



# Completely Accessibility Solutions for Historical Building and Areas in the Multi-Layered City Center of Sivas

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## Abstract

The study's major objective is to demonstrate that historical structures and locations are completely accessible to all people. While the required architectural modifications are performed in historic buildings and locations, they are intended to provide suitable solutions for everyone, not just a particular impaired group. The goal is to identify architectural alternatives that can be quickly implemented while preserving the original values. Individual and in-depth interviews with people with disabilities were done using questionnaire, interview and observational procedures. Successful examples from across the globe were scanned using scanning and descriptive techniques and project data were then examined and compared. The connected, comfortable, convenient, convivial, and prominent (5C) characteristics from the LPAC London Strategy were taken into account in Sivas city's monitoring and spatial analytic methodologies. Projects for architectural applications were created and technical data and solution suggestions were given using the original methodology while maintaining the integrity of the architectural language. It was shown that enhancing the accessibility of historical structures and locations has an impact on how many handicapped people participate in cultural events. Making historical structures and locations completely accessible would enhance the city's identity. The historical structure and setting are more accessible thanks to thoughtful and appropriate design arrangements. The architectural modifications necessary to enable complete accessibility may also be done to old structures and locations. Without compromising the texture, it is feasible to make historical and protected buildings accessible. The discussion environment, physical interference sensitivities in registered monuments, consideration of the needs of numerous different disability groups in the design of architectural arrangements, difficulties in correctly and effectively communicating with disabled people, and ethical sensitivities all contribute to the study's limitations. The research influenced designers to raise awareness of the need to make our surroundings more accessible. Additionally, field research was done in five particular Sivas buildings with people who are orthopedically, visually, or both. And as a result, the ability to build user-oriented solutions has been established. The unique significance of the research lies in its richness in addressing the concerns of appropriate intervention to registered structures while simultaneously taking into account the balance of preservation and usage in historical buildings and places with the topic of universal design. The research is also a thorough paper on the subject of duties resulting from legal requirements. It may be the first study in the literature to thoroughly examine architectural choices made to promote future research by increasing awareness of the accessibility of historic sites and structures.

**Keywords:** Accessibility, Universal design, Historical building and areas, Disability rights.

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## INTRODUCTION

The average life expectancy of individuals has improved recently, along with technical advancements, as a consequence of successful medical research. Due to this circumstance, there are now older individuals overall, which has led to a rise in the prevalence of the age-related disabilities. According to study conducted by the UN Department of Economic and Social Relations in 2019, 12% of the world's population is already old, with that number expected to rise to 35% by 2050. (United Nations Department of Economic and Social Affairs, 2019). According to research done in our nation in 2020 by the Turkish Statistical Institute (TSI), the number of persons 65 and older—those who are deemed to be part of the senior population—rose by 22.5% over the previous five years, from 6,495,239 in 2015 to 7,953,555 in 2020. From 8.2% in 2015 to 9.5% in 2020, the old population's share of the overall population grew (TÜİK, 2020). In accordance with universal design principles, architectural arrangements for everyone have the potential to improve the quality of life for various handicap groups, who make up a significant portion of society according to the study. The arrangements for everyone will fulfill the demands of a sizable portion of society when taking into account the handicapped people and their families who are battling with them against the challenges present in the environment we live in.

According to the European Urban Charter, everyone has the right to freely and independently visit any area of the city in social life, regardless of their age, race, or physical or mental health. Persons with physical limitations have different demands from those of people without them when it comes to participating in urban life. It has been noted that people whose movement is limited as a result of a congenital condition or later handicap scenario tend to separate themselves from social life owing to the constraints of their living environment and inappropriate and insufficient behaviours. All people should be able to leave their houses alone and enjoy time outside equally and freely in order to participate fully in all aspects of public life. This will help us attain equality. Making the notion of "accessibility," which is one of the basic rights of every person in urban life, appropriate for the setting in which we live, is the first step in this context. It is seen a social ethical need as well as a legal requirement to apply architectural principles that allow all people, regardless of disability, to freely access any building or area of the city they want without help (Lee, 2005; Pothier, 2006).

Architectural practices that will enable people with disabilities to live with equal rights and standards in the context of participation in social life and daily life like everyone else have been made legal requirements with the "Number of 5378 Law on the Disabled" which entered into force in Turkey as of July 1, 2005. Even while the current rules are binding, it is nonetheless evident that our nation has not yet implemented punishments at the necessary degree.

The research focuses on Turkey's historical structures and locations that have accessibility issues. In our nation, public institutions are required by law to provide accessibility to public buildings within the parameters of the "Number of 5378 Law on the Disabled". This commitment also includes the need to conserve fields and cultural treasures. For those with impairments, accessibility to historic structures and locations is crucial. The topic of cultural and athletic events should be taken into account by those in charge of making decisions on how to improve the lives of those with disabilities.

## LITERATURE REVIEW

The study (Foster, 2004) emphasizes a special accessibility process for historical buildings, also contributes to the literature in terms of drawing attention to cost and legal processes. It argues that standard solutions are not possible when making historic buildings more accessible. Successful access plans differ in scope and approach. Also each structure needs special solutions resulting from its own special situation. It was examined through The M Certificate and the British 8300 Standard, which was guided by the standards but could not offer solutions. Other study (Braganca et. al., 2006) try to be expanded through different problems. Comparison and cost analysis ideas are noteworthy. Researchers examine the Guimaraes region of Portugal, which stands out for its long history. The historic site, which was awarded a Unesco World Heritage Site in 2001, is aimed at improving accessibility. In the study, user needs were determined and comparisons were made on two alternatives.

Plimmer and his friends attempted to determine a mental framework on the balance of conservation use of historical buildings (Plimmer et. al., 2006). Since 2004, cultural heritage sensitivities have emerged in ensuring the accessibility of legally guaranteed historic buildings in the United Kingdom. Although the accessibility of historical buildings is legally mandatory, the practical dimension of its possibility is questioned and it is significant that a framework of discussion is drawn up in order to deepen the issue.

Other research (Eric and Gardner, 2008), discusses the accessibility of cultural heritage buildings under the American Equal Opportunity Act and the Federal Disability Discrimination Act (DDA). Within the scope of the universal design, it is noted that strollers, couriers and furniture carriers, parents with children and people with disabilities will benefit from the regulations. In a similar study for a different region, the plan can be made more comprehensive by examining the section, perspective images and material details.

It is based on a guide prepared by the University of Teselya within the scope of the Cultural and Heritage Added Value to Regional Policies project for Tourism Sustainability in (Deffner et. al., 2015). Accessibility to cultural heritage is examined in three major headings; Physical accessibility, perceptual accessibility, and appropriate accessibility resulting from blending.

The research (Ask, 2015), examines that universal design in six major headings. Issues such as knowledge and expertise, building and construction, open spaces, outdoor recreation and cultural heritage areas, information and communication technology, transportation, business, industry and innovation in tourism are questioned together with the idea of universal design.

