

# **The perceptions of elderly people on public spaces**

Towards an Age friendly city

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*How do elderly people perceive Arnhem's public spaces and what do these perceptions reveal about inclusivity and social cohesion?*

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# Summary

Due to population aging, there is an increase of elderly people in cities which means that the structure of the urban population is changing. Cities and their governing municipalities must adapt their city planning to accommodate these changes. Public spaces are crucial in this process, because they are used by everyone in their daily lives for all kinds of reasons: for travelling, recreation, but also social interaction. This research aims to identify the importance of public space in Arnhem among elderly people with the following research question:

*How do elderly people perceive Arnhem's public spaces, and what do these perceptions reveal about inclusivity and social cohesion?*

This question is broken down into four sub-questions:

1. How accessible are Arnhem's public spaces for elderly people in terms of mobility and infrastructure?
2. How do elderly people in Arnhem's public spaces perceive safety and a sense of connectedness?
3. In what ways do public spaces in Arnhem hinder or foster social interaction for elderly people?
4. To what extent do elderly people feel their needs are considered in the planning and design of Arnhem's public spaces?

Taking a qualitative approach this study tries to contribute to the framework of age-friendly cities as proposed by the WHO by combining the perceptions and experiences from the elderly in Arnhem with existing national and global frameworks on public spaces. The findings offer insights in becoming an age friendly city in the Dutch context and can contribute to the creation of sufficient public spaces for all ages.

The data from this research comes from semi-structured interviews with respondents aged 65-years and older in Arnhem and the surrounding areas. From the interviews it becomes clear that the elderly in Arnhem are generally very positive about their perceptions and experiences with public space. The public spaces are inclusive and many of the public spaces also make an important contribution to the social cohesion among the residents of Arnhem and sometimes on a smaller scale among the residents of the neighbourhood.

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# 1. Introduction

Public spaces are important spaces in all our everyday lives. We make use of them every day to get to work, for shopping and for our recreational activities. Public spaces like streets, squares and parks serve as spaces that connect the destinations we need to get to. Besides commuting through these spaces, social interaction is as much of an important aspect of public spaces. As cities are changing so are public spaces. That is the reason why public spaces need to be planned and changed into the needs of the future. Demographic trends can cause a change in spaces.

One of these demographic trends is population aging. In areas with good health the proportion of elderly people tends to grow. Due to a higher life-expectancy, people are getting older. This is mostly combined with decreasing birth rates with the consequence of a lower proportion younger people within the population. In the Netherlands the trend of population aging is also apparent. The graphs below show the age pyramid of the Netherlands in 2024. CBS (2024a) has forecasted that in 2025, 3.7 million people aged 65 years or older will live in the Netherlands that is about 20,5% of the total population.

## Bevolkingspiramide

### Leeftijdopbouw Nederland 2024

Totaal: 17 943 000 inwoners

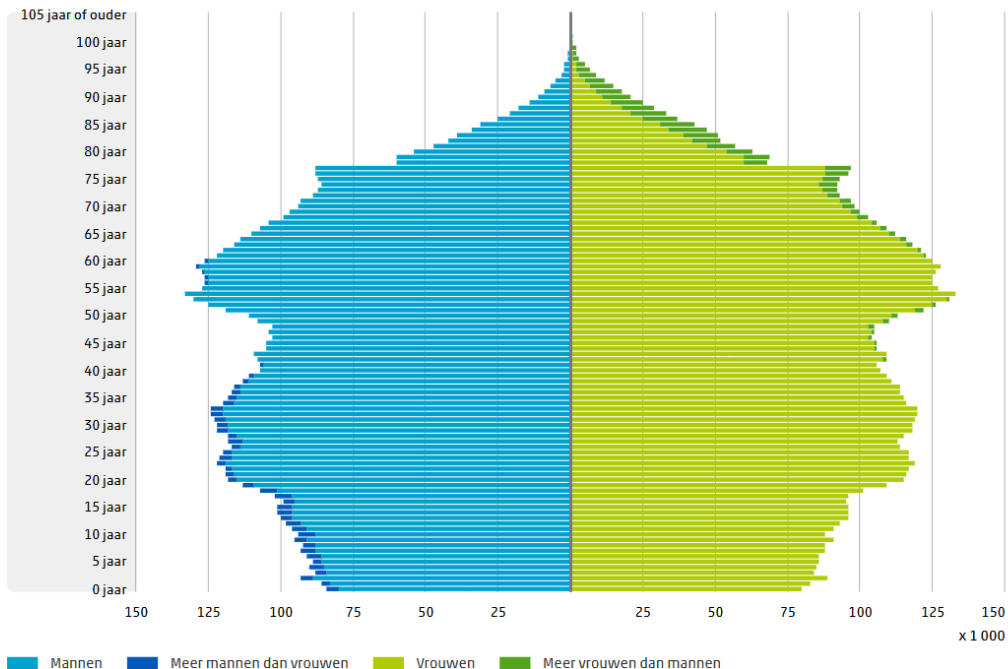


Figure 1: Age Pyramid of the Netherlands in 2024 (CBS, 2024)

## 1.1. Research objective

A changing distribution of the population requires a change in the approach to city planning. The objective of this research is to dive deeper into the meaning of public spaces for elderly people, people aged 65 years or older, to find out the important elements of public spaces for this age group. I am intrigued to learn more about the way cities could and should adapt to a changing population distribution, especially with regard to public spaces. Public spaces are a unique part of urban areas, because they form a big part of all our daily lives, because when stepping outside your house on the streets you are already using public space. Public spaces are open for everyone and should be easy to use by all users. To create public spaces that are satisfactorily experienced by their users, it is important to listen to these users while creating these places.

## 1.2. Research question

For this research the perception of elderly people will be related to the concepts of inclusivity and social cohesion of public spaces. Inclusivity in this research is about the possibility to participate or make use of public space no matter the age. The concept of social cohesion with respect to public spaces is about the feeling of connectedness to other place and people. This will all be brought together with the help of the following research question:

*How do elderly people perceive Arnhem's public spaces and what do these perceptions reveal about inclusivity and social cohesion?*

This research question came about, because I am curious to find out the importance of public spaces from the people who make use of them. The manner in which elderly people perceive public spaces can tell something about the inclusivity and social cohesion within public spaces. When public spaces are positively experienced by the elderly they are likely to be inclusive to this age group. With the perceptions of the elderly on public space their view of connectedness can be derived and in turn tell more about social cohesion in public space.

In order to properly research this question, several sub-questions are formulated which all cover a part of the bigger question.

5. How accessible are Arnhem's public spaces for elderly people in terms of mobility and infrastructure?
6. How do elderly people in Arnhem's public spaces perceive safety and a sense of connectedness?
7. In what ways do public spaces in Arnhem hinder or foster social interaction for elderly people?
8. To what extent do elderly people feel their needs are considered in the planning and design of Arnhem's public spaces?

The first question sees public spaces more as connection zones between certain places and relates best to the concept of inclusivity in the main question. Accessibility is an important aspect of inclusivity and is about the convenience for users to access the destinations

through the public spaces. Also the physical infrastructure is a part of the accessibility. The second question addresses both the sense of safety and belonging. Both of these can impact the feeling of inclusivity and social cohesion in public spaces. For the feeling of safety goes that people probably feel less connected to a place which has an unsafe feeling. Connectedness with a place is also important to feel inclusive and cohesive with other users of a space. The third question focuses mostly on the aspect of social cohesion as it is about the social interactions of people in the spaces. The last question addresses inclusivity in the sense of planning the spaces and being able to make your voice heard.

### 1.3. Societal relevance

Due to population aging in the Netherlands public spaces will be used more by elderly people. While many of the elderly have long been users of these spaces, their needs are changing, because of growing older. This research attempts to contribute to the improvement of public spaces for a changing population structure, by examining the perceptions of elderly people on public spaces. These perceptions can in turn give information about the things that make current public spaces good for the elderly and what still can be improved by future spatial planners for municipalities. In this case through the perspective of elderly people in Arnhem. It is important to note that public spaces are usually not specifically created with a certain target group in mind, but for everyone. This does mean that public spaces should be inclusive for all people, including the elderly. Making public spaces inclusive for this age group is often a challenge for example due to things as limitations in mobility or a lack of representation of the elderly when designing public space (Woodbridge-Dodd, Horton, Graham & Taylor, 2024).

### 1.4. Scientific relevance

Demographic changes like population aging reshape interactions and practises within urban area's (Longhi et al., 2018). As a consequence cities should adapt and rethink their urban planning policies in order to assure a high quality of life to their residents when they grow older. Cities need to become age friendly, which means that cities should offer an environment where residents can grow older whilst still be able to actively participate in the community (Fitzgerald & Caro, 2014). The World Health Organization (2023) has a framework for the realisation of age friendly cities and the university of Manchester devoted a research group to this matter (McGarry, Yarker, Doran & Buffel, 2024).

This research attempts to contribute to this concept of age-friendly cities by identifying age-friendly urban public spaces in the Netherlands. This study builds on studies like Van Melik & Pijpers (2017) about the use of semi-public spaces by older people and a study by Korbee & Koster (2014) examining possibilities and limitations of exercise in public spaces, while also taking into account the advice report from the 'Raad van Ouderen' about the desired facilities in public spaces (Geluk, Kremer, Meijnhardt, Nijhof, Roes & Wesselink, 2024).

This research will build on both the knowledge on global and on national scale and tries to contribute to the concept of an age friendly city. An attempt will be made to contribute to the framework of assessing age-friendly initiatives, as this framework does not fully exist (Steels, 2015). By combining the perspectives of the elderly people in the city of Arnhem with the many frameworks, reports and research about public spaces and elderly people, the concepts of inclusivity and social cohesion in public spaces will be examined. These findings can offer new insights in becoming an age friendly city and can contribute to the creation of sufficient public spaces for all ages.

## 2. Theoretical framework

### 2.1. Gerontology

Gerontology, or the study of aging people examines all the social, psychological and biological changes in humans as they age (Wahab & Ajiboye, 2020) and is spread across many research fields: from biology to the social sciences including human geography. The social branch of gerontology investigates the impacts of aging on interactions with other generations and tries to develop a bigger understanding of the change of experiences in different age groups (Wahab & Ajiboye, 2020). Understandings of being and growing old differ between societies and cultures and vary across time.

