Landscape Architecture

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Public-Realm Supports for Long-Stay Heritage Use in Bursa's Historical Core

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Abstract

Historic centers tend to be appreciated due to symbolism and architecture; meanwhile, their regular users interact with them through effort, heat, surface, seating, signposting, landscaping maintenance, and opportunity to stop during the trip. Bursa's historic center is studied as an open corridor combining heritage, business, arrival via transport, and urban routine of Green Tomb, Setbaşı, Heykel, Historical Hans District, Tophane, National Garden, Reşat Oyal Culture Park, and adjacent streets. The data includes 250 users and four indices: Need-Conversion Ordering, Affordance–Demand Imbalance, Neutrality Retention Screening, and Adequacy–Satisfaction Divergence. Satisfaction, adequacy, demand, reliability, demographic, access-mode, duration of stay, and activity data are used in combination to rank public realm support. The prolonged and transit-related nature of use makes the interpretation of results different from planning one. In total, 69.20% of respondents were staying for more than two hours and 44.40% arrived by bus or minibus; therefore, the corridor should be seen in terms of pedestrian connectivity after arrival. The maximum need conversion is provided by green connectivity and rest in the shade (58.28), followed by connectivity and universally available route (52.18). The biggest gap between afforded and demanded features is green connectivity (61.53), followed by accessibility (57.34), and tourism interpretation (50.32). The equipment and maintenance is the index with the highest neutrality retention weight (3.67); meanwhile, comfort and image are indices with the highest adequacy-satisfaction divergence (26.69). Therefore, the historic center of Bursa should be developed first in terms of long-term, walkable, shady, and accessible public realm corridor; meanwhile, interpretive and identity-related efforts will work once this framework is set up.

Keywords: Bursa; historical core; public realm; heritage use; accessibility; shaded rest; green continuity; user satisfaction

1. Introduction

Historic city cores are not simple repositories of conserved buildings. They are environments where cultural memory is experienced through motion, surface texture, shade, resting places, signboards, vegetation, lighting, maintenance, crowding, and opportunities for pausing between destinations [1]. A person may appreciate a monument and yet avoid a route because of the difficult pavement surface, lack of comfortable resting places, discontinuous shade provision, or wayfinding information becoming available too late [2]. This is crucial for the field of landscape

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planning in heritage districts since urban landscape quality is based not only on visual or historic features but also on its ability to satisfy comfort-related needs, access, contact with nature, and opportunities for social interaction [3]. Public realm is not some sort of an add-on to conservation efforts; it is the medium of heritage use by residents, workers, shoppers, tourists, elderly pedestrians, children, and users with various limitations [4].

This is why Bursa is so well-suited for the study since the area under consideration is neither an enclosed heritage precinct nor a single urban park but a living passage where one can find Ottoman historic landmarks, religious buildings, commercial streets, approaches to transportation means, public gardens, cultural institutions, and services. Therefore, the main research question here is not whether the Bursa historic district possesses a heritage identity since it does. Instead, the study tries to answer the question about which public realm characteristics enable this heritage identity to remain available during prolonged use of the corridor. This is an important question since the area's users travel to this place via public transport after which they rely heavily on pedestrian routes, signboards, resting places, vegetation, and other open spaces [5].

International heritage discourse has gradually accepted the idea that historic urban areas are lived places rather than monuments isolated from their environment. Recommendation on the Historic Urban Landscape issued by UNESCO underlines the importance of context, local values, social diversity, and coordination between conservation and urban planning [6]. Similarly, research on the historic urban landscape is concerned with heritage as part of social practice, urban governance, urban transformation processes, and management of tangible and intangible values [7–9]. Conservation area and urban landscape value research reveals that heritage quality is maintained through everyday management, sensory experience, and use rather than conserved fabric [10, 11]. Thus, the case of Bursa heritage shows that elements of landscape such as green edges, route continuity, seating, and maintenance cannot be separated from heritage value.

Everyday heritage research supports this approach as well. Everyday heritage described by Mosler connects historical urban landscapes to place-making and daily movement, while recent research on public space and everyday heritage is concerned with perception of heritage value by adults and children as social value, spatial practice, and ordinary presence [12, 13]. The same type of overlap can be found in the case of Bursa. The historic district is significant because it is not used by people solely as a place of cultural interests but also as a medium of routine movements. A landscape assessment that is concerned only with image misses the point about the way eating, shopping, waiting, and moving keeps this historic center socially alive.

Heritage tourism makes the problem even more obvious. On the one hand, it promotes economic development and visibility of culture. On the other hand, it can favor signs, displays of heritage objects, and images at the expense of accessibility, comfort, and use [14–16]. Research on cultural heritage sustainability and socio-economic impact further shows that heritage investments are more successful if the conservation value is combined with social use, local benefit, and public space quality [17, 18]. In a historic corridor, any form of interpretation is possible only if the users are able to stop, read information boards, and continue walking in a comfortable manner. If cultural markers are positioned on hot, crowded, inaccessible, or poorly maintained edges, they lose their value. Thus, the Bursa data needs to be understood in the light of a relationship between interpretation and use of the site. Tourism interpretation is not questioned but it is dependent on shade, resting facilities, continuous surfaces, and amenity.

The same point is made in public space literature. Good public space is characterized by comfort, inclusivity, safety, sociability, human scale, and repeated use [19–21]. Public spaces contribute to community attachment through repeated contact and presence [22, 23]. Likewise, quality of urban life is linked to pathways involved in travel, leisure, health, emotions, and social relations [24]. These results are relevant because Bursa users do not simply see the historic corridor; they spend there several hours. Prolonged use makes small public realm problems much more important than if users just saw the site briefly.

Green continuity and shaded resting facilities should be considered separately. Green spaces provide health benefits, restoration perception, social cohesion, environmental justice, and opportunities for children and old people when they are accessible and well-maintained [25–30]. Urban resilience research also treats green spaces as a network of public facilities rather than isolated plants [31]. Recent studies conducted in the period after the COVID-19 pandemic show the growing importance of green spaces as part of urban environment rather than amenities [32, 33].

Shade plays an important role in walking behavior: observations show that pedestrians prefer shaded routes under hot weather conditions if shading is provided [34]. Thus, the Bursa data provides a good illustration of the importance of practical interpretation of the need for organization and maintenance of green spaces.

Accessibility is another key element. Universal design research stresses that a place is not accessible only because of some technical element; it becomes accessible if the users are able to move, perceive, reach, and use the place under real conditions [35, 36]. Recent research on inclusive design in built environment expands the point by emphasizing physical, sensory, cognitive, and social accessibility [37, 38]. Disabled access routes and bicycle routes are among the top requested improvements in the Bursa survey. These demands have to be interpreted as corridor-wide requests. Continuous access routes are beneficial for disabled people, elderly, families with children, tourists carrying luggage, and public transport passengers traveling between arrival points and landmarks.

Thus, the research question is straightforward: which elements of the public realm make the historic core of Bursa functional as a heritage corridor, and how satisfaction, adequacy, demand, neutrality, reliability, and group difference characteristics order them? Unlike a general satisfaction research question, it is concerned with the factors that make other values possible. In Bursa case, the answer can be provided based on response distributions, improvement demand, alpha reliability, demographic differences, arrival mode, activity proportions, and stay duration. Four calculations provide such an analysis without distorting the Bursa data. Their goal is to understand what each characteristic means for route continuity, shaded resting, accessible movement, amenity reliability, and interpretation of the Bursa corridor.

2. Bursa corridor and survey evidence

Study area is the historical city center of Bursa, with focus on the connected public realm sequence running through Green Tomb, Setbaşı, Heykel, Historical Hans District, Tophane, National Garden, Reşat Oyal Culture Park, and related streets of cultural, commercial, religious and recreational uses. These places form one planning problem because they are not experienced in isolation. Users travel through slopes, intersections, transit corridors, gardens, resting spots, shop windows, religious buildings and shaded/unshaded stretches. Public realm performance is judged not only by the visual appearance of the landmarks but also by the ease of movement and comfort of the stays.

Corridor in Figure 1 is set up as the basis for the connected reading of the study area. It is used as a setting image based on routes, not as a cadastral map. The three evidence badges point to the scale of the response, importance of bus/minibus arrival and high proportion of users who spent at least two hours in the studied corridor.

