harmony of buildings with each other, 64% were perceived as "unfavorable".

Review results for Maraş Street: One of the sub-criteria of the imageability criterion for Maraş Street; According to the answers given in the categories of liveliness, spirit of place (Genius loci), adequacy of the number of buildings with identity on the street, quality of landscape elements, adequacy of squares, crossroads, pocket parks and parks on the street, it was evaluated as "unfavorable" with a rate of 58% in terms of imageability. Among the sub-criteria, the adequacy of squares, crossroads, pocket parks and parks on the street was perceived as "unfavorable" with a high rate of 84%. For Maraş Street, the sub-criterion of the imaginability criterion, "vitality", was marked as "moderate" at the highest rate of 40%. At the same time, in the scoring made according to the "spirit of the place" sub-criterion, the "unfavorable" option was marked at the highest rate of 48%.

According to the answers given in the sub-criteria of the visual scale criterion for Maraş Street: openness, visibility, distribution of areas creating perspective, and average building height on the street, it was evaluated as "unfavorable" with a rate of 53% in terms of Visual Scale. Among the visual scale sub-criteria, visibility was perceived as "unfavorable" with a rate of 53%.

According to the answers given in the sub-criteria of the ephemera criterion for Maraş Street: spring images, winter images, night images, day images, it was evaluated as "moderate" in terms of Ephemera with a rate of 41%. Among the sub-criteria, the highest rate was night images perceived as "moderate" with 52%. In the scoring made according to the "winter images" criterion from Maraş Street, the "beautiful" option was marked at the highest rate of 36%. According to the answers given in the sub-criteria of the complexity criterion for Maraş Street: color harmony of the buildings in the whole street, distribution of the buildings in the whole street, Number of artistic elements, general combination/harmony of the buildings with each other, it was evaluated as "unfavorable" with a rate of 57% in terms of complexity. Among the sub-criteria, the highest rate was the number of artistic elements, which was evaluated as "unfavorable" with 76%.

4. Evaluations For Cumhuriyet And Maraş Street Landscape Design

It has been revealed that both streets lack an open public space in the form of a square where people can gather and carry out various social activities. In this context, the lack of streets and social activity areas where street users can gather alienates city people. Designing and implementing the area as a square, which can appeal to the whole city, will be able to meet the needs of city users in this regard. In this sense, if the structural and vegetal design of the square is designed taking into account the winter city design criteria, an area will be provided that will ensure the city user's desire to spend time in the open public area and increase the quality of life during the winter months.

4.1. Expert Opinion Evaluations in The Context of Urban Design Quality Criteria

When expert opinions were evaluated in the context of urban design quality criteria, it was revealed that none of the main criteria "Imageability", "Visual Scale", "Ephemera" and "Complexity" were perceived as very unfavorable, but neither were they perceived as very good. Van winter city landscape design recommendations have been developed in line with the deficiencies that emerged as a result of expert opinion evaluations in the context of urban design visual quality criteria.

For Cumhuriyet Street, the "Imageability" and "Complexity" criteria were perceived significantly poorly. However, for Maraş Street, apart from the "Imageability" and "Complexity" criteria, the "Visual Scale"

criterion was also perceived as significantly "unfavorable". However, in the context of the "Ephemera" criterion, the expert concluded that it was at a "moderate" level for both streets.

It has been revealed that the "Square, Junction, Pocket Parking, Adequacy of Parks" sub-criterion of the imageability criterion is perceived as "unfavorable" at a high rate for Cumhuriyet and Maraş streets. Therefore, the creation of spaces such as squares and pocket parks will play an effective role in eliminating this important deficiency for both streets.

Regarding the complexity criterion; It is meaningful that all of the sub-criteria such as the color harmony of the buildings in the street and the distribution of the buildings, the number of artistic elements, and the general harmony of the buildings with each other are stated as "unfavorable" in the opinion of the experts for both streets.

