

ACCESSIBILE CITIES. LEVERAGING PLANNING PRACTICES TO DESIGN INCLUSIVE PUBLIC  
URBAN ENVIRONMENTS

*Original*

ACCESSIBILE CITIES. LEVERAGING PLANNING PRACTICES TO DESIGN INCLUSIVE PUBLIC URBAN ENVIRONMENTS / Rolletto, Claudia; Bosia, Daniela; Bozzola, Marco. - ELETTRONICO. - 45.3:(2025), pp. 90-101. (Lisbon. Livable Cities Cities, Culture, People & Place Lisbon (PRT) 9 – 11 July 2025).

*Availability:*

This version is available at: 11583/3009248 since: 2026-04-11T23:20:14Z

*Publisher:*

AMPS

*Published*

DOI:

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Livable Cities LISBON 2025

# AMPS PROCEEDINGS SERIES 45 v.3

Instituto Universitário de Lisboa

9 – 11 July, 2025

## Lisbon. Livable Cities

Cities, Culture, People & Place

EDITOR:

Pedro Mendes

EXECUTIVE PRODUCTION EDITOR:

Amany Marey

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AMPS PROCEEDINGS SERIES 45. ISSN 2398-9467

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# TABLE OF CONTENTS

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|   |     |  |
|---|-----|--|
| <b>Chapter 1</b>  |     |  |
| RESET: INCREASING STUDENT WELLBEING ON A UNIVERSITY CAMPUS THROUGH THE DESIGN OF STRESS REDUCING ENVIRONMENTS   | 1   |  |
| Lisa Phillips, Jenna Rieder   |     |  |
| <b>Chapter 2</b>  |     |  |
| INNOVATIVE SOLUTIONS FROM SPATIAL PLANNING DIMENSIONS FOR URBAN INFORMAL FOOD SYSTEMS IN NANJING, CHINA   | 14  |  |
| Luoman Zhao   |     |  |
| <b>Chapter 3</b>  |     |  |
| LEARNING OUTSIDE-IN: HOW CITY PLACES BECOME PEDAGOGICAL PATHS OF WELL-BEING FOR SCHOOL LEARNERS   | 24  |  |
| Isabela Garcia Senent, Daniel Gray Wilson   |     |  |
| <b>Chapter 4</b>  |     |  |
| HOUSING INSTABILITY AND CHRONIC DISEASE IN A DIVERSE, UNDER-RESOURCED U.S. POPULATION   | 32  |  |
| Susan J. Shaw, Josephine D. Korchmaros, Cristina Huebner Torres, Vrinda Prakash, Jeannie K. Lee   |     |  |
| <b>Chapter 5</b>  |     |  |
| DESIGN FOR CARE & CONNECTION: CONSIDERATION FOR HOW SPATIAL AND SENSORY FACTORS IN CARE HOME DAYROOMS INFLUENCE SOCIAL INTERACTION                      | 43  |  |
| Ruba Kendassa   |     |  |
| <b>Chapter 6</b>  |     |  |
| DWELLING WITHIN ALMSHOUSING: REFLECTIONS ON ETHNOGRAPHIC DESIGN METHODS TO EXPLORE HOW OLDER PEOPLE LIVE INDEPENDENTLY WITHIN A NEW ALMSHOUSE IN LONDON | 56  |  |
| Najwa Almalki   |     |  |
| <b>Chapter 7</b>  |     |  |
| THE STONY PATHS OF CARE MUNICIPALISM IN TÜRKİYE: THE EXAMPLE OF CHILDCARE   | 66  |  |
| Meriç Kirmizi, Tuğçe Şanlı, Güven Soner, Sachi Masai, Johannes Kiener, Kojiro Sho   |     |  |
| <b>Chapter 8</b>  |     |  |
| NEIGHBOURHOODS, GROWING UP AND MENTAL HEALTH IN IRELAND: EVIDENCE FROM A POPULATION-BASED LONGITUDINAL STUDY  | 75  |  |
| James O'Connell   |     |  |
| <b>Chapter 9</b>  |     |  |
| ACCESSIBLE CITIES. LEVERAGING PLANNING PRACTICES TO DESIGN INCLUSIVE PUBLIC URBAN ENVIRONMENTS  | 90  |  |
| Claudia Rolletto, Daniela Bosia, Marco Bozzola  |     |  |
| <b>Chapter 10</b>   |     |  |
| HOW ADOLESCENTS INTERACT WITH URBAN GREEN SPACES, THE POTENTIAL IMPLICATIONS FOR THEIR WELLBEING AND RECOMMENDATIONS FOR URBAN DESIGN                   | 102 |  |
| Sara Tofiq, Nick Tyler  |     |  |