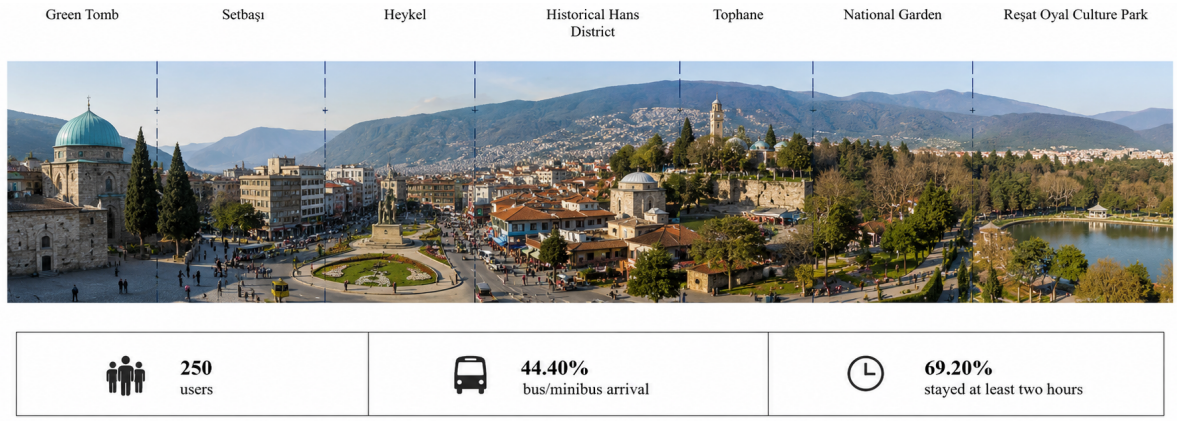

Figure 1. Bursa heritage corridor.

Empirical basis is formed of 250 users of the Bursa Historical City Center Landscape Planning Survey [39]. There is gender balance, 47.60% women and 52.40% men. Dominant age groups are 25-34 years, 33.60%, and 18-24 years, 24.80%. Distribution of education is highly uneven, with graduates of high school 40.00%, and graduates of universities 28.00%. High level of local familiarity, 48.00% of the respondents lived in Bursa for at least 16

years, is significant because long-term users are more attentive to problems with maintenance, discomfort of routes, seasonal weaknesses and deficiencies of public facilities.

Use behavior shows that the studied place is the corridor of prolonged everyday use, not the route of occasional use. Variable day use constitutes 50.40%. Two-to-four hours' stays constitute 38.40%, and stays longer than four hours constitute 30.80% with total long-stay share of 69.20%. Bus or minibus is the main mode of transport, 44.40%; second is private car, 18.40%; third - pedestrian, 13.20%. Main activities are eating and drinking, 15.90%, shopping, 14.30%, walking or passing through, 13.40%. Activities done rarely are painting, 0.50%, bird feeding, 1.40%, sports, 1.40%. It is important because people are staying in the district, but the activity distribution is dominated by the routine occupation and movements rather than by recreation in the landscape.

The presence profile in Figure 2 summarizes the above numbers visually. The central corridor is used by locally familiar and long-staying users who through their everyday practices make public realm comfort into the planning requirement. Low shares of painting, bird feeding and sports show that the landscape has not been yet developed into the strong recreational setting although the users spend time there for quite long period.

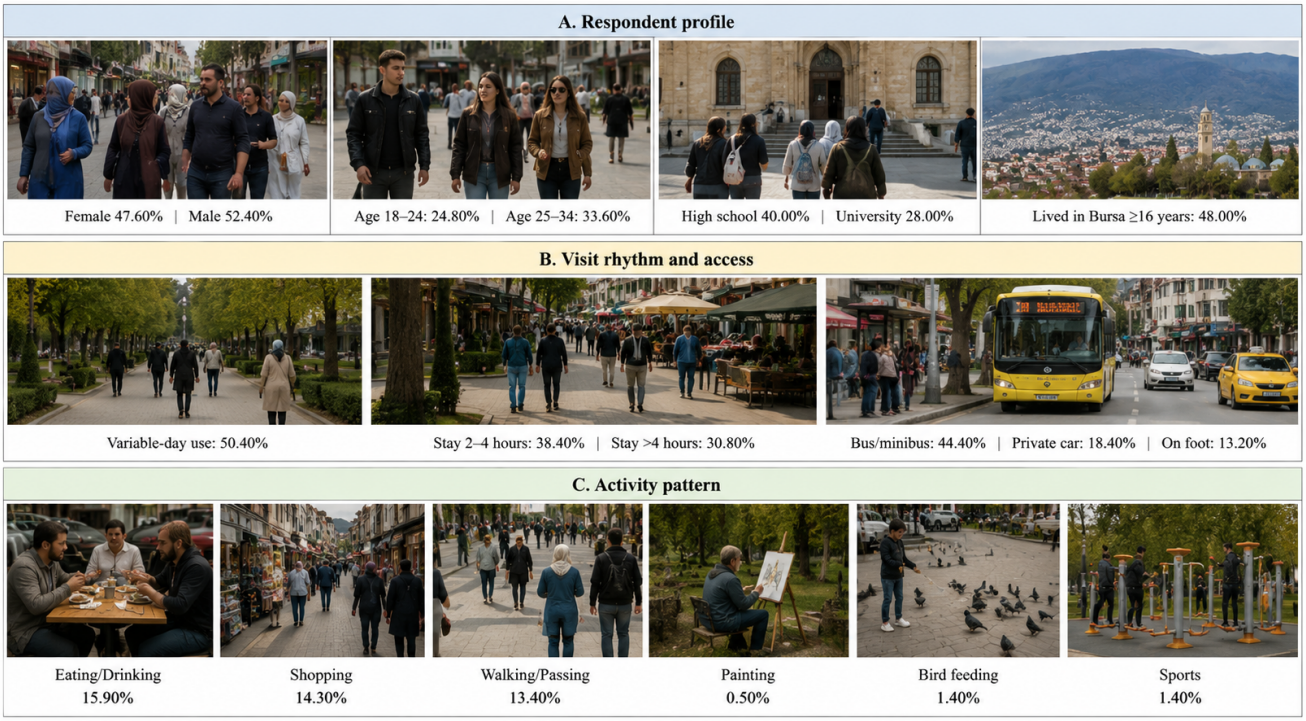

Figure 2. User presence and activity.

Demand for improvements shows the most clear sign of underdeveloped public realm support system. Maintained green areas are the destination for 15.85% of improvement requests. Accessible routes get 15.13%, seating and resting areas 14.17%, bicycle routes 11.04% and living or nonliving landscape materials 10.44%. Demands are closely situated, thus they cannot be considered in isolation. The users ask for a corridor cooler, more accessible, more comfortable for longer stays, easier to pass through and better maintained.

Improvement demand in Figure 3 brings the five leading improvement requests together. The interpretation is straightforward: green maintenance, accessible routes, seating, bicycle access and landscape materials constitute a practically related group. In the historical center this group is culturally significant because it defines the possibility for the visitors and residents to stay long enough to experience the sequence of heritage.

Evidence ledger in Table 1 collects the values on which the calculations are based. The survey is not taken as the exercise in evaluation of general liking. The collected values represent the public realm setting with prolonged stay, public transport arrival, daily activities and strong demands for green areas, access, seating, bicycle access and landscape materials.

Figure 3. Leading improvement demands.

Table 1. Bursa corridor evidence

Evidence group	Bursa value used in the calculation	Percentage or statistic
Gender profile	Female; male respondents	47.60; 52.40
Age profile	Respondents aged 25–34; respondents aged 18–24	33.60; 24.80
Education profile	High school graduates; university graduates	40.00; 28.00
Local familiarity	Respondents living in Bursa for at least 16 years	48.00
Visit duration	Two to four hours; more than four hours	38.40; 30.80
Arrival mode	Bus/minibus; private car; pedestrian access	44.40; 18.40; 13.20
Dominant activities	Eating/drinking; shopping; walking/passing through	15.90; 14.30; 13.40
Low-frequency activities	Painting; bird feeding; sports	0.50; 1.40; 1.40
Highest requested improvements	Organized green areas; disabled access routes; seating/resting areas	15.85; 15.13; 14.17
Additional requested improvements	Bicycle access routes; living/non-living landscape materials	11.04; 10.44
Scale reliability	Satisfaction alpha; adequacy alpha	0.818; 0.874
Strong group signals	Accessibility by age; green satisfaction by stay duration; comfort adequacy by education; equipment adequacy by residence; green adequacy by residence and use day	p = 0.028; 0.026; 0.016; 0.033; 0.004; 0.018
Boundary group signals	Recreation by stay duration; equipment adequacy by education; green adequacy by gender	p = 0.053; 0.057; 0.054

The ledger makes clear the planning level at which the issue needs addressing. With 69.20% long-stay proportion, this implies that the corridor will have to be more than just a place for short viewing. Bus/minibus use at 44.40% implies that transport users will be pedestrians needing routes once off the bus/minibus. Age, education, residency, stay, and use day indicators imply that experience is not homogenous since public realm quality will be perceived differently by users with long stay, with familiarity with the city, or with different accessibility.