Other study (Srinurak et. al., 2016) conducts in the historic Chiang Mai region in northern Thailand. The aim of the study is to identify problems by conducting investigations in the context of accessibility and evacuation of the historical site in case of any disaster. With the Space Syntax method, the labyrinthine structure of the historical region was revealed and ideas on accessibility were developed.

Strategies for bringing disabled tourists to the country are examined within the scope of tourism, which has been identified as the sixth highest economic input of Malaysia's economy researches in (Zahari et. al., 2016). It is on the importance of evaluating Malaysia's cultural heritage

structures in the context of accessible tourism. The study mentions that restorations to make historic cities accessible in Northern Italy have not been carried out (Pretto, 2019). It is also revealed that it is possible to make the necessary architectural arrangements in a very short time and at cheap costs. Lynch and Proverbs discusses alternative accessibility solutions for situations where physical access is considered unreasonable. It develops a conceptual framework by showing that making historical structures accessible is complex and challenging (Lynch, 2019). It proposes to challenge arguments for preserving the historical texture and concludes that historic buildings exclude people with disabilities in (Diehl, 2022). Following the revised relationship between historical structure and accessibility, it aims to conceptualize historical structures as places of interesting experience for all. The paper is based on qualitative research conducted in Trento, a former Italian city. This study contains findings that norms and regulations related to conservation always prevail over regulations related to accessibility (Pretto, 2022).

## **THEORETIC FRAMEWORK: UNIVERSAL DESIGN WITHIN THE SETTING OF ARCHITECTURAL PROTECTION**

### **Arguments for preserving historic sites and issues with preservation**

Kevin Lynch attributes the significance of the historical environment that serves as the record of past life in public life in general to the fact that the adjunct circles in question enable people to look to the future in a secure manner and provide justifications for the continuation of life in his work on the place of historical process in the life of societies (Lynch, 1960). Historical structures provide environmental benefits, but they also directly shape how cities remember themselves. The idea of protection is a multifaceted phenomenon with a complicated structure made up of several diverse elements. With elements like purpose, technique, legislation, regulation, and application present everywhere in the globe, this phenomenon is becoming a more self-contained structure that is expanding. Preservation of cultural heritage does not include leaving the environment or building alone. It necessitates incorporating old sites and structures into modern life. He makes the case that it is feasible to exploit the potential of historical circles and to contribute to the urban life in which they are situated while outlining an active conservation of Akçura while assuring the long-term durability of cultural assets (Akçura, 1978). In this perspective, accessibility is one of the fundamental requirements for an active conservation philosophy.

The degree to which historical structures and places of civilizations are protected is a significant indicator of the level of progress. The founding of many cities was also heavily influenced by the historical structures and locations that play a key part in defining the original and genuine qualities of the city. Kuban clarified the requirements for claiming history; he describes the preservation of universal values—which bind individuals to the past and help them build their cultural identities—as a duty incumbent on civilized society (Kuban, 1998). A culture is seen as more civilized and advanced the more it works to

preserve and pass on the architectural artefacts and goods created by earlier civilizations (Tapan, 1995). Conservation serves as a planning principle as well as a way of thinking that reflects humanity's progress and degree of development. In this subject, the topic of how to safeguard what is debated together with the need for intellectual accumulation, learning, and research (Günay, 2007). A building or place must meet certain criteria in order to be deemed a cultural asset. At various eras, different words are used to characterize these values. The issue of why a cultural institution should be conserved is addressed by these values, which are sometimes characterized as justification, other times as values, and yet other times as criteria.

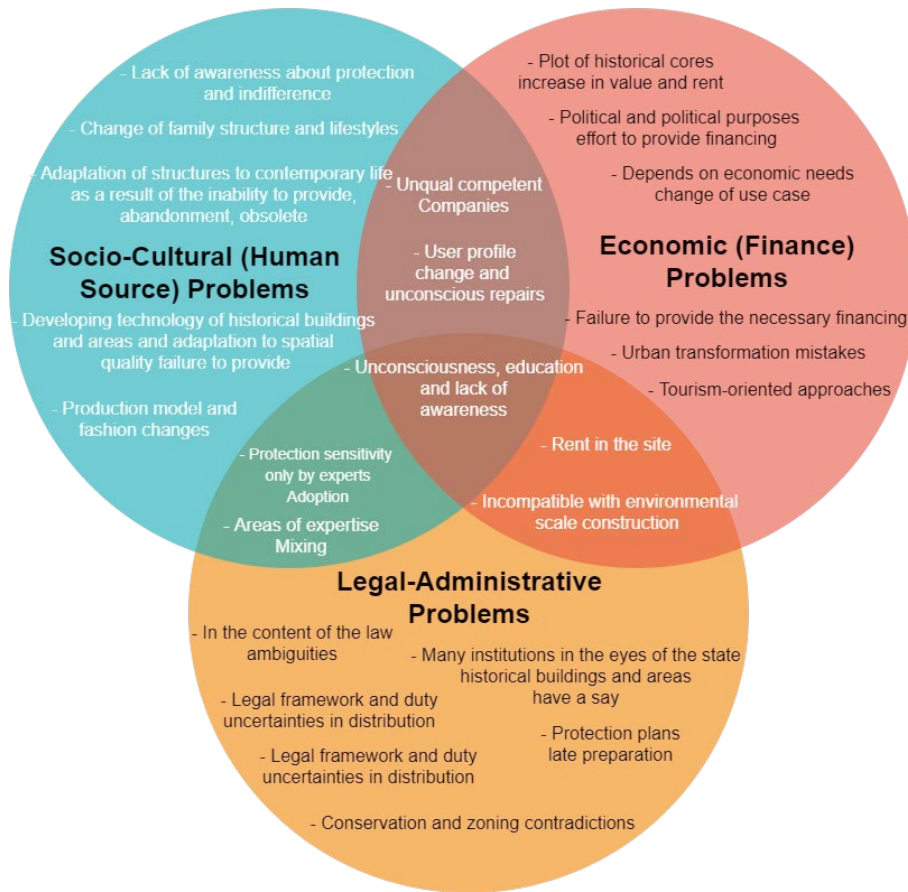
The following causes are listed:

- Protection for the development of societies' cultural identities,
- Protection on account of aesthetic, architectural, artistic, and archival values,
- Protection in order to maintain the sociological, cultural, and historical values of civilizations at all times,
- Protection to maintain the built environment's changing processes and speeds under control (Yaldız, 2013).

Cultural assets must be conserved in order to understand the past, gain from experiences, draw conclusions about the future, and transmit it as a record to subsequent generations.

The modernization of civilizations' cultures occurs concurrently with the act of protection, which is seen as a contemporary and cultural action. Therefore, regardless of the time it was created, it should be kept to the best of technical ability if it has formal cultural value or improves aesthetically and functionally (Madran and Özgönül, 2005).

