



# Participatory Mapping to Improve Elderly Mobility

2025

*The Sketch Map Tool was used within the Silver Ways project, which aims to enhance mobility for senior citizens. In Mannheim, the team conducted a series of participatory mapping workshops with different elderly groups across the city, ranging from women's gymnastics groups to active seniors living together in the same apartment complex.*



## The Project

The Silver Ways project aims to improve the mobility and quality of life of older adults by developing a routing system specifically tailored to their needs. Instead of focusing on the shortest path, it promotes age-friendly walking routes and contributes to creating a 15-Minute Neighborhood Index, identifying areas where essential services can be reached within a short, comfortable walk.

The project progresses through three stages: walkability mapping to document how older adults move through their environments, route personalization to understand their preferences and obstacles, and the creation of a 15-Minute Neighborhood Index that translates this data into an age-friendly accessibility measure. The index can therefore be implemented as a support tool in decision-making processes in urban and spatial planning as well.



**SketchMapTool**

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## Why the Sketch Map Tool was used?

Collecting travel diaries and mobility experiences from older adults can be difficult using traditional digital or survey-based methods. The Sketch Map Tool was chosen because it provides a low-threshold, inclusive, and open-source way for participants to record their experiences. It is particularly suitable for this age group, as many seniors are more comfortable working with paper maps and can therefore draw their routes and impressions more naturally. It allows them to mark their usual walking routes, note pleasant areas and barriers, and express perceptions of comfort, safety, and accessibility.

## How was the Sketch Mapping organized?

In Mannheim, participatory mapping workshops were conducted with various elderly groups. Participants were invited to annotate printed maps (based on OpenStreetMap or satellite imagery) with their regular walking routes, highlighting enjoyable areas as well as challenges like uneven sidewalks, missing benches, or heavy traffic. Each workshop included 15 to 40 participants aged 65 to 90, capturing a wide range of mobility needs and everyday challenges.



Introducing the project to the workshop participants.

## How were the Sketch Maps analyzed?

The sketched walking routes collected from seniors were first processed using the Sketch Map Tool, which automatically extracted the drawn paths into digital GeoJSON files. When necessary, these outputs were manually corrected in QGIS, using the corresponding GeoTIFFs generated by the tool as reference layers. After all routes were verified and adjusted, they were aligned with the routable street network of the research area. The finalized routes were then analyzed through several spatial indicators, including elevation changes, the quality and width of pedestrian facilities, and the presence of green spaces and resting opportunities along the way.

## Results and Impact

The participatory mapping revealed how seniors perceive and navigate their urban environments. These insights fine-tuned the design of the Silver Ways routing system and the 15-Minute Neighborhood Index, ensuring it reflects real-world needs rather than purely technical criteria.

The approach strengthened community participation, empowered seniors to share their experiences, and demonstrated the value of human-centered data in designing inclusive cities.

## Lessons Learned

When working with older adults, it is essential to account for variations in physical and visual abilities. These differences affect both the choice of map scale and the design of workshop materials. Many participants had difficulty orienting themselves without clearly marked landmarks (e.g., supermarkets, street names), often due to limited spatial vision or visual impairments. Participants also varied in their walking range: residents of senior housing typically moved within their immediate neighborhood, making smaller, detailed map sections more appropriate, while fitter participants or visitors from different areas required larger, city-wide maps. It can therefore be useful to provide multiple map scales tailored to different needs. Assistance needs also varied widely; workshop staffing should be adapted to group size, ideally including a familiar caregiver to support trust and communication.

Finally, the tool currently struggles to detect hand-drawn lines accurately, often requiring manual digitization of these features.

Sources

[1] <https://www.silverways.org/>