3. Analytical procedure

The survey proportions will be fed into the formulae as grouped planning information. In the case of each domain j of satisfaction or adequacy, the five Likert proportions are denoted as p_{j1} to p_{j5}. Proportions of negative, neutral, and positive experiences are defined as

$$N_j = p_{j1} + p_{j2}, \qquad U_j = p_{j3}, \qquad A_j = p_{j4} + p_{j5}.$$

The weighted mean remains useful as a descriptive value:

$$\bar{x}_j = \frac{\sum_{k=1}^{5} k p_{jk}}{100}.$$

Because a historical corridor can appear acceptable in the mean while still carrying unresolved weakness, the analysis calculates response pressure:

$$\Pi_j = 0.85 N_j + 0.65 U_j.$$

The increased weight in case of negative response is due to direct dissatisfaction. Neutral response is also taken into account because the moderateness of judgement in the public environment can also mean partial provision of the facility or even doubt about its efficiency.

Need-Conversion Ordering includes four criteria: response pressure, improvement demand, reliability, and demography. Improvement demand is standardized as

$$Q_d = 100 \frac{e_d}{\max(e)},$$

where e_d is the requested improvement share assigned to planning domain d. Demographic sensitivity is represented by

$$M_d = \sum_{p_i \le 0.06} \frac{0.06 - p_i}{0.06}, \qquad M_d^* = \frac{M_d}{\max(M)}.$$

The 0.06 significance level contains the usual $p < 0.05$ results while allowing near levels to show through if they play a role in influencing caution in decision-making. Values of reliability are computed on the scales as follows: $R_s = 0.818$ in the satisfaction domains, $R_a = 0.874$ in the adequacy domains, and $R_d = 0.846$ in mixed domains. The conversion score formula is

$$C_d = R_d \left(0.65 \bar{\Pi}_d + 0.35 Q_d\right) (1 + 0.10 M_d^*).$$

Large values correspond to domains with higher public-domain action support in the Bursa data set.

The test Affordance–Demand Imbalance examines the relation between the stated improvement demand and positive experience. It can be computed as

$$I_d = Q_d - P_d,$$

where Q_d is the normalized demand and P_d is the positive satisfaction or total positive support ratio for the domain. Positive values mean that users express the need for the affordance more forcefully than their current affirmation. Negative values mean that the users have more positive experience than demand pressure.

Neutrality Retention Screening separates neutral hesitation from explicit dissatisfaction. The calculation is

$$L_j = \frac{U_j}{N_j + 1}.$$

The added one in the denominator ensures that high ratios do not occur in case of low negative response. Scores above 2.00 indicate that neutrality plays an important role in the structure of the distribution. From the public sphere perspective, such neutrality could imply the existence of the facility which is unreliable, its provision varies along the corridor, or people do not have adequate information regarding its adequacy as the provision is inadequate.

Adequacy–Satisfaction Divergence contrasts two corresponding domains of satisfaction and adequacy:

$$D_g = \Pi_g^A - \Pi_g^S.$$

Positive scores show that material adequacy imposes higher pressure than general satisfaction. Negative scores mean that dissatisfaction is more influential than the pressure from paired adequacy. This contrast is relevant for Bursa since its historic atmosphere can be appreciated even if its material adequacy for comfort and long-term presence is low.

The calculation bench in Figure 4 appears before the results to ensure clarity of reasoning. The four calculations are not independent theories but four interpretations of the same Bursa evidence.

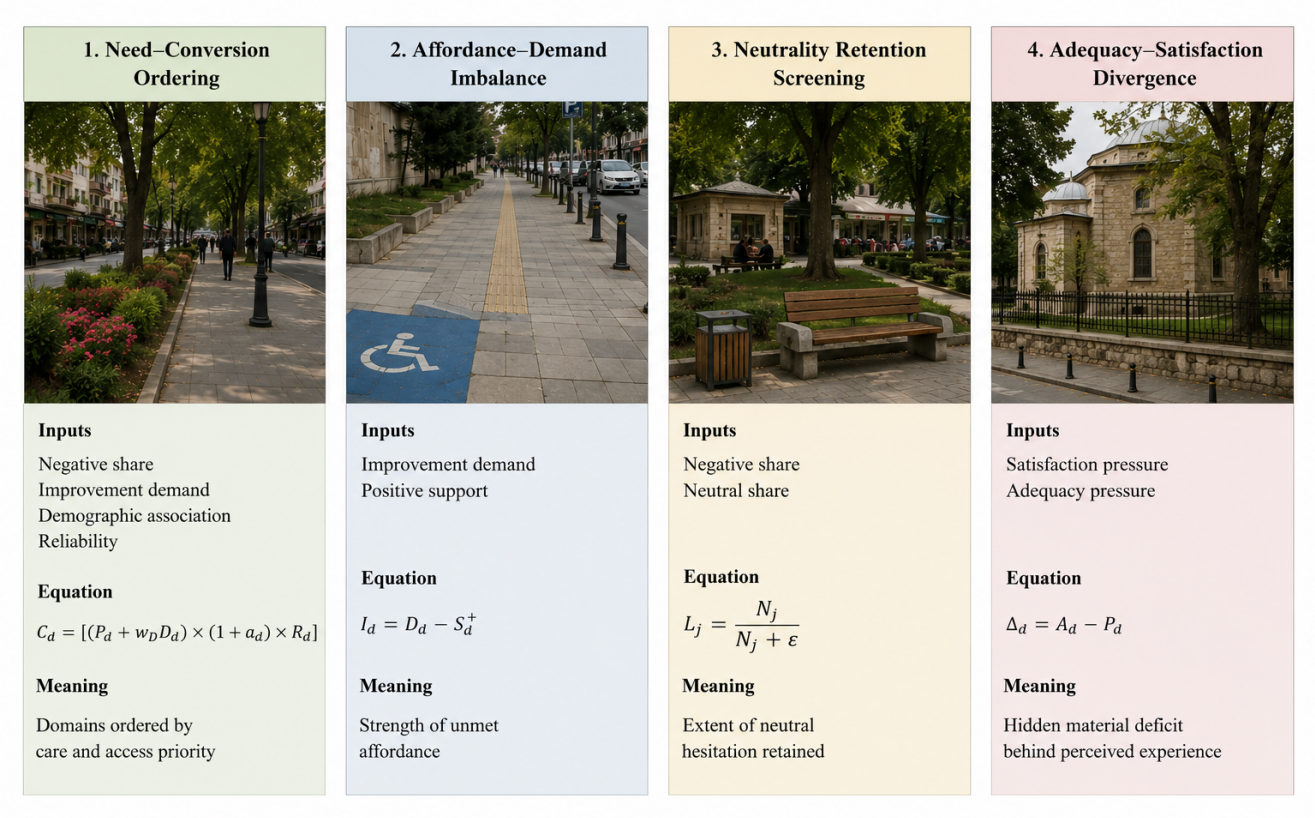

Figure 4. Analytical procedure.

The visual representation will also help avoid one common misunderstanding of user-satisfaction studies. It is possible for a mean to be average while neutral pressure is high, positive image to be strong while physical adequacy is weak, and a high demand category to be more pressing when there is less positive support now. Hence, the interpretation relates every calculation to the specific Bursa corridor and not to self-explanatory formulas [40–44].

4. Results and discussion

4.1. Response pressure and adequacy strain

The first finding is the distinction between the mean response and the distributional pressure. As it can be seen from Table 2, green spaces and living materials have the highest satisfaction pressure of 52.95. Urban equipment and maintenance adequacy has the highest adequacy pressure, which equals to 54.16. Comfort and image adequacy follows with 53.96. These values show that the most important weaknesses are not only emotional dissatisfaction; they also involve material support.

With changed pressure values, interpretations of seemingly moderate means are different. The mean value of accessibility is 3.28; however, 23.98% of negative and 33.37% of neutral responses leave less than half of respondents

to be positive. Similarly, the mean value of urban equipment and maintenance adequacy is 3.07; however, 62.40% of users respond neutrally, and only 21.60% of users positively. Comfort and image satisfaction is positive; it includes 61.51% of positive responses. However, comfort and image adequacy has 28.00% of negative and 46.40% of neutral responses. Thus, historical atmosphere and practical support do not necessarily produce the same outcome.

Table 2. Response pressure

Domain	Mean	Negative	Neutral	Positive	Pressure
Satisfaction					
Comfort and image	3.77	11.26	27.24	61.51	27.27
Sociability and safety	3.18	22.80	41.20	36.00	46.16
Urban equipment and maintenance	3.22	26.83	29.23	43.94	41.80
Recreation and tourism opportunities	3.26	18.80	43.20	38.00	44.06
Accessibility	3.28	23.98	33.37	42.66	42.07
Green spaces and living materials	3.04	25.63	47.95	26.43	52.95
Adequacy					
Comfort and image adequacy	2.98	28.00	46.40	25.60	53.96
Urban equipment and maintenance adequacy	3.07	16.00	62.40	21.60	54.16
Green-space and living-material adequacy	3.17	27.31	33.53	39.16	45.01

Pressure equals $0.85N_j + 0.65U_j$. Minor differences may occur because rounded percentages are used.