After high-speed trains begin operating in Sivas in 2022, a working region, new earning potential is created in the economic setting. The economic potential of the city will be considerably increased by the creation of accessible historical structures and locations in accordance with the universal design philosophy and holistic conservation strategy. The economic worth of cities rises along with the value of records, identities, and uses when cultural heritage is protected. The case for protecting historic sites and structures may be made in this context.



**Figure 1.** Problematic aspects in the conservation of historical buildings and places (Çelimli, 2022).

### Concepts of Accessibility and Universal Design

Kevin Lynch also asserts that residents of a well-designed city should be able to access other people, activities, services, and information at any time and in any location (Lynch, 1985; Ünver, 2015). In addition, the Universal Declaration of Human Rights and all other international agreements indicate unequivocally that all people are equal and should be able to enjoy social rights equally. From this point, every member of society has the right to equitable education, employment, health care, and participation in sports and cultural activities (Ünver, 2015).

The notion of accessibility may be defined as the ability to reach any location with a simple explanation. In reality, accessibility (reachability) is a technological factor (Iwarson and Stahl, 2003), which is an umbrella word affecting human activities in the built environment for all parameters. A well-designed urban environment is regarded to be liveable and readily accessible to everybody. Numerous urban planners strive to construct liveable cities today. Accessibility and human mobility were deemed to be the most important criteria in developing liveable cities (Evcil, 2009). Social theorists see accessibility as a prerequisite for membership in society (Kitchen and Law, 2001). In the United Nations Conventions, accessibility is also included as a guiding for urban design. Every public rule promotes equitable chances for everyone. The accessibility chain refers to the continuous accessibility of all structures and areas. Everyone may need to use open areas, such as health facilities,

schools, public administrative structures, business structures, residences, sidewalk, parks, pedestrian crossings, which serve different purposes in the cities in which we reside, and the means of transportation that connect these areas at random times of the day. Therefore, it is insufficient if just a subset of the alternatives given be available. When considering the accessible chain for a visually impaired person, there should be sidewalk to be used until leaving the home and entering a public building, barrier-free crossing distances, audible warning signals at pedestrian crossings, arrival time information at public transportation stops and in-car location information announcements, curb tracking, and tactile surface applications. Each of these modifications is a link in the accessible chain, which is defined by these edits. In the event that one of these rings breaks, the whole chain disintegrates, i.e. (Erişilebilirlik Kılavuzu, 2020).

**Table 1.** Sampling and visual representation of Universal Design Principles (Assembled from Dostoğlu et. al., 2009 and Çepehan, 2020.)

UNIVERSAL DESIGN PRINCIPLES		
Policies	Remarks	Examples
1- Equitable Use	The design should be available to individuals with different levels of competence. Equal conditions should be provided in the design for different users. There should be no distinction between users, no user stigma. The rules regarding security and privacy should cover all users. The design should be of a nature that all users will like.	
2- Flexibility in Use	The design should cover different individual preferences and competencies. Different forms of use should be provided. The product should be equally useful and usable for right and left-handed users. It should allow the user to make mistakes or not have precise motor skills. The product must allow the user to detect at different speeds.	
3- Simple and Intuitive Use	Design should be easy to understand regardless of the user's level of experience, knowledge, language skills and instant focus. Unnecessary complexity should be avoided. It should not contradict the user's expectations and intuitive use. The design should cover a wide range of reading levels and language skills. The information must be sorted by importance. Usage information and feedback should be provided at the right time during and after use.	
4- Perceptible Information	The design must effectively provide the necessary information for the user, regardless of the ambient conditions or the user's sensory sensing ability. The "readability" of basic information should be at the highest level. Product-specific elements should be easily explained to the user. The product must include techniques or interfaces to ensure compatibility, including users with sensory limitations.	
5- Tolerance for Error	The design should minimize the dangerous and bad consequences that may occur as a result of accidents or undesirable behaviors. The most used design elements should be most accessible, and those that may cause danger should be destroyed, isolated or sheltered. Behaviors and design elements that may cause accidents and errors should be clearly stated. Features that do not allow errors must be provided.	
6- Low Physical Effort	It should be design, effective and easy to use, allowing the least degree of fatigue. The user should not have to keep his body in unnatural positions. The product must be able to operate with an acceptable degree of force. The product should not require repeated behaviors. The need for long-term use of force should be minimized.	
7- Size and Space for Approach and Use	Regardless of the user's body size, posture position and mobility, the appropriate size and space should be provided for approach, reach, manual use and general use. For sitting and standing users, an unobstructed view of important usage items should be provided. All items should be equally easily accessible while sitting or standing. Different hand size and grip characteristics should be considered. Adequate space should be provided for auxiliary equipment (wheelchairs, walking equipment, etc.) or for people to help.	

Additionally, a person operating a battery-powered car, the visually impaired, the hearing impaired, or the elderly are not considered "disabled" in accessible environments. Similarly, in a situation where accessibility norms and accessible chain cannot be given, a non-restricted person becomes "disabled" (Sherrer, 2001). Goldsmith said, "Handicapped people are disabled because the architect who created the building did not think and care about their requirements" (Goldsmith, 1997).

The notion of universal design refers to a comprehensive approach to design that enables everyone, regardless of age, ability, or physical condition, to utilize the whole product and surroundings. This strategy encompasses a broad variety of scales, including industrial product design, architecture, urban planning, basic environmental control systems, and complicated urban information technology. Design and universal design principles for everyone (Code on Accessibility, 2013).

### **SIVAS URBAN METHODOLOGY EXAMPLE FOR COMPLETELY ACCESSIBLE HISTORICAL BUILDINGS AND AREAS**

#### **Completely accessibility approach of all historical buildings and places**

The viewpoint that envisions the necessity to make historical structures and surroundings completely accessible forms the core of the research. It is not difficult to make the cultural treasures that must be safeguarded so that everyone may participate in social life, despite certain restrictions. People with disabilities have the same right as everyone else to participate in cultural events, use public services, and enter any location without exception, which may be constructed and updated independently.

Man is the primary unit of measure in the architectural field. When designing, the architect must address the notion of measuring (Arcan and Evci, 1999). Due to their historical significance, some groups cannot be separated or disregarded. Nothing is more precious than a person, including cultural treasures, historical structures, and agricultural land. A dependable architect must constantly defend the ethical in relation to human values.

The significance and value of cultural assets exist because humans assign them such significance and worth. This worth and significance gained from humans cannot be more precious than humans. The legal notions of location, historical structure, monumental monument, and cultural asset are human inventions. Accessibility is a fundamental human right, according Mamatoğlu. Although the notion of human rights is fictitious, in terms of historical values, it predates fiction. As long as individuals can live freely and equitably, they may create cultural value-based fictions. It is not possible for organisms to live in nature if they succumb to their own falsehoods on crucial topics (Mamatoğlu, 2015).