Within social gerontology, several theoretical perspectives address the concept of successful aging. Successful aging is defined as high physical, psychological, and social functioning in old age without major disease and takes a multidimensional approach (Urtamo, Jyväkorpi, Strandberg, 2019). The 'disengagement theory', 'activity theory', and 'continuity theory' each offer a view on this concept of successful aging.

The disengagement theory describes how elderly people naturally disengage from life and social relations by losing social ties and abilities to engage (Nickerson, 2023). Cummings & Henry (1961) argue that a desire and acceptance for taking this step back from active life is desirable for successful aging. However, this theory has many critics, mainly because the withdrawal from active life is in most cases involuntary (Marshall & Clarke, 2007).

The activity theory followed as response from the disengagement theory and argues that elderly people who are more actively involved are generally happier. Lemon, Bengston and Petersen (1972) argue that particularly informal activities have the most effect on life satisfaction. Critics of the activity theory assert that actively engaging in activities contributes to happiness across all ages, not just the elderly (Wahab & Ajiboye, 2020).

The continuity theory is a response to the previous theories and suggest that maintaining the same activities and practices as before is positive for successful aging, because this continuity promotes social stability (Nickerson, 2023). A criticism is that this theory does not account for diseases which will impact the lives of aging individuals (Drew, 2023).

This concept of successful aging together with the three theories and its critiques show that social gerontology is very much connected to both inclusivity and social cohesion. The

possible changes that come together with growing old regarding engaging with places and people can change the feeling of inclusiveness and cohesiveness with the surroundings. Living an active life or to being able to continue regular practices when growing older can be influenced by and sometimes depends on the extent to which public spaces are inclusive to the elderly.

This relates to environmental Gerontology which is another field of gerontology and tries to understand the environmental experiences of growing old (Rowles & Bernard, 2013). This field of gerontology links growing old to both residential and public spaces. Within public spaces mobility is an important concept especially related to elderly people, because of a gradual decline in physical capacity. Because mobility is part of everyday life it is important to support outdoor mobility. For the elderly one of the main priorities is to maintain independence in their daily activities (Iwarsson, Ståhl, Löfqvist, 2013). Staying home may result in passivity which in turn often means less participation in social life and less physical exercise. Steep roads, irregular walking surfaces and the lack of benches for rest are some of the main barriers for outdoor mobility in old age, but also personal factors play an important role. Factors like age, sex or feelings of safety in public spaces can refrain the elderly from going outside. Next to that elderly people feel a lack of understanding from other users (Iwarsson, Ståhl, Löfqvist, 2013).

This lack of understanding can and often times does lead to a feeling of exclusion. When thinking about the environment for elderly people lifestyle should also be considered. For many people there is still a desire to keep belonging to society and keep engaging with others. Rather than segregated spaces, spaces should accommodate the needs of multiple generations: “A key point here is that it is not enough to create universally designed spaces; rather, it is important to create spaces that actually promote intergenerational exchange and nurture a sense of community” (Thang & Kaplan, 2013). Public spaces should encourage intergenerational interactions and cooperation. These spaces should become an inclusive environment for all generations while at the same time considering distinct needs for specific age groups (Thang & Kaplan, 2013).

## 2.2. Population aging

The study of aging is connected to population aging and with that the demographic transition theory. This theory proposed by Thompson (1929) describes changes in the mortality and fertility rates from countries across the world in relation to the total population. The demographic transition shows different stages of the rapid population growths in a given country. In different stages Thompson describes how better health conditions lead to a decrease of the mortality rate. Combined with a high fertility rate, this leads to a big increase in population. Healthier environments lead to a decrease in the fertility rate and the slow stagnation of the population growth (Roser, 2019). This last phase is where population aging comes in. Fewer people being born along with decreasing mortality rates, means that the amount of older people relative to the general population will increase. One of the most important points of critique of the demographic transition theory is that the theory is overgeneralized. Countries will not all follow this linear path, because there are more factors

at play than just the fertility and mortality rates, like migration and birth control programmes (Kirk, 1996). Yet, despite its shortcomings this theory offers a good understanding of the concept of population aging.

The consequences of population aging are spread across all parts of society and can be different for every country. For example, in Malaysia the elderly live mostly in rural areas which poses challenges with regards to accessing healthcare (Ismail, Wan Ahmad, Hamjah & Astina, 2021). In the Netherlands there is a bigger pressure on the declining working population to pay for the retirement benefits of a growing retired population (NPO Kennis, 2023). Next to that is an expected increase in the healthcare expenditure by the Dutch government (RIVM, 2024).

It is however also important to note that population aging should not only be connected to problems and challenges. It is a positive development that more and more people grow older in good health across the world. People living longer and healthier also gives opportunities for more and longer participation in society (Van Nimwegen, 2012).

### 2.3. Age friendly cities

One of the responses to population aging together, with urbanization is the age friendly city initiative. Age friendly cities as introduced by the World Health Organization are an initiative “to create societies that accommodate all age groups” (WHO, 2023). This is similar to the term of intergenerational spaces, because they both highlight the importance of inclusivity of all age groups and interactions across age groups in space. Intergenerational spaces put on top of that extra emphasis on meaningful interactions and engagement between different generations.

The WHO (2007) makes use of the active aging framework. Older people should be enabled to age actively by continuing to participate in social, cultural, economic and civic matters. With this in mind, cities should be made friendly for all ages, not just for the elderly. Cities should be planned while anticipating different users instead of designing for the average user. With the help of a checklist relating back to themes as outdoor spaces, transportation and social participation cities should be inclusive to everyone.

For elderly people growing old in rural areas comes with benefits. A big natural environment with peace and tranquillity and often a higher level of connectedness with the community are all benefits (Rey-Beiro & Martínez-Roget, 2024). Others prefer to grow old in the city. Cities offer a big transport network and due to globalization contact with diverse groups. Growing old in the city also comes with benefits, because there is a higher social participation among elderly people with access to facilities like shops, cafés libraries, museums and parks. Which means that living in an urban environment can also offer opportunities to live a more inclusive and healthy life (Buffel, Phillipson & Scharf, 2012).

Although the concept of age-friendly cities is quite comprehensive there are still some points of critique or attention. Steels (2015) argues in the first place that the literature and discussions regarding age-friendly cities are mostly descriptive. There is little attention to evaluating the existing policies and initiatives to determine success. This is necessary, however, in order to assess the impact and find out what is most effective or important.

Buffel, Phillipson and Scharf (2012) argue to shift the focus from the question of what constitutes an ideal city for older people to the degree of age-friendliness of cities right now. With this shift one can address the desires of people right now, instead of aspiring to the most ideal form, because elderly people do face problems in cities. Elderly people in Manchester face a feeling of exclusion, for example. There is a sense of social exclusion in the way that they don't feel they are represented in the first place, but also with regard to insufficient roads or inability to accommodate to the needs of elderly people with cognitive impairments with and dementia in the second. This is a problem, because elderly people with a negative perception of their neighbourhood are more likely to be lonely (Scharf & de Jong Gierveld, 2008).

## 2.4. Public spaces

The age-friendly city concept spans across all parts of the city, but the public spaces in particular are most relevant for this research. The term public space can refer to a lot of places, both inside and outside. Common examples are parks, squares, community centres and libraries. The wide range of public spaces creates these spaces to be a focal point of research in many disciplines, such as psychology, philosophy, geography, and social studies (Van Melik & Spierings, 2020). Correctly defining the viewpoint on public space for this research is therefore of utmost importance.

There are many ways to view public spaces and with that many definitions. *"All places publicly owned or of public use, accessible and enjoyable by all for free and without a profit motive"* is presumably the most common and all-encompassing definition as proposed by the UN habitat (2018). Public spaces are places which connect the built environment. Next to that they serve as meeting places for the exchange of goods or knowledge and as places for social interaction (Van Melik, 2015). Another important element of the definition by the UN is that public spaces are accessible and enjoyable for all. In a broader sense this means that public spaces are not built specifically for a certain group of people, but are accessible for everyone.

A more difficult element of public spaces is ownership and the difference between public and private spaces (Van Melik, 2015). Publicly owned areas are typically regarded as public spaces, but some private spaces do consist of the elements what would make them a public space. A good example are shopping centres or malls. These are open for everyone and are used in a similar way city centres are used. They do, however, have limiting opening hours and rules which are governed by private parties. Spaces like shopping malls can be seen as a grey area within the concept of public space, because malls are not public when discussing ownership. They do serve in some way a similar function as public spaces and should therefore not completely be forgotten when researching public spaces.

Some academics do worry about the privatization of public spaces. Privatization can cause limitations for democratic action (Mitchell, 1995) or can cause spaces to become too consumer oriented (Bodnar, 2015). The users of these spaces are less worried about this privatization and often experience safer and more pleasant public spaces due to higher maintenance. Users do sense some behavioural constraints, although very subtle (Leclercq & Pojani, 2021). These findings are in line with the research by Staheli and Mitchell (2007) who

found that academics have a different understanding of public space than people do who regularly make use of these spaces.

What the ideal design for a public spaces constitutes is for a part subjective and changes over time. Next to that do different groups of people have different desires which can stand in conflict with each other. There are nevertheless still visions within urban planning about what constitutes a successful or sufficient public space. One of the most influential thinkers in this field is William H. Whyte. He was one of the first to research how people interact with public spaces with the help of extensive observations. In his book *The Social Life of Small Urban Spaces* Whyte (1980) describes things that make public spaces successful. People tend to go to easily accessible places which are not too isolated. This is partly because people attract other people, so the social aspect of public spaces is important. This has also a positive effect on the feeling of safety. Another observation is the need of enough seating places in public spaces.

Nowadays there are several principles and guidelines for planning public spaces. Creating free spaces to secure the rights of their users as well as creating diverse public spaces for different lifestyles and preferences. The latter as an attempt to avoid the homogenisation of public spaces: “there is the opportunity for urban areas to offer something for everyone in the right locations although not necessarily everything for all everywhere” (Carmona, 2018). For elderly people public open spaces are vital in maintaining relations, because “To know people and to be known by them can provide feelings of safety, belonging, and place attachment” (Van Melik & Pijpers, 2017).