Distributional approach (Figure 5) highlights this point. Green-space satisfaction cannot be called low as all users refuse the landscape; it is low since there is a big share of neutral responses and only 26.43% of positive responses. Equipment adequacy can be called even more striking as users actively avoid positive evaluation. For a municipality or a conservation authority, an immediate step would include not only adding elements, but also determining the places where current elements cannot provide continuity, shading, cleaning, accessibility, or seating.

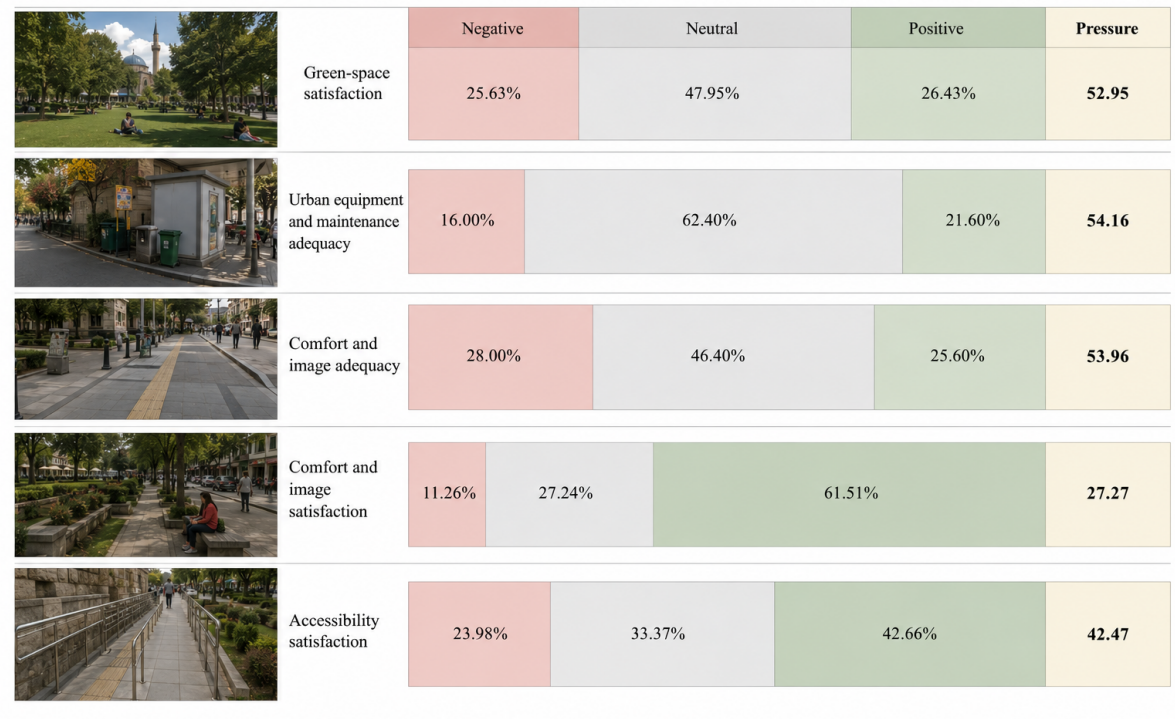

Figure 5. Response pressure.

This observation becomes even sharper when the distributional approach is applied to literature discussion about

public spaces. Quality of public space requires repeated use and trust in the environment [19, 20]. In Bursa, this trust is uneven; users identify the corridor and remain within its borders, but high shares of neutral responses indicate that core components of environment are only partly convincing. It is especially true in the case of long-term users who spend at least two hours in the area; neutral equipment, imperfect green performance, and weak comfort adequacy influence their visits.

4.2. Need-Conversion Ordering

Need-Conversion Ordering shows the domains which provide the highest combined support for public space action. According to Table 3, green continuity and shaded rest come first, 58.28; followed by accessible movement and universal routes, 52.18. Heritage-compatible amenities, 49.20, and tourism interpretation and cultural activities, 48.96, come next. Social comfort and evening safety, 41.57, and place image and belonging, 31.02, follow.

Table 3. Need-Conversion Ordering

Planning domain	Pressure	Demand	Modifier	Score	Reading
Green continuity and shaded rest	48.98	87.96	1.00	58.28	Strongest combined claim for organized green areas, shade, and rest
Accessible movement and universal routes	42.07	100.00	0.23	52.18	High demand and age-sensitive access signal
Heritage-compatible amenities	47.98	73.51	0.22	49.20	Amenity support needed for longer stays and routine use
Tourism interpretation and cultural activity	44.06	88.32	0.05	48.96	Cultural programming depends on stopping and orientation capacity
Social comfort and evening safety	50.06	47.41	0.00	41.57	Moderate demand but sustained pressure in social comfort
Place image and belonging	40.62	26.10	0.32	31.02	Identity is comparatively secure and should not lead the action order

The ordering addresses the practical component of the research question. The first action is not one of symbolic heritage addition; it is the restoration of green continuity and shaded rest. Accessibility comes second because the historical center cannot be used entirely until more people can get through it. Amenities and tourism interpretation come close in scoring but serve different functions. Amenities ensure long-term use; tourism interpretation supports reading of the route by those who can pause and move comfortably on it. Image receives the lowest ranking because positive satisfaction is already comparatively high and the demand pressure is relatively low.

The priority ordering in Figure 6 graphically distinguishes these domains without converting them into independent projects. Green continuity, accessibility, amenities, and tourism interpretation constitute the operative core of the results. Moreover, the order makes it impossible to respond only to the image. Values of the Bursa case do not justify responding to identity enhancement as the primary issue since identity is already positively supported whereas shade, rest, access, and amenities are under higher pressure.

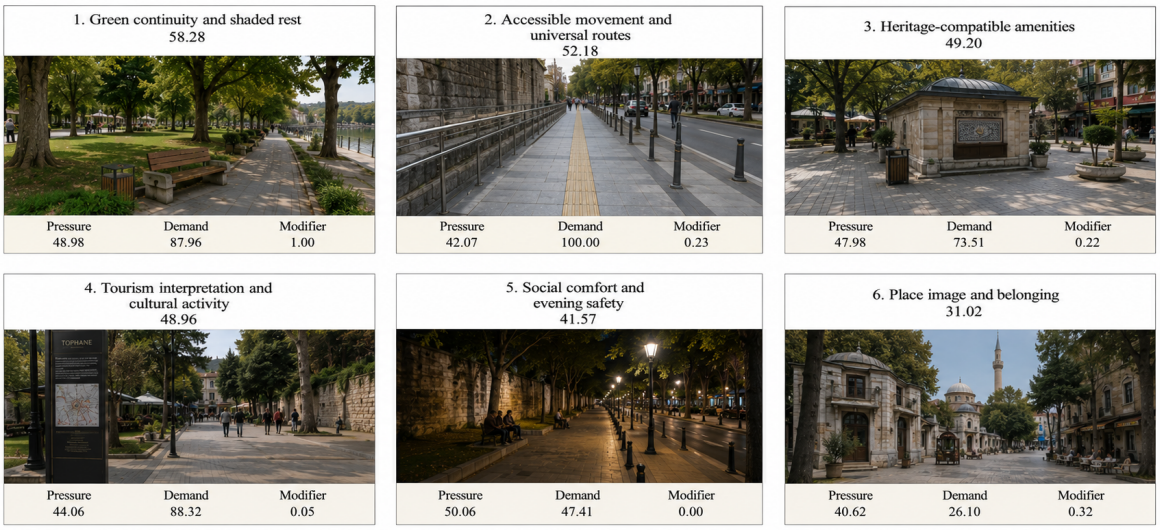

Figure 6. Need-Conversion order.

The ordering corresponds to the literature on green spaces and shade. Green elements have the highest values when they are accessible, maintained, and integrated with movement and stay [26, 34, 45]. Therefore, the leading score in the Bursa case is an indication of the necessity of functional green continuity rather than additional planting. Tree shade, rest areas, plant beds, and paved surfaces must complement each other on the route.

4.3. Affordance-Demand Imbalance

Affordance-Demand Imbalance indicates how the requested support surpasses the current level of positive experience. In Table 4, the largest imbalance is found in green continuity and shaded rest, which amounts to 61.53. Accessible movement and tourism interpretation follow with 57.34 and 50.32, correspondingly. The heritage-compatible amenities account for 40.74. The place image and belonging exhibit the negative imbalance of -35.41 since positive experience exceeds demand pressure.