The core of the notion of complete accessibility is "everyone," as opposed to a particular set of individuals with barriers as the intended audience. From a person who can only operate his battery-powered car with eye motions to a young person with no impairments or health issues, the model where everything is accessible without assistance symbolizes complete accessibility. The city of Sivas has undeniably a thirteenth-



century design in a context where the common design idea for regular consumers is evolving. The process of discussing the accessibility of a major monument from the 19th century to the current day is quite challenging. However, in the congested academic repetitive environment, which has not progressed enough in our nation since 2005, a strategy that challenges complete accessibility via historical structures and areas and offers real alternatives presents a more creative and modern perspective.

Within the scope of the investigation, five hypotheses were formulated.

- 1- Different disability groups have varying rates of engagement in cultural events and visits to historical structures
- 2- The accessibility of listed and protected buildings in Sivas is impacted by protection rules and practices
- 3- Conscientious and precise architectural arrangements increase the accessibility of historical structures and the surrounding environment
- 4- Architectural modifications essential for complete accessibility may also be implemented in historic structures and locations.
- 5- Historical and protected structures may be made accessible without causing tissue damage.

The assumptions formulated with the use of scientific data acquired from surveys done in the city of Sivas and in-depth field investigations conducted on five chosen buildings were examined. Four of the five hypotheses are concretely supported by the data described and discussed in the appropriate sections.

## **FIELD RESEARCH**

### **Survey Methods**

Within the scope of the survey research, six distinct survey applications were conducted. Face-to-face and online multiple choice and semi-structured (open-ended) questionnaires and in-depth interviews were done as an empirical component of the thesis research to expose accessibility concerns of historical buildings and locations, identify demands, and guide architectural solutions. The survey's findings will be assessed alongside the scientific findings of the systematic examination received from other components of the study. Within the framework of the survey studies designed to represent the user profile of the city of Sivas, different statistical data are intended to be compiled.

Within the purpose of the research, 159 impaired and non-disabled residents of the city of Sivas were asked to complete a questionnaire including forty items. The "Personal Information and Urban Activity Survey" is the initial step in the collection of socio-demographic information and descriptive statistics.

In the second stage, five structures were chosen; surveys numbered 2, 3, 4, 5, and 6 were conducted for each of the 55 questions for each of them: Buruciye Madrasa, Sivas Grand Mosque, Sifaiye Madrasa (Keykavus Madrasa), Congress Building Ataturk and Ethnography Museum, Historical Sivas Train Station. The surveys in the second part, titled "Building Use Purpose-Frequency Experience Surveys," were conducted with 20 orthopedically, hearing, and visually-impaired individuals who worked as technical and administrative personnel in various Sivas-based

public institutions and who were specially selected for their participation. In the surveys of the second section, where architectural terms are used more intensively, the selected structures were conducted with participants who were familiar with the problems of disabled individuals and mastered the subject in order to obtain more accurate data from individuals who dominated the subject.

### Examination of Survey Results

The surveys were conducted face-to-face in the building of "Sivas Association for The Relief and Solidarity with Families with Physically Intellectual Disabilities and Disabilities" and in the historical buildings in the city center of Sivas, as well as online with the aid of 'Google Forms' for the convenience of visually and hearing-impaired individuals.

**Table 2.** Socio-Demographic Investigation.

Variable		n	%
Gender	Male	114	71,7
	Female	45	28,3
	Total	159	100,0
Variable		n	%
Age	19-30	37	23,3
	31-40	56	35,2
	41-50	35	22,0
	51-60	25	15,7
	61-70	4	2,4
	Total	157	98,7
	Unanswered	2	1,3
	Total	159	100,0
Variable		n	%
Education	Primary	16	10,1
	Secondary school	11	6,9
	High school	61	38,4
	University	59	37,1
	Graduate	5	3,1
	None	7	4,4
	Total	159	100,0
Variable		n	%
Employment	Working full-time	78	49,1
	Retired	25	15,7
	Busy with housework	16	10,1
	Unemployed	35	22,0
	Other	4	2,5
	Total	158	99,4
	Unanswered	1	0,6
	Total	159	100,0

**Table 3.** Analyses of the Status of Obstacles.

Variable		n	%
Physical Disabilities	Deaf	27	17,0
	Blind	23	14,5
	Orthopedic disability	85	53,5
	Temporary disability	10	6,3
	Not disabled	11	6,9
	Total	156	98,1
	Unanswered	3	1,9
	Total	159	100,0
Variable		n	%
If Temporary Disability Reason	Broken	2	1,3
	The Stroller	2	1,3
	Pregnancy	2	1,3
	Accident	1	0,6
	Operation	3	1,9
	Total	10	6,3
	Unanswered	149	93,7
	Total	159	100,0
Variable		n	%
How Disability Occurs	Congenital	98	61,6
	Aftermath	47	29,6
	Total	145	91,2
	Unanswered	14	8,8
	Total	159	100,0
Variable		n	%
Auxiliary Apparatus Usage Status	Crutches	8	5,0
	Prosthesis	41	25,8
	Wheelchair	1	0,6
	Battery vehicle	28	17,6
	None	58	36,5
	Other	16	10,1
	Total	152	95,6
	Unanswered	7	4,4
Total	159	100,0	

Using the SPSS tool, the survey's findings were transformed into scientific statistics may be categorized as; In all surveys, the objective of closed-ended questions is to get statistics and numbers for analysis, whereas the objective of open-ended questions is to obtain specifics. The primary goals of the survey investigations;

- Examination of the historical structure and accessibility of individuals with disabilities in the city of Sivas, as well as identification of the challenges encountered, exposing the participants' urban activity levels,
- Determination of accessibility levels to the ancient city square from the residential areas of different groups of persons with disabilities and all city residents, as well as from other sites in the city,
- Determination of accessibility issues and requirements in five chosen registered buildings, determination of the structures' frequency of usage,

- The testing of hypotheses generated within the scope of the proposed Full Accessibility Model.