While public spaces are used for commuting and traveling the social aspect might be one of the most important for the elderly people. The social side of public spaces is interesting because public spaces offer the opportunity to meet and interact with people from different background regarding age, gender ethnicity and class. For the elderly this social aspect is even more important because of loneliness among this age group, due to among other things the loss of a spouse, less social contacts or reduced cognitive functioning (Singh & Kiran, 2013, Holmén, Ericsson & Winblad, 2000). Increasing social networks can play a role in reducing loneliness as shown in the study by Domènech-Abella Et al. (2017). In cities across the Netherlands elderly people generally like to meet “acquaintances and familiar strangers” (not necessarily older people), and are at the same time in many cases struggling with cultural diversity and the difference in practices of others (Van Melik & Pijpers, 2017).

## 3. Methodologies

This research takes a qualitative approach to answer the research question: How do elderly people perceive Arnhem's public spaces and what do these perceptions reveal about inclusivity and social cohesion? I like to gain a deeper understanding of the experiences of elderly people. A qualitative approach allows to do this, with the help of in dept semi-structured interviews. This qualitative approach helps to discover both the perceptions and experiences of the Elderly in Arnhem with the possibility to also get a bit deeper in the reasoning behind these perceptions.

### 3.1. Research methods

To collect sufficient data I conducted semi-structured interviews among elderly people, aged 65 years and over. I opted for this method, because semi-structured interviews allow to ask specific questions to get desirable answers while at the same time allowing the respondents to give their own insights and add things that I might not have thought of. With the help of an interview guide I inquired into the experiences and perceptions from the elderly on public spaces with the help of different aspects. The operationalisation section of this research is dedicated on elaborating on these aspects. Both the Dutch and English version of the interview guide can be found in the appendix.

Next to the semi structured interviews I carried out observations on the public spaces discussed in the interview in order to familiarize myself better with the places discussed in the interview. A better understanding of these places will allow for a better understanding of the experiences of the respondents. The observations will be apparent in this research with the help of observation schemes which are included in the appendix. The last method I used for this research is a literature study. By studying the important concepts and current views in the scientific literature the research is sufficiently grounded in current academic debates and developments.

The validity and reliability of this research are strengthened, because of methodological triangulation. The interviews, observations and literature study are the methods used in this research to collect sufficient data. The use of different research methods will limit researcher bias and the flaws of every independent research method.

### 3.2. Data collection

In order to collect sufficient data I conducted 11 interviews with people aged 65 years and over living near or around Arnhem. The public spaces in the city of Arnhem and its surroundings are the research ground. The reason for Arnhem as the research ground is because the percentage of elderly people is with 16,2% of the population aged 65 and over quite average in comparison to other cities in the Netherlands (CBS, 2024b). Despite this similarity Arnhem is a unique city in the Netherlands, because of its hillier landscape and wide variety of nature in and around the city. The presence of such a big and diverse natural environment is moreover a reason for Arnhem as research ground.

Arnhem is broadly divided into three main areas: the city centre, Arnhem-North, and Arnhem-South. Arnhem-North borders places such as Velp and Rozendaal, while Arnhem-South is

adjacent to Huissen. For this research, 11 interviews were conducted across both the northern and southern parts of the city and its surrounding towns, ensuring a balanced representation. This distribution is important, as the two areas offer distinct living environments. Arnhem-South is relatively newer and has a flatter landscape, whereas Arnhem-North is the older part of the city, which developed and transformed overtime.

The participants in this research all live in Arnhem or their surrounding towns and generally have a wealthy background. Most of them have lived in Arnhem for the most part of their life. The results will be presented anonymously in this research to ensure the privacy of the respondents.

### 3.3. Researcher positionality

Prior to this research I had no experience in doing research with elderly people as a target group. The elderly people are unique group to interview, because most of them have a lot of memories and stories of past experiences in Arnhem. This can lead to difficult situations where the respondent moves away from the subject. Although this can be the case by anyone I think that in this case some of the elderly are tempted a bit more to do this, because of many past memories from the places we discuss. When this happened I found it difficult to keep the interview on the right track and to stay on the subject. This improved over time and I learned from every interview some things to do better.

As for the research ground it is important to note that i did grow up near Arnhem and am very familiar with the city. I believe this to be an asset rather than a problem, because I have experienced most of the public spaces that are discussed myself. During interviews I could relate myself better to the respondent and as a consequence ask better follow up questions. It is important however to not make assumptions in the questions I ask and to ask the questions in a neutral manner.

Concerning the research topic it is important to note that I am interested in the consequences of population ageing in our society and our daily lives which is one of the most important reasons that I want to write about this topic. Although there are many challenges with regard to population aging and our society, it is important to keep in mind that not all consequences are problematic. I often tend to look at population ageing too much as a problem, which are followed by assumptions about how things will look in the future.

### 3.4. Ethical dilemmas

One of the things to keep in mind regarding this research is that I am conducting the interviews in Dutch, but will report my findings in English. Interviewing older people in the Netherlands in English is not a realistic option I reckon, so I have to translate my findings. It is important to carefully translate these findings so that nothing gets lost in translation or that I wrongly describe in English what is meant in Dutch. By already translating my interview guide I think that the most important concepts are properly translated. This makes it easier for the data derived from the interviews to do the same.

## 3.5. Operationalisation

### 3.5.1. Public space

From the existing academic literature highlighted in the theoretical framework section it becomes clear that public spaces are a complex concept with many viewpoints. For this research, I will use the definition of public spaces as spaces which aim to be accessible and enjoyable for all for free. These spaces can be parks or squares, but also places like community centres and libraries.

In this definition as opposed to other definitions I put less emphasis on ownership. Although the notion of ownership plays an important role in academic literature it is of less importance for this research. When a place is accessible and enjoyable for all for free it matters much less if the place is privately or publicly owned. This only starts to matter when one is restricted in what they can think or do. There can be house rules, but these are mostly the norms that also apply in publicly owned places. This research is mostly about the experiences of people in these places and the perceptions on these places.

Next to ownership I also discussed that public spaces are typically not designed for a specific group of people. This research, however, will be about some places that are more dedicated to the elderly. This includes meeting places specifically for elderly people to meet others.

The elderly, like all other age groups are not an homogenous group of people, but have many different interests. This means that the public spaces discussed in the interviews vary and depend on the experiences of the respondents. The most common spaces discussed in the interviews are among other things local shopping centres, parks or other nature areas, libraries and market squares.

### 3.5.2. Inclusivity and social cohesion

Both the terms inclusivity and social cohesion form a large part of the research question. They form essentially the criteria on which all public spaces talked about during the interviews are measured.

Inclusivity when talking about public space is about the possibility to participate in that space no matter (in this case) the age. For public spaces this means in the first place that they need to be accessible for all. Proper infrastructure is needed to easily traverse through and to places. Next to that everyone needs to feel safe in the environment. Another way of participating is in decision making. Inclusive spaces allow for people to give feedback in order to improve spaces and the decision making around these spaces. Active involvement and having a say in spaces also leads to a bigger connection to a certain place.

Where inclusivity is about feeling connected to the environment around you social cohesion is about the connectedness to others. This is determined in the first place by feelings of inclusivity, but also by the possibility of social interactions. Interactions with both familiar and unfamiliar people can improve the cohesion of a place or group. This can be seen in a broader scale as feeling cohesive with other citizens of Arnhem and in turn feel like an 'Arnhemmer'. Even more relevant in this case however is the smaller scale of the public

spaces themselves. The question if users of certain public spaces feel cohesive with each other while using the space then becomes relevant.

The terms inclusivity and social cohesion are measured with the help of an interview guide, which serves in the first place as a guidebook for asking the right questions. This is done by specifying and unpacking both the terms inclusivity and social cohesion a bit further with the help of clearer terms and concepts. In the second place the interview guide helped me to stay on track during the interviews. In some conversations the interview started to move away from the main topic and the interview got off track. In moments like these it is useful and important to be able to rely on the interview guide. In the last place the interview guide helped to make sure that all interviews cover the same topics and aspects to make sure the story's and experiences of the respondents are useful to study. This is essential to improve the validity of the research.

As shown in the former paragraphs the terms inclusivity and social cohesion are still rather broad and not yet operationalised. Unpacking in this case means to highlight different parts of these concepts which can be asked about in interviews.

The concept of inclusivity in public space can be unpacked into the terms accessibility, mobility, facilities, safety, connectedness and participation. The table below shows these terms together with an explanation about the way they are operationalised for this research.

Inclusivity in public space	
Accessibility	The possibilities to access public spaces. This term refers most to the infrastructure around these spaces. Parking spaces are an important area of this as well in most cases.
Mobility	The possibilities to travel to and from public spaces. Is about the question of what modes of transportation are used to access the spaces: Walking, cycling, public transport etcetera.
Facilities	Looks into the facilities offered by the different public spaces. What facilities are sufficient and what is missing?
Safety	Looks into the things that make public space safe. Examples are things like street lights and open areas, but also a sense of social control.
Connectedness	The connection felt between the respondent and the public space.
Participation	The possibilities of people to get involved in the process of improving the public space.

All of these terms separately say something about the feeling of inclusivity in public space with a different angle. Although there are clear differences in definitions between the terms all of them are still connected in some way in the sense that they form a part of the definition of inclusivity used in this research. Accessibility and mobility are somewhat intertwined, because ones mobility tells something about the ability to access places. The term accessibility then goes further and also takes into account to what extent certain facilities in the researched places are accessible no matter the mobility of an individual.

The term participation is the odd one out in this table as this term takes a slightly different approach towards the concept of inclusivity than the other terms described. While terms as safety, connectedness and accessibility inquire more into the connection and possibilities to

interact with the spaces around the term of participation looks into the question if people are included in the decision-making processes of change in the public spaces.

For operationalising the concept of social cohesion in public space, the terms social interactions, social control and connectedness are the most important. These terms together with the definition used in this research are included in the table below.

Social cohesion in public space	
Social interactions	The possibility and suitability to interact with others in a public space.
Social control	The extent to which users look after each other when using the public space.
Connectedness	The connection felt between the respondent and the other users of the public space.

Social cohesion relates to public space in the sense that public spaces are spaces for interactions and places where people can connect and look after each other. Social control and the possibility of interactions are both things that make public spaces more successful in the sense that they are more pleasant to visit.

The concepts of inclusivity and social cohesion are both different, but as these terms show there is a common ground within the connectedness. I think that a connection with a place is generally stronger, when there is also a connection with other people in that place. This can in turn contribute to a bigger feeling of safety, because there is a sense of social control, people are looking after each other. More pleasant experiences in public spaces can in turn lead to a higher well-being and in the context of the elderly more successful aging.

