

AT HOME IN THE HAGUE

**Everyday Life in Den
Haag Zuidwest
and Ypenburg**

THUIS IN DEN HAAG

**Het dagelijkse leven in
Den Haag Zuidwest
en Ypenburg**

**Volume 3:
Ypenburg**

COLOPHON | COLOFON

Editor-in-chief | Hoofd Redacteur
Nelson Mota

Co-editors | Co-redacteuren
Alejandro Campos Uribe, Pierijn van der Putt, Rohan Varma

Editorial Assistant | Redactie-assistent:
Philomena Vida

Graphic Design | Grafische vormgeving:
Philomena Vida

Translations | Vertalers:
Hasan H. Şahin (Turkish), Marwa Ali (Arabic), Marnix Schalk, Julia van der Elsen (Dutch)

COURSE | MASTERVAK ARCHITECTURAL ETHNOGRAPHY (TU DELFT)
Spring 2023
Coordinator | Coördinator:
Nelson Mota

Tutors | Docenten:
Alejandro Campos Uribe, Nelson Mota, Pierijn van der Putt, Rohan Varma

Associated Teachers and Researchers | Geassocieerde docenten en onderzoekers:
Prof. Hermelijn Smits (LUMC), Prof. Arjen Speksnijder (Hogeschool Leiden)

Research Assistants | Onderzoeksassistenten:
Antonio Paoletti (TU Delft), Angela Hoogenboom (Hogeschool Leiden), Rob Pastoor (Hogeschool Leiden)

Coordinator of the Thesis-Hub Den Haag Zuidwest:
Coördinator Scriptiewerkplaats Den Haag Zuidwest:
Mandy Koenraads

Students | Studenten:
Anouk Hagen, Apostolos Spyropoulos, Aris Aragno, Aster Wellerdieck, Bérénice Demiddeleer, Bronwyn Bell, Caroline Rosenzweig, Chiel Molendijk, Elena Ciucci, Eltjo Ockeloën, Floyd Jansen, Hanna Adamczyk, Jacky Lai, Jaron Smit, Jemma Scheijde, Kalina Matova, Laurens Coster, Neoh Ke Ling, Liuying Chen, Luisa Zeilinger, Marianna Lappa, Max Douma, Millie Chieng Qian Yao, Natalia Simonarson, Pearl Yeh, Perle Hagesteijn, Ries Schouten, Roos Scholten, Savvina Megalovasili, Sepehr Asadi, Sybe Heusen, Tingwei Du, Trijntje Verschuuren, Weili Huang, Xinrui Zhang, Yi Go, Zita Leutgeb.

Acknowledgments | Dankbetuigingen:

We would also like to thank the contribution of:

Wij danken ook de bijdrage van:

Dr. Cristiana Strava (Leiden University), Dr. Claire Bosmans (KU Leuven), Marco van Es (Stichting Bac2nature), Mirte Boelens (Leiden University, PHEG), Prof. Dr. Jessica Kieft (Leiden University, PHEG), Prof. Dr. Piet Hiemstra (LUMC), Javier Arpa (TU Delft)

This booklet was made possible with the financial and logistical support of:

Deze boekje is mede mogelijk gemaakt door de financiële en logistieke steun van:

TU Delft - Bouwkunde, Scriptiewerkplaats DHZW, NWO-NRO (Nationaal Regieorgaan Onderwijsonderzoek).

TABLE OF CONTENTS | INHOUDSOPGAVE
VOLUME 3

Ypenburg

Living with Green.

Xinrui Zhang, Liuying Chen, Sybe Heusen

Towers of Ypenburg

Bérénice Demiddeleer, Yi Go, Eltjo Ockeloën

From Micro to Macro

Apostolos Spyropoulos, Hanna Adamczyk, Jaron Smit

Symbiosis

Aster Wellerdieck, Ke Ling Neoh, Millie Chieng, Qian Yao

Research Reports

Disclaimer:

The following research reports were created by students enrolled in the Architectural Ethnography course. The participants involved in the research have been asked to grant permission for sharing the data presented in this document and consenting to the processing of the collected data. Every effort has been made to obtain the necessary copyrights for the reproduction of the materials included in this volume. If you are the holder of copyrighted material not properly acknowledged in this volume, we kindly invite you to contact us. We will promptly correct the copyright attribution on all available platforms.

Onderzoeksrapporten

Disclaimer:

De volgende onderzoeksrapporten zijn gemaakt door studenten die zijn ingeschreven voor de cursus Architecturale etnografie. Aan de deelnemers die betrokken zijn bij het onderzoek is toestemming gevraagd voor het delen van de in dit document gepresenteerde gegevens en het instemmen met de verwerking van de verzamelde gegevens. Alles is in het werk gesteld om de nodige auteursrechten te verkrijgen voor de reproductie van de materialen die in dit boek zijn opgenomen. Als u de houder bent van auteursrechtelijk beschermd materiaal dat niet naar behoren in dit boek wordt vermeld, nodigen wij u vriendelijk uit om contact met ons op te nemen. We zullen de auteursrechttoeschrijving op alle beschikbare platforms onmiddellijk corrigeren.

YPS1

Ypenburg Singels Case Study Area 1

LIVING WITH GREEN

Leven met groen

LUYING CHEN, SYBE HEUSEN, XINRUI ZHANG

Housing and Health in the Hague

The 2022/23 edition of the MSc2 elective course "Architectural Ethnography" explores the interface between the disciplines of architecture, anthropology, microbiology and public health, to investigate how spatial configurations and social practices influence and are influenced by the interactions between humans, non-humans and the diversity of environmental microbiota. Working in collaboration with students, teachers and researchers of Leiden University Medical Centre (LUMC) and Hogeschool Leiden, this report examines a case study areas located in Singels, one of the neighbourhoods of Ypenburg, in the Dutch municipality of The Hague. Using a pioneering combination of environmental microbiome research with ethnographic research and spatial analysis this research aims at answering the following research question:

how urban and housing design influences interactions between humans, non-humans and the diversity of environmental microbiota and promotes lung-friendly behaviour?

Course Coordinator
Dr. Nelson Mota

Instructors
Ir. Pierijn van der Putt
Dr. Alejandro Campos Uribe
Ir. Rohan Varma

Research Assistant
Antonio Paoletti

Student Assistant
Philomena Vida

Course Organized by



In Collaboration with



With the financial support of



Students

Xinrui Zhang - 5791758

Liuying Chen - 5800145

Sybe Heusen- 5425530

Tutor

Nelson Amorim Mota

1. Introduction	7
a. Historical Background	8
2. Socio-economic Characterization	13
a. Economic Statistics	14
b. Population Statistics	18
3. Spatial Analysis	21
a. Urban Scale	24
I Climate Analysis	24
II Green Space Analysis	26
b. Community Scale	29
I Vegetation Distribution	30
II Biodiversity	32
III Residential Data Analysis	34
4. Synthesis Participatory Action Research	39
a. Coffee Meeting	40
b. Appointment with Residents	42
I Interview	42
II Participatory Map	43
c. Appointment with Volunteer	46
I Participatory Floor Plan	47
II Video Diary	48
5. Conclusion	59
6. Sources	62

Introduction

The Singels neighbourhood is a classic dutch Vinex neighbourhood, about 800 thousand people in the netherlands live in these neighbourhoods. In a phenix neighbourhood the commuting high-middle class is often well represented, aswel as green spaces. A characteristic is the presence of many one family houses with commonly a front and backyard. Parking is often well arranged with (free) parking on streets and sometimes private garages or driveways.

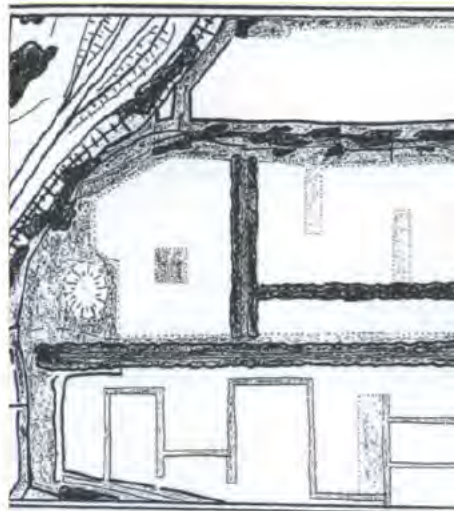


The newly constructed neighbourhood in 2001 (photo of participant 'M')

Ypenburg is a neighbourhood named after the airfield Ypenburg which had been located there since 1936 and up till 1992. In 1997 the construction started for this new neighbourhood for about 30.000 new inhabitants. Ypenburg was constructed to accommodate for commuters to the nearby cities and for that well connected to the highway and public transport. Houses were built in all kind of sizes and price ranges which still contributes to a well rounded community.

History: Singels

The singles neighbourhood started to belong to the municipality of Den Hague from 2002. The neighbourhood lacked in biodiversity, the greenery consisted mostly out of grass and trees, in the past 22 years many flowerparks have been added and the municipality has started to stimulate the ecology by giving some free trees for who wants them.



ARCHITECTURAL ETHNOGRAPHY

Till 1847 the location where in the future Ypenburg would be built was still largely uninhabited.



Till 1922 more land was procured and put to use as farmland



Between 1922 and 1934 more roads were introduced to the area in order to accommodate the upcoming car and accessibility



Between 1934 and 1952 the airport Ypenburg was constructed as a civil airport, but changed during the 2nd world war into a military base



Between 1952 and 1958 the expansion of Rijswijk is clearly visible, as well as the expansion of the airport that is named on the map



Between 1958 and 1964 the expansion of Rijswijk progressed and the maps are changed. The airport seems to be removed from the map as more waterways are drawn



Between 1964 and 1975 Rijswijk expanded more as well as Nootdorp. Here as well the map shows signs of more cultivated farmland, however the airport of Ypenburg was operational from 1936 till 1994





The first map that documents the Ypenburg airport in 1985



Ypenburg was in use till only briefly after 1994



As the airport disappeared, preparations for the Ypenburg neighbourhood started



In the map of 2007 we see the new neighbourhood as it is located between Rijswijk and Nootdorp



Since 2007 some more expansions have been made to the neighbourhood new houses on man-made islands



Ypenburg airport 1930



Ypenburg airport 1947



Ypenburg airport 1936

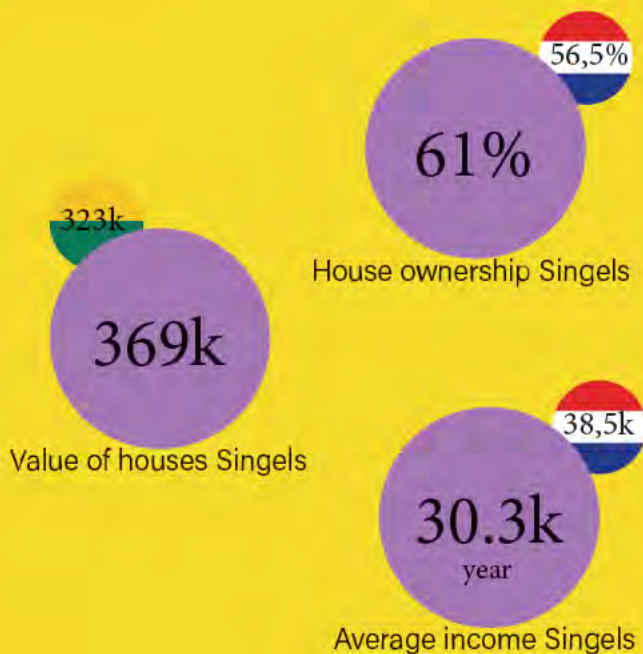


Ypenburg neighbourhood 2001

Socio-economic Characterization

Socio-economic status of a group or person is the combination of the level of income, level of education, profession, assets and possessions, access to resources. Pierre Bourdieu captures this in four dimensions; economic capital, cultural capital, social capital and symbolic capital. A higher socio-economic status is a representation of more wealth or capital. However, in the Netherlands, the status and influential reach of close friends and family is taken into account as well. Because it influences financial flexibility and opportunities.

Material posession:



Material posession within social economic status qualifies how wealthy the people are, including their purchasing power and and access to funds. The more funds the more resilient the people will be to economic crises and inflation. For this realestate, investments, savings and other posessions are the predomenent factors. More assets are often related to a higher socio-economic status Note: For the average income of Singels is claculated that the ~4300 people who receive a income the average is 39,1k which is slightly above average. However, the median over ~5500 people brings it down to 30,3k.

Family network and power:



Married 38,5%



Single 50,9%



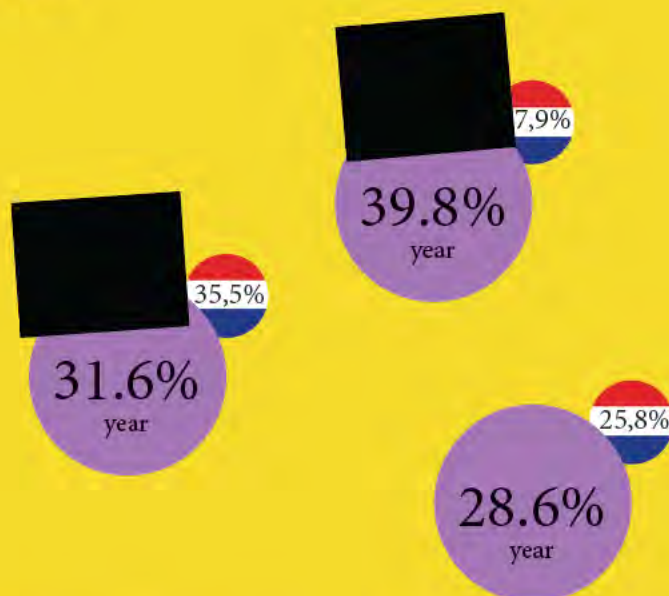
Dutch nationals 50,9%



Internationals 48,9%

Pierre Bourdieu writes about social capital; the social relations and support that a person or group has. This can exist in the form of family ties, friendships, membership of social groups, professional network and other social connections. Social capital has influence on the social-economic status because it allows for social mobility, access to opportunities and social welfare. For example being able to apply to a better job through recommendations or having someone watch the kids at times to give parents the opportunity to apply for a job or maintain their social connections.

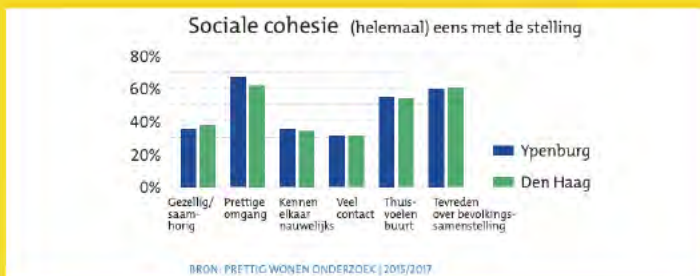
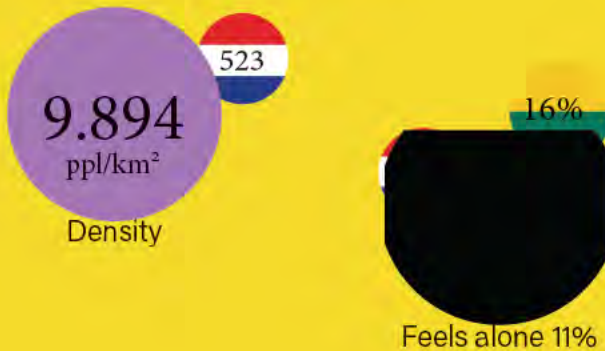
Knowledge / skill:



Higher education: 31.6
 Vocational education: 39.8
 Lower education: 28.6

The level of education is an important factor in the socio-economic status. Higher educated groups often have more acces to knowledge, skills and better wages. Lower-educated people therefor might have less acces to education and might not always be presented with similar opportunities to change their position on the socio-economic ladder. In the netherlands the socio-economic status is not only represented by educational level of the person itself, but also that of their parents, family and close friends.

Symbolic network and power:



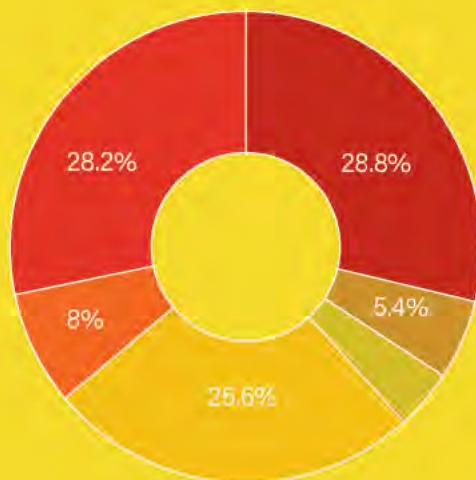
Symbolic capital is related to reputation, status, acknowledgement and prestige of a person or group within society. Symbolic capital represents someones social position and influence on society. An example of this are representators of religions or social media influencers. Titles and achivements can also be of influence of someones position.

This relates to the data in a way that to have this symbolic capital there needs to be a society or group of people that acknowledges this position.

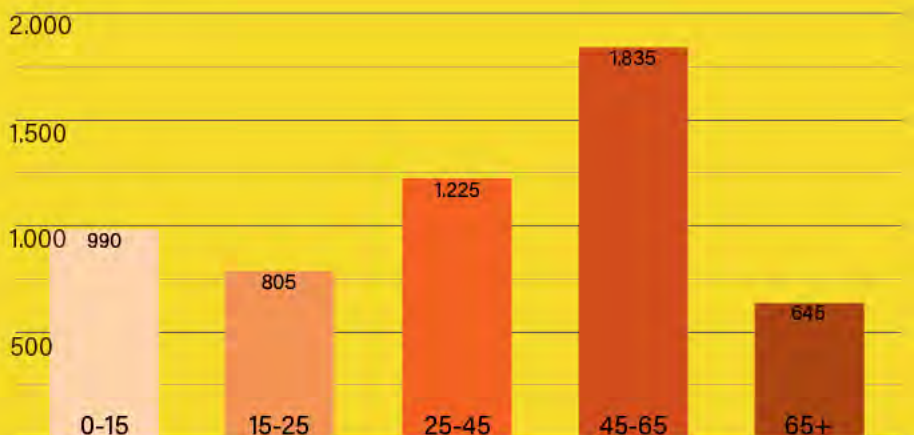
Singels Population

Nationality

Westers Marokko Antillen Suriname Turkije Overig



Age distribution



The Singels neighbourhood is a well diverse mix of dutch nationals, internationals and of different levels of education. The average income can be interpetated as lower than average when is counted per resedent, but when considered the wage of working people this is slightly above average. Including the data of the amount of people that own their own house and the market value we see an average neighbourhood on the surface. However, combining this with the in the neighbourhood in large represented non-native group, whom despite being more prone to loneliness in the netherlands, seem to score well on not feeling alone. We can conclude that the social cohesion in the neighbourhood is good and that individuals are doing economically well. By interviewing locals we can conclude that there is some social safety net present amongst neighbours in the way that they are open to watch each others kids for example. In this way they support the socio-economic status of the neighbourhood. However for more severe economic support it is still to be seen.

Spatial Analysis

Based on the data collected from field research, interviews, and the combination of statistical data on the Internet, the analysis of the sites is divided into two scales: Urban and Community. At the urban scale, the overall climate of Ypenburg and its surrounding network of green space systems are explored, and the green space system is used as a clue to narrow down to the community scale. Finally, the site characteristics of the singels are derived by comparing the health and environment-related data at both scales.