Table 4. Affordance–Demand Imbalance

Planning domain	Demand	Positive support	Imbalance	Reading
Green continuity and shaded rest	87.96	26.43	61.53	Users request green and shaded support far more strongly than they affirm current provision
Accessible movement and universal routes	100.00	42.66	57.34	Access demand exceeds positive accessibility experience
Tourism interpretation and cultural activity	88.32	38.00	50.32	Cultural activity is desired but not strongly experienced
Heritage-compatible amenities	73.51	32.77	40.74	Furnishing and maintenance remain below demand
Social comfort and evening safety	47.41	36.00	11.41	Moderate unmet support remains
Place image and belonging	26.10	61.51	-35.41	Image satisfaction exceeds demand pressure

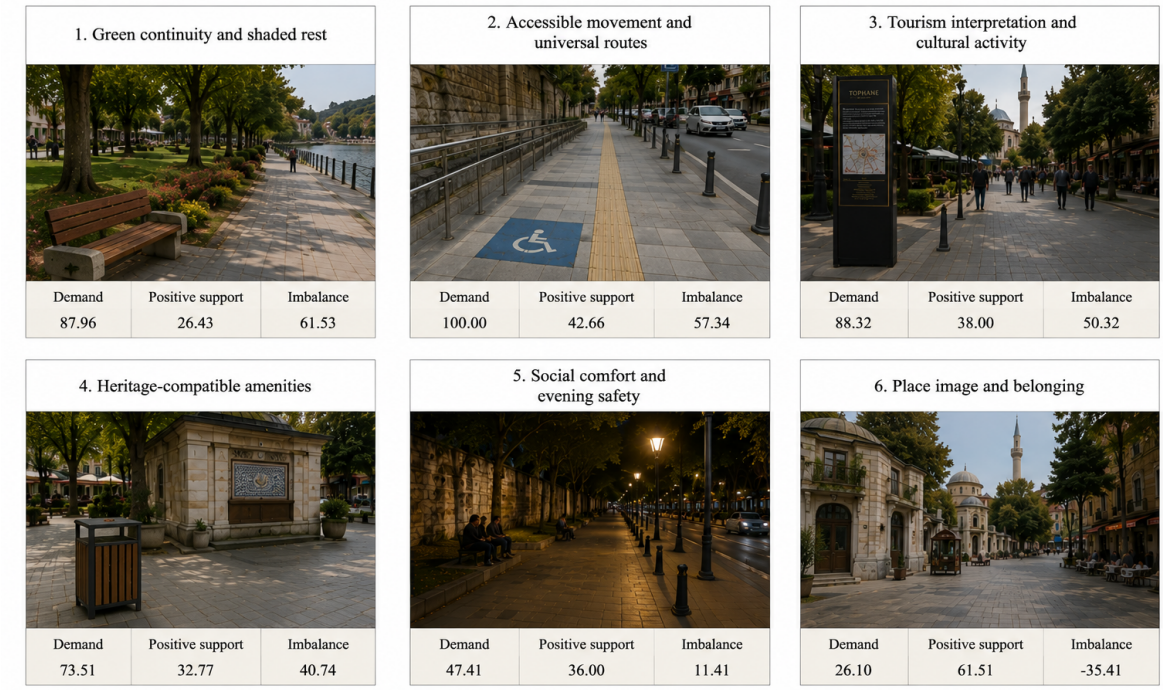

Figure 7. Demand-support imbalance.

Imbalance values reveal what distinguishes Bursa's public-realm order from a general tourism-improvement order. While tourism interpretation imbalance is relatively high, accessibility and green continuity are much higher. Interpretive paths require places for stopping, readable ground, shady resting zones, and pedestrian continuity. In its absence, interpretive panels and other cultural markers become objects of passing-by, but not objects of use.

Figure 7 demonstrates how the unfulfilled support distances help visualize the results. The biggest separations occur where bodily use is crucial: shading, resting, access, and movement. Negative value of the place-image component is equally crucial since it demonstrates that symbolic recognition must be preserved, but it must not take priority over the first step of action, especially if dominant deficiencies are related to the green performance and accessibility of movement.

Moreover, this result also gives a new definition to the concept of heritage tourism. In the literature, the problem of heritage city tourism being too much focused on display and neglecting everyday infrastructure is well-known [14, 15]. Values obtained for Bursa clearly demonstrate this danger. People are interested in interpretation; however, the biggest imbalances reveal that such an interpretation has to be integrated into the comfortable corridor, which is shaded, seated, walkable, and accessible.

4.4. Neutrality Retention Screening

In this method, domains where moderate judgement is prevailing over the explicit negative response are identified. Table 5 reveals that urban equipment and maintenance adequacy have the largest load, 3.67. Comfort and image satisfaction, 2.22, and recreation and tourism satisfaction, 2.18, go beyond the threshold of 2.00. Green-space satisfaction, 1.80, and sociability and safety satisfaction, 1.73, are significant because of their large neutral shares.

Table 5. Neutrality Retention Screening

Domain	Negative	Neutral	Neutral-retention load L_j
Urban equipment and maintenance adequacy	16.00	62.40	3.67
Comfort and image satisfaction	11.26	27.24	2.22
Recreation and tourism satisfaction	18.80	43.20	2.18
Green-space satisfaction	25.63	47.95	1.80
Sociability and safety satisfaction	22.80	41.20	1.73
Comfort and image adequacy	28.00	46.40	1.60
Accessibility satisfaction	23.98	33.37	1.34
Green-space adequacy	27.31	33.53	1.18
Urban equipment and maintenance satisfaction	26.83	29.23	1.05

The high equipment load provides a practical diagnosis. Large neutral shares do not indicate indifference to facilities on the part of the users. They usually signal an uneven layout, acceptable but uncomfortable benches, lack of signs at decision points, presence of bins and/or lighting without constant maintenance, presence of facilities unrelated to waiting or walking paths. In other words, the equipment load should prompt a field check of usability and positioning of the objects rather than just counting how many there are.

The diagram of neutral retention in Figure 8 demonstrates the diagnostic role of the equipment share. Adequacy and maintenance in equipment occupy a special position among the domains studied since neutral assessment is a common reaction pattern. High loads on recreation and tourism satisfaction mean that cultural amenities are seen but not used enough or they are comfortable.

This result makes the problem of maintenance more complex. Public spaces should not only contain the facilities, but also provide a reliable environment, maintenance, positioning and connection with activities [16, 46]. Neutral-retention data in Bursa identify a zone where maintenance is visible enough to eliminate rejection, but unreliable enough to generate satisfaction. This is the reason why amenity enhancement appears as a consolidation step following the restoration of greenery and access.