Since the "Distribution of areas that create perspective" sub-criterion from the visual scales was perceived as "unfavorable" at a high rate for both streets, it became clear that a design should be made to increase this effect positively. Regarding the ephemera criterion, important data was obtained for both streets, such as seasonal changes in "spring images" and "winter images". For this reason, designs aimed at increasing the quality of images in the winter months of Van winter city have led to the designs that will be very effective for the two streets.

4.3. Cumhuriyet And Maraş Street Landscape Design Proposal

In the study, the parks on the street were a factor that guided the design. For this reason, designs related to the City Park, Feqiye Teyran and Art Park in the study area were carried out. The landscape design proposal was made for the following strategies:

- Preservation of the living texture of the landscape on both sides of the streets for four seasons,
- Making a green band arrangement that will separate pedestrian and vehicle paths,
- Including lighting elements with high visual impact on the right and left sides of the streets,
- Using materials that are adapted to cold seasons on pedestrian paths,
- Elimination of negative images on the street by placing appropriate billboards at bus stops.

- **Structural Design Models:** In the study, floor covering, facade covering materials and reinforcement elements were proposed in the context of structural design, taking into account adaptation to Van's cold climate conditions and urban texture (Figure 2 and Figure 3). For these two streets, which do not have sufficient seating units, a series of sculptural seating units and armchairs were designed to provide passers-by with places to rest and gather (Figure 4).



Figure 2. Lighting element design example. Figure 3. Bus stop design example. Figure 4. Example of seating unit and flooring (original).

-**Planting Design:** Equally important is the selection of species that ensure a lively landscape in all seasons in the green strip and median arrangement that will separate pedestrian and vehicle paths on the sidewalks on the street. Ornamental plants that can be used in plant design for Cumhuriyet and Maraş streets are: Deciduous (tree/shrub): *Acer platanoides*, *Acer saccharinum*, *Betula pendula*, *Buxus sempervirens*, *Crataegus orientalis*, *Forsythia intermedia*, *Malus floribunda*, *Cornus alba*, *Cotinus coggygrifera*. And evergreen (tree/shrub): *Abies concolor*, *Pinus sylvestris*, *Thuja occidentalis*, *Picea orientalis*, *Pinus mugo compacta*, *Juniperus oxycedrus*, *Juniperus communis nana*, *Juniperus communis*.

5. Conclusion and Recommendation

Landscape design proposals and 3D visuals were produced for Cumhuriyet and Maraş Streets based on the results of spatial analysis and expert evaluation. 7 featured areas were selected for the landscape design proposal projects of Cumhuriyet and Maraş Avenues. An example design of a square, a pocket park and a landscape unit in selected areas is included. The locations of these 7 areas are presented in Figure 5.



Figure 5. Locations of featured areas selected for landscape design proposals.

Area No. 1: The current status and recommendation visual is presented in Figure 6.



Figure 6. 3d simulation of Maraş Street 1 area (original).

Area No. II: The current status and recommendation visual is presented in Figure 7.



Figure 7. 3d simulation of Maraş Street II area (original).

Area No. III: The current status and recommendation visual is presented in Figure 8.



Figure 8. 3d simulation of the landscape unit of Cumhuriyet Street No. III. (original)

Area No. IV: The current status and recommendation visual is presented in Figure 9.



Figure 9. 3d simulation of Cumhuriyet Street No. IV. (original)

Area No. V: The current status and recommendation visual is presented in Figure 10.



Figure 10. The 3d simulation of Cumhuriyet Street No. V. (original)

Area VI: The current status and recommendation visual is presented in Figure 11. The plan and 3d simulation winter image of the landscape design proposal of Area VI on Cumhuriyet Street is presented in Figure 12.