**SPATIAL
ANALYSIS
AND HEALTH
INDICATORS**

0,06

Leefbaarometer¹
Total Score
Scale: Grid

54

Residential Density
Dwellings / Hectare

12,9%

Intake of more than 5+
types of medication²
Scale: Ypenburg, 2017

33,9%

Ground Space Index
Groundfloor Surface
Occupation / Hectare

82%

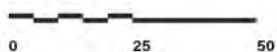
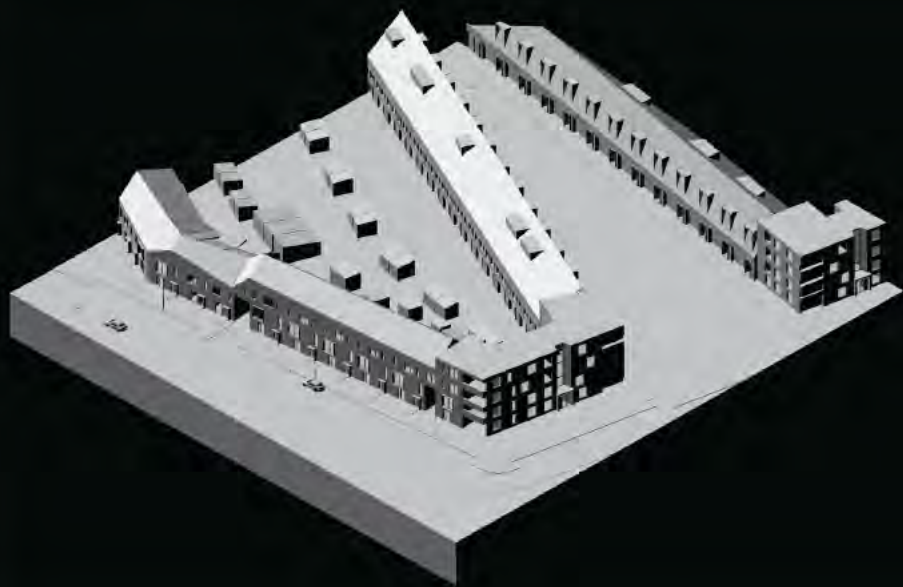
Perceived Good Health
Singels,
aged 18-65³

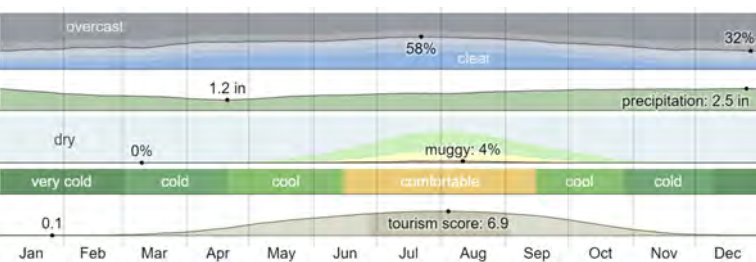
62,78m²

Average Household
Footprint
10,000 x GSI / Households

65%

Perceived Good Health
Singels,
aged 65+³





Ypenburg has a temperate maritime climate with high precipitation and high cloud cover throughout the year. From October until March of the following year, a high percentage of days are covered by clouds, and the humidity comfort level is around 2% throughout the year, which is a relatively depressing and humid level. Similarly, such an environment is conducive to microbial growth. The wind direction is predominantly westerly, with northwest monsoon prevailing in summer and southwest monsoon in winter. The western part of the site has elevated roads, so a large amount of exhaust from cars on elevated roads easily reaches the site through the monsoon, which has a negative impact on air quality (figure as followed).



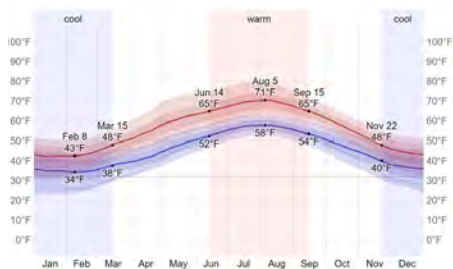
The impact of prevailing wind direction to the site.

Underlay: opens-treetmap

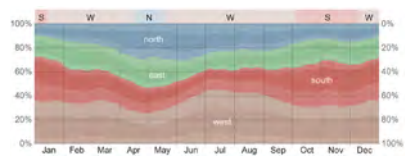
Urban Scale

Climate Analysis

Temprature



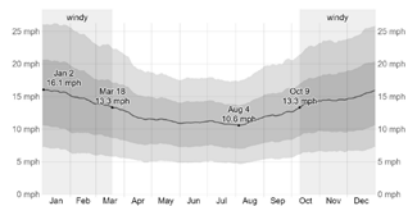
Wind direction



Cloud coverage



Humidity



Rainfall

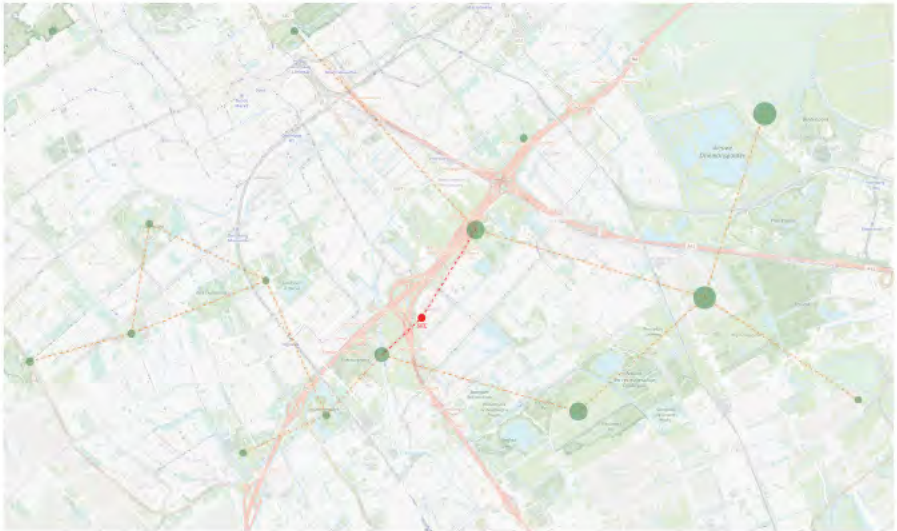


Wind speed



Green Space Analysis

Green Space System



The Hague is working hard to build „the green city“ and „sustainable city“ with the support of *The Hague Institute for Global Justice, the World Resources Institute, Climate Alliance, Eurocities, the Covenant of Mayors and the Compact of Mayors*¹, among others, and one of the most visible manifestations is the promotion of urban gardens and green spaces. The site is located between the Hague and Delft, at the heart of several large urban public green spaces within the city limits. The green space-based urban bio-ecosystem is an ecological network of interactions and connections at the microbial level, through people’s daily trips and activities.

1. The Hague
resilience
strategy, 2019

Underlay:
openstreetmap

Accessibility of Green space



The general 10-minute walking distance for adults is about 750-1200 meters, so about 1000 meters is taken as the 10-minute walking distance. Therefore from the diagram it is clear that approximately 10 minutes walk to Geluidswal Ypenburg Park, located to the west of the site, however further west is a large private golf course adjacent to another urban park. The frequency and trajectory of human activity in more private urban green spaces is often different from that of a fully open urban park, and the vegetation in such green spaces as the golf course, for example, is often specially selected and arranged, with lower vegetation density and lower biodiversity in the local environment than in a similarly landscaped urban park. Therefore, based on the relationship between the site itself and the urban environment, the pedestrian accessibility to the more ecologically rich urban parks is low.

Specifically at the scale of Ypenburg and its surroundings, the west side of Singels has a large grassy area as well as a basketball court and other public green spaces suitable for play. According to the author's field research, most of the children in the playground of the site come from the neighboring neighbourhoods, which makes the site a relatively active h-core public space that attracts and gathers children and their parents.



Community Scale

Green Area Type A
Backyard



Green Area Type B
Lawn



Green Area Type C
Green belt



Community Scale

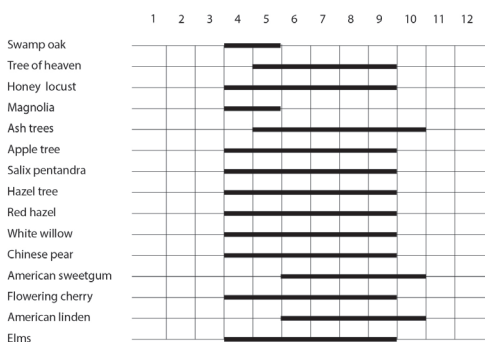
Vegetation Distribution



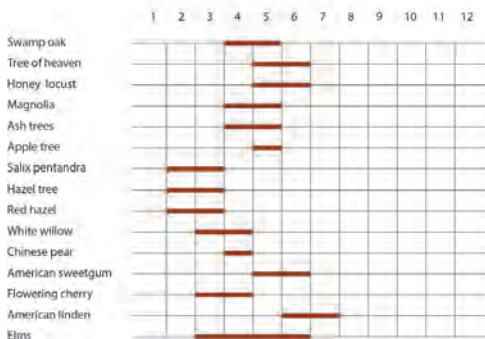


According to The Lancet (2017), the Netherlands has the highest rate of childhood asthma in Europe. And the pollen of some plants has the possibility of inducing asthma, as shown by the distribution of plants in the figure, the pollen of plants located by the sports field all have a certain rate of sensitization, which is a certain risk.

Growing season

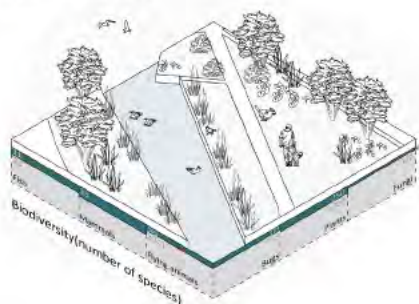


Pollen season



ARCHITECTURAL ETHNOGRAPHY

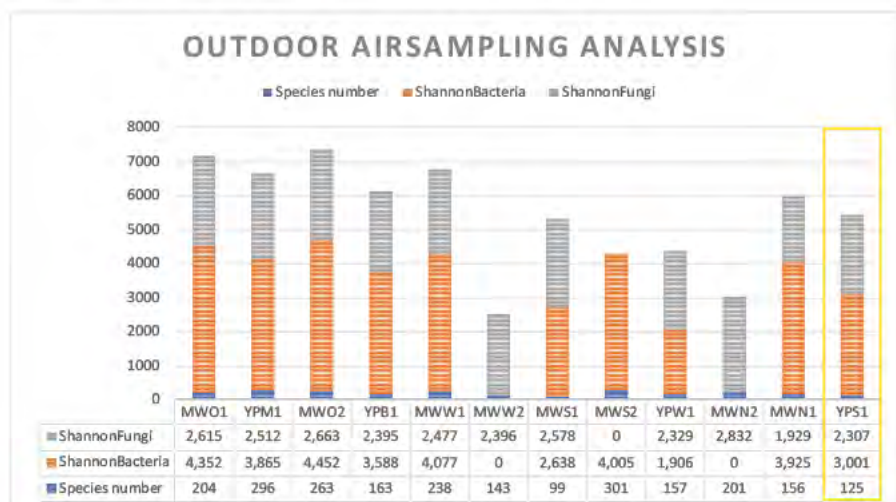
Biodiversity

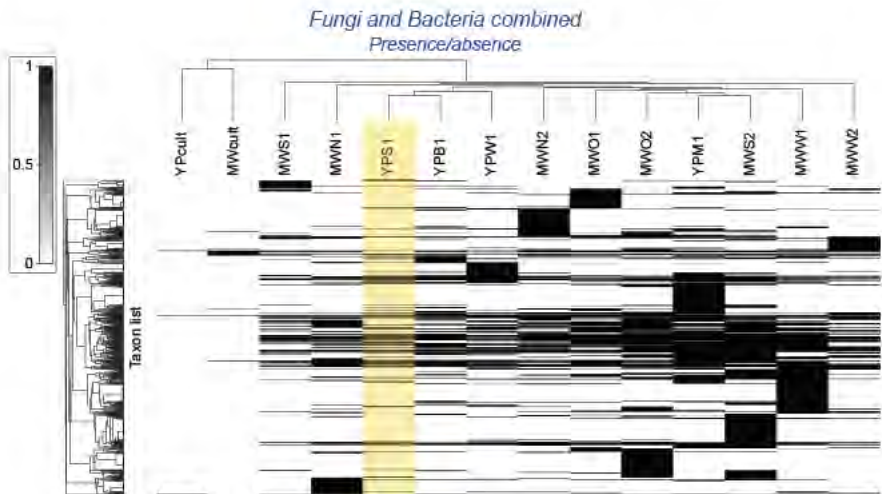


As for the species diversity within the Singels, the number of bird, insect and plant species is higher, and in terms of relationship to the overall ecological construct of the Hague, the contribution to the overall ecological integrity is greater in mammals and plants.

				(toads etc)		Flying things (other than birds)					
	Birds	Mammals	Fish	amphibians	Bats	Eutremies	Moths & caterpillars	Bees, wasps, ants	Flies & mosquitoes	Dragonflies	
Species since 2013	148	13	11	3	5	23	70	33	58	13	
Most represented	Sturnus vulgaris	Oryzotagus curvicaudus	Scardinius erythrophthalmus	Bufo bufo	Pipistrellus pipistrellus	Pararge aegeria	Cybalima perspectalis	Apis mellifera	Volucella zonaria	Ischnura elegans	
	(Bugs and other things)					(snails etc)					
	Grasshoppers & Crickets	Beetles	cicadas & other	Bugs & others	Mites & Spiders	Mollusks	Worms	Plants	Moss	Fungi	
Species since 2013	8	38	26	9	28	9	1	250	39	85	
Most represented	Leptophyes punctatissima	Adalia bipunctata	Palaemones pinnatus	Chrysopa perla	Araneus diadematus	Cepaea nemoralis	Agaricoides caliginosa	Ononis vulgaris	Brachythecium rutabulum	Coprinus comatus	

Air samplings Analysis





The air sampling collected from the site was compared with air samples from other locations in Ypenburg, and it was found that the number of species inside the site was limited, and the percentage of bacteria was low but the percentage of fungi was high.

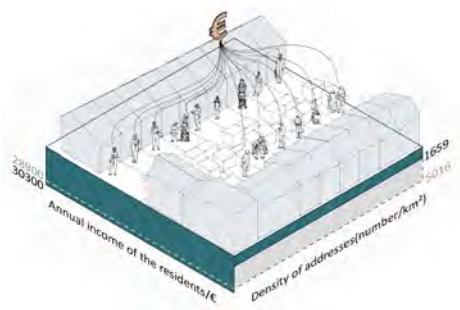
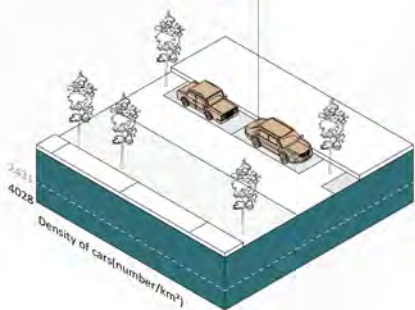
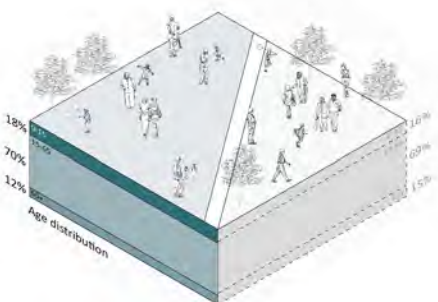
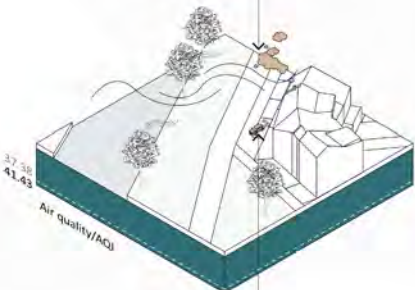
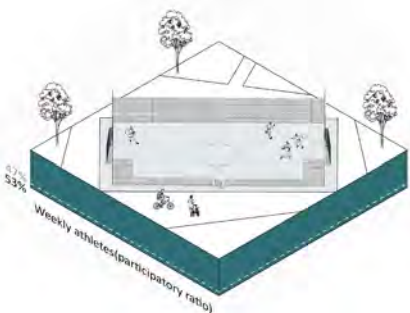
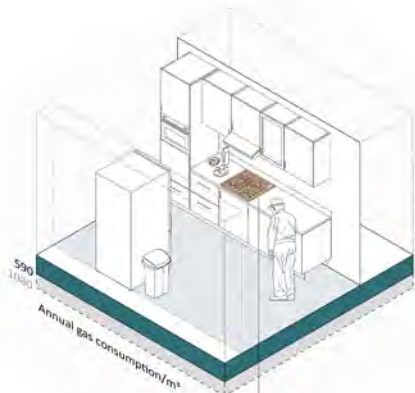
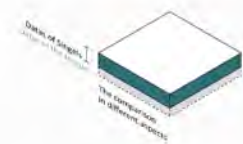
In terms of specific microbial species, firstly, the majority of the identified microorganisms belong to the fungal kingdom, with *Aspergillus* being the most common genus. This suggests that YPS1 has a high fungal diversity and is likely a suitable environment for fungal growth.

Secondly, the presence of bacterial and archaeal phyla such as Proteobacteria, Actinobacteria, and Euryarchaeota indicates that YPS1 is not solely a fungal-dominated environment. These phyla are commonly found in soil environments and are known to have important roles in nutrient cycling and decomposition.

Finally, the presence of certain genera such as *Candida*, *Cryptococcus*, and *Trichosporon*, which are known to cause infections in humans and animals, may suggest a potential health risk in the YPS1 environment.

Residential Data Analysis

The cubic shows a comparison between Singels community and the Hague in terms of population distribution and ecological health related data, so that to explore the characteristics of Singels



AQI is a measure of air quality, the higher the AQI the worse the air quality, the AQI in Singels is 41.43 which is slightly higher than the Hague average of 37.38. Therefore the air quality in Singels is slightly lower than the Hague average. In terms of the relationship between the community's own conditions and the environment, and household emissions and vehicle emissions can have a direct impact on air quality. gas consumption in Singels is lower than the Hague average, while its vehicle density is much higher than the Hague average. It is therefore reasonable to assume that the high vehicle density of g has an impact on the air quality of the region.

In terms of the composition of the resident population, Singels has 18% children (0-15years old) and 12% elderly (65+years old). The Hague has a lower proportion of children with 16% and a higher proportion of older people with 15%. The lower air quality than the Hague average may have an impact on the proportion of older people, which is supported by our interaction with local residents in the field. In terms of average annual income, Singels has a higher income and a relatively lower proportion of housing in the area, resulting in a relatively high coverage of public space and greenery, which provides the area with ample recreational and play areas, making it a suitable community for children. Finally, Singels also has a high level of sports participation, which may show a positive correlation with both the proportion of children in the area and the proportion of outdoor recreational space.

Noise and Barrier

Neighbor: cur: 44dB peak: 45dB avemax: 118dB max: 129dB

Road: cur: 62dB peak: 107dB avemax: 121dB max: 121dB

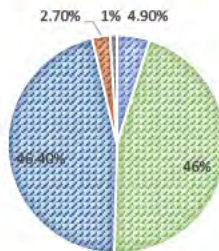
Near road: cur: 48dB peak: 64dB avemax: 103dB max: 114dB

According to Dutch regulations, noise exceeding 80dB is considered harmful to people, and according to the above-mentioned data measured by the authors in the site, the noise on the road has exceeded this standard due to the influence of vehicles coming and going on the elevated area around the site. Even if the average value is still within the normal range in the Singels' neighbourhood, occasionally the peak value exceeds 80 dB, which can have some negative impact on the residents' residence.