|   |     |  |
|---|-----|--|
| <b>Chapter 11</b>   |     |  |
| PLANNING FOR HEALTH IN A CHANGING CLIMATE: IDENTITY, RESILIENCE, AND URBAN WELLBEING IN SARAJEVO, MEDINA AND LJUBLJANA                    | 109 |  |
| Sabina Mujkić   |     |  |
| <b>Chapter 12</b>   |     |  |
| NONPROFIT HOSPITALS AS CATALYSTS FOR SOCIAL EMPOWERMENT AND URBAN LIVABILITY IN EGYPT: THE CASE OF 57357, BAHEYA, AND AHL MASR            | 121 |  |
| Amany Marey   |     |  |
| <b>Chapter 13</b>   |     |  |
| THE CHANDIGARH CHALLENGE: BALANCING CULTURAL HERITAGE AND URBAN DEVELOPMENT   | 131 |  |
| Manuel Giralt; Nima Maghsoudi   |     |  |
| <b>Chapter 14</b>   |     |  |
| REVITALIZING VIETNAMESE WEAVING TRADITIONS THROUGH COMPUTATIONAL DESIGN AND DIGITAL FABRICATION   | 146 |  |
| Hojung Kim  |     |  |
| <b>Chapter 15</b>   |     |  |
| THE RECONSTRUCTION OF LISBON AFTER THE 1755 EARTHQUAKE: THE GENESIS OF BAIXA POMBALINA (POMBALINE DOWNTOWN)                               | 158 |  |
| Alexandra Vieira, Jorge Lopes, Isabel Martins   |     |  |
| <b>Chapter 16</b>   |     |  |
| THE INFLUENCE OF URBAN COLORS ON THE CONSTRUCTION OF URBAN IMAGE: BLUE LISBON   | 167 |  |
| Zhuo Yang   |     |  |
| <b>Chapter 17</b>   |     |  |
| BEIRUT'S ADAPTIVE MODERNISM: A CANVAS FOR THE PERPETUAL REWRITING OF URBAN IDENTITY   | 176 |  |
| Tamara Nasr   |     |  |
| <b>Chapter 18</b>   |     |  |
| ANDALUSIAN INFLUENCES: WATER AND THE REVIVAL OF NARROW STREETS AS PUBLIC RITUAL IN CONTEMPORARY URBAN SPACES                              | 186 |  |
| Jumana Rageh, Michael Hughes  |     |  |
| <b>Chapter 19</b>   |     |  |
| THE INFLUENCE OF EUROPEAN CULTURAL ROUTES ON URBAN HERITAGE AND TOURISM: A CASE STUDY OF THE EUROPEAN ROUTE OF HISTORIC GARDENS IN LISBON | 198 |  |
| Tingyu Hu, Sirao Wu, Yanhong Huo  |     |  |
| <b>Chapter 20</b>   |     |  |
| FROM TRADITION TO MODERNITY: TRACING THE TRANSFORMATION OF ANKARA'S RESIDENTIAL COURTYARDS THROUGH OTTOMAN-REPUBLICAN HISTORICAL SHIFTS   | 207 |  |
| Deniz Avci  |     |  |