## 4. Results

The results will be presented in distinct parts where each part looks deeper into a different public space. The public spaces that are deemed to be the most important according to the interviews, are shopping centres, parks and green spaces as well as, community centres and churches. Then there is the general infrastructure in and around Arnhem, which is also a very broadly discussed topic.

### 4.1. Infrastructure

The infrastructure in Arnhem has always been centred mostly around the car, but in recent times this is shifting to cyclists and pedestrians. Especially in the city centre and the surrounding rings there are plans to reduce traffic. Several big roads connecting Arnhem to its neighbouring towns are being worked on by narrowing the car roads and improving the cycling lanes and safe pedestrian crossroads (Gemeente Arnhem, 2021). Another priority is adding more greenery around the roads to reduce the urban heat island effect which as a consequence can reduce the heat and improve the quality of life, especially for the elderly (Kleerekoper, Van Esch & Salcedo, 2012).

The general feeling towards these infrastructural changes is positive among the respondents. Most respondents share the feeling that the roads are quite busy, especially towards the city centre of Arnhem: “That with the help of trees, plants and separated lanes, the traffic on the Velperweg is getting reduced. I think that is a very nice plan”, argues one male respondent living in Velp. There is also a sentiment that is against discouragement of the car in the city. One of the male respondents living in Arnhem South argues that people should still be able to get their weekly groceries, which is mostly done by car. The people who depend on the car in their daily lives should not be forgotten.

#### 4.1.1. Cycling

For most other activities in Arnhem, many of the respondents often make use of the bike. The increasing encouragement to use the bike in Arnhem and the Netherlands in general does come with the consequence that the cycling roads get more traffic. This increase of traffic comes in many forms. A combination of regular bikes, e-bikes, fat bikes, mountain bikes and scooters, but also pedestrians are entering the cycling roads which in turn result in big speed differences on the road. These speed differences together with sometimes narrower roads can lead to dangerous situations as one male respondent living in Arnhem-South describes: “Many people, especially the elderly, are quite stubborn. They keep cycling side by side, while its better to cycle one after another. Its super dangerous. “A female respondent from Huissen mentioned she often avoids the narrower routes because of this reason.

In Arnhem-North one of the bigger challenges regarding cycling are the height differences. It can be difficult to get up to speed after needing to stop on a crossroad, especially for the elderly. A nice solution is the use of an e-bike which all respondents who regularly use bikes as a means of transport own. Despite some difficulties the height differences are mostly seen as a positive feature of the city, because it is one of those things that makes Arnhem unique.

The bike as means of transportation is something that is becoming invaluable in the city centre. The car is regularly not seen as an feasible option anymore, because of the expensive and generally busy parking possibilities. There are several places to stall your bike under supervision during the day. This makes it reasonably safe to leave your e-bike in the city centre without the risk of theft. The most cycling traffic takes place at the edges of the city centre which still contains several “chaotic crossroads” as one female respondent from Arnhem-North mentioned. These are crossroads where users with big speed differences all come together which can give some chaotic moments.

Besides some challenges, Arnhem is mostly seen as a good place to cycle. The cycling infrastructure is quite big, with several established bicycle highways. This leads to possibilities to travel “in all wind directions” by bike. The city centre is generally very well accessible and the same goes for the neighbouring villages and cities like Nijmegen. The respondents are very much using these possibilities, especially to visit friends and family, enjoy events and nature or to get high quality regional produced products like dairy, vegetables and fruits.

#### 4.1.2. The car and public transport

For some of the respondents the bike isn’t an option to use as means of transportation, due to health-related issues. The car is for most respondents in that case the main way to travel to places outside the neighbourhood. Using the car does have some limitations according to the respondents, especially with regard to parking. In the city centre parking is experienced as an issue, because of unavailability of parking spots on busy days and are furthermore quite expensive.

This leaves public transport as the best alternative to travel to and from the city centre, as is confirmed by all respondents who sometimes make use of public transport. The public transport networks are regarded as something that is well organized in Arnhem with especially the bus network being praised. This might have something to do with Arnhem’s unique trolleybus network, being the only one in the Benelux (Van Eekelen, 2024). The uniqueness of these networks may in the first place be a source of pride for Arnhemmers, which in turn reinforces the positive reputation of the networks. In the second place, this distinctiveness makes this network something the municipality of Arnhem wants to uphold. Both the respondents in the Arnhem-North and Arnhem-South agree that there are plenty of bus stations and enough possibilities to get to the city centre or anywhere in Arnhem.

## 4.2. Shopping centres

Shopping centres exist in many forms in Arnhem. The more newly built southern region has got a shopping centre in nearly every neighbourhood. These centres contain some different facilities which all sell daily groceries and requirements. The many different facilities all centred in one place makes shopping easy and convenient according to the respondents living in these neighbourhoods, especially for the trips where only a few products are needed.

In Arnhem-North this is not the case. The supermarkets are in most cases isolated and not accompanied by other common Dutch stores like Etos, Kruidvat, Primera or Bruna.

This is all of course next to the city centre where most possibilities for shopping are situated, especially for fashion and luxury goods. Apart from the city centre the bigger shopping centres with Kronenburg in Arnhem-South and Presikhaaf in the North-East are places with a great variation regarding shopping possibilities. Both these bigger shopping centres are subject to many renovation projects, thereby improving its exterior. Lastly the city centres of surrounding villages like Velp are marked by the respondents as places where they like to shop or buy groceries.

#### 4.2.1. Arnhem-South

The smaller shopping centres, like the ones in Arnhem-South have the main functions to provide for the daily needs of the surrounding inhabitants. The shopping centres are small, and all have a very similar feeling. These centres generally contain two different supermarkets and a selection of other stores like a drugstore, bookstore and liquor store. This concept with a different exterior is present across nearly all the neighbourhoods in Arnhem-South.

The accessibility towards these shopping centres is good according to the respondents. The overall infrastructure to get to the centres is sufficient, especially for cars. The biking lanes on the other hand can sometimes feel a bit busy, because the biking lanes seem quite narrow. The footpaths are perceived very positively though. The biggest problem regarding accessibility is parking, as many shopping centres having too little parking space. The respondents who identified this problem acknowledged solving the problem is difficult. They don't see a solution to improve the parking situation, because there is no space available for extension.

The shopping centres generally do consider the limitations in mobility regarding elderly people according to the respondents. One male respondent from Arnhem-South points out that shopping centres are accessible from all angles and shopping carts are all around available, which are both examples of the inclusivity of the elderly. Shopping carts are super useful for the elderly with mobility limitations to properly move around the area while getting groceries.

The general feeling towards the present smaller shopping centres in Arnhem-South is positive for the function they need to serve by providing groceries to the surrounding residents. All respondents that are regularly making use of these shopping centres are positive about the facilities they offer. For all the daily needs these shopping centre suffice, but respondents acknowledge that for items such as clothing, they need to go to the city centre or a larger shopping centre like Kronenburg. One type of facility that a male respondent from Arnhem-South points out is missing in these smaller shopping centres is a public toilet. Elderly people generally need to use the restroom more often. It can be a barrier to buy groceries when there is no restroom present to visit the shopping centre.

The shopping centres are mostly perceived as safe. Shopping centre Elderhof for example has a very open feeling as one of the female respondents describes it: "the shopping centre is

not tucked away”. This safe feeling is expressed by all respondents. There is remarkable, because of the criminality, which is persistent in this specific neighbourhood, in Elderveld and Elderhof. An explosion in 2023 on the cafeteria caused commotion in the neighbourhood, with many people saying the shopping centre felt like an unsafe environment for a longer time already (Van Hest, 2023). One of the respondents does note that he never leaves the e-bikes unattended, because of the fear they might get stolen.

The shopping centres in Arnhem-South are not really used as meeting space. Sometimes there are coincidental encounters with acquaintances followed by some small talk, but other than that these centres are not suitable to meet others. This is also the main reason why respondents feel only a little to no connectedness towards the shopping centres and its other users. One of the female respondents who often make use of shopping centre Elderhof argues that: “social interactions and connections lie elsewhere, because the shopping centre itself is not a nice place. It is purely functional”. This makes that a connection with these places and the people is not really desired. If there is a form of connectedness among the respondents, it is small and grew over time. Familiar store owners and nice staff can contribute to this feeling as multiple respondents argue.

When it comes to shopping in Arnhem-South respondents speak fondly about Kronenburg, one of the biggest indoor shopping centres in the area. According to the respondents this shopping centre is very functional and offers “all the important facilities a human being would need”, including a variety of bigger retail chains. Kronenburg feels open and with a pleasant atmosphere when being inside. Another advantage is the broad availability of free parking. All of these positive points make Kronenburg an appealing alternative from the busy city centre.

#### 4.2.2. Arnhem-North

The absence of the smaller shopping centres in Arnhem-North like the ones in Arnhem-South makes the trips to the isolated supermarkets only functional. Due to height differences and limited supermarkets close by, it might be a challenge for elderly people to get to one. This was, however, not the case for the respondents. The respondents do confirm that there are enough initiatives in the neighbourhood which can help older people to get to places like a supermarket. These are initiatives like a taxi service completely functioning around volunteers.

Respondents living in Arnhem-North indicate that they do not frequently use the local supermarkets. In their daily lives it seems like there is much less of an emphasis on shopping facilities as opposed to the people in Arnhem-South. This is mainly because supermarkets are generally further away and are used more efficiently for the weekly grocery runs. This seems to be mostly related to the individual choices of the respondents, because when they value shopping facilities in closer proximity they would move elsewhere. One female respondent living in Arnhem-North noted that shopping for her becomes less important with age: “You already have everything you need and don’t need much more.”

Frequently respondents prefer going to Presikhaaf or even Velp, as these areas offer more variety, also for groceries. Shopping centre Presikhaaf is a big partly indoor area somewhat like Kronenburg, offering the same kind of facilities. Renovations made in the last couple of

years are having a positive influence on the image of the shopping centre. One of the main advantages of Presikhaaf is the possibility to park your car for free.

