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INCLUSIVITY & ACCESSIBILITY of Historic Public Spaces

Approach & Digital Tool

POLITECHNIKA LUBELSKA
LUBLIN UNIVERSITY OF TECHNOLOGY

UNIVERSIDAD DE GRANADA

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Inclusivity and accessibility of public spaces in historic cities

Lviv Polytechnic National University

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I. CHARACTERISTICS OF PUBLIC SPACES IN HISTORIC CITIES IN THE CONTEXT OF INCLUSIVITY AND ACCESSIBILITY

1.1 Introductory characteristics of public spaces in historic cities and their functions within the urban environment

The modern urban environment is undergoing profound demographic, social and spatial changes, which require a rethinking of traditional approaches to the planning and design of public spaces. In European cities, the proportion of older people, people with disabilities, migrants, internally displaced persons and temporary users is growing, for whom barriers in the environment are becoming critical. In Ukraine, these trends are exacerbated by the consequences of full-scale armed aggression: mass internal and external population displacement, the destruction of housing and transport infrastructure, and a rise in the number of people with combat and civilian injuries who require safe and predictable public spaces. In this context, inclusivity emerges not as an optional extra, but as one of the key criteria for the quality of urban development and an indicator of a just city.

Public spaces in historic cities—squares, streets, parks, and waterfronts—are the main venues for daily interactions between people and key shapers of a city's image. Their quality is determined not only by architecture but also by how accessible and safe they are for different user groups. Universal design proposes viewing such spaces as a shared resource for all, focusing on comfort, safety and respect for diversity (Big City Lab, 2021).

Public spaces fulfil a range of interrelated functions within a city: they serve as venues for social interaction and community building, spaces for rest and recreation, and a foundation for economic activity and cultural exchange (Big City Lab, 2021). It is here that spatial and social inequalities, linked to barriers for different user groups, become most apparent; therefore, the level of inclusivity of public spaces is an indicator of a city's overall responsiveness to the needs of its residents (LHAC, 2013).

Public spaces can be classified according to their status, management methods and level of openness to users (Big City Lab, 2021). This classification is critical for understanding accessibility requirements in each case and identifying the bodies responsible for ensuring inclusivity.

1. Open spaces — areas with free access, without restrictions on the number of users or the duration of stay (Fig. 1.1). They are typically owned by the local authority or the state and managed by local government bodies (Big City Lab, 2021). This category includes:

- Streets and thoroughfares (Fig. 1.2): streets, roads, avenues, lanes, slopes, footpaths and cycle paths (DBN V.2.2-40:2018);

- Representative and green spaces (Fig. 1.2, 1.3): squares, boulevards, parks, gardens and public gardens (DBN V.2.2-40:2018);
- Cultural heritage sites: historical and cultural monuments, as well as cemeteries and beaches that form part of public spaces (DBN V.2.2-40:2018).

Open spaces are often regarded as the most accessible for all sections of the population, but in practice they frequently present significant barriers for people with reduced mobility.

2. Semi-open spaces are shared spaces open to different population groups in terms of numbers and duration of stay, but not always accessible to everyone (Big City Lab, 2021). Examples include areas adjacent to residential buildings and courtyards of housing complexes, where access may be restricted or controlled. These spaces often have mixed ownership and management.

Fig. 1.1 — Open spaces: Dvirtsova Square, Lviv (Wikimedia Commons, 2020)

Fig. 1.2 — Streets and thoroughfares: the avenue in front of the Opera House on Svobody Avenue, Lviv (Tvoe Misto, 2025)

Fig. 1.3 — Representative and green areas: Stryisky Park, Lviv (Mylviv.city, 2021)

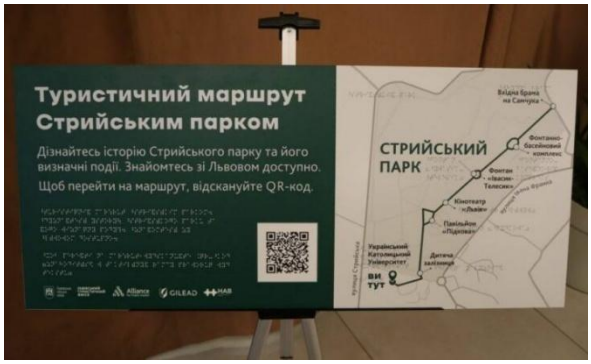

Fig. 1.4 — A tourist route through Stryisky Park, which will be accessible to people in wheelchairs, as well as to those with visual and hearing impairments (Tvoe Misto, 2025)

Based on the needs of residents that must be met, the following functional types of public spaces are identified (DBN B.2.2-12:2019):

1. Parks, gardens and squares for quiet recreation — specialised green areas designed for relaxation, observing nature, reading and socialising in a peaceful atmosphere;
2. Sports and children's playgrounds for active recreation — designed for physical activity, games and children's development;
3. Streets, roads, and public transport stops — form the communal infrastructure necessary for mobility and access to services;
4. Dog walking areas and urban gardens — meet the specific needs of particular population groups.

Each of these categories has specific accessibility requirements, which are defined in both DBN V.2.2-40:2018 'Inclusivity of Buildings and Structures' and DBN B.2.2-12:2019 'Landscaping of Territories'. Integrating these functional types into a unified system of public spaces creates a multifunctional urban environment that meets the needs of different population groups.

Historical public spaces are of particular significance as bearers of collective memory and urban identity, as they combine a material heritage, shaped over centuries, with living urban practices (Rybchynskyi, 2016). At the same time, it is precisely in such spaces that a conflict most often arises between the requirements of heritage conservation and the need to ensure equal access for all users, which highlights the search for balanced solutions in inclusive and barrier-free design.

Inclusive historic spaces must be open to all residents and visitors to the city, regardless of age, health or social status. The principles of universal design combine physical accessibility, clear information and comfortable conditions of use. In this format, historic public spaces retain their role as venues for political, economic and cultural interaction, but become more equitable and open to diverse groups. In the Ukrainian context, despite some positive examples, the adaptation of historic centres to the needs of different user groups remains fragmented and focuses mainly on individual routes or key spaces.

The renovation and restoration of historic public spaces must take place with due regard for the requirements of inclusivity and accessibility. This entails combining conservation approaches with modern design standards, broad public engagement, transparent decision-making procedures , and consideration of the needs of people with reduced mobility. As a result, the historic environment not only preserves its identity but also becomes comfortable for everyday use. In summary, public spaces in historic towns should be viewed as multi-layered systems where physical form is combined with social functions and symbolic meanings. The rest of this section examines the historical contexts of such spaces in more detail, whilst Section 1.2 presents the conceptual framework that sets the parameters for planning their inclusive development.

In this guide, the issue of accessibility in historic public spaces is addressed from the perspective of restoration architects. This means that any recommendations regarding the adaptation of routes, entrances, surfaces and fixtures are interpreted through the lens of preserving the authentic substance and character of the place. The guiding principles are minimal and reversible intervention, respect for the original structure of materials, the legibility of historical layers, and the avoidance of pseudo-

historical stylisations. In this approach, accessibility is understood not as a counterbalance to heritage conservation, but as a tool for careful modernisation, which allows for the expansion of the user base without destroying the very values for which the site and its environment are protected.

Historical contexts and architectural features of public spaces. The formation of historical urban structures. As noted above, the public spaces of historic cities form the framework for the daily interactions of residents and visitors and are important carriers of urban identity. This section examines in greater detail the historical contexts and architectural features of such spaces that influence the potential for ensuring their inclusivity and accessibility. The historical environment of public spaces, as in Lviv, Zhovkva, Vinnytsia and other historic cities of Ukraine, is based on established urban structures that were formed taking into account the terrain, defensive functions, trade and administrative needs. These structures developed organically over many centuries, forming unique urban landscapes that often remain unchanged to this day (Rybchynskyi, 2016). The material culture of these spaces embodies historical eras, architectural styles and social norms from various periods of urban development.

The medieval network of streets and alleys often remains unchanged. Narrow passageways and entrances, the block-based layout of buildings, and the organisation of squares around main churches or town halls — all these have shaped the distinctive features of historic centres, which have ensured their tourist appeal, but in practice have often made it difficult for people with reduced mobility to navigate these spaces.

In historic centres, these principles take on particular importance. Public spaces must be inclusive, that is, suitable for use by different groups of people — residents, tourists, older people, parents with pushchairs, and people with disabilities. The principles of Design for All and accessibility, outlined in section 1.2.1, provide a framework in this context for transforming the historic environment into one that is safe and comfortable for everyone without losing its cultural value.

Architectural elements play a significant role in ensuring the accessibility of historic public spaces: cobblestones, cut stone or gravel, whilst being an integral part of the historic landscape, can create significant barriers to access for people with various types of disability (Historic England, 2015a). Steep staircases, which facilitate vertical movement, along with historic monuments and building façades, create a complex architectural composition of exceptional cultural value that is subject to conservation, yet often fails to meet modern accessibility standards.

Historic centres are often situated on slopes, forming steep alleys and narrow pedestrian routes, as documented, for instance, in studies of the planning structure of historic squares and streets in Lviv, Zhovkva, Vinnytsia and other Ukrainian cities (Rybchynskyi, 2016). For instance, in medieval Viborg (Denmark), a participant in the LHAC project, such street characteristics required a special approach to ensuring accessibility (LHAC, 2013). The gradient of the terrain can reach 40–50%, which poses a serious obstacle for wheelchair users and people with reduced mobility (LHAC, 2013). Around the town, a significant portion of the streets runs along the coastline with steep changes in elevation, creating a unique but challenging landscape to navigate.

An accessible route should be a footpath with a continuous clear width, headroom and a smooth surface, free from major obstacles and steep gradients (LHAC, 2013). In a historic context, meeting these standards often requires a creative approach and the use of adaptive technologies (Historic England, 2015a).

In many historic cities, it is precisely these tourist routes that form the most visible framework for the use of public spaces. Routes linking key heritage sites, squares, streets and waterfronts set the main flow of movement, determine priorities for urban regeneration and become the first areas for investment in the urban environment. If planned with the needs of different user groups in mind, tourist routes can become the ‘backbone’ of inclusive transformations, gradually expanding the accessibility of adjacent streets, courtyards and public spaces. If, however, they are designed solely with commercial interests and the ‘average tourist’ in mind, such routes can, on the contrary, reinforce barriers and become an inhibitor to the development of inclusivity and accessibility.

The management bodies of historic centres and local authorities responsible for organising tourist routes are increasingly viewing them as a means of combining heritage conservation with improved accessibility of services (LHAC, 2013). Within the framework of European initiatives, particularly the LHAC project, such routes serve as a testing ground for the implementation of inclusive solutions: barrier-free access to museums and places of worship, adapted public transport stops, rest areas, and accessible viewing platforms. An inclusive tourist route not only enhances the visitor experience but also sets a visible standard of quality for other parts of the city and demonstrates how the preservation of authenticity can be combined with the needs of different user groups.

A key component of such routes is inclusive information provision. Maps, navigation signs, websites and mobile apps should provide information on terrain complexity, the presence of stairs, ramps, lifts, tactile paving, rest areas and accessible toilets, as well as offer alternative, safer routes for different user groups. Information should be provided in accessible text, graphic, audio and tactile formats, including Braille, tactile maps and models for people with visual impairments (LHAC, 2013). Developing such routes requires the involvement of a wide range of stakeholders — local authorities, organisations representing people with disabilities, tour operators, businesses and local communities — to ensure that decisions are not only technically sound but also socially just and reflect the diverse ways in which the space is used.

1.2 Concepts and terms: inclusivity, accessibility and barrier-free design

1.2.1 Inclusivity and Design for All as a philosophy of urban planning

In the European urban planning tradition, inclusivity is understood as the principle whereby all population groups — regardless of age, gender, disability, ethnic origin, social status or place of

residence — have equal opportunities to use urban spaces and participate in public life. This is primarily a value-based and legal framework linked to human rights, social justice and non-discrimination, rather than a technical standard (EIDD Stockholm Declaration, 2004).

The concept of Design for All (DfA) translates these inclusive principles into the language of spatial and product design. According to the EIDD Stockholm Declaration (2004), Design for All requires that environments, products and services be designed in such a way that as many people as possible can use them without the need for additional adaptation or special solutions. In other words, inclusivity sets the overall goal, whilst DfA serves as one of the key design strategies for achieving it in urban planning and design.

1.2.2 Universal Design as an international standard

Universal Design (UD) is closely linked to the concept of Design for All, but is more application-oriented. While Design for All focuses on integrating the principles of inclusivity into all policies and processes, UD concentrates on developing specific products, spaces and services that can be used by the widest possible groups of people without special adaptations or segregation (Connell et al., 1997; EIDD, 2004). Practice shows that solutions designed according to UD principles make life easier not only for people with permanent disabilities, but also for people with temporary limitations, older people, parents with children – in fact, for all users.

The principles of UD include (Big City Lab, 2021): equal use; flexibility in use; simple and intuitive use; perceptible information; tolerance of error; low physical effort; size and space for access and use. Each of these principles has a specific application in the context of historic public spaces (Big City Lab, 2021). A detailed description of the seven principles of universal design, with examples for historic environments, is provided in section 2.1.4 ‘Principles of Universal Design as a Basis for Standardisation’.

For example, the principle of equitable use means that design should prevent people from feeling stigmatised through the design process. Instead of creating special entrances for people with disabilities, UD recommends modifying the main entrance so that it is accessible to everyone. The principle of flexibility means that a spatial solution should function in different ways, providing choice for users with different needs (Big City Lab, 2021).

1.2.3 The Ukrainian concept of ‘Barrier-Free’ as a contemporary social philosophy

The Ukrainian national concept of ‘barrier-free’ — although it literally refers to the physical removal of barriers — addresses a much broader range of issues in public policy. It describes a society in which people with different needs can live, move about and work without discrimination, and in which institutions take these needs into account in their decisions. In this sense, ‘barrier-free’ is closer to

inclusivity than to purely technical accessibility requirements: it is a framework that combines spatial, social, educational, economic and cultural components (Big City Lab, 2021).

In this guide, the Ukrainian concept of ‘barrier-free’ is viewed as a strategic and communicative framework for public policy that unites efforts to ensure accessibility and inclusivity, rather than as a separate conceptual field. To analyse historical public spaces, we deliberately use primarily the language of inclusivity (values, participation, usage scenarios) and accessibility (regulatory requirements, technical solutions), whilst ‘barrier-free’ sets the general direction and priorities for state-led change. In the National Concept, this is specified through six areas (Fig. 1.5), which include (Big City Lab, 2021):

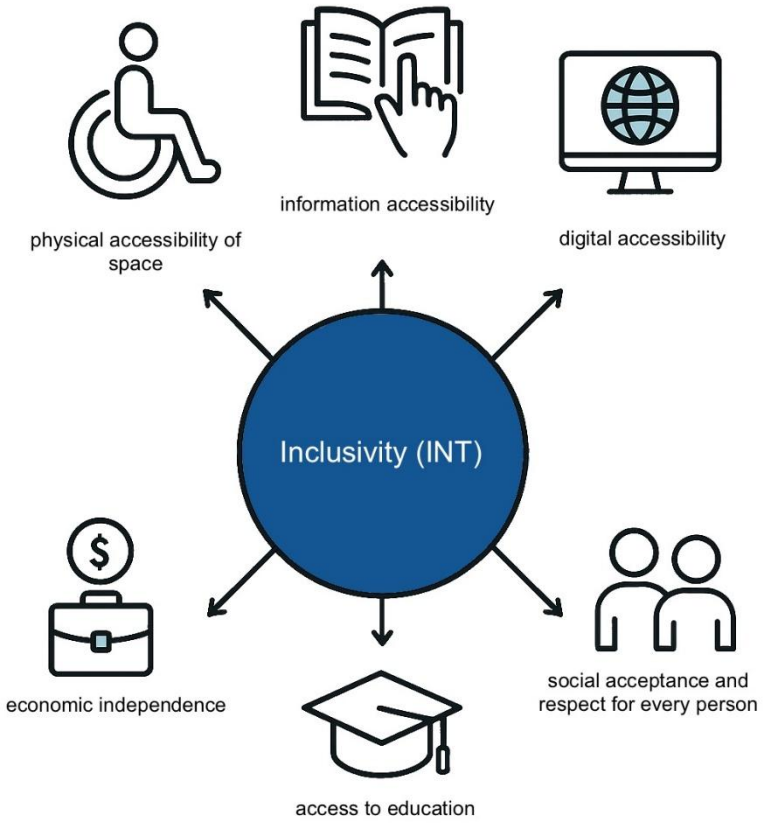

Fig. 1.5 — Six areas of accessibility (Authors’ own work)

- Physical accessibility of spaces, transport and buildings, ensuring the ability to move around and find one’s way;
- Information accessibility in various formats (written, spoken, tactile, digital), enabling people to obtain the necessary information;
- Digital accessibility, which does not restrict who can use the web and digital services;
- Social acceptance and respect for every individual, overcoming stigma and discrimination;

- Access to education at all levels and in all formats;
- Economic independence and decent working conditions, ensuring financial self-sufficiency and dignity.

This focus on social justice and human diversity aligns Ukrainian philosophy with the European concept of ‘inclusivity’ and its core values, which centre on social justice and human rights (Big City Lab, 2021). Crucially, the concept of ‘barrier-free’ involves the participation of people with disabilities and those with reduced mobility in the process of developing and implementing solutions, ensuring their active role in society rather than passive dependence on others.

In the Ukrainian context, it is particularly important to understand that accessibility is not a privilege, but a right. The growing number of people with disabilities as a result of military aggression, constant upheavals and harsh living conditions makes this issue even more pressing and urgent (Big City Lab, 2021). Thus, integrating the principles of accessibility into urban planning becomes not only a moral but also a practical and economic imperative for Ukrainian society.

1.2.4 Accessibility as a technical and regulatory requirement

Accessibility is a narrower concept compared to inclusivity. The international and European approach, known as the ‘barrier-free environment’, is enshrined, in particular, in the ISO 21542 and EN 17210 standards, as well as in a number of national standards (for example, DIN 18040 in Germany). It primarily concerns the functional and technical removal of barriers in the environment. In the Ukrainian context, these approaches have been adapted in the state building regulations DBN V.2.2-40:2018, which set out requirements for the removal of physical, communication and organisational barriers so that people with different abilities can move around independently, access information and use services. Certain minimum technical parameters (for example, permissible gradients, passage widths, and the characteristics of tactile elements) in the DBN still differ from the requirements of international standards, reflecting the phased nature of the harmonisation of the Ukrainian regulatory framework with European approaches and the need to take existing buildings into account.

The MGN includes (DBN V.2.2-40:2018): people with all types of disabilities; older people; pregnant women; people with temporary health impairments; people with pushchairs; people with wheeled luggage and other mobility aids. This ensures a significantly broader approach, but it is still based on the same principles of accessibility and safety (DBN V.2.2-40:2018).

Recognising people with reduced mobility as a key user group means reorienting design from the ‘average’ resident to a wide range of needs. In this context, accessibility is viewed as the result of compliance with regulatory requirements and the technical removal of barriers in the environment, whereas inclusivity encompasses a broader spectrum of social, cultural and communicative aspects of participation. Thus, accessibility is a necessary but insufficient condition: without taking into account the diversity of experiences, languages, cultural identities and forms of interaction, it is impossible to

achieve a truly inclusive environment. To better understand and distinguish these key terms, Table 1.1 has been included in the guide.

Table 1.1 — Comparison of key concepts: inclusivity, accessibility, barrier-free, universal design and Design for All

Concept	Definition / Essence	Philosophy and Purpose	Scope / Areas	Relationship with other concepts
Inclusivity	This is a design approach that **consciously takes into account the diversity of users**, their experiences and barriers, and involves representatives from different groups in the decision-making process. It goes beyond a narrow understanding of 'accessibility'.	**A broad social philosophy**. The aim is to ensure that every person has **a real, practical opportunity to participate fully** in public life without feeling excluded or stigmatised.	It encompasses full participation in urban life, culture and the economy. It applies to all aspects of society, including the diversity of users (people with disabilities, older people, veterans, IDPs).	In European terminology, this is often covered by the philosophy **of Design for All (DfA)**. *Accessibility* is only one component of this.
Accessibility	**The ability of an environment**, space, product or service to be used by people with different mobility, sensory, cognitive and comprehension abilities **without discrimination**. This is an international and European approach known as 'Barrier-free'.	**A technical and regulatory requirement**. The aim is **the functional and technical removal of barriers** and the establishment of minimum design standards.	Applies to the physical, communicative and organisational environment of the built space (routes, entrances, stops, information systems, etc.). It is implemented and specified through international and national standards: ISO 21542:2011, EN 17210:2020, and in the Ukrainian	This is **a narrower concept** compared to inclusivity. Accessibility alone **is insufficient** to achieve true inclusivity.

			context — DBN V.2.2-40:2018.	
Barrier-free	The Ukrainian National Concept, which is **a broad social strategy and philosophy of a society without restrictions**, ensuring equal rights and opportunities for all people. Although it translates literally as 'no-barrier', it has a broader interpretation.	Ensuring equal rights and opportunities. The aim is **to integrate** the principles of accessibility into urban planning as a practical, economic and moral imperative.	It covers **six areas**: physical, information and digital accessibility, social acceptance, access to education, and economic independence.	It shares **a common essence** with the European 'Inclusiveness' (DfA), as it goes beyond physical design. It combines the philosophy *of Inclusiveness* with the requirements *of Accessibility*.
Design for All (DfA)	A holistic and innovative approach. **A philosophy of urban planning** focused on human diversity, social inclusion and equality.	The aim is 'to enable all people **to have equal opportunities to participate in every aspect of society**'. It also involves transforming social norms and perceptions.	It extends the concept of inclusivity from architecture to **the organisation of social structures** in general.	In urban planning and architecture, it serves as a framework for developing policies and strategies that support inclusivity. In the built environment, the principles of Design for All are partly implemented through universal design and other tools to ensure accessibility.
Universal Design (UD)	The concept of designing products, environments, programmes and services that can be used **by everyone, as far as possible, without the need for**	An international standard. The aim is to create a space suitable for all users, benefiting everyone (including	It is based on **the Seven Principles** (equal use, flexibility, intuitiveness, perceptible information, tolerance of error,	It is one of the key concepts underpinning accessibility standards for the built environment. It supports the implementation of

	adaptation or special design.	people with temporary impairments, older people and parents with pushchairs).	low physical effort, size and space).	inclusivity within broader strategies, in particular Design for All.

General conclusions of Section 1

Public spaces in historic cities emerge as a multi-layered system in which residents' daily routes, tourist flows, meeting places and symbolic heritage sites intertwine with requirements for safety, mobility and community participation. In wartime and post-war conditions, it is precisely these spaces that serve as a test of a city's ability to ensure the right to the city for people with disabilities, older people, internally displaced persons, veterans and other vulnerable groups: they can either reproduce inequality or become a framework for inclusivity.

A typology of public spaces based on ownership status, access regimes and functional purpose shows that the inclusivity of the historic environment is the responsibility not of a single institution, but of a whole network of actors — from municipal services and state institutions to private owners and civil society organisations. This fragmentation of governance complicates the creation of a single 'ideal' model, but at the same time highlights the importance of a clear understanding of the functions of each type of space, the harmonisation of rules for their use, and the establishment of cross-sectoral cooperation.

The concepts of inclusivity, accessibility, universal design and Design for All form the conceptual framework of this guide. Inclusivity defines a value framework linked to human rights, non-discrimination and the participation of diverse groups in shared spaces. Accessibility describes the minimum technical and regulatory requirements that make it possible for people with reduced mobility to use the environment. In Ukrainian political discourse, these aspects are often referred to by the generalised term 'barrier-free', but within the scope of this guide, it is considered primarily as a communicative framework for promoting accessibility and inclusivity, rather than as a separate conceptual field. Universal design and Design for All offer design approaches that take user diversity into account from the outset and reduce the need for special adaptations. Distinguishing between these levels allows the subsequent sections to move sequentially from an analysis of standards and barriers to broader inclusive strategies.

Historical contexts, street morphology, variations in terrain, building density and regional traditions of spatial use present both constraints and opportunities for the transformation of historic public spaces. The conflict between preserving the authentic urban fabric and implementing accessibility solutions cannot be resolved solely through the literal application of regulations; adaptive, reversible and well-

reasoned interventions are required, which respect heritage whilst simultaneously expanding the range of people who can use it. In this sense, heritage is viewed not merely as an object of protection, but as a resource for fostering a sense of belonging and shared memory among different groups of city dwellers.

In this guide, historical heritage is consistently treated as a commons — a network of spaces for which responsibility is shared by the city authorities, the community and the professional community. For the restoration architect, this means not only the preservation of the physical substance and silhouettes, but also the search for solutions that open up access to these places for different user groups without compromising their authenticity and historical integrity.

The contexts, typologies and conceptual framework examined in the first chapter lay the groundwork for the subsequent sections of the guide. In the second chapter, accessibility will be analysed as the technical and regulatory basis for inclusivity, with a focus on specific barriers and the tools to overcome them, whilst in the third chapter, inclusivity will be examined as a broader socio-spatial process that combines the physical, sensory, psychological and cultural dimensions of the use of historic public spaces.

II. ACCESSIBILITY OF PUBLIC SPACES IN HISTORIC CITIES

Public spaces in historic cities — squares, streets, parks, and waterfronts — are places where residents and visitors exercise their right to the city, meet, move about, and participate in cultural life. If these spaces remain physically or sensorially inaccessible to some people, heritage itself is transformed from a resource into a factor of exclusion. Accessibility in this context means not only meeting minimum building requirements, but also enabling different groups of users to safely enter the space, move through it and remain there without needing to ask for help.

As shown in Section 1, the inclusivity of historic public spaces is impossible without a basic level of accessibility. At the same time, ensuring accessibility in historic cities takes place amidst a tension between preserving the authentic urban fabric and the need to adapt the environment to contemporary standards and modes of use. International documents and standards (ADA, 2010; EN 17210:2020; ISO 21542:2011, etc.) regard accessibility as a component of human rights and democratic urban governance, emphasising the need for ‘reasonable accommodation’ in historic environments.

In the Ukrainian context, the key framework is provided by DBN V.2.2-40:2018 ‘Inclusivity of Buildings and Structures. Basic Provisions’, supplemented by national accessibility strategies and the adaptation of European standards. These documents set out minimum requirements for routes, entrances, rest areas, information and navigation; however, they do not provide comprehensive answers to the question of how exactly to integrate these requirements into the sensitive fabric of historic centres. In this chapter, these requirements are interpreted as tools for realising the right to the city and the responsible management of the common good — historic public spaces — rather than merely as a list of formal regulations.

In this chapter, accessibility is considered as the technical and regulatory basis for the inclusivity of public spaces in historic cities. The chapter is based on a comprehensive approach that combines physical interventions, organisational decisions and communication strategies and adapts them to Ukrainian conditions. Subsection 2.1 presents key requirements and terms for various elements of public space; 2.2 analyses typical accessibility barriers in historic spaces; and Section 2.3 proposes a methodology for auditing and quantitative assessment (AII index, matrices, checklists), which will form the basis for the further consideration of inclusive approaches in Section 3.

2.1 Current requirements for the accessibility of public spaces

2.1.1 International standards and approaches

The international legal foundation is the UN Convention on the Rights of Persons with Disabilities, which enshrines the right to accessibility of the environment, information and services as one of the basic prerequisites for participation in society. It obliges states, including Ukraine, to remove barriers in the

physical environment, transport, information and communication technologies, and services, which directly concerns the organisation of public spaces in historic cities.

In European countries, national legislation such as the UK's Equality Act 2010 plays a significant role, introducing a duty of 'reasonable adjustments' for owners and operators of buildings and spaces. This approach is key for historic city centres: rather than a formal 'comply with all modern standards', the law requires solutions that are simultaneously effective, proportionate and respectful of heritage.

Technical standards ISO 21542:2011 'Accessibility and usability of the built environment', EN 17210:2020, as well as sector-specific standards for lifts (EN 81-70), tactile elements (ISO 23599) and the use of Braille (ISO 17049) form a detailed framework of parameters for accessible routes, level changes, navigation elements and information media. These are often more detailed or comprehensive than national building codes and serve as a benchmark for their updating.

Recommendations from initiatives such as the LHAC (League of Historical and Accessible Cities), the work of Historic England, ICOMOS and other institutions demonstrate how to ensure the accessibility of squares, streets, walls and sacred complexes without compromising their authenticity. Central to this is the principle of 'reasonable adaptation': a balance between heritage conservation and inclusivity is achieved through alternative routes, temporary solutions, non-invasive navigation, and collaboration with services and staff.

The European Union has a number of directives on digital accessibility and product accessibility that influence the presentation of information in public spaces: navigation boards, heritage websites, mobile apps and online booking systems must be accessible to people with various types of disabilities. This broadens the understanding of accessibility from 'the ability to physically move through a space' to comprehensive interaction with the environment and services.

Ultimately, Ukrainian regulations and international standards do not conflict with one another, but form a shared 'roadmap of standards': national DBNs provide the mandatory minimum, whilst international documents and practices offer guidelines for development, particularly in the complex conditions of historic cities.

2.1.2 Ukrainian regulations and standards

The main document defining the requirements for environmental inclusivity in Ukraine is DBN V.2.2-40:2018 'Inclusivity of Buildings and Structures'. It sets out an accessibility framework for a wide range of facilities — from public buildings to elements of the outdoor environment, including for people with reduced mobility (PRM). The adoption of this document resulted from the incorporation of the principles of democracy, justice and respect for human dignity into the state's spatial policy.

DBN V.2.2-40:2018 establishes minimum requirements for the width of pedestrian routes, the dimensions of ramps, stairs, lifts, sanitary facilities, wayfinding, lighting and information systems. For public spaces, it requires the provision of continuous barrier-free routes, sufficiently wide pavements,

control of level changes, accessible entrances, rest areas and sensory accessibility (visual, auditory and tactile).

The national regulatory framework is supplemented by DBN B.2.2-12:2019 ‘Landscaping of Territories’, which regulates the organisation of outdoor spaces: pavements, squares, public gardens, parks and landscaping features. It sets out requirements for types of surfacing, minimum widths of pedestrian zones and passageways, the placement of street furniture, green spaces, small architectural forms and engineering infrastructure, taking into account the needs of people with disabilities and other people with special needs. Importantly, this document allows for context-specific solutions in historic settings, enabling accessibility to be combined with the preservation of cultural heritage.

At the local level, the requirements are implemented through urban improvement regulations, detailed area plans, public space development programmes, and concepts for the preservation of historic areas. It is here that national standards are ‘grounded’ in specific areas, streets, squares and neighbourhoods: barrier-free routes, access points, and the locations of ramps, lifts and wayfinding signs are determined.

Ukrainian standards explicitly mention various categories of users: people in wheelchairs, people with visual and hearing impairments, people with cognitive impairments, older people, parents with pushchairs, and people with temporary reduced mobility. Understanding the specific needs of each category of people with disabilities is critical for interpreting technical requirements: the same parameters (for example, pavement width or kerb height) affect a person in a wheelchair, a parent with a pram, or a person with balance difficulties in different ways.

2.1.3 Technical requirements and parameters for accessible public spaces

2.1.3.1 Pedestrian routes and pavements: requirements and application in a historic context

Requirements for pedestrian routes form the basis for ensuring safe and comfortable movement in historic centres. International studies of routes in the historic centres of World Heritage cities (notably in Ávila, Toledo and Santiago de Compostela) show that it is the continuity of the pedestrian network, the availability of alternative routes and the quality of connections with public transport that are key indicators of the accessibility of the historic environment (Jiménez Martín, Ramírez Saiz & Ajuriaguerra Escudero, 2022).

The pavement is divided into functional zones, including a transit zone, which ensures continuous, straight and safe pedestrian movement (DBN V.2.2-40:2018). The recommended width of the transit zone is at least 1.8 m; near construction sites, it is at least 1.2 m, free of steps and obstacles (DBN V.2.2-40:2018). This minimum width allows two people to pass each other, including a person in a wheelchair and another pedestrian (Fig. 2.1).

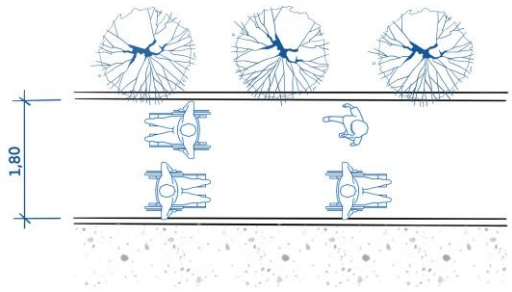

Fig. 2.1 — The width of the pavement must be at least 1.50 m, and ideally 1.80 m — this ensures that a person in a wheelchair can pass a pedestrian or turn their wheelchair around. Designed by the authors based on: Cabinet of Ministers of Ukraine (2018)

It is important to understand the rationale behind these minimum widths. The width of a wheelchair is approximately 0.65 m. If space for manoeuvring (turning, navigating around obstacles) is added, the required space is around 0.95–1.0 m. Two such spaces should be sufficient for manoeuvring, resulting in a total recommended width for the main route of around 1.8 m (Big City Lab, 2021).