**Table 4.** Evaluation of urban activities and awareness.

Variable	n	%
11. Can You Move Within the City Independently / Without The Need of Anyone's Help?	Yes	116 73,0
	No	42 26,4
	Total	158 99,4
	Unanswered	1 0,6
	Total	159 100,0
Variable	n	%
12. How Do You Provide Transportation within the City?	Public transport	70 44,0
	Own car	64 40,3
	Pedestrian	22 13,8
	Other	3 1,9
	Total	159 100,0
Variable	n	%
13. Do you think public transportation is suitable for the use of people with disabilities?	Yes	39 24,5
	No	120 75,5
	Total	159 100,0
Variable	n	%
14.If You Are Driving An Individual Vehicle, Do You Have Parking Problems Within the City?	Yes	114 71,7
	No	19 11,9
	Total	133 83,6
	Unanswered	26 16,4
	Toplam	159 100,0
Variable	n	%
15. Do you think architectural regulations prevent your urban life?	Yes	131 82,4
	No	28 17,6
	Total	159 100,0
Variable	n	%
16. Do You Have Any Non-Governmental Organization Membership-Activity?	Yes	56 35,2
	No	103 64,8
	Total	159 100,0
Variable	n	%
17. Do you know about the Law no. 5378 on the Disabled?	Yes	60 37,7
	No	98 61,6
	Total	158 99,4
	Unanswered	1 0,6
	Total	159 100,0
Variable	n	%
18. Can you participate in cultural activities in Sivas City?	Yes	87 54,7
	No	72 45,3
	Total	159 100,0
Variable	n	%
19. How Often Do You Participate in Cultural Activities in General?	Once a week	16 10,1
	Once a month	66 41,5
	Once a year	19 11,9
	Never	56 35,2
	Total	157 98,7
	Unanswered	2 1,3
	Total	159 100,0

**Table 5.** Measurements of structure and surrounding user experience and performance

User Experience Performance Measurement on Structure and Environment (21.-33. Questions) Statistics													
Question Number	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30	Q31	Q32	Q33
Participant (n)	157	157	159	157	158	157	159	159	159	159	159	159	159
Unanswered	2	2	0	2	1	2	0	0	0	0	0	0	0
Average	3,1401	2,9936	1,8931	3,7834	3,8544	1,7452	1,8302	2,0440	2,1384	2,0943	1,9119	3,6730	4,1384
Standard deviation	1,22714	1,06516	1,11145	1,16750	1,12202	0,83899	0,99497	1,09859	1,11081	1,10690	1,02737	1,02189	1,16096
Varyans	1,506	1,135	1,235	1,363	1,259	0,704	0,990	1,207	1,234	1,225	1,055	1,044	1,348
Minimum	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
Maximum	5,00	5,00	5,00	5,00	5,00	5,00	5,00	5,00	5,00	5,00	5,00	5,00	5,00

**Table 6.** Cross tabular information by barrier status and independent transaction status

<b>(Physical Disability * Unhelpful Movement) Crosstab</b>					
			Unhelpful movement		Total
			YES	NO	
Disability	Deaf	Number of attendant	26	1	27
		% in (Disability)	96,3%	3,7%	100,0%
		% in (Unhelpful Movement)	22,8%	2,4%	17,4%
		% Total	16,8%	0,6%	17,4%
	Blind	Number of attendant	8	15	23
		% in (Disability)	34,8%	65,2%	100,0%
		% in (Unhelpful Movement)	7,0%	36,6%	14,8%
		% Total	5,2%	9,7%	14,8%
	Orthopedic	Number of attendant	63	22	85
		% in (Disability)	74,1%	25,9%	100,0%
		% in (Unhelpful Movement)	55,3%	53,7%	54,8%
		% Total	40,6%	14,2%	54,8%
	Temporary dis.	Number of attendant	7	3	10
		% in (Disability)	70,0%	30,0%	100,0%
		% in (Unhelpful Movement)	6,1%	7,3%	6,5%
		% Total	4,5%	1,9%	6,5%
	None disability	Number of attendant	10	0	10
		% in (Disability)	100,0%	0,0%	100,0%
		% in (Unhelpful Movement)	8,8%	0,0%	6,5%
		% Total	6,5%	0,0%	6,5%
Total		Number of attendant	114	41	155
		% in (Disability)	73,5%	26,5%	100,0%
		% in (Unhelpful Movement)	100,0%	100,0%	100,0%
		% Total	73,5%	26,5%	100,0%

**Table 7.** Evaluations of public transit accessibility by gender

<b>(Gender * Public Transport Accessibility) Cross-table</b>					
		Public Transport Accessibility		Total	
		YES	NO		
Gender	Male	Number of attendant	26	88	114
		% in (Gender)	22,8%	77,2%	100,0%
	% in (Public trans. access)	66,7%	73,3%	71,7%	
	% Total	16,4%	55,3%	71,7%	
Female	Number of attendant	13	32	45	
		% in (Gender)	28,9%	71,1%	100,0%
	% in (Public trans. access)	33,3%	26,7%	28,3%	
	% Total	8,2%	20,1%	28,3%	
Total	Number of attendant	39	120	159	
		% in (Gender)	24,5%	75,5%	100,0%
	% in (Public trans. access)	100,0%	100,0%	100,0%	
	% Total	24,5%	75,5%	100,0%	

The comments of participants are organized into categories with these settings;

- In mosques, ablution and prayer space for the elderly and crippled,
- Warning and educational signage,
- The prominence of the pedestrian walkways,
- Social events should be hosted in the city plaza, with accessible seating and restrooms in the area where book fairs are held,
- Audio headphones in Sivas museums,
- Information screens in museums,
- Anti-slip floor adhesions in winter months, as it snows a lot in Sivas province,
- Audio devices presenting the historical building for the hearing-impaired and visitors,
- Placing warnings around the trees in the medieval plaza of Sivas and clearing the square of obstructions,
- Electric scooter rental,
- Audio commentary at museums, Braille alphabet information,
- Elevators, ramps, and restrooms in buildings,
- Dedicated prayer sections for battery-operated automobiles,
- Resting areas for women with infants and baby-care rooms,
- Seating units for pregnant ladies and handicapped individuals with prostheses,
- There is no distinct entry for the handicapped to museums, and the restrooms are used as storage,
- A specialized ablution area for the elderly,
- Rest and sitting areas accessible to the handicapped,
- Appropriate quantity and breadth of parking spots,
- Sign language staff,
- Removal of fractures and deformations in the flooring,
- Requests for any item that will facilitate the use of wheelchairs in comfort.

According to the findings of the questions about the accessibility of historical buildings, the five chosen structures in Sivas have fairly low

levels of accessibility. The buildings picked from a variety of roles represent the city's most significant tourism potential and visitor-friendly structures. The purpose of the project is to develop a comprehensive accessibility model based on the experiments conducted in these buildings. It is quite difficult to produce a single guide for historical structures or a set of universal norms. Rather, the philosophy of developing reasonable and practical projects for hurdles in a tangible manner and the logic of total accessibility were attempted to be internalized through the chosen cases.

## FINDINGS AND RESULTS

### Field Research on Five Selected Registered Historical Structures

In this section of the research, the workspace and workgroup were identified to be the foundation of the entire accessibility model. In the continuation of the surveys in the city of Sivas, numerous field investigations were carried out on the buildings. Field investigations consist of a total of six separate survey studies, one of which is in general and five in buildings, followed by accessibility studies carried out in five registered structures chosen in the city of Sivas. In order to steer the model, accessibility difficulties and architectural editing requirements highlighted in surveys were questioned on site in five buildings with diverse roles and solution suggestions were produced.

Within the scope of the research, five registered buildings in Sivas with distinct roles were chosen. These structures, respectively.

