

# Mapping the X-Minute City: Visualizing how different types of residents interact with their “15-Minute Cities”

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**This thesis explores the diversities between different types of urban residents in the context of the 15-Minute City. The result is a prototype visualization for the study area that showcases variations between different user groups and how this is a shift from existing representations of the concept in maps and literature.**

## BACKGROUND

The 15-Minute City is an urban planning model that has seen widespread attention in recent years as it presents a promising approach to improve urban life and plan for environmental resilience. The concept was originally proposed in 2016 by Carlos Moreno and focuses on the neighborhood unit and hyper-proximity, promoting the idea that residents should be able to access their essential needs within a 15 minute walk or bike ride [1]. Many previous studies that address the 15-Minute City focus on a one-size-fits-all approach and often overlook the different needs and limitations that different types of residents may face in an urban area, adapting modeling techniques that focus on the “average person,” that ignore the intricacies that arise when considering the needs of different user groups [2]. This thesis focuses on the differences in ability between groups segmented by age or life stage, breaking the population into five groups: child, young adult, parent, retiree, and elderly

## METHODOLOGY

This research utilizes a mix of qualitative and quantitative methodology to explore the diversities between the selected user groups.

The qualitative component involved a review of existing maps and literature to

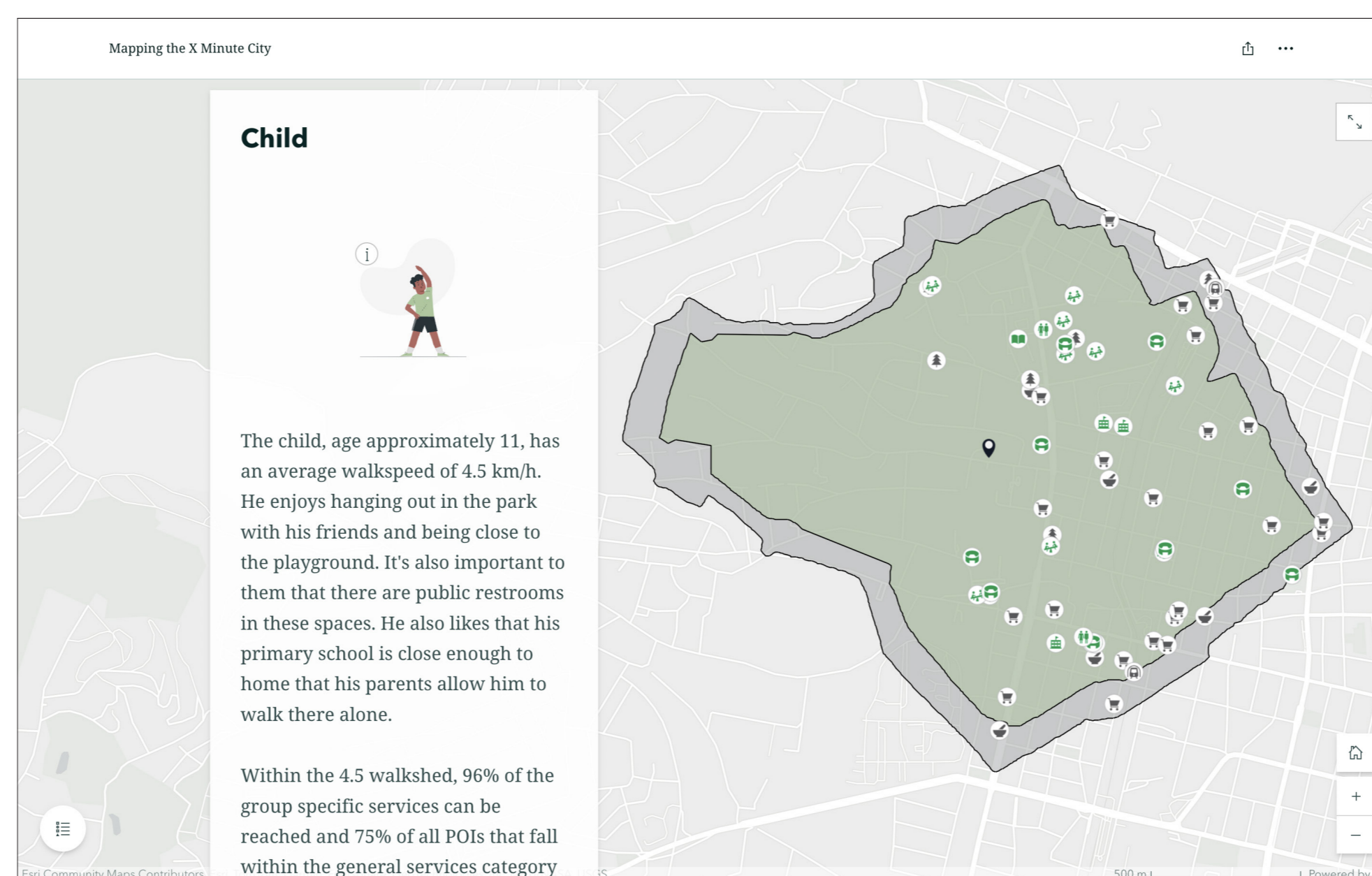


Fig 2: Screenshot of final StoryMap featuring the “Child” group

decide on what walkspeeds and urban amenities are most important for each user group. Expert interviews were conducted to decide on the urban amenities for each group.

In order to model the walking areas of each of the user groups, to represent their “15-Minute Cities” the QGIS plugin QNEAT3 was used to generate walking areas based on the different walkspeeds. This plugin requires a network as input data, however the existing data available for Vienna sidewalks network is inconsistent and needed to be adapted using a custom python script and manually correction. Figure 1 shows the sidewalk network for the area before and after correction.

After setting up the sidewalk network, six walkshed areas were generated, one for each of the five chosen groups based around group specific walkspeed, and a sixth walkshed that represented the baseline walking speed of 5 km/h.



Fig 1: Sidewalk Dataset Utilized in for Walkshed Generation (left: uncorrected; right: final version)

## ANALYSIS & PROTOTYPE

The final prototype (Figure 2) is a StoryMap that explores how the changes between different user groups at one address in the 16th district - Ottakring - in Vienna, Austria. The visualization, which can be explored by scanning Figure 3, presents an interactive narrative that guides users through the experiences of the five groups, highlighting the walking distance ability and the different amenities that are necessary for each group. To highlight variations in accessibility, two metrics were developed to show how service coverage varies between each group and the baseline, these are shown in the StoryMap.

## CONCLUSION

The analysis and prototype revealed a significant variation in how different resident groups experience the 15-Minute City based on walking speed and specific needs. While younger, more mobile populations like young adults and parents experience minimal reductions in access to amenities, retirees and the elderly face steep declines in their ability to reach essential services. This points to a critical concern within the 15-Minute City framework: proximity is not uniform for all groups. Future work should address how variations appear in other types of user groups, beyond age.

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## KEYWORDS

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Figure 3:  
Scan the QR Code to  
view the final StoryMap

## REFERENCES

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