The cross-slope of the pavement should be 1–2% towards the carriageway, and the longitudinal slope should not exceed 5% (DBN V.2.2-40:2018). This allows people in wheelchairs and those with reduced mobility to move independently without undue effort. No obstacles may be placed on pedestrian routes (DBN V.2.2-40:2018). This means that kiosks, signs, flower pots and other objects commonly placed on pavements must be situated outside the main traffic zone. General principles of universal design are set out in section 1.2 and Table 1.1.

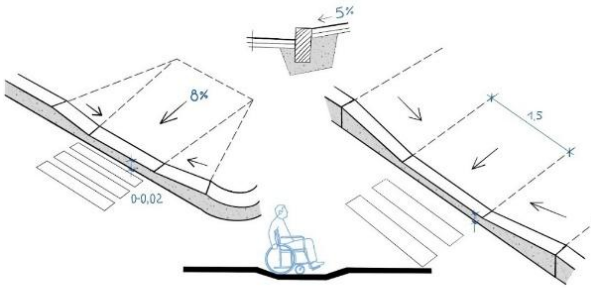

Fig. 2.2 — Equipment for a ground-level pedestrian crossing (Cabinet of Ministers of Ukraine, 2018)

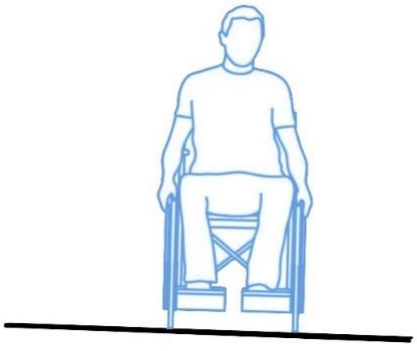

Fig. 2.3 — Cross-slope of the traffic lane 1–2%. Developed by the authors based on DBN V.2.2-40:2018

An important element of the pedestrian route structure is the kerb (kerbstone), which separates the pavement from the carriageway, lawn or other areas of public space. In accordance with DBN V.2.2-40:2018, a kerb used as a safety and orientation aid must have a height of at least 0.02 m and a colour that contrasts with the surface of the pedestrian path (a ‘light/dark’ combination). At the ends of kerbs, where it is necessary to ensure continuity of the direction of movement, it is recommended to use combined surfacing or special tactile strips (Appendix G of DBN V.2.2-40:2018). When constructing

pedestrian crossings, the kerb must be lowered to a level convenient for wheelchair users and people with pushchairs; the longitudinal slope of kerb ramps is determined in accordance with Table 5.1 of these DBN, ensuring the continuity of the route without sudden changes in height.

The surface must be firm, level and non-slip in wet weather (DBN V.2.2-40:2018). Firmness ensures that wheelchairs and walkers can move easily. Evenness is critical for people with balance impairments and older adults. Non-slip properties ensure safety in wet weather and on winter ice.

Fig. 2.4 — Concrete paving slabs (Big City Lab, 2021)

Fig. 2.5 — Shaped paving elements (Big City Lab, 2021)

Fig. 2.6 — Natural stone paving slabs (Big City Lab, 2021)

When using old paving or replicas thereof in historic areas of the city, the stones must be level and the joints no wider than 15 mm (Accessibility Album, 2021)

The thickness of the joints between elements must not exceed 5 mm (DBN V.2.2-40:2018). International standards set this maximum gap between paving elements at precisely 5 mm (Fig. 2.4, Fig. 2.5, Fig. 2.6), as this is the critical point at which the small wheels of wheelchairs do not get stuck (Big City Lab, 2021). If this value is exceeded, people in wheelchairs experience sudden jolts, which can cause loss of balance and injury.

Historic centres often feature cobblestones or other traditional materials that, by their very nature, have larger gaps. For example, classic brick or stone paving often has gaps of 10–20 mm. This creates a serious dilemma: how to preserve the historic character of the space whilst ensuring accessibility? Solutions include (Historic England, 2015a):

1) Re-laying paving stones with tighter joints, using modern materials (sand, special mortars) that allow gaps to be reduced to 5 mm.
2) A top layer of modern material over historic paving, providing the necessary smoothness whilst preserving the historic material beneath (Fig. 2.8);
3) Selective resolution of specific obstacles in areas of high footfall (Fig. 2.9);
4) Drainage and prevention of waterlogging (Fig. 2.10).
5) Grinding existing paving to bring it up to standard (Fig. 2.7).

An important aspect often overlooked in the design of public spaces is excess water during rain or snowmelt. Pavements must have adequate drainage to prevent the formation of puddles and wet patches. People in wheelchairs and those with reduced mobility may find it difficult to navigate through

water, as this not only creates a physical barrier but also makes orientation impossible for people with visual impairments (who often rely on tactile paving, which is not visible when submerged).

Fig. 2.7 — Chiselled historic paving near the City Council in Lviv (Photo by the author)

Fig. 2.8 — Part of the surface covered with a modern layer (asphalt) to create smooth routes (Stone Curators, 2025)

Fig. 2.9 — Localised inserts of smooth tiles or strips that make key points (entrances, bus stops, crossings) more accessible without altering the entire area. A street in Tallinn, Estonia (WheelchairTravel.org, 2023)

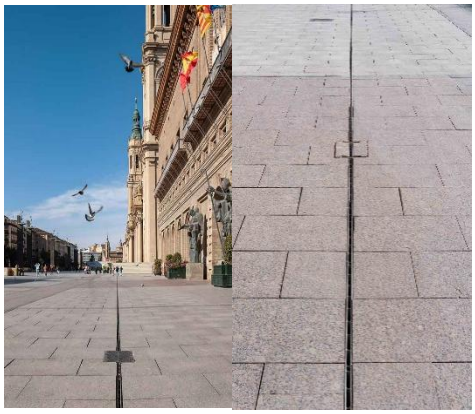

Fig. 2.10 — Concealed drainage system in Plaza del Pilar, Zaragoza, Spain (ULMA Architectural Solutions, 2025)

Pavement drainage should be provided both through a gentle slope and via drainage grates or perforated hatches. However, these grates and hatches can themselves pose an obstacle if they are not designed correctly. DSTU sets a maximum size for the gaps in drainage grates to prevent wheelchair wheels from getting stuck (DBN V.2.2-40:2018). By adhering to these requirements, people in wheelchairs, parents with pushchairs and older people can use pavements and pedestrian routes without the constant risk of losing their balance or getting stuck in damaged surfacing.

For a restoration architect, it is crucial that improving the accessibility of pedestrian routes should not lead to the unjustified loss of historical materials. Preference is given to solutions that preserve the authentic paving and kerbs: the use of inserts made from compatible but distinctly modern materials, local levelling at key points, and the installation of continuous strips of accessible surfacing alongside preserved sections of cobblestones. Such interventions must be as reversible as possible so that,

should requirements or approaches to restoration change, they can be removed without damaging the original fabric of the space.

2.1.3.2 Stairs, level changes and ramps: addressing complex topography

Stairs are one of the greatest barriers for wheelchair users, people with reduced mobility and older people. More often than not, people with disabilities are excluded from participating in public life precisely because of the presence of stairs, which impede access. In Lviv, for example, the city centre is characterised by complex topography with numerous staircases connecting different levels of the urban fabric. Solving this problem often requires the creation of parallel ramps, which can significantly alter the architectural appearance of the historic area.

Stairs can serve both as an architectural element defining the composition of a square or courtyard, and as a functional element organising movement between different levels. In cases where stairs are an integral part of the historic design of a space, their complete removal may result in the loss of the site's cultural value. However, this does not mean that people with disabilities should be excluded from access. Instead, adaptive solutions are required that will ensure access without compromising the historic integrity (Fig. 2.11).

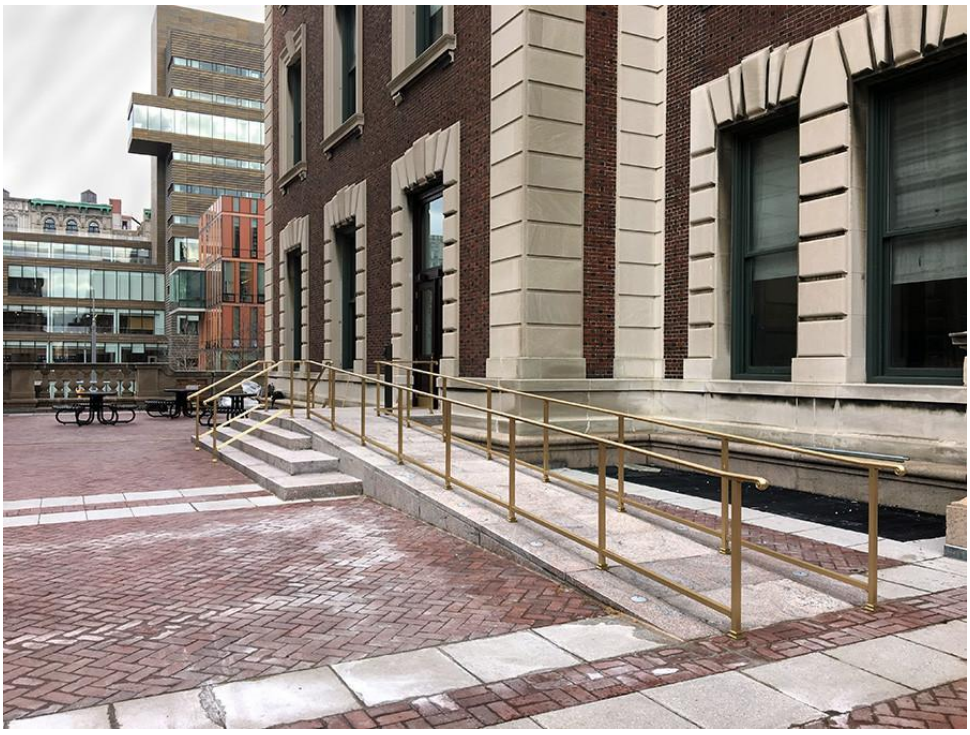

Fig. 2.11 — Example of a ramp leading to the entrance of Columbia University's Morningside campus (Columbia News, 2019)

The minimum length of a ramp is determined by a calculation based on the gradient. The maximum gradient of a ramp is set at 1:12 (equivalent to approximately 8.3%), although ideally a maximum of 1:20 (5%) is recommended for longer distances (DBN V.2.2-40:2018). Fig. 2.12.

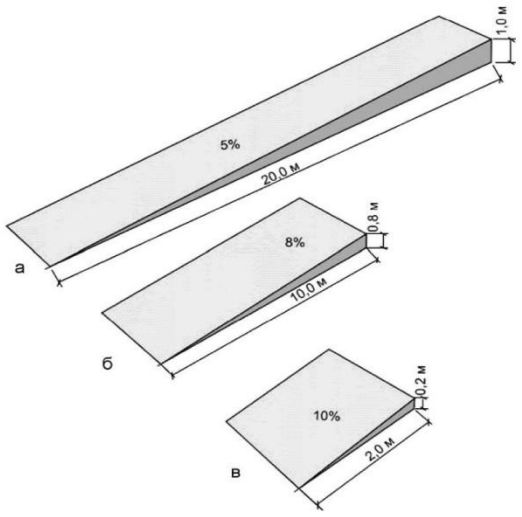

Fig. 2.12 — Diagram of external ramp gradients a — safe gradient requiring no additional fittings; b — safe gradient where the height difference exceeds 0.45 m; in this case, it is necessary to install kerbs along the edge of horizontal surfaces or handrails; c — permitted where the height difference of surfaces on walkways is 0.2 m or less (DBN V.2.2-40:2018)

In accordance with DBN V.2.2-40:2018, open ramps on pedestrian routes must have a clear width of at least 1.2 m. During the renovation of historic buildings, in exceptional cases , a reduction in width to 1.0 m is permitted, and for temporary ramps – to 0.9 m. The height of a single ramp rise must not exceed 0.8 m; horizontal landings with a depth of at least 1.5 m must be provided between rises (DBN V.2.2-40:2018).

International studies show that over 60% of people in wheelchairs cannot independently negotiate a gradient of more than 5–6%, which poses a serious barrier in historic centres (Historic England, 2015a). Therefore, although the regulatory maximum is 8.3%, in practice a gentler gradient is often required to ensure genuine accessibility for the widest possible range of users (Fig. 2.13, Fig. 2.14).

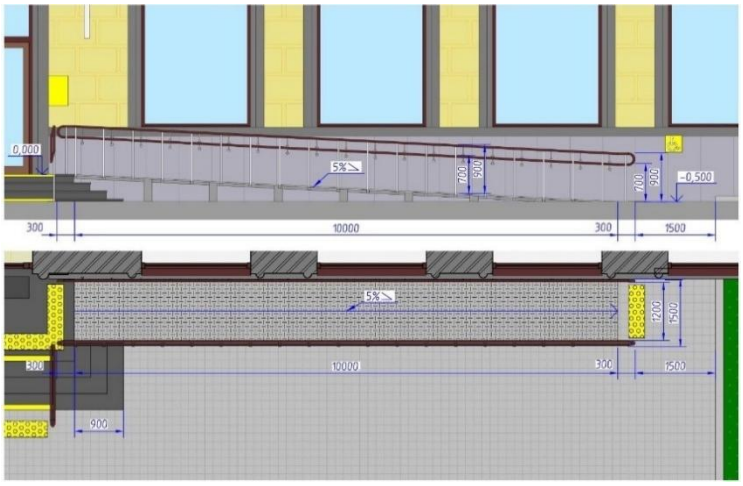

Fig. 2.13 — Diagram of a single-flight ramp (MB.expert, 2025)

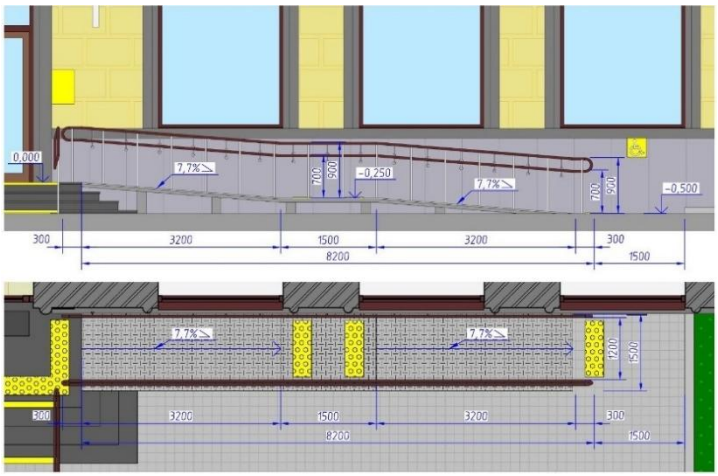

Fig. 2.14 — Layout of a two-flight straight ramp (MB.expert, 2025)

External ramps must have a double-sided guardrail with handrails (Fig. 2.15). Ramps 3.0 m high or more may be replaced by lifting devices.

The surface of the ramp must be textured, clearly marked by colour or texture, and contrast with adjacent horizontal surfaces (DBN V.2.2-40:2018). However, in a historic setting, garish markings should be avoided.

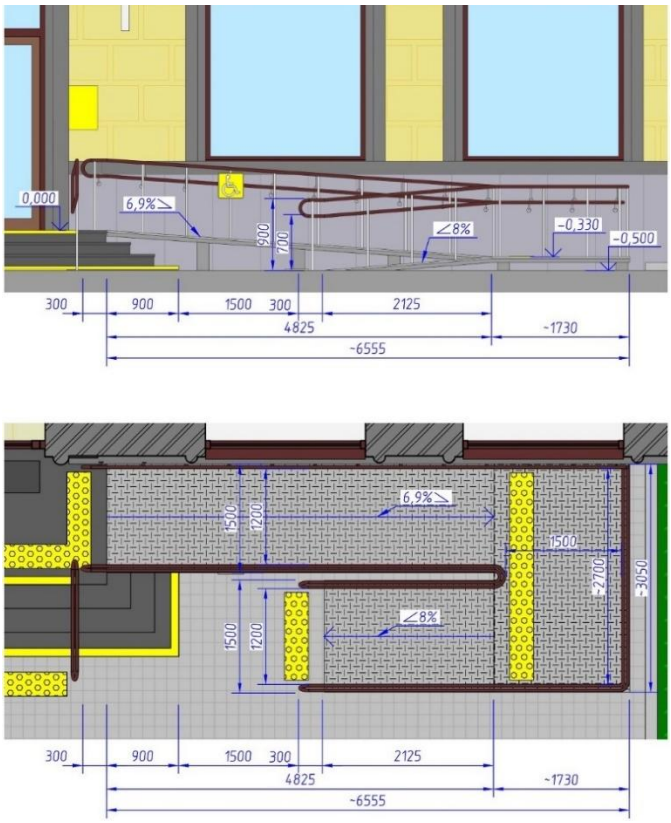

Fig. 2.15 — Schematic of a two-flight curved ramp (MB.expert, 2025)

Designing ramps in a historic context requires creativity. Ramps are often viewed as temporary structures installed only when necessary. Portable ramps can be installed and removed as required, allowing the historic appearance of the space to be preserved in its usual state.

Other solutions include (Historic England, 2015a):

1. Hidden ramps below ground level, which become visible only when activated;
2. Spiral ramps in areas where a straight ramp is not possible due to lack of space;
3. Ramps integrated into lifts that descend in areas with significant changes in elevation (Fig. 2.18);
4. Alternative routes via adjacent streets with a gentler gradient;
5. Lifting devices in areas where other solutions are technically impossible (Fig. 2.17).
6. Terrain and slopes in historic cities (Fig. 2.17)

Fig. 2.16 — Lifting device in the underground passage on Mytna Square in Lviv (Roman Baluk)

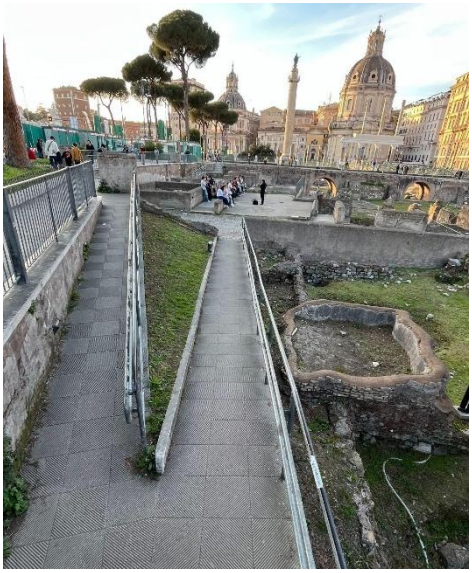

Fig. 2.17 — Ramp at a cultural heritage site, the Imperial Forums in Rome, Italy (Photo by the author)

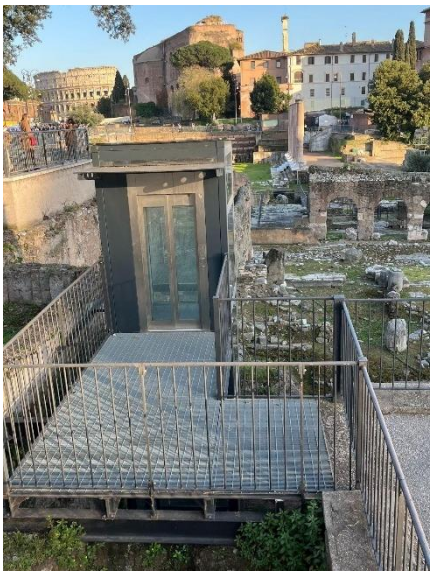

Fig. 2.18 — Lift at a cultural heritage site, the Imperial Forums in Rome, Italy (Photo by the author)

Historic centres are often situated on slopes, creating steep alleys and narrow pedestrian routes. The gradient of the terrain can reach 40–50%, which poses a serious obstacle for wheelchair users and

people with reduced mobility (Ambrose et al., 2016). For example, in Viborg (Denmark), a participant in the LHAC project, the city is situated on a steep slope, and the historic centre contains numerous staircases that facilitate movement up and down the slope.

In such conditions, accessibility cannot be achieved solely through local adaptations at the level of individual squares or streets. Instead, a systematic strategy is required, which is discussed in more detail in the methodology of this section (Ambrose et al., 2016).

All solutions for overcoming height differences in the historic environment must be assessed in terms of their impact on the authentic substance. Fixed ramps, which require the removal of historic staircases, plinths or portal elements, should be considered as a last resort after analysing the feasibility of using lifting platforms, reversible metal ramps, alternative routes or internal lifts. The task of the restoration architect is to minimise irreversible losses and to select solutions that are perceived as a contemporary layer and do not imitate historical forms.

2.1.3.3 Entrances, doors and handrails: ensuring safety and accessibility

Historic buildings have unsuitable entrances with porches, steps and high thresholds, which create critical barriers for users with reduced mobility. In accordance with DBN V.2.2-40:2018, the clear opening of an accessible entrance door in new and renovated buildings must be at least 0.9 m (in exceptional cases during renovation – at least 0.8 m), and the threshold height must not exceed 0.02 m; where separate threshold elements are used, the height of each must not exceed 0.015 m, with bevelled edges (DBN V.2.2-40:2018). Most historic doorways do not meet these requirements and require adaptation or the use of reasonable adjustments.

The issue of threshold height deserves particular attention. Even a slight difference in level between the floor and the street surface creates a significant barrier for people with musculoskeletal impairments, wheelchair users, people of short stature, or parents with pushchairs. People in wheelchairs are usually forced to use their front wheels to negotiate such a threshold, which requires additional strength, assistance from a companion, and creates a risk of losing balance. Even a threshold 5 cm high is a serious obstacle for many wheelchair users (Big City Lab, 2021).

Fig. 2.19 — Lifting platform at the entrance to the Garrison Church, Lviv (Lviv City Council, 2025)

Solutions for historic entrances with steps include (Historic England, 2015a):

1. Mobile ramps with a rubber base, which are installed as needed and removed for storage;
2. Lifting platforms or mechanical lifts that raise a person to the entrance level (Fig. 2.21);
3. Alternative entrances at the same level as the pavement, if the main historic entrance is raised;
4. Partial removal of the threshold and its replacement with a gentle ramp (maximum 1:12).

Heavy doors and doors with high thresholds pose an obstacle for people with reduced mobility (DBN V.2.2-40:2018). Doorways are often narrower than the standard width (0.9 m), making it difficult for wheelchair users or those using pushchairs to pass through (DBN V.2.2-40:2018).

Door opening mechanisms should be easy to use. Automatic doors with motion sensors are the most accessible option (Fig. 2.20), but they are often expensive. Alternative options include door closers with adjustable resistance to prevent the door from closing too quickly (Fig. 2.21), or manual door openers (a handle in the shape of a P-shaped bracket instead of a traditional knob), which are easier to operate for people with limited hand strength.

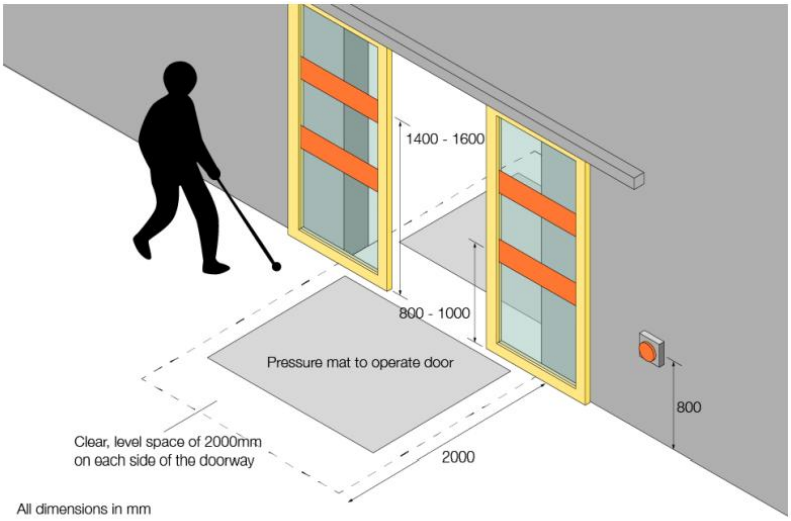

Fig. 2.20 — Automatic sliding doors (Inclusive Mobility, 2021)

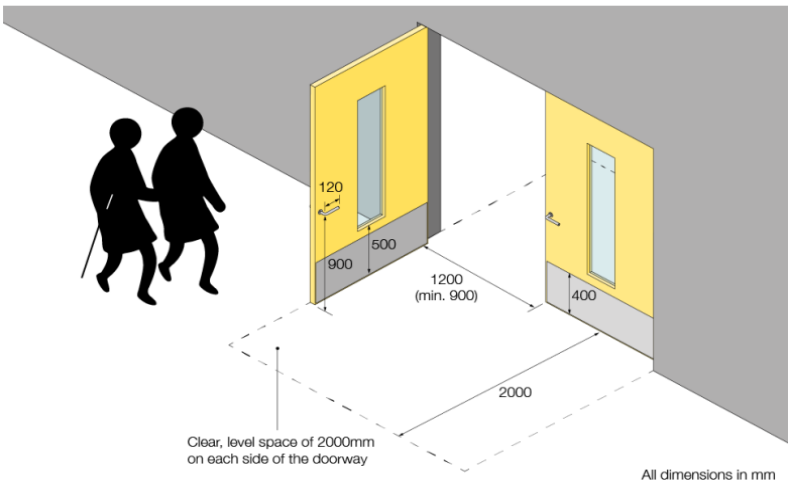

Fig. 2.21 — Manually operated doors (Inclusive Mobility, 2021)

Handrails are a critical element of accessibility, particularly on stairs and ramps. Handrails should be 0.75–0.9 m above the stair surface, be continuous, and have a diameter of 30–50 mm (DBN V.2.2-40:2018). This ensures that people of different sizes can grip the handrail firmly.

On ramps, handrails must be located on both sides and extend 30–40 cm beyond the length of the ramp on each side (DBN V.2.2-40:2018). This ensures that the handrail can be grasped before entering the ramp and after exiting it, which is critically important for people with balance impairments (Fig. 2.22).

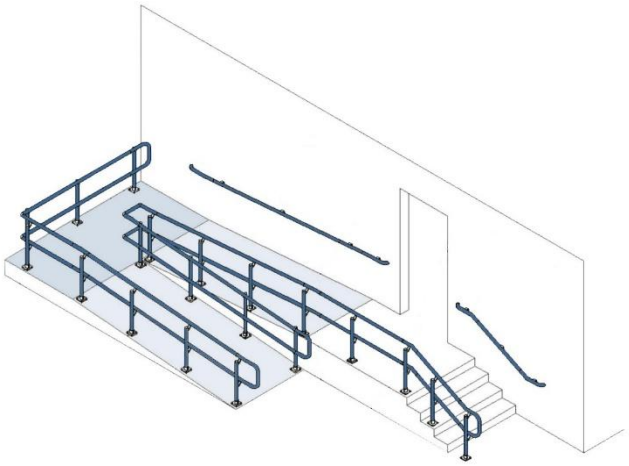

Fig. 2.22 — Handrail design in accordance with DBN V.2.2-40:2018 (ArchDaily, 2024)

Fig. 2.23 — Handrails made from a material that is comfortable to use in cold weather (Rapid Ramp, 2019)

The material of handrails must be such that it does not become cold in winter (DBN V.2.2-40:2018). Metal can be too cold to hold with bare hands in winter, so a covering made of a warm material, such as PVC or wood, is recommended (Fig. 2.23). Well-designed entrances, doors and handrails enable

people with impaired balance, mobility or vision to safely enter and exit buildings without additional assistance, and for many, they make a visit to historic sites possible at all.

When working with historic entrances, it is important not only to meet regulatory standards but also to preserve the characteristic proportions, details and materials of the portal. Where possible, priority should be given to solutions that do not alter the configuration of authentic steps and thresholds: the use of lifting platforms invisible from the street, organising access via secondary but historically neutral entrances, or creating gentle slopes within later additions. Any intervention in the original stone, brick or timber fabric must be minimal and thoroughly justified in the restoration project.

2.1.3.4 Sensory and information provision

The principles of navigation and spatial orientation discussed in the previous sub-section are implemented through a comprehensive system of sensory and information support. In the public spaces of historic towns, this primarily concerns external pedestrian routes, squares, streets, parks, areas adjacent to buildings and zones in front of building entrances. It is in these spaces that users need not only to ‘see’ the route, but also to understand in real time where they are, where they are going, and which actions are safe and appropriate (DBN V.2.2-40:2018; Historic England, 2015a; Inclusive Mobility, 2021).

The requirements for sensory and informational provision in an accessible environment are comprehensive and encompass both physical (visual, tactile, auditory) elements integrated into the space, as well as communication and organisational processes. In the context of open public spaces, this system is viewed as a continuous chain – from public transport stops, drop-off and parking points to entrances to historic squares, parks, courtyards, inner courtyards of neighbourhoods, and to the main entrances of public buildings bordering these spaces. The main objective is to ensure the continuity of information, timely orientation and unambiguous identification of objects and risk zones. This is particularly important for people with visual, hearing, motor and cognitive impairments who use various sensory channels – sight, touch, hearing – to navigate the external environment (DBN V.2.2-40:2018).

In the visual layer, the key requirements are legibility, contrast and the absence of optical traps on open routes. Regulatory documents emphasise that dangerous changes in level, thresholds, steps, ramps, kerbs and other potentially hazardous elements on streets and squares must be clearly distinguished visually: the edges of steps and the outermost elements of staircases are marked with contrasting stripes at least 100 mm wide, and the edge of the step must be rounded with a small radius to reduce the risk of tripping. In places where the pedestrian route crosses into the carriageway, kerb ramps, contrasting markings at the edge of the crossing and clearly marked safety islands must be used. Transparent elements in open environments (e.g. glazed bus shelters, transparent barriers, modern entrance portals) must be visually distinct from the background, and transparent surfaces must be marked with contrasting stripes or pictograms at eye level. All information displayed on street pillars, signposts and plaques must be presented in a large, easily legible sans-serif font ( ), using a high-contrast colour scheme, with concise and unambiguous text (Historic England, 2015a; Inclusive Mobility, 2021).

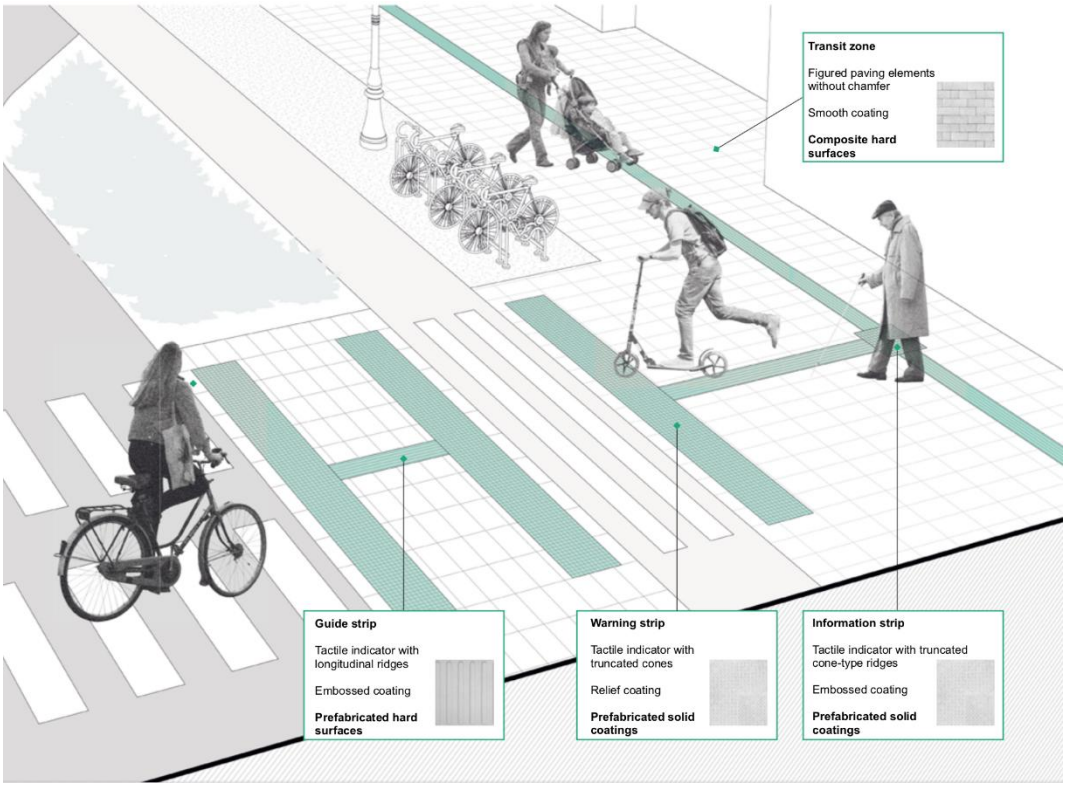

Fig. 2.24 — Installation of special tactile navigation at a crossing (Big City Lab, 2021)

The tactile layer of the wayfinding system in public spaces is formed by tactile accessibility features – primarily tactile strips and tactile information signs. On open pedestrian routes, tactile strips must be distinguishable from the main surface both by touch and sight: their texture must be clearly detectable by a white cane and the sole of a shoe, and their colour must contrast with the background surface. Warning tactile strips are used to signal danger: before exits onto the carriageway, before steps, before areas where the passage narrows sharply, and before the edge of a tram or bus stop platform. They are positioned at a distance sufficient for a safe stop – approximately 0.2–0.8 m before the hazardous area – and across the entire width of the route. Tactile guide strips are used in large, complex spaces where there are no clear natural landmarks: in open areas in front of stations, at transport hubs, and in the branching pedestrian zones of the historic centre. They help users find the main axis of movement to tactile and visually marked key points – entrances, stops, information stands.