Energy Labels: the building energy efficiency

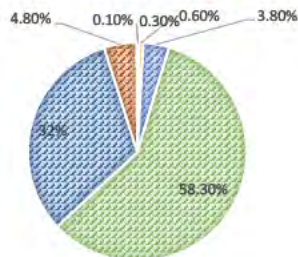
SINGELS

■ A++++ ■ A+++ ■ A++ ■ A+ ■ A ■ B ■ C ■ D ■ E ■ F ■ G



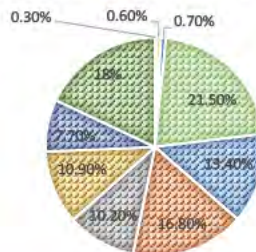
YPENBURG

■ A++++ ■ A+++ ■ A++ ■ A+ ■ A ■ B ■ C ■ D ■ E ■ F ■ G



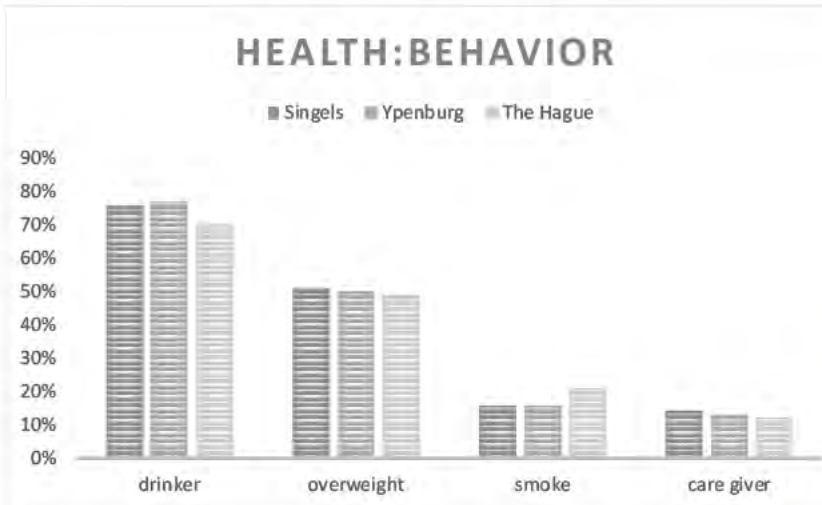
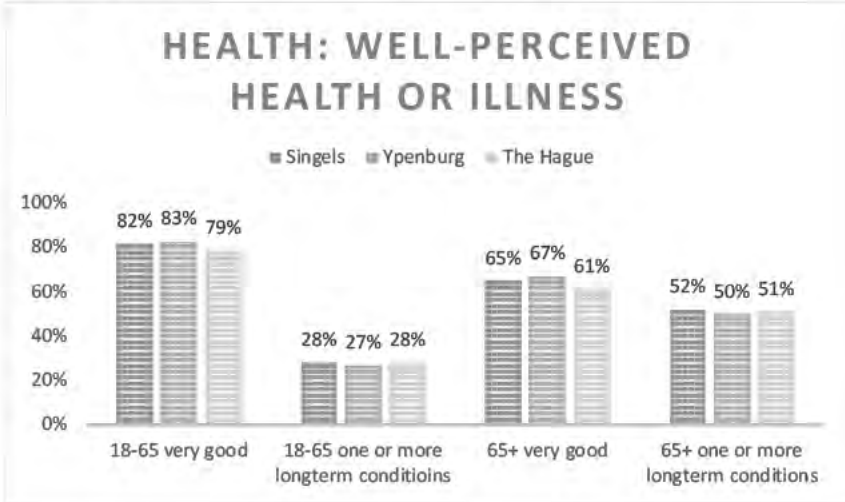
THE HAGUE

■ A++++ ■ A+++ ■ A++ ■ A+ ■ A ■ B ■ C ■ D ■ E ■ F ■ G



Resident Health Status Assessment

In general, Singels has a slightly higher percentage of people in good health than the Hague average. As for health-related behaviors, the percentage of drinker and overweight is higher than the Hague average, but the smokers' proportion is significantly lower, and this indicator is closely related to people's lung health status.



Synthesis Participatory Action Research

In this chapter the findings from the participatory research will be presented. In four visits to our participant we have acquired knowledge on how resedents experience and view the neighbourhood. What the participants lifestyle is, and how this connects to the environment. The research methods include interviews with residents, participatory map, participatory floor plans and video diaries.

Coffee Meeting





SYOP 2: Playground

We moved to the bench at the playground, where we met a woman who came from another neighbourhood nearby and was watching her child playing. We also met an Asian family there who also came from another district. According to them, many parents nearby would bring their children here to play.



SYOP 1: Picnic Table

Our first stop was the picnic table on the edge of the neighbourhood. However, very few people passed by this area. And since the location was next to the road, the wind was quite strong. As a result, we had to move to another place.

Appointment with residents

Interview

Q: Problems of the neighbourhood

A: The neighbourhood is **lack a community center**. The nearest one is in the center of Ypenburg, and you have to book to use it. When I moved here, I have to knock on doors from house to house to organize a party. The relationship among neighbors is not close, we always feel lonely.

Q: Problems related with health

A: The **air quality** here is not good. We always keep windows closed to prevent the smoke from coming in. There was one neighbor who got lung disease and had to move away. But the **greenery** is sufficient here. We really like the environment and always go for a walk along the boulevard or hill.

Q: Other issues

A: Occasionally, there would be teenagers coming to the neighbourhood during the night. They talked and drank, which made us feel unsafe.

Q: Activities in the greenery area

A: Mostly just walk. Many people would walk their dogs. Sometimes we have a barbecue outside since we don't want the smoke to stay in our houses.



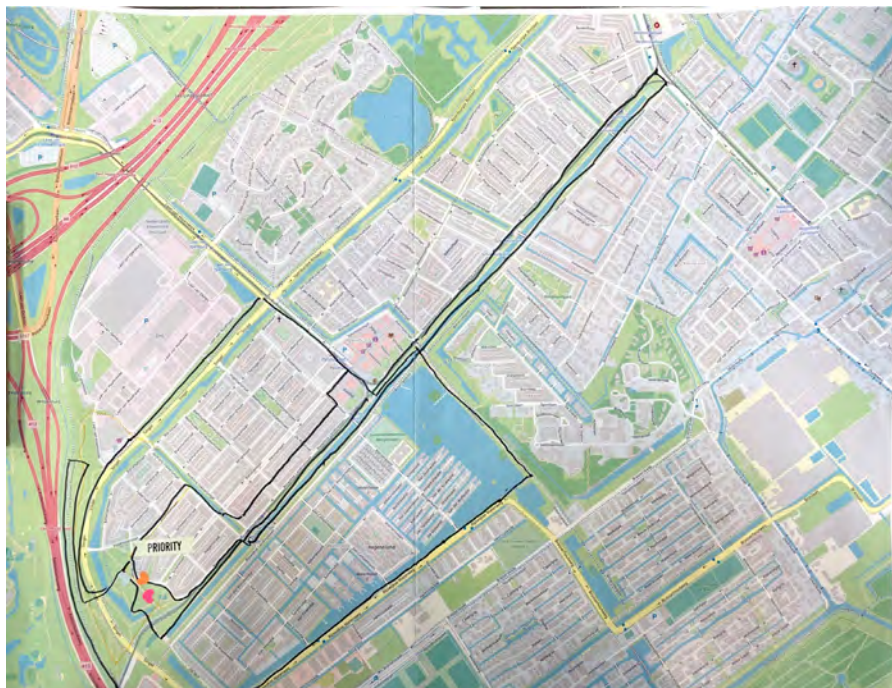
Participatory Map



Singels

Have participants use stickers to highlight their points of interest. Houses of friends, squares, kids playground, the insects hotel and skatepark are interesting to note. Participants also highlighted walking routes using their own colours.

Participatory map
Neighbourhood
Singels scale



Participatory map
Ypenburg scale

Priority

Highlight their own neighbourhood and points of interest and show love for the greenery area.

Walking route

Far extend beyond the neighbourhood. Mainly along the boulevard and other green belts in Ypenburg.



Relation to surroundings

Often visited locations include larger parks, weekly markets, the beach, the office, and where friends or family lives. Transport by cars, bikes, and public transportation. Many participants had close connections with Den Hague, Delft, the park 'delftsehout' and Scheveningen.

Participatory map
Urban scale

Impression of places

Show a common love for the beach in Den Hague and other parks in nearby districts. Also attach importance to areas

Appointment with volunteer

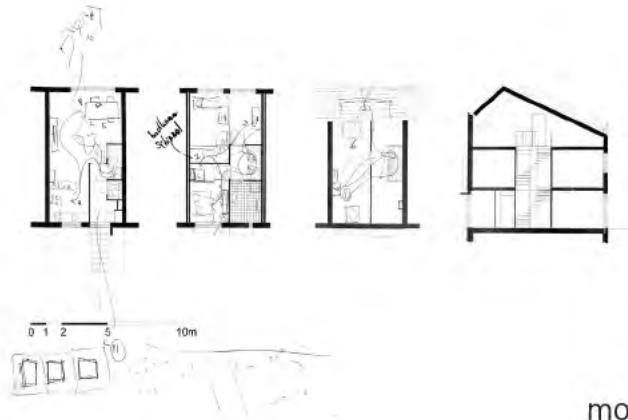
Participatory Floor Plan

Our participant ,M' would start her day in the bedroom and bathroom, on her way down to the kitchen she would check the home offices in the back of the 1st floor for any dishes like cups that hadnt been cleaned. Heading to the kitchen to make some fresh morning juice and having breakfast at the dining table. As action number 6 of the morning she would go to the attic for the laundry and put that away in the dresser of her bedroom. Eight would be getting to work, and later feed the birds, take out the trash, and fill the washing machine again.

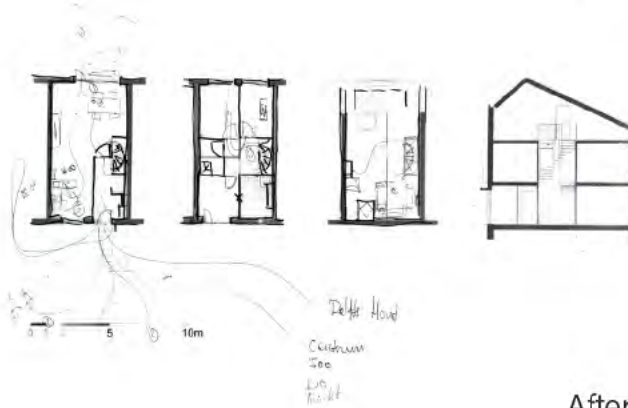
On a regular afternoon M would be working at the dining table, whereafter she would sometimes go in the backyard, take a walk or cycle a round during her break. After work visits to the center of delft or the park delftsehout wouldn't be uncommon. On thursdays it would often be a visit to the market.

Evenings are busy for M, she would make dinner ~6pm/7pm eat at the dining table and depending on the day, play cards with the neighbours, go to the gym, see the neighbours in the park in front of the house, head to th beach, hikes, movies, etc. Maybe visit Rotterdam, Ypenburg, Tudelft, Nootdorp, Rijswijk and parties. After which there would be a visit to the bathroom to get ready for bed, maybe checking the attic, and hit the sheets.

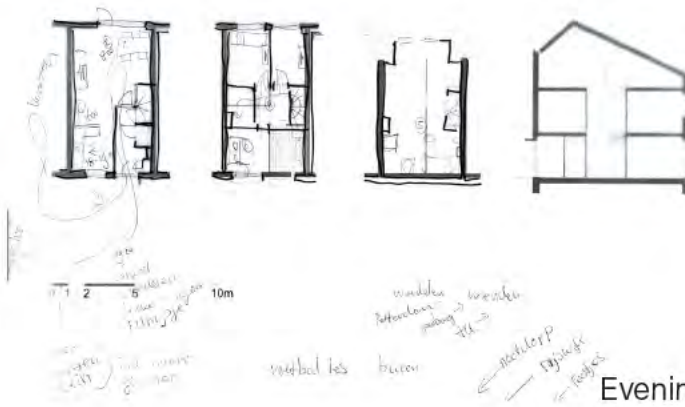
Participatory
Floor Plans
Routine during
one day



morning



Afternoon



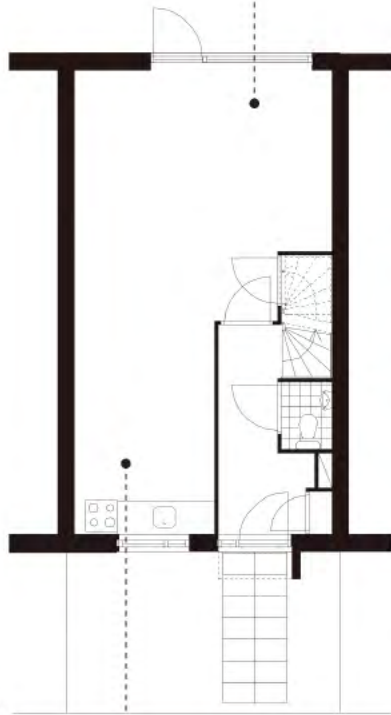
Evening

Video Diary

Our participant, M, on the subject of health and her living environment was happy to live in the Singels neighbourhood as she did. With sufficient green space around, she takes many hikes and bikerides. Her contact with the neighbours has been good, they do miss a common space in the area but do manage to come together outside in the summer, or come to visit when it is colder. The highway makes for a good driving connection with other city parts and with that maintenance of social relations aswel outside of Ypenburg. The routine of freshly squeezed juice, having many plants in the house, engaging with the birds in the backyard, aswel as throwing the trash out regularly makes her feel healthy in her environment.



Home office (living room)



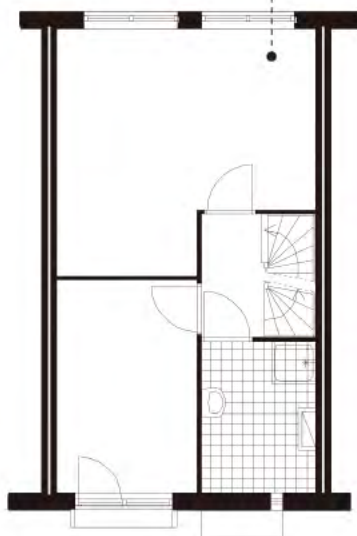
Fresh juice vitamins



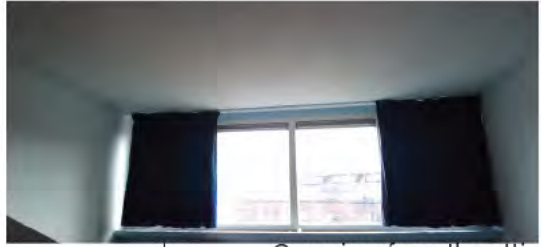
Interior Activity
Ground Floor



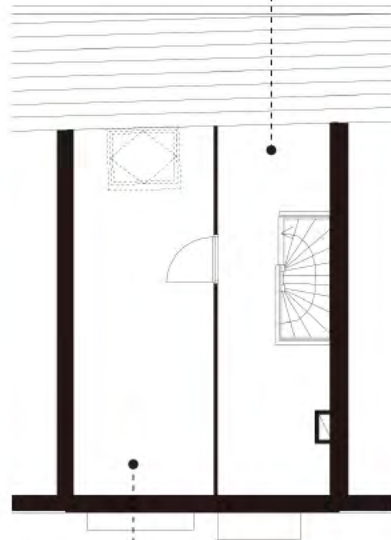
Home office



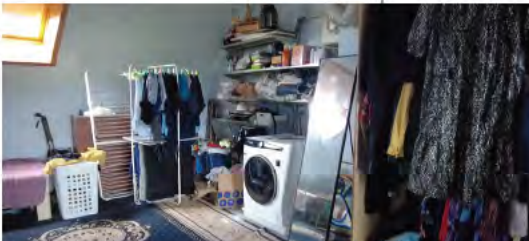
Interior Activity
First Floor



Overview from the attic



Attic laundry



Interior Activity
Second Floor

ARCHITECTURAL ETHNOGRAPHY

Live with animals

Insects hotel



Feeding the birds



Bird houses



ARCHITECTURAL ETHNOGRAPHY

Go for a walk

Nearby highway



Along the river



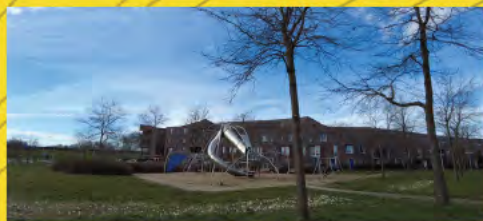
Acces to open space



ARCHITECTURAL ETHNOGRAPHY

Meet with exercise facilities

Kids playground



Skateboard grounds



Bikerides



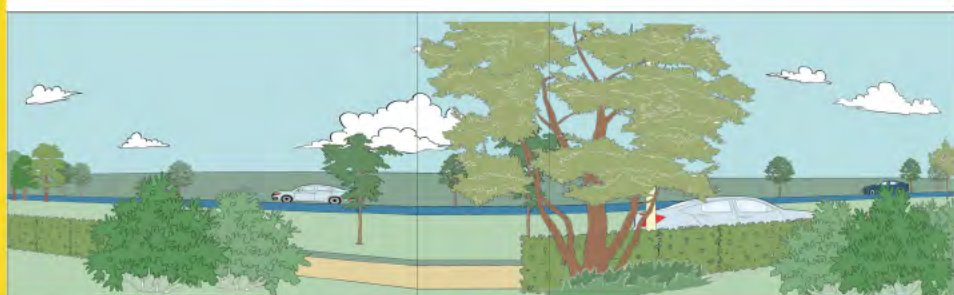
Basketball Court



Conclusion

The findings of the research are that the Ypenburg neighbourhood (named after airport Ypenburg) is a Venix neighbourhood that operates well. It has a good amount of greenery and is well connected to the infrastructure around. The Singels neighbourhood hosts many family houses and has with that a high amount of families and empty nesters. Besides the family homes, there is a range of different housing types and a combination of renting, buying, and social housing. Allowing for many different social classes to live next to one other. The health issue is largely attached to green areas in the community. Most of the residents in our interviews gave positive feedback on life quality here.

ARCHITECTURAL ETHNOGRAPHY



Ypenburg is as a Vinix expansion a succes. The goal to provide housing for a wide range of people and provide a safe environment for children to grow up is accomplished. The percentage of children in Ypenburg is higher than in den hague. However, many houses are now also occupied by empty-nesters as many people that found housing for their family in 2001 are planning to stay in the Singels neighbourhood after their children moved out. In combination with this there is also a large non-native dutch population in the neighbourhood that allows for a large diversity.

During our research we found that one typical feature of this neighbourhood is its greenery network. Therefore, we focused on the green area and studied its relationship with health in deifferent perspectives and with various methodologies. From the statistics, we learnt that the neighbourhood has a lower biodiversity level than average and the spieces of trees creates certain risk of allergy. According to the participatory research, the residents here spend a lot of time in the green areas, have a habit of walking as well as other outdoor activities, which is regarded as a healthy lifestyle. Overall, the residents are satisfied with the living environment in spite of several complains, like lacking of a community center.

Bibliographic References

Amerlinck, M.-J. (2001) *Architectural Anthropology*. Westport, CT: Praeger.

Desai, D. (2002). The Ethnographic Move in Contemporary Art: What Does It Mean for Art Education? *Studies in Art Education*, 43(4), 307–323.

Han, L. and Yan, H. (2018) *A Little Bit of Beijing: Nanluoguxiang*. Beijing: Tongji University Press Co., Ltd.

Ingold, T. (2016) *Lines: A Brief History*. London: Routledge.

Lucas, R. (2020) *Anthropology for Architects: Social Relations and the Built Environment*. London; New York: Bloomsbury Visual Arts.

Kaijima, Stalder and Iseki. (2018). *Architectural Ethnography - Japanese Pavilion Venice Biennale*. Tokyo: Toto

Keeton, R., Mota, N. and Tan, E. (2020) 'Participatory Workshops as a Tool for Building Inclusivity in New Towns in Africa', in Wende, W. et al. (eds) *Inclusive Urbanism Advances in research, education and practice*. Delft: TU Delft Open (Research in Urbanism Series (RiUS)), pp. 281–299.