|   |  |     |
|---|--|-----|
| <b>Chapter 21</b>   |  |     |
| 'NOTHING IS ABSENT WHOSE PRESENCE IS TO BE DESIRED': SYRIAN ANTIOCH AS A LIVABLE MEDITERRANEAN CITY IN LATE ANTIQUITY   |  | 220 |
| Richard Lim   |  |     |
| <b>Chapter 22</b>   |  |     |
| IMAGINATIVE HERITAGE: INNOVATING USER EXPERIENCE TO PRESERVE CULTURAL IDENTITY  |  | 230 |
| Sumaya Bakri, Hossny Azizalrahman   |  |     |
| <b>Chapter 23</b>   |  |     |
| SAFEGUARDING INTANGIBLE CULTURAL HERITAGE IN PORTUGAL (2008–2025): NETWORKED PRACTICES AND EMERGING LINES OF INQUIRY FROM THE LISBON CONTEXT                      |  | 240 |
| Joana Varajão   |  |     |
| <b>Chapter 24</b>   |  |     |
| TULUM'S ECONOMIC AND URBAN TRANSFORMATION: FROM TRADITIONAL TRADES TO A TOURISM-CENTRIC CITYSCAPE   |  | 251 |
| Julia De Freitas Sampaio, Jair Ortega   |  |     |
| <b>Chapter 25</b>   |  |     |
| THE ROLE OF SUPPORT SERVICES IN PATHWAYS INTO AND OUT OF HOMELESSNESS   |  | 264 |
| Christopher Ambrey  |  |     |
| <b>Chapter 26</b>   |  |     |
| FORMS OF CULTURE: A SURVEY OF CULTURAL BUILDINGS IN 3 CITIES  |  | 275 |
| Lauren Garner, Vicky Lam  |  |     |
| <b>Chapter 27</b>   |  |     |
| COLOURFUL PALETTE AND SPATIAL RELATIONS IN A BUILD ENVIRONMENT: LEARNING FROM MINIMAL ART AND MINIMALIST ARCHITECTURE   |  | 288 |
| David Seidler   |  |     |
| <b>Chapter 28</b>   |  |     |
| CULTURAL TRANSMISSION AND THE UNDERSTANDING OF DIVERSITY THROUGH CHILDREN'S LITERATURE AND STORYTELLING PRACTICES: THE CASE OF ASIAN COMMUNITIES LIVING IN LISBON |  | 295 |
| Shenglan Zhou   |  |     |
| <b>Chapter 29</b>   |  |     |
| CONTEMPORARY HYBRID SPACES: ART AND ARCHITECTURE  |  | 303 |
| Seda Özen Tanyildizi  |  |     |
| <b>Chapter 30</b>   |  |     |
| "THE HEROIC CITY, THE HEROIC PEOPLE": THE LEGACY OF THE 1954 YANGTZE RIVER FLOOD IN WUHAN   |  | 311 |
| Yue Liang   |  |     |

**Chapter 31**

THE DIMINISHING FOODSCAPE: STREET VENDING AMID THE DRIFTING URBAN MORPHOLOGY & SOCIO-SPATIAL PLANNING 320

Wattana Songpetchmongkol

**Chapter 32**

STRATEGIES FOR URBAN REGENERATION THROUGH MUSIC AND CULTURAL INTERVENTIONS IN PUBLIC SPACE 328

Pedro Conejo Miranda

**Chapter 33**

IDENTIFIED PROBLEMS AND EXPECTED SUPPORT BY CULTURAL AND CREATIVE PRACTITIONERS IN THE CONTEXT OF CULTURAL POLICY - CASE STUDY FROM THE CZECH REPUBLIC 338

Jan Kaňák, Jan Váně

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# ACCESSIBLE CITIES. LEVERAGING PLANNING PRACTICES TO DESIGN INCLUSIVE PUBLIC URBAN ENVIRONMENTS

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## INTRODUCTION

Livable cities are those that prioritize human well-being and social sustainability, transforming urban and built environments into spaces that foster accessibility, inclusivity, and responsiveness to the diverse needs of their inhabitants. Such cities should not only accommodate but actively support the varied lifestyles and abilities of their populations. Design and architecture play a pivotal role in this transformation, shaping spaces that not only serve functional purposes but also enhance the quality of life for all individuals. Accessibility, when integrated into every stage of the design process, becomes a key tool for promoting social inclusion, ensuring that people—regardless of physical, cognitive, sensory, or cultural differences—can fully engage in society. In this framework, design practice extends beyond technical or aesthetic concerns to become a medium for conveying values like equity, safety, participation, integration, and overall life satisfaction, contributing to communities that are more equitable, thriving, and connected.<sup>1</sup> By prioritizing accessibility, cities can foster environments where every citizen has equal opportunities to live, work, and feel a meaningful member of their community. Inclusive design no longer looks at accessibility as a supplementary adjustment or final step in urban planning. Instead, it represents an intrinsic design parameter, fundamentally shaping every aspect of the planning and architectural process. It requires a deliberate focus on those whose needs are often marginalized—particularly individuals with disabilities—who frequently encounter barriers that hinder their participation in public life. These barriers, whether architectural, sensory, or social, do not merely restrict access but actively reinforce forms of social inequality and exclusion. Inaccessible environments perpetuate these divides, limiting social mobility and sustaining systemic disadvantage. Consequently, the outskirts of urban and civic life often coincide with those communities that are structurally excluded from full citizenship.