- 1- Sivas Buruciye Madrasa,
- 2- Sivas Grand Mosque,
- 3- Sivas Sifaiye Madrasa (Keykavus Hospital),
- 4- Sivas Convention Center of Ataturk and Ethnography Museum,
- 5- Sivas Historical Railway Station.

**Figure 2.** A panoramic picture of the medieval town square of Sivas (Sivas Atlas, 2020)



Redevelopment, repair, and exhibition-planning initiatives for the structures; T.C. Official communication with the Ministry of Culture and Tourism, the Provincial Directorate of Relief and Monuments in Sivas, and the General Directorate of Foundations gave the information. After the assessments of issues and needs, the recommended solutions have been redesigned.

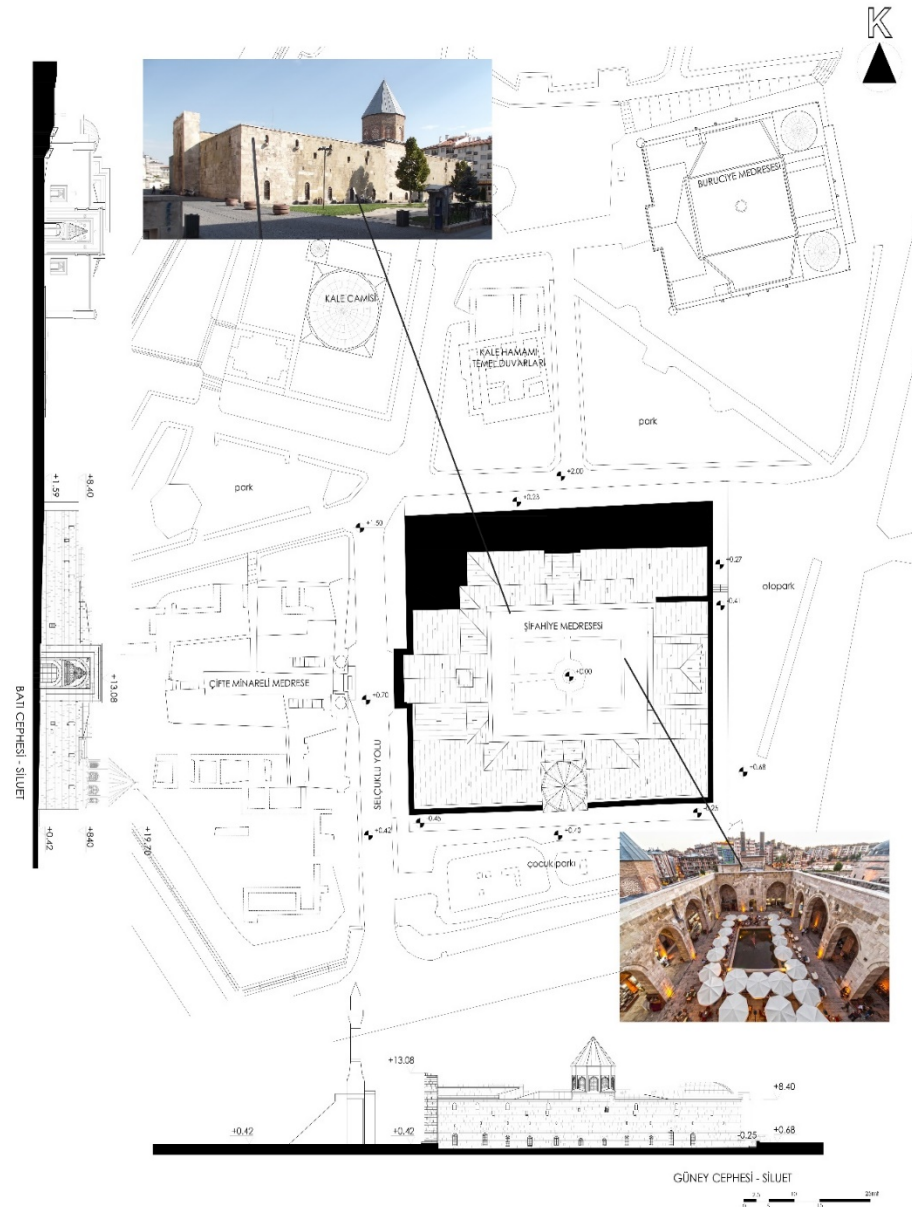
The multi-layered city of Sivas and the ancient architecture and environment in the city center were chosen as a field study for the following reasons in relation to the values and challenges it contains;

- Sivas is a city in Central Anatolian of natural and cultural significance that has been home to several civilizations throughout history.
- The wealth of the worldwide design memory of the city, which is home to a civilization that sought to treat with the sound of water in the Great Mosque of Divriği in the Middle Ages, where persons with mental disorders were burnt to death,
- To have a tangible and abstract historical and cultural framework, together with variety and the city's original historical texture,
- Possessing the potential for accessible tourism as a significant crossroads of civilizations for a very long period,
- Increasing the city's tourist potential and tourism accessibility via high-speed rail,
- Extensive historical building and environment stock with a variety of purposes,
- The historical city square is a laboratory in which the accessibility of historical buildings and locations may be questioned via the use of various colossal monuments that have survived to the current day,
- The accessibility to historical structures and locations in Sivas is quite poor,
- Disabled residents of Sivas are anxious to explore historical structures, but cannot owing to insufficient and improper architectural arrangements,
- The abundance of accessibility issues that are readily observable throughout the city,
- Historical structures are not accorded the respect they deserve, and historical fabric is deteriorating daily,
- Inadequate conservation efforts, the inability of local governments and allied organizations to implement appropriate preservation policies in the city.





**Figure 3.** Accessible route and selected structures in Sivas city center.



**Figure 4.** Şifaiye Madrasa Situation Plan and silhouettes (T. R. Directorate General of Foundations (VGM) archive was used)