Figure 11. 3d simulation of the square belonging to Cumhuriyet Street No. VI. (original)

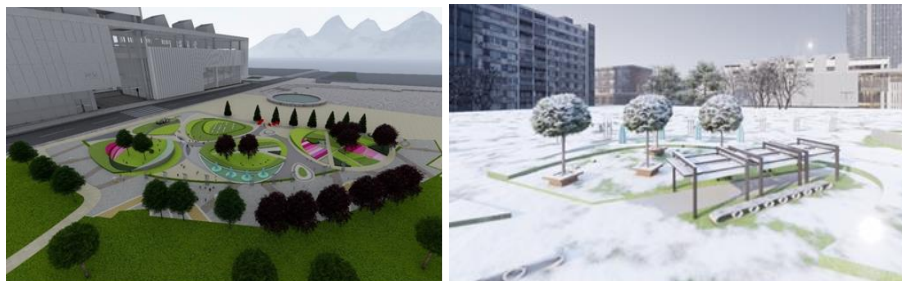


Figure 12. 3d simulation winter image of the square belonging to Cumhuriyet Street No. VI. (original)

Area No. VII: The suggestion visual for the current status of the pocket park and the current status of the empty space in Section 2 of Cumhuriyet Street is given in Figure 13.



Figure 13. 3d simulation of the pocket park belonging to Cumhuriyet Street No. VII. (original)

In line with the results, harmonious structural design models and plant design elements were proposed within the scope of the winter city, and landscape design proposals for 7 featured areas for Cumhuriyet and Maraş Avenues were developed. Among these areas, a landscape design was proposed in the place where the suitability of a square in the city of Van was determined. It is also thought to be a potential solution to the lack of urban open space as a pocket park and a pedestrian stop.

A number of common concepts and results focused in this study are seen in the studies of Alper and Yılmaz (2004). Accordingly, in the winter city of Erzurum, for the correct and purposeful coloring of public landscapes, the use of attractive urban furniture, lighting, traffic lights and signs, building facades and surfaces, green areas, commercial areas, billboards and billboards and all these formations; landscape architects, urban designers, architects and environmental designers, urban furniture designers should be designed in cooperation. In a similar study, Tandoğan and Şişman (2018) emphasized that public spaces designed with the right plant design and compatible with the climate conditions in winter cities will encourage urban users to spend more time outdoors due to their spatial activities and make it possible to provide more livable urban areas. However, Yılmaz et al. (2020) followed a different path in creating public landscapes in their work. In this study, they designed a new indoor landscape area within the scope of Year-round Landscape / Landscape 12 concept, since there are no recreational areas to be used in every period of the year in Erzurum, where winter conditions are difficult. They argued that this area would create an important brand for the city, bring a new breath, serve all regions in the city, provide an important tourism opportunity to the city, and close the city's need for recreation. The methods, findings and design process applied in this study partially overlap with the studies of Özden and Velibryoğlu (2023). They also applied an urban design project by combining objective indicators and subjective perception in their studies in the joint design process. The experimental collaborative urban design process was carried out on a democratic platform based on the participants' tendencies and expectations.

This study constitutes important stages in determining the problems, examining international and national practices, producing appropriate spatial solutions, and landscape design proposals made within the scope of landscape architecture principles. Landscape designs have been developed in line with the principles of sustainability, functionality and increasing visual quality. Thus, it is thought that open public spaces will be more attractive, high quality, livable, social and cultural activities can be done in winter as in other seasons, and will provide vitality.

As a result, this study, which is important for the quality of urban life in winter cities; For regions with similar characteristics, it is thought that the existing public landscapes will be improved in terms of climate-based functional and aesthetic and it will create a base that will increase the quality of life in open public spaces in the region. To get the full payoff for the proposed work on the public landscape, public infrastructure projects need to work year-round, not just for our summer conditions. In this context, the need for local municipalities to prepare urban design guides in this direction also arises. It is also recommended to work on winter design brochures that will be widely distributed to residents to ensure that all city users also understand the benefits of designing for the winter. In this context, the relevant managers and stakeholders in the winter cities will be able to ensure the active use of the open public spaces in these cities in all seasons of the year by complying with the design criteria.

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All authors contributed equally to the article. There is no conflict of interest.

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