The study presented here, which focuses on the elaboration of the guidelines for the *PEBA - Piano per l'Eliminazione delle Barriere Architettoniche* (Plan for the Elimination of Architectural Barriers) for the City of Turin, adopts this inclusive design perspective. Its objectives were shaped by a commitment to integrate a wide array of stakeholders and capture the needs of the urban population in a comprehensive and participatory manner. Through a collaborative partnership between the City of Turin and TAL, the Turin Accessibility Lab<sup>2</sup>—an academic research center within the Department of Architecture and Design at the Politecnico di Torino—it was possible to define a methodological framework that extends beyond the normative imperatives of barrier removal. The project embraced a

broader and more nuanced understanding of accessibility, incorporating physical, sensory, cognitive, and cultural dimensions, in an effort to encompass as many aspects of urban life as possible to make them more accessible, not only to those with disabilities but to all citizens. The aim was to shift from a PEBA to a wider Accessibility Plan, promoting an approach to urban design that serves the needs of everyone.<sup>3</sup>



Figure 1. Guidelines design for the PEBA (Architectural Barriers Elimination Plan), Turin Accessibility Lab, 2024, Research context for the Accessibility Plan. Courtesy: authors

## METHODOLOGY

The theoretical foundation of this approach is grounded in the principles of Universal Design, first articulated by Ronald L. Mace, which rejects the notion that accessibility should be an optional or auxiliary consideration.<sup>4</sup> Instead, it proposes an integrative design philosophy that responds to the full spectrum of human diversity. Universal Design envisions an environment that is flexible, adaptable, and accommodating to everyone, irrespective of age, ability, or circumstance. Addressing this complexity demands a multidisciplinary effort, one that draws upon legal, social, and cultural knowledge to produce environments that are truly inclusive.<sup>5</sup> The exclusion of people with disabilities cannot be rectified through infrastructural interventions alone. It also requires confronting the deeper systemic norms and planning traditions that have historically marginalized them.<sup>6</sup> Despite legislation, PEBA's often remain unimplemented or ineffective, with poor adoption of Universal Design principles to create truly inclusive urban systems, highlighting the need for greater integration between planning and policy: although significant advancements have been made in improving the physical accessibility of urban spaces, many individuals with disabilities (whether permanent, temporary, or situational) remain excluded from crucial aspects of city life. At international level, the 2006 UN Convention on the Rights of Persons with Disabilities (UNCRPD) highlights that the environment is a key factor in either enabling or disabling an individual's ability to fully participate in society. It stresses that physical, social, and cultural environments must be designed to be inclusive and accessible, allowing people with disabilities to live independently, engage in everyday activities, and enjoy the same rights and opportunities as others. When barriers in the environment are removed, such as inaccessible buildings

or public spaces, individuals with disabilities can thrive, exercise their rights, and contribute to their communities.<sup>7</sup> This comprehensive view of accessibility is not limited to physical spaces but extends to digital environments, transportation systems, and social interactions, all of which must be aligned to foster genuine inclusivity. Therefore, Universal Design is conceived as an evolving and iterative process that permeates every phase of urban policy and spatial development. Such an undertaking also necessitates the active participation and leadership of public institutions, particularly municipal governments, whose role in implementing inclusive frameworks is critical.<sup>8</sup>

Within this paradigm, inclusive design becomes a strategic means for reactivating and enhancing existing social and physical resources within the city. It must engage with ongoing cultural and policy processes to foster urban accessibility in the most comprehensive sense. In this context, co-design emerges as a particularly effective methodological tool, capable of supporting inclusive planning through collaborative practices that involve not only individuals with disabilities but also service providers and local communities. This form of participatory research facilitates the co-creation of solutions that respond meaningfully to users' real and diverse needs.<sup>9</sup>

The development of guidelines for Turin's PEBA consisted of two main phases. The initial phase was dedicated to establishing the normative and conceptual framework, alongside an analytical mapping of user needs within public urban spaces, with a particular focus on individuals experiencing permanent disabilities. The involvement of associations in participatory activities and mapping (described below), paired with a literature review drawing on a broad range of sources, including books, scientific articles, and conference proceedings on the theme of Universal Design / Design for All with a specific focus on urban accessibility, allowed to identify and understand the key critical issues to be addressed. The literature was selected to include experiences that were comparable both geographically and culturally to the context of Turin. To ensure the relevance of the accessibility requirements derived from the literature review, the study also incorporates reference technical standards, such as the *UNI EN 17210* standard, which outlines functional requirements for accessibility and usability of built environments. Simultaneously, the project examined relevant case studies from both Italian and international contexts, identifying best practices that had been implemented in other municipalities. These included initiatives regarding existing PEBA's and Accessibility Plans developed in cities such as Trento,<sup>10</sup> which employed digital platforms to foster participatory processes by encouraging citizens to monitor the status of the work in progress and upload suggestions; Genova,<sup>11</sup> whose geoportal allows citizens to know the accessibility level of a number of public facilities, as well as access to a detailed summary sheet for each surveyed building; and Lecce,<sup>12</sup> which created a Municipal Accessibility Laboratory, a physical space dedicated to bringing citizens together and involving them in the decision-making process, promoting actions that aim to progressively involve as many people as possible. Other instructive examples were drawn from recipients of the European Commission's Access City Award—such as San Cristóbal de La Laguna in Spain and Skellefteå in Sweden—which have implemented innovative strategies for accessibility, involving improvements to transport systems, public infrastructure, and inclusive technologies. Such cities have developed programs that promote active engagement of disabled individuals in decision-making processes: among the other initiatives, San Cristóbal de La Laguna has established a Disability Council to involve people with disabilities in decision-making and an Ombudsman to independently advise the City Council on accessibility issues, while, similarly, the *Skellefteå for All 2015-2025* strategic plan focuses on increasing accessibility, awareness, and opportunities for people with disabilities, using a systematic approach in which inclusive design principles are embedded across planning, construction, and purchasing activities, and reinforced through a dedicated local framework for inclusive public environments. Progress is further supported by an ongoing assessment process that tracks implementation and outcomes over time, promoting responsibility within municipal departments and encouraging sustained attention to accessibility goals.