Orientation and navigation in public spaces are critical for users' independent mobility (Fig. 2.24). The navigation system must take into account the needs of people with visual, hearing, mobility and cognitive impairments (Big City Lab, 2021). According to HEAG011 (Historic England, 2015a), successful orientation depends on the sequence of signs, redundancy of information and ease of use.

1. Visual signs should be positioned at a height of 1400–1600 mm with a contrasting colour scheme, 16–22 point font, and a contrast ratio of 3:1 (5:1 is recommended). Symbolic markings are understandable to a wide range of users, including people with learning difficulties (Inclusive Mobility, 2021).

2. Tactile strips for people with visual impairments. Tactile studs 5.5 mm high are positioned along the route. Mosaic strips at crossing points have a contrasting colour difference (minimum 2.5:1 in brightness) from the surrounding surfaces (Inclusive Mobility, 2021).

3. Audio signals indicate safe crossings. The volume is adjustable (60–80 dB) for people with hearing impairments. Directed audio cues via mobile apps provide personalised guidance (Inclusive Mobility, 2021).

4. Information boards are positioned at a height of 1400–1500 mm (for standing users) and 900–1100 mm (for wheelchair users). Font size 22–28 points, matt finish without glare, simple language without abbreviations.

5. QR codes at a height of 900–1200 mm allow users to download detailed route information. Audio guides, digital maps with a read-aloud function, and WCAG 2.1-compliant websites (Burton & Mitchell, 2006) enhance the user experience.

Tactile information signs and mnemonic diagrams in the outdoor environment complement the system of visual signs. These may include raised tactile signs with Braille on street bollards, at entrances to squares or parks, near main staircases or ramps, as well as tactile maps (schematic diagrams) providing a scaled-down layout of a historic square, memorial complex, park or neighbourhood. Such elements are placed at accessible points – near main entrances, at intersections of pedestrian routes, and near meeting points – so that users can form a preconceived idea of the structure of the space, the main routes and landmarks.

The auditory component of the orientation system in open public spaces consists of audio signposts and public address systems. It is advisable to place audio beacons at controlled pedestrian crossings, in areas where the direction of movement changes, near the entrances to important public buildings, stations or transport hubs, as well as on bus stops where sound can help users find the right direction. Sound signals must be loud enough to be heard against the background of urban noise, but must not create excessive acoustic stress for users and the environment. In places where a public announcement system is used (for example, in large squares during events, or in open transport hubs), it is important to ensure that audio information is supplemented by visual channels – display boards, electronic signs, pictograms and text messages. This approach is critical for people with hearing impairments, as well as in situations where an audio announcement may be partially inaudible due to background noise (Inclusive Mobility, 2021).

Lighting in open public spaces is an integral part of sensory and information provision. The illumination of pedestrian routes, stairways, platforms, crossings and level changes must be sufficient to ensure safe movement and the legibility of information on signs and steles. At the same time, sharp shadows, dazzling glare and significant differences in brightness between adjacent areas must be avoided, as these make it difficult to recognise steps, kerbs and tactile strips, particularly in wet weather or when the sun is low in the sky. In areas with heavy pedestrian traffic (squares in front of stations, crossroads, public transport stops), it is advisable to provide increased lighting levels to improve the visibility and perception of navigational elements.

Organisational measures complement the physical elements of sensory and information provision. These include maintaining the legibility and functionality of street signs and information boards, the timely restoration of high-contrast markings on steps, ramps, kerbs and tactile paving, as well as training municipal staff, guides, volunteers and security personnel on how to interact with people with reduced mobility in historic public spaces. In European cities, it is also common practice to provide additional aids – portable audio guides, tactile maps, and mobile navigation apps – which help to compensate for those barriers that cannot be completely removed due to restrictions related to the preservation of cultural heritage. In the case of historic squares, streets and parks, it is important that all decisions regarding sensory and information provision simultaneously meet safety and accessibility requirements and do not compromise the authentic structure and visual character of the historic environment (Historic England, 2015b).

Fig. 2.25 — City information map (Senatsverwaltung für Stadtentwicklung, Bauen und Wohnen, 2021)

The system must combine all components: a sequence of wayfinding signs, redundancy of information (visual + audio + tactile), and ease of use. Successful examples in European airports demonstrate how a combination of different types of wayfinding signs provides orientation for everyone. High-quality navigation increases autonomy, reduces uncertainty, and makes spaces truly accessible (Accessibility Album, 2021; Historic England, 2015a; Inclusive Mobility, 2021).

For historic public spaces, it is particularly important that tactile and information elements do not obscure valuable features such as façades, shop windows, carved portals or historic paving. Brackets, navigation post stands, tactile diagrams and tactile strips should be positioned in areas of lower sensitivity, using methods of fixing them into joints, seams or within the structures of modern overlays.

This approach ensures the legibility of the route whilst preserving the visual integrity and material authenticity of the historic environment.

2.1.3.5 Rest areas. Technical aspects

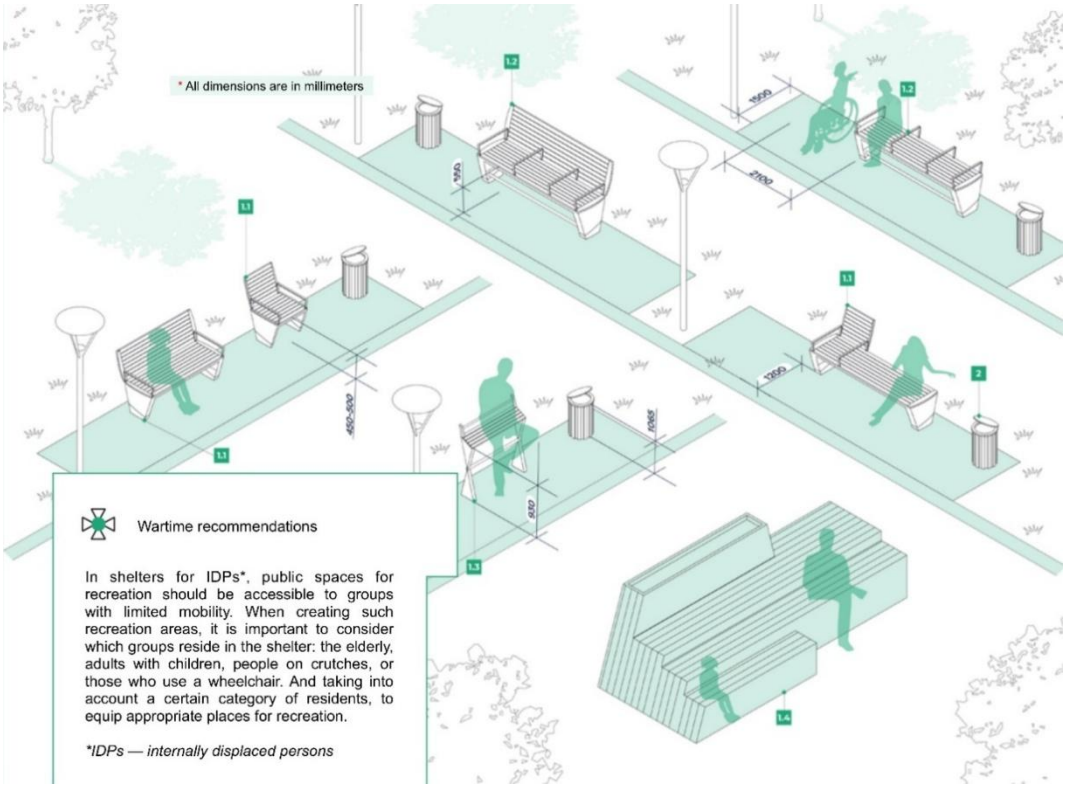

Fig. 2.26 — Seating areas on transit routes (Big City Lab, 2021)

To create a comfortable environment along pedestrian routes, seating areas are provided at regular intervals. DBN V.2.2-40:2018 (clause 5.1.12) recommends providing rest areas for people with mobility impairments at intervals of approximately 30–100 m, with a surface that differs in colour or texture from the main path. Practical recommendations from Ambrose et al. (2016) and the ‘Accessibility Album’ (Accessibility Album, 2021) specify that on routes with a high proportion of elderly people, individuals with chronic conditions or those recovering from injuries, it is advisable to aim for the lower end of this range (approximately 30–50 m).

Explanation of Fig. 2.26 (Barrier-Free Album, 2021):

1. Seating

Seating should be provided both along transit routes and in areas designated for group or individual rest. Benches should vary in terms of anthropometric characteristics, i.e. take into account the dimensions of different users, and may be designed as single-seater or multi-seater. If a bench is located on transit routes, the minimum distance from the edge of the traffic lane should be 1.2 m to ensure sufficient legroom. Adjacent to the benches, a clear space of approximately 2.1 m in width and 1.5 m in depth must be provided for a person in a wheelchair, with a pushchair or with luggage. The

recommended backrest angle is approximately 76°, and armrests should be positioned at a height of approximately 200 mm from the seat level.

DBN V.2.2-40:2018 also stipulates that rest areas must be situated adjacent to footpaths in such a way that the distance from the outer edge of the bench seat to the edge of the footpath is at least 0.6 m. A clear area at least 1.2 m wide should be provided next to the bench to allow for the approach and manoeuvring of a wheelchair, as well as convenient access for accompanying persons (DBN V.2.2-40:2018).

1.1 Standard seating area

A standard seating area shall be positioned at a height of 450–500 mm above floor level, with or without a backrest, designed for the comfort of the majority of adult users.

1.2 Seating for elderly people

A seating position at a height of approximately 550 mm is more comfortable for elderly people; it is fitted with armrests and may have a backrest or be without one; additionally, a footrest is provided so that it can be used for support when sitting down and standing up.

1.3 Raised seating (semi-standing)

A seat at a height of approximately 930 mm is designed for people who find it difficult to sit down fully; it allows them to ‘rest’ in a semi-standing position and is fitted with a backrest and a footrest, providing additional support.

1.4 Seating for children

A seat at a height of 310–380 mm is designed to accommodate the reach of younger children and can be placed near playgrounds or in areas used by mixed-age groups.

2. Rubbish bins

It is recommended that litter bins be placed separately from seating areas, but not far from waiting and rest areas, preferably with a lid to protect against the weather and an open opening for disposing of rubbish. The height of the waste disposal opening should be approximately 1065 mm to ensure ease of use for people of different heights, including wheelchair users. The litter bin should not be placed in the path of pedestrian traffic; it should be situated in buffer or technical areas of the pavement, without reducing the usable width of the pedestrian route.

Weather protection is also critically important. Seating areas should have a roof or partial shelter from rain and sun (Big City Lab, 2021; see Fig. 2.27). In historic centres, this is often achieved by placing benches under the canopy of large trees or in the porticoes of historic buildings (Historic England, 2015a).

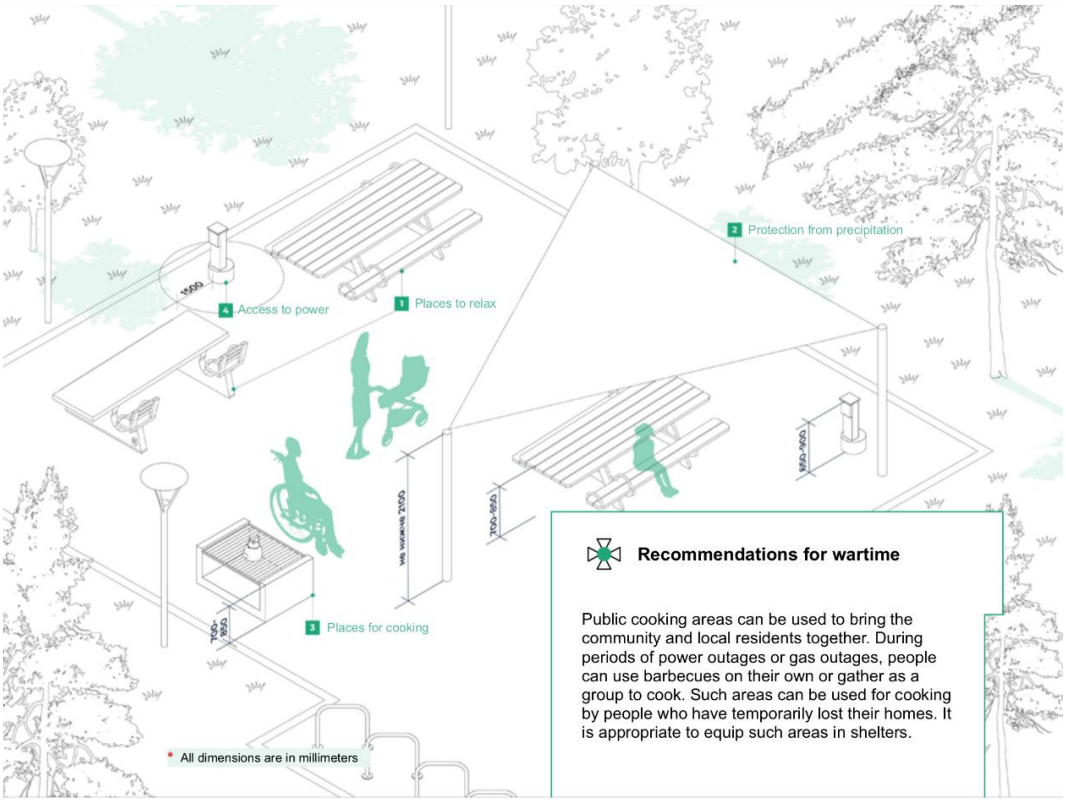

Fig. 2.27 — Design of an accessible quiet rest area (Big City Lab, 2021)

Explanation of Figure 2.27 (Accessibility Album, 2021):

1. Rest areas

The surface of a picnic table should be at a height of 700–850 mm. It is preferable to position the legs either as a single central support or four at the edges, so that the space under the tabletop is accessible to a wheelchair. Seats should be available in versions with and without backrests and armrests; some benches may be mobile and easily repositioned without significant physical effort.

2. Protection from the elements

Picnic areas should preferably be situated in the shade or under a canopy that provides protection from the sun and rain. The recommended height of the lower edge of the canopy is at least 2.1 m.

3. Food preparation areas

In public spaces, special, environmentally safe food preparation areas should be provided: communal or individual barbecues. Regardless of the design, the height of the work surface should not exceed 700–850 mm above ground level.

4. Access to power

To charge gadgets and electric wheelchairs, sockets with contrasting markings and a clear access area of at least 1.5 m are required. It is advisable to position them near tables at a height of 650–900 mm, fitted with a protective cover and a waterproof design for safe use.

Ultimately, rest areas in historic public spaces should be viewed not as ‘decorative’ benches, but as key nodes in a continuous, barrier-free route. Their layout should ensure regular spacing, convenient access for wheelchair users, and a comfortable and safe place to rest, whilst delicately integrating into the spatial structure and visual character of the historic environment.

From the perspective of a restoration architect, new seating elements, canopies and small architectural forms should be perceived as an honest contemporary layer, delicately integrated into the existing structure. It is advisable to avoid pseudo-historical stylisations that blur the line between authentic and new objects, instead employing a restrained contemporary language of forms and materials with the most reversible installation methods.

2.1.3.6 Parking spaces and public transport stops

Parking spaces and public transport stops are critical links in a continuous, barrier-free route through historic public spaces. It is here that the transition takes place from the vehicle to the pedestrian environment – squares, streets, courtyards, building entrances – so the requirements for their organisation directly affect the ability of people with reduced mobility to move around independently and safely.

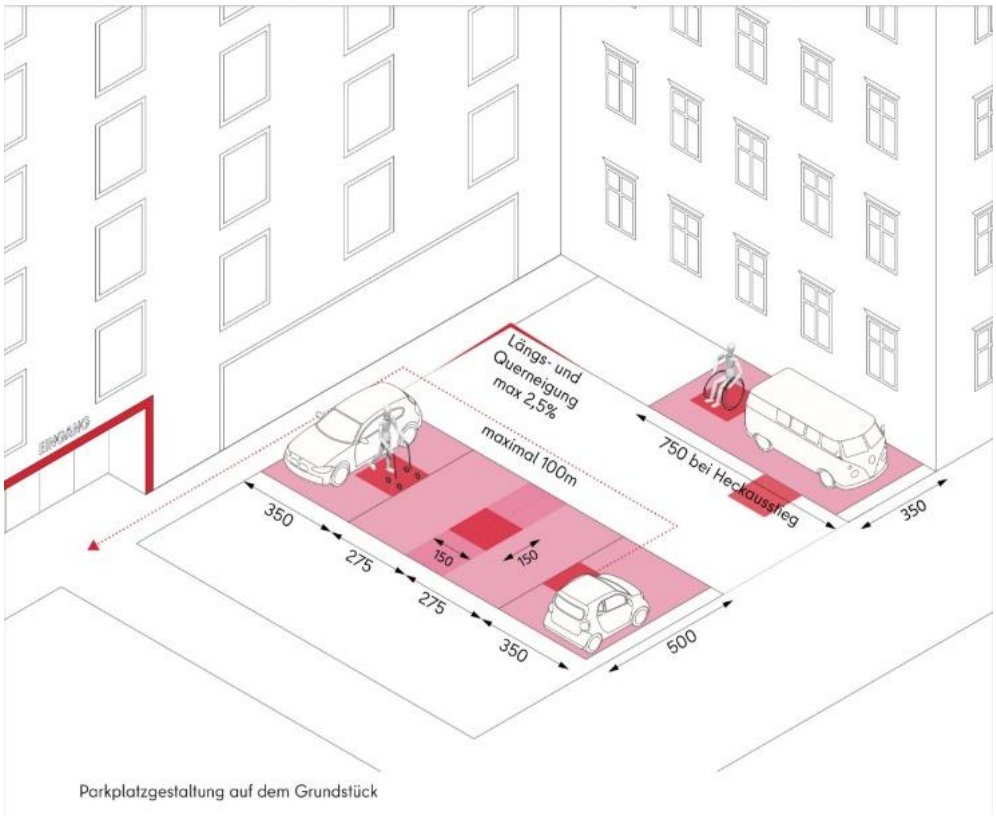

Fig. 2.28 — Diagram of parking space layout (Senatsverwaltung für Stadtentwicklung, Bauen und Wohnen, 2021)

In accordance with DBN V.2.2-40:2018, in open private car parks near service establishments, at least 10% of spaces (but no fewer than one) must be allocated for vehicles of people with disabilities. Such spaces are marked with road signs and road markings using the international symbol of accessibility

and are located as close as possible to the entrances to public buildings, usually no further than 50 m via an accessible route. The width of the parking area for a vehicle used by a person with a disability must be at least 3.5 m, allowing a wheelchair to be manoeuvred, the door to be opened fully, and a ramp or lifting device to be used. For parking spaces located parallel to the kerb, access to the rear of the vehicle and unobstructed access to the pavement must be ensured, avoiding configurations where the kerb or street furniture blocks the manoeuvring area (DBN V.2.2-40:2018, para. 5.4).

A separate type of infrastructure comprises areas for picking up and dropping off passengers – so-called ‘drop-off’ zones. For transport carrying people with disabilities, DBN recommends providing such areas at a distance of no more than 30 m from the entrances to public buildings and structures associated with public spaces. The surface of the area must be level, non-slip, without kerb steps or with a lowered kerb and a gentle ramp, so that a wheelchair user can access the pedestrian route directly. In the context of historic squares, this means the need for the sensitive integration of such areas into the structure of existing streets: with minimal interference with paving or historic materials, but with a clearly defined stopping zone that is understandable to both drivers and pedestrians.

Public transport stops – for buses, trams and trolleybuses – must ensure not only physical access to the vehicle, but also clear tactile guidance. The DBN requires boarding platforms at stops to be fitted with special tactile strips: a warning strip along the edge of the platform and tactile information fields marking the start and end of the boarding zone, as well as the boarding point for the vehicle. The width of the warning strip is usually around 0.3 m (in some cases up to 0.6 m), and the rectangular field marking the boarding door is approximately 0.9 to 1.5 m on each side (DBN V.2.2-40:2018, clause 8.2.5; Appendix G). This design allows blind and partially sighted people to clearly feel the edge of the platform and the point where the vehicle’s door opening stops using a white cane.

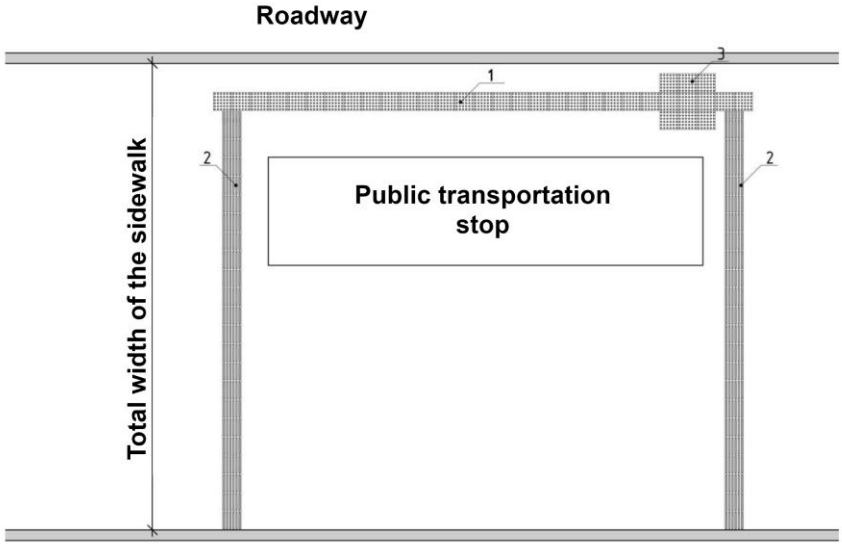

Fig. 2.29 — Example of the possible use of special transport signs at public transport stops

1 — warning traffic sign; 2 — information traffic sign; 3 — information traffic sign indicating the boarding point for public transport (DBN V.2.2-40:2018)

Boarding areas at stops must be barrier-free and connected to the main pedestrian routes: without sharp changes in level, with lowered kerbs at crossings and sufficient passage width for wheelchairs. Where stops are located within historic streets with narrow pavements, this may require local widening of the pedestrian area, changes to traffic management, or partial relocation of the stop to a traffic island connected to the pavement by an accessible crossing. At the same time, the materials used for surfacing, the design of shelters, benches and information stands must combine accessibility requirements (contrast, absence of sharp elements in the passageway, sufficient headroom) with requirements for the protection of cultural heritage and the visual integrity of the historic environment.

Ultimately, parking spaces and public transport stops in historic public spaces should be viewed not as technical ‘add-ons’ to transport flow, but as fully-fledged elements of a continuous, barrier-free route. Their layout must ensure a minimum distance to entrances, sufficient space for manoeuvring, a clear sensory structure, and sensitive integration into the historic fabric of the city.

In all cases, the design of car parks and stops in heritage conservation areas requires a separate restoration assessment: an analysis of historical planning axes, the boundaries of valuable sites, fences and greenery, and the visual perception zones of façades. This helps to avoid solutions that turn the area in front of a monument into a parking lot with decorative elements, and instead to create an accessible yet balanced spatial solution where transport infrastructure does not dominate the historic environment.

2.1.4 Principles of Universal Design as the basis for standardisation

The international framework for contemporary spatial design is the concept of Universal Design (UD), officially adopted in the EIDD Stockholm Declaration (2004). The aim of UD is to create an environment suitable for use by all people without special adaptation, but with the possibility of using assistive devices if necessary (EIDD Stockholm Declaration, 2004). The basic definitions of inclusivity, accessibility, barrier-free design, universal design and Design for All are summarised in Table 1.1.

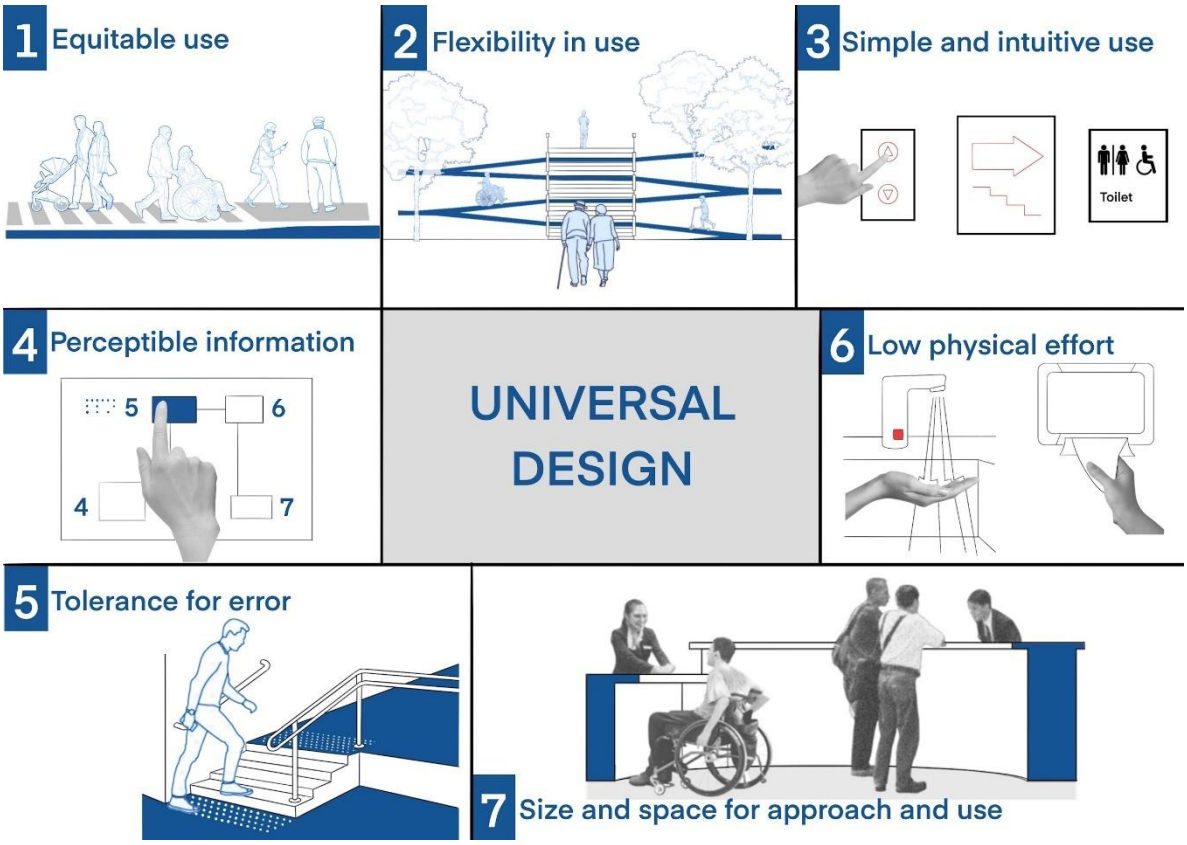

Fig. 2.30 — Seven principles of universal design (Big City Lab, 2021)

The main principles of UD include (Big City Lab, 2021):

1. Equitable use — spatial solutions must be convenient for everyone, regardless of whether they have motor, sensory or cognitive impairments. Examples include benches with armrests that can be used by both people without mobility impairments and people in wheelchairs, or shops with goods at different heights (Big City Lab, 2021).

The principle of equal access requires designers to avoid creating special entrances, toilets or other facilities specifically for people with disabilities. Instead , it is recommended that the main design be modified so that it is accessible to everyone. This is not only fairer but also more cost-effective, as it avoids the expense of duplicating facilities.

2. Flexibility of use means that a spatial solution should function in different ways. For example, providing ramps alongside staircases allows people in wheelchairs and those with reduced mobility to choose the route that suits them best (Big City Lab, 2021). Flexibility means that a single facility or space can meet the needs of different users without the need for modification.

3. Simple and intuitive use — means that the design must be understandable to people with different levels of education and language skills (Big City Lab, 2021). For example, a navigation system should use universal symbols that are clear to everyone, regardless of their native language. Toilet signs,

directional arrows and warning signs should be self-explanatory without the need for additional explanation.

4. Accessible information — this means that information must be provided in multiple formats (text, Braille, audio) to cater for people with various types of sensory impairments (Big City Lab, 2021). This means that text displays should be accompanied by audio announcements, and important information materials should be available in Braille.

5. Error tolerance — the design must include elements that prevent or minimise the harm caused by user errors (Big City Lab, 2021). For example, the edge of a staircase or platform should have a visible strip warning of danger. Balcony doors should have safety devices to prevent falls.

6. Low physical effort — the design must be such that people with limited physical strength can use it without undue effort (Big City Lab, 2021). Examples include automatic doors instead of manual ones, or control buttons at chest height rather than overhead.

7. Size and space for access and use — this means that the dimensions of spaces and objects must be such that people of different heights and builds can use them (Big City Lab, 2021). This includes the height of benches, the width of doors, the size of signs and other dimensions.

Applying UD principles in the context of public spaces

Applying the seven principles of UD in the public spaces of historic cities requires a creative approach and a deep understanding of the context. For example, the principle of simple and intuitive use in the context of a historic centre means the need to use symbols and signage that do not detract from the historic architecture, whilst ensuring clear navigation. This may include the use of unobtrusive materials and colours for signage, and the placement of information boards in locations where they are not obscured by historic buildings.

The principle of flexibility of use in the context of historic spaces implies allowing for multiple routes and methods of navigation. If one route is inaccessible due to historic steps, there must be an alternative route that bypasses the obstacle. This often requires creative planning and the adaptive use of existing architecture.

Conclusions for Section 2.1

Modern requirements for the accessibility of public spaces form a multi-level framework, within which the UN Convention on the Rights of Persons with Disabilities, national legislation and strategic documents (in particular the National Accessibility Strategy) operate at the level of rights and policies.

At the regulatory and technical level, DBN V.2.2-40:2018, DBN B.2.2-12:2019, relevant DSTU standards and international standards (ISO 21542, EN 17210, EN 81-70, ISO 23599, ISO 17049, etc.) set specific parameters for widths, gradients, heights, lighting and the placement of elements.

At a conceptual level, the principles of universal design provide a holistic view of the user and allow standards to be adapted to the sensitive fabric of historic cities, without reducing accessibility to the mere formal fulfilment of minimum requirements.

Taken together, this shifts the focus from ‘point solutions for people with disabilities’ to a systemic approach, where accessibility is viewed as a fundamental condition for the meaningful participation of all groups in city life. It is from this framework that the analysis of typical accessibility barriers in historic public spaces in section 2.2 will proceed.

2.2 Typical accessibility barriers in historic public spaces

As the analysis of regulatory requirements in Section 2.1 showed, even with a well-developed legal framework and technical standards, the actual accessibility of historic public spaces often remains limited. In historic cities, architectural value and complex spatial structures are combined with numerous physical, sensory, informational and organisational barriers, which are largely determined by the historical origins and development of such spaces. The main groups of such barriers and ways of overcoming them are discussed below.

International research highlights that street spaces and public places become ‘barrier-creating’ not so much because of people’s physical limitations, but because of how the environment is organised: narrow pavements, complex crossings, a lack of rest areas, dangerous changes in level and unclear information force people with disabilities and older people to effectively refrain from using historic centres (Burton & Mitchell, 2006; Historic England, 2015b). In this section, barriers are viewed as a systemic feature of the environment rather than as a ‘personal problem’ of an individual user, in line with the social model of disability and contemporary principles of inclusive urban design.

2.2.1 Barriers on pedestrian routes and pavements

Pavements and pedestrian routes in historic centres often fail to meet modern accessibility requirements. The main barriers include:

Narrow routes. The medieval street system often consists of narrow passages that were historically designed for pedestrians and horse-drawn carriages, but not for modern flows of people, transport and the needs of people with disabilities. Streets less than 1.8 m wide do not allow a person in a wheelchair to pass another pedestrian. This forces wheelchair users to wait, step aside or ask for help, creating a sense of discrimination and loss of autonomy.