The city centre of neighbouring village Velp is also a place the respondents like to visit. Some respondents are living in Velp which makes this centre the most obvious choice. Other respondents living in Arnhem-North also like to go there, mostly because of the smaller scale of the city centre. The city centre of Velp is mostly used for groceries and much less for fashion related shopping as there is too little choice. This is not an disadvantage of this place as the respondents don't expect big fashion stores to be available since a small place like Velp can't offer enough diversity in choice. One of the disadvantages of shopping in Velp is the busy street going through the city centre, which makes shopping less pleasant.

#### 4.2.3. City centre of Arnhem

The city centre of Arnhem is perceived very differently among the respondents. Some rate the city centre very highly, while others are not a big fan. This has potentially something to do with the place of birth. The respondents not born in Arnhem are mostly much less positive about the city than the respondents who are born in Arnhem. One respondent born in the small village Renkum says he never liked the city centre, because it's "always busy and impersonal".

The shopping facilities vary from the common big retail chains combined with smaller boutiques in the alleys. These shopping streets are generally quite busy, especially in the weekends. As this respondent born in Renkum describes it is typical for Arnhemmers "to have a look around the city centre" on Saturdays. Some respondents don't favour Arnhem to go shopping and point to decay in the city centre, because of the loss of big department stores like 'De Bijenkorf' and V&D. For others the city centre is much less attractive because of the large scale, together with a distant feeling. This feeling is sparked by the increase of foreigners in the city centre. The presence of foreigners gives a feeling of alienation to some respondents, because the lingua franca in the city centre seems to make a turn towards English. Others, however, describe the foreigners as easy-going and view their presence more positively. One male respondent highlights the revival of the Spijkerkwartier neighbourhood in recent years with foreigners feeling at home there. Their presence is bringing the neighbourhood new life and is halting the decay and degradation.

One of the facilities where the respondents are positive about is the weekly market. This is an activity which some of the respondents aim to attend weekly to get some quality food products like special types of cheese. The market is well arranged, according to the respondents, because the stalls and vendors differ from time to time. The weekly market in the city centre is not necessarily reviewed as a meeting space. The coincidental encounters with acquaintances do happen and they are perceived as desirable, but other than that it is expressed that there is no need to meet new people.

The city centre does serve as a meeting place for the respondents. Some of the respondents tell they visit the city centre of Arnhem for certain clubs or associations. Others say they use the cinema as a place to meet others, but generally the restaurants and cafés are the most important meeting places in the city centre. Meeting others to go out for dinner or catch up with some old friends in a café is something what almost all the respondents like to do in the

city centre. As the example of the cinema, the restaurants and the café show is that the spaces where people meet the most in the city centre are generally not public.

### 4.3. Green spaces

Arnhem and its surroundings consist of many green spaces, in fact green spaces make up very much most of the public space in and around Arnhem. The respondents all mention green spaces as a big part of their daily lives. This varies from the greenery on a neighbourhood level to the big forests in Arnhem-North. Green spaces in Arnhem are extensively used by the respondents, both because of its beauty, to enjoy nature in its specific season and the desire to stay active. Many of the respondents specifically underline the uniqueness of the green spaces around them, as one 76-year-old male respondent from Velp put it, “I think that is the beauty of Arnhem and the surrounding area. That we have forests, hilly landscapes, but also the river landscape and its floodplains.”

The landscapes between Arnhem-North and Arnhem-South are quite different with in the north the presence of more forests and hills and the south consisting of many parks. The respondents living in Arnhem-North and its surroundings are very fond of their living environment, staying in a forestry area was one of the key reasons for respondents to remain in Arnhem-North over the years. The respondents who during their lives moved to the newly built South didn't have the same reasoning. The forests are still accessible by car. Yet there are still plenty possibilities in South to enjoy nature in the many parks. For all the respondents green spaces are easily accessible by foot and by bike. Height differences are not seen as an restraining factor in Arnhem-North, as one female respondent living there tells: “Height differences are not an issue. We can take our time”.

When making use of green spaces the respondents generally go by foot or by bike. However, the elderly with mobility limitations tend to make less use of these spaces, as highlighted in the interviews. When not being able to take the bike, mobility is constrained, although this is generally not experienced as a big loss. Some are still able to take the car to the green spaces they desire, generally the forests. For others staying active is a challenge within itself, so making more use of green spaces is difficult. Those who do cycle mention they sometimes avoid the most scenic routes because these can be too busy. It is much more enjoyable to cycle freely while having to take much less care of the people around.

One of the highlights regarding green spaces according to the respondents is Sonsbeek park located in the city centre of Arnhem adjacent to the central station. Sonsbeek has a high esteem due to its diverse landscapes which offer something for all generations. Being next to the city centre Sonsbeek attracts many visitors, including many tourists, who contribute in making the park feel more alive. This makes Sonsbeek a great place for organising all kinds of activities, from markets to small festivals. Especially the markets are activities to which the respondents like to come and, in some cases, meet others. Green spaces do serve as places for planned meetings, but typically not for encounters with strangers. The respondents often prefer to walk in more quiet and peaceful natural areas which are valued very highly among some of the respondents. One female respondent from Velp says she feels connected with

these natural environments and not so much with the people in the neighbourhood. The variety and uniqueness is the most important reason to stay here.

The green spaces are a big part of the respondents' daily lives. One elderly couple living in Arnhem-North told that they are 'Friends of Sonsbeek' which means they pay monthly contribution which is used to for maintenance on the park. Being part of this organization means getting invited to meetings which discuss the future of the park. Everyone in this meeting can address ideas and concerns which then will be discussed. The couple acknowledged that they go very little to these meetings and that they are not really interested in active participation, but they like that there are possibilities to address concerns.

Maintenance for the forests and other green areas in and around Arnhem is managed by the local municipalities together with the water authorities and organizations like 'Natuurmonumenten', which is focused on purchasing and preserving nature reserves across the Netherlands. Some of the respondents have strong opinions in the way green areas should be managed by keeping them as natural as possible and make as little change as possible. Slow transformations of forest paths to improve the accessibility and prevent muddy paths are quite common in the green spaces. Most respondents somewhat encourage these changes, but do say that natural areas should not get too tidy and organized. A neat appearance is not desired among them which in certain areas contrasts with the vision held by the organizations in charge. When respondents tried making this clear to the municipalities and connected organizations it felt 'like talking to a wall'.

#### 4.4. Community centres

One of the public spaces that serve the best as meeting spaces are the community centres. Where many public spaces such as shopping centres, markets and green spaces which do not necessarily promote actively meeting with others, community centres do provide more intentional opportunities for connection with others. In the interviews several of these communal centres were mentioned which offer meeting opportunities for people who have similar interests and the wish to connect with each other including the neighbourhood community centres, the elderly centres and the churches. I regard Churches as community centres, because especially in the Dutch context they are moving more and more from just places of worship to places which encourage interaction with like-minded people.

Community centres in the neighbourhood serve as important meeting places to gather and meet fellow neighbours. In Arnhem-North in the 'Burgemeesterswijk' the centre improves the social control as the respondents living there tell. Organising activities and offering a place to meet others is especially important for people who might not have other opportunities for social interaction. A community centre for the neighbourhood can bring you in contact with others and improve the connections between neighbours. While most respondents say they make little or no use of these centres themselves, they still value them highly, for a large part because of their unforced and welcoming nature. One of the respondents in Velp who does occasionally join activities in the neighbourhoods' community centre tells he values it, because of the possibility to meet all kinds of people with different backgrounds.

The community centres for the elderly are mostly organised through the foundation for the well-being of the elderly in Arnhem, in Dutch Stichting Welzijn Ouderen Arnhem (SWOA), which brings the elderly together. They offer a meeting place and organise plenty of activities for the elderly. One of the oldest respondents I interviewed living in Arnhem-South is a very active user of these activities. The SWOA forms the centre of all her activities by having dinners, a bingo and all other kinds of activities. This foundation is located in multiple neighbourhoods all across Arnhem and is generally good accessible as these centres are located near nursery homes or residential apartments specifically for the elderly. The SWOA brings people together who are difficult to connect due to mobility limitations, which helps people with these limitations to stay active in old age

The last form of community centres that came across in the interviews are churches. One male respondent living in Velp relates to the St. Martinus church in Arnhem through work related activities. Whilst being not religious he mentions that the church has an important social function by giving the possibility to interact with like-minded or similar people. Another female respondent who sings in a choir in a church in Velp elaborates on the social function of churches: "After almost every service, there is a possibility to drink a cup of coffee and meet and interact with others." Also for foreigners the church plays an important role in social interaction. The sense of togetherness and connectedness between other cultures, for example the Polish community living in the Netherlands, is much stronger than between the Dutch communities with churchgoers. According to the same female respondent, this sense of connection is something the other cultures also bring to Dutch churchgoers, which she considers a positive and encouraging development.

#### 4.5. The neighbourhood perspective

The thing that becomes clear from the interviews, and also from the scientific literature like Carmona (2018) is that the aspects that make public spaces successful or appreciated differ between the sort of place and differs between similar places as well. From all the different experiences and perspectives in the interviews I propose a new vision on the use of public space which has a the perspective of the neighbourhood as a starting point. The neighbourhood is an important part in the daily lives of many people, especially for the elderly. Many of the respondents are thinking about the future in the sense of buying a single storey house or apartment or choose to live smaller. I suppose that the living environment outside of the house is equally important. In that case public spaces becomes relevant.

What was a striking underlying insight for me that followed from the interviews is that as you age your social world is at risk of getting smaller. This is a consequence of things like retirement, health related problems or even losing your (lifelong) partner as one of the respondents has dealt with, which can all make your life feel more empty. When your social world feels empty it is your job to do something about this emptiness or the missing things in your life. The city of Arnhem and many other urban places offer plenty places to visit, associations to join and activities to do to change these feelings.

But where your social world is at risk of getting smaller, so is your physical world. Aging in general together with more and often recurring health problems can limit your mobility and in turn put a constrain on the places you can access. Some of the respondents having to stop

taking the bike is an example of this. When the bike is not an option anymore your world is getting smaller as you have less possibilities for transport. This can in turn also happen for the car, which then further limits your mobility.

These possible mobility limitations together with possible psychological barriers can limit your social interactions with others. Feelings of loneliness or unhappiness can in turn be consequences. Creating possibilities for social interaction and activities in the neighbourhood can help address these feelings and overcome these barriers.