Enabling alignment among different urban components—ranging from street crossings to guidance systems and transit infrastructure—ensures that public spaces function effectively for all users throughout the year.<sup>13</sup>

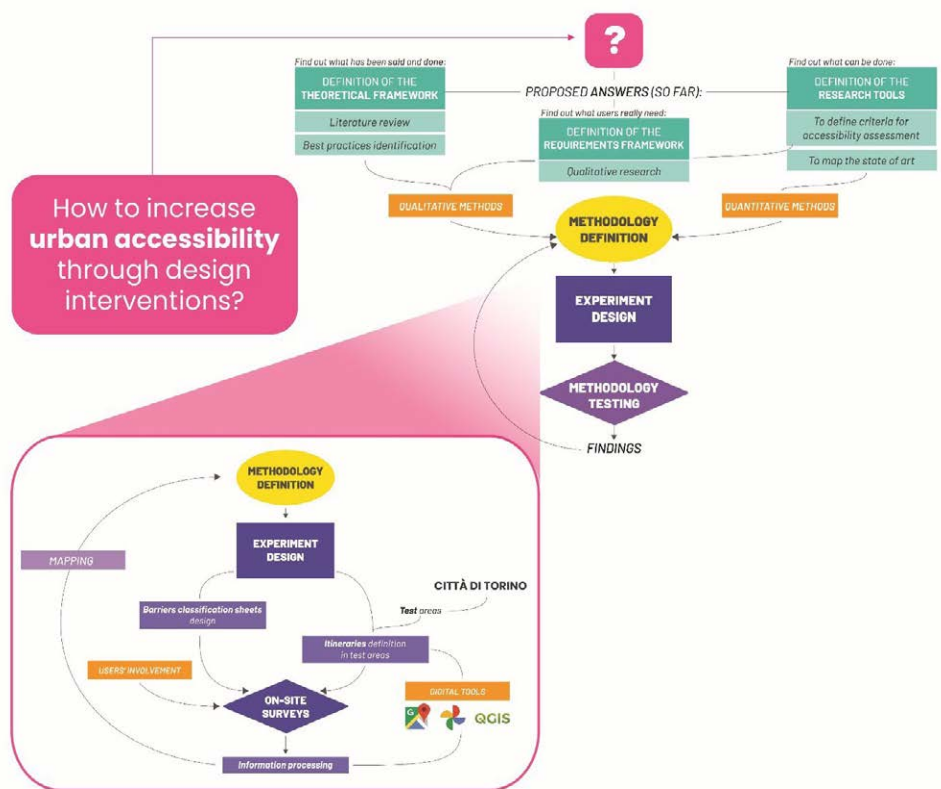


Figure 2. Guidelines design for the PEBA (Architectural Barriers Elimination Plan), Turin Accessibility Lab, 2024, Methodological outline of the project. Courtesy: authors



Figure 3. Guidelines design for the PEBA (Architectural Barriers Elimination Plan), Turin Accessibility Lab, 2024, Listing of best practices from winners of the Access City Award. Courtesy: authors

## ACHIEVED RESULTS

In the subsequent phase, attention shifted to the development of toolkits designed to aid the City of Turin in the formulation and implementation of the PEBA. A significant component of this stage involved empirical research conducted through fieldwork and the application of dedicated data collection instruments. The methodological framework was tested on selected paths and facilities across sample areas within Turin. For public outdoors spaces, for every test area designated by the municipality, crucial points of interest were identified by the researchers within TAL, pinpointing the public facilities locally present (e.g. schools, hospitals, market areas, libraries, parks, public transportation stops...). Subsequently, “functional paths” connecting them were created, along which georeferenced surveys were conducted, aiming to assess the real-world accessibility of each route by identifying both the presence of barriers and the lack of facilitators. For this purpose, a set of barrier classification sheets was created, which included both normative requirements and theoretical