Steep longitudinal gradients. Historic centres are often situated on slopes, resulting in steep lanes and narrow pedestrian routes. The gradient of the terrain can reach 40–50%, which poses a serious obstacle for people in wheelchairs and those with reduced mobility. By comparison, the DBN standard stipulates a maximum gradient of 5% for safe movement, and 8% as a maximum for short distances. When the gradient reaches 10–15%, a person in a wheelchair can no longer maintain control independently.

Uneven surfaces and large gaps in paving. Historic paving or other traditional materials (brick, stone) often have gaps measuring 10–20 mm, which significantly exceeds the permissible standard of 5 mm. When a wheelchair passes over such gaps, sudden jolts occur, which can cause loss of balance and injury.

Insufficient headroom and overhanging trees. On European streets with trees planted close to the kerb, low-hanging signs, overhanging tree branches and other elements that restrict headroom are often found. This poses a danger to people with visual impairments and makes orientation difficult.

Disorganisation: parking, market stalls, street furniture. Cars parked on pavements, haphazardly placed signs and goods stacked by traders often render the pavement unusable for people with reduced mobility. People are forced to navigate around obstacles by stepping onto the carriageway.

Lack of alternative routes. If the main route is impassable for a person in a wheelchair or with a visual impairment, there is often no alternative. Surrounding streets may have even greater changes in level or poorer surface conditions.

Fig. 2.31 — A café's summer terrace, which narrows the pedestrian space and creates an obstacle for people with reduced mobility (Authors' own work)

Fig. 2.32 — Flower beds are a typical barrier for people with reduced mobility, particularly for wheelchair users and people with visual impairments (Authors' illustration)

Fig. 2.33 — Flower beds, anti-parking bollards and other concrete elements narrow the passage, making it difficult for people in wheelchairs to move around (Authors' illustration)

Barriers restricting accessibility on the streets of Lviv (author's photograph)

In many European studies, it is precisely this combination of factors—insufficient width of walkways, uneven terrain, poor-quality surfacing, a lack of rest areas, and the haphazard use of pavements for parking or trading — is identified as the main reason why people with disabilities, older people, and parents with children avoid visiting historic centres (Burton & Mitchell, 2006; LHAC, 2013). It transforms distances that appear short on a map into dangerous or exhausting 'survival routes', requiring assistance from others and depriving users of a sense of autonomy.

Fig. 2.34 — Cobblestones in the historic centre of Lviv, which create difficulties for people with disabilities (Photo by the author)

2.2.2 Barriers on stairs and changes in level

Steepness and number of steps. Stairs in historic centres often have a rise of 0.16–0.20 m, which exceeds the standard of 0.15 m and makes climbing difficult for people with mobility impairments and older people.

Absence or insufficiency of handrails. Many historic staircases have no handrails at all or have them on only one side. There are also handrails that are interrupted and do not run the entire length of the route.

Fig. 2.35 — Stairs leading to the Church of St Michael the Archangel, which create a barrier for people with mobility impairments, Lviv (Your City, 2023)

Lack of ramps as an alternative. If a building or space can only be accessed via stairs, people in wheelchairs, with pushchairs, older people and other people with reduced mobility simply cannot get there.

Discrepancies between different levels of space. Squares and sunken streets often have different levels, with height differences of 0.5–1.0 m, without a smooth transition.

Practical guides on accessing historic landscapes show that the most problematic factors are precisely the combination of steep gradients with long route lengths and a lack of intermediate rest areas (Historic England, 2015a). For people with cardiovascular conditions, breathing difficulties or balance issues, an excessively long climb is effectively equivalent to an inaccessible space. Therefore, in historic public spaces, it is advisable to provide a choice of routes—a shorter but steeper one, and a longer one with a gentler gradient—as well as to provide rest areas on long climbs.

2.2.3 Barriers at and near entrances

Steps at the entrance. Most old buildings have an entrance with steps. For a person in a wheelchair, this means they cannot enter independently.

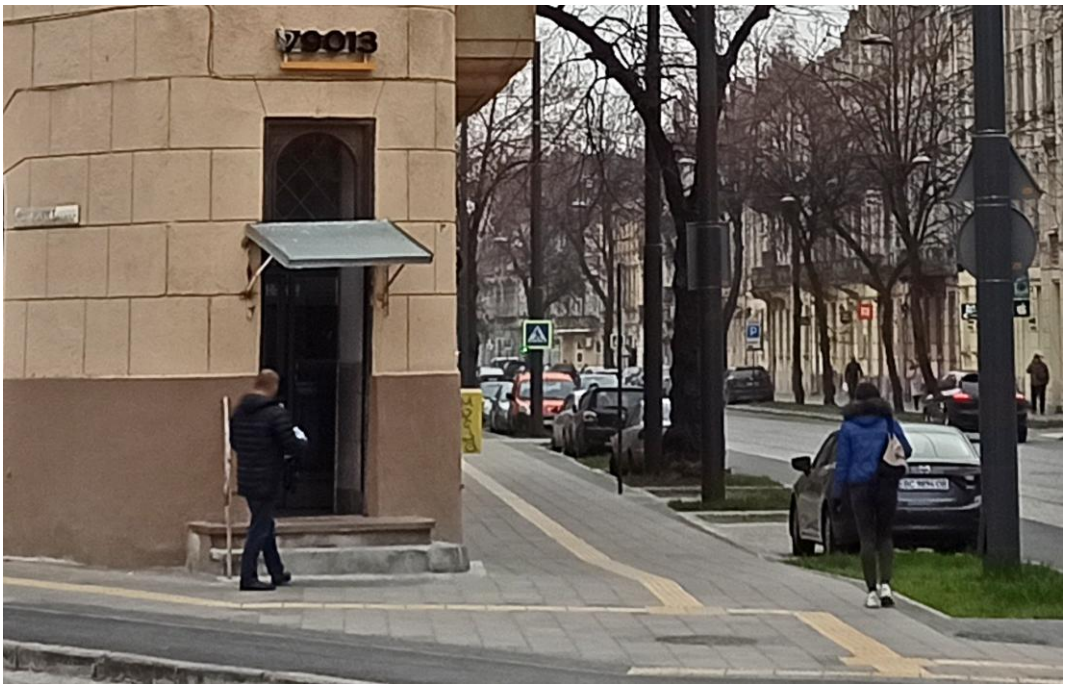

Fig. 2.36 — Steps in front of the entrance to a building on S. Bandera Street in Lviv acting as a barrier (author's photograph)

Narrow doorways. The doors of many historic buildings are less than 0.80–0.90 m wide, which prevents a wheelchair from passing through.

Heavy doors that take too long to close. Malfunctioning door-closing mechanisms mean that people with reduced mobility cannot get through in time.

Lack of accessible information at the entrance. There is no clear information about alternative entrances (if they exist), or about the availability of lifts or other lifting devices.

At the same time, the accessibility of the entrance has a distinct symbolic dimension: for many visitors, the very threshold of the building is a 'test' of whether the space welcomes them or, conversely,

demonstrates a reluctance to change (Historic England, 2015b). Experience with historic museums and public buildings shows that even under challenging initial conditions, solutions can be found that combine the preservation of authentic materials with a clear indication of an accessible entrance, understandable to all users.

2.2.4 Barriers in rest areas and navigation

Lack of seating. Long walking routes often lack benches for resting, which is particularly critical for older people, those with mobility impairments and people with respiratory conditions.

Rest areas unsuitable for the needs of people with disabilities. Benches are often situated in areas with strong draughts or next to busy roads with high noise levels. People with sensory sensitivities cannot rest there.

Lack of toilets and access to water. Even where toilets are available, they are often inaccessible to people in wheelchairs.

Many guidelines on the design of streets and parks emphasise that the availability of comfortable rest areas, shelter from the weather, accessible toilets and drinking fountains is a key factor in determining whether older people, parents with children, pregnant women or people with chronic illnesses will be able to use public spaces at all (Burton & Mitchell, 2006). Their absence turns historic centres into ‘short-visit’ zones, where vulnerable groups can only stay for a limited time and are forced to plan their route based on their own physical capabilities rather than the attractiveness of the location.

Difficult navigation and lack of information. There are no information boards, routes are not marked, and there is no information about the terrain or the difficulty of the route. People have to enter the space ‘blindly’ without warning of steps, steep slopes or other obstacles.

Lack of information in various formats. Even when information is available, it is often only on a paper sign with small print. This format is unsuitable for people with visual impairments or those who do not speak the local language.

2.2.5 Sensory and information barriers

Inadequate lighting. The lack of ambient lighting on pavements and in underpasses makes these areas dangerous for people with visual impairments. At night, many streets in historic centres remain completely unlit.

Low contrast between surfaces and objects. Dark steps against the dark background of buildings make them almost invisible to people with visual impairments.

Lack of tactile indicators and Braille strips. People with visual impairments cannot find their way around if there are no tactile strips in front of steps, obstacles or changes in route.

Noise and acoustic issues. Intense road noise creates a barrier for people with hearing impairments and increases stress for people with sensory sensitivity.

Lack of audible signals and audio information. People with visual impairments must be able to receive information via audible signals at road crossings and via audio guides along routes.

In accordance with the principles of universal design, information about the environment should be presented in several complementary formats — visual, auditory and tactile — taking into account the different sensory profiles of users (Mace, 1998; Universal Design Handbook, 2012). In the practice of accessible historic cities, this means that clear pictograms, high-contrast markings, tactile diagrams and the thoughtful use of audible signals are treated as a single system that allows people with visual, hearing or cognitive impairments to navigate safely.

2.2.6 Barriers at car parks and public transport stops

Although modern accessibility requirements stipulate that accessible parking spaces and public transport stops should be provided as key links in a continuous route (see the section on parking spaces and public transport stops), in historic centres these elements often become sources of barriers in their own right. Typical problems relate not only to a lack of necessary infrastructure, but also to its poor location and conflict with existing buildings.

The fragmented connection between stops and parking facilities and pedestrian routes. Even where individual accessible features are present—lowered kerbs, rest areas, tactile paving—they often remain isolated ‘islands’ with no logical connection to main routes, squares and building entrances. In such cases, the user is provided with a formally accessible parking space or bus stop, but cannot safely and predictably continue their journey through the historic area.

Inaccessible bus stop platforms. Many stops in historic districts lack raised platforms, lowered kerbs or tactile paving to guide blind and partially sighted people. Boarding and alighting take place from the carriageway, often on bends or slopes, where it is difficult to control traffic and maintain a safe distance. The lack of clear boundaries for the boarding area, benches and shelter from the weather further restricts the use of stops by older people and other groups with reduced mobility.

Thus, issues regarding the location, layout and facilities of parking spaces and public transport stops should be viewed not as a secondary transport issue, but as one of the key barriers to a continuous route (Inclusive Mobility, 2021; LHAC, 2013). If a person cannot safely and with dignity alight from a car or public transport and reach the nearest historic square, the entire public space effectively remains inaccessible to them, regardless of the quality of the built environment.

Conflict between public transport stops and parking. On a number of historic streets, parking spaces are located directly within the boarding area of the stop. Cars block access to the vehicle doors, forcing people to walk around the cars on the carriageway or step onto the traffic lane outside the pedestrian crossing. This is particularly dangerous for wheelchair users, people with pushchairs and people with visual impairments.

Dangerous pick-up and drop-off areas. Even if there is sufficient width, there may be no kerb ramp, level hard surface or clear space to manoeuvre a wheelchair. Parking along narrow historic streets often

means that passengers are forced to alight directly onto the carriageway, which is restricted by parked cars, bollards, street furniture or building steps.

The distance from parking spaces to the entrances of public buildings and historic areas is too great. Due to the constraints of historic buildings, parking spaces for people with disabilities are often located on the outskirts or on neighbouring streets. As a result, the route from the car's to the entrance involves steep slopes, crossings with the carriageway, sections with cobblestones or narrow pavements, which negates the benefits of having such a space.

The absence or mere formality of designated parking spaces for people with disabilities. In many historic centres, specially marked spaces are either not provided at all, or are merely token gestures – lacking sufficient width, convenient space for manoeuvring a wheelchair, lowered kerbs, and direct access to an accessible pavement. Often, spaces marked with an accessibility symbol are in fact no different from other parking bays and do not provide the basic conditions laid down in the regulatory requirements.

Conclusions for Section 2.2

The summary indicates that in historic public spaces, accessibility barriers are systemic in nature and arise at all key points along the route: on footpaths and pavements, on steps and level changes, at building entrances, in rest and orientation areas, at parking spaces and public transport stops. Most of the obstacles described are a consequence of the existing built environment's failure to meet the technical requirements and parameters outlined in sub-section 2.1.3, as well as the lack of a holistic vision for a barrier-free route within the historic environment. Ultimately, such barriers not only complicate everyday mobility but also limit the ability of various groups of residents and visitors to use historic spaces as a shared public good and to fully exercise their right to the city.

For users, this means not only isolated local inconveniences, but also the fragmentation and unpredictability of moving around the city: a continuous route is interrupted by stairs with no alternative, high thresholds, narrow passages, dangerous crossings or unclear signage. The following section examines the methodology and tools that enable the systematic assessment of such barriers and the planning of priority measures to improve the accessibility of historic public spaces.

2.3 Methodology and best practices for ensuring the accessibility of public spaces

Developing a methodology for ensuring the accessibility of historic public spaces requires the integration of legal standards, universal design principles and practical solutions. Unlike newly built areas, historic parts of cities face strict constraints related to the protection of architectural heritage, complex topography and an old street network. Therefore, the methodology must take into account technical, legal and organisational aspects, proposing flexible, reversible interventions that minimise the impact on the authenticity of the environment (Fig. 2.37).

The methodological approach to ensuring accessibility in historic cities draws on the experience of international programmes, notably the LHAC (League of Historical and Accessible Cities), and is based on striking a balance between heritage conservation and the removal of barriers (LHAC, 2013). It combines technical solutions, comprehensive spatial planning and the involvement of various stakeholders — from conservation architects to the public — and assumes that success depends not only on the quality of the regulatory framework, but also on the consistent application of universal design principles at all stages of planning and implementing changes.

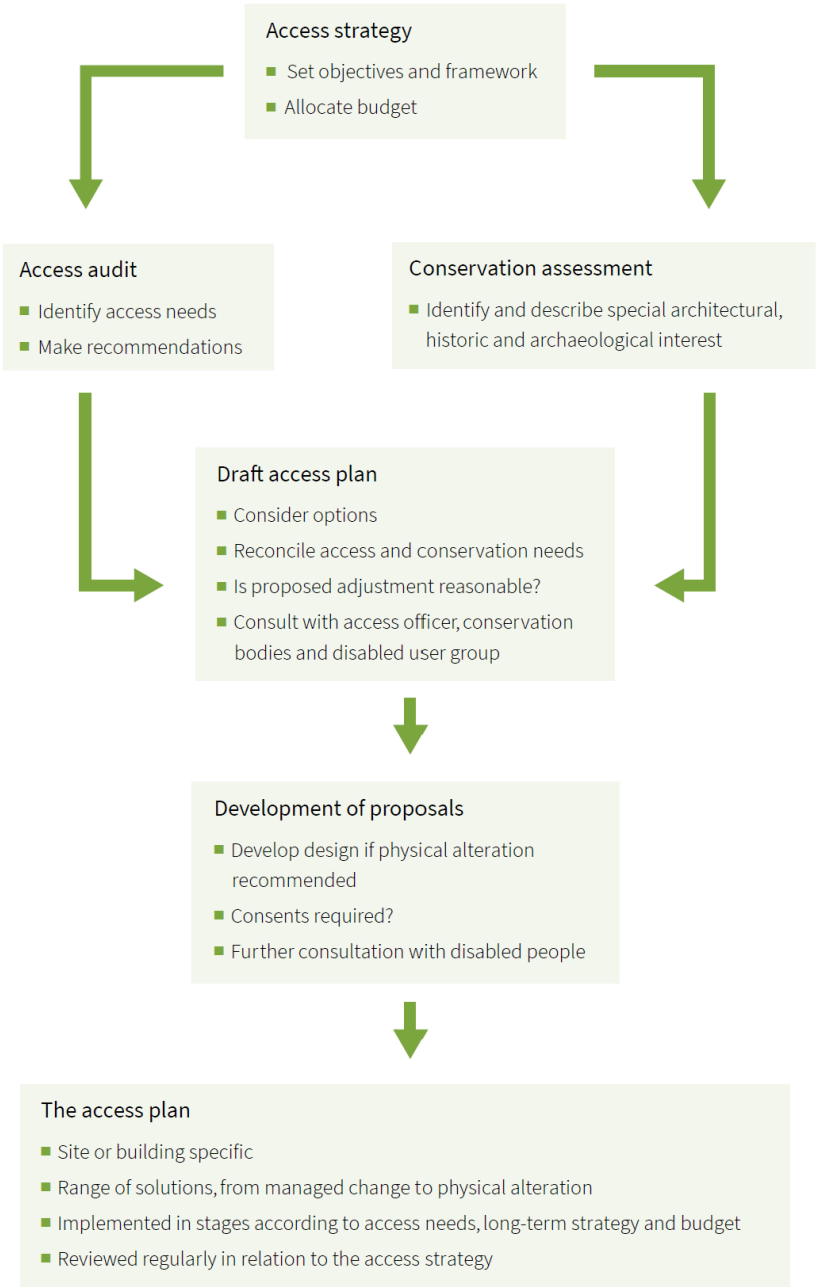

Fig. 2.37 — The process of developing and implementing an accessibility strategy (Historic England, 2015b)

2.3.1 Systematic planning and community engagement

The process of developing an accessibility strategy consists of five sequential stages (Fig. 2.37). In accordance with the recommendations of Historic England (2015, p. 20), the first stage involves setting objectives and allocating the budget. In parallel, an accessibility audit and a conservation assessment are carried out, the results of which are consolidated in a draft accessibility plan. Based on consultations with stakeholders, specific proposals are developed that remain flexible and adapted to local conditions.

The accessibility audit is the first mandatory step in the planning process. The process includes: (a) physical mapping of all barriers (measuring gradients, width of passages, height of thresholds); (b) photographic documentation of critical points; (c) interviews with stakeholder representatives; (d) accompanied walks with people with disabilities. Recommendation HEAG011: involve at least three people with different types of disability for each accompanied walk. The result should be a detailed barrier map identifying critical points and potential solutions (Fig. 2.38).

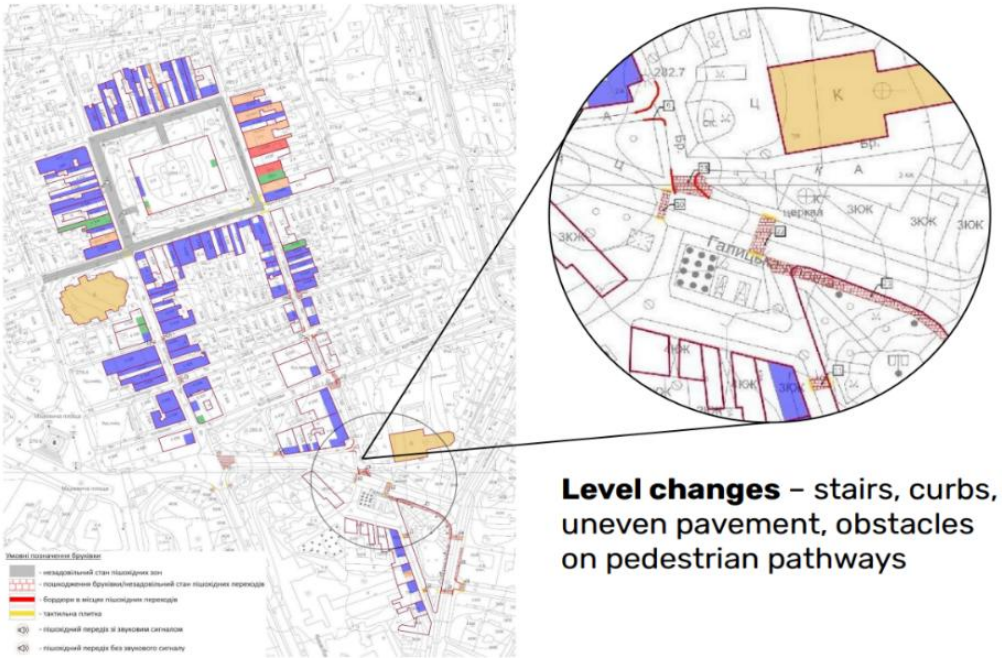

Fig. 2.38 — Analysis of barriers in the central part of Lviv (Authors' own work)

The consultation process should include: cultural heritage management (museums, archives), the local community (particularly people with disabilities), public authorities, tour operators and businesses. At the planning stage, it is critical to develop an 'Access Statement' — a public declaration detailing which elements are accessible, how access can be achieved, and what alternatives are available. This document should be distributed in several formats: print, electronic, audio, Braille and large print.

The development of an action plan should include prioritisation: which measures require immediate implementation (months 1–6), which in the medium term (6–12 months), and which in the long term (1–3 years). For each measure, the following should be defined: specific objective, budget, responsible department, expected outcome, and success indicators. Best practice: start with the most critical points (entrances, main routes), then move on to ongoing improvements.

Involving the community throughout the planning process significantly improves the quality of decisions (LHAC, 2013; Ambrose et al., 2016). It is recommended to hold at least three rounds of consultations: (1) at the problem identification stage; (2) at the stage of considering proposed solutions; (3) at the stage of evaluating the results of implementation. People with disabilities should be reimbursed for the costs of participation (consultation fees, compensation for carers, and travel expenses).

2.3.2 The Accessibility Improvement Index (AII) as a monitoring tool

Ensuring the accessibility of public spaces is a process, not a one-off project. Sections 2.3.1–2.3.2 have examined the identification of barriers, the design of solutions and the organisation of implementation; however, a quantitative measure of progress is required to justify budgetary decisions and ensure transparent reporting. The Accessibility Improvement Index (AII) offers a simple way to measure progress from the current state to a potentially achievable level of accessibility (Marín-Nicolás et al., 2023).

The AII methodology involves dividing the space into analytical zones (entrances, routes, seating areas, navigation, etc.) and analysing the needs of several user groups — people in wheelchairs, those with visual or hearing impairments, and those with cognitive differences. For each zone, the following are determined: the current level of accessibility, a list of barriers that can be removed without compromising heritage, and the potential level of accessibility following interventions. Accessibility is assessed on a 0–3 point scale: 0 — unsuitable for independent use, 1 — accessible only with staff assistance, 2 — with partial adaptations, 3 — fully independent and safe (Ambrose et al., 2016; Marín-Nicolás et al., 2023).

The AII index is calculated as the percentage ratio between the average current rating and the potential rating for all zones and user groups: AII = (current average rating / potential rating) × 100%. The closer the index is to 100%, the more fully the potential for removing barriers in a specific space has been realised (Marín-Nicolás et al., 2023).

For example, for an area in the historic centre, an average current score of 1.6 points was obtained across several user groups, whilst the potential score following the implementation of all feasible interventions is 3.0 points. In this case, AII = (1.6 / 3.0) × 100% ≈ 53%, indicating a moderate level of realised potential. Following the installation of mobile ramps, the widening of passageways and the addition of rest areas with handrails, the average rating could rise to 2.4 points, and the AII to ≈ 80%. Such changes are easy to communicate to the authorities and the community as a concrete measure of progress.

In practice, many cities integrate quantitative accessibility indicators into annual plans and reports on the state of the accessible environment. The cities of Winnipeg and the Region of Waterloo, for example, use indicator systems to monitor the implementation of the Accessibility Plan and the Accessibility Status Report, combining spatial data, user surveys and the evaluation of the effectiveness of measures (City of Winnipeg, 2024; Region of Waterloo, 2024). The AII can be adapted as an aggregate indicator for such systems, particularly for assessing public spaces in historic centres.

For municipalities, it is advisable to combine the AII with a prioritisation matrix that takes into account: the AII level of each zone, daily usage intensity, the criticality of the barrier to safety and orientation, and the estimated cost of interventions. Areas with the lowest AII and the highest daily user flows should be given priority in investment planning. It is advisable to publish the results of the analysis in open 'Access Statements', which briefly describe the baseline situation, target AII values for the next 3–5 years, and a list of planned measures.

Further on in this guide (see Table 2.3.2), a matrix is provided for the overall assessment of accessibility. The Accessibility Improvement Index matrix summarises the results of the assessment of public spaces using the Accessibility Improvement Index methodology described in section 2.3.2, with a focus on different user groups (people in wheelchairs, with visual or hearing impairments, and with cognitive differences). It is based on the principles of functional requirements for an accessible environment, as formulated in the international standards EN 17210 and ISO 21542, as well as on approaches to step-by-step assessment of 'current state → potentially achievable level' in the works of Ambrose et al. (2016) and Marín-Nicolás et al. (2023). Completing the matrix allows qualitative observations from the accessibility checklist (Table A1) to be converted into quantitative AII indicators for individual zones and the space as a whole, which facilitates monitoring progress and justifying intervention priorities.

In practical work with public spaces, this methodology is applied sequentially. First, the AII index is calculated for a selected area, route or other analytical zone to determine the current and potentially achievable level of accessibility. Next, the team goes through the accessibility checklist (Appendix 1), specifying concrete technical solutions and priorities for interventions. In the next stage, following the baseline accessibility audit, the inclusivity checklist (Appendix 2) is used to assess the extent to which the space genuinely 'invites' different user groups and supports their participation in urban life.

For example, for the central square of a historic town, areas for entrances, main routes, rest areas and navigation are first identified and assessed using the AII scale. If it turns out that the potential for accessibility is high but the actual ratings are low, the accessibility checklist is used to identify key barriers (excessively steep slopes, lack of ramps, uncomfortable benches, etc.) and propose technical solutions. Afterwards, using the inclusivity checklist, they analyse whether the needs of different user groups have been taken into account in the scenarios for using the space, event programming and information communication.

In the first stage, for each analytical zone (entrances, main routes, rest areas, navigation, sanitary facilities, etc.) and for each user group (people in wheelchairs, with visual or hearing impairments, or cognitive differences), two ratings are determined on a scale of 0–3: — current rating — the actual condition at the time of the survey; — potential rating — the maximum achievable level of accessibility under realistic interventions without causing damage to the heritage site.

Next, for each row of the matrix, the partial accessibility index for the zone is calculated:AII of the zone = (current rating / potential rating) × 100%,which reflects the degree to which the accessibility potential of a specific zone is realised for the relevant user group.

Table 2.3.2 — Accessibility Improvement Index Matrix

Space / route: _____ Date: _____

No.	Analytical zone	User group	Current score (0–3)	Potential score (0–3)	Zone All, %	Key barriers (without harm to heritage)
1	TRANSPORT ACCESS & ARRIVAL	People with mobility impairments				
		People with sensory impairments				
		People with cognitive or psychosocial disabilities				
		People with strollers, companions, or temporary limitations				
2	ENTRANCES & BUILDING ACCESS	People with mobility impairments				
		People with sensory impairments				
		People with cognitive or psychosocial disabilities				
		People with strollers, companions, or temporary limitations				
3	ROUTES, SURFACES & LEVEL CHANGES	People with mobility impairments				
		People with sensory impairments				
		People with cognitive or psychosocial disabilities				
		People with strollers, companions, or temporary limitations				
4	WAYFINDING, INFORMATION & COMMUNICATION	People with mobility impairments				
		People with sensory impairments				
		People with cognitive or psychosocial disabilities				
		People with strollers, companions, or temporary limitations				
5	SAFETY, SENSORY COMFORT & INCLUSION	People with mobility impairments				
		People with sensory impairments				
		People with cognitive or psychosocial disabilities				

		People with strollers, companions, or temporary limitations				
6	STAY AMENITIES & SUPPORT	People with mobility impairments				
		People with sensory impairments				
		People with cognitive or psychosocial disabilities				
		People with strollers, companions, or temporary limitations				
7	OTHER					

Average AII_I score: _____

Key barriers to inclusivity (1–3 points): _____

Methodology for working with the AII matrix

The summary column briefly lists the key barriers that can be removed without compromising the authenticity of the environment and which most significantly reduce the current rating compared to the potential rating.

In the final stage, the average current and average potential scores (across all zones and user groups) are calculated, and the overall AII index for the space, expressed as a percentage, is determined. The results are supplemented by a brief analytical conclusion indicating the zones and user groups where the greatest accessibility deficits are observed and which should be prioritised when planning interventions.

In the next, more detailed stage, it is advisable to explore the results of this screening in greater depth using checklists: first and foremost the accessibility checklist (see Appendix 1 — 'Accessibility Checklist'), as well as, where necessary, a separate inclusivity checklist (see Appendix 2 — 'Inclusivity Checklist'), which allow the aggregated scores to be translated into specific spatial, organisational and communication solutions for further planning of interventions.

2.3.3 International examples of good practice in public spaces

The LHAC (League of Historical and Accessible Cities) project, specifically designed for historic cities in Europe, has demonstrated several successful approaches to improving the accessibility of public spaces. Fifteen cities were involved in the project, including Viborg (Denmark), Ávila (Spain), Avignon (France) and others (Ambrose et al., 2016).

In Viborg, one of the key tasks was to ensure comfortable access to the historic centre across challenging terrain. Seasonal temporary ramps were installed, regular rest areas were set up along

pedestrian routes, navigation was improved, and safe crossings were marked. Particular attention was paid to routes for older people and families with children, as well as accessible connections between the city walls, museums and the city centre (Ambrose et al., 2016).

Fig. 2.39 — Nytorv Square before renovation (Wikimedia Commons, 2011)

Fig. 2.40 — The renovated Nytorv Square as part of the accessibility project (Realdania, 2016)

Accessibility improvements were implemented in Nytorv Square as part of the ‘Accessibility in an historical city centre’ project. Its aim was to develop solutions that respect the square’s historical structure, combine minimally invasive physical changes with information and digital services, and are based on the active participation of people with disabilities in discussions and testing (Access City. Examples of best practice in making EU cities more accessible).

Fig. 2.41 — Integration of a ramp at the entrance to the Cathedral of Our Lady in Viborg, Denmark (Apple Maps, n.d.)

Nyutov was transformed from a car-oriented space into a public square with a level, barrier-free surface (Fig. 2.39, Fig. 2.40). Instead of numerous kerbs and steps, levelled pavements and built-in ramps were provided (Fig. 2.41), ensuring the continuity of the route. To preserve the character of the historic environment, materials and details were used that harmonise with the architectural fabric of the square (Access City. Examples of best practice in making EU cities more accessible).

- Among the measures implemented in the square were the local resurfacing of the most problematic sections of the pavements to reduce the gaps between paving slabs, the installation of portable ramps on the main steps, the creation of several seating areas along the main routes, an improved navigation system with display boards and tactile indicators, as well as the production of information materials in various formats (printed maps, audio guides, mobile app).

- According to the evaluation results, the implementation of the project contributed to an increase in tourist activity, particularly among older people and families with children, and improved the overall quality of the experience in the square (Ambrose et al., 2016).

Fig. 2.42 — Implementation of an inclusive entrance to Plaza de la Santa, Ávila, Spain (Apple Maps, n.d.)

In the city of Ávila (Spain), the problem of a multi-level historic environment was addressed by combining alternative routes and reversible interventions (Fig. 2.42). A continuous route was created along the city walls, featuring sections of level surfacing and rest areas; at the most challenging points, mobile lifting platforms were used and guided tours were organised. For people with visual impairments, tactile maps of the walls and audio descriptions were developed, and information stands were installed at key points (Fig. 2.43, Fig. 2.44) (Ambrose et al., 2016).

Fig. 2.43 — Access improvements in the historic centre of Ávila, Spain (Apple Maps, n.d.)

Fig. 2.44 — Ramp and information stands for people with disabilities at the entrance to the Basilica de San Vicente in Ávila, Spain (Apple Maps, n.d.)

Lviv: the ‘Movement Without Barriers’ project (2018–2023) is implementing the gradual development of the main tourist route from the railway station (Fig. 2.45, Fig. 2.46) to the Town Hall and museums. The route, approximately 2 km long, passes through Rynok Square, where comprehensive work has been carried out to improve the accessibility of the historic paving, building entrances and public spaces. A key feature has been the systematic involvement of community members with disabilities in analysing barriers, designing solutions and testing them.