Neighbourhoods should provide in the first place all the facilities and daily needs the elderly are needing. This means the presence of a shopping centre which can accommodate for all daily needs similar to the ones in Arnhem-South. In the second place neighbourhoods should provide recreational facilities like parks which offer spaces to take a walk, recreate and meet others. Lastly the neighbourhoods should provide meeting spaces in the form of community centres which organise activities and offer a place for people to interact and connect with each other.

Neighbourhoods should aim for a high connectedness between residents which can be established with the help of incorporating successful public spaces. When these public spaces are inviting to interact with and these spaces promote social interaction between others, public spaces can accommodate to a sense of social control in the neighbourhood. Creating a sense of social control can elevate the social cohesion in the neighbourhood together with a feeling of connectedness. There is a sense of social control when residents in the neighbourhood are looking after each other and are willing to help. The example of the 'Burgemeesterswijk' in Arnhem-North from the interviews shows that creating social control is possible. With the 'Burenhulp' app neighbours can approach each other for incidental help.

This example also shows that neighbourhoods can be diverse with regard to different age-groups. Other age-groups in the neighbourhood can also benefit from the close proximity of these public spaces. Neighbourhoods with a strong connectedness are likely to be more lively and safe, which can also be important when wanting to raise children. This neighbourhood perspective on public spaces is of course also suitable for elderly neighbourhoods like some senior apartment complexes in Arnhem-North for example.

Creating sufficient public spaces in the neighbourhood can allow the elderly to stay healthy by being more active as the threshold to participate and undertake activities becomes much lower. The close proximity of recreational spaces and community centres are making this possible. These all-encompassing neighbourhoods also allow for travel to more distant locations, such as the city centre or the forests in Arnhem-North. However, having essential facilities nearby is especially valuable when changes in your social or physical life occur. Living in a neighbourhood which is oriented towards the future allows to keep social interactions and stay active, despite changes in life as a result of aging.

## 5. Conclusion

This research started with the research question *How do elderly people perceive Arnhem's public spaces and what do these perceptions reveal about inclusivity and social cohesion?* The then following four sub-questions unpack the general terms of inclusivity and social cohesion. With the data acquired from the conducted semi-structured interviews these questions can now be answered. The most used public spaces among the respondents in their daily lives are shopping facilities, green spaces and community centres. All the data acquired relates mostly around these places together with the broader infrastructure of Arnhem.

1. How accessible are Arnhem's public spaces for elderly people in terms of mobility and infrastructure?

The public spaces in Arnhem are generally well accessible according to the respondents. The general infrastructure in and around Arnhem is well perceived, especially for cycling. Arnhem offers plenty of the so called bicycle highways which form a good connection between Arnhem and the surrounding areas. The downside of the cycling roads is that they often are quite busy which can lead to chaotic situations, especially on some crossroads. The car roads are also seen as sufficient, but the major disadvantage is parking. In many places with the city centre as best example is parking often difficult due to the lack of parking spaces. As for the public transport network are respondents very positive.

The public spaces discussed are generally accessible as well. The community centres serve mostly more the people in their neighbourhoods and are well accessible according to the respondents. The roads and footpaths in the neighbourhoods are generally considered as good, also for the elderly people with limitations in mobility. Even the height differences that characterise Arnhem-North are not seen as a problem.

2. How do elderly people in Arnhem's public spaces perceive safety and a sense of connectedness?

Public spaces in Arnhem are mostly perceived as safe. Most respondents indicate that they are by nature seldom afraid. Next to that the respondents are very little outside in the evenings which they argue is the time spaces are the most unsafe. Even in shopping centres with a record of criminality the respondents argue that there is still a safe atmosphere.

The general safe atmosphere in all shopping centres does not relate to a sense of connectedness to these shopping centres. The respondents see, especially the smaller shopping centres, purely as a functional facility. Even the city centre is not a place much of the elderly respondents connect with. Most respondents feel only a little connection with the city centre at best. This has mostly to do with the large scale of the city centre together with a sense of alienation, because of the increase of foreign language spoken.

With other public spaces respondents perceive a higher sense of connectedness. For example, the green spaces around Arnhem like park Sonsbeek or the forests are generally places where people feel very much connected with. The uniqueness of these spaces is the most important reason for this sense of connectedness.

3. In what ways do public spaces in Arnhem hinder or foster social interaction for elderly people?

One of the public spaces that fosters social interaction among the elderly the most are the community centres. Community centres in the neighbourhood, but also community centres focused on the elderly and churches serve for many of the respondent as an important meeting place and a place for activities in their daily lives. All of these community centres are focused on the people who live close in the neighbourhood and as a consequence very well accessible, also for the elderly with mobility limitations. Especially the community centres for the neighbourhood play an important role in fostering social interactions among the residents of this neighbourhood. This leads to a sense of social control with people looking after each other. This sense of social control in the neighbourhood is generally desired among the respondents.

Others public spaces are less focused on social interaction, but also do not hinder interactions. In shopping centres for example respondents often meet familiar acquaintances, which one male respondent described as 'small highlight of the day'. The green spaces foster social interactions in the sense that they are very functional for meeting up with friends or family. Interactions with strangers in green spaces is often not really desired among some of the respondents, because they visit the green spaces for the quietness and peacefulness.

4. To what extent do elderly people feel their needs are considered in the planning and design of Arnhem's public spaces?

In general, the respondents are positive about the green spaces in Arnhem. They feel like their needs are generally considered and they do not foresee any problems with making use of the public spaces in the future as they get older. There is a general consensus among the respondents that public spaces are well organized. If there are things to be improved it would be smaller thing like public toilets in the smaller shopping centres as one of the respondents suggested.

As the respondents generally feel every thing is organized well they don't feel the need to participate in the future design of public spaces. Only the organisation and especially the maintenance of some of the green space is a frustration for a couple of respondents. Making contact with the responsible parties like the municipalities generally has little consequences.

All in all it can be concluded that the elderly in Arnhem generally experience the public spaces very positively. The respondents like to make use of the public spaces around them and experience few problems during the use of these spaces. Most of the spaces discussed are inclusive to the elderly, also for the elderly with mobility constraints. Not all public spaces foster social cohesion in Arnhem or the neighbourhood, but the green spaces, but also the community centres are making a important contribution.

## 5.1. Recommendations

As a result of the data from the interviews I proposed a vision on public space which has the perspective of the neighbourhood as a starting point. Taking the neighbourhood as a starting point in designing public space is important, because public spaces considered important by the elderly like shopping centres, green spaces and community centres should be accessible on a neighbourhood scale for all the elderly. These spaces provide the daily needs and help maintaining social connections and an active lifestyle for the elderly.

For future research it would be interesting to look at other Dutch cities with a similar size like Arnhem, because of the unique features Arnhem offers. The diversity of green spaces and the special height differences are especially in a Dutch context unique to Arnhem. It would be interesting to see the approach towards green spaces in other cities.

Next to that I recommend future research in a broader sense in other cities in Europe or maybe outside Europe as well. Researching these urban places in order to assess the importance of shopping facilities, green spaces and community centres in these other urban places. It will be interesting to see if the elderly in other cities value the same or that different public spaces are desired. It would also be interesting to see if this neighbourhood perspective is also possible in other urban places as they might be planned in a different way.

## 5.2. Limitations

One of the main limitations of this research is that the group of respondents I interviewed for this research are not a complete reflection of the elderly population in Arnhem. All of my respondents are wealthy and most of them probably more wealthy than the average elderly citizen in Arnhem. Next to that I hoped to interview a little more elderly with limited mobility. Now I interviewed only one person who has serious mobility constraints by depending on the rollator.

Next to a limited reflection of the total population the results from this research are in general difficult to generalize as they are so specific to the local context, in this case the public spaces in Arnhem. As mentioned quite often Arnhem is a unique city with regard to its nature, so especially green spaces will be viewed differently in other urban areas, possibly even in the Netherlands.

## 6. References

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## 7. Appendices

### 7.1. Interview guides

#### **Dutch Interview guide: ouderen en de openbare ruimte.**

*Hoe ervaren ouderen de openbare ruimte in Arnhem en wat verklaren deze percepties over inclusiviteit en sociale cohesie?*

##### **Introductie**

Allereerst wil ik u bedanken dat u wilt deelnemen aan dit onderzoek over percepties over de openbare ruimte. Ik ben Lucas de Laak en schrijf mijn bachelor scriptie voor de opleiding Geografie Planologie en Milieu aan de Radboud universiteit in Nijmegen.

Ik doe onderzoek naar de ervaringen van ouderen met betrekking tot de openbare ruimte in Arnhem. Met deze ervaringen onderzoek ik in welke mate ouderen zich betrokken en verbonden voelen met de openbare ruimte en de andere gebruikers hiervan. Met behulp van verschillende thema's als veiligheid, toegankelijkheid en sociale interacties wil ik u een aantal vragen stellen om meer te weten te komen over uw ervaringen.

Dit interview is volledig vertrouwelijk en zal enkel geanalyseerd worden door mijzelf. Naast mij zal alleen mijn begeleider toegang hebben tot de data van dit interview. Ik zou graag uw goedkeuring willen om dit interview op te nemen. Ik zal deze opname gebruiken om ons gesprek nog een keer te kunnen beluisteren en hier het meeste uit te halen. Verder zal dit interview volledig anoniem zijn en zal ongeveer 45 minuten tot een uur duren.

Als laatste wil ik benadrukken dat dit interview volledig vrijwillig is en dat u kunt stoppen wanneer u wilt. Er zijn geen foute antwoorden. Heeft u nog vragen voor mij voordat we beginnen met dit interview?

### **Opwarmvraag**

Wat zijn de eerste plekken waar u aan denkt als u denkt aan de openbare ruimte in Arnhem?

Waarom deze plekken? (betekenis, of dekt de algemene lading)...

### **Persoonlijke ervaringen:**

Hoe lang bent u al woonachtig in Arnhem?

Op welke plekken komt u het meest in uw dagelijks leven? → **Hierop doorvragen m.b.v. aspecten!!!**

Is er een verschil in de plekken die u bezoekt ten opzichte van een aantal jaar geleden (10/20)?                      Wat zijn deze verschillen?

Waardoor denkt u dat u deze plekken meer of minder bent gaan bezoeken?

Zijn plekken erg verandert door de jaren heen? Hoe zijn die veranderingen (positief/negatief)? En waarom?