Oorschot, L. (2019) *Den Haag Zuidwest in transformatie: balanceren tussen oud en nieuw*, Gebiedsontwikkeling.nu. Available at: <http://www.gebiedsontwikkeling.nu/artikelen/den-haag-zuidwest-transformatie-balanceren-tussen-oud-en-nieuw/>

Databases and Digital Platforms

Leefbaarometer

(Database with indicators on quality of life)

www.leefbaarometer.nl

Development of The Hague SouthWest

(Municipality of The Hague)

<https://www.denhaag.nl/nl/in-de-stad/wonen-en-bouwen/ontwikkelingen-in-de-stad/ontwikkelingen-den-haag-zuidwest.htm>

AllCharts.info

(Statistical data about neighbourhood in The Netherlands)

allcharts.info

Translations

VERTALINGEN

ÇEVIRILERI

مچارت

Samenvatting in het Nederlands

De Buurt

De Singelswijk is een klassieke Nederlandse Vinex-wijk. In Nederland wonen ongeveer achthonderdduizend mensen in dit soort buurten. In een Phoenix-buurt is de middenklasse vaak goed vertegenwoordigd, net zoals groene ruimten. Kenmerkend is de aanwezigheid van veel eengezinswoningen, vaak met voor- en achtertuinen. Daarnaast is parkeren goed georganiseerd met (gratis) parkeergelegenheid op straat en soms eigen garages of opritten. Ypenburg is een buurt die is vernoemd naar het Ypenburg vliegveld dat hier van 1936 tot 1992 was gevestigd. In 1997 begon de bouw van deze nieuwe wijk, die plaats bood aan ongeveer 30.000 nieuwe inwoners. Ypenburg is ontworpen voor forenzen die naar nabijgelegen steden reizen en heeft daarom ook goede verbindingen met snelwegen en het openbaar vervoer. Er werden huizen van verschillende groottes en prijsklassen gebouwd, wat bijdroeg aan een diverse gemeenschap. Toen Ypenburg werd ontwikkeld, beschouwden de ontwerpers het als een plek met veel potentie vanwege de ligging dichtbij Nootdorp en Rijswijk en de aansluiting aan de snelweg naar Delft en Den Haag. Mede door het vele groen in het gebied werd het als zeer gewild beschouwd. Een van de belangrijkste ontwerpprincipes was 'aanpasbaarheid' met de nadruk op het vermogen om veranderingen op te vangen.

Het proces

Op basis van de verzamelde gegevens uit het veldonderzoek, interviews en de combinatie van statistische gegevens op internet, is de analyse van de locaties verdeeld in twee schalen: Stedelijk en Gemeenschappelijk. Op de stedelijke schaal onderzoeken we het algehele klimaat van Ypenburg en het omringende netwerk van groene systemen, waarbij we het groensysteem als uitgangspunt gebruiken om ons vervolgens te concentreren op de gemeenschappelijke schaal. Tot slot worden de locatiemarkers van de Singels afgeleid door het vergelijken van gezondheids- en milieugerelateerde gegevens op beide schalen. Tijdens vier bezoeken aan onze deelnemers hebben we inzicht gekregen in hoe bewoners de buurt, hun levensstijl en de verbinding met de omgeving ervaren en waarnemen. Onze onderzoeksmethoden bestonden uit interviews met bewoners, interactief in kaart brengen, participatieve plattegronden en videodagboeken. Tijdens ons onderzoek ontdekten we dat het groene netwerk kenmerkend is voor deze buurt. Daarom richtten we ons op de groene gebieden en bestudeerden we hun relatie met gezondheid vanuit verschillende perspectieven en met behulp van verschillende methodes. Uit de statistieken bleek dat de buurt een lager biodiversiteit niveau heeft dan gemiddeld en dat de soorten bomen een bepaald risico op allergieën vormen. Over het algemeen zijn de bewoners tevreden met hun woonomgeving, ondanks enkele klachten, zoals het ontbreken van een buurthuis.

Türkçe Özet

Mahalle

Singels mahallesi, klasik Hollanda Vinex mahallesi olup, Hollanda'da yaklaşık 800 bin kişi bu mahallelerde yaşamaktadır. Bir Phoenix mahallesinde, işe gücü olan yüksek ve orta sınıf çoğunluktadır, aynı zamanda yeşil alanlar da çoktur. Diğer bir klasik karakteristik özellik genellikle ön ve arka bahçesi olan birçok tek aileli evin bulunmasıdır. Park etme genellikle (ücretsiz) sokak park etmesi ve bazen özel garajlar veya araç yolları ile iyi düzenlenmiştir. Ypenburg, 1936'dan 1992'ye kadar orada bulunan Ypenburg havaalanının adını taşıyan bir mahalledir. 1997 yılında, yaklaşık 30.000 yeni sakini ağırlayacak bu yeni mahallenin inşaatına başlandı. Ypenburg, yakındaki şehirlere işe gidip gelenleri barındırmak üzere inşa edildi ve bu nedenle otoyol ve toplu taşıma araçlarına iyi bir şekilde bağlanmıştır. Evler her türlü boyutta ve fiyat aralığında inşa edildi, bu da hâlâ dengeli bir topluluğun oluşmasına katkıda bulunmaktadır. Ypenburg inşa edilirken, geliştiriciler yakındaki Nootdorp ve Rijswijk belediye merkezlerini ve Delft ve Den Haag'a bağlantı sağlayan otoyolu, bölgedeki bol miktarda yeşillikle birleştiren bir yer olarak büyük potansiyele sahip bir yer olarak değerlendirdiler. Tasarım yöntemlerinden biri 'uyarlanabilirlik' yani değişebilme yeteneği idi.

Süreç

Araştırma saha çalışması, görüşmeler ve internet üzerindeki istatistiksel verilerin birleştirilmesi yoluyla elde edilen verilere dayanarak, sitelerin analizi iki ölçeğe ayrılmıştır: Kentsel ve Topluluk. Kentsel ölçekte Ypenburg'un genel iklimi ve çevresindeki yeşil alan sistemlerinin ayrıntıları incelenirken, yeşil alan sistemi ipucu olarak kullanılarak topluluk ölçeğine daraltılmıştır. Son olarak, Singels'in site özellikleri, her iki ölçekteki sağlık ve çevre ile ilgili veriler karşılaştırılarak elde edilmiştir. Katılımcılarımıza dört ziyarette bulunarak, sakinlerin mahalleyi nasıl deneyimlediği ve gördüğü hakkında bilgi edindik. Katılımcıların yaşam tarzı ve bunun çevre ile nasıl ilişkilendirildiği de incelenmiştir. Araştırma yöntemleri arasında sakinlerle yapılan görüşmeler, katılımcı haritalar, katılımcı zemin planları ve video günlükleri bulunmaktadır. Araştırmamız sırasında bu mahallenin tipik bir özelliğinin yeşil alan ağı olduğunu tespit ettik. Bu nedenle yeşil alanlara odaklandık ve farklı perspektiflerden ve çeşitli metodolojilerle sağlıklıla olan ilişkisini inceledik. İstatistiklere göre, mahalledeki biyolojik çeşitlilik ortalamanın altında ve ağaç türlerinin bazıları alerji riski taşımaktadır. Katılımcı araştırmaya göre, buradaki sakinler yeşil alanlarda çok zaman geçiriyor, yürüyüş yapma alışkanlığı ve diğer dış mekan etkinlikleri bulunuyor, bu da sağlıklı bir yaşam tarzı olarak kabul ediliyor. Genel olarak, sakinler birkaç şikayete rağmen, örneğin topluluk merkezinin eksikliği gibi, yaşam çevresinden memnundur.

ملخص باللغة العربية

الحي

حي Singels هو حي Vinex الهولندي الكلاسيكي ، يعيش حوالي 800 ألف شخص في هولندا في هذه الأحياء. في حي الفينيق ، غالبا ما يتم تمثيل الطبقة المتوسطة العليا بشكل جيد ، بالإضافة إلى المساحات الخضراء. السمة المميزة هي وجود العديد من منازل الأسرة الواحدة مع فناء أمامي وخلفي. غالبا ما يتم ترتيب مواقف السيارات بشكل جيد مع مواقف السيارات (المجانية) في الشوارع والمرائب الخاصة أو الممرات. Ypenburg هو neighbourhood سميت على اسم مطار Ypenburg الذي كان موجودا هناك منذ عام 1936 وحتى عام 1992. في عام 1997 بدأ البناء لهذا البرج الجديد لحوالي 30.000 من السكان الجدد. تم بناء Ypenburg لاستيعاب الركاب إلى المدن القريبة ومن أجل ذلك متصل جيدا بالطريق السريع ووسائل النقل العام. تم بناء المنازل في جميع أنواع الأحجام ونطاقات الأسعار التي لا تزال تساهم في مجتمع جيد التقريب. عندما تم بناء Ypenburg ، اعتبره المطورون مكانا ذا إمكانات كبيرة ، مع مراكز قرى قريبة من Rijswijk و Nootdorp ، والطريق السريع مع اتصاله بدلفت ودن لاهاي مع كمية وافرة من المساحات الخضراء في المنطقة سيكون مرغوبا فيه للغاية. كان أحد أهداف أساليب التصميم هو «القدرة على التكيف» والقدرة على التغيير.

العملية

استنادا إلى البيانات التي تم جمعها من البحث الميداني والمقابلات ومجموعة البيانات الإحصائية على الإنترنت ، ينقسم تحليل المواقع إلى مقياسين: حضري ومجتمعي. على المستوى الحضري ، يتم استكشاف المناخ العام ل Ypenburg والشبكة المحيطة بها من أنظمة المساحات الخضراء ، ويستخدم نظام المساحات الخضراء كدليل لتضييق نطاق المجتمع. أخيرا ، يتم اشتقاق خصائص موقع singels من خلال مقارنة البيانات المتعلقة بالصحة والبيئة على كلا المقياسين. في أربع زيارات لمشاركينا ، اكتسبنا المعرفة حول كيفية تجربة المقيمين ورؤيتهم للحى. ما هو نمط حياة المشاركين ، وكيف يرتبط ذلك بالبيئة. تشمل طرق البحث مقابلات مع السكان ، وخريطة تشاركية ، ومخططات أرضية تشاركية ، ومذكرات فيديو. خلال بحثنا وجدنا أن إحدى السمات النموذجية لهذا الحى هي شبكته الخضراء. لذلك ، ركزنا على المنطقة الخضراء ودرسنا علاقتها بالصحة من منظور مختلف ومنهجيات مختلفة. من الإحصاءات ، علمنا أن مستوى التنوع البيولوجي في الحى أقل من المتوسط وأن قطع الأشجار تخلق خطرا معينا للإصابة بالحساسية. وفقا للبحث التشاركي ، يقضي السكان هنا الكثير من الوقت في المناطق الخضراء ، ولديهم عادة المشي بالإضافة إلى الأنشطة الخارجية الأخرى ، والتي تعتبر أسلوب حياة صحي. بشكل عام ، يشعر السكان بالرضا عن البيئة المعيشية على الرغم من العديد من الشكاوى ، مثل عدم وجود مركز مجتمعي.

YPM1

Ypenburg Morgenweide Case Study Area 1

TOWERS OF YPENBURG

Torens van Ypenburg

Bérénice Demiddeleer, Yi Go, Eiljo Ockeloen

Housing and Health in the Hague

The 2022/23 edition of the MSc2 elective course “Architectural Ethnography” explores the interface between the disciplines of architecture, anthropology, microbiology and public health, to investigate how spatial configurations and social practices influence and are influenced by the interactions between humans, non-humans and the diversity of environmental microbiota. Working in collaboration with students, teachers and researchers of Leiden University Medical Centre (LUMC) and Hogeschool Leiden, this report examines a case study areas located in **Morgenweide**, one of the neighbourhoods of **Ypenburg**, in the Dutch municipality of The Hague. Using a pioneering combination of environmental microbiome research with ethnographic research and spatial analysis this research aims at answering the following research question:

how urban and housing design influences interactions between humans, non-humans and the diversity of environmental microbiota and promotes lung-friendly behaviour?

Course Coordinator

Dr. Nelson Mota

Instructors

Ir. Pierijn van der Putt

Dr. Alejandro Campos Uribe

Ir. Rohan Varma

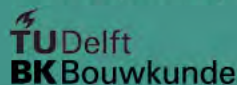
Research Assistant

Antonio Paoletti

Student Assistant

Philomena Vida

Course Organized by



In Collaboration with



With the financial support of



Students

Bérénice Demiddeleer - 5866103

Yi Go - 5786924

Eltjo Ockeloen - 4815963

Tutor

Rohan Varma

1. Introduction	7
2. Socio-economic Characterization	9
3. Spatial Analysis	15
4. Synthesis Participatory Action Research	21
5. Conclusion	25
6. Sources	28

Statement:

All pictures in the document were taken by us except where otherwise stated (external sources are mentioned).





Morgenweide as seen from the path next to the 'Blauwe Loper'. The towers are remarkable landmarks of Ypenburg. Own work (2023)

Introduction

The cities and residential areas in the Netherlands are designed and well thought of. Looking at the different neighbourhoods built in different times is like travelling through time and visiting all the different ideas that underlie the living environments. Ypenburg is built in the line of so-called 'Vinex'-locations around 1997. The whole residential area was built from the ground up on a former airfield and the ecology, social community and economic vitality had to be designed from scratch. This research focuses on the environmental health of the centre of Ypenburg, Morgenweide.





View on the housing facade from the shopping street. Own work (2023)

Socio-economic Characterization

The area functions as a center for Ypenburg and consists of a combination of a shopping street, some restaurants and residential housing. The type of housing are what to be expected of a center, being apartments in bigger building blocks of a size of on average 21 sq. metre. There is no social housing, only private sector renting and owner-occupied housing. Compared to the rest of The Hague, Ypenburg is more highly educated and have a higher income (CBS, 2021).

Ypenburg Inhabitants Nationalities

Native Dutch : 50%

Non Western immigrants : 37%

Western immigrants : 3%



Figure 1

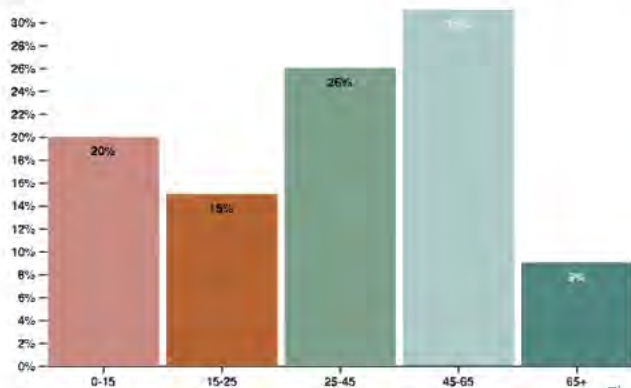


Figure 2



Figure 1 :
inhabitants
nationalities
Figure 2 : age
groups
Figure 3:
ownership and
type of house

(CBS, 2021)

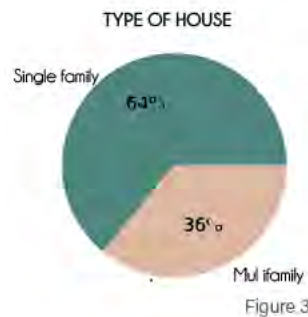


Figure 3

The Vinex of Morgenweide was built in 2003 after a rezoning plan. Morgenweide grew from the original 750 dwellings and about 2250 residents to about 2729 dwellings with a current population of 7060 (in 2022). The number of inhabitants in the neighbourhood was the highest in 2020 with 7180 inhabitants. Morgenweide is now the largest neighborhood within Ypenburg in terms of population. It counts 8427 inhabitants/square kilometer.

Looking at the inhabitants, 50% of them are native dutch, 37% are non western and 13% are western inhabitants. (figure 1) There is gender parity in the population with 50% men and 50% women. The population is active, with 81% under 65 years old. The most common age group is between 45 and 65. (figure 2)

Morgenweide count 2790 households which 53% are households with children, 21% without children and 26% are one person households. Concerning the habitations, 64% of the houses are single family houses whereas 36% are multifamily house. More or less half the dwellings are private owned and the other half are rental properties. There is no social houses in our research area. (figure 3). However, 5.6% of the households are on low income and 5.1% are at social minimum.

110 People have a social security welfare

250 People have a social security for incapacity for work

60 People have a social security for unemployment

550 People have a social security for elderly

Right: Morgenweide inhabitants.
Own work (2023)



ARCHITECTURAL ETHNOGRAPHY



Leefbaarometer
of the case study
area, MinBZK
(2020)

According to the leefbaarometer, the standard of living in the Morgenweide in Ypenburg is higher than the rest of The Hague, but lower than the average in the Netherlands. This is due to a shortage of the housing stock, but also a bad social cohesion and a feeling of unsafety and nuisance. In the case study area there is a community centre, but it is for a bigger area, since the case study area functions as a centre for the whole of Ypenburg. A lot of people on the streets didn't know about the community centre or didn't visit it. The general impression of the people in the street was that they thought that the resident didn't feel the need for a stronger community.

When you visit this residential and commercial area, it seems quiet and family oriented. However, a significant amount of crimes is "hidden" in these buildings and outside. Indeed, there were 1729 crimes in 2022 (247/1000 inhabitants).

Crime environmental : 0/1000 inhabitants
Crime scam : 33/1000 inhabitants = 231
Crime traffic : 47/1000 inhabitants = 329
Crime destruction : 20/1000 inhabitants = 140
Crime other : 5/1000 inhabitants = 35

Looking at the news of the area there is an image of criminal activity in the area. A big police raid was in the news in on 5 March 2019 where some people were arrested and a lot of guns, drugs and millions of cash money were found. The raid was done in ghost residencies, where



people live without being registered to the municipality. This is mainly done by people that don't want to be tracked by the government. They can do this illegally in exchange for extreme high rents and because of the high quality housing that are privately rented in the area it occurs. According to the police, behind the doors of those 'ghost-houses' "a whole criminal world is hidden". (Omroep West 2019, March 5).

Moreover, the area is next to a big pond 'de Blauwe Loper'. This is a source of recreation in the environment with a lot of people walking, running or cycling around the pond. The water quality is bad because it is an overflow body for the sewage system. In 2020 a family of swans died because of toxins in the water. They lived there for 24 years. This had an impact on the community and there was a lot of media awareness for the research about the cause of death of the swans and for the commemoration of them.

To conclude, middle class inhabitants are living in the neighbourhood of Morgenweide. The district is multicultural and has a large number of families. However, behind some of its repetitive and identical facades lies another world.



Left: Big police raid on ghost habitation. Regio15 (2019)

Right: Spontaneous commemoration of the swan family. Omroep West (2020)





The towers of Ypenburg. Own work (2023)

Spatial Analysis

Ypenburg is spacious and green. Morgenweide functions as the centre of it and is more densely built and has a higher concentration of functions. The buildings are higher and the towers can be seen from a distance with at night colourful lanterns lighting up on top. The facilities are located in the plinth and above are residential houses with a strict pattern on the facades with high windows to the size of the doors. The galleries on the inner side of the blocks also have such windows, but on this side they can all function as doors.

The architectural plan is inspired by the Italian town of San Gimignano. This city has a number of towers that rise above the landscape at different heights. In Ypenburg this concept has been adopted to create an urban typology on a slightly larger scale than the Italian city. The city of Ypenburg is compact and highly urbanised. However, in the shopping centre there are green spaces and trees have been planted to bring more vegetation into the city.

Next to the building blocks there is a long pond with rows of lime trees where the old airfield had its runway. Next to this pond there is a bigger pond called the 'Blauwe loper' with even more greenery around it. The vegetation increases gradually as seen from the shopping streets towards the big pond.

"The shopping street is dark and gives an oppressing feeling."

When people on the streets were asked about their perception of the buildings their reactions were mixed.

Some understood the reference to the Italian city, but found that it should also have been connected to the reference by the programme of some of the facilities. Another man didn't like the repetition of the windows and it reminded him of Eastern Europe building tradition. Also some interviewed pedestrians found the shopping street too dark, that it gives an oppressing experience and that the area lacked cozyness. The shopping street is also said to lack character and to be interchangeable with streets in other cities in the Netherlands.

In conclusion, the highly urbanised Vinex is talked about on the one hand for its practicality and pleasantness, as there are many facilities and it is surrounded by vegetation, but on the other hand not appreciated for its monotonous, repetitive and dark side.

