

# The Role of Urban Green Infrastructure in 15-minute Cities

Mahtab BaghaiePoor<sup>1</sup>

<sup>1</sup> Chair of Urban Structure and Transport Planning, School of Engineering and Design, Technical University of Munich, German

## Keywords

Urban Green Infrastructure, Active Mobility, Comfort

## Introduction

The concept of 15-minute cities, characterized by their emphasis on walkability and cyclability, has gained prominence in urban planning, especially after the COVID-19 pandemic (Moreno et al., 2021). Infrastructure qualities are integral in providing accessibility and impact individuals' daily transportation mode choice decisions. Despite existing research, there is a notable gap in understanding the nuanced role of Urban Green Infrastructure (UGI) as a multifaceted system encompassing various elements and services. Existing literature predominantly treats 'greenery' as a singular factor, overlooking the diverse components within UGI (Vich et al., 2019).

Another fundamental strategy to promote a shift in daily mode choice decisions towards active mobility lies in the necessity of capturing user experience in mobility in urban settings (Müller & Meyer, 2019). User experience encapsulates the multifaceted dimensions of an individual's interaction with the urban environment during their daily commute. It goes beyond the physical act of movement, encompassing emotions, perceptions, and the overall quality of the journey. By delving into user experiences, planners gain insights into the factors that either encourage or discourage the adoption of active modes, providing a foundation for evidence-based decision-making.

While accessibility remains a central focus, this study delves into the delicate aspects of user experience, specifically examining the impact of urban green infrastructure (UGI) on comfort and pleurability of walking and cycling. This research seeks to dissect UGI into its diverse elements and services, aiming to uncover its influence on daily travel decisions. From well-maintained sidewalks to dedicated cycling lanes and green corridors, the insights derived from understanding the user experiences contribute to the creation of environments that encourage and support active mobility.

## Methodology

To delve into the interactions of UGI with daily user experience of pedestrians and cyclists, this study employs a 2-phase approach:

- 1- **Quantitative phase** that forms the general understanding of the role of UGI in 15-minute city. This step addresses the question “What is the role of UGI in 15-minute city?” through a designated survey distributed in the city of Munich.
- 2- **Qualitative phase** that focuses on the perceptions and experience tracking to expand our perspectives on how different UGI elements and qualities are effective in everyday walking and cycling trips for the residents of Munich. User experience takes center stage in this study, acknowledging that the effectiveness of 15-minute cities extends beyond mere accessibility. Live experiences and perceptions are captured through a combination of travel diaries and think-aloud protocols, providing a holistic understanding of the participants' interactions with their surrounding environment. The research focuses on a diverse sample, including 10 cyclists and 10 pedestrians, tracked over a two-week period during the winter of 2023. Additionally, through UGI-focused walk-along interviews, all participants of the two cohorts are inquired on a common route carefully chosen to include different typologies of streets and UGI coverage percentage, to reflect specifically on their UGI-related impressions and preferences.

## Expected Results

The results of this study are expected to shed light on the specific types and qualities of UGI elements that contribute to a comfortable walking/cycling experience. By analyzing the data collected from the participants' daily routines, the research aims to pinpoint areas for improvement within the urban green infrastructure. This research underscores the significant potential of green infrastructure in shaping the quality of life and travel behavior within the context of 15-minute cities. The findings advocate for the incorporation of UGI as a core principle in the 15-minute city, emphasizing its ability to go beyond mere aesthetics and contribute to the overall comfort and pleasurability of daily walking and cycling commutes.

## References:

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