*Per openbare ruimte waar over gesproken wordt ingaan op de volgende aspecten*

### **Toegankelijkheid en mobiliteit**

Wat zijn de manieren waarop u naar deze openbare plek reist?

- Waarom kiest u voor deze manieren?

Indien u meerdere manieren gebruikt? Wat is uw voorkeur en waarom?

Zijn wegen goed begaanbaar om bij uw bestemming te komen?

Zijn er genoeg verbindingen met het openbaar vervoer? Is de plek goed te bereiken?

### **Inrichting van de openbare ruimte**

Is deze plek ingericht voor een bepaalde doelgroep?

Heeft deze plek alle faciliteiten om goed te kunnen functioneren?

- Welke dingen zijn onmisbaar? En wat is misschien overbodig?

Welke dingen zijn positief aan deze plek? En wat kan er beter?

Denkt u dat er met het ontwerpen en inrichten van deze plek of ruimte is nagedacht over ouderen als doelgroep?

- Is dat dan ook de reden dat u veel gebruik maakt van deze plek? (waarom wel/niet)

Zijn er voldoende rustplekken (bankjes, etc.)

### **Gevoel van veiligheid**

Voelt u uw doorgaans veilig als u op deze plek bent?

Wat zijn volgens u de belangrijkste dingen die deze plek veilig of onveilig maken?

- Als onveilig: Zijn er volgens u manieren om deze plek veiliger te maken?

Zijn er voldoende straatlantaarns, grote open ruimtes (etc.)?

Denkt u dat er veel werk is verricht om deze plek veilig(er) te maken?

### **Verbondenheid met de openbare ruimte**

Voelt u zich verbonden met de openbare ruimtes die u bezoekt? Wanneer wel en wanneer niet?

In hoeverre spelen ervaringen in het verleden op een bepaalde plek of ruimte een rol met uw verbondenheid met de ruimte?

Zou u graag meer verbondenheid voelen met deze plek? Waarom?

### **De openbare ruimte als ontmoetingsplek**

Maakt u gebruik van deze plek om mensen te ontmoeten?

- Zo ja: Waarom is dit een geschikte plek om anderen te ontmoeten?
- Zo nee: Denkt u dat dit een geschikte plek is om mensen te ontmoeten? Waarom wel of niet?

Welke mensen ontmoet u zoal als u deze plek bezoekt?

- Kennissen of vrienden/ bepaalde generaties / anders?

Zou u meer verschillende mensen willen ontmoeten op een bepaalde plek?

Dragen ontmoetingen bij aan de verbondenheid met deze plek?

Voelt u zich verbonden met anderen aanwezig als u op deze plek bent?

### **De openbare ruimte veranderen?**

Zou u graag inspraak willen hebben in de toekomst van de plaatsen die u vaak bezoekt?

Bent u wel eens betrokken geweest bij de inrichting of vormgeving van een bepaalde plek?

Zou u graag meer betrokken willen worden bij de inrichting en het ontwerp van de openbare ruimte?

Zo ja? Bent u bekend met manieren om hier betrokken mee te zijn?

### **Slotvraag**

We naderen het einde van dit interview.

Zijn er nog ervaringen over de openbare ruimtes waar we het over gehad hebben die u nog niet gedeeld heeft waarvan u denkt dat deze zinvol zijn om te delen?

### **Afsluiting**

Dit zijn al mijn vragen voor u. Heel erg bedankt dat u wilde meewerken aan mijn onderzoek! U heeft me erg geholpen. Heeft u nog vragen voor mij? En zijn er nog dingen waar u op terug wilt komen?

Wat vond u van het interview? Heeft u nog tips voor mij?

Mocht u in de toekomst nog vragen hebben kunt u altijd contact met mij opnemen. Nogmaals super bedankt!

## **English Interview Guide: Elderly people and Public Space**

### **Introduction**

First of all, I would like to thank you for participating in this research about perceptions of public space. My name is Lucas de Laak, and I am writing my bachelor's thesis for the Geography, Spatial Planning, and Environment program at Radboud University in Nijmegen.

I am researching the experiences and perceptions of elderly people with regard to public space in Arnhem. Through these experiences, I am examining to what extent older people feel involved and connected to public space and its other users. Using themes such as safety, accessibility, and social interactions, I would like to ask you several questions to learn more about your experiences.

This interview is entirely confidential and will only be analyzed by me. Only my supervisor will also have access to the data from this interview. I would like to ask for your permission to record this interview. I will use the recording to listen back to our conversation and get the

most out of it. Furthermore, the interview will be completely anonymous and will last approximately 30-45 minutes.

Finally, I want to emphasize that participation in this interview is entirely voluntary, and you may stop at any time. There are no wrong answers. Do you have any questions for me before we begin?

### **Warm-Up Question**

What are the first places that come to mind when you think of public space in Arnhem?

Why these places? (meaning, or general impression)...

### **Personal Experiences**

How long have you lived in Arnhem?

What places do you visit most in your daily life? (Follow up using relevant aspects!)

Has there been a change in the places you visit compared to several years ago (10/20 years ago)?

- What are these changes?

Why do you think you have started to visit these places more or less?

Have these places changed a lot over the years? How have they changed (positive/negative)? And why?

### **For Each Public Space Discussed, Address the Following Aspects:**

#### **Accessibility and Mobility**

How do you travel to this public place?

Why do you choose these modes of transportation?

- If you use multiple methods, what is your preference and why?

Are the roads easily accessible to get to your destination?

Are there sufficient public transport connections? Is the place easily reachable?

#### **Design of Public Space**

Is this place designed for a specific target group?

Does this place have all the facilities needed to function well?

- Which things are essential? And what might be unnecessary?

What are the positive aspects of this place? And what could be improved?

Do you think that, in designing and planning this place, attention was given to older adults as a target group?

- Is that also the reason you use this place often? (Why or why not?)

Are there enough rest areas (benches, etc.)?

### **Sense of Safety**

Do you generally feel safe when you are at this place?

What are, in your opinion, the most important factors that make this place feel safe or unsafe?

- If unsafe: Do you think there are ways to make this place safer?

Are there enough streetlights, large open spaces, etc.?

Do you think much effort has been made to make this place safer?

### **Connection to Public Space**

Do you feel connected to the public spaces you visit? When and when not?

To what extent do past experiences at a specific place or space influence your connection to it?

Would you like to feel more connected to this place? Why?

### **Public Space as a Place to Meet**

Do you use this place to meet people?

- If yes: Why is this a suitable place to meet others?
- If not: Do you think this is a suitable place to meet people? Why or why not?

Who do you usually meet when you visit this place?

- Acquaintances or friends / specific generations / others?

Would you like to meet a more diverse group of people at a particular place

Do these encounters contribute to your sense of connection to this place?

Do you feel connected to other people present when you are at this place?

## Changing Public Space?

Would you like to have a say in the future of the places you frequently visit?

Have you ever been involved in the design or planning of a particular place?

Would you like to be more involved in the design and planning of public spaces?

- If yes: Are you aware of ways to get involved?

## Closing Question

We are nearing the end of this interview.

Are there any experiences with public spaces that we have discussed that you haven't shared yet and that you think are valuable to mention?

## Conclusion

Those were all my questions for you. Thank you very much for participating in my research! You have been very helpful. Do you have any questions for me? Are there any topics you would like to revisit?

What did you think of the interview? Do you have any feedback for me?

If you have any questions in the future, feel free to contact me. Again, thank you so much!

## 7.2. Observation schemes

### 1. Shopping centre Elderhof

Themes	Observations	Examples/ other notes
Accessibility	<p>Shopping centre Elderhof is generally very well accessible. There centre is located next to a busy road which connect to one side to the road towards the city centre and from the other side to the rest of Arnhem-South.</p> <p>From the other side the shopping centre is accessible with a path that comes directly out of the residential area.</p> <p>Parking spaces are located all around the shopping centre which on most times suffice.</p>	<p>The paths are generally well accessible. On the busy car road on one side is a big crossroads with traffic lights to ensure the pedestrians and cyclists to cross the road safely.</p> <p>As this is quite a local shopping centre it does not seem like people are</p>

	<p>At the shopping centre there is also a bus stop which can take you further into Arnhem-South towards 'de Schuytgraaf', but also towards the city centre of Arnhem and comes as far as shopping centre Presikhaaf in Arnhem-North.</p>	<p>using the bus very much to get to the shops, but the central location of the centre makes these bus more important. Also to get to the city centre.</p>
Mobility	<p>People are entering the shopping centre in quite diverse ways. The parking place seems almost all the time quite busy, but there are also enough people who park their bicycles or come by foot.</p> <p>The crossroads with the traffic light means that people have to look after each other. this makes that the roads are generally quite safe. I can image that in the late evenings people will drive to fast around the main road, but during the day it is always busy enough so that people look after each other.</p> <p>All in all I think that the surroundings in and around the shopping centres are not a restriction for people to use the shopping centres. Even with mobility issues the shopping centre is still accessible quite well.</p>	<p>This has to do with the locality of the shopping centres I reckon. Most people making use of the facilities live close around.</p>
Lay out and facilities	<p>The facilities in this shopping centre consist of 2 supermarkets, a Lidl and a Jumbo. Next to that are stores like Primera, Gall &amp; Gall. Other facilities are a bakery, a drugstore, a pet store which also sells flowers, a optician. There are also restaurants like a Dutch snackbar, a Chinese restaurant,</p> <p>The shopping centre is organised in a circular shape with shops on both the outside and the inside. With on the inside a small square with some benches and planters. The square on the inside is partly covered with a glass roof, so on most places you stay dry in the rain.</p>	<p>The facilities suffice for the daily needs.</p>
Sense of safety	<p>The general feeling in the shopping centre is safe for me. The shopping centre feels quite open despite its roof. The inside square closes in the evening to prevent homeless people from spending the night there.</p> <p>The surroundings are generally clean and everything looks to be monitored.</p>	<p>I was aware of the several incidents that occurred in the past, but I didn't feel very unsafe. The atmosphere was fine. Not super friendly, but not hostile either.</p>

Connectedness	<p>This is for me as someone who is not living near shopping centre Elderhof, difficult to assess. I would imagine there is very little of a connection felt between the shopping centre and its users. This is mostly, because the shopping centres is not the most 'gezellige' place to be.</p> <p>I also don't think that this shopping centre is improving the connectedness between users as the use of these shopping centres is almost solely functional.</p>	
Meeting place	<p>Elderhof is not a great place for meeting people. Of course running into acquaintances works fine everywhere, but the place is not suitable for big conversations or catch-ups with someone you might run into.</p> <p>The place is also not really designed with the purpose to serve as meeting space. The space is designed for daily groceries which are provided very well.</p>	