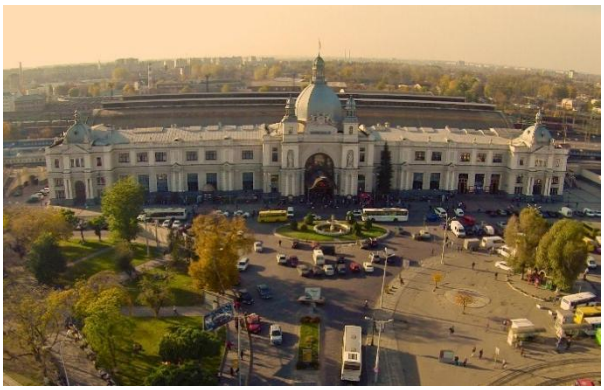

Fig. 2.45 — Dvirtsova Square BEFORE reconstruction, Lviv (Mykhailo Verkhogliad)

Fig. 2.46 — Dvirtsova Square AFTER reconstruction, Lviv (Andriy Bilyi)

A number of specific measures were implemented as part of this route, including:

- Installation of mobile ramps at critical points (Fig. 2.47);
- Placement of seating at 100-metre intervals;
- Improving the quality of the pavement surface to minimise gaps (Fig. 2.48);
- Installation of high-contrast markings at critical points;
- Widening the pedestrian walkway by repositioning parked cars;
- Installation of a clear wayfinding system.

Fig. 2.47 — Ramp at the main entrance to Lviv railway station — an example of a temporary/modular structure that makes the historic building more accessible without significant alteration to the façade itself (Your City, 2025)

Fig. 2.48 — Improved pavement and installed tactile strips on Rynok Square in Lviv (Roman Baluk)

A key feature of the project is the involvement of representatives of people with reduced mobility in the route planning and testing process. People with disabilities actively participated in developing solutions, ensuring that the project meets the real needs of users.

Vienna: the boulevard regeneration project (2012–2018) demonstrates a successful blend of modern design with the city's historic fabric. On Burgring Street, modular benches were installed that do not require anchoring to the ground (preserving architectural integrity), pavements were widened, a clear lighting system was introduced, and convenient pedestrian crossings were organised. A combined approach proved particularly important: preserving the medieval streets 'as they are' whilst simultaneously providing accessible alternative routes nearby, which enhanced the comfort of daily use of the space for residents and visitors.

In Vienna, systematic measures have been implemented to improve accessibility in public spaces (Fig. 2.49). Ramps have been installed on staircases to facilitate movement for people with pushchairs and wheelchair users (Ambrose et al., 2016). The redesign of boulevards, aimed at preventing gentrification, has created space for daily informal activities for residents of all ages, incomes and cultural backgrounds (Ambrose et al., 2016).

As part of the Boulevard Redesign project in Vienna, modular benches were installed (Fig. 2.50) that did not require permanent infrastructure, allowing for a flexible response to residents' needs. This approach has become popular in other European cities and is becoming increasingly relevant for Ukrainian cities (Big City Lab, 2021).

Among the technological solutions tested in European cities, mobile navigation apps with the option to select the 'most accessible route' play an important role, as do augmented reality (AR) applications to provide information about sites that remain physically inaccessible (Barcelona), as well as platforms for recording and responding promptly to community reports of accessibility issues (Amsterdam). Lviv is developing the first Ukrainian version of such a platform, demonstrating the potential for adapting international practices to local conditions with active public involvement.

Fig. 2.49 — The square inside the Hofburg Imperial Palace in Vienna, Austria. Use of concealed drainage and pavement surfacing to ensure easy wheelchair access (Apple Maps, n.d.)

The preservation of architectural heritage and monumentality can be seen as conflicting objectives with regard to ensuring accessibility. They are often viewed as incompatible, although most contemporary practices demonstrate the possibility of a harmonious combination (Historic England, 2015b).

Fig. 2.50 — Mobile benches near Museumplatz in Vienna, Austria (vienna.info, n.d.)

In the context of Ukrainian cities, this dilemma is particularly acute. Lviv, Kamianets-Podilskyi and other historic centres are often viewed as open-air museums, where any intervention is considered a violation of authenticity. However, this approach effectively renders these places inaccessible to people with disabilities, older people and those with temporary reduced mobility.

International practice shows that well-designed adaptive solutions, which take the historical context into account, can improve accessibility without compromising heritage. For example, mobile ramps, installed only when necessary, or concealed ramps below ground level, allow the historic appearance of a site to be preserved whilst ensuring access (Historic England, 2015a).

Economic constraints and the costs of implementing inclusive solutions remain one of the key barriers for local authorities. Research into municipal programmes in the UK shows that successful projects combine budgetary investment with public-private partnership models, dedicated funds and community participation, which helps to reduce short-term pressure on budgets whilst enhancing equity of access (CABE Space, 2006; Design Council, 2022).

The implementation of inclusive solutions is often viewed as an additional expense that diverts resources from other needs. Insufficient funding for public space development projects leads to inclusivity being treated as an optional component rather than a mandatory element (Mezentsev and Mezentseva, 2017).

However, studies of the economic implications of implementing inclusive solutions show that such costs are justified. Expanding access to historic centres means (Ambrose et al., 2016; Pienaar, 2015):

1. An increase in tourist numbers, particularly among older tourists and families with children;
2. An expansion of the customer base for local traders and service providers;
3. An increase in the proportion of permanent residents who stay in the city for a longer period;

European studies on cultural tourism within the IMPACTOUR, SMARTDEST and TExTOUR projects confirm that investment in accessible infrastructure in historic centres increases the length of visitors' stays, average spending and diversifies tourist flows, reducing seasonality and overcrowding in specific locations. Inclusive design of public spaces in these programmes is viewed not only as a social requirement but also as a tool for managing the risks of overtourism and preserving cultural heritage (IMPACTOUR Consortium, 2024; SMARTDEST Consortium, 2024; TExTOUR Consortium, 2024).

4. Improving the quality of life for the local population.

The LHAC project demonstrated that cities which implemented systematic measures to improve accessibility saw a 15–25% increase in tourist activity, particularly among older tourists and families with children (Ambrose et al., 2016).

Fragmented responsibilities and coordination issues

There is often no clear division of responsibilities between different authorities and institutions when it comes to ensuring the inclusivity of public spaces. This leads to problems remaining unresolved due to a blurring of responsibilities (Mezentsev and Mezentseva, 2017).

In Lviv, for example, the streets in the historic centre may fall under the management of several bodies: public utilities, the municipality, private building owners and the tourism board. When one body develops a plan to improve accessibility, another may lack the funds or expertise to implement it, leading to a fragmented outcome where some parts of the public space are accessible whilst others remain inaccessible.

The solution requires the creation of a single coordinating body responsible for planning and monitoring inclusivity at the city-wide level. In the LHAC project, each city appointed a single coordinator responsible for coordinating the work of all bodies (Ambrose et al., 2016).

Route planning taking into account the needs of people with reduced mobility

The organisation of a barrier-free route is achieved through a combination of architectural, planning, engineering, technical, ergonomic, structural and organisational measures that ensure three key conditions (DBN V.2.2-40:2018):

1. Physical accessibility and ease of access to the facility, as well as unimpeded movement in public spaces;
2. Physical safety of routes, including evacuation routes;
3. The ability to freely obtain information about the facility and its services.

When constructing new buildings or redesigning public spaces, the application of Universal Design principles is a priority. Route planning should be based on the principles of accessibility, safety, convenience, information provision and sustainability (Big City Lab, 2021).

The planning process begins with an audit of the existing infrastructure. Experts must examine all existing routes of movement within the public space, identify critical points where access is restricted, and develop prioritised solutions. Phased implementation allows local authorities to ensure continuous improvement without a single large investment (Big City Lab, 2021).

Systematic planning at city level

An effective system of accessible routes in public spaces should cover (Accessibility Album, 2021; Ambrose et al., 2016):

1. Key tourist and functional hubs — museums, parks, shopping centres, public councils;
2. Public transport — ensuring safe and accessible access to platforms and via underpasses;
3. The street and pavement network — at least 1 km in length along the main tourist route;
4. Rest areas — seating, shelter from the weather, access to toilets;
5. Information support — display boards, maps, audio guides in various formats.

When planning an accessible route, different types of disability and needs should be taken into account. A route that is convenient for a person in a wheelchair may be inconvenient for a person with visual impairments or older people with limited stamina. Therefore, the final design should be a compromise that meets the needs of as many users as possible.

Mobile and temporary devices for overcoming height differences

One of the most practical solutions for historic towns is the use of mobile ramps and lifting devices, which can be installed and removed as required. This is particularly useful in places where permanent structures might adversely affect the historic character of the area (Historic England, 2015a).

Mobile ramps are made from lightweight materials (aluminium, polymer composites) and have a rubber base that prevents slipping and protects the historic surface. A typical mobile ramp consists of several modular sections that are easy to assemble and dismantle. The slope of such a ramp can be easily adjusted depending on the height of the step (Historic England, 2015a).

In Viborg (Denmark), mobile ramps are installed during the tourist season and for major events, and removed at other times. This approach allows the city to preserve its historic appearance whilst ensuring access at critical moments (Ambrose et al., 2016).

Lifting platforms are a more expensive but permanent solution. They are installed in areas with significant height differences (over 1 m) and are used by people in wheelchairs and those with severe mobility impairments to negotiate steps and steep slopes. Such devices often feature automatic controls and safety features such as handrails (Ambrose et al., 2016).

Fig. 2.51 — Lviv has adopted an interesting solution from several European cities for improving accessibility on cobbled streets and squares — accessibility paths. The cobblestones are removed and ground down to a smooth, level surface without any unevenness. The thickness of the paving remains the same, averaging 17 centimetres, but its surface becomes level: this makes it easier for people in wheelchairs and with pushchairs to get through (Lviv City Council, 2025).

Improving the quality of pavement surfaces

Repairing and upgrading pavements is one of the most complex but most visible measures for improving accessibility (Fig. 2.51). Possible approaches include (Historic England, 2015a; Accessibility Album, 2021):

1. Re-laying paving stones whilst minimising gaps. This requires skilled workers who understand the historical significance of the material, and often entails higher labour costs;

2. Laying a top layer of smooth material (high-quality asphalt, special polymer composite) over the historic paving. This provides a smooth surface for wheelchair access but alters the visual appearance of the space;
3. Selective maintenance — rather than repairing the entire pavement, only the most critical sections where people congregate (near shops, restaurants, tourist attractions) are repaired.

In a number of European cities, including Vienna and Berlin, projects have been implemented to expand pedestrian zones by removing car parks from central areas. This has not only improved accessibility but has also helped to revive street activity and boost local business (Big City Lab, 2021).

Regulating the placement of temporary structures

Kiosks, cafés, signage and other temporary structures, which are often located on pavements, can significantly reduce available space. Solutions include (Big City Lab, 2021):

1. Establishing standards for the placement of temporary structures that ensure a minimum width of 1.8 m is maintained for the main route;
2. Designating specific areas for kiosks and cafés, clearly marked with signage;
3. Regular inspections to ensure compliance with standards.

For true inclusivity, the majority of efforts should focus on actively involving people with disabilities and representatives of groups with reduced mobility in the planning, design and implementation processes (Fig. 2.52). It is important to organise consultations, open surveys and route testing by representatives of these groups (Big City Lab, 2021).

The community engagement process should begin at the early stages of planning, rather than merely with the presentation of ready-made solutions. This involves conducting focus groups, interviewing people with various types of disabilities, observing how they move through the space, and recording their suggestions (Big City Lab, 2021).

Fig. 2.52 — The therapeutic garden at VDNG. A project involving various community groups: psychologists, volunteers, community leaders, hospital staff, botanists and landscape architects (Big City Lab, 2021).

This involvement was also intended to influence the very understanding of accessibility. Authorities and architects often view accessibility through the lens of professional regulations, but people with disabilities frequently identify issues that are not covered by regulations but which actually hinder their mobility (Big City Lab, 2021).

Establishing success indicators and monitoring

Systems for monitoring and evaluating compliance with inclusivity requirements must be established. Regular audits, conducted by both specialists and people with disabilities, enable problems to be identified and necessary adjustments to be made (Big City Lab, 2021).

Monitoring systems may include (Accessibility Album, 2021; Ambrose et al., 2016):

- Quantitative indicators — number of accessible entrances, percentage of pavements meeting standards, number of rest areas, availability of tactile guidance;
- Qualitative indicators — user satisfaction, level of social integration, sense of safety;
- Economic indicators — project implementation costs, economic benefits from increased tourist activity.

2.3.4 The ‘Barrier-Free’ national initiative and the ‘Movement Without Barriers’ project

The National Strategy for Creating a Barrier-Free Environment in Ukraine by 2030, approved by Order No. 366-r of the Cabinet of Ministers of Ukraine dated 14 April 2021, defines accessibility as a state priority and a cross-sectoral policy covering the physical, information, digital, educational, economic and social spheres (Cabinet of Ministers of Ukraine, 2021). The First Lady of Ukraine’s ‘Barrier-Free’ initiative serves as the public communication framework for this policy, promoting the principle that ‘barrier-free means you can’ in state programmes, urban projects and awareness campaigns (NGO Bezbariernist, 2025). As already demonstrated in section 1.1, the historic urban landscape creates a specific context for such interventions.

The flagship project of the Ministry for Communities, Territories and Infrastructure Development of Ukraine, ‘Movement Without Barriers’, is being implemented as part of the ‘Without Barriers’ initiative and the National Strategy to 2030 (Ministry for Communities, Territories and Infrastructure Development of Ukraine, 2025a). Its aim is to create a system of barrier-free routes in cities that seamlessly connect residential neighbourhoods, public transport, medical, educational, cultural and administrative facilities, as well as recreational and rehabilitation spaces.

As of 2025, the project covers at least fifteen pilot communities: Kyiv, Odesa, Dnipro, Zhytomyr, Ternopil, Lviv, Rivne, Chernivtsi, Poltava, Vinnytsia, Slavutych, Kropyvnytskyi, Bucha, as well as the towns of Opishnia and Borodianka (Ministry for Communities, Territories and Infrastructure Development of

Ukraine, 2025a). In each community, barrier-free routes are formed as a network of branches covering key streets and public spaces; their development and coordination take place in accordance with methodological documents approved by the government (Cabinet of Ministers of Ukraine, 2021).

To monitor the implementation of the National Strategy and the ‘Movement Without Barriers’ project, an interactive Accessibility Map has been created — a joint digital tool of the Ministry and its technology partner LUN City (Fig. 2.53). The map displays thousands of locations across Ukraine — educational institutions, healthcare facilities, cultural, sporting, social and transport facilities — with an accessibility rating: ‘barrier-free’, ‘partially barrier-free’ or ‘barriered’ (LUN City, 2025; Ministry for Communities, Territories and Infrastructure Development of Ukraine, 2025b).

The unique feature of the Accessibility Map lies in its combination of expert and public assessment. To add new locations or update information, users complete a standardised online checklist of accessibility criteria, developed by LUN City in collaboration with the Ministry (LUN City, 2025). This allows for the simultaneous collection of aggregated data for urban planning and the enhancement of community participation through crowdsourcing tools.

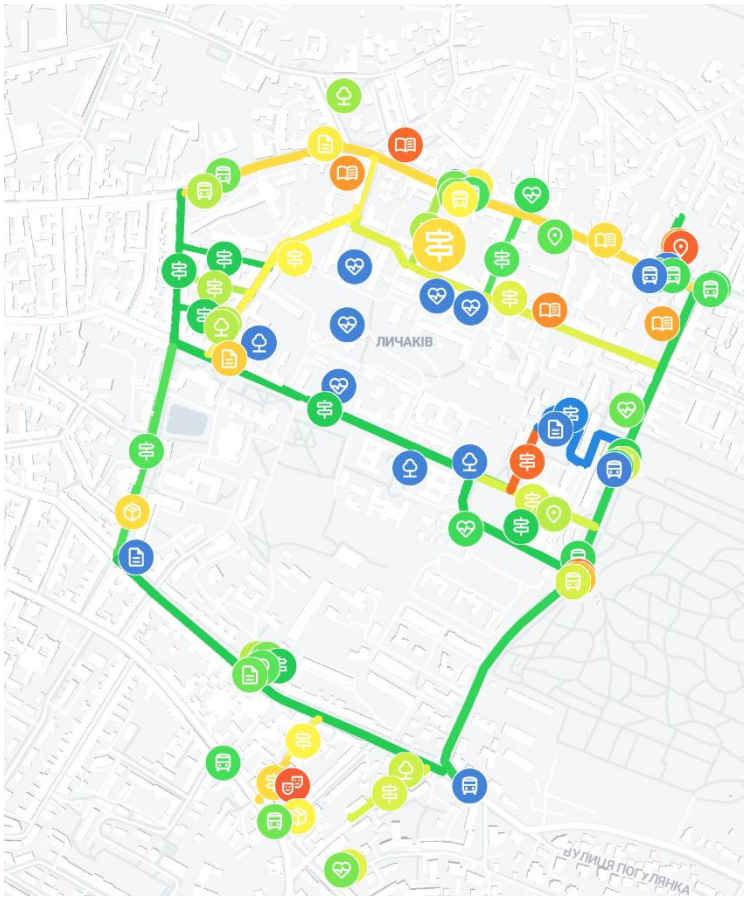

Fig. 2.53 — Interactive accessibility map of Lviv (LUN City, 2025)

In the context of this guide, the national ‘Accessibility’ initiative and the ‘Movement Without Barriers’ project serve as a methodological framework within which the physical accessibility (dostupnist) and inclusivity (inkliuzyvnist) of public spaces in historic cities are viewed as interrelated, yet analytically distinct dimensions of urban policy.

Conclusions to Section 2.3

The methodology for assessing accessibility through AII, checklists and user involvement enables the systematic analysis of public spaces, the identification of critical barriers and the prioritisation of interventions. Practical solutions — from mobile ramps to digital navigation systems — make it possible to improve accessibility without radically altering the historic fabric of the city, whilst simultaneously enhancing convenience for tourists, older people, parents with children and other user groups.

A systematic analysis of methodologies and best practices for ensuring accessibility has shown that effective programmes in historic cities combine diagnostics, design solutions and implementation management into a single cyclical model. Firstly, diagnostics must go beyond a formal check of standards and include field surveys, user experiences and the involvement of local communities, enabling the identification of actual routes and critical points (Ambrose et al., 2016; Big City Lab, 2021). Secondly, design solutions must be based on the principles of universal design and reversible interventions, combining physical changes with information and service interventions to ensure accessibility without compromising authenticity (Historic England, 2015b). Thirdly, the sustainability of outcomes depends on governance and communication: the existence of accountable structures, transparent procedures, staff training and open dialogue with users, enabling solutions to be adapted to changes in context.

The LHAC project's recommendations to allocate 15–25% of time and budget to engagement and feedback, as well as the experience of cities such as Edinburgh and Paris, confirm that accessibility in historic cities is not a static state but a dynamic process of continuous improvement.

General conclusions of the second chapter

The accessibility of public spaces in historic cities is not a technical 'problem' that can be solved by a single regulatory decision, but a multidimensional challenge. It requires simultaneous consideration of standards and regulations, spatial structure, usage patterns, the historical value of the environment, and the experiences of different user groups.

Ukrainian regulatory documents (DBN V.2.2-40:2018, DBN B.2.2-12:2019), together with international frameworks (CRPD, ISO 21542, EN 17210, etc.), set out minimum accessibility parameters: passage widths, permissible gradients, level differences, requirements for surfacing, lighting and wayfinding. In dense historic built environments, these requirements often conflict with heritage conservation regimes, necessitating flexible approaches and 'reasonable accommodation'.

The identification of five categories of barriers — physical, sensory, informational, cognitive and administrative — demonstrates that the issue of accessibility is systemic in nature. Traffic management, temporary structures, haphazard parking, the absence of clear rules for using the space, and a lack of coordinated management often create obstacles no less significant than the historic topography and built environment themselves.

The assessment methodology, using the Accessibility Improvement Index, route surveys and checklists, translates abstract principles into concrete priorities for intervention. It helps to identify critical sections of routes, compare development scenarios, and justify the need for changes for people with disabilities, older people, parents with children, tourists and other user groups.

International and Ukrainian experience shows that investment in the accessibility of historic public spaces yields combined social and economic outcomes: local activity increases, a sense of safety and belonging is strengthened, and tourist flows and opportunities for local businesses expand. Further analysis of inclusivity in the third chapter broadens this focus from physical parameters to sensory, cognitive, psychological and social aspects of using historic spaces.

III. INCLUSIVITY OF PUBLIC SPACES IN HISTORIC CITIES

Public spaces in historic cities combine high cultural value with everyday use and shape the image of the city in the minds of residents and visitors. They must simultaneously preserve authenticity and be suitable for safe, convenient use by people with various physical, sensory and cognitive characteristics.

Historic cities, with their centuries-old buildings, complex topography and rich cultural symbolism, face far greater challenges in implementing principles of inclusivity than new developments. However, this complexity cannot be a reason to reject change: on the contrary, it requires greater creativity, scientifically grounded solutions and a long-term commitment to the principles of social justice and equal access (Pienaar, 2015; Ambrose et al., 2016).

International practice demonstrates that inclusivity is regarded as a fundamental condition for the sustainable development of cities. The UN Convention on the Rights of Persons with Disabilities, ratified by the majority of European states, requires ensuring equal access to the physical environment, including public spaces and cultural facilities (United Nations, 2006). The European Design for All declarations and the Stockholm Declaration of the EIDD emphasise that an inclusive environment is a component of the model for ‘vibrant and equitable’ cities of the future (EIDD, 2004).

In this guide, the inclusivity of historic public spaces is considered in three interrelated dimensions: as physical and sensory accessibility; as the realisation of different groups’ right to the city and participation in communal life; and as respect for the authentic urban fabric and the cultural meanings it embodies. This approach allows technical solutions to be combined with ethical and cultural considerations, which traditionally fall within the professional remit of restoration architects.

In Ukraine, the regulatory framework for ensuring the accessibility and inclusivity of public spaces is enshrined in several key legislative acts. The Law of Ukraine ‘On the Basic Principles of Social Policy Regarding Persons with Disabilities’ and the deregulated building standards DBN V.2.2-40:2018 establish clear and mandatory requirements for architectural solutions and the design of accessible environments. However, the practical application of these standards, particularly in historic city centres, remains a complex challenge requiring constant attention and coordination across many aspects of urban management (DBN V.2.2-40:2018; ADA, 2010; Department for Transport, 2021). In the context of a full-scale war, this task takes on an additional dimension, as there is a sharp increase in the number of veterans, people with disabilities resulting from injuries, and internally displaced persons, for whom the barriers of the historic environment directly affect their ability to rehabilitate, return to work, and participate in community life (Global Disability Fund, 2025; Machlouzarides & Uretici, 2023).

This chapter is devoted to an analysis of contemporary approaches to ensuring accessibility and inclusivity in historic public spaces. It examines international and national requirements, typical barriers, as well as methods that allow the preservation of the historic environment to be combined with safe and comfortable access for various user groups. Particular attention is paid to the Ukrainian context and the growing role of people with disabilities, veterans and internally displaced persons, for whom high-quality, psychologically comfortable public infrastructure is a basic prerequisite for participation in public life.

Particular attention is paid to the needs of veterans and internally displaced persons as distinct user groups, for whom inclusive public spaces serve as a tool for psychosocial support and for restoring a sense of ‘home’ in the city.

3.1 Current requirements for the inclusivity of public spaces

The development of modern requirements for the inclusivity of public spaces is the result of a long evolution in social attitudes, activism by people with disabilities, and decades of academic research in the fields of universal design, urban archaeology and architecture. These requirements reflect not only technical standards but also the profound principles of social justice and respect for human dignity.

3.1.1 Definition of inclusivity and theoretical foundations

In the context of public spaces and architectural heritage, inclusivity means that every person, regardless of their physical, sensory, cognitive or mental characteristics, has a genuine opportunity to use the space on an equal footing. This goes beyond a narrow understanding of ‘accessibility’ as the minimum compliance with technical standards and encompasses full participation in urban life, culture and the economy, without a sense of exclusion or stigmatisation (Oliver, 1996; Imrie & Hall, 2001). A comparison of the key concepts of inclusivity, accessibility, barrier-free access, universal design and Design for All is provided in Table

The theoretical basis of the inclusive approach rests on the shift from the medical to the social model of disability. Whilst the medical model treats disability as an individual ‘defect’, the social model views it as a consequence of a person’s interaction with a barrier-filled environment (Oliver, 1996). Accordingly, the task lies not in ‘correcting’ the person, but in transforming space, infrastructure, norms and practices so that they do not create disability as a social phenomenon (United Nations, 2006).

In the 1990s, the Centre for Universal Design at the University of North Carolina formulated seven basic principles of universal design, describing the quality of the environment for a wide range of users: equality, flexibility in use, simplicity and intuitiveness, perceptibility of information, tolerance of error, low physical effort, and adequate size and space (Connell et al., 1997). These principles are not a rigid ‘set of instructions’, but serve as a professional guide for architects, urban planners and policymakers.

Universal design and inclusivity are supported by key international documents, in particular the UN Convention on the Rights of Persons with Disabilities and the declarations of the European Institute for Design for All (EIDD, 2004; United Nations, 2006). They combine technical solutions with principles of social justice and respect for human dignity, transforming inclusivity into a criterion for the quality of specific solutions in the urban environment, rather than merely an abstract value.

Throughout their lives, most people experience temporary or permanent limitations in mobility, vision, hearing, attention or energy. Inclusive solutions, based on the social model of disability and the principles of universal design, improve the experience of using the city for everyone, not just for specific

‘target groups’. The following section focuses specifically on the diversity of the population in historic cities and the types of users for whom inclusive spaces are designed.

3.1.2 Diverse solutions for a diverse population

A fundamental prerequisite and essential foundation for the development of truly inclusive and equitable public spaces is a deep understanding of the simple yet often overlooked fact that the population of cities consists of extremely diverse, heterogeneous groups of people, each with their own specific, often unique needs and inalienable rights (Fig. 3.1). This diversity should not be viewed as a problem to be solved, but rather as a richness and a reality that architecture and urban design must respect and take into account.

Fig. 3.1 — Human diversity.
In the photo (left), Leonardo da Vinci’s ‘Vitruvian Man’, c. 1490, depicts the ideal human body inscribed within a square and a circle; (centre) Ernst Neufert’s architectural data from 1936 uses geometric figures superimposed on the figure’s height;
(right) — a six-foot-tall man divided by the golden ratio, designed by Le Corbusier. The ratio of the man’s total height to the height of his navel is 1.61, the same as the golden ratio (Big City Lab, 2021).

Statistical data collected in developed European countries and the US show that approximately one in five people has some form of disability of varying severity, including both visible and invisible forms. Furthermore, a significantly larger number of people – from pregnant women to the elderly – require an adapted and inclusive environment, either temporarily or permanently. Viewed from the perspective of human rights and justice, it can be stated that ensuring inclusivity is not a separate, specialised task, but a fundamental requirement of quality architecture and urban planning.

In the public spaces of historic cities, particularly in Ukraine, where society is undergoing a period of significant change and challenges, the needs of numerous population groups must be taken into account. Each of these groups has unique characteristics and requires special consideration:

People with disabilities constitute an extremely diverse group with a wide range of physical, sensory and cognitive characteristics. People with musculoskeletal impairments use wheelchairs, crutches, walking frames or other assistive devices and require continuous routes free of steps, gradients and narrow passages. People with visual impairments require contrast, tactile elements and a clear spatial layout, whilst those with hearing impairments require visual communication channels and the minimisation of background noise.

Older people often experience a decline in vision, hearing, strength and reaction speed, even if they do not formally have a disability. For them, sufficient width of passageways, the opportunity for frequent rest, moderate gradients, the absence of sharp changes in level and slippery surfaces, as well as good lighting, become critical. Advanced age increases the risk of falls on uneven or steep routes, so a safe, logically organised environment is an important prerequisite for their participation in urban life.

Pregnant women. Pregnancy temporarily but significantly affects a woman's mobility, body balance and ability to bend or stoop. A growing bump shifts the centre of gravity and requires a wider walking path.

People with temporary health impairments — following injuries, operations or serious illnesses — often require the same spatial and service adaptations as people with permanent disabilities. They need safe, short routes free of obstacles, the opportunity to sit down or lean on something, clear navigation and access to assistance. This experience clearly demonstrates that inclusive design benefits not only 'specific groups', but in fact everyone at certain stages of life.

People with pushchairs. Parents and carers of children who use pushchairs have needs very similar to those of wheelchair users in terms of navigating the environment. They need level, safe surfaces free of obstacles, sufficiently wide passageways and paths (at least 1.5 metres), easy access to facilities such as toilets and cafés, and the availability of comfortable seating areas for rest, as even a short walk with a pushchair can be physically demanding.

People with non-standard body sizes. Both people of extremely short stature (short people) and those who are overweight often face numerous difficulties accessing objects and materials positioned too high or too low, or using furniture and spaces designed for a fixed, so-called 'average' body type. Furniture without leg supports, narrow chairs, and benches of a certain height – all of these pose obstacles.

Veterans and internally displaced persons in the Ukrainian context constitute a particularly vulnerable group, facing a combination of physical, sensory and psychosocial consequences of war. Alongside injuries and loss of health, post-traumatic stress disorder, anxiety and depression are common, exacerbated in environments that are neither safe nor familiar. Inclusive public spaces must ensure not only physical access but also psychological comfort, the opportunity to receive support and to feel like full members of the community.

Tourists and international students. People who are unfamiliar with the language, culture and even the architectural style of an area often face significant difficulties in finding their way around and understanding information presented in a language they do not understand. They need clear, easily recognisable, multilingual information and the use of standardised symbols that people all over the world can understand.

Each of these groups has not only specific needs, which often do not coincide and may even contradict one another, but also their own unique vision of how public space should be organised. True inclusivity lies in the development and implementation of comprehensive, scientific and creative solutions that will serve as many people as possible without the need for special adaptations or physical alterations. This is underpinned by the principle of universal design – what is good for one group is usually beneficial for everyone.

However, looking at the situation realistically, it must be acknowledged that in some specific cases, special solutions and adaptations may be developed to ensure full access for people with certain, particularly severe limitations. Such special solutions should be viewed not as a departure from universal design, but as its logical complement and extension, helping to ensure accessibility for the widest possible range of people.

In this context, inclusive design must address the specific needs of different groups, rather than abstract notions of ‘people in general’. To understand exactly what prevents these groups from using the space, Section 3.2 analyses the main types of barriers in historic environments, whilst Subsection 3.3.1 proposes a methodology for identifying and overcoming them based on the principles described above.

Conclusions to Section 3.1

The inclusivity of public spaces in historic cities is based on distinguishing and reconciling several key concepts: accessibility, barrier-free access and inclusivity. An inclusive space is understood not merely as technically ‘accessible’, but as one that ensures a dignified presence, safety and the opportunity for participation for diverse groups of residents and visitors within the context of a living historic landscape.

The focus is not on the ‘average’ user, but on the diversity of life situations: people with various types of disability, children and older people, parents with pushchairs, veterans, internally displaced persons, tourists, people with traumatic experiences or different cultural and linguistic backgrounds. This diversity requires a combination of solutions that are convenient for a wide range of users, with the ability to respond specifically to individual needs.

Within this framework, universal and inclusive design are not a set of individual technical measures, but rather a way of thinking about space as a shared resource. It is from this perspective that barriers in historic environments, and approaches to identifying and overcoming them, are analysed below.

3.2 Barriers limiting the inclusivity of public spaces in historic cities

Whilst Section 2.2 primarily addressed physical accessibility barriers — terrain, steps, changes in level, and the characteristics of surfaces and street furniture — this section focuses on less obvious obstacles to inclusivity: linguistic, cultural, social, sensory and psychosocial. Despite the existence of legal requirements and growing attention to inclusivity, these barriers often remain ‘invisible’, as they are harder to capture in traditional norms and standards. They manifest in who actually feels ‘welcome’ in

public spaces and who does not, and which groups remain on the periphery of urban life. For veterans, people with disabilities, internally displaced persons and other vulnerable groups, unresolved inclusion barriers heighten the risks of isolation and re-traumatisation (Global Disability Fund, 2025; International Renaissance Foundation, 2025).

Fig. 3.2 — Infographic on barriers to inclusive heritage (Authors' own work)

3.2.1 Linguistic barriers

Linguistic barriers, i.e. barriers of linguistic origin, arise and persist in situations where information about historical sites, cultural heritage, services and opportunities provided in public spaces is presented in a manner and language that is not accessible to all categories of potential users. These language barriers, often underestimated, have profound and far-reaching consequences for people's inclusion in public life. They encompass several interrelated aspects:

Language barriers arise where information about historical sites is provided in only one language or in a complex, overloaded form. This makes comprehension difficult for both foreign visitors and some local residents, particularly children and people with limited language or reading skills. Incomplete or inaccurate translations, as well as the assumption that all visitors will 'understand anyway', effectively narrow the circle of those who can fully participate in the city's cultural life.

The excessive use of specialised terminology in descriptions of architecture, art or history creates barriers for visitors without professional training. Complex terms and references to highly specialised concepts can make exhibitions ‘inaccessible’ to a wider audience. Inclusive interpretation involves explaining key concepts in plain language, using examples and visual aids, and reserving specialised terms only where truly necessary.