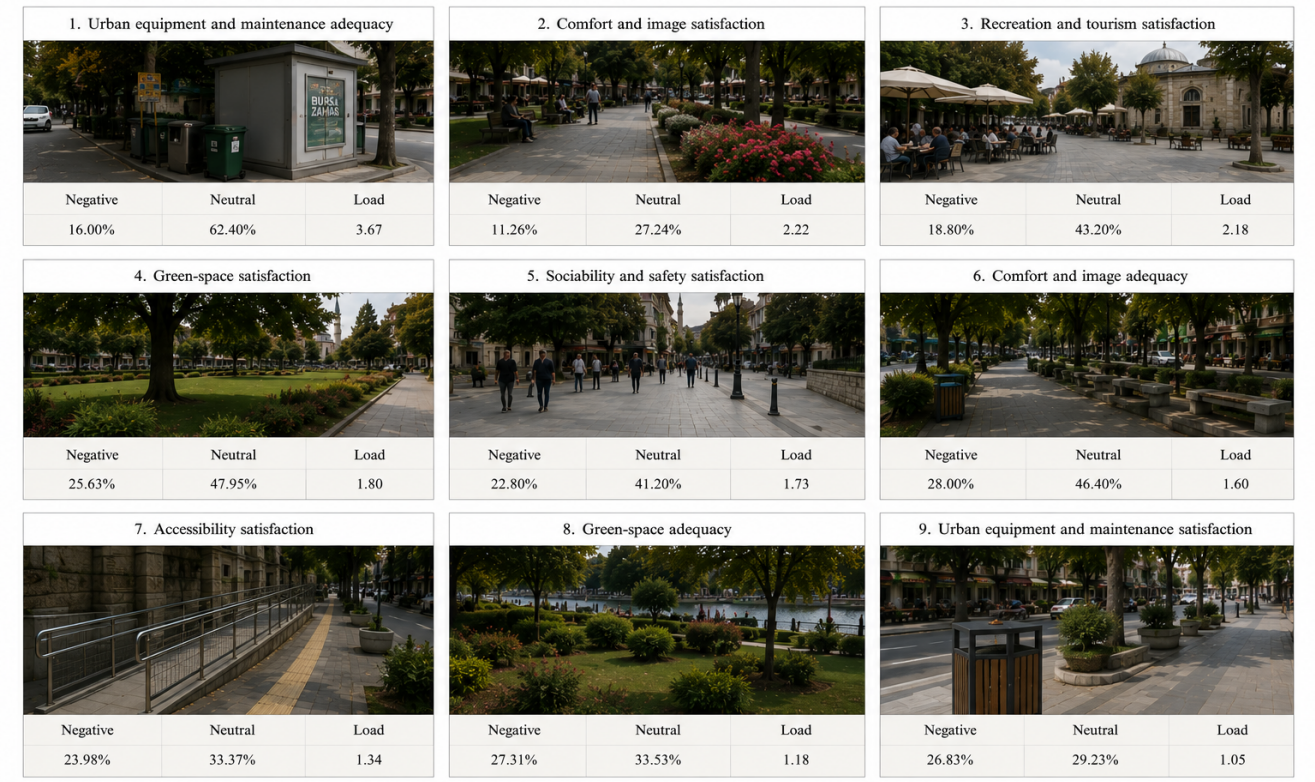

Figure 8. Neutral load.

4.5. Adequacy–Satisfaction Divergence

Adequacy–Satisfaction Divergence (Table 6) identifies what users appreciate about public space as different from what they see as material conditions. The most prominent positive divergence is between comfort and image, 26.69. Urban equipment and maintenance have a smaller positive divergence, 12.36. Green and living space have a negative divergence, -7.94.

Table 6. Adequacy–Satisfaction Divergence

Paired domain	Sat. pressure	Adeq. pressure	Diverg.	Reading
Comfort and image	27.27	53.96	26.69	Historical atmosphere is liked, but bodily support and physical adequacy remain weak
Urban equipment and maintenance	41.80	54.16	12.36	Facilities and maintenance require stronger distribution, upkeep, and usable placement
Green spaces and living materials	52.95	45.01	-7.94	Experiential dissatisfaction exceeds adequacy pressure, pointing to shade, continuity, and care rather than quantity alone

Divergence of comfort and image is the greatest. This fact proves the most convincingly that the historical environment of Bursa must not be equated with comfortable long-term use. Satisfaction with image does not imply satisfaction with seating, shading, route legibility and physical comfort. Adequacy pressure for facilities divergence has a similar meaning. Users can accept visually the existence of facilities, but adequacy pressure means that the distribution and maintenance of facilities is weak.

Mirror view in Figure 9 allows one to see this difference clearly. Comfort and image satisfaction is fairly high, but comfort and image adequacy moves the result in another direction. Relation of green spaces is opposite: experiential dissatisfaction is greater than adequacy pressure, which implies that it is not only the problem of availability of green materials, but their functions of shade, rest, continuity and sensory relief.

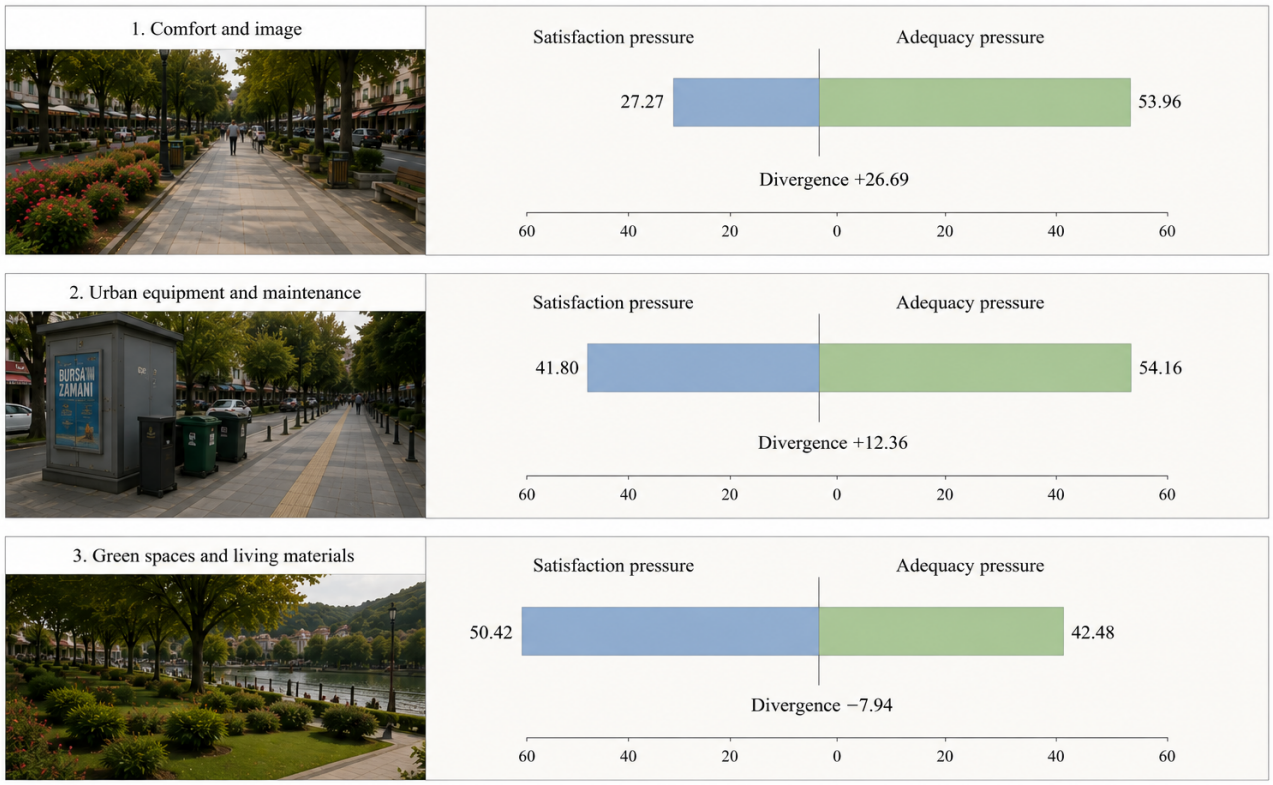

Figure 9. Adequacy-satisfaction divergence.

This divergence is useful for conservation practice. It is possible that the historical corridor looks good visually, but the supports of comfort are weak, and it fails as an inclusive public space. The result supports the material approach to heritage use: pavements, seats, green edges, signs and maintenance routine are the elements of culture since they define whether users have opportunity to stay long enough to learn and enjoy the place.

4.6. Public-realm support order

The last analytical step consists in the combination of the previous findings into the sequence of actions. Four layers are presented in Table 7. They summarize the order generated by the previous calculations and transform Bursa values into a short plan.

Table 7. Public-realm support order

Layer	Evidence basis	Score	Planning reading
Care-and-access repair	Green score 58.28; access score 52.18; imbalance values 61.53 and 57.34	55.23	Establish shade, rest, surface continuity, disabled access, bicycle compatibility, and route legibility as the first public-realm layer
Material support consolidation	Amenities score 49.20; equipment adequacy pressure 54.16; neutral-retention load 3.67	49.20	Improve benches, lighting, bins, signs, water features, maintenance routines, and placement quality in forms compatible with the historical setting
Interpretive activation	Tourism interpretation score 48.96; imbalance 50.32; recreation neutral-retention load 2.18	48.96	Add guide points, cultural markers, and site-specific activity where users can comfortably pause and orient themselves
Identity reinforcement	Place image score 31.02; positive satisfaction 61.51; imbalance -35.41	31.02	Strengthen symbolic continuity through materials, planting, signs, and maintenance after access and care conditions are secure

The first layer is not a beautification scheme. This is the basic infrastructure necessary for visitors that stay for two

or more hours, travel by public transport, navigate between landmarks, and use the corridor in a normal manner for an urban activity. Shade, rest, continuous surfaces, accessibility for disabled people, bicycle friendliness, and clarity of the route will make the heritage corridor physically functional. These interventions should be made mostly at arrival points, slope changes, waiting edges, crossing points, and the areas where the landmarks can be seen and experienced.

The section in Figure 10 illustrates the order in terms of readable public realm sequence. The route surface is on the bottom since there cannot be any other kind of activity without continuity of movement. The functions of shade and rest come next since they turn the movement into a prolonged use. The amenities are consolidating the everyday occupation. And the interpretation and identity reinforcement will become much more valuable if they were put above these supports rather than substituted by them.