Upper: The towers of San Gimignano as inspiration of the architecture. WikiRomaWiki (2022)

Under: The shopping street & the towers. Own work (2023)



**SPATIAL
ANALYSIS
AND HEALTH
INDICATORS**

-0,07

Leefbaarometer¹
Total Score
Scale: Grid

126

Residential Density
Dwellings / Hectare

12,9%

Intake of more than 5+
types of medication²
Scale: Ypenburg, 2017

26,6%

Ground Space Index
Groundfloor Surface
Occupation / Hectare

82%

Perceived Good Health
Moerwijk-Noord,
aged 18-65³

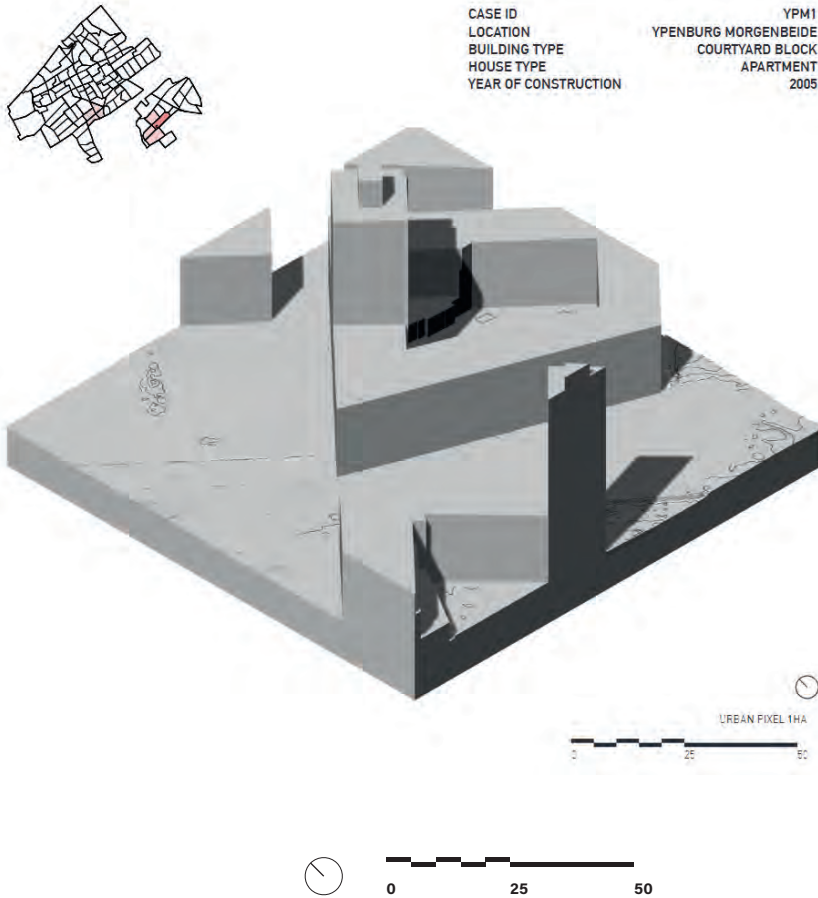
20,94m²

Average Household
Footprint
10,000 x GSI / Households

66%

Perceived Good Health
Moerwijk-Noord,
aged 65+³

CASE STUDY AREA: YPM1





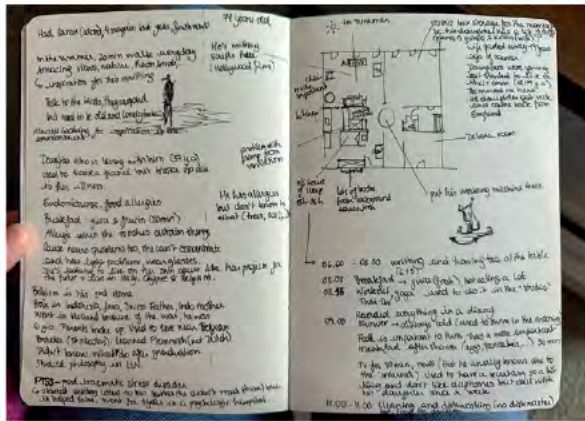
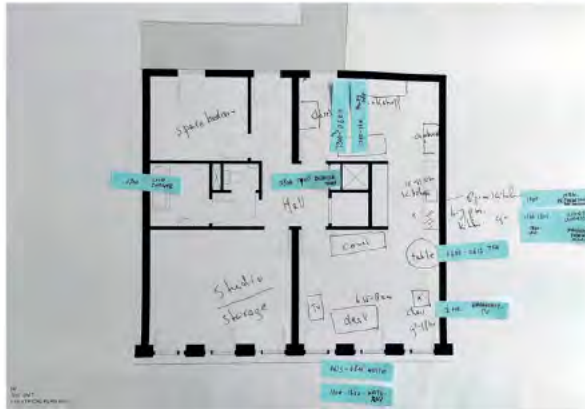


The interview in action. The participant tells about his daily life and answers questions while drawing on the plans. Own work (03.03.2023)

Synthesis Participatory Action Research

To gain insight into the patterns and behaviours of a resident's daily life, several techniques can be used. For this research, a number of methods are used, namely interviews and observations on the streets, a more in-depth interview with the use of a research plan and video documentation by the participant himself. In this way, the participant becomes an important actor in the data collection and ethnographic analysis of the neighbourhood.

The results of the interview. Annotated plans and maps and notes about what the participant told. Own work. (2023).



CASE STUDY AREA: YPM1



A video documentation creates an insight in the daily live of the participant.

These photos are taken from videos made by the participant. Own work (2023).

For this research work we had the great chance to meet a passionate and committed man. Thanks to him, we were able to better understand how life is in the neighbourhood, how the housing is, what are the advantages and disadvantages, is it good to live there, etc.





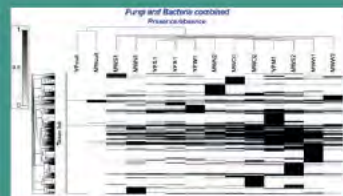
Conclusion

Morgenweide is an urban area consistent of the combination of the high living standard that the newly developed Ypenburg has to bring and the pressure on the environment that comes with being an urban centre zone. Although the scope of the research is limited, the use of observational and attitudinal research techniques on the residents gave a quick insight on the perception of the developed design of the case study site.

Thanks to Loek (the participant), our data collection and the air analysis carried out by the Leiden University Medical Centre (LUMC) and the Hogeschool Leiden, we were able to create a story about "A day in the life of a heron". We combined Loek's day with important facts about the neighbourhood. We fictionalised the story from the point of view of the heron, which lives near the pond and is a great "friend" of Loek.

To complete this narrative based on true story and facts, we designed a "data poster". On it, we can find all the factual information that where usefull to learn about the Vinex of Morgenweide.

	Species number	ShannonBacteria	Shannonfungi
MW01	204	4.352	2.615
YPM1	296	3.865	2.512
MW02	263	4.452	2.663
YPM1	163	3.528	2.395
MWV1	236	4.077	2.477
MWV2	143	3.83	2.396
MWV1	99	2.638	2.578
MWV2	301	4.005	2.26
YPM1	157	1.906	2.329
MWV2	201	4.29	2.832
MWV1	156	3.925	1.929
YPM1	125	3.001	2.807



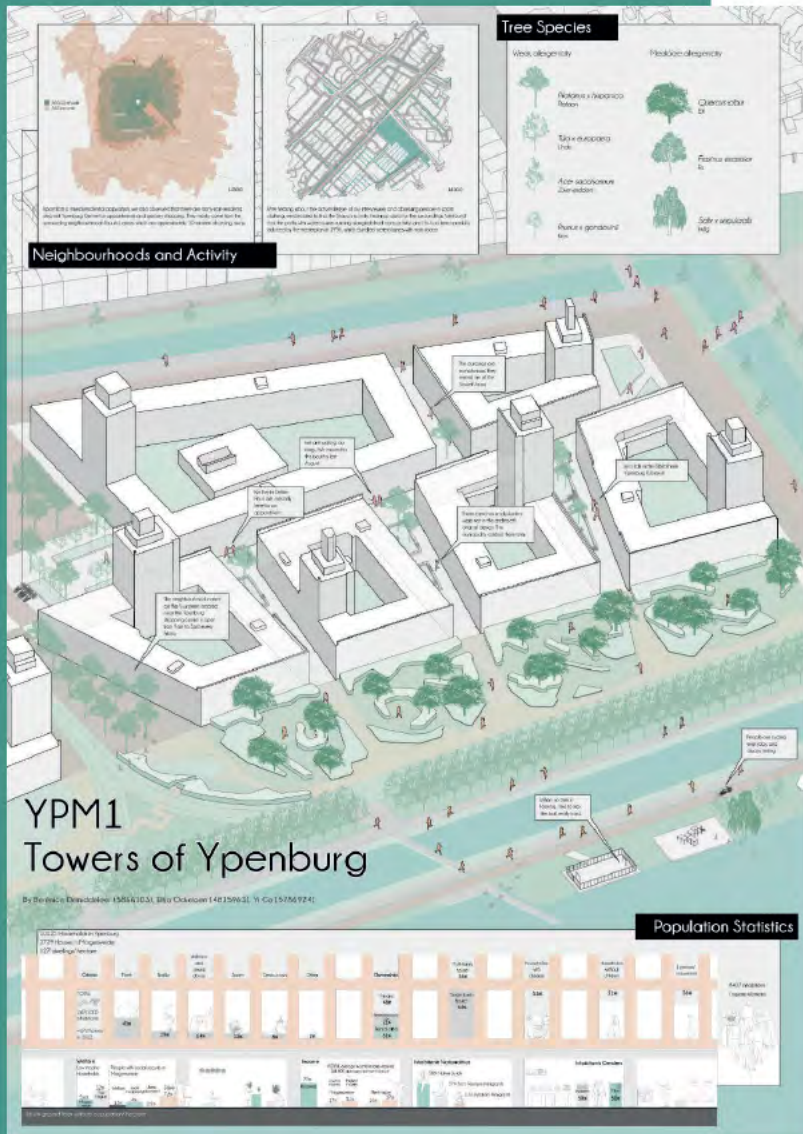
First row: Outdoor Airsampling Results by LUMC and Hogeschool Leiden.



Second & Third rows: Narrative, A day in the life of an Heron, Own work (2023)

CASE STUDY AREA: YPM1

Poster on the synthesis of the findings in this research. Own work (2023)



CONCLUSION

Bibliographic References

- Amerlinck, M.-J. (2001) *Architectural Anthropology*. Westport, CT: Praeger.
- Desai, D. (2002). The Ethnographic Move in Contemporary Art: What Does It Mean for Art Education? *Studies in Art Education*, 43(4), 307–323.
- Han, L. and Yan, H. (2018) *A Little Bit of Beijing: Nanluoguxiang*. Beijing: Tongji University Press Co., Ltd.
- Ingold, T. (2016) *Lines: A Brief History*. London: Routledge.
- Lucas, R. (2020) *Anthropology for Architects: Social Relations and the Built Environment*. London; New York: Bloomsbury Visual Arts.
- Kaijima, Stalder and Iseki. (2018). *Architectural Ethnography - Japanese Pavilion Venice Biennale*. Tokyo: Toto
- Keeton, R., Mota, N. and Tan, E. (2020) 'Participatory Workshops as a Tool for Building Inclusivity in New Towns in Africa', in Wende, W. et al. (eds) *Inclusive Urbanism Advances in research, education and practice*. Delft: TU Delft Open (Research in Urbanism Series (RiUS)), pp. 281–299.
- Oorschot, L. (2019) *Den Haag Zuidwest in transformatie: balanceren tussen oud en nieuw, Gebiedsontwikkeling. nu*. Available at: <http://www.gebiedsontwikkeling.nu/artikelen/den-haag-zuidwest-transformatie-balanceren-tussen-oud-en-nieuw/>

Databases and Digital Platforms

Leefbaarometer

(Database with indicators on quality of life)

www.leefbaarometer.nl

Development of The Hague SouthWest

(Municipality of The Hague)

<https://www.denhaag.nl/nl/in-de-stad/wonen-en-bouwen/ontwikkelingen-in-de-stad/ontwikkelingen-den-haag-zuidwest.htm>

AllCharts.info

(Statistical data about neighbourhood in The Netherlands)

allcharts.info

Online references

Veel geld en vuurwapens ontdekt bij grote politieactie van vanochtend. (2019, March 5). Omroep West. <https://www.omroepwest.nl/nieuws/3773792/veel-geld-en-vuurwapens-ontdekt-bij-grote-politieactie-van-vanochtend>

Doodsoorzaak zwanenfamilie Ypenburg bekend: "Het is ontzettende pech." (2023, January 27). Omroep West. <https://www.omroepwest.nl/nieuws/4074472/doodsoorzaak-zwanenfamilie-ypenburg-bekend-het-is-ontzettende-pech>



Translations

VERTALINGEN

ÇEVIRILERI

مچارت

Samenvatting in het Nederlands

De Buurt

Ypenburg werd rond 1997 ontwikkeld als een van de zogenaamde 'Vinex'-locaties. De hele woonwijk werd vanaf de grond opgebouwd op een voormalig vliegveld, waar-door de ecologie, sociale gemeenschap en economische vitaliteit van de grond af aan moesten worden ontworpen. Dit onderzoek richt zich op de omgevingsgezondheid van het centrum van Ypenburg, ook wel bekend als Morgenweide. Dit gebied vormt het middelpunt van Ypenburg en omvat een mix van functies, waaronder een winkelstraat, restaurants en woningen. Het type woningen dat hier te vinden is, is kenmerkend voor een centrum: grotere bouwblokken met appartementen van gemiddeld 21 vierkante meter. Er zijn geen sociale woningen, maar alleen huizen voor de particuliere sector, waaronder huur- en koopwoningen. Bovendien is de bevolking van Ypenburg in verhouding tot de rest van Den Haag hoger opgeleid en heeft het een hoger inkomen (CBS, 2021). Vandaag de dag kan men zien dat Ypenburg ruim en groen is. Morgenweide is dichter bebouwd en de hoge torens zijn 's avonds van veraf zichtbaar, met kleurrijke lantaarns die de toppen verlichten. De winkels en andere ondernemingen bevinden zich voornamelijk op de begane grond en daarboven bevinden zich woonhuizen met een consistent patroon in de gevels met hoge ramen die proportioneel zijn met de deuren. De galerijen aan de binnenkant van de blokken hebben ook zulke ramen en aan deze kunt u ook als deur worden gebruikt.

Het proces

Om inzicht te krijgen in de dagelijkse patronen en het gedrag van een bewoner, kunnen verschillende technieken worden gebruikt. In dit onderzoek worden verschillende methoden gebruikt, zoals interviews en straatobservaties, diepte-interviews aan de hand van een onderzoeksplan en videodocumentatie door de deelnemers zelf. Op deze manier worden deelnemers betrokken in het verzamelen van gegevens en de etnografische analyse van de buurt. Morgenweide is een stedelijk gebied dat bestaat uit een combinatie van de hoge levensstandaard die het nieuw ontwikkelde Ypenburg te bieden heeft en de milieudruk van wonen in een stedelijk centrum. Hoewel de reikwijdte van het onderzoek beperkt is, leverde het gebruik van deze onderzoekstechnieken meer inzicht in het gedrag van de bewoners van Morgenweide. Dankzij Loek (deelnemer), onze dataverzameling en de luchtanalyse uitgevoerd door het Leids Universitair Medisch Centrum (LUMC) en de Hogeschool Leiden, waren we in staat om een verhaal te creëren over „Een dag in het leven van een reiger“. We integreerden Loeks dagelijkse ervaringen met belangrijke feiten uit de buurt. We maakten een fictief verhaal vanuit het perspectief van de reiger, die bij de vijver woont en een goede „metgezel“ is van Loek.

Türkçe Özet

Mahalle

Ypenburg, 1997 civarında „Vinex“ olarak adlandırılan yerlerden biri olarak geliştirildi. Tüm konut alanı, eski bir küçük havaalanının olduğu bir alanda sıfırdan inşa edildi ve bu da ekolojisinin, sosyal topluluğunun ve ekonomik canlılığının tasarlanmasını da gerektirdi. Bu araştırma, Ypenburg'un merkezi olan ve Morgenweide olarak bilinen bölgenin çevresel sağlığına odaklanmaktadır. Bu alan, Ypenburg'un merkezi olarak hizmet verir ve alışveriş caddesi, restoranlar ve konutlar gibi çeşitli işlevleri içerir. Burada bulunan konut türü, tipik bir merkezin özelliklerine sahiptir: ortalama 21 metrekare büyüklüğünde dairelere sahip büyük bina bloklar. Özellikle burada sosyal konut bulunmamaktadır; bunun yerine, kiralık ve sahibi olan mülkleri içeren özel sektöre konut sunmaktadır. Ayrıca, Lahey'in geri kalanıyla karşılaştırıldığında, Ypenburg'un nüfusu daha yüksek eğitim almış ve daha yüksek gelire sahiptir (CBS, 2021). Günümüzde Ypenburg'un ferah ve yeşil olduğu gözlemlenebilir. Morgenweide daha yoğun bir şekilde geliştirilmiş olup, yüksek kuleleri geceleyin uzaktan görülebilir ve renkli lambalar zirvelerini aydınlatır. Tesisler çoğunlukla zemin katta yer alırken, yukarıda cephelerinde uzun pencerelerle düzenli bir desen bulunan konutlar bulunmaktadır. Blokların iç tarafındaki galerilerde de bu tür pencereler bulunmakta ve bu tarafta hepsi kapı olarak işlev görebilmektedir.

Süreç

Araştırma saha çalışması, görüşmeler ve internet üzerindeki Bir sakinin günlük yaşamının kalıplarını ve davranışlarını anlamak için çeşitli teknikler kullanılabilir. Bu araştırma için, bir dizi yöntem kullanılmıştır, yani sokaklarda yapılan görüşmeler ve gözlemler, bir araştırma planının kullanıldığı daha derinlemesine bir görüşme ve katılımcının kendisi tarafından yapılan video dokümantasyonu. Bu şekilde, katılımcı veri toplama ve etnografik analizde önemli bir aktör haline gelir. Morgenweide, yeni geliştirilen Ypenburg'un getirdiği yüksek yaşam standardı ile birlikte gelen çevre baskısının birleştiği bir kentsel alan olarak karşımıza çıkıyor. Araştırmanın kapsamı sınırlı olsa da, yerleşimci üzerindeki gözlemsel ve tutumsal araştırma tekniklerinin kullanımı, vaka çalışması alanının geliştirilmiş tasarımına ilişkin algı hakkında hızlı bir anlayış sağladı. Loek'in (katılımcı) sayesinde, veri toplama ve Leiden Üniversitesi Tıp Merkezi (LUMC) ve Hogeschool Leiden tarafından yapılan hava analizi ile bir „Bir Balıkçılın Günü“ hikayesi oluşturmayı başardık. Loek'in gününü mahalle hakkında önemli gerçeklerle birleştirdik. Hikayeyi, gölde yaşayan ve Loek'in önemli bir „arkadaşı“ olan balıkçılın bakış açısından kurguladık.