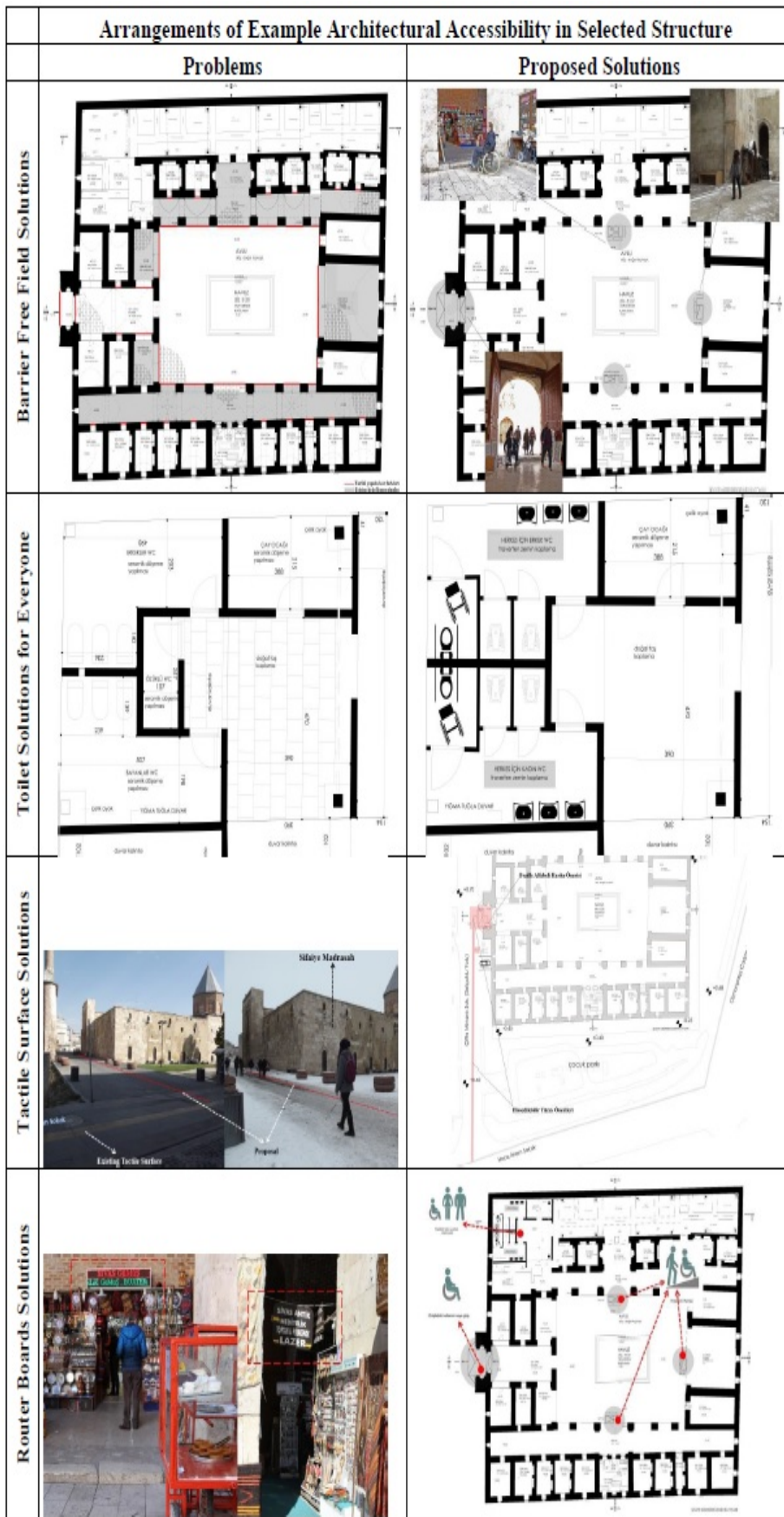


Figure 5. Sifaiye Madrasah sample problem-solution applications (DGF archive used)

DETECTION AND SOLUTION RECOMMENDATIONS OF ACCESSIBILITY PROBLEMS IN THE STRUCTURE OF "SIVAS SIFAIYE MADRASA"				
NL	TOPIC ACCORDING TO FULL ACCESSIBILITY METHOD	PROBLEM	SOLUTION	EXPLANATION
1	BARRIER FREE SITE, RAMP, RAILING AND URBAN EQUIPMENT REGULATIONS	18 cm denim difference consisting of 2 steps at the entrance of the structure Access to the northern front portico at +0.20 from the courtyard at +0.00 Access to the eastern front portico at +0.15 from the courtyard at +0.00 Access to the southern front portico at +0.20 from the courtyard at +0.00 Threshold application that makes up the difference of 5 cm jeans in the tomb section Ground deformations around the structure Ground deformations throughout the courtyard Rain gully in the courtyard and gaps in metal caps Intensive furnishing in the courtyard prevents crossings Lack of handles and handrails on the ramp that provides access to the structure from Osmanpasa Street The need for usable urban furniture for everyone	Two standard ramps were proposed at the entrance Ramp recommended Ramp recommended Ramp recommended It was proposed to remove the threshold and level it Repair recommended Replacement of broken and collapsed stones Exchange with composite or stone covers recommended Seating units proposed to be removed by 50% Recommended in double-sided railing and non-slip handrail Ergonomic benches proposed around the structure	Projected Projected Projected Projected Projected Written in plan notes Written in plan notes Visual detections presented Visual detections presented Sample project added Written in plan notes
2	ACCESSIBLE PARKING REGULATIONS	Lack of accessible parking space for everyone Remote location of the indoor car park area to the building entrance Lack of parking space close to the historic town square	Parking offered on Double Minaret Street Double Minaret Street car park proposed instead of municipal car park The axle used before street sanitation has been re-proposed.	Projected Projected Written in plan notes
3	ELEVATOR AND PLATFORM SOLUTIONS	Problem accessing upper floors used as repository Steep and long ramps providing access to the structure in the town square	No elevators or platforms were proposed Fielding proposed on ramps, platform not proposed	No solution proposed No solution proposed
4	TOILET SOLUTIONS FOR EVERYONE	Use of the so-called disabled wc as a warehouse 3 men's and 3 ladies inaccessible toilets 90 cm toilet door that opens inward Non-ergonomic toilet furnishings and equipment	Instead, the toilet for everyone new was designed 2 toilets recommended for everyone in the Bay and Mrs. Toilet Toilet door with 100 cm panic bar opened outward Mirrors, toilet bowls, handles for everyone's use	Projected Projected Projected Projected
5	TACTILE SURFACE-BRALILE ALPHABET MAP APPLICATIONS	Tactile surface application located only on Hoxha Imam Street Historic Double Minaret Street needs a tactile surface Problem of accessing the structure from the parking area for the visually impaired The need for a guiding palpable surface in the courtyard Lack of ramp heads and all denim differences Problem of detecting structure and places for visually impaired individuals	Tactile surface was proposed at the historic town square and building entrance Standard-compliant sensible surface recommended New arrangement proposed for building entrances from the parking area Audible warnings and map proposed instead of palpable surface in courtyard Guide track proposed at building entrance and up to embossed map Braille alphabet map and metal guide tracks recommended	Projected Projected Projected Projected Projected Positioned at the entrance of structure
6	DIRECTIONAL, INFORMATIVE, STIMULI AND INNOVATIVE SOLUTIONS WITH DIGITAL SOFTWARE	Router shortcomings that provide access to the structure Lack of routers around the structure and in the courtyard Lack of stimulating informative within the structure The need for stimulants for the visually impaired Ease of visit for the hearing impaired Perception of the location of the structure in the city for the visually impaired Lack of solutions to allow virtually touring the structure Charging station requirement for battery-powered vehicles	Router proposed from car park to structure, structure to rooms Router recommended for building entrance, ramps, toilets and rooms Stimulants were recommended in appropriate places within the structure Voice alert screen recommended next to Braille alphabet map Projection system recommended General accessibility map and mobile app recommended for the city Virtual accessibility recommended with native mobile apps One charging station proposed in historic city liance	Schematic representation made Schematic representation made Schematic representation made Written in plan notes Written in plan notes Examples shown Written in plan notes Shown in the plan

Figure 6. Determinations and remedies to Sifaiye Madrasa accessibility issues

## CONCLUSION AND DISCUSSION

Within the scope of the research, the accessibility of historically significant buildings and locations that need to be preserved is questioned, and a model for complete accessibility is proposed. Within the framework of the Protection of Cultural and Natural Assets Law No. 2863, the essential architectural provisions were considered in registered structures and locations within the scope of the legally guaranteed accessible right under the "Number of 5378 Law on Disabled". Using survey research, problems and demands in the city of Sivas, which is classified as a working area, were discovered. On the basis of scientific data derived from surveys, architectural layouts are meticulously planned within the framework of a comprehensive accessibility model for the ancient city core of Sivas. It was proposed that historical buildings and surroundings may be made accessible to everyone via universal design and the use of unique solutions.