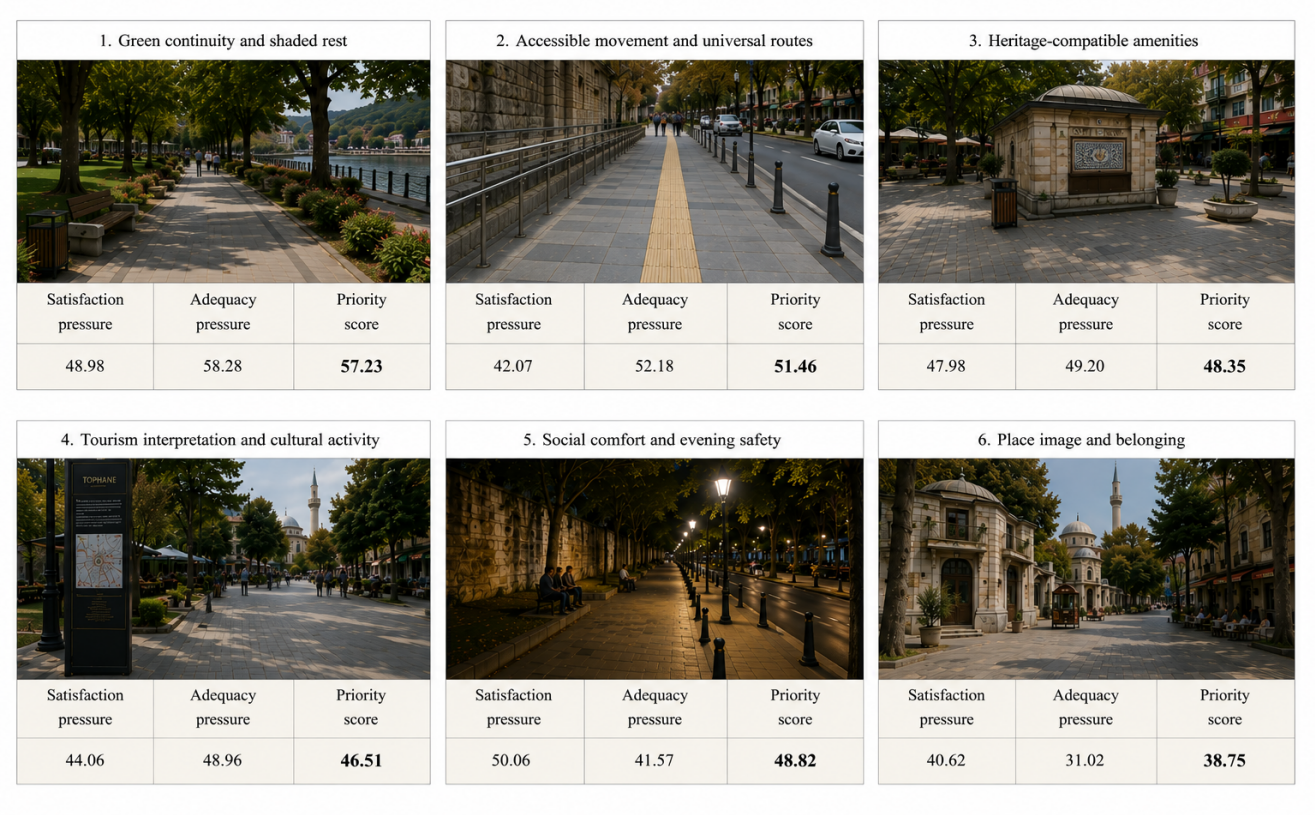

Figure 10. Public-realm support order.

The final product is quite policy-related. The historical core of Bursa needs to be treated as the corridor of prolonged use rather than a chain of decoration nodes. Such sites as Green Tomb, Setbaşı, Heykel, Historical Hans District, Tophane, National Garden, Reşat Oyal Culture Park, and neighboring streets require connected shade, accessible surfaces, rest, signposting, maintenance of the amenities, and cultural markers which are easily observable at the places of user pauses without interrupting the movement. This interpretation gives tourism a stronger basis because it links cultural explanation to the physical capacity to stay.

4.7. Interpretation of integrated results

First of all, the results provide answers to the research question about the importance of public-realm supports for the usability of Bursa's historical core. The first priorities are not the domains with the highest symbolic appeal, but rather the ones that ensure sustained heritage visitation. Green continuity and shaded rest come first due to the fact that they carry the highest Need-Conversion score and highest Affordance–Demand Imbalance. Accessibility comes in third, because public transport arrival and sustained use convert the pedestrian route into a critical heritage domain. Amenities represent a second layer, because the adequacy of equipment and facilities is characterized primarily by neutral response. Tourism interpretation remains important, but the survey places it after comfort and

accessibility of the route. As for the place identity, it is already relatively developed, thus it has to be preserved using compatible material design without undermining the more critical physiological supports.

Second, the results indicate that neutral response has significant planning implications. While equipment and facilities adequacy does not generate negative response, it does not generate positive response either. This is a different sort of deficiency compared to the one caused by dissatisfaction, reflecting partial satisfaction, inconsistent maintenance and questionable usability. A planning program that is based solely on negative response will overlook this problem. Thus, Bursa's example demonstrates that the middle of a Likert scale can reveal where public-realm care is present, but not always reliable.

Third, the results also indicate that public-realm care is provided inequitably. Accessibility is associated with age, green areas with the duration of stay, comfort adequacy with the level of education, equipment adequacy with duration of residence and green areas adequacy with the same factor and use day. This suggests that public-realm care is perceived differently by various user groups and different use cycles. Thus, a corridor that is functional for an occasional visitor may be inconvenient for a long-stay user, an elderly person or a resident who frequently experiences poor maintenance practices. Therefore, beginning with shade, rest and accessibility is an inclusive decision.

5. Implications for planning

The first implication is that Bursa's historical core should be planned as a continuous public-realm corridor. The photos in Figures 1 and 10 demonstrate why it makes sense to connect the primary landmarks through shaded walking surface, rest points, wayfinding aids, maintained planting and accessibility measures. This approach fits the framework of historic urban landscapes theory well because it treats heritage not as isolated elements, but as a living spatial system [6, 8, 9].

Second, public-transport arrival should be considered as a critical heritage issue, since 44.40% of participants used bus or minibus to visit the core. The quality of the route after arrival is an essential heritage issue. Curb continuity, tactile continuity, ramps, crosswalk safety, surface uniformity and rest intervals should be evaluated as a continuous pedestrian experience. Disabled access routes and bicycle routes should be connected to the main paths, along which users come to heritage destinations.

Third, organized green areas, seating and shading materials should be combined together. A tree without seating helps moving around, but does not provide rest. A seating area without shading becomes underutilized during hot periods. Planting that is aesthetically pleasing, but does not have connections to pedestrian path produces weak satisfaction among users. Thus, the priority is not merely adding the vegetation, but creating shaded rest points and maintained green continuity of the corridor.

Fourth, amenities and tourism interpretation should be planned. Benches, bins, signs, lighting, water features and maintenance routines should be placed according to the concentration of behavior along eating and drinking edges, shopping routes, transit approach areas, pedestrian corridors and intervals between landmarks. Cultural markers and wayfinding aids should coincide with these areas of pauses. Interpretation has to assist the user in reading the route between the landmarks, not only identifying them.

6. Conclusion

The primary research question was which public-realm supports are most responsible for making Bursa's historical core a prolonged and transit-linked heritage corridor, and how the survey data order these supports. The answer is particular. The first supports are green continuity, shaded rest and accessibility. Green continuity and shaded rest produce the highest Need-Conversion score of 58.28 and highest Affordance-Demand Imbalance of 61.53. Accessibility yields the second Need-Conversion score of 52.18 and second imbalance of 57.34. These two domains come first because they define whether the users can move through the corridor, spend there several hours and enjoy heritage without feeling fatigue or being excluded.

Second answer concerns the reliability of the public-realm supports. While amenity adequacy has the Need-Conversion score of 49.20, equipment and maintenance adequacy has the highest demand pressure, 54.16, and highest neutral response load, 3.67. This means that the equipment and maintenance are not mere secondary service components. They are the key public-realm supports, making the prolonged use possible. Benches, lighting, bins, signs, water features and maintenance practices have to be planned as an interconnected system of supports.

Tourism interpretation has to follow, not precede the first repairs, since its score, 48.96, and imbalance, 50.32, reflect the real demand, but the interpretation will become more effective when the users have shaded rest areas, accessible surfaces and adequate amenities for waiting and navigation. The place image and belonging have to be reinforced gradually, yet its lower score of 31.02 and negative imbalance, -35.41, suggest that image-focused investments will not address the primary user needs. Bursa's historical core already has cultural recognition, it lacks more tangible supports for it.