recommendations organized by topic. The collected data was finally processed with QGIS software, resulting in a set of maps highlighting the main types of barriers (indicated as punctual, linear, or area-related) identified along the paths, as well as the most problematic zones of the tested area, where the highest overall number of barriers was located. A similar approach was used in the surveying of public facilities. These were in this case selected in collaboration with the municipality, in an effort to include different types in the test. This comprehensive approach ensured that a wide range of public spaces was assessed, providing a more representative view of the city's accessibility challenges. Two sets of evaluation survey and checklist for public buildings and facilities have then been designed: the first was targeted to untrained personnel with the scope of identifying if the building met the minimum legal requirements for accessibility, so as to allow for a more detailed survey, or be declared as unsuitable for public use; the second set was designed to be used by accessibility experts, whom were asked to verify in detail the presence of barriers and facilitators regarding different aspects of accessibility, some of which specific to the type of facility. These instruments allowed for the identification and analysis of not only physical but also sensory, cognitive, and cultural barriers. The resulting data provided a comprehensive overview of the accessibility conditions in the surveyed areas, establishing a foundation for future interventions.

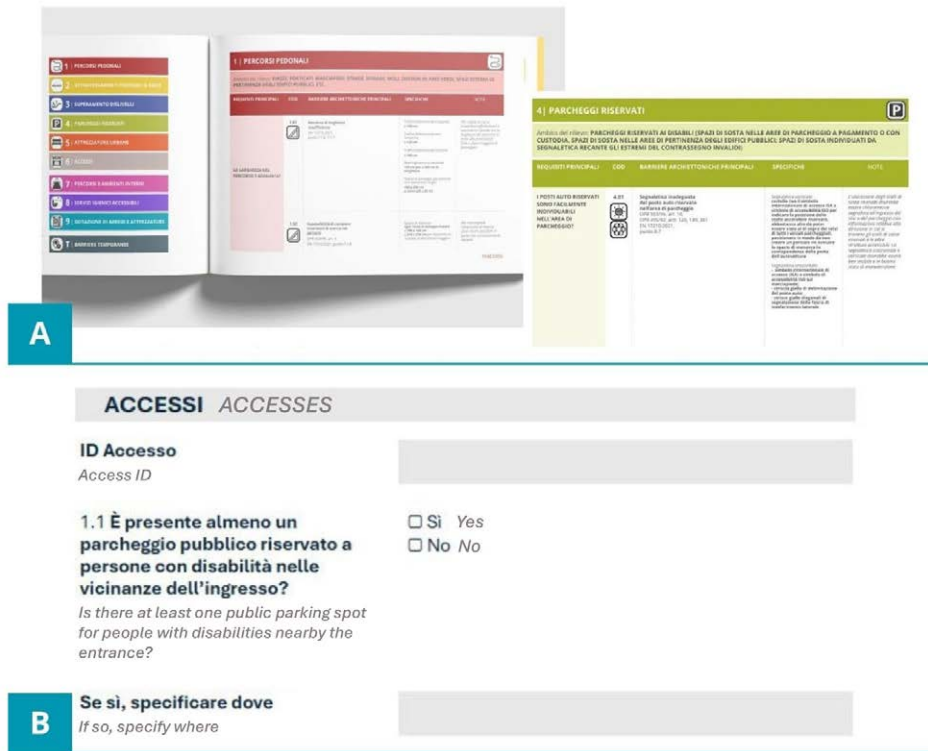


Figure 4. Guidelines design for the PEBA (Architectural Barriers Elimination Plan), Turin Accessibility Lab, 2024, Some of the meta-project results: barrier classification sheets (A), detail of public building survey sheet (B). Courtesy: authors

The analysis took account of both quantitative and qualitative dimensions, including the physical features of pathways, services and structures, as well as the legibility, navigability, and user-friendliness of public spaces. Among the main critical issues identified were the poor communication of spaces and buildings, both in terms of signage and linguistic accessibility, with information, when present, potentially excluding non-native speakers with the very limited use of languages other than Italian on

public signs; the lack of attention paid to the sensory accessibility of places (whether visual, tactile or auditory), especially for blind and visually impaired people, but also for those with cognitive disabilities and the people that, in general, have difficulties in wayfinding and orientation.. More alarmingly, the study revealed infrastructural elements that posed safety risks, such as the large number of traffic signals lacking auditory signaling and the often, in terms of proximity to the roadway, distance from the sidewalk access ramp, as well as the inadequacy of the road surface for easy access by wheeled mobility devices and people with walking difficulties. Finally, some of the identified issues were systemic, which indicated a lack of care in the design of the overall accessibility of public features: a typical example of this can be found in pedestrian crossings, where a recurring issue was the presence of a ramp on one side and a step on the other side of the road, making it dangerous and in some cases impossible to cross. These findings highlighted the urgent need for targeted improvements to enhance the inclusiveness and safety of the urban environment, but they also outlined the importance of raising awareness among urban designers and public officials on the issue of accessibility in public spaces