According to the findings of the research, it is both important and feasible to make historical buildings and surroundings accessible. Within the context of comprehensive preservation, historically significant structures that are accessible to everybody are becoming more functional and habitable. It has been determined that increasing the accessibility of historical buildings and regions within the scope of the research promotes the engagement of individuals with disabilities in cultural activities and favorably impacts their social participation. In historic urban areas, it has been recognized that persons with impairments need accessible maps. It is believed that accessibility maps make it simpler for visitors to see a city, while simultaneously improving the living conditions of persons with impairments. It has been found that public transportation in the city of Sivas is inaccessible. In addition, investigations with survey participants have shown that, despite handicapped people's great desire to be present in historical buildings and locations, these structures and public spaces remain inaccessible. It has been discovered that inadequacies in architectural rules and improper procedures are the primary obstacles to accessibility. As a result of significant literature study, assessments of successful samples from across the globe, socio-demographic data of survey respondents, and description statistics, the essential rules have been categorized under six topics;

1. Regulations for Barrier-Free Field, Ramp, Railing, and Urban Equipment
2. Parking Accessibility Regulations
3. Solutions for Elevators and Platforms
4. Toilet Solutions for Everyone
5. Applications of Tactile Surface-Braille Alphabet Map
6. Innovative Options with Router, Informative, Stimulants, and Digital Applications

Instead, the architectural arrangements to be developed in the defined themes are demonstrated, and projects and visuals should be used to

build solutions appropriate to each structure. The suggested architectural arrangements were developed with realism in mind, taking into consideration existing national and international norms. Realistic solutions that include worldwide best practices without ignoring local factors have been devised. The research also determined that the present accessibility criteria for historical buildings and sites are insufficient, and it is suggested that they be changed as quickly as possible to reflect modern advances. In addition, there is a void in the law addressing the legal infrastructure that governs the accessibility of the protected assets. In this subject, scientific research should be increased, and successful research should be supported as a model for eliminating touch protection prejudices.

In an environment where only possible user groups are addressed in architectural arrangements and the balance between preservation and usage is often weighed in favor of conservation, questioning the accessibility of historical buildings and landscapes is a very challenging endeavor. Planning physical alterations in a listed monument with architectural preservation concerns requires extensive technical knowledge and expertise. In this way, the chosen workplace has aided comprehension of the topic via its many construction options and architectural arrangement examples for these buildings. In addition, in the process of building accessible places for everyone within the scope of the research, difficulties and requirements faced by persons from a variety of disability groups in a structured setting were found. It has become tough to communicate accurately and effectively with persons with impairments who have specific requirements. This disadvantage has been addressed via dialogues with non-governmental groups organizing handicapped persons and their families in Sivas.

In recent years, it has been observed that scientific research on accessibility culture in Turkey have gained popularity, although there is a lack of application-based studies, which often provide theoretical material. With scientific evidence, the suggested paradigm cascades tangible steps towards quick implementation. In the framework of being a fruitful model, certain buildings and locations may implement actual applications that involve architectural arrangements. It is possible to do comparative scientific research on the business programs, management strategies, and cost conditions of the proposed architectural arrangements. New technologically accessible items that are incorporated into the urban information system, such as smart ramps, that are proposed within the scope of the research may be copyrighted, and a business concept can be developed as prototype manufacturing continues. Future scientific research will be able to analyze the notion proposed for visually challenged folks to have architects interpret historical locations using audio descriptions.

Numerous institutions, organizations, legal and natural individuals may benefit directly or indirectly from this research. Ministry of Family and Social Services, Ministry of Environmental Urbanization and Climate

Change, Ministry of Culture and Tourism, Protection boards of cultural assets, Protection and control offices (KUDEB), associations and non-governmental organizations providing services for people with disabilities, Local governments (municipalities, provincial private administrations, village legal entities), Universities, Related professional chambers, Employers employing people with disabilities. It is also organized professionally as a resource for all technical staff working on architectural preservation and accessibility challenges. It is the first research in the literature to comprehensively analyze architectural arrangements in historical buildings and fields and expose them to the scientific debate environment within the integrity of architectural language, in contrast to accessibility instructions issued by ministries.

Following is a list of some of the suggestions provided on the topic based on the difficulties noticed during the research and the thoughts generated:

The problem should be brought to the attention of project manufacturers and technical staff who perform the most significant duty in making our living environment accessible, and their technical skills should be enhanced. In this context, trainings should be provided, all authorities should have access to scientific papers, and practitioner employees should be encouraged to internalize academic accumulation.

The actions of non-governmental groups that best understand the challenges and requirements of individuals with disabilities should be encouraged, together with social awareness and architectural accommodations.

All rules that will make the public transportation system accessible should be enacted expeditiously, and public transportation should offer unassisted access to historic structures and sites.

There should be legislative incentives for studying sign language and the Braille alphabet.

Comprehensive investigations covering the number of handicapped persons residing on a provincial level and the sorts of disabilities should be updated in order to give data for scientific research.

The significance of accessibility to urban identities and the positive contribution to tourist potential should be brought to the attention of all city residents by emphasizing their importance.

In historical structures and sites, the architectural modifications requested within the framework of the full accessibility model should be completed expeditiously.

To maintain accessibility, it is necessary to give further evidence that the physical modifications made, when conducted carefully, provide long-term protection without harming the historical fabric. In this context, scientific efforts should be fostered in order to provide decision-makers with beneficial examples from throughout the globe. Increase the number of scientific research exemplifying accessible arrangements, rather than standardize them, while considering the unique dynamics of each structure in historical buildings and locations.

Standards TS 9111, TS 12460, TS 12576, and TS ISO 23599, which are needed to be revised within the scope of the research, should be updated in accordance with international standards and new technical advancements.

Legal consequences should be modernized, and architectural rules should be pushed for those accountable, particularly municipal governments. In addition, arrangements such as special service discounts and tax exemptions should be implemented for accessible buildings.

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### **Resume**

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