Lack of language choice and inclusive language planning. Beyond simple linguistic inadequacy, information is often, either intentionally or through oversight, not provided for people who speak languages other than the official one. This is particularly relevant in Ukraine, which is home to a significant number of international students, migrant workers and tourists from dozens of countries. Even within a single language, there can be significant dialectal differences and variations that affect the understanding and perception of information.

In many historic cities, oral traditions and local histories play an important role, passed on through guided tours, residents’ stories or informal practices. For people who have not grown up in this context, as well as for those with hearing impairments, such forms of communication may be difficult to access. Providing subtitles, sign language interpretation, audio recordings and text transcripts makes oral cultural heritage accessible to a wider range of visitors.

Fig. 3.3 — Coloured lines for orientation (Le Parisien, 2017)

Fig. 3.4 — Signposts with simple symbols that will be understood by speakers of different languages (Clase BCN, 2025)

Overcoming linguistic barriers requires a profound, systematic and long-term rethinking of approaches to information strategy. This includes the development of high-quality multilingual information materials, the gradual simplification and adaptation of technical terminology for the general public, the provision of accessible, high-quality translation services and, crucially, the provision of alternative forms of communication and information presentation, including visual materials, diagrams, photographs and high-quality tactile descriptions for people with visual impairments (see Figs. 3.3, 3.4; Department for Transport, 2021).

3.2.2 Cultural barriers

Cultural barriers develop and are reinforced in situations where different population groups have significantly different interpretations, understandings and emotional perceptions of cultural heritage, or where the presentation, interpretation and positioning of this heritage in the public sphere do not adequately take into account the needs and particular sensitivities of all groups in society. These cultural barriers arise from several sources and are complex and deeply rooted in society. They include (Historic England, 2015b; Ambrose et al., 2016):

A one-sided, monological interpretation of history, focused on the experiences of the dominant group, leads to the exclusion of minorities and marginalised communities. If history is presented solely from the perspective of political leaders, military victories or wealthy elites, there is no room in the public sphere for the voices of women, ethnic and religious minorities, people with disabilities or refugees. Such an interpretation reproduces symbolic inequality and can be regarded as a form of cultural discrimination.

Representation, bias and discourse analysis. The ways and forms in which historical heritage is presented in informational materials often reflect the cultural, gender and racial biases of the era in which these materials were created, or the biases of specific individuals who curated and shaped the content of the information. If descriptions, characteristics or images contain explicit or implicit bias towards racial, ethnic, religious, gender groups or other minorities, this may rightly be regarded as offensive to members of these groups and contribute to their marginalisation. Previous examples of physical, sensory and cognitive barriers are provided in the preceding sub-sections on institutional, linguistic, sensory and cognitive barriers (see Section 3.2).

Stereotyping and negative portrayals. Cultural heritage is sometimes presented in a manner and context that actively reinforces and perpetuates stereotypes, archaic notions or negative portrayals of certain population groups. This is particularly problematic at historic sites with a complex and often painful history of discrimination, violence, slavery or genocide. Such contexts require particular sensitivity and thoroughness in presentation.

Socio-economic barriers arise when spaces that are formally accessible remain effectively out of reach due to high admission costs, additional transport expenses or guide fees. People on low incomes, families with children, or older people often refrain from participating in cultural events precisely because of financial constraints. Inclusivity involves introducing discounted or free formats, transparent discount policies, and well-considered site locations in relation to public transport.

For veterans and internally displaced persons, historical spaces associated with war and violence can trigger flashbacks, anxiety and other traumatic reactions. A lack of warning about traumatic content, overly naturalistic displays or aggressive visual imagery can exacerbate psychological trauma. At the same time, the failure to acknowledge the experience of war and forced displacement reinforces a sense of invisibility. An inclusive interpretation must take these aspects into account, offer different levels of engagement with the subject, and create safe conditions for navigating complex memories.

Overcoming cultural barriers requires not so much technical solutions as work on narratives and symbolic meaning. We need to critically review which groups and experiences are represented in exhibitions and public spaces, and which remain ‘invisible’, and gradually integrate the voices of women, minorities, people with disabilities and new residents. Supplementing official history with alternative perspectives, educational programmes and formats for dialogue allow heritage to be viewed through different cultural ‘lenses’ and reduce the risk of symbolic exclusion.

3.2.3 Information barriers

Information barriers arise and persist in the many situations where information about public spaces, historical heritage, services and opportunities is not adequately accessible, is incomprehensible to a wide range of people, or is provided in an inappropriate, ineffective manner for certain user groups with specific needs. These information barriers, though often underestimated, have real and serious consequences for inclusivity and access to culture and information. They encompass numerous interrelated aspects:

Lack of context and contextualisation of artefacts. Often, artefacts, museum exhibits and architectural elements are presented without sufficient context regarding their true historical significance, the depth of their cultural meaning, the methods of their creation and manufacture, and the social context of the time of their creation. Without adequate, expanded context, visitors, particularly tourists and children, may fail to grasp the true, profound significance of what they are seeing, and do not derive meaningful, satisfying cultural value and educational enrichment from their visit. Information is often presented as facts without narrative, isolated from the historical process.

Insufficient organisational and practical information. Information on how to reach the site by public or private transport, what facilities are available for people with disabilities, the schedule and frequency of events and programmes, opening hours and operating procedures, contact details and other practical organisational matters is often insufficient, unclear, scattered across various sources or missing altogether. This is particularly problematic for people with cognitive impairments, children, older people and those unfamiliar with the area.

Information overload and cognitive fatigue. On the other hand, sometimes too much information is provided at once, particularly if it is presented in the form of long, dense texts without visual aids, illustrations or breaks. People with cognitive impairments, dyslexia, SLD and even those without such conditions can quickly feel overwhelmed, exhausted and lose their concentration and interest. Information design that takes cognitive needs into account involves short, concise blocks of text, more frequent use of graphics and white space for visual rest.

Poor quality, readability and accessibility of information materials. Information is often presented in poor quality, is unclear, uses tiny font sizes, and has low contrast between text and background (for example, light text on a light background), making it virtually impossible to read for people with visual impairments, as well as for everyone else. Even for people without visual impairments, the poor quality of information materials demonstrates a lack of respect for the visitor’s time, effort and experience.

Lack of accessible formats and alternative presentation methods. Information is often not available in alternative, adapted formats, such as large print, Braille, audio formats and audio descriptions, adapted plain language, or using supported communication symbols. People with visual impairments, people with hearing impairments and people with cognitive impairments are often excluded from accessing critical information due to insufficient, half-hearted attempts by organisations to make information truly accessible to all.

Overcoming information barriers requires multi-channel communication and the adaptation of materials to different groups. It is important to combine text, diagrams, icons, audio and video materials, and to ensure a clear structure of information and a clear context for artefacts and events. Accessible formats include large print, audio descriptions, Braille texts, tactile models, as well as inclusive digital resources that can be used by people with varying levels of digital literacy (Fig. 3.5).

Fig. 3.5 — An information navigation stand serves as an effective tool for overcoming the information barrier (Behance, 2025)

The obstacles to achieving a truly comprehensive inclusive heritage and public spaces have diverse origins – linguistic, cultural and informational. Linguistic barriers arise from the exclusive use of a single language, poor translation, the use of overly technical terminology, and a lack of alternative forms of communication adapted for people with hearing impairments. Cultural barriers stem from a systematic, sometimes biased and one-sided representation of heritage, which can exclude and marginalise certain groups in society.

3.2.4 Cognitive barriers

Cognitive barriers arise when a space places excessive demands on a user's orientation, concentration or working memory. Historical morphologies are often characterised by irregular geometry, a lack of clear route hierarchy, winding streets, and a complex system of passageways and courtyards.

According to K. Lynch, such spaces have reduced ‘legibility’ and ‘imageability’, which makes it harder to construct a mental map and increases the cognitive load.

For people with autism, dementia, cognitive impairments, attention disorders, or those who have experienced trauma, the difficulty of navigation becomes a systemic barrier. For veterans with PTSD, the unpredictability of the spatial structure and the absence of simple linear routes can trigger feelings of loss of control, anxiety, and avoidance of certain parts of the city.

Cognitive barriers are directly linked to methods of cognitive mapping, visual structuring of space, and the creation of repeatable, easily recognisable landmarks.

3.2.5 Psychological, sensory, socio-behavioural and psychosocial barriers

Psychological, sensory, socio-behavioural and psychosocial barriersshow that the inclusivity of historic public spaces depends not only on sectoral standards or the geometry of elements, but also on how a person subjectively perceives the environment, how other users behave within it, and what social and traumatic contexts are embedded in everyday experience. Research in urban studies, environmental psychology and the geography of disability emphasises that space can provoke anxiety, a sense of danger or a feeling of being unwelcome not only through physical barriers, but also through sensory overload, social usage scenarios and experiences of trauma (Kitchin, 2000; Gehl, 2010; WHO, 2021; URBACT, 2023). In the Ukrainian context, these factors are further exacerbated by the consequences of full-scale war, the rising number of people with anxiety disorders, heightened sensory sensitivity, PTSD and forced displacement (Machlouzarides & Uretici, 2023; Global Disability Fund, 2025; Cabinet of Ministers of Ukraine, 2024).

3.2.6.1 Psychological and sensory barriers

Psychological and sensory barriers relate to how a person emotionally reacts to a space in response to the structure of the environment and sensory stimulation. Sensory barriers arise in response to excessive, chaotic or uncontrolled sensory input: historic city centres often generate high levels of ‘sensory noise’ — uneven acoustic corridors, echoes in arcades, dense crowds, contrasting lighting, and the mingled smells of street food and transport. International research shows that sensory overload is a key factor in people with sensory hypersensitivity avoiding public spaces (WHO, 2021; Gehl, 2010). In the Ukrainian context, this is exacerbated by the specific circumstances of groups who have experienced the trauma of war: sudden loud noises, unexpected acoustic bursts and the roar of the crowd can act as triggers, provoking strong avoidance reactions.

Psychological barriers are linked to a user’s emotional response to a space. They manifest in environments with poor visibility, dark arcades, unpredictable sounds, narrow passageways or chaotic flows of people, where the user feels a loss of control, danger or a sense of ‘alienation’ from the space. Following the full-scale invasion, the number of people with anxiety disorders, heightened sensory sensitivity and symptoms of PTSD has risen significantly; for such groups, historic underpasses, narrow

corridors or enclosed courtyards can trigger panic attacks and persistent avoidance of the environment (WHO, 2021; Machlouzarides & Uretici, 2023).

Psychological and sensory barriers are directly linked to psycho-environmental analysis and sensory mapping methods, which enable the identification of overload zones, ‘anxiety hotspots’ and to design ‘quiet routes’ with predictable, open, well-lit sections and the opportunity to pause without stigma (Kitchin, 2000; WHO, 2021).

3.2.6.2 Social and behavioural barriers

Social and behavioural barriers relate to how space is used by different groups and what unspoken rules and norms of behaviour become established within it. New quantitative studies of urban infrastructure show that transport corridors, flyovers and motorways can not only physically fragment the urban fabric, but also exacerbate spatial and social segregation between neighbourhoods (Aiello et al., 2025). In public spaces, socio-behavioural barriers arise where different styles of use, speeds of movement and ‘rules of the game’ conflict with one another: when the routes of tourist groups, transit flows and people with mobility or sensory impairments are not coordinated, and the space subconsciously signals that certain users are ‘superfluous’ or unwelcome (Burton & Mitchell, 2006).

Pace of movement, type of activity, behavioural norms and crowd density create behavioural ‘tension points’ where inclusivity is significantly reduced. In Ukraine, this is exacerbated by the mixing of cultural behavioural patterns resulting from mass population movements and differing experiences of war across different groups (URBACT, 2023; Global Disability Fund, 2025). Even a space that is well-designed in terms of physical accessibility can remain exclusive if it is dominated by aggressive usage patterns, excessive alcohol consumption, confrontational behaviour or, conversely, constant microaggressions and unwanted ‘scrutiny’ towards people with disabilities, veterans, IDPs, and parents with children.

Social and behavioural barriers are directly linked to methods of flow analysis, spatial segmentation and the design of separation zones: the creation of alternative routes for different walking speeds, the designation of ‘quiet pockets’ for rest, and the reduction of conflicts between tourist and everyday usage scenarios (Aiello et al., 2025; URBACT, 2023). Educational and communication programmes also play an important role in normalising the presence of different groups in public spaces and reducing stigma.

3.2.6.3 Psychosocial and traumatic barriers for veterans and internally displaced persons

Psychosocial and trauma-related barriers for veterans and internally displaced persons are one of the most sensitive indicators of the inclusivity of historic spaces in a country at war. Full-scale war has radically altered the composition of users of such spaces: tens of thousands of veterans with injuries, people with post-traumatic stress disorder and internally displaced persons have joined the traditional groups of people with reduced mobility; for them, urban space is often associated with danger, loss of home and forced displacement. Situational reviews note an increase in the proportion of people with

long-term health conditions and a rise in barriers to accessing services, particularly in host communities (Global Disability Fund, 2025).

Traumatic barriers manifest as hypersensitivity to sound, light, crowds and sudden changes in situation. For people with PTSD, triggers may include loud audible signals, dense crowds in public spaces, a lack of clear evacuation routes, aggressive visual advertising or street trading. A trauma-informed approach requires ensuring 'environmental safety': predictable routes, the ability to quickly retreat to a quiet zone, minimisation of sensory overload, and clear, unobtrusive wayfinding (Trauma-Informed Design Society, 2024; American Psychological Association, 2023). The psychosocial aspects of the environment interact with the physical accessibility barriers described in Chapter 2, either reinforcing or undermining a sense of control over the situation.

Social and institutional barriers are linked to unequal access to housing, transport and services: veterans and IDPs often live in temporary or overcrowded conditions, far from convenient public spaces, have limited resources for travel, and face bureaucratic procedures that complicate the use of urban infrastructure (Displaced International, 2025; Cherkasy Human Rights Centre, 2024). Distance from quality public spaces, a lack of places for socialising and relaxation, and the absence of accessible routes reinforce feelings of isolation and a sense of the city being 'alien'.

These factors manifest in how people perceive urban space, how they feel within it, and whether they can use it safely. The integration of the principles of trauma-informed design, accessibility and community participation in planning is one of the key conditions for the implementation of state strategies for the integration of veterans and people with disabilities, as well as post-war reconstruction programmes funded by international partners (Machlouzarides & Uretici, 2023; Cabinet of Ministers of Ukraine, 2024; Global Disability Fund, 2025). In this sense, historic public spaces become not only objects of heritage conservation, but also spaces for recovery, reintegration and a sense of belonging for the most vulnerable groups.

Sensory barriers are directly linked to methods of sensory mapping and the design of 'quiet routes'.

Table 3.1 — Common barriers in historic public spaces and basic strategies for overcoming them

No.	Type of barrier (section 3.2)	Brief description and basic strategies for overcoming
1	Linguistic barriers	Monolingual or difficult-to-understand signage, jargon, bureaucratic language. → Multilingual and simple signage, 'plain language' versions, use of pictograms, duplication of spoken and written information.
2	Cultural barriers	The space represents only the 'dominant' group; other cultures and experiences are invisible or marginalised. → Co-design with different communities, representation of diverse cultures in names, programmes and the visual language of the space, flexible rules for the use of public spaces.

3	Information barriers	Lack of legible wayfinding, plans, shelter maps, timetables, and accessible digital information. → A unified wayfinding system, physical and digital maps, tactile diagrams, audio guides, and adaptation of websites and apps to standards such as WCAG 2.1.
4	Cognitive barriers	Confusing route structures, overloaded information boards, instructions requiring a high level of literacy or concentration. → Simplified information, sequential 'steps' along the route, repeated landmarks, versions in plain language and in an 'easy-to-read' format.
5	Psychological and sensory barriers	Excessive noise, sudden sound effects, bright or flashing lights, crowded spaces, lack of rest areas, which provoke anxiety, a sense of danger or a feeling of being unwelcome. → Sensory 'tuning' of the environment (moderate noise levels, predictable lighting, option to choose quiet routes), designated quiet and rest areas, a trauma-informed approach to event programmes.
6	Social and behavioural barriers	Discriminatory reactions from staff and visitors, microaggressions, being ignored, unwillingness to adapt rules or provide reasonable accommodation. → Staff training, standards for inclusive communication, a zero-tolerance policy on discrimination, and the involvement of people with disabilities, veterans and IDPs in the co-management of spaces.
7	Psychosocial and trauma-related barriers for veterans and IDPs	War-related triggers (loud noises, crowds, certain locations), hypervigilance, avoidance of events and city centres, feeling of alienation in the host community. → Creating safe and predictable routes, quiet zones, adapted event programmes, involving veterans and IDPs in planning, developing a network of support and services that are trauma-informed.
8	Barriers to 'human–historical environment' interaction	Narrow passageways, steep stairs, uneven paving, and heritage conservation restrictions that block access for various groups. → Sensitive physical interventions (smooth walkways, reversible ramps and platforms), flexible regimes for the use of historic elements, a combination of physical, service and organisational solutions within the requirements of heritage conservation.

Conclusions for Section 3.2

Barriers to inclusive heritage are complex and multi-layered, extending beyond mere physical inaccessibility. Linguistic, cultural and informational barriers create unequal access to knowledge about heritage and participation in its interpretation. Cognitive, sensory and psychological barriers lead to overload, disorientation and a sense of danger in historical spaces, particularly for people with heightened sensitivity or traumatic experiences. For veterans and internally displaced persons, who are simultaneously experiencing the loss of health, housing and social connections, these barriers become a critical test of the reality of the city's declared inclusive policies and the capacity of communities to create an environment that supports recovery rather than exacerbating trauma (Machlouzarides & Uretici, 2023; Global Disability Fund, 2025).

3.3 Methodology and best practice for ensuring the inclusivity of public spaces in historic cities

Sections 3.1 and 3.2 outlined the normative foundations of inclusivity, the diversity of user groups, and the typology of barriers characteristic of historic urban environments. The next logical step is to move from describing the problems to developing a comprehensive methodology that allows for the planning of spatial changes in a consistent, coordinated manner, whilst respecting both cultural heritage and the diverse groups of residents and visitors. In this context, inclusivity is viewed not as a collection of isolated technical measures (individual ramps, lifts or tactile paving), but as a way of thinking about and managing the historic city, in which every decision is assessed in terms of its impact on equitable access. In the Ukrainian context, full-scale war has made this methodology critically important for urban policy, as inclusive interventions are becoming not only a tool for modernising historic spaces, but also part of a broader strategy to restore trust and social cohesion within communities (European Union, 2019; Cabinet of Ministers of Ukraine, 2024).

The methodology for ensuring inclusivity must combine the requirements of cultural heritage conservation with the principles of universal design and the experience of Ukrainian and international programmes, particularly in the context of post-war reconstruction and the growing number of people with disabilities (Big City Lab, 2021; Ambrose et al., 2016). It involves a systematic analysis of barriers, the selection of intervention scenarios, the alignment of decisions with conservation regimes, and the active involvement of users in co-creating projects. The classification of barriers presented in Section 3.2 serves as the starting point for developing the tools of this methodology. A brief comparison of these approaches is provided in Table 3.2.

Within the structure of this guide, the informational and cognitive aspects of the environment are already partially addressed within the accessibility methodology (Section 2) as part of the technical requirements for navigation and information presentation.

At the same time, in Chapter 3, they are given a broader interpretation — as distinct groups of barriers related to content, language, cultural codes and scenarios for the use of historic spaces.

Table 3.2 — Comparison of methodologies for accessibility and inclusivity.

Criterion	Accessibility methodology	Inclusivity methodology
1. Main objective	To ensure that people with disabilities and groups with reduced mobility can access, move around and use the space; to comply with regulatory requirements.	To ensure the full participation of the widest possible range of people in the life of the space (to be present, find their way around, interact, and feel a sense of belonging).
2. Target groups	Primarily people with disabilities and people with reduced mobility.	People with disabilities, people with reduced mobility, children, older people, tourists, various cultural, linguistic and social groups, and people with cognitive and sensory impairments.
3. Types of barriers	Physical and sensory barriers, as well as basic informational and cognitive aspects (formats of information presentation, readability, contrast, navigation) that affect the ability to find one's way around and access information.	All types of barriers examined in greater depth: physical, sensory, informational, cognitive, linguistic, cultural, socio-behavioural, psychological, organisational, and 'human–historical environment' barriers — with an emphasis on content, narratives and scenarios for the use of space.
4. Focus of analysis	The object or route as a technical system: the continuity of the accessible route, compliance with parameters, the possibility of independent movement and basic orientation.	Scenarios for the use of space: who uses it, how and when; where situations of exclusion arise; how the space is perceived by different groups in terms of safety, comfort and a sense of belonging.
5. Key tools	Accessibility audits (including information accessibility), measurements, comparison with DBN and international standards, development of spatial and technical solutions.	All of the above, as well as participatory methods (joint walks, workshops, focus groups), psycho-ecological analysis, experience mapping, analysis of the content and language of communications, prototyping and testing of solutions with real users.
6. Type of solutions	Primarily spatial and technical: ramps, lifts, tactile and high-contrast	Comprehensive package: physical modifications combined with navigation and visual communication, organisation

	features, route adjustments, and improved wayfinding.	of traffic and services, usage regulations, events and programmes, educational and communication initiatives.
7. Planning and management	An ‘access plan’ for a specific building or route; focus on compliance at a specific point in time.	An ‘inclusive plan’ or ‘inclusive programme’ for a space or network of spaces: phasing, budget, responsible parties, mechanisms for user participation, and a system for monitoring and regularly reviewing decisions.
8. Interaction with heritage	Minimise interference with the authentic fabric: installing access facilities without damaging the monument.	Balance between conservation and inclusion: not only physical interventions, but also the interpretation, programming and communication of heritage, so that different groups can identify with it.

3.3.1 Methodology for ensuring inclusivity in historic cities

The methodology for ensuring inclusivity in historic cities must combine respect for cultural heritage with the need to adapt the space to the needs of all users. This is not about random local interventions, but a systematic process encompassing an analysis of the existing situation, the identification of barriers, the development of alternative scenarios, the testing of solutions and their phased implementation. This is particularly relevant for Ukrainian historic cities, which are simultaneously grappling with the consequences of war damage, internal migration, economic turbulence and a growing public demand for equitable access to public spaces. A particular focus is on developing solutions for veterans and internally displaced persons, whose needs combine physical, sensory and psychosocial aspects, requiring a combination of a trauma-informed approach with the principles of universal design (Trauma-Informed Design Society, 2024; POAH Resilient Communities, 2022).

In this guide, the concept of comprehensive accessibility is used primarily to describe a national framework that combines accessibility requirements with inclusive approaches to various spheres of life. This framework is enshrined in the National Strategy for Creating a Barrier-Free Environment in Ukraine by 2030 and the flagship project ‘Movement Without Barriers’ (Cabinet of Ministers of Ukraine, 2021; Ministry for Communities, Territories and Infrastructure Development of Ukraine, 2025a). At the level of urban space, comprehensive barrier-free accessibility means that technical accessibility features — ramps, lowered kerbs, lifts, tactile paving, accessible toilets, etc. — are combined with inclusive scenarios for the use of space and the participation of various user groups in planning and monitoring changes (veterans, internally displaced persons, people with disabilities, older people,

parents with children, etc.). The guide does not duplicate the Strategy, but elaborates on its spatial dimension at the level of specific historic towns and routes.

This sub-section summarises key approaches to researching and designing inclusive solutions in a historic environment. These are based on the principles of universal design, participatory methods, interdisciplinary research, and tools for spatial, behavioural and psycho-ecological analysis. The proposed methodology is intended not only to provide a list of techniques, but also to offer a framework of thinking in which inclusivity is viewed as an integral characteristic of a high-quality historic city, rather than as an ‘add-on’ to the basic design solution.

3.3.1.1 Aims and objectives of the methodology

Inclusivity in historic public spaces requires not piecemeal solutions, but a comprehensive, transparent and replicable methodology that can be applied by different cities and specialists. Its aim is to provide a toolkit that enables the systematic identification of barriers, the assessment of their impact on different user groups, the development of balanced intervention scenarios, and their alignment with cultural heritage conservation requirements.

The main objectives of the methodology are:

– establishing a coordinated procedure for collecting data on the space, users and barriers;

– introducing inclusive criteria for assessing the quality of public spaces in historic cities;

– ensuring mechanisms for user engagement at various stages — from preliminary analysis to testing solutions;

– developing an algorithm for moving from identified problems to specific, implemented interventions;

– creating a framework for monitoring and gradually improving solutions in line with changes in the urban environment.

It should help not only to ‘rectify shortcomings’ but also to rethink the historic space as an environment in which diverse people can participate safely, with dignity and fully in public life.

In this sense, the proposed methodology deliberately draws on the professional perspective of restoration architects: it combines the requirements of inclusivity with the priority of preserving the authentic substance and character of the place. At every stage — from preliminary analysis to the implementation of solutions — the emphasis is placed first and foremost on adapting the existing spatial structure, materials and routes, rather than on their radical replacement, which allows for a simultaneous increase in accessibility and respect for the historical value of the site.

3.3.1.2 Principles of inclusive design in historic cities

As discussed earlier in Section 3.1, the seven principles of universal design developed by the Centre for Universal Design at North Carolina State University serve both as a theoretical framework and a

practical matrix for the development of truly inclusive spaces. However, theory without practice remains abstract. Let us consider how each of these principles can be implemented in the real-world context of historic cities (Connell et al., 1997; Imrie & Hall, 2001).

Principle 1 — equality of use — requires that historic public spaces be useful and attractive to as wide a range of people as possible, regardless of age, gender, disability or cultural background. In practice, this means avoiding separate ‘special’ entrances or routes that stigmatise users, and integrating solutions that make the shared space accessible to all, whilst preserving its historical values (Connell et al., 1997; EIDD, 2004).

Principle 2 — flexibility of use — involves allowing for different scenarios for using the space and services. In historic centres, this may mean alternative routes of varying duration and complexity, varied formats of guided tours, and the option to use both digital and analogue information media. Flexibility allows for the preservation of authentic elements to be combined with adapting access for people with different needs and resources.

Principle 3 — Simplicity and intuitiveness. This principle requires that the design of public spaces and the ways in which information is presented be simple, understandable, predictable and intuitive for the majority of users. Complex navigation systems with multiple options, silent assumptions about the user’s background knowledge of local culture and history, and complicated ticketing systems and procedures all actively complicate and hinder access. Good design communicates clearly with users without the need for instructions. For example, for the sake of simplicity, doorways should clearly indicate the direction of opening, routes should be marked with clear symbols and signs, and information should be accessible and logically organised.

Principle 4 — Perceptible Information. This principle requires that critical information be conveyed through multiple channels simultaneously — visual, auditory and tactile. This ensures that information reaches all users regardless of their sensory abilities. In addition to written information, high-quality audio guides are required for people with visual impairments, well-designed tactile maps for navigation, high-contrast signs with large font, and detailed audio descriptions of works of art and architectural features for people with visual impairments. Sign language and closed captions are essential for people with hearing impairments.

Principle 5 — Error tolerance. This principle requires that the design be developed with a view to minimising the danger and negative consequences of user errors, disorientation or unintended actions. This means that even if a user misunderstands instructions, misinterprets them, or chooses the wrong route, they must be able to easily and effortlessly return to the correct direction without serious danger. For example, the end of a corridor should not abruptly lead onto a carriageway without a crossing; directions should also be clearly marked at key junctions.

Principle 6 — Low physical effort. This principle requires that the design minimises the need for strenuous, complex, or precise movements, as well as the need for muscular strength and physical endurance. Difficult-to-operate doors, narrow passageways with no room to turn, uneven and uneven surfaces – all of these create significant barriers for people with reduced mobility, older people, pregnant

women and people with invisible disabilities, such as arthritis or heart conditions. Design must take into account that people have different levels of physical strength and stamina.

Principle 7 – size and space for access – requires sufficient space for manoeuvring, waiting and interaction for people with different anthropometric parameters and assistive devices. In historic spaces, where geometry is often constrained, this means at least locally widening critical points along the route, providing space for wheelchair manoeuvring, the safe positioning of seats and handrails, and the accessibility of controls within a convenient height range (ISO 21542:2011; EN 17210:2020). The methodological principles for a comprehensive accessibility assessment are set out in section 2.3.

The implementation of the seven principles of universal design in historic cities requires adaptation to local spatial and conservation constraints. It is not always physically possible to widen passageways or alter the geometry of buildings; therefore, alternative routes, temporary or mobile solutions, and digital services are often employed to compensate for the impossibility of completely restructuring the environment (Connell et al., 1997; ISO 21542:2011, 2011; EN 17210:2020).

The restoration approach in this methodology serves as a cross-cutting principle that runs through all seven principles of universal design: minimal and reversible intervention, avoidance of pseudo-historical stylisations, and a clear distinction between authentic and new elements. Even accessibility measures that are formally ‘correct’ from a regulatory perspective are proposed to be assessed additionally in terms of their impact on the integrity of the site, the reading of historical layers, and the possibility of future restoration interventions.

3.3.1.3 Process participants and strategic approaches

Ensuring genuine, comprehensive inclusivity of public spaces cannot, and never can, be the work of a single specialist, a single institution or a single organisation. It requires the involvement of numerous, diverse participants, each of whom has a specific role, competence and important responsibility within the larger process. The various contributions of these groups must be coordinated and integrated to achieve success. The range of potential participants includes (Simonsen & Robertson, 2012; Ehn, 1989; Brown, 2008):

Architects and urban planners. Professionals who develop detailed drawings, 3D models and concepts for changes to historic areas. They must have a deep understanding of universal design principles and the ability to apply them creatively, flexibly and innovatively, taking into account objective constraints and the specific nature of the historic heritage. Their role is to translate these principles into practical, implementable solutions.

Cultural heritage conservation specialists and conservators. Specialists and professionals who ensure that any proposed and implemented changes do not damage, remove or alter important architectural or historical elements, valuable materials or decorative details. They must understand and apply methodologies for implementing inclusivity and accessibility without causing harm to heritage. Their role is to strike a fair balance between conservation and modernisation.

Representatives of government bodies and public authorities. Officials, politicians and administrators who make formal decisions on the allocation of limited funds, the prioritisation of projects and the allocation of resources to various initiatives. They must understand the social significance, importance and long-term economic benefits of inclusivity and, accordingly, allocate adequate resources to improve and implement projects. Their role is to ensure political will and resources.

Members of the public, particularly people with disabilities, older people and parents with children, are key participants in the process of shaping inclusive decisions. They use the space on a daily basis and know best where barriers are concentrated and which scenarios are problematic. Involving these groups in surveys, workshops and co-design helps avoid purely formal decisions and improves the quality of the space for everyone.

Guides, interpreters and staff support services. People who interact with visitors on a daily basis, communicate with them, provide services and have first-hand observations of the problems and barriers that arise in practice—which are not always apparent from theoretical plans. They can provide valuable, practical information on how people with disabilities actually move through the space, what difficulties they encounter, and how best and most practically to resolve them. Their perspective – from the ground up – is indispensable.

Scientists, researchers and the academic community. Experts who study and investigate how people with different abilities actually interact with space, how they obtain information, and how they make decisions about navigation. They can provide scientifically grounded, research-backed recommendations and insights for design. Their role is to provide the scientific basis and foundation for decisions.

Strategies for the effective design and implementation of inclusive spaces must be systematic, sustained and focused on long-term success. Key strategies include (Simonsen & Robertson, 2012; Skapetze, 2015):

1. User involvement in the early stages of design. Rather than asking people with disabilities to make do with and accept a design developed without their involvement, it is far better and more effective to involve them as partners from the very start of the design process. Their real-life experience, understanding of how they actually navigate spaces, ideas and creativity — all of this is invaluable for developing effective, functional solutions that actually solve problems (Simonsen & Robertson, 2012; Brown, 2008).
2. An iterative, cyclical design process. Design should not be created as a single finished piece in a single act. Instead, it should be developed through a series of cyclical iterations, each of which is tested, analysed, studied with user involvement, and refined based on practical experience, criticism and recommendations. This cyclical process allows problems to be identified early and rectified before completion.
3. Flexibility and adaptability of design solutions. The design must be sufficiently flexible, modular and adaptable to accommodate changing user needs and temporary changes in physical conditions. This means developing solutions that can be easily modified, updated or reconfigured without the need

for major, costly refurbishment. Movable elements, modular design and temporary installations all help to maintain flexibility.

4. Universal design as the foundation of all solutions. Instead of viewing inclusivity as an additional, optional feature or a finishing touch added at the end, it must be organically embedded and integrated into the core design and planning process from the very beginning. This represents a shift in mindset: not striving to make something accessible later, but designing it directly in such a way that it is accessible to everyone from day one.

5. Setting clear, measurable goals and indicators of success. Organisations must clearly establish, articulate and document their goals regarding the levels of inclusivity they are striving to achieve, and set clear, measurable metrics and indicators to assess and monitor progress. Without clear goals, it is difficult to track progress and evaluate the effectiveness of efforts.