The project was situated within a complex urban framework, and engaged a diverse range of actors whose roles were shaped through a participatory and interdisciplinary process. Key stakeholders from the municipal administration—including the Disability Manager, city councilors, and representatives from various departments (Assessorate for City Care, Civil Protection and Civil services; the Assessorate for Welfare, Rights and Equal Opportunities; Assessorate for Ecological and Digital transitions; Assessorate for Urban planning)—played an essential role, as did second-level associations representing people with disabilities (FISH - Italian Federation for Overcoming Handicaps; FAND - Federation of National Associations for Persons with Disabilities; CPD - Council for People in Difficulty). These associations brought invaluable experiential knowledge and situated expertise to the table. The academic team, consisting of university researchers in the field of architecture and design and municipal technicians, brought methodological and technical competencies, focusing on leveraging the PEBA design to broaden the accessibility of the urban environment.

The interaction among these actors had multiple outcomes. First, it facilitated a co-design process that was structured yet adaptable, driven by continuous dialogue and mutual recognition of each participant's competencies. This dynamic was reinforced by regular round tables and feedback sessions involving both institutional representatives and local community members, aimed to collect as many information as possible regarding undertaken and ongoing initiatives, as well as major systemic criticalities. Secondly, on-site inspections and data collection enabled direct engagement with the physical context, ensuring that the design solutions were rooted in the realities of the urban environment. The placement of a researcher (PhD student and co-author of this article) within the municipal Decentralization Division for a six-month period further enriched this process, ensuring daily contact with city technicians and contributing to a more nuanced understanding of the challenges involved. Finally, through these integrated efforts co-designing guidelines for the development of the PEBA strived to spread awareness among all stakeholders, in order to make the city planning practices more inclusive and navigable for all residents.

A central feature of the participatory methodology was the realization of so-called “urban walks,” which brought together members of disability associations, municipal representatives and researchers. These walks served as both an evaluative and educational tool, facilitating the real-time observation of accessibility conditions along specific urban routes. Participants were given information about the selected route and final destination beforehand, then, leading the way, were left free to stop whenever they felt like to assess key elements such as access to public transport, the usability of pedestrian pathways, crosswalks and vehicular zones, and the accessibility of facilities such as public toilets, libraries, parks, and markets. These urban walks provided an invaluable opportunity for stakeholders to directly experience the challenges faced by people with disabilities, fostering empathy and a deeper

understanding of their needs. The qualitative insights gathered during these walks through reports from both the researching team and the participants were subsequently integrated into the evaluation criteria for public space and building accessibility.



*Figure 5. Guidelines design for the PEBA (Architectural Barriers Elimination Plan), Turin Accessibility Lab, 2024, Images from the urban walks. Courtesy: authors*

## CONCLUSION

Looking ahead, the future development of Turin's guidelines for the PEBA will need to place greater emphasis on the often-overlooked dimensions of cognitive and cultural accessibility. While the current initiative successfully addressed a wide range of physical and sensory needs, it also revealed significant gaps in the consideration of cognitive challenges, particularly those related to orientation, perception, and environmental comprehension. People with cognitive disabilities often face difficulties that stem from complex or poorly designed signage, absence of intuitive wayfinding systems, or environments that cause sensory overload. Similarly, cultural accessibility remains insufficiently addressed in many urban contexts, despite the fact that social, ethnic, and linguistic diversity is an integral part of contemporary urban life. This lack of attention to cultural factors can alienate diverse groups, limiting their access to public services and civic engagement.

Promoting cognitive and cultural accessibility requires expanding participatory design methodologies to ensure that planning processes are informed by a broader range of lived experiences. This involves engaging individuals who face barriers not only due to disability but also due to linguistic, educational, or socio-economic differences. By considering these intersecting factors, urban design can move beyond accessibility for a single group and towards inclusivity for all. Designing for cognitive and cultural inclusion entails more than collecting feedback; it necessitates the active involvement of interdisciplinary expertise from designers and architects, communication experts, psychologists, sociologists, urban planners, policymakers and the communities themselves to inform design strategies capable of embracing the full heterogeneity of users' experiences.