ملخص باللغة العربية

الحي

تم تطوير إيبينورخ كإحدى المواقع المعروفة باسم «فينيكس» حوالي عام 1997. تم بناء المنطقة السكنية بأكملها من الصفر على أرض مطار سابق، مما استدعى تصميم البيئة البيئية والمجتمع الاجتماعي والحيوية الاقتصادية لها من البداية. يركز هذا البحث على الصحة البيئية لوسط إيبينورخ، المعروفة باسم مورجنفايد. تعتبر هذه المنطقة محور إيبينورخ وتشمل مزيجاً من الوظائف، بما في ذلك شارع تجاري ومطاعم ومساكن سكنية. نوع الإسكان الموجود هنا هو نموذجي للمركز: مجمعات سكنية كبيرة مع شقق تتراوح مساحتها الإجمالية حوالي 21 متراً مربعاً. ومن الملفت للنظر أنه لا يوجد هنا سكن اجتماعي؛ بدلاً من ذلك، يتيح الإسكان فرصاً للقطاع الخاص، بما في ذلك الإيجار والممتلكات المملوكة. علاوة على ذلك، يشير تقرير CBS لعام 2021 إلى أن سكان إيبينورخ لديهم تعليم أعلى ودخل أعلى مقارنة ببقية لاهاي. اليوم، يمكن للمرء أن يلاحظ أن إيبينورخ فسيحة وخضراء. تم تطوير مورجنفايد بشكل أكثر كثافة، ويمكن رؤية أبراجها العالية من بعيد في الليل، حيث تضيء المصابيح الملونة قممها. يتم توجيه المرافق أساساً في القاعدة، وفوقها توجد منازل سكنية تتميز بنمط ثابت على واجهاتها مع نوافذ طويلة متناسبة مع حجم الأبواب. الممرات على الجانب الداخلي للمجمعات لديها أيضاً نوافذ من هذا النوع، وفي هذا الجانب يمكن أن تعمل جميعها كأبواب.

العملية

للحصول على نظرة ثاقبة لأنماط وسلوكيات الحياة اليومية للمقيم ، يمكن استخدام العديد من التقنيات. لهذا البحث ، يتم استخدام عدد من الأساليب ، وهي المقابلات والملاحظات في الشوارع ، ومقابلة أكثر تعمقا مع استخدام خطة البحث ، وتوثيق الفيديو من قبل المشاركون أنفسهم. بهذه الطريقة ، يصبح المشاركون فاعلا مهما في جمع البيانات والتحليل الإثنوغرافي للحي. Morgenweide هي منطقة حضرية تتكون من خيمة مزيج من مستوى المعيشة المرتفع الذي يجب أن تجلبه Ypenburg المطورة حديثا والضغط على البيئة الذي يأتي مع كونها منطقة مركزية حضرية. على الرغم من أن نطاق البحث محدود ، إلا أن استخدام تقنيات البحث القائم على الملاحظة والمواقف على السكان أعطى نظرة سريعة على تصور التصميم المطور لموقع دراسة الحالة. بفضل Loek (المشارك) ، وجمع البيانات وتحليل الهواء الذي أجراه المركز الطبي بجامعة ليدن (LUMC) و Hogeschool Leiden ، تمكنا من إنشاء قصة حول «يوم في حياة مالك الحزين». لقد جمعنا يوم Loek مع حقائق مهمة عن الحي. لقد تخيلنا القصة من وجهة نظر مالك الحزين ، الذي يعيش بالقرب من البركة وهو «صديق» عظيم ل Loek.

YPW1

Ypenburg Waterbuurt Case Study Area 1

FROM MICRO TO MACRO

*Van Micro naar
Macro*

APOSTOLOS SPYROPOULOS, HANNA ADAMCZYK, JARON SMIT

Housing and Health in the Hague

The 2022/23 edition of the MSc2 elective course "Architectural Ethnography" explores the interface between the disciplines of architecture, anthropology, microbiology and public health, to investigate how spatial configurations and social practices influence and are influenced by the interactions between humans, non-humans and the diversity of environmental microbiota. Working in collaboration with students, teachers and researchers of Leiden University Medical Centre (LUMC) and Hogeschool Leiden, this report examines a case study areas located in **Waterbuurt**, one of the neighbourhoods of Ypenburg, in the Dutch municipality of The Hague. Using a pioneering combination of environmental microbiome research with ethnographic research and spatial analysis this research aims at answering the following research question:

how urban and housing design influences interactions between humans, non-humans and the diversity of environmental microbiota and promotes lung-friendly behaviour?

Course Coordinator

Dr. Nelson Mota

Instructors

Ir. Pierijn van der Putt

Dr. Alejandro Campos Uribe

Ir. Rohan Varma

Research Assistant

Antonio Paoletti

Student Assistant

Philomena Vida

Course Organized by



In Collaboration with



With the financial support of



Students

Apostolos Spyropoulos - 4877403

Hanna Adamczyk - 5753155

Jaron Smit - 4719824

Tutor

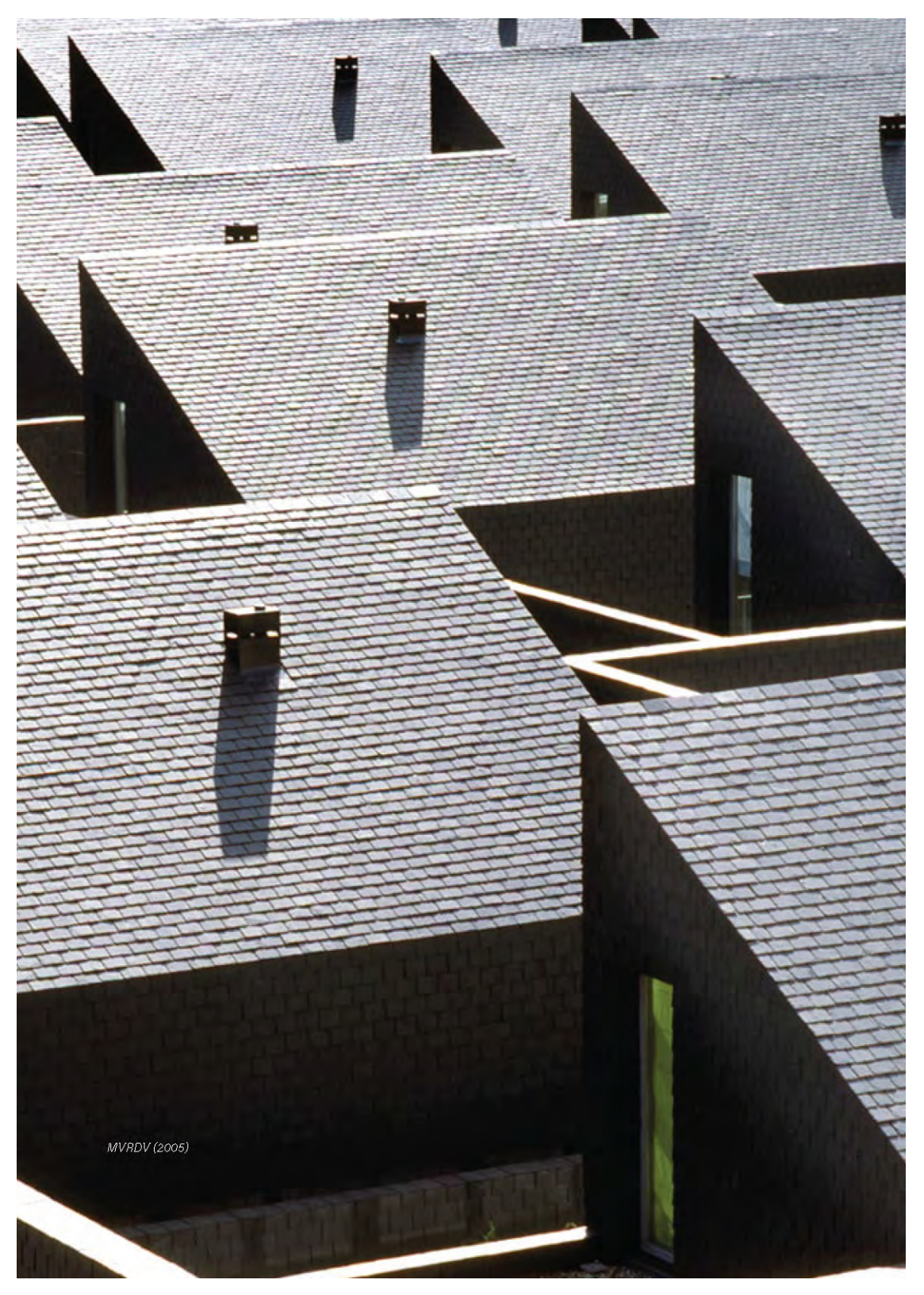
Pierijn van der Putt

1. Introduction	7
a. Case study introduction & research methods	8
2. Socio-economic Characterization	13
a. Ypenburg	15
b. Waterbuurt	15
c. Patio island	16
3. Spatial Analysis	18
a. large context	20
I trees	22
II Fauna & Flora	24
III birds	26
b. climate analysis	28
4. Synthesis Participatory Action Research	31
a. Introduction	32
a. Timeline plans	36
b. Air Sampling	48
c. VideoDiary	54
d. Anonymous survey	56
5. Conclusion	59
6. Sources	63



Introduction

In this research booklet we will discuss our findings related to the research of a neighbourhood in Ypenburg. The booklet consists of 3 parts. In the first parts we will describe the socio-economic character of our neighbourhood, Patio Island, in the broader context of Ypenburg. In the second part we analyse the environmental context of Patio Island. This analysis uses a multi-scalar approach, considering birds, animals, humans, trees, bacteria all as equal inhabitants of the neighbourhood. In the third part we take a closer look at a specific cycle in the neighbourhood; specifically The Courtyard.



MVRDV (2005)

In the courtyard life of humans, birds, bacteria and plants converge. In our research the courtyard acts as the scene which facilitates the interactions between all the other organisms. The character of these interactions is heavily shaped by the changing of the seasons. As birds, plants and humans all react differently to the changing temperatures, a story about how these interactions change unfolds.

As anthropological and ethnological research will never be truly objective it is important to acknowledge who we, the researchers are. This hopefully gives context to the statements we make and the findings we share. This research is conducted as an assignment for the MSc2 Elective "Architectural Ethnography" at TU Delft. It is important to note that the timespan (10 weeks) of the course does not allow for detailed and thorough ethnological research. Besides this, an important objective of the course is to make a visualisation of the research. In the proces of making this visualisation we are asked to find the balance between aesthetics and ethnology, which as a result may contribute to the loss of ethnological findings.

This research is conducted as an assignment for the MSc2 Elective "Architectural Ethnography" at TU Delft.

Our case study is located in Ypenburg Waterbuurt. The residential project is called "Patio Island" was designed by MVRDV and realised in 2004. Patio Island consists of four rows of patio houses, with the middle house of each row linked to the street by narrow passages, allowing for the potential hanging paintings or storing of garden tools and bicycles. Each house has a separate rooftop unit positioned to prevent visual intrusion to and from the neighbours. The roofs can be reached from the patio via swimming-pool type ladders and used as terraces, presenting themselves as a possible meeting place for neighbours.

ARCHITECTURAL ETHNOGRAPHY

Our research aims to investigate the interrelation between the organisation of space, patterns of everyday life and the social life of buildings and public spaces. With different types of methods, our research will explore architectural visual ethnography to find the links between human, non-human and natural organisms interacting in the urban environment.

The core of our Architectural Anthropology mission involves the investigation of the present conditions and the possible future conditions, considering the environment as a place we co-inhabit, live, dwell & call our home. Research on a multi-scalar 'home' has looked at symbolic aspects and multi-sensory aspects such as smell, sound and wind. The home



MVRDV (2005)

is produced through experiences, memories and imagination and is not restricted to the boundaries of a housing unit, nor to the materiality of a dwelling.

Our research then generates insights that could be useful for architects and urban designers working on social housing and urban renovation. The focus on non-domestic spaces addresses the changing meanings of shared spaces and the different scales of home in a collective housing context.

Methodologically, we test the analysis of ethnographic data through spatial visualisations, trying to transcend the textual dominance of present-day ethnographies. Various methods have been selected:

- Data gathering by participant observation and informal interactions
- Lived-in axonometric: visualising the interplay between residents' everyday life
- Rebalancing the dominant rationality of plans with the inhabitants' knowledge of experience: nonrepresentative maps, subjective maps, the annotated photograph.

The method is biased and selective. This selection allows to make visible what otherwise would remain hidden if the design disciplines were to foreground only the physical, material and spatial dimensions. The research will be followed with chosen activities:

- Participatory Workshop(s), related with the floorplan/ time-line activity and Video Diary.
- (Participatory) Observations
- Other Data Collection (from open access Database, etc.)
- Anonymous survey for habitants
- Sketches & Photographs

Methodologically, we test the analysis of ethnographic data through spatial visualisations, trying to transcend the textual dominance of present-day ethnographies.



Socio-economic Characterization

Ypenburg is a suburban neighbourhood located in the southeast of The Hague, The Netherlands. The Area was originally built as a military airbase but was later transformed into a residential area.

Ypenburg is a relatively affluent and diverse suburban neighbourhood with a mix of high income and middle-income households. The area has a well -educated population and a diverse economy with good transport links to the rest of the city and region

ARCHITECTURAL ETHNOGRAPHY

MVRDV (2005)



*Google Streetview
(2009)*



*Google Streetview
(2020)*



Ypenburg is located near the former airport of Ypenburg which operated from 1937 until 1992. After the closing of the airport, it was decided in 1997 A new VINEX neighbourhood was developed in this area. The Neighbourhood was planned to have 30.000 inhabitants. The urbanist Frits Palmboom Integrated the silhouette of the Airport in his Urban Plan. The area of 600 ha was designed to have 11.000 dwellings, the remaining 85 ha was available for offices and businesses. In 1997 the construction started, today anno 2023 Ypenburg is almost fully constructed and houses 25.000 residents.

Ypenburg is divided into 5 neighbourhoods: Singles, Boswijk, Waterbuurt, Bras and Venen. Each neighbourhood was designed to embed a different character. In this research we will focus on Waterbuurt.

Waterwijk is located In the south-west of Ypenburg. The environment, as the name Waterwijk would suggest, is heavily water focused. 29% of the area is water compared to the average of Ypenburg which is 8%, Waterbuurt is a quiet residential area with 98% percent of the buildings being dwellings.

The environment, as the name Waterwijk would suggest, is heavily water focused

The Designers of Waterwijk, MVRDV opted for a diverse range of development approaches.

In order to achieve this, they had to justify the risk to their investors. Thus according to the principles of economics. experimentation can happen as long as the remaining homes carry less risk. "By saving costs on one island, by making islands with fewer quays, with less infrastructure, and fewer details, MVRDV allowed investment in another island that allowed for new experimental environments." with this logic they reduced the cost and quality of the lower-income

households to improve those of the higher households. To further embed this logic in their concept, each neighbourhood in Waterwijk is assigned a different character, this character is materialised with lighting, pavement, materials, ecological measurements etc.

The island we will be taking a closer look at is Patio-Island. This island is located to the North of Ypenburg and is adjacent to the park and a school. The character of Patio-Island is introverted and aimed for average to high- income households. The monolith building complex is surrounded by a 2.5 metre high slated facade giving the residents a lot of privacy. The south facing facade features a glass wall which allows a lot



MVRDV (2005)

of sunlight into the dwelling resulting in a contentious relation with the exterior. Each dwelling is provided with a courtyard, these courtyards cannot be seen from the outside nor the other dwellings and offer great privacy. The average cost of these housing is 500,000 which is just above the average of the Hague (454,300) and Leidschendam (469,800).

To the North of Waterwijk there is a park with an adjacent school. In the summer this park functions as an important commodity. Here children are playing, dogs are being walked and pre-covid there was a neighbourhood BBQ once a year. This neighbourhood BBQ has however been discontinued since covid.

As all housing of Patio Island was inhabited at once (once the VINEX was finished), A lot of neighbours have lived next to each other for over 20 years. Despite this fact, the neighbourhood shows no strong social-cohesion as apparent by the discontinuation of the neighbourhood BBQ post-covid.

As correlated with a higher-income, the majority of Waterwijk sports weekly and the 82% of the 18-65 are healthy and the 64% of the 65+ year old are healthy.

MVRDV (2005)



INTRODUCTION



Spatial Analysis

Like many urban areas, Ypenburg faces a range of health challenges, including a high prevalence of chronic diseases, such as diabetes and heart disease, and socio-economic disparities that impact access to health care and healthy food. Spatial analysis can help us gain a deeper understanding of the health indicators in Ypenburg and identify factors that contribute to health disparities. By mapping health data, we can visualise the distribution of health outcomes across the neighbourhood and identify areas that may require targeted interventions.

**SPATIAL
ANALYSIS
AND HEALTH
INDICATORS**

0,01

Leefbaarometer¹
Total Score
Scale: Grid

35

Residential Density
Dwellings / Hectare

12,9%

Intake of more than 5+
types of medication²
Scale: Ypenburg, 2017

34,3%

Ground Space Index
Groundfloor Surface
Occupation / Hectare

81%

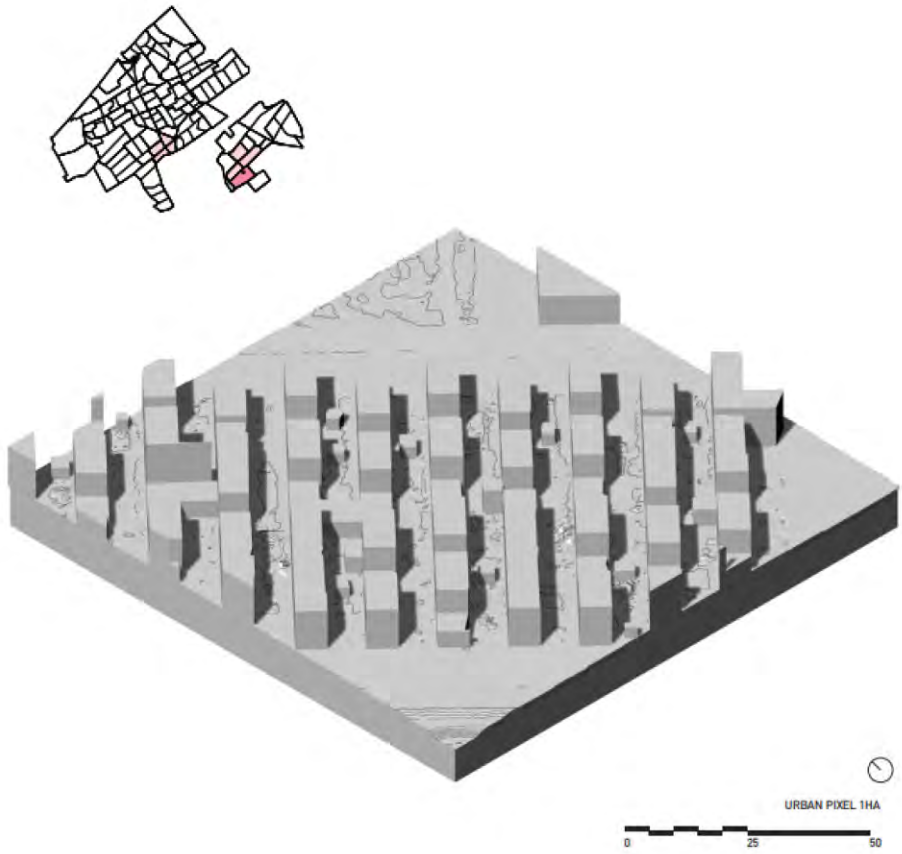
Perceived Good Health
Moerwijk-Noord,
aged 18-65³

98,0m²

Average Household
Footprint
10,000 x GSI / Households

64%

Perceived Good Health
Moerwijk-Noord,
aged 65+³



ARCHITECTURAL ETHNOGRAPHY

This map shows the tree species and their location in and around Patio Island

- | | | |
|-----------------|-----------------|---------------|
| Japanese Cherry | Wild Cherry | European Lime |
| Grey Alder | Princess Tree | Willow Tree |
| Italian Alder | American Storax | White Willow |
| Canadian poparr | Silver Birch | Dutch Elm |
| Black Alder | Norway Maple | Elm |



Google Maps, with overlaid illustration (2023)

Trees

Since Ypenburg was only recently constructed (2004), all of the trees were planted according to a plan. Most of the trees are located around the park and patio island. Near the water mostly willows and elms have been planted. In the middle of the park a group of canadian poplars are planted. Around patio island a diverse set of trees have been planted as seen in the map.

In this set, only the Birch and Alder trees cause allergic reactions. In the south-east road leading to patio island wild cherry trees are planted, these produce fruits which attract birds, yet due to the limited amount they do not influence the area heavily.