6. Continuous staff training and professional development. Staff working in historic areas, museums and local authorities must receive systematic training to develop their understanding and competence regarding the needs of people with disabilities, their ability to identify barriers, and their practical skills in providing high-quality, respectful service and environments. Regular training sessions, seminars and the exchange of experiences help to foster this culture.

7. Active adoption and adaptation of best practices. Organisations must actively and systematically study, document and adopt best practices from other recognised, successful historic localities, cities and countries around the world, adapting these foreign solutions to the local context, culture and specific constraints. Learning from others' experiences helps to avoid mistakes and accelerate progress.

8. Developing comprehensive, systematic accessibility plans. Instead of addressing individual accessibility issues in isolation, organisations should develop comprehensive, integrated action plans that consider all interrelated aspects of accessibility – physical accessibility of architecture, information and communication accessibility, programme accessibility and psychosocial accessibility.

The experience of Flanders and a number of other European regions demonstrates the effectiveness of programmes that combine training for officials, public engagement and mandatory verification of projects for compliance with accessibility principles (LHAC, 2013). Such programmes allow not only for the implementation of individual 'showcase' sites, but also for a gradual improvement in the overall accessibility of historic landscapes, which is reflected in increased visitor numbers and user satisfaction.

Without political will, community participation and systematic training of specialists, even the best project developments remain fragmented and do not change people's everyday experience.

Within this framework, the restoration architect is viewed not as a narrow specialist who merely 'approves' interventions, but as a co-leader of the entire process. It is they who help define the limits of permissible changes, interpret the results of regulatory audits and route studies, and assess risks to the authentic substance. Their key role lies in finding solutions that simultaneously enhance accessibility and preserve the identity of the place, reducing both the risks of excessive conservation and the danger of destructive modernisation.

3.3.1.4 Methods for identifying barriers, route studies and the algorithm for applying the methodology

Once the process participants and strategic approaches have been defined (see the section on process participants and strategic approaches), a practical question arises: how exactly to identify barriers in historic public spaces and translate abstract principles of inclusivity into concrete solutions. To this end, a combination of complementary methods is applied, consistent with the previous sections of the guide: regulatory-spatial audit, field route studies, user engagement (walk-along / go-along), as well as a phased algorithm for the analysis and transformation of space (Ambrose et al., 2016; Burton & Mitchell, 2006; Simonsen & Robertson, 2012). All these methods are based on the typology of barriers developed in Section 3.2 and on quantitative and qualitative assessment tools, in particular the Accessibility Improvement Index (AII) matrix from Subsection 2.3.5 and the checklists for accessibility and inclusivity audits provided in the appendices.

The first set of methods — regulatory and spatial audit and initial mapping of barriers — implements the ‘desk-based analysis’ principle. It relies on drawings, circulation plans, the planning structure of the historic centre, and current regulatory documents on accessibility (DBN B.2.2-40:2018; DBN B.2.2-12:2019; EN 17210:2020) and is based on the division of space into analytical zones: entrances, main routes, intersections, rest areas, sanitary facilities, service zones, etc. This division must be aligned with the analytical zones used for subsequently completing the AII matrix and checklists in the appendices, in order to avoid a disconnect between ‘on-paper’ analysis and field observations.

For each zone within such an audit, compliance with minimum physical accessibility requirements is assessed: width of passageways, gradients and steps, availability of ramps and tactile guides, contrast and legibility of wayfinding, and the possibility of barrier-free access to key functions. At this stage, it is advisable to apply the Accessibility Improvement Index (AII) matrix described in section 2.3.5, which compares the current and potential state of accessibility for different user groups on a scale of 0–3 (Marín-Nicolás et al., 2023). The AII is used specifically as a quantitative indicator of physical accessibility within a broader inclusive analysis, whilst other dimensions of inclusivity (sensory, informational, psychosocial) are recorded using specialised checklists and qualitative methods (see the appendices to the guide). The result of this stage is a preliminary barrier map, on which problem areas along the route or in the square are marked, and a hypothesis is formed regarding where exactly detailed field research and user involvement are required.

The second set of methods—field route studies and user participation (walk-throughs and walk-alongs)—translates the analysis from the realm of drawings into the real world and directly links preliminary quantitative assessments with the experience of using the space. Route studies are structured around the key routes used by residents and visitors: from public transport stops to the square, from the station to the historic centre, from car parks to cultural venues. The selected routes must correspond to the same zones and scenarios that were taken into account when calculating the AII and completing the checklists, so that the results are comparable and complementary.

Two interrelated formats are typically used within such studies. The aim of this format is to verify the alignment of the actual situation with the regulatory audit data, to identify barriers not captured in the plans, and to refine the structure of the analytical zones (Historic England, 2015b). Observations made during the walk-through are subsequently refined and detailed through the relevant items on the accessibility and inclusivity checklists, allowing a transition from general impressions to systematic records.

During the walk-along, ‘on-the-spot’ comments are recorded, along with perceptions of safety, comfort, sensory overload and navigational clarity. These observations can be directly transferred to the relevant sections of the checklists, serving as a living supplement to the quantitative AII assessment and ensuring a link between user experience and formal criteria.

In the Ukrainian context, given the full-scale war and the traumatic experiences of a significant portion of the population, route studies involving veterans, people with PTSD, and internally displaced persons take on particular significance. Such walk-throughs help to identify points that may provoke feelings of hopelessness, danger, or loss of control (dead ends, dark or overly crowded passageways, areas where it is impossible to find shelter quickly), and to take these factors into account in advance in subsequent design decisions. It is advisable to include specific items in the checklists relating specifically to psychosocial safety and traumatic triggers, so that the results of such route surveys can be compared across different sites.

To ensure that route studies do not turn into chaotic walks with random impressions, the collected observations are structured through several analytical modules that can be combined depending on the tasks. The first of these — the accessibility, clarity and safety audit module — checks how physically accessible, logical and safe the route is. It analyses the availability of barrier-free stair bypasses, conflicts with transport, the ability to bypass temporary obstacles, the legibility of navigation signs, and lighting during the hours of darkness. Psychological safety is assessed separately: the ability to find shelter quickly, avoid enclosed or uncontrolled spaces, and the availability of ‘rest areas’ for people with heightened anxiety. The results of this module can be summarised both through an AII score for the relevant zones and through individual checklist sections that identify critical shortcomings.

The second module — cognitive navigation analysis — focuses on how people ‘read’ a route: where decision points arise, how turns are marked, whether there are recognisable landmarks, and whether a sense of direction is lost (; Lynch, 1960; Marín-Nicolás et al., 2023). The route is marked on the map as a sequence of ‘frames’, noting points of disorientation and the need for additional visual, tactile or auditory ‘anchors’. The identified issues are subsequently reflected in the sections of the checklists related to navigation and information provision, and may serve as a basis for adjusting the information design described in other sections of the guide.

The third module — psycho-ecological analysis — examines how the space affects users’ emotional state: noise levels, crowd density, the presence of greenery, degree of exposure (open/enclosed spaces), and the contrast between quiet and overly stimulating areas (Kaplan & Kaplan, 1989). For veterans and people with traumatic experiences, such areas can become a critical factor in their

decision not to visit the space. Relevant observations should be reflected in the sections of the checklists concerning comfort, safety and psychosocial barriers, as set out in section 3.2.

The fourth module — analysis of socio-behavioural dynamics — examines how different user groups (residents, tourists, children, people with disabilities, street vendors, service workers) actually use the space and how their routes intersect. Conflicts between traffic flows (e.g., cyclists and pedestrians), areas of excessive crowding, and 'privatised' corners where certain groups displace others are identified (Gehl, 2010). Such observations allow for the combination of inclusivity with safety and comfort for all users of the space and can be transformed into specific checklist items related to traffic management, the accessibility of rest areas, and the use of space by different groups.

A separate section covers methods for addressing different types of barriers. A comprehensive methodology for inclusivity is based on the typology of barriers presented in section 3.2 and applies a specific set of techniques for each type of barrier during the route surveys and subsequent data analysis. Linguistic and information barriers are analysed through a linguistic audit of signage and wayfinding, an assessment of the accessibility of information in 'plain language', and a check for the availability of sign language interpretation, tactile diagrams and audio guidance. This process identifies whether there are any 'blind spots' where users are left without clear information; any shortcomings identified can be immediately recorded in the information sections of the checklists.

Cognitive barriers are identified by analysing the complexity of routes, the number and quality of decision points, the repetition of landmarks, and the consistency of pictograms and colours. Particular attention is paid to users with cognitive impairments and people who rarely visit the city and do not have established mental maps. Sensory barriers are investigated using sensory mapping: sources of intense noise, strong odours, blinding light and vibrations are recorded on the plan, as well as 'sensory deserts' where tactile and visual cues are lacking (Park Inclusive Design Index, 2023). This approach allows for the planning of both measures to reduce sensory overload and the addition of 'positive' sensory stimuli; both types of solutions can be reflected in the relevant sections of checklists relating to sensory comfort.

Psychological, psychosocial and traumatic barriers are assessed through a combination of psycho-ecological analysis and user interviews. Locations associated with danger, depression, social stigma or unwanted memories are identified (Schroeder et al., 2021). For such areas, 'relief' scenarios are proposed — new points of attraction, improved lighting, increased social supervision, and a reorganisation of functions. 3.2 serves as a kind of 'matrix' through which the results of route studies pass, whilst the checklists in the appendices act as a tool for recording and comparing these results across different sites.

To ensure that the methods discussed do not remain a set of disparate tools, they are combined into a generalised algorithm that can be scaled from a single route to an entire network of public spaces in a historic city. The first stage of this algorithm is preparatory: the objectives and evaluation criteria (what exactly constitutes inclusive success), the boundaries of the area under analysis, key routes and nodes are defined. At this stage, an interdisciplinary team of participants is formed in accordance with the section on process participants and strategic approaches, and representatives of target user groups

are selected to participate in route studies. It is advisable to use checklists in advance as a ‘draft’ for the future audit, so that the team has a shared understanding of the evaluation criteria.

Stage two — regulatory and spatial audit and preliminary calculation of the AII. Based on drawings and the regulatory framework, a physical accessibility audit is conducted, dividing the space into analytical zones. For each zone, the AII is calculated as an indicator of realised accessibility potential, and a preliminary barrier map is generated, which serves as the basis for field research. The AII values obtained are then correlated with the results of the completed checklists, allowing us to track how both quantitative and qualitative indicators of the space’s inclusivity change.

A separate stage of the algorithm, which is mandatory when working with historic public spaces, involves assessing the impact of planned changes on the authentic substance and character of the place. At this stage, restoration architects, together with other specialists, refine the list of valuable elements (historic paving, façades, fences, greenery, visual corridors), delineate areas where intervention is undesirable or should be minimal, and determine the permissible types and scales of adaptations. The results of this analysis serve as a filter for the subsequent generation of solutions: options requiring unjustified dismantling or masking of the authentic fabric are ruled out, whilst priority is given to reversible solutions that read as a contemporary layer and complement, rather than supplant, the heritage.

The third stage involves field route studies (walk-throughs and walk-alongs), during which the expert team and users traverse selected routes, applying modules for accessibility audits, cognitive navigation, and psycho-ecological and socio-behavioural analysis. All observations, comments and measurements are plotted on a map and linked to the typology of barriers from section 3.2, as well as systematically recorded in checklists according to analytical zones.

The fourth stage involves synthesising the results and prioritising interventions. Data from the regulatory audit, AII and route studies are integrated into a single system: ‘hotspots’ with the lowest accessibility scores and the highest concentration of barriers are identified, and the realised and unrealised potential of the space is assessed. Based on this, priority packages of interventions are formulated, taking into account conservation restrictions, the feasibility of reversible solutions, budgetary constraints and user expectations. At this stage, checklists and the AII matrix serve as tools for comparing different scenarios for change and justifying the order of implementation of measures.

The fifth stage — prototyping, testing and iteration — involves the proposed interventions first being implemented as temporary or small-scale solutions (pilot routes, temporary signage, mobile street furniture) and tested through repeated route studies involving users. Based on the test results, both individual solutions and the initial assumptions regarding the space are adjusted. At this stage, it is advisable to re-complete the key sections of the checklists and, where possible, update the AII values, which allows for tracking the dynamics of changes and assessing the effectiveness of interventions. This stage is cyclical in nature and ensures a sustainable link between the strategic approaches to inclusive design described in the section on process participants, and the assessment tools — the AII matrix and the checklists from the appendices — and the day-to-day use of the space.

This algorithm enables a shift from declarative requirements to a reproducible practice of analysing and transforming historic public spaces, where indicators of physical accessibility (via the AII) are integrated with broader dimensions of inclusivity—sensory, informational, psychosocial and socio-behavioural — and are supported by practical tools in the form of checklists, barrier maps and route protocols.

The principles, tools and approaches outlined above can be summarised in a step-by-step algorithm for applying the methodology to historic public spaces (Table 3.2).

Table 3.2. Algorithm for applying the methodology

Step	Stage title	Brief description and main tools
1	Preparing the framework and team	Identification of the site (historic town, neighbourhood, route), analytical zones and key user groups; formation of an interdisciplinary team (architects, urban planners, accessibility specialists, heritage managers, representatives of people with disabilities, veterans, IDPs). Agreeing on objectives, inclusivity criteria and a set of methods (audit, route studies, AII, checklists).
2	Regulatory and spatial audit	Analysis of the planning framework, heritage protection regimes, current building regulations, standards (ISO, EN, CRPD) and local documents. Initial zoning of the area and assessment of compliance with basic accessibility parameters (routes, entrances, rest areas, information). Creation of a 'risk map' and hypotheses regarding typical barriers.
3	Route-based field walk-throughs and user- s	Conducting walk-through and walk-along/go-along studies along selected routes involving people with disabilities, veterans, IDPs, older people, and parents with children. Detailed recording of barriers according to the typology in section 3.2 (physical, cognitive, sensory, psychological, socio-behavioural) in route protocols and checklists.
4	Analytical synthesis and AII matrix	Consolidation of audit and field research results: harmonisation of assessments for analytical zones and user groups, calculation of the Accessibility Improvement Index (AII) for each zone, completion of the 'zone × group' matrix. Identification of areas with the greatest 'room for improvement' and recording of priority barriers for intervention.
5	Co-creation of solutions and prioritisation	Development of change scenarios during joint sessions with users and stakeholders: selection of reversible, low-impact solutions for the historic environment, balancing heritage conservation and inclusivity. Formulation of a package of measures divided into 'quick wins' and long-term interventions.

6	Prototyping, piloting and integration	Implementation of pilot solutions (temporary elements, test coverage areas, navigation systems, temporary ramps, quiet zones) and their testing with user participation. Refinement of solutions based on test results and integration of proven approaches into project documentation, modernisation programmes and local policies.
7	Monitoring, feedback and scaling	Re-application of AII, route protocols and checklists to assess changes following interventions; collection of user feedback in various formats (online, offline, surveys, focus groups). Adjustment of solutions and dissemination of the developed methodology to other routes and spaces within the historic city; incorporation of results into the community's strategic documents.

3.3.1.5 Digital technologies and inclusive navigation in public spaces of historic cities

Ensuring inclusivity in historic parts of cities concerns not only physical solutions but also the accessibility of information and navigation. Digital technologies allow for the mitigation of building constraints by providing users with alternative means of orientation, contextual explanation and route planning without radically interfering with the historic fabric of the city (Dix & Jones, 2024).

QR codes have become a basic tool for linking physical space with digital content. Placed on navigation stands, near the entrances to buildings or heritage sites, they lead to pages with multilingual descriptions, audio guides and adapted text versions for people with visual or hearing impairments. In a number of European historic cities, digital city guides combine QR codes with maps, voice guidance and GPS navigation, enabling more independent exploration of the space (contagt GmbH, 2024; Guide-ID, 2025; Nubart, 2025).

Augmented reality (AR) technologies allow an information layer to be 'superimposed' onto the historical environment without interfering with its physical structure. AR applications can display three-dimensional reconstructions of lost objects, accessible routes and warnings about difficult sections. Experience from pilot projects shows that AR is a more accessible solution than VR: all you need is a smartphone, and the content is integrated into the real space (Dix & Jones, 2024).

A separate area of focus is AI-based personalised accessibility systems. Research shows that analysing photographs and floor plans can automatically generate accessibility reports and suggest routes to users, taking into account specific mobility, vision or hearing impairments. Such tools complement, but do not replace, traditional audits, enabling cities to update data on the condition of public spaces more quickly (Huang et al., 2025).

For deaf and hard-of-hearing users, interactive guides with sign language interpretation hold great promise. Projects such as SignGuide demonstrate the potential of mobile apps that provide information

in sign language and subtitles, taking into account the specific grammar of sign languages and users' needs for clear visual contrast and a comfortable pace of information delivery (Kosmopoulos et al., 2025).

In Ukraine, digital accessibility is gradually becoming established as a mandatory requirement for public services. Projects such as DIA Support help bring state and municipal platforms into line with WCAG 2.1 standards and establish unified approaches to accessible navigation for vulnerable groups (Popov, 2021; DIA Support Project, 2024). For historic public spaces, this means the need to combine physical solutions with digital accessibility maps, a barrier reporting function, and regular testing of services involving people with disabilities.

When integrating digital technologies, it is important to provide fallback mechanisms: some users do not have smartphones or internet access. Therefore, QR codes and mobile apps must be supplemented by physical diagrams, tactile maps, staff able to provide assistance, and consistent coverage of main routes with navigation aids in various formats. The digital layer should enhance, not replace, inclusive architecture.

At the same time, digital inclusivity cannot be considered in isolation from the issue of the digital divide. Some users of historic public spaces do not have access to a smartphone, mobile internet, or sufficient digital literacy, so critically important information cannot exist solely in an online format. All digital services must have physical and analogue alternatives in the space — clear signage, printed maps, accessible information stands — and it is precisely in this context that they should be considered during the audit and assessment of the inclusivity of individual zones and routes.

Thus, digital tools become an important part of a comprehensive inclusive strategy, but their effectiveness depends on the quality of spatial solutions, the accessibility of physical infrastructure, and continuous dialogue with users.

3.3.1.6 Specific design considerations for veterans, people with traumatic experiences and internally displaced persons

As shown in section 3.2.5, for veterans, people with combat and civilian trauma, and internally displaced persons, psychological, sensory, socio-behavioural and psychosocial barriers overlap. Mobility limitations are compounded by heightened sensitivity to noise and crowds, mistrust of unfamiliar surroundings, and the experience of losing one's home and community. Research by reSCORE Ukraine identifies typical scenarios in which users simultaneously require physically accessible routes, predictability, a sense of control over their environment, and the ability to quickly leave a potentially threatening situation (Machlouzarides & Uretici, 2023). In the Ukrainian context, public spaces, community centres and historic squares are becoming key venues for reintegration and, consequently, priority areas for adaptation, as reflected in strategic documents on veteran policy (Cabinet of Ministers of Ukraine, 2024).

Trauma-informed design provides a framework for translating these needs into spatial solutions. It combines the principles of comprehensive accessibility and universal design with those of a trauma-

informed approach — safety, predictability, a sense of control, social connection and hope (Trauma-Informed Design Society, 2024). Research into ‘trauma-informed neighbourhoods’ shows that solutions which minimise sensory triggers, provide clear evacuation routes and allow a choice between more open and more secluded areas, reduce anxiety levels and improve users’ mental wellbeing (Schroeder et al., 2021; POAH Resilient Communities, 2024).

At the level of planning decisions, the specifics of trauma-informed design in historic districts manifest in several key areas.

The first aspect concerns routes. These should be designed to be predictable and ‘transparent’ from the user’s perspective: without dead-end ‘traps with no way out’, with the option to choose narrower or wider movement paths, with clearly defined places to slow down and wait, as well as clear, well-marked and duplicated routes to shelters and exits.

The second section relates to ‘quiet’ rest areas. Here, the sensory aspects described in the section on psychological and sensory barriers are combined with the principles of universal design from the methodological subsection on the basic principles of inclusive design. Seating areas are required with controlled background noise, soft, non-glaring lighting and the option to sit with one’s back to the wall, which reduces feelings of vulnerability for people with PTSD.

The third section concerns communication and content. Visual and audio messages should warn visitors of potentially traumatic content—such as memorials, installations, sound effects and re-enactments of combat—and offer alternative routes or ‘bypass’ viewing options. Digital tools described in the methodological section on digital technologies and inclusive navigation (QR codes, mobile apps, AR layers) can be used here, allowing users to choose their own level of immersion in the narrative.

The fourth component is the provision of support services. It is advisable to locate support centres for veterans and IDPs near key public spaces, integrated into the historical environment but with clearly marked, easily accessible infrastructure and barrier-free access.

In terms of methodology, it is advisable to rely on the basic tools described in the methodology section: user-participatory route studies, sensory mapping, scenario testing and other forms of collaborative analysis. These enable the identification of spatial configurations that provoke a sense of danger, and allow testing of how specific solutions — changes to route structure, additional rest areas, adjustments to lighting or navigation — affect feelings of safety, control and the ability to quickly change one’s route.

The assessment of solutions for veterans and IDPs relies on the same tools as the general methodology for comprehensive accessibility. The Accessibility Improvement Index (AII, see section 2.3.5) provides a quantitative assessment of the realised accessibility potential for individual zones, whilst the Accessibility and Inclusivity checklists (Appendices 1–2) are used to record sensory, psychosocial and socio-behavioural aspects that are important for vulnerable groups. It is advisable to include separate markers for trigger factors and ‘support zones’ in the checklists so that analysis results can be compared across different sites and changes tracked following interventions.

At the level of the participation process, it is important that veterans and internally displaced persons are not merely ‘respondents’. In line with the participatory approaches described in the section on

process participants and strategic approaches, they are involved as co-designers and experts by experience: they participate in the joint mapping of ‘dangerous’ and ‘supportive’ places, formulate comfort criteria, test pilot solutions and assess their impact on feelings of safety and belonging (Schroeder et al., 2021; IRF, 2025). With this approach, trauma-informed design ceases to be a ‘niche topic’ and becomes a cross-cutting requirement for all interventions in the public spaces of historic cities, logically continuing the methodology outlined in the section on inclusive design for historic cities.

3.3.2 International examples of good practices in inclusivity in public spaces

The previous sections have shown that the inclusivity of historic public spaces is the result of consistent work addressing a range of barriers — physical, informational, cognitive, sensory, psychological, socio-behavioural, and institutional-spatial. A methodology based on the principles of universal design, a route-based approach, and sensory and cognitive mapping, as well as user participation, requires that each type of barrier be addressed through appropriate spatial, technical and organisational solutions.

International and Ukrainian examples demonstrate how this methodology is implemented in practice in historic cities of varying scales. The following text examines several case studies illustrating specific techniques for the planning and reconstruction of public spaces aimed at ensuring inclusivity, specifying which barriers are being overcome and how.

3.3.2.1. Ávila (Spain): an accessible route along the medieval walls

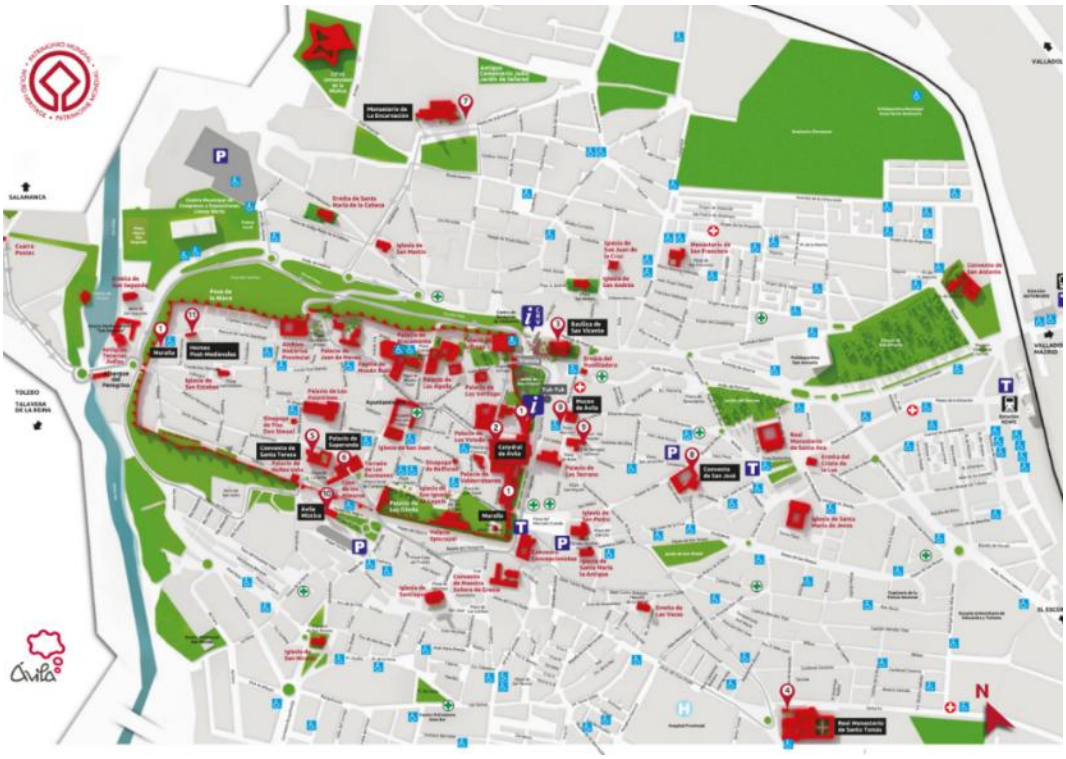

Fig. 3.6 — Map of the accessible route along the medieval walls of Ávila (Spain) (Avilaturismo, 2025)

Ávila is a small Spanish city with almost completely preserved medieval walls, included on the UNESCO World Heritage List. The city became one of the key examples in the League of Historical and Accessible Cities (LHAC) project and received the first Access City Award for its systematic work on accessibility in a historic environment (LHAC, 2013).

The first stage of work in Ávila was a comprehensive accessibility audit. All entrances to the historic centre, sections of the walls, towers, viewing platforms and internal streets were analysed in terms of gradients, passage widths, surface condition, the presence of steps, kerbs, lighting and other factors that create physical and cognitive barriers (LHAC, 2013). Based on this analysis, several priority barrier-free routes were identified, linking gates, main squares, the cathedral, local government offices, tourist information points, accessible public toilets and other key sites (Fig. 3.6).

The second stage involved the implementation of a series of reversible spatial interventions. Where the natural terrain permitted, gentle ramps were constructed along existing embankments and approaches to the gates. The paving within these ramps is made of smoother stone of a smaller size, whilst retaining the colour scheme and overall pattern of the paving (Fig. 3.7). This ensures comfortable movement for people with mobility impairments without compromising the city's authentic character.

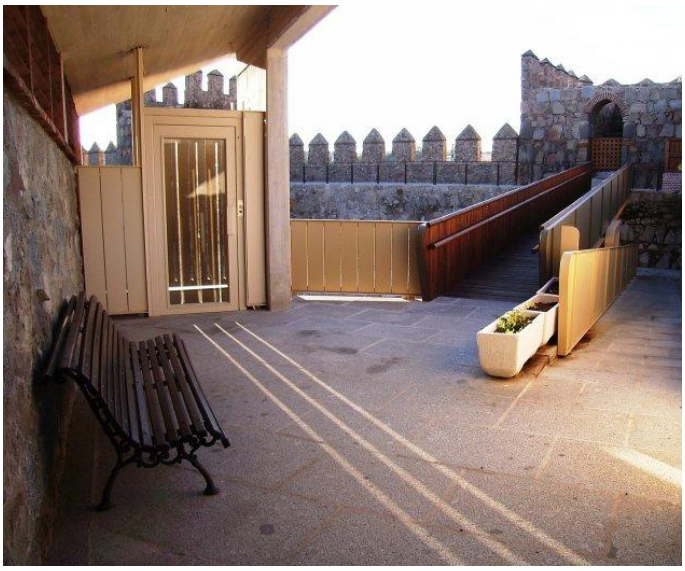

Fig. 3.7 — Installation of ramps and lifts making the walls of Ávila accessible (Muralla de Ávila, n.d.)

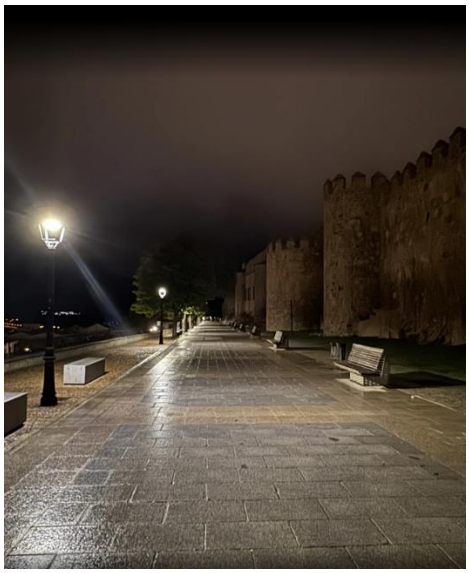

Fig. 3.8 — Organisation of uniform and contrasting lighting along the routes by the walls (AllTrails, n.d.)

Where vertical height differences were significant, lifting platforms and lifts were installed in sections of the structures considered 'secondary' from a heritage conservation perspective — in later additions or technical areas. This strategy of minimal intervention ensured access to the battle galleries and viewing platforms without altering key historical elements of the walls (LHAC, 2013). In this case, the balance between accessibility and authenticity is achieved through a clear demarcation of intervention zones: modern elements are concentrated in less valuable sections, whilst the historical substance of the walls is kept as intact as possible.

An important component has also been the provision of information and sensory facilities to ensure inclusivity in Ávila: uniform and contrasting lighting has been installed along the routes near the walls (Fig. 3.8), and in tourist information centres and museums, tactile models of sections of the walls and a map of the old town have been installed, alongside multilingual audio guides with an adapted presentation structure. In Ávila, it was decided to place tactile models indoors for their preservation and ease of use (Fig. 3.9). In contrast, examples of large tactile models of historic centres located directly in public spaces can be seen, for instance, in Stockholm (Fig. 3.10).

Fig. 3.9 — Installation of tactile models of sections of the walls and a map of the old town (Muralla de Ávila, n.d.)

Fig. 3.10 — Tactile model in Stockholm. Photo by Anna Serbin, 2025. (Author's photograph)

3.3.2.2. Vienna (Austria): gender-sensitive design of historic parks

Vienna is one of the pioneers in the implementation of gender mainstreaming in urban planning (Fig. 3.11), which is viewed as part of a broader paradigm of an inclusive and equitable city (Stadt Wien — MA 18, 2013; Damyanovic, Reinwald & Weikmann, 2013). Historical and semi-historical parks. In particular, Einsiedlerpark, Bruno-Kraisky-Park, Odeonpark and Drasscherpark were used as testing grounds for approaches to reducing socio-behavioural and psychological barriers.

Fig. 3.11 — Rudolf Bednar Park was designed according to the principles of gender-sensitive planning: the space is divided into zones with varying intensities of use, taking into account the age and gender needs of visitors. A combination of active and quiet areas, clear visual connections between zones, comfortable lighting and logical circulation routes, which create safe boundaries and a harmonious distribution of park users (Uniola, 2025)

Before implementing spatial changes, detailed research was carried out into the actual use of the parks: mapping the presence of different groups over time and space, observing conflicts of use, and conducting focus groups with teenage girls. Research has shown that large single-purpose sports grounds, such as football pitches, are effectively monopolised by boys, whilst girls and other groups are pushed to the periphery or avoid the space altogether (Damyanovic, Reinwald & Weikmann, 2013).

In response, the following spatial strategies were implemented:

• dividing a single large area into several smaller zones with different types of activities, allowing the space to be shared among different user groups;

• creating several entrances and exits to the park instead of a single narrow passageway, which reduces feelings of control and danger, particularly for girls and women;

• positioning benches and seating areas so that users with different behavioural patterns (contemplation, socialising, childcare) could be in close proximity to active zones, rather than solely on the periphery;

• Even, non-glaring lighting with a particular focus on entrances, walkways and potentially dangerous areas (Stadt Wien — MA 18, 2013).

Thus, the Vienna case study demonstrates how socio-behavioural and psychological barriers can be overcome through a combination of spatial solutions and the participation of users, particularly women

and girls, in the analysis and planning process. At the same time, most of the changes were implemented through work on greening, lighting, the positioning of entrances and street furniture—that is, in layers that can be adapted without radical intervention in the historical structure of the parks, thereby maintaining a balance between accessibility and respect for their authentic character.

3.3.2.3. Prague (Czech Republic): safe routes for children in historic districts

In Prague, particularly in the Prague 6 district, the issue of inclusivity in historic neighbourhoods is considered in close connection with the safety of children on the move. Projects linked to the Safe Routes to School programme and the 'Children's Road Safety in Prague' pilot under the RAPTOR initiative aim to ensure safe and predictable routes from home to school within the complex street layout of historic districts (Pěšky městem, 2025; EIT Urban Mobility, n.d.). Importantly, the main focus is on traffic management, road markings and the design of street spaces, which allows for improved safety and accessibility of routes for children without radically altering the historic built environment, maintaining a balance between inclusivity and the authentic character of the neighbourhoods.