Ensuring public spaces are comprehensible and usable across diverse populations involves careful attention to communication design. This includes simplifying the structure of messages, using intuitive visual language, and selecting terminology that avoids excessive technical jargon. Symbolism and metaphor can also play a crucial role in conveying complex information in ways that are immediately understandable across different cultural and educational backgrounds.

Ultimately, the future of accessibility in urban contexts and the development of livable cities will depend on a sustained commitment to dynamic, interdisciplinary, and inclusive planning practices to devise innovative solutions that reflect the full spectrum of human diversity while maintaining a high standard of spatial quality and user experience. In this process, livable cities become the goal, a vision where accessibility and inclusivity are not afterthoughts but foundational principles, ensuring that urban spaces are adaptable, resilient, and capable of fostering a sense of belonging for all.

## NOTES

<sup>1</sup> Marco Bozzola et al., «Il packaging per l'utenza diversificata Metodologie e strumenti per il design dell'accessibilità», *Atti della Conferenza annuale della Società Italiana di Design*, 2024, 88–98, <http://www.societaitalianadesign.it/2024/10/29/design-per-la-diversita-2/>.

<sup>2</sup> Turin Accessibility Lab supports the City of Turin in the development of the Accessibility Plan with a working group coordinated by Daniela Bosia, with contributions from Angela Lacirignola, Cristina Azzolino, Lorenzo Savio, Francesca Raimondi, Dora Uricchio and Claudia Rolletto.

<sup>3</sup> Antonio Lauria, «Some reflections on universal design strategies», *SPECIE DI SPAZI*, 1<sup>a</sup> ed., Cluster AA Accessibilità Ambientale (IT: Antefirma Edizioni Srl, 2023): 398–404, <https://doi.org/10.57623/979-12-5953-089-9>.

<sup>4</sup> Ronald L. Mace, «Universal design: Barrier free environments for everyone», *Designers West* 33, fasc. 1 (1985): 147–52.

<sup>5</sup> Inger Marie Lid, «The Particular and the Universal. Reflections on Knowledge Production, Human Diversity and Human Rights in Universal Design», *Studies in Health Technology and Informatics* 303 (giugno 2023): 53–58, <https://doi.org/10.3233/SHTI230399>.

<sup>6</sup> Barbara Chiarelli e Ilaria Garofolo, «Accessibility Beyond Architectural Barriers: How to Broaden Perspective and Elevate Design Culture in Italy», in *Proceedings of the 11th International Conference of Ar.Tec. (Scientific Society of Architectural Engineering)*, a c. di Rossella Corrao et al. (Cham: Springer Nature Switzerland, 2025), 611:332–44, [https://doi.org/10.1007/978-3-031-71863-2\\_21](https://doi.org/10.1007/978-3-031-71863-2_21).

<sup>7</sup> Giulio Borgnolo, ed., *ICF e Convenzione ONU sui diritti delle persone con disabilità: nuove prospettive per l'inclusione* (Gardolo, Trento: Centro studi Erickson, 2009).

<sup>8</sup> Lilian Müller, «Who Are We Building for? Tracing Universal Design in Urban Development», in *Studies in Health Technology and Informatics*, a c. di Ilaria Garofolo e Giulia Bencini (IOS Press, 2023): 3–9, <https://doi.org/10.3233/SHTI230392>.

<sup>9</sup> Cloe Benz et al., «Community-Based Participatory-Research through Co-Design: Supporting Collaboration from All Sides of Disability», *Research Involvement and Engagement* 10, fasc. 1 (maggio 2024): 47, <https://doi.org/10.1186/s40900-024-00573-3>.

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<sup>10</sup> «Piano di eliminazione delle barriere architettoniche e sensoriali», Comune di Trento, accessed September 1, 2025, <https://old.comune.trento.it/Aree-tematiche/Lavori-pubblici/Piano-di-eliminazione-delle-barriere-architettoniche-e-sensoriali>.

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<sup>13</sup> Isabella Tiziana Steffan e Marie Denninghaus, «Awards as Tools to Implement Inclusion and Accessibility in the Built Environment», in *Proceedings of the 20th Congress of the International Ergonomics Association (IEA 2018)*, a c. di Sebastiano Bagnara et al. (Cham: Springer International Publishing, 2019), 824:1516–23, [https://doi.org/10.1007/978-3-319-96071-5\\_155](https://doi.org/10.1007/978-3-319-96071-5_155); Radoslav S Hristov, «Making Libraries Accessible: The Vision of Access City Award Winners», *IFLA Journal* 50, fasc. 1 (marzo 2024): 7–15, <https://doi.org/10.1177/03400352231219671>.

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Front cover image: Kontostudenta

Instituto Universitário de Lisboa

9-11 July, 2025

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