

Walking as a Spatial Experience: Developing Pedestrian Accessibility Standards through Survey-Based Evidence

Abstract

The primary objective of the ongoing project is the development of comprehensive pedestrian accessibility standards intended to support the creation of inclusive, safe, and functionally coherent spatial environments. These standards are conceived as practical instruments for spatial planning and governance, addressing both infrastructural design and broader organizational conditions that shape everyday pedestrian movement. One of the key components of this standard-setting process is a survey-based study of users' experiences. This paper presents the results of that survey and demonstrates how empirical evidence derived from everyday pedestrian practices can inform and strengthen the formulation of accessibility standards.

Walking is the most fundamental and universally available form of mobility. Despite its apparent simplicity, it is deeply embedded in spatial structures, social relations, and institutional arrangements that shape everyday life. In recent years, pedestrian accessibility has gained renewed importance within debates on sustainable mobility transitions, inclusive growth, spatial justice, and territorial cohesion. However, discussions on walkability frequently remain limited to technical and infrastructural parameters, such as sidewalk width, network connectivity, intersection density, or crossing design. While these indicators are indispensable for assessing physical conditions, they do not fully capture walking as a lived and embodied spatial experience. Perceptions of safety, comfort, legibility, autonomy, and social inclusion emerge at the intersection of built environment characteristics, governance practices, and user diversity.

Importantly, pedestrian accessibility is increasingly recognized as a cross-cutting policy issue linking transport planning, public health, environmental sustainability, and social policy. In this sense, the development of pedestrian standards cannot be treated as an isolated technical exercise but must be understood as part of broader territorial strategies. The quality of pedestrian environments influences not only mobility patterns but also patterns of social interaction, economic participation, and spatial inclusion. Therefore, integrating user-based evidence into accessibility standards contributes to more coherent and socially responsive regional development frameworks.

Within the framework of the project, pedestrian accessibility standards are understood not merely as technical guidelines but as regulatory tools that influence the quality of everyday spatial experience. The survey constitutes a diagnostic and evidence-generating element of this broader initiative, ensuring that the standards are grounded not only in engineering norms and formal regulations but also in the lived realities and needs of diverse users. By integrating experiential knowledge into the

formulation of normative frameworks, the project advances a user-centered and evidence-based approach to spatial planning and regional policy.

The conceptual framework of the study draws on three interconnected strands of literature. First, it engages with research on walkability and urban form, which emphasizes connectivity, continuity, safety, permeability, and infrastructure quality as determinants of pedestrian-friendly environments. Second, it builds upon principles of inclusive and universal design, highlighting the necessity of accommodating diverse user groups, including persons with disabilities, older adults, caregivers, and individuals experiencing temporary mobility limitations. Third, it is informed by debates on spatial justice and territorial cohesion, which underline that uneven spatial arrangements may reproduce inequalities in access to public space, services, and everyday mobility opportunities.

Within this theoretical perspective, walking is conceptualized not merely as transport behavior but as a mode of spatial engagement and interaction with the built environment. Pedestrian accessibility is treated as a multidimensional construct encompassing physical, informational, organizational, and perceptual dimensions. Physical accessibility refers to infrastructure quality, surface conditions, gradients, crossings, curb design, and the continuity of pedestrian routes. Informational accessibility concerns signage, wayfinding systems, spatial legibility, and the clarity of navigation. Organizational accessibility relates to maintenance regimes, temporal availability, management practices, and institutional responsibility for pedestrian environments. Perceptual dimensions include subjective assessments of safety, comfort, autonomy, and inclusion. This multidimensional understanding aligns with contemporary regional studies approaches that interpret accessibility as a central condition for inclusive, resilient, and socially cohesive territorial development.

Such a multidimensional perspective also allows for bridging quantitative and qualitative understandings of accessibility. While infrastructure standards typically rely on measurable criteria, user perceptions introduce relational and contextual elements that may vary depending on time of day, weather conditions, density of use, or social context. Recognizing these interactions enhances the analytical depth of the study and supports the formulation of standards that are both technically precise and socially meaningful.

The empirical component of the project consists of an online survey distributed to a broad and diverse group of respondents. The survey instrument includes closed-ended questions assessing perceived quality and accessibility of pedestrian infrastructure, Likert-scale evaluations of safety, comfort, and spatial legibility, and items identifying experienced barriers, whether infrastructural, informational, or organizational. It also captures frequency and purposes of walking, as well as socio-demographic variables enabling subgroup comparisons. Open-ended questions provide space for respondents to describe specific spatial situations and challenges in greater detail, thereby complementing quantitative patterns with qualitative insights.

In addition to identifying individual barriers, the survey enables the exploration of cumulative effects, where multiple minor deficiencies may together create significant accessibility constraints. This approach supports a more systemic understanding of pedestrian environments, moving beyond isolated infrastructural elements toward network-level assessment. The integration of quantitative and qualitative responses strengthens the reliability of the findings and enhances their applicability within the standard-setting framework.

The analytical strategy combines descriptive statistical analysis with comparative approaches across user groups. The study seeks to identify recurring patterns in perceived accessibility and to explore how these perceptions vary depending on socio-demographic characteristics, mobility conditions, and intensity of everyday walking practices. Where appropriate, multivariate analytical techniques are employed to examine relationships between infrastructural characteristics and perceived levels of safety, comfort, and inclusion. Particular attention is given to identifying structural regularities that may indicate uneven spatial conditions and differential exposure to pedestrian barriers across territories and user categories.

The findings presented in this paper contribute directly to the formulation of pedestrian accessibility standards. By systematically identifying recurrent barriers, infrastructural shortcomings, and areas of dissatisfaction, the survey results provide an empirical basis for defining guidelines related to route continuity, surface quality, crossing design, curb accessibility, lighting conditions, wayfinding systems, and organizational practices. In this sense, the study does not merely describe pedestrian experiences but translates them into normative and operational principles for spatial regulation and planning.

From a regional development perspective, strengthening pedestrian accessibility supports multiple policy objectives. It contributes to sustainable mobility strategies by encouraging non-motorized transport and reducing dependence on private vehicles. It enhances social inclusion by improving conditions for independent mobility, particularly for vulnerable user groups. It fosters territorial cohesion by reducing disparities in spatial access and by addressing uneven infrastructural conditions that may reinforce socio-spatial inequalities. Embedding user-based evidence into the development of accessibility standards reflects contemporary governance approaches that emphasize participation, co-production, accountability, and responsiveness in public policy design.

Ultimately, the project demonstrates that pedestrian accessibility standards should not be conceived as purely technical instruments detached from lived experience. Instead, they must be grounded in empirical knowledge of how space is used, perceived, and negotiated in everyday contexts. By integrating survey-based evidence into the standard-setting process, the research bridges the gap between technical regulation and everyday spatial practice and reinforces the role of pedestrian policy within broader regional development strategies. This approach also strengthens the practical applicability of the standards and

supports their consistent implementation in diverse territorial contexts. Improving pedestrian environments is therefore not solely a matter of infrastructure provision or technical compliance, but a broader question of governance, social equity, and sustainable long-term territorial cohesion.