The first stage involved analysing the actual 'shortcuts' used by children, rather than merely the formally recommended routes. Locations were identified where children cross the road in unauthorised places, take shortcuts through courtyards, car parks or narrow passages, as well as areas with the highest concentration of conflicts between pedestrians and vehicles (Pěšky městem, n.d.).

Fig. 3.12 — Coloured asphalt art in front of ZŠ Grafická school in Prague: calming traffic and protecting children (Pěšky městem, 2025)

Based on this analysis, the following measures have been implemented:

• introduction of engineering measures to calm traffic (reducing speed limits, narrowing lanes, raised pedestrian crossings, 'speed bumps')

• widening of pavements and creation of protected crossings with safety islands at particularly conflict-prone locations (Fig. 3.12);

• introduction of a visual marking system for ‘school routes’ — pictograms, coloured paving, information boards for children and parents;

• the use of digital monitoring tools that enable accompanying adults to track the whereabouts of a group of children and receive alerts about potentially dangerous situations, as well as generating anonymised data for future transport infrastructure planning (EIT Urban Mobility, n.d.).

This example demonstrates how cognitive, sensory and psychological barriers for children in a complex historic environment can be overcome through a comprehensive combination of spatial, regulatory and digital solutions.

3.3.2.4. Lviv (Ukraine): barriered routes and reversible solutions in the historic centre

Unlike the cities discussed above (Ávila, Vienna, Prague), where inclusive solutions have gone through a full cycle ‘from concept to implementation’, Lviv currently demonstrates a process of developing accessibility and inclusivity rather than a finished result. This historic city, home to World Heritage sites, is simultaneously a humanitarian hub during the war, a city for internally displaced persons, people with disabilities and veterans (UNBROKEN, 2025; RebuildUkraine, 2025). In this context, spatial changes are inevitably piecemeal, contradictory and dependent on very limited resources.

As shown in Chapter 2, Lviv is joining nationwide initiatives to create a barrier-free environment: barriered and priority routes have been identified for the city, and local accessibility maps have been produced in collaboration with state institutions and civil society organisations (Ministry for Communities, Territories and Infrastructure Development of Ukraine, 2025a; LUN City, 2025; Lviv City Council, 2024). These tools provide a basic picture of where physical accessibility is already partially ensured, and where critical gaps remain at the level of streets, squares, stops and approaches to public spaces. Part of this work focuses on the ‘branches’ of priority routes in medical cluster areas, particularly on Mazepa and Pekarska Streets, where the first barrier-free route, approximately 15 km long, is being developed in phases: kerbs are being lowered, pavements are being upgraded, and safer pedestrian crossings and approaches to public transport stops are being organised in areas with a high concentration of hospitals, rehabilitation centres and social infrastructure (Lviv City Council, 2025). In the context of this guide, this corresponds to the first stage — work on physical accessibility (Section 2) — where the state of the environment is assessed by analytical zones and user groups, and the most obvious barriers are removed.

At the same time, compared to Ávila or Vienna, the level of inclusivity achieved in Lviv remains limited. Most interventions are concentrated in isolated areas (junctions, stops, individual streets) and do not form a comprehensive network of inclusive routes within the historic environment. Even accessibility routes near medical clusters remain more like local fragments than complete corridors that ensure continuous, clear and comfortable movement for different user groups. Accessibility maps and

accessible tourist services (‘Accessible City Map’, ‘Barrier-Free Map’) demonstrate not so much ‘success’ as the scale of the problem: a significant proportion of public spaces remain inaccessible or only partially accessible, and solutions are implemented unevenly across different areas of the city (LUN City, 2025; VisitUkraine, 2024). In terms of heritage interpretation and sensory comfort, most sites and routes still operate according to the ‘traditional’ model, without systematic consideration of cognitive, psychosocial and informational barriers.

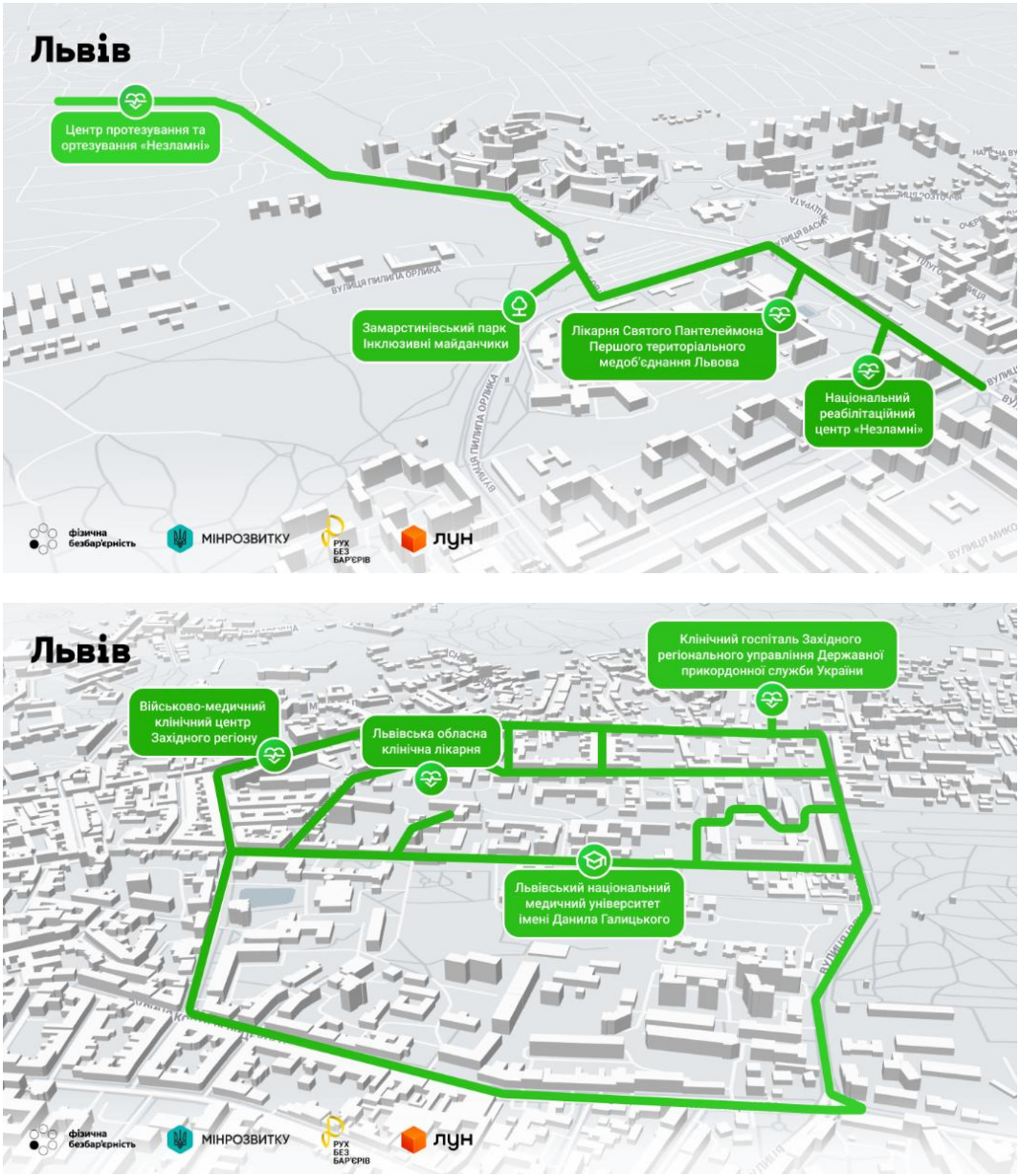

Fig. 3.13 — General diagrams of a barrier-free route in Lviv connecting the Shevchenkivskyi and Lychakivskyi districts (Mindev, 2025)

This is precisely why the Lviv case study in this section is considered not as a ‘ready-made good example’, but as a precedent that lays bare the structural obstacles on the path to inclusivity in Ukraine’s historic cities. Among these barriers are the conflict between heritage conservation needs and urgent wartime challenges, a lack of resources, the fragmented implementation of state policies at the local

level, and limited user participation (veterans, people with disabilities, IDPs) in decision-making and route design (Lviv City Council, 2024; Tvoe Misto, 2024).

From the perspective of the methodology described in sub-section 3.3.1, Lviv can be viewed as a 'living laboratory' at the intermediate stage: first-level tools (barrier routes, maps, individual monitoring elements, accessibility branches near hospitals) already partially exist, but have not yet been converted into fully-fledged inclusive routes and scenarios for the use of historic public spaces. The next step, which logically follows from this guide, is to move from identifying physical barriers to the systematic application of assessment tools (AII matrices, detailed checklists, 'walk-along'/'go-along' surveys, sensory mapping) and working with narratives and the interpretation of heritage.

In this context, a comprehensive strategy for Lviv (as for other Ukrainian historic cities with similar conditions) could consist of several interrelated components.

Firstly, a clear political decision is needed regarding the inclusivity of the historic city as a distinct policy area that goes beyond 'street repairs' and combines accessibility policy with heritage conservation, support for veterans, people with disabilities and IDPs (Lviv City Council, 2024). Such a framework should establish that barrier-free routes, accessibility maps and accessibility points near key facilities (particularly healthcare clusters) are the first stage of a broader inclusive programme, rather than the ultimate goal. It is important that such a strategy is not limited to purely technical measures, but also provides for a careful approach to the authentic urban fabric: new routes, navigation and rest areas must be integrated into historic spaces in such a way as to enhance their legibility and vitality, rather than destroying the unique character of Lviv's city centre.

Secondly, it is advisable to convert the data collected at the level of maps and routes into the format of the assessment tools proposed in this guide. For key corridors of the historic city, AII matrices can be created and detailed audits conducted using checklists that take into account different user groups; this will allow us not only to see 'where there is no ramp', but also to identify areas of cognitive overload, sensory discomfort or psychosocial vulnerability (for example, for veterans with traumatic experiences). Based on such assessments, priority areas for interventions can be identified and phased implementation plans drawn up.

Thirdly, rather than spreading resources thinly across the whole city, the strategy could envisage several pilot inclusive routes in the historic environment, selected on the basis of daily use (access to hospitals and rehabilitation centres, essential services, schools, public spaces). For these, it is worth applying the full set of methods described in sub-section 3.3.1: route studies involving real users, sensory mapping, scenario testing, and engaging veteran and inclusive communities in co-designing solutions. The results of such pilot projects can form the basis for establishing urban standards for inclusive design in historic public spaces.

Fourthly, inclusivity in Lviv requires moving beyond purely spatial solutions and incorporating an inclusive interpretation of heritage: revising texts, navigation and communication practices to make them readable, multi-format and sensitive to users' traumatic experiences. This applies to both tourism products and residents' everyday routes — particularly in places of remembrance and areas associated

with the war (UNBROKEN, 2025; Lviv City Council, 2025). The involvement of veterans, people with disabilities and IDPs in shaping such narratives is a key condition for their inclusivity.

Ultimately, a comprehensive strategy involves a long-term cycle of monitoring and adjustment: repeated AII measurements on pilot routes, updates to accessibility maps, open reporting for residents and stakeholders, as well as the gradual scaling up of successful solutions (in particular, established accessibility routes near hospitals) to other parts of the city. In this sense, Lviv may not serve as an example of a 'ready-made model', but rather as a precedent for the gradual transformation of basic accessibility into genuine inclusivity of the historic urban space, which is particularly important for Ukrainian cities in wartime and post-war conditions.

Conclusions to Section 3.3

The methodology discussed allows us to address the inclusivity of historic public spaces not in the abstract, but through concrete tools: barrier and sensory mapping, route identification, reversible interventions at critical points, and phased planning of changes. This approach combines the requirements of the regulatory framework and the principles of universal design with a restorative vision, in which all new elements are considered reversible and minimally invasive with regard to the authentic fabric of the city.

The case studies from Ávila, Vienna, Prague and Lviv demonstrate how these tools can be applied in a variety of contexts: from addressing uneven ground and dealing with fortifications to gender-sensitive redesign of parks and safe routes for children in historic districts. What they have in common is a route-based approach, attention to cognitive, sensory and socio-behavioural barriers, and the use of solutions that read as a contemporary layer without undermining authenticity.

Thus, the proposed methodology provides a practical framework for cities, architects, urban planners and heritage conservation specialists seeking to move from one-off interventions to coherent programmes of inclusive adaptation of historic spaces, drawing on mapping data, user participation and the principles of reversibility of interventions.

Conclusions of the third chapter

The inclusive transformation of public spaces in historic cities is based on the understanding that barriers have not only physical but also social, informational, cognitive, sensory and psychological dimensions. It goes beyond a narrow interpretation of accessibility as a set of technical parameters and encompasses work on language, cultural codes, rules for using the space, and the daily practices of various groups of residents and visitors.

The analysis showed that an inclusive approach is based on recognising the diversity of users and involving people with disabilities, people with reduced mobility, veterans, internally displaced persons and other communities as partners in planning and evaluating solutions, rather than as passive ‘service recipients’.

The methodological section outlined tools for identifying and mapping barriers, field research, co-design, reverse interventions and systematic monitoring, which enable inclusivity to be transformed from an abstract principle into a managed process of change.

International and Ukrainian examples demonstrate that the inclusive transformation of historic cities is possible: a consistent combination of spatial, regulatory, informational and educational measures creates an environment in which cultural heritage is preserved, and diverse groups of users feel safe, respected and part of the city. In the post-war reconstruction of Ukrainian cities, it is precisely the inclusive design of public spaces for veterans, IDPs and other vulnerable groups that can provide a practical response to the challenges of war, transforming reconstruction into an opportunity to make historic cities fairer and safer for all their residents.

The Ukrainian experience demonstrates that even with limited resources, it is possible to gradually introduce inclusive principles into historic environments by combining spatial solutions, changes to rules governing the use of spaces, and educational initiatives for professionals and citizens. Pilot projects in medium-sized towns, cooperation with civil society organisations and international programmes lay the groundwork for scaling up inclusive practices and establishing a new standard of quality for historic public spaces.

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GLOSSARY OF TERMS

Assistive technologies — devices, software, technical and digital tools that compensate for or reduce functional limitations and enable people with disabilities to effectively use space, information and services. Corresponds to the concept of assistive technologies.

Accessibility audit — a systematic examination of the environment, routes, buildings and services with the aim of identifying barriers and assessing the level of accessibility for different user groups. May include checklists, route surveys, observations and the involvement of people with disabilities. Corresponds to the practice of accessibility audit.

Barrier — an obstacle in the environment, organisation, communication or attitudes that hinders or prevents access, movement, the perception of information or the use of services for certain groups of people. In this guide, a barrier is not considered to be a person's characteristics, but rather the conditions and decisions that create limitations for people with disabilities and other people with special needs. Barriers can be physical, sensory, information and communication, social, cultural, organisational, economic or digital.

A barrier-free environment is a state of the environment in which physical, sensory, information and organisational barriers are removed or minimised to such an extent that people with disabilities and other groups with reduced mobility can move about freely and participate in community life. In international practice, this is similar to the concept of a 'barrier-free environment'.

Barrier-free — a social and political concept involving the systematic removal of physical, sensory, informational, digital, institutional and social barriers that limit people's participation in community life. It encompasses not only the state of the environment but also changes in policies, governance, communication and the culture of interaction, and serves as a guiding principle for strategies and projects in various fields.

Gender mainstreaming — a strategy whereby gender equality is integrated into all stages of the development, implementation and evaluation of policies and projects, rather than being treated as a separate add-on. In urban planning, this means the systematic consideration of gender aspects in transport, public spaces, services and governance.

Gender-sensitive design is an approach to planning and designing the environment that takes into account the different needs, modes of travel and experiences of women, men and non-binary people, including issues of safety, care, access to services and time allocation in the city.

Design for All — a European concept that views accessibility and inclusivity not merely as characteristics of individual objects or services, but as a principle that should permeate policies, standards, planning and governance. It emphasises the participation of different user groups in decision-making, the removal of discriminatory barriers, and the creation of an environment suitable for as wide a range of people as possible throughout their life cycle. Conceptually, ‘ ’ is linked to universal design, but focuses not so much on technical solutions as on the strategic and institutional levels of implementing inclusivity.

Accessibility — the ability of an environment, space, product or service to be used by people with different mobility, sensory, perceptual and cognitive abilities without discrimination. The concept corresponds to the term ‘accessibility’ in international documents.

Access Statements — brief public descriptions of the accessibility conditions of a building, route, event or service, which inform visitors in an understandable way about available facilities, limitations and planned improvements. They enable people to assess in advance whether a particular place is suitable for them. In English-speaking practice, the term ‘Access Statements’ is used.

Inclusive heritage — an approach to the conservation and use of cultural heritage that ensures accessibility, representation and engagement of diverse population groups, including people with disabilities, internally displaced persons (IDPs), children, older people and minorities, viewing heritage as a common good and a resource for realising the right to the city. In international literature, this corresponds to the concept of ‘inclusive heritage’.

Inclusive public space — a public space in which spatial, organisational and communication solutions have created conditions that allow different user groups to safely, respectfully and fully enjoy the environment and participate in community life.

Inclusive design (ID) — an approach to design that consciously takes into account the diversity of users, their experiences and barriers, and involves representatives of different groups in the decision-making process. In international sources, this corresponds to the term ‘inclusive design’.

Inclusivity is an integral characteristic of a social system in which institutions, norms, and the physical and digital environment are organised so that all people, regardless of their physical, sensory, cognitive, socio-economic or cultural characteristics, have equal and effective opportunities to participate in community life.

Historic urban landscape — a UNESCO concept that views the historic city as a holistic, living landscape in which the built heritage, spatial structure, natural environment and everyday practices of residents are intertwined. Corresponds to the Historic Urban Landscape (HUL) approach.

Cognitive mapping — a set of methods that enable us to understand how people perceive, remember and describe space, particularly through mental maps, diagrams, drawings and verbal descriptions of routes. Corresponds to the concept of cognitive mapping.

Wheelchair — a personal mobility aid consisting of a seat mounted on a wheeled frame, enabling a person with mobility impairments to move around independently or with assistance. It may be mechanical (manual) or electrically powered. This guide uses the term ‘wheelchair’ as a more neutral and respectful alternative to the expression ‘disabled person’s wheelchair’.

A person with a disability is a person who has long-term health impairments (physical, sensory, intellectual or mental) which, when combined with environmental barriers, may limit their participation in community life. This guide uses the specific term ‘person with a disability’ in accordance with the UN Convention on the Rights of Persons with Disabilities and an approach that focuses on the person rather than their impairment.

People with reduced mobility (PRM) — a general term used to describe people who find it difficult to move around or use the standard environment without additional facilities: people with disabilities, older people, pregnant women, parents with pushchairs, people with temporary injuries, etc.

Route-accompanied research — a method of field research into space, in which a researcher, specialist or public official walks a route alongside a user, recording their experience, difficulties and comments in real time. In international literature, this approach is described as ‘walk-along’, ‘go-along’ or ‘accompanied walks’.

Orientation and navigation in space — a system of spatial and informational solutions (route structure, landmarks, signposts, graphics, tactile and digital aids) that helps a person understand where they are, where to go and how to reach their destination safely. The term ‘wayfinding’ is frequently used in international documents.

Participatory planning — an approach to planning and decision-making in which residents, users and stakeholders actively participate in shaping the vision, priorities and specific projects, rather than merely being informed of decisions that have already been made. Corresponds to the approach known as participatory planning.

Place-making is a set of actions aimed at transforming an ‘abstract’ space into a recognisable, comfortable and socially vibrant place with its own identity. This may include planning in collaboration with residents, temporary and permanent spatial changes (furnishing, landscaping, lighting, elements of tactical urbanism), organising events and establishing maintenance of the space. The term derives from the English ‘placemaking’ — ‘making a place’, meaning the creation not only of a physical form but also of meanings and scenarios for its use. Unlike traditional urban improvement, which is usually limited to a one-off ‘renovation’, placemaking focuses on a long-term process of co-creation and shared management of space, where social interactions and the community’s connection to the place are equally important.

Psycho-ecological analysis — an approach to assessing the quality of the environment that combines spatial, social and psychological characteristics, in particular the impact of space on users’ sense of safety, control, stress and well-being.

Reversible interventions — spatial and technical solutions that can be dismantled or altered without irreversibly damaging the historical fabric, thereby preserving the authenticity of the cultural heritage site.

Sensory mapping — a method of studying space that records how people perceive it through sounds, smells, light, tactile sensations and other sensory characteristics. It enables the identification of zones of overload , ‘anxiety nodes’ and the design of ‘quiet routes’ and places for pauses. Corresponds to the concept of sensory mapping.

Commons — resources that do not belong to a specific private or state entity, but to the community in the broadest sense (spaces, landscapes, cultural heritage), and which require collective management and protection from appropriation. In this guide, cultural heritage is considered precisely as a commons.

Universal design (UD) — a concept for designing environments, products and services that are as suitable as possible for use by the widest possible range of people without the need for special adaptation or segregation. In the European context, it is closely linked to the concept of Design for All, which translates the principles of inclusivity into policies and strategies.

LIST OF ABBREVIATIONS

AII — Accessibility Improvement Index — an index for improving accessibility (a methodology for assessing and monitoring the accessibility of public spaces).

ADA — Americans with Disabilities Act — US law on citizens with disabilities.

AR — Augmented Reality.

CEUR — CEUR Workshop Proceedings — a series of open-access collections of materials from scientific workshops (CEUR-WS.org).

CORDIS — Community Research and Development Information Service — the European Union's information service on research and innovation projects.

DIN — Deutsches Institut für Normung — German Institute for Standardisation (the abbreviation is also used to denote national standards).

EIDD — European Institute for Design and Disability (Design for All Europe).

EN — European Norm — a European standard approved by the European Committee for Standardisation (CEN).

ENAT — European Network for Accessible Tourism.

ERCIM — European Research Consortium for Informatics and Mathematics.

EU — European Union.

GPS — Global Positioning System — global satellite positioning system.

HUL — Historic Urban Landscape — UNESCO's concept of the historic urban landscape.

ICOMOS — International Council on Monuments and Sites.

IMPACTOUR — an acronym for the project 'IMproving Sustainable Development Policies and PrActices to assess, diversify and foster Cultural TOURism in European regions and areas' (an H2020 project on cultural tourism).

ISO — International Organization for Standardization.

LHAC — League of Historical and Accessible Cities — a European project dedicated to the accessibility of historic cities.

POAH — Preservation of Affordable Housing — a non-profit organisation working on affordable housing.

QR — Quick Response code — a two-dimensional barcode for quick access to digital information.

SMARTDEST — an acronym for the project 'Cities as mobility hubs: tackling social exclusion through "smart" citizen engagement' (a research project on mobility and tourism).

UKCIP — UK Climate Impacts Programme — a programme assessing the impacts of climate change in the UK.

UNCRPD (CRPD) — United Nations Convention on the Rights of Persons with Disabilities.

UNDP — United Nations Development Programme.

URBACT — European programme for inter-city cooperation on sustainable urban development (URBACT).

VR — Virtual Reality — virtual reality.

WCAG — Web Content Accessibility Guidelines — guidelines on web content accessibility.

WHO — World Health Organization.

VDNG — Exhibition of Achievements of the National Economy (historical name of the exhibition complex in Kyiv; VDNG — the Latinised form used in sources).

IDPs — internally displaced persons.

PS — public space (public spaces).

DBN / DBN — State Building Standards of Ukraine (Ukrainian state building norms; DBN — English abbreviation used in sources).

DSTU — State Standard of Ukraine.

PWD — people with reduced mobility.

NGO — non-governmental organisation.

UN — United Nations.

PTSD — post-traumatic stress disorder.

USA — United States of America.

UD — universal design.

ID — inclusive design.

UNESCO — United Nations Educational, Scientific and Cultural Organisation.

Appendix 1. Accessibility Checklist

This appendix is used in the second stage of assessment, following the preliminary screening using the AII matrix, and serves as a tool for a detailed accessibility audit of a specific space or route.

Space / route: _____ Date of assessment: _____ Assessor: _____

No.	Parameter / area	Check question	Assessment (yes / partially / no)	Score (0–4)	Comment
1	Width of the main route	Is there a minimum of ~1.8 m to allow two people / a pram and a pedestrian to pass each other?			
2	Transverse and longitudinal gradients	Do the gradients not exceed the standard values and do they not pose a risk of falling?			
3	Surface evenness	Is the surface level, non-slip, free of potholes, loose paving stones and manhole covers in the passageway?			
4	Obstacles on the route	Are there any permanent or temporary obstacles in the passageway, or is there at least 1.8 m of clear passage?			
5	Level changes	Are there accessible solutions for all level changes (ramp/platform/lift), and are there no ‘blind’ steps?			
6	Ramps	Do the gradient, width, edges, handrails and surfacing comply with DBN requirements/standards?			
7	Stairs	Do the stairs have level treads, a contrasting edge marking, and handrails on both sides?			
8	Lowered kerbs	Are kerbs lowered at crossings, without ‘steps’ > 2 cm?			

9	Pedestrian crossings	Are there road markings, tactile markings, a safe signal duration and good visibility?			
10	Tactile paving	Are the tactile elements logical, standardised and free from decorative ‘fake’ inserts?			
11	Entrances to buildings/facilities	Is at least one entrance accessible (without thresholds/with a clear ramp/doors)?			
12	Public transport stops	Is the stop accessible (approaches, platform, ability for people in wheelchairs to board/alight)?			
13	Parking for people with disabilities	Are there designated spaces, sufficient width, and a safe route from the car park to the building?			
14	Rest areas	Are there benches/seats of varying heights, handrails, and space for a wheelchair nearby?			
15	Toilets (if available)	Is there an accessible toilet/washroom with sufficient space, handrails and facilities?			
16	Lighting	Is the lighting on routes, walkways, entrances and staircases sufficient and even?			
17	Emergency safety	Are there accessible evacuation routes and means of calling for help for people with disabilities?			
18	Route continuity	Is the entire declared route accessible without barriers for a person in a wheelchair?			

Instructions: go through all the parameters in sequence; for each one, select the answer ‘yes’, ‘partially’ or ‘no’; enter the corresponding score from 0 to 4 (0 — requirement not met at all, 4 — fully met); and in the ‘Comments’ column, note down key observations and suggestions; Based on the scores and comments, formulate a final conclusion regarding the level of accessibility of the space or route.

Final conclusion based on the Accessibility checklist: _____

Appendix 2. Inclusivity Checklist

This appendix is used following the basic accessibility assessment (AII matrix and accessibility checklist, Appendix 1) and allows for a detailed analysis of the inclusive aspects of using the space for different user groups.

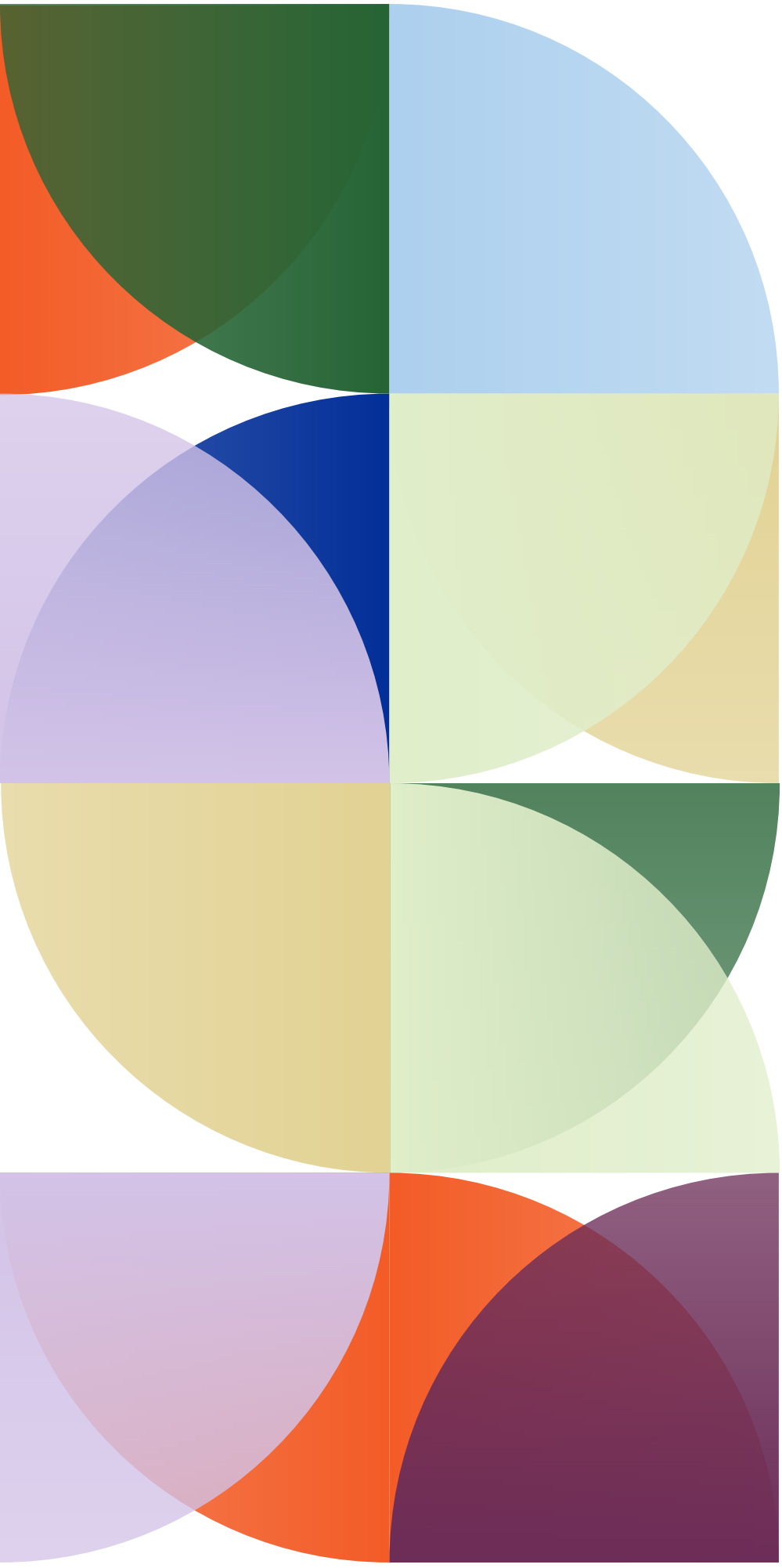
Space / route: _____ Date of assessment: _____ Assessor: _____

No.	Dimension / Topic	Check question	Assessment (yes / partially / no)	Score (0–4)	Comment
1	Alternative routes	Are there several routes with different gradients, lengths and noise levels?			
2	Flexibility of the space	Does the space allow for changes (movable seating, modular elements, temporary solutions)?			
3	Multisensory navigation	Is information duplicated (visually, tactilely, aurally — where appropriate)?			
4	Sensory rest areas	Are there quiet / less stimulating zones for people with sensory difficulties?			
5	Control of visual chaos	Is there an excess of advertising, flashing lights or aggressive visual stimuli?			
6	Microclimate (heat/cold, wind)	Is there protection from heat, wind and rain (canopy, shade, shelter)?			
7	Clear spatial layout	Is it easy to understand where things are located (logical zones, obvious directions)?			
8	Language and symbols	Is simple language used, with clear icons and sufficient font size/contrast?			

9	Predictability	Are there any ‘sudden’ changes in level or hazardous areas without warning?			
10	Diversity of users	Is the space actually used by different groups (children, older people, people with disabilities, etc.)?			
11	Sense of safety	Do people (particularly women, teenagers, and people with disabilities) feel relatively safe here?			
12	Non-discrimination	Is there any ‘anti-homeless’ design, or barriers for people on low incomes or migrants?			
13	Affordability	Is it possible to use the space at no cost, and are there any free activities or options?			
14	User participation	Were people with disabilities and other groups involved in the planning/evaluation of the space?			
15	Feedback	Is there a simple way to submit a complaint or suggestion, and is there a response to these messages?			
16	Operational support	Is the condition of the premises (cleaning, repairs, winter maintenance) maintained in accordance with the MGN?			
17	Temporary measures / events	Are MGN routes not blocked during events, and are alternatives and information provided?			

Instructions: complete the checklist using the same principle as for accessibility, but with a focus on different user groups; For each criterion, tick ‘yes’, ‘partially’ or ‘no’, assign a score of 0–4 and briefly describe in the ‘Comments’ column which groups are affected by the identified limitation or opportunity; at the end, based on the answers, draw a general conclusion about the space’s level of inclusivity and priority areas for improvement.

Final conclusion based on the Inclusivity checklist: _____



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