Therefore, Bursa's historical core should be upgraded to the long-stay heritage corridor of shade, accessibility, rest and maintained material support. This is not a general call for better public spaces. It follows from the particular Bursa case: 250 users, 69.20% of them staying for at least two hours, 44.40% arriving by bus or minibus, highest demand for organized green areas and disabled access routes, high equipment neutrality and strong comfort-image adequacy divergence. Landscape planning becomes a practical condition for heritage experience, allowing the cultural value to be perceived by more people for longer time and with higher dignity.

References

[1] Gambaro, M., Bolici, R., & Giordano, C. F. (2017). The regaining of public spaces to enhance the historic urban landscape. The Journal of Public Space, 2(1), 45-56.

[2] Nag, D., Bhaduri, E., Kumar, G. P., & Goswami, A. K. (2020). Assessment of relationships between user satisfaction, physical environment, and user behaviour in pedestrian infrastructure. Transportation Research Procedia, 48, 2343-2363.

[3] Matsuoka, R. H., & Kaplan, R. (2008). People needs in the urban landscape: analysis of landscape and urban planning contributions. Landscape and Urban Planning, 84(1), 7-19.

[4] Mamì, A. (2024). Inclusiveness of Public Space: Experimental Approaches for the Revitalisation of Smaller Historic Urban Centres. Sustainability, 16(8), 3320.

[5] Tüzel, F., & Pirselimoğlu Batman, Z. (2025). User satisfaction-based landscape planning in historical city centers: Bursa-Turkey. Humanities and Social Sciences Communications, 12(1), 1-17.

[6] UNESCO, W. (2011, November). Recommendation on the historic urban landscape. In Proceedings of the records of the general conference 36th session. UNESCO.

[7] Veldpaus, L., Pereira Roders, A. R., & Colenbrander, B. J. (2013). Urban heritage: putting the past into the future. The Historic Environment: Policy & Practice, 4(1), 3-18.

[8] Ginzarly, M., Houbart, C., & Teller, J. (2019). The Historic Urban Landscape approach to urban management: a systematic review. International Journal of Heritage Studies, 25(10), 999-1019.

[9] Rodwell, D. (2018). The historic urban landscape and the geography of urban heritage. The Historic Environment: Policy & Practice, 9(3-4), 180-206.

[10] Pendlebury, J., Short, M., & While, A. (2009). Urban World Heritage Sites and the problem of authenticity. Cities, 26(6), 349-358.

[11] Tweed, C., & Sutherland, M. (2007). Built cultural heritage and sustainable urban development. Landscape and Urban Planning, 83(1), 62-69.

[12] Mosler, S. (2019). Everyday heritage concept as an approach to place-making process in the urban landscape. Journal of Urban Design, 24(5), 778-793.

[13] Ginzarly, M., El Khoury, R., & Srour, F. J. (2024). Public space and everyday heritage: An inquiry into children's and adults' perception. City, Culture and Society, 38, 100594.

[14] Nasser, N. (2003). Planning for urban heritage places: reconciling conservation, tourism, and sustainable development. Journal of Planning Literature, 17(4), 467-479.

[15] Russo, A. P. (2002). The "vicious circle" of tourism development in heritage cities. Annals of tourism research, 29(1), 165-182.

[16] Sepe, M. (2021). Covid-19 pandemic and public spaces: improving quality and flexibility for healthier places. Urban Design International, 26(2), 159-173.

[17] Guzmán, P. C., Roders, A. P., & Colenbrander, B. J. F. (2017). Measuring links between cultural heritage management and sustainable urban development: An overview of global monitoring tools. Cities, 60, 192-201.

[18] Nocca, F. (2017). The role of cultural heritage in sustainable development: Multidimensional indicators as decision-making tool. Sustainability, 9(10), 1882.

[19] Carmona, M. (2019). Principles for public space design, planning to do better. Urban Design International, 24(1), 47-59.

[20] Mehta, V. (2014). Evaluating public space. Journal of Urban Design, 19(1), 53-88.

[21] Ewing, R., & Handy, S. (2009). Measuring the unmeasurable: Urban design qualities related to walkability. Journal of Urban Design, 14(1), 65-84.

[22] Francis, J., Giles-Corti, B., Wood, L., & Knuiman, M. (2012). Creating sense of community: The role of public space. Journal of Environmental Psychology, 32(4), 401-409.

[23] Ujang, N. (2012). Place attachment and continuity of urban place identity. Procedia-Social and Behavioral Sciences, 49, 156-167.

[24] Mouratidis, K. (2021). Urban planning and quality of life: A review of pathways linking the built environment to subjective well-being. Cities, 115, 103229.

[25] Grahn, P., & Stigsdotter, U. K. (2010). The relation between perceived sensory dimensions of urban green space and stress restoration. Landscape and Urban Planning, 94(3-4), 264-275.

[26] Markevych, I., Schoierer, J., Hartig, T., Chudnovsky, A., Hystad, P., Dzhambov, A. M., ... & Fuertes, E. (2017). Exploring pathways linking greenspace to health: Theoretical and methodological guidance. Environmental Research, 158, 301-317.

[27] Wolch, J. R., Byrne, J., & Newell, J. P. (2014). Urban green space, public health, and environmental justice: The challenge of making cities 'just green enough'. Landscape and Urban Planning, 125, 234-244.

[28] Rigolon, A. (2016). A complex landscape of inequity in access to urban parks: A literature review. Landscape and Urban Planning, 153, 160-169.

[29] Kabisch, N., van den Bosch, M., & Lafortezza, R. (2017). The health benefits of nature-based solutions to urbanization challenges for children and the elderly–A systematic review. Environmental Research, 159, 362-373.

[30] Jennings, V., & Bamkole, O. (2019). The relationship between social cohesion and urban green space: An avenue for health promotion. International Journal of Environmental Research and Public Health, 16(3), 452.

[31] Ugolini, F., Massetti, L., Calaza-Martínez, P., Cariñanos, P., Dobbs, C., Ostoić, S. K., ... & Sanesi, G. (2020). Effects of the COVID-19 pandemic on the use and perceptions of urban green space: An international exploratory study. Urban Rorestry & Urban Greening, 56, 126888.

[32] Venter, Z. S., Barton, D. N., Gundersen, V., Figari, H., & Nowell, M. (2020). Urban nature in a time of crisis: recreational use of green space increases during the COVID-19 outbreak in Oslo, Norway. Environmental Research Letters, 15(10), 104075.

[33] Sikorska, D., Wojnowska-Heciak, M., Heciak, J., Bukowska, J., Łaszkiewicz, E., Hopkins, R. J., & Sikorski, P. (2023). Rethinking urban green spaces for urban resilience. Do green spaces need adaptation to meet public post-covid expectations?. Urban Forestry & Urban Greening, 80, 127838.

[34] Levenson, M., Pearlmutter, D., & Aleksandrowicz, O. (2025). An observational analysis of shade-related pedestrian activity. Buildings & Cities, 6(1).

[35] Iwarsson, S., & Ståhl, A. (2003). Accessibility, usability and universal design—positioning and definition of concepts describing person-environment relationships. Disability and Rehabilitation, 25(2), 57-66.

[36] Lid, I. M. (2014). Universal design and disability: An interdisciplinary perspective. Disability and Rehabilitation, 36(16), 1344-1349.

[37] Zallio, M., & Clarkson, P. J. (2021). Inclusion, diversity, equity and accessibility in the built environment: A study of architectural design practice. Building and Environment, 206, 108352.

[38] Gupta, A., Yadav, M., & Nayak, B. K. (2025). A systematic literature review on inclusive public open spaces: Accessibility standards and universal design principles. Urban Science, 9(6), 181.

[39] Tüzel, F., & Pirselimoğlu Batman, Z. (2025). User satisfaction-based landscape planning in historical city centers: Bursa-Turkey. Humanities and Social Sciences Communications, 12(1), 1-17.

[40] Jamieson, S. (2004). Likert scales: How to (ab) use them?. Medical Education, 38(12), 1217-1218.

[41] Norman, G. (2010). Likert scales, levels of measurement and the "laws" of statistics. Advances in Health Sciences Education, 15(5), 625-632.

[42] Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. International Journal of Medical Education, 2, 53.

[43] Munda, G. (2004). Social multi-criteria evaluation: Methodological foundations and operational consequences. European Journal of Operational Research, 158(3), 662-677.

[44] Cinelli, M., Coles, S. R., & Kirwan, K. (2014). Analysis of the potentials of multi criteria decision analysis methods to conduct sustainability assessment. Ecological Indicators, 46, 138-148.

[45] Taylor, L., & Hochuli, D. F. (2017). Defining greenspace: Multiple uses across multiple disciplines. Landscape and Urban Planning, 158, 25-38.

[46] Habitat, U. (2025). Healthier Cities and Communities Through Public Spaces. UN Habitat: Nairobi, Kenya.