Alongside the tramline a bunch of young European limes are planted. Due to the monoculture these are prone to illnesses.

Dutch name	Biological name	English name	amount
Anna Paulowaboom	Paulownia tomentosa	Princess tree	2
Amberboom	Liquidambar styraciflua	American Storax	12
Canadese Populier	Populus xcanadensis	Canadian poplar	9
Kersboom	Prunus Avium	wild cherry	3
Krimlinde	Tilia xeuropaea	European lime	120
Japanse Sierkers	Prunus serrulata	Japanese cherry	10
Ruwe Berk	Betula pendula	Silver Birch	16
Nóorse Esdorn	Acer platanooides	Norway Maple	11
Gele Treurwilg	Salix x sepulcralis	Willow Tree	2
Schietwilg	Salix alba	White Willow	30
Hollandse Iep	Ulmus x hollandica	Dutch Elm	4
Iep	Ulmus	Elm	23
Witte Els	Alnus incana	Grey Alder	7
Hardbladerige Els	Alnus cordata	Italian alder	10
Zwarte Els	Alnus glutinosa	Black Alder	4

In this table shows the Dutch, Biological and english name of each tree. As well as how many of the species are found in the map

ARCHITECTURAL ETHNOGRAPHY

Land mammals

Hedgehog

A hedgehog is a spiny mammal of the subfamily Erinaceinae, in the eulipotyphlan family Erinaceidae.



Wood mouse

The *Apodemus sylvaticus* is a murid rodent native to Europe and northwestern Africa.



Moles

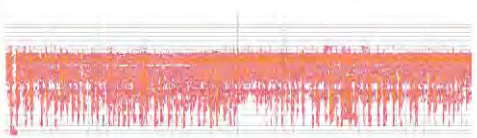
The family Talpidae contains all the true moles and some of their close relatives.



Bats

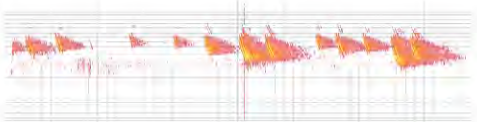
Rough dwarf bat

The rough-nosed pipistrelle (*Pipistrellus nathusii*) is a bat in the family Vespertilionidae.



Serotine bat

The serotine bat (*Eptesicus serotinus*), also known as the common serotine bat, big brown bat, or silky bat, is a fairly large Eurasian bat with quite large ears.



Common Pipistrelle

The site comprises a mating territory for the species: Males attract females by creating courtship territories approximately 200 m (660 ft) in diameter; these territories are maintained from mid-July through the end of October, with particularly intense activity in September.

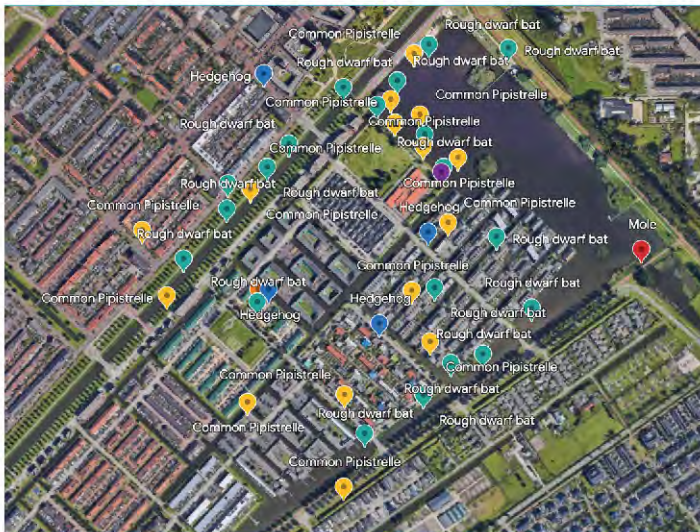


Bat Images from Royal Society for the Protection of Birds. (2023)

Sonograms self-made based on sounds from Xeno-canto

Fauna and flora, or the animal and plant life in a given environment, have a significant impact on human health. Loss of biodiversity can lead to changes in ecosystem services such as water purification, air quality, and climate regulation, which can in turn impact human health. In addition, interaction with nature and exposure to green spaces and wildlife can have positive impacts on mental health and well-being. Therefore, it is important to consider the relationship between fauna and flora and human health in urban environments.

Fauna & Flora



Google Maps, with overlaid illustration (2023)

This map shows where particular bats and mammals have been spotted according to the Stadsnatuur-hub Den Haag

ARCHITECTURAL ETHNOGRAPHY

Breeding birds

Swifts

Apus apus, the swifts are a family, Apodidae, of highly aerial birds.



House sparrow

The house sparrow (*Passer domesticus*) is a bird of the sparrow family Passeridae.



Common Reed Warbler

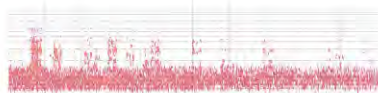
The *Acrocephalus scirpaceus* is an Old World warbler in the genus *Acrocephalus*.



Geese Species

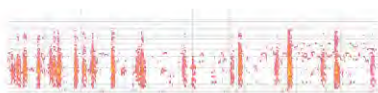
Greater white-fronted goose

The greater white-fronted goose (*Anser albifrons*) is a species of goose related to the smaller lesser white-fronted goose (*A. erythropus*).



Barnacle goose

The barnacle goose (*Branta leucopsis*) is a species of goose that belongs to the genus *Branta* of black geese, distinguishing them from the grey *Anser* species.



Greylag goose

The greylag goose or graylag goose (*Anser anser*) is a species of large goose in the waterfowl family Anatidae and the type species of the genus *Anser*.



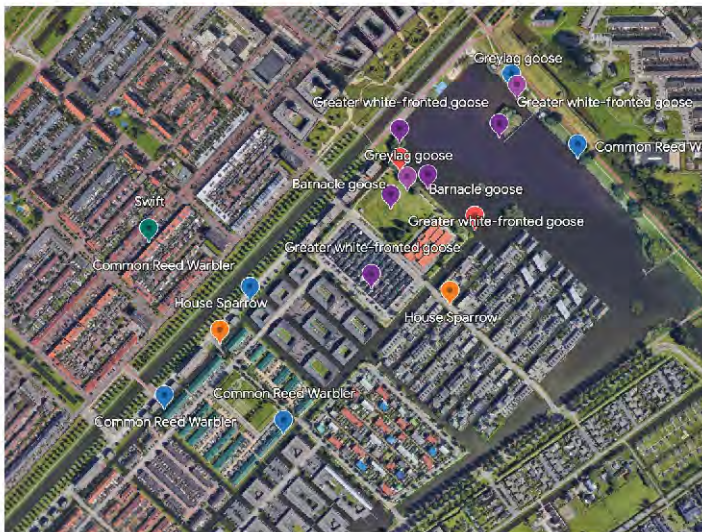
Bird Images from Royal Society for the Protection of Birds. (2023)

Sonograms self-made based on sounds from Xeno-canto

Birds

The presence of birds is evident not only in the park, but in the private gardens and courtyards of residents as well. Their presence affects both the ecosystem and the soundscape. The ecosystem is affected by the birds and geese because of the defecation in the park and the consumption of insects. The soundscape is affected by the cries and calls of the geese and birds. These sounds are embedded in the mental image some residents have of their neighbourhood. On a more tangible note, do these sounds infringe the routines of the residents, potentially waking them prematurely or disrupting their focus (on work) causing inhabitants to close their windows etc.

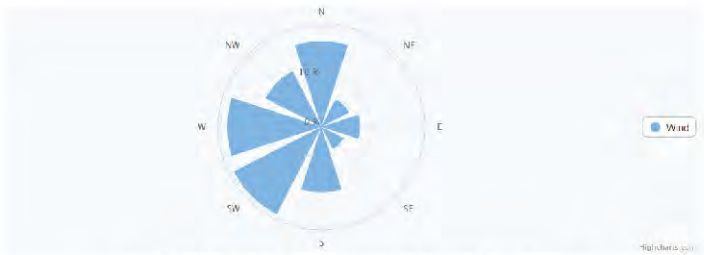
As most residents are mostly affected by their sound, which is intensely audible during the day, the cries for each bird has been analysed in the form of a sonogram. These sonograms map the pitch (in hz) vs time. By visualising the soundscape we intend to add a fundamental intangible aspect of the neighbourhood.



Google Maps, with overlaid illustration (2023)

This map shows where particular birds have been spotted according to the Stadsnatuur-hub Den Haag

Figure 1
Wind rose,
Ypenburg



Wind direction graph in Hague using average values according to our data.

N ▼	NE ▲	E ◀	SE ▼	S ▲	SW ◀	W ▶	NW ▲
Northern	Northeastern	Eastern	Southeastern	Southern	Southwestern	Western	Northwestern
17.1%	6.2%	7.7%	5%	13.1%	19.6%	18.8%	12.5%

World Weather Information Service. (n.d.)

Figure 2
Direct Sun
Hours Exposure,
Computational
Simulation on the
case study



Own work (Hania). (2023)

Climate

Ypenburg has a temperate maritime climate, characterised by mild winters and cool summers. The average temperature in the summer months (June-August) is around 17°C, with occasional heat waves bringing temperatures above 30°C. In the winter months (December-February), the average temperature is around 4°C, with occasional frost and snow.

Ypenburg is also vulnerable to the effects of climate change, which is expected to bring more frequent and intense heat waves, as well as heavier rainfall events. These changes could have significant impacts on human health in the area, particularly in vulnerable populations such as the elderly and those with pre-existing health conditions.

The air quality is generally acceptable for most individuals. However, sensitive groups may experience minor to moderate symptoms from long-term exposure.

Ypenburg is also vulnerable to the effects of climate change, which is expected to bring more frequent and intense heatwaves, as well as heavier rainfall events.

The prevailing winds in the area are from the southwest, with an average wind speed of around 15-20 km/h. However, wind speeds can vary significantly depending on the season and weather patterns. In the winter months, the area can experience stronger winds and occasional storms, while in the summer months, wind speeds tend to be lower (See figure 1).

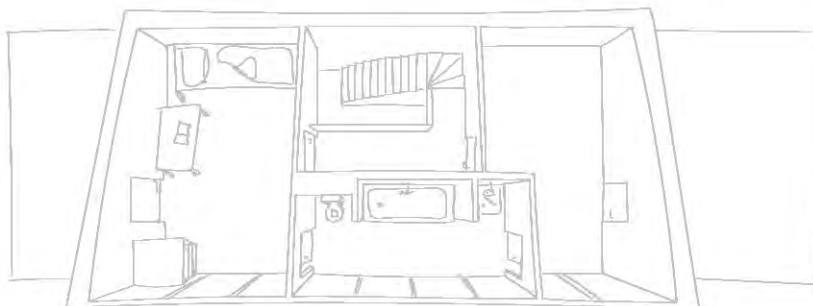
Regarding the orientation of residential units, all the upper floors are exposed to the direct sunlight during most of the time during the year. The opposite is the ground floor, which, through high walls and vegetation, does not provide as much sunlight (see figure 2).

Synthesis Participatory Action Research

In order to be able to visualize our study, the research is supported by the following activities:

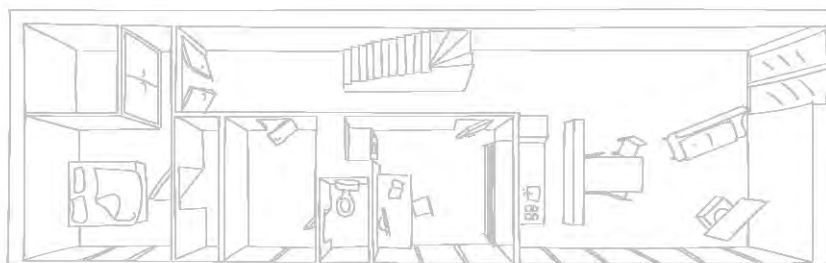
- The Interview
- Air Sampling
- VideoDiary
- Anonymous Survey





First floor

Own work (Jaron), (2023)



Ground Floor

Own work (Jaron), (2023)

Introduction of the participant

On the 21st of March we went to the neighbourhood to explore the site with our own senses. During this field trip we got to speak with 2 residents of Patio Island. Both are very kind enough to show their courtyard and talk about their experience about living there. The second resident agreed to participate in our ethnological research about the neighbourhood, we exchanged mail and our contact continued from there. We agreed to meet on Friday afternoon on the 3rd of March.

The Interview

The participant works as an architect, has a wife and 2 teenage children. The Participant lives a Healthy lifestyle, sporting multiple

In order to better understand the dialogue with our participant, we will give a brief profile.

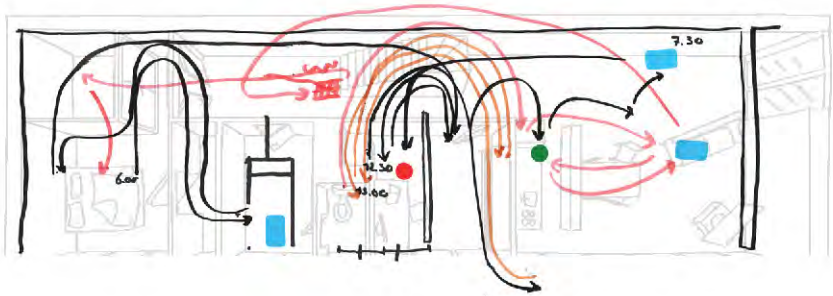
times in the week. The participant has lived in curacao, before studying architecture in Delft. During his studies he Lived in a student house in Rijswijk. After completing their studies they tried to find a house in Rijswijk without success. Then they stumbled on this (Patio Island) and settled ever since.

The house

Upon arrival we were warmly greeted by our participants. Having lived there since Patio Island was built, the house had already seen some changes. In the courtyard he had built a red shed 4 years ago. Inside the house he has added a bathroom to the master bedroom. Another change is the relocation of the staircase, which gives access to the top floor, from south to north, to provide equal bedroom space for both of his children.

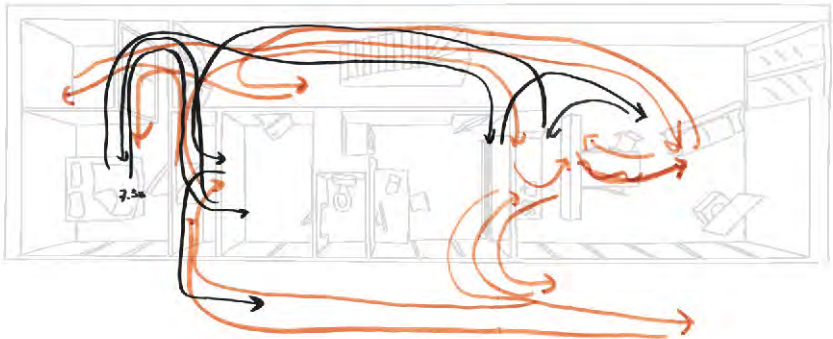
Participants sketch with plan below of the week day routine

Own work (Jaron), (2023)



Participants sketch with plan below of the weekend routine

Own work (Jaron), (2023)



We were visiting the house during a period of renovation. The participant was moving the kitchen from its allocated space to the long corridor facing north, to have a bigger living room and dining area. The participant's thinking was that the long corridor was not used efficiently and was taking up too much space in an already small apartment, so by relocating the kitchen area he could achieve maximum use of the space.

The Exercise

During the interview we asked the participant to draw his daily routine in the floorplan of his house. As he was in the middle of a renovation, and he is employed as architect he had a copy of his floorplan nearby, on which we drew his routine. Since the participant is familiar with floor plans and drawing he was quite comfortable doing this. During the act of drawing we had the opportunity to ask questions in a more informal manner.

Initially we also asked him to use stickers at each stop of his routine. These stickers would rate the time spent and how much he liked spending time there. But during the course of the interview we stopped doing this as it did not really work. Another thing we noticed is that the participants forgot to mention some steps which we assume are in the routine, such as brushing teeth and having dinner. Especially in the latter (Weekend routine) a couple of details were forgotten.

Beforehand we asked the participant if it was okay to record the conversation. Later we made a transcript of the conversation, this can be found in the appendix.

In this transcript we added notes explaining how we interpret certain parts of the interview, these notes are in bold/italics

Jaron: Have you designed the renovation yourself?

V: Yes of course.

On the 34th unit, there has been a couple of changes to the drawings of MVRDV. Firstly, we see the addition of on bathroom in the master bedroom and the relocation of the staircase, which gives access to the top floor, from south to north, to provide more bedroom space. We visited the house during a renovation period. The participant was moving the kitchen from its allocated space to the long corridor facing north to have a bigger living room and dining area. Participant's thinking was that the long corridor was not used and was taking up space in an already small apartment (V's opinion), so by relocating the kitchen area, he could achieve maximum use of the space.

V is the volunteer, J is Jaron, H is Hania and A is Apostolos

Weekday

V: I usually go to the bathroom first, up to the toilet (6:00).

J: Do you enjoy it there?

V: (laughter) I mean, I have a view.

Later, during the house tour, he walked us to the bathroom to inspect the bathroom with the toilet seat facing out the window, which was framing the enclosed courtyard with the plants, a tree, and the birdhouses.

Morning

1. Wake up
2. Toilet
3. Make bed/dressup
4. Make breakfast
5. Eat breakfast (with family)
6. Yoga (in livingroom)
7. Work
8. Snack
9. Work
10. Make lunch
11. Eat walking or working



V: Most of the time, I will make up the bed and then I go to the kitchen. I make, of course, breakfast, then I sit down at the table, watch the news. We eat at the table.

H: How many people live here actually?

V: Me, my wife and two kids, a son, and a daughter. We usually have breakfast together, for quite a long. Then I see the news while drinking my coffee. When I am finished, I do my yoga. Now it is difficult (pointing at the pending renovation, taking up space from their living room). I usually push all the furniture away and then I do my yoga for 10-15 minutes. I like it because I stay so stiff because I sit all day. And the physiotherapist said 'you should do some yoga'.

H: There is not much place to run outside?

V: No, I also run outside, however I cannot measure the distance, that is difficult with the watch. It is easier to do it on the treadmill.

V: After I finish the yoga it is 7:30 am. Then there are two options. Either go to work (the office) or I go to this space (pointing at the storage room, which has been converted into an office).

J: So, you turned the storage into an office?

V: Yes, that is a quite big storage. I think nobody uses it as storage. They all use it as a room.

J: That is quite nice.

V: Yes. Well, now we have solar panels, and you are supposed to do the laundry during the day, but it can get pretty annoying while I am working. So, I have to think about something to change that.

Due to its immense size, the storage room has been turned into an office and a library. In the participant's opinion, using all of this space just for storage and laundry did not make sense.

V: Then I go back to the kitchen (10:30), just to take another snack, maybe another coffee, and then I go back again.

V: Now we have a new room, we always use this door (pointing at the door connecting the living room-kitchen with the courtyard), because it is quicker, but my wife said 'no, we are using the hallway', the kids are leaving all of their stuff here (pointing at the space nearby the above mentioned door). And now everyone has to do that (laughter). But when I am not home alone, I usually go for a walk, not always (12:30), depending on how busy I am. I usually go to the place where it used to be an airport, but now it is just water.

The door which connects the kitchen with the courtyard is closer to the front door than the house's main entrance, which makes it more sense to create a habit of entering the unit through it. However, due to the kids' bad habit of leaving their bags and stuff on the floor, the kitchen door is mentally 'banned' from entering the house.

H: What time do you wake up in the morning?

V: 6:00, because my wife works at 7:00 and she has to go to Leiden.

J: She works at a hospital?

V: Well, she works as a psychologist.

J: How is the sun affecting you? I have noticed that you have quite big windows.

V: The windows are facing south. During the summer you can burn out of your room. My kids live upstairs, and they burn, but we have sunscreen, so, I guess we are ok. But we get a lot of power from our solar panels.

H: Does everyone have solar panels?

V: No, only a few neighbours. I think only 4-5 people.