## 2. Sonsbeek park

Themes	Observations	Examples/ other notes
Accessibility	<p>Sonsbeek park is located next to the city centre of Arnhem. This means that the park is for the most part very accessible.</p> <p>There are a couple of entrances in which you can enter the park and in each entrance you enter a completely different world.</p> <p>The park is subject to quite some height differences which are noticeable especially on some of the routes towards the park. This can be a challenge when on a bike.</p> <p>The paths in the park are on many places paved which makes big parts of the park super well accessible even with a rollator for example.</p>	<p>Height differences not really a problem, because they can be avoided. For cycling it can be a challenge, also the speed when going down.</p>
Mobility	<p>I think on busy days like the weekends parking your car can</p>	

	<p>be a challenge as there is no big parking area close to the park. You have to park your car in a couple of spots around the outsides of the park or find a spot in the neighbourhood.</p> <p>Cycling stall possibilities are also not everywhere. It is allowed in some places to take your bike within the park, but not all the entrances have sufficient cycling stalls.</p> <p>The central station which also serves as biggest transport hub for buses is very close to the park. There several bus stops near the park so it is well accessible with public transport.</p>	
Lay out and facilities	<p>One of the best things about Sonsbeek is the diversity in nature that is found there. There are so many different landscapes in a relatively small area.</p> <p>The great variety of nature is what makes the park so unique.</p> <p>The park also has many non-public facilities where visitors can get a drink or something to eat. There is also the water museum.</p>	So many different landscapes: neat gardens, bodys of water, foresty areas, meadows.
Sense of safety	<p>Sonsbeek generally feels super safe.</p> <p>The park closes at night. There are several streetlights and the park feels in most places very open.</p> <p>The atmosphere is generally super relaxed which makes it a great place to be.</p>	
Connectedness	<p>I can say that I do feel connected with park Sonsbeek, because it is such a beautiful park. I am proud to have such a nice and versatile park in the neighbourhood.</p>	Feeling a connection because of pride and good memories.

	I do think it is quite easy to feel somewhat a connection with the park, because most people from Arnhem will have some nice memories from there.	
Meeting place	<p>The park can serve as a nice meeting place. Both for meeting strangers, but especially for arranging something with friends or acquaintances to take a walk in the park.</p> <p>The activities organised in the park emphasize the many possibilities to meet others</p>	Meeting others is possible, but people also like to be on their own in the park. Just relaxing.

### 3. Cycling infrastructure around the city centre of Arnhem

Themes	Observations	Examples/ other notes
Accessibility	<p>Cycling around and in the city centre is very well possible. There are some chaotic points in the city centre which are addressed here.</p> <p>The city centre is very well accessible by bike. There are many cycling highways from all parts of Arnhem and its surroundings to the city centre. Positive is that cyclists have to stop or brake as little as possible. This is also to a lesser extent the case in the city centre.</p>	Cyclists are prioritised in the city.
Mobility	<p>There are some chaotic crossroads like the one at Muis Sacrum. This is a crossroad where many different road users come together which can sometimes make it a bit chaotic.</p> <p>A point that is very well managed is the cyclist roundabout by the airborne memorial. On this roundabout</p>	The feeling of chaos is even more elevated by the many different modes of transport on the cycling lanes which have big speed differences as a consequence.

	you can pick to go in the direction of Westervoort, Arnhem-South, Arnhem-North or the city centre. People generally watch each other like a normal roundabout. This is something that is working quite well and allows cyclists to keep moving instead of stopping for a crossroad.	
Lay out and facilities	Parking the bike is very good possible. There are some guarded places during the day. In the evening you can leave your bike there unsupervised.	
Sense of safety	Some chaotic crossroads can make the infrastructure feel unsafe, but generally speaking it is quite safe.  The feeling of safety is generally good, but in the evenings and at night some places are a bit dark. I can imagine that this can give an unsafe feeling, especially to older people .	When people look after each other
Connectedness	Not really applicable to this place.	
Meeting place	Of course not super suitable as the cycling infrastructure is not made to actively meet others.	

### 7.3. Codebook

All the interview transcripts are coded in the first place by using the method of open-coding. With this method all important aspects of the interview got a code. This way a big variety of codes was established with many codes recurring and being also applicable in other interviews. After this process of open coding all the codes were sorted in code groups with some codes belonging to multiple groups. The code groups were established based on the general themes from the interview guide together with the most important places that followed from the interviews. The codes and code groups are in Dutch, because the interviews were as well. The definitions and examples in the codebook will be in English, because the results will be as well. The code groups in the table are sorted by their size. The

groups including the most codes are at the top and so on to the group with the least codes on the bottom.

The codebook is on the next page.

Code groups	Definition	example	subcodes
Winkelgelegenheden (shopping centres)	All shopping facilities discussed in the interviews. The smaller shopping centres in Arnhem-South, the isolated supermarkets in Arnhem-North. But also the markets, the city centre. Next to kust describing the facilities this group contains the codes which say something about the facilities.	Go in many different scales and forms. From the local liquor store to big shopping centres like Presikhaaf. Describing the facilities as useful for the daily needs, or tidiness.	Supermarkt, Presikhaaf, Drogist,  Maar ook: Keuze genoeg Faciliteiten missen en Onpersoonlijk
Groene gebieden (Green areas)	The green areas consists of all the green areas talked about in the interviews. These vary from big forests, to natural facilities on a smaller scale in the living environment.  Contains codes that describe the nature and the experiences of the respondents.  Also includes codes that give information about the way these green spaces are managed.	These areas are among other things the forests in the North, several parks like Meinerswijk, Klarendal and Sonsbeek.  Praises or experiences in the green spaces  Things like nature conservation and the state of nature.	Immerloo, Bos, Parken, Wadi's  Uniek, Bevoorrecht, Horizonvervuiling  Natuurbeheer, natuurbehoud
Ontmoetingsplek (Meeting spaces)	This group includes all the public space that are specifically designed to meet others.  Next to that these code group also consists of codes which describe interactions between different people on any of the public spaces or the lack thereof.	These are the community centres, elderly centres and churches  All spaces are in some form a meeting place. But some are less suitable	Wijkcentrum. Kerk.  Sociale contacten, Gezelligheid, Onbekende mensen.
Verbondenheid (Connectedness)	Contains codes about the connection among the respondents with public spaces and the other users of these spaces, but also with Arnhem in general.	Connectedness often the case in neighbourhoods or with Arnhem or green spaces, but much less with shopping centres. Thing like social control and nostalgia are determining factors of the connectedness.	Verbondenheid, Mening over Arnhem, Buurniveau, Buitenlanders
Persoonlijke eigenschappen (Personal traits and habits)	This group consists of personal traits and habits which are explaining certain choices and experiences with the public spaces respondents interact with.  Also general personal attributes and information are thing returning in this code group.	Some of the respondents tell are individualistic or have prefer to follow the habits  These are things like age, place of birth or the presence of grandchildren	Gewoonte, Individualist  Leeftijd Geboorteplaats Weduwe kleinkinderen

Mobiliteit (Mobility)	This group consists of all forms of transports the respondent are making use of which determines the general mobility of the respondent. Also the general infrastructure provided for these different modes of transport is described.	Modes of transport are cycling, walking, public transport and the car.  Takes into account the infrastructure which is facilitated together with busy roads.	Fietsen, Autogebruik  Infrastructuur, drukte
Toegankelijkheid (Accessibility)	Contains the codes which tell something about the accessibility of public spaces. Overlaps with mobility in the sense this group also takes into account the infrastructure and roads, but goes a step further with also assessing the roads within the public spaces.	Means of parking are important for the accessibility as well as good connections with public transport and the presence of cycling paths.	Parkeren, Bereikbaarheid. toegankelijk
Wonen (Housing situation)	This group describes the general living situation and duration of residence of the respondents as well as their thoughts about the future on this matter.	Thinking about the future in the sense of buying a smaller house, or a one storey apartment.	Woonduur, Toekomstgericht wonen, appartementen
Activiteiten (Activities)	Codes in this group consist of the activities people are doing on a regular basis. This can be in a community centre or another association.	Examples are activities organised by elderly community centres.  Also the need to stay active and thus walking a lot is included in this group	Activiteiten, Actief blijven, Vereniging
Wijkniveau (Neighbourhood scale)	This groups include codes which are describing the general experiences within the neighbourhood. The assessment of the neighbourhood by the respondents, but also general trends.	These are things like alone people, versatility and rejuvenation. Also the possibilities for help among neighbours.	Alleenstaande mensen, Burenhulp, verjonging
Veiligheid (Safety)	Codes in this group describe the feelings of safety among the respondents. These are properties of public space like the tidiness and openness.	Can be influenced buy the openness of a place or streetlights. But also by the general criminality in a neighbourhood	Veilig gevoel, Openheid criminaliteit
Inspraak (Participation)	Codes that describe the participation of the respondents and the desire or the lack thereof.	Sometimes respondents take their own initiatives other times they think it is worthless to give their opinions to municipalities.	Inspraak, Eigen initiatief, Meedenken is zinloos  Rol van gemeenten, teleurgesteld

	Also contains codes which tell something about the role of the municipalities and the general politics.	Municipalities are often seen as bad listeners to the people.	
Stadsregio's (City regions)	Contains the topographical places and regions discussed in the interviews.	These are the three broad regions in Arnhem: North, South and city- centre. But also Velp and Huissen are broadly discussed.	Arnhem Centrum Arnhem-Zuid Huissen
Overage openbare ruimtes (Other public spaces)	Groups the public spaces also mentioned during the interviews, but much less deeply discussed as they do not play a big part in the daily lives of the respondents.  This does not make them less important.	These are things like libraries and town halls. Also hospital and other health related institutes. My respondents are generally healthy.	Medische voorzieningen, Bibliotheek, gemeentehuis
Niet openbare ruimtes (Non-public spaces)	Groups the non public spaces discussed in the interviews who respondents also see as important part of their daily lives. These are much less extensively discussed, but passingly mentioned.	These are things like cafes, theatres and cinemas	Niet-openbare ruimte