The sun can be pretty harsh, especially during the summer. However, there are some strategies to prevent some of the heat from getting into the house. Is that enough, though?

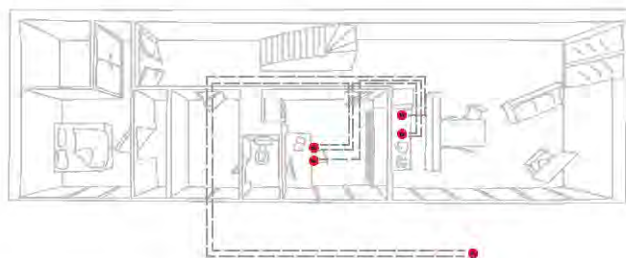
Furthermore, while the storage is used as an office during the morning, the washing machine must not be used due to the noise and the trembling it creates while operating. As a result, laundry can only take place during the weekends.

V: I usually work and eat because I already made my bread in the kitchen. After I go for a walk, I go back for a snack or grab some water.

J: What type of snack do you prefer?

V: I am kind of healthy, usually it is a sandwich or those protein bars, but I have heard that they have quite a lot of sugar.

The participant is a person who has a healthy lifestyle. He eats healthy and trains regularly on a daily basis. He takes walks in the neighbourhoods close to Ypenburg, although he prefers the local gym for proper training, so they can track the distances he runs, illustrating the importance of that habit in his routine.



Afternoon

12. work again
13. Snack
14. Work is done
15. Cooking or hang-out or pick-up daughter
16. Eat
17. Watch tv
18. Bring the kids

H: Where do you go for groceries?

V: Well, today is Friday, and on Fridays I always go to the market. I get my nuts, cheese, they taste much better than the supermarket. But yes, other times I go to the supermarket, it is the easiest solution.

Healthy habit: The participant prefers to have groceries (nuts, vegetables and cheese) from Friday's market. He schedules his routine to incorporate grocery shopping on Fridays.

V: So, I am back, I go back to the office. Then when I am done, either me or my wife will go cooking.

Apostolos: That is about 17:00?

V: It depends. Sometimes I have to bring my daughter, 2 to 3 times a week, from Rotterdam, because she does athletics as well. So, it depends, sometimes 17:00, sometimes 18:00 and sometimes even 19:30, she uses the metro and I go and pick her up. Usually then my wife cooks.

As a parent, the participant schedules his day incorporating the schedules of his kids. Example: Driving his daughter and picking her up from the athletic school. Parenting is one of his responsibilities.

Evening

- 17. Watch tv
- 18. Bring the kids upstairs
- 19. Brush teeth
- 20. go to bed



J: How old are you children?

V: My daughter is 16 and my son 14.

V: Then we cook, we eat, and then we sit down (pointing at the kitchen table), maybe watch TV. After we finish dinner, we sit down here (pointing at the sofas in the living room) and relax.

H: What is your favourite point of the day?

V: Of course, after eating dinner, I think everyone's favourite point is this. Sometimes I enjoy the mornings, but yes after dinner is the one I enjoy the most. After that the kids are going upstairs. We go as well, and then we go down. I took a shower, because we made a bathroom here (in the master bedroom). It is typical Dutch to have one bathroom for everyone. Even if you are looking at bigger houses, the houses are bigger, but still there is only one bathroom. I am from the Caribbean, I was born in Curaçao, so we are used to 2 bathrooms. And then we go to sleep.

Weekday

V: This is quite a different housing unit. I don't think there is another like this in the Netherlands, even maybe in the world.

J: Where did you live before moving here?

V: In a student house. And before in Curaçao. I moved here for studies.

The participant connects the changes he did in his house - renovations - with his life, growing up in Curaçao and comparing the spatial arrangement and the number of bathrooms of the classic Dutch house to the one he grew up in the Caribbeans.

A: I've got a question about the courtyard. I noticed the sound of birds and saw those beautiful bird houses. Do you spend any time there?

V: Oooh yes. In the summer of course. Usually then we work in the garden, and we also have the roof terrace, which we spend time there too.

A: We were speaking with one of your neighbours, that the terrace is the only way of getting in contact with the neighbours.

V: Well, there is a funny thing that we have a lot of contact with our neighbours, because a lot of us, the ones we have contact with, had babies at the same time. So, they grew up and played together.

H: So, they are all families?

V: Yes, but also older people.

The courtyard and the garden only take part in the participant's daily routine for part of the year. The participant only spends time there in the summers when the weather is warmer, creating a more hospitable climate for daily activities. Otherwise, the courtyard is a spatial intersection between the unit's front door to the main door and the kitchen door of the unit.

J: So, you moved here after you finished studying?

V: Yes

J: How was it to move into this new housing complex?

V: We were trying to find something in Rijswijk, in an art nouveau style neighbourhood, where I was leaving as a student because I couldn't find something in Delft, but it was incredibly expensive for such a little house. And then we found this one. We didn't even know that it was from MVRDV.

For the participant, the housing unit was small. However, it seemed like a good deal compared to the rest of the housing market. The participant on the question, if they would consider moving out of the unit, answered negatively. They replied that they like their house and have made the above mentioned changes to accommodate their daily requirements better.

H: Do you have any activities with your neighbours?

V: Not that I can think of. Of course, we go for coffee. And also, every year, but since corona they don't do it anymore, they were doing this big event, circus etc., in the park In Front.

A: But apart from this event here, the neighbourhood does not take part in your daily routine?

V: In the summer, we usually play soccer, fly a kite. In the winter much less. And there are a lot of geese, which shit all over the park and then it is not nice to play there.

Occasionally, during the summer, the participant, with his family and some neighbours, uses the park opposite the site for entertainment purposes (football, flying a kite). However, especially during the winter, they try to avoid interacting with that space due to unwanted interaction with the actions of other species. Geese defecate over the grass, which repels the inhabitants, creating an unattractive zone for the area.

A: Does your weekend routine change a lot from your weekday?

V: Yes, I think so.

J: Is the corridor your favourite place of your house?

V: Well...Not really.

Weekend

A: Is it again 6:30?

V: No, no. I think it is about 7:30. You know, you are in this routine saying I can go for another hour, and it's ok. Which day should I select?

A: The one that you feel more comfortable with.

V: 7:30, I think I will go to the bathroom, go back, morning routine, make the bed and go to the kitchen. I usually cook breakfast on the weekends. I make pancakes, oatmeal etc. Then I sit down with coffee. After the coffee I have to bring my daughter to the athletics. So I went to the main entrance, where shoes and off to Rotterdam.

H: Do you go by car?

V: Yes, well it depends. If it is at a place that she runs, it is too much of a hustle and takes too much time to get there. When we arrived at about 13:30. Go to the kitchen and make food, we eat at the table and after that we usually go shopping to the supermarket. Usually I take the shortcut, sneaky (laughter). Then get back and usually after that I go to train myself. And after the training I am coming back.

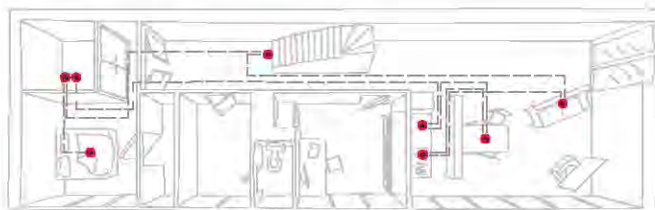
J: When you arrive do you do any stretching in the garden?

V: No, I go by bicycle. So, then I go and take a shower, and after that I am going to sit on the couch (sign of relief). It is already evening, and usually we see a movie. We are watching the TV and then we go up to the kids, well these days less only for him (referring to his youngest child), 14-year-old. Then we go to sleep and that's all.

V: it is a different routine to the weekdays; we also do the laundry on the weekends.

Morning

1. Wake up
2. Toilet
3. Make bed/dressup
4. make breakfast
5. Eat breakfast (w family)
6. Bring daughter to athletics
7. Come back



The weekend timeline is much shorter and less busy. This makes sense as the participant with his family uses the weekends to relax and refill their batteries for the coming week. Only a few tasks appear on their list, such as laundry and driving their children to their activities.

H: Do you also use the terrace upstairs?

V: Only in the summers.

H: And all of those plants and vegetation, did you plant there, or did it already exist when you came here?

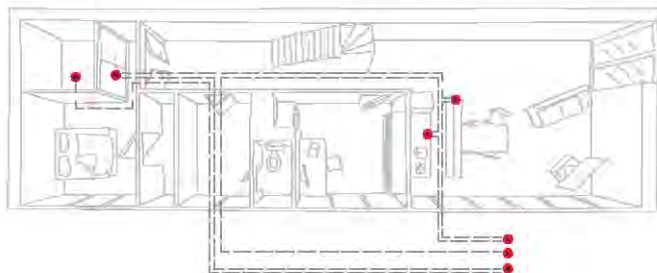
V: No, we went to the market and planted them there. If it is summer, we have more birds, because there is a cherry tree.

There are interactions with other species and the courtyard. The cherry tree in the gardens attracts birds, specifically in summer. The participant has constructed multiple birdhouses and placed them on different tree branches.

H: What about the art hanging on the walls around the site?

V: Oh, it is from an artist from this neighbourhood. I don't know if he is from that. Neighbourhood. But there is that sort of art which you could ask to put it on your house. So, some of them have it. We weren't invited (laughter). But Corona has changed a lot of things. Before we also had all the artist, architects to have this little exhibition (pointing to the courtyards), which you could pass by and look at.

J: Was the renovation something that you postponed due to corona?



Afternoon

8. Make lunch
9. Do groceries
10. Store groceries
11. Get the bike and go for a run and the airport
12. Shower & change
13. Diner

V: No, we were thinking about it for a long time, and we said we need more room here, we need a bit more room for the table. And we were looking, and we were thinking what we could do. What gives the most space, and then we thought, ooh yes, if we put the kitchen there (pointing at the corridor). This has only been used as a corridor, so we thought of using it as a kitchen as well.

While walking around the context, we noticed sculptures 'looming' over walls, in housing units of our case study, and nearby ones. By asking the participant about them, we found out that a local artist created them, and some years ago, you could ask him to create a 'looming' sculpture to inhabit the tall walls of your house. The sculptures depicted different kinds of birds and geese peaking over the tip of the wall like they were taking notice of the visitor.

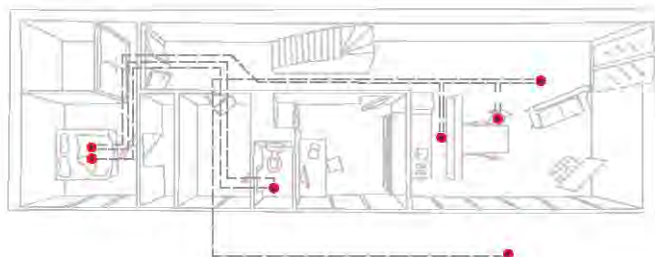
V Notes:

I made the red shed on the courtyard about 4 years ago, but it has begun deteriorating. I wanted to construct it from sustainable materials (timber), however it seems that without the use of some zing it is breaking down, due to weathering.

This is another modification that the participant made to their unit. In particular, we do not only observe the renovation of internal spaces but also the addition of external volumes, plants, vegetation and ornamentalations like custom-made birdhouses.

Evening

- preparation
- 14. Diner?
- 15. Dishes
- 16. Watch TV
- 17. Bring the kids upstairs
- 18. Brush teeth
- 19. go to bed



Air Sample Results

Diversity in the types and abundance of bacteria and fungi in the microbiome is important for human health. For example, a lack of diversity in the gut microbiome has been linked to a range of health issues, including inflammatory bowel disease, obesity, and allergies. On the other hand, a diverse and balanced microbiome is associated with better digestion, immune function, and overall health.

Some species of bacteria and fungi also have specific health benefits. For example, some types of bacteria in the gut produce short-chain fatty acids that help to regulate inflammation and improve gut health, while certain types of fungi have been shown to have anti-inflammatory and immune-boosting properties.

1. The "Pollen Sniffer" is a device which catches the fungi and bacteria in the air; this sample is then measured in a lab. This was done for all case-study areas.

After air sampling with the "Pollen Sniffer"¹, results were obtained with 157 different species of bacteria and fungi. Some of them have been studied more closely to see their effects on human health. The figure below shows the general biodiversity in bacteria and fungi, while the adjoining table shows the fungi and bacteria found in all of the case study areas.

Left: Taxon list of found fungi and bacteria in YPW1. Right: Total amount of species found in the different case study areas.



	Species number	ShannonBacteria	ShannonFungi
MWO1	204	4,352	2,616
YPM1	296	3,865	2,512
MWO2	263	4,452	2,663
YPM1	163	3,588	2,385
MWW1	239	4,077	2,477
MWW2	143	3,83	2,306
MWS1	99	2,638	2,578
MWS2	301	4,005	2,26
YPW1	157	1,906	2,329
MWN2	201	4,29	2,832
MWN1	166	3,925	1,929
YPS1	125	3,001	2,307

Leiden Hogeschool (2023)

Air sampling results bacteria

Leiden Hogeschool (2023)

	MW01	YPM1	MW02	YPM1	MW01	MW02	MW01	MW02	YPM1	MW02	MW01	YPM1	YPM2	MW01
Escherichia	215	225	247	106	125	25	80	221	25	91	90	0	27731	0
Staphylococcus	255	122	546	19	165	51	38	74	29	105	147	204	219	821
Micobacterium	309	74	237	53	0	69	85	49	0	11	16	0	0	1800
Pseudomonas	656	753	385	173	696	351	155	2009	122	323	106	150	0	0
Alcaligenes	21	27	38	0	0	0	0	37	0	0	0	0	0	0
Thermomonas	61	155	835	45	243	0	101	146	0	0	0	0	0	0
Methylobacterium	14	0	0	0	0	0	0	0	0	0	0	0	0	0
Moraxella	86	31	0	0	0	0	0	0	0	0	0	0	0	0
Moraxella	244	776	730	194	242	239	200	888	32	187	16	131	0	0
Neisseria meningitidis	19	63	30	57	36	0	0	369	13	57	0	11	0	0
Streptococcus	45	202	96	92	61	63	0	672	0	46	16	30	0	0
Anaerobaculum	107	123	111	74	43	20	0	81	26	91	18	11	0	0
Flavobacterium	39	245	229	255	138	0	366	792	11	226	0	66	0	0
Streptococcus	1041	517	123	107	306	189	230	711	71	136	171	86	0	0
Alcaligenes	115	30	14	0	0	0	0	119	141	0	0	0	0	0
Orlistatibacterium	226	2612	76	36	181	0	278	528	11	46	166	14	0	0
Candida albicans	76	71	43	0	131	79	0	504	20	54	41	106	0	0
Jeikeibacterium	26	35	33	0	0	0	0	160	22	40	33	13	0	0
Urethrobacterium	236	121	949	190	477	197	43	1385	64	114	261	61	0	0
Agrobacterium	141	31	261	0	223	0	0	161	14	181	304	0	0	0
Agrobacterium	190	24	120	96	148	23	0	238	73	152	97	26	0	0
Salmonella	27	16	19	0	0	0	27	133	36	30	11	15	0	0
Salmonella	30	0	15	0	11	0	0	17	10	0	0	0	0	0
Salmonella	490	51	257	66	506	11	0	279	38	171	710	14	0	0
Haemophilus	173	251	346	11	230	0	21	33	17	73	35	0	0	0
Staphylococcus	230	336	217	120	136	141	54	473	24	165	101	21	0	0
Staphylococcus	161	0	120	0	44	43	0	36	88	17	38	11	0	0
Staphylococcus	205	19	0	0	36	41	0	19	12	0	0	0	0	0
Staphylococcus	34	134	245	0	0	0	0	0	0	0	0	0	0	0
Staphylococcus	107	304	140	66	72	0	46	147	23	0	0	21	0	0
Staphylococcus	629	1433	1242	614	1271	979	835	1533	282	1144	1110	379	0	0
Staphylococcus	179	130	186	0	0	40	169	178	178	211	420	0	0	0
Staphylococcus	41	69	131	70	0	101	89	14	66	20	49	0	0	0
Staphylococcus	15	31	14	12	0	0	11	20	13	0	19	0	0	0
Staphylococcus	34	244	90	11	34	0	0	147	11	25	69	17	0	0
Staphylococcus	22	11	0	16	0	0	0	0	10	0	0	0	0	0
Staphylococcus	30	275	62	13	218	0	0	14	18	0	0	0	0	0
Staphylococcus	19	122	0	14	42	0	0	0	23	0	13	19	0	0
Staphylococcus	20	30	0	0	0	0	0	0	11	0	0	0	0	0
Staphylococcus	309	303	362	82	299	73	23	258	46	146	241	40	0	0
Staphylococcus	189	611	0	0	0	0	0	227	80	34	560	237	0	0
Staphylococcus	186	1056	1810	1117	1469	1736	1121	1341	369	776	166	279	0	0
Staphylococcus	43	101	31	0	0	0	0	33	24	0	633	11	0	0
Staphylococcus	17	259	20	85	21	0	71	37	462	31	300	34	0	0
Staphylococcus	360	118	38	38	0	0	0	13	80	0	0	0	0	0
Staphylococcus	130	212	1094	44	104	0	0	232	69	0	711	21	0	0
Staphylococcus	361	504	121	161	111	871	24	612	196	911	1001	420	0	0
Staphylococcus	497	1001	1011	909	773	79	121	170	1411	96	50	185	0	0
Staphylococcus	63	143	67	169	113	0	0	187	204	74	975	115	0	0
Staphylococcus	30	0	0	36	0	0	0	0	0	0	0	0	0	0
Staphylococcus	23	0	61	0	0	0	11	34	10	43	75	0	0	0
Staphylococcus	64	41	0	0	143	0	0	0	21	16	61	0	0	0
Staphylococcus	12	120	11	0	14	17	38	17	19	13	11	0	0	0
Staphylococcus	155	182	381	149	269	0	28	343	10	96	0	65	0	0
Staphylococcus	94	142	11	143	101	0	0	16	38	40	11	74	0	0
Staphylococcus	15	27	70	10	0	36	0	0	13	12	0	0	0	0
Staphylococcus	19	112	100	43	154	89	37	349	30	51	100	48	0	0
Staphylococcus	35	197	69	10	11	39	0	103	98	17	27	0	0	0
Staphylococcus	154	464	28	34	97	105	0	0	48	13	156	44	0	0
Staphylococcus	109	49	12	17	0	0	0	0	18	0	0	0	0	0
Staphylococcus	150	516	469	170	652	638	367	708	200	250	371	94	0	0
Staphylococcus	14	149	142	11	109	0	0	1280	13	67	18	40	0	0
Staphylococcus	17	11	40	12	11	0	0	0	14	0	18	0	0	0
Staphylococcus	11	22	20	0	34	19	0	86	103	0	0	15	0	0

Air sampling results fungi

Leiden Hogeschool (2023)

	MW01	YPM1	MW02	YPM1	MW01	MW02	MW01	MW02	YPM1	MW02	MW01	YPM1	YPM2	MW01
<i>Aspergillus</i>	151	509	210	121	121	115	113	1301	409	181	105	2848	0	19611
<i>Aspergillus</i>	752	1219	196	998	852	529	1337	159	135	92	544	452	0	320
<i>Aspergillus</i>	80	112	53	9	169	243	424	271	51	181	30	113	0	0
<i>Aspergillus</i>	119	1812	202	265	305	529	94	458	408	197	239	128	0	0
<i>Aspergillus</i>	12076	18413	20402	18110	2860	7238	2208	2935	18401	3027	2912	8194	13	51
<i>Aspergillus</i>	478	1219	423	1782	74	63	26	15	2822	834	0	814	0	0
<i>Aspergillus</i>	24	17	0	150	267	0	0	11	26	59	0	0	0	0
<i>Aspergillus</i>	170	411	553	270	0	102	113	83	214	104	0	149	0	0
<i>Aspergillus</i>	28	0	0	0	0	39	0	0	18	0	0	0	0	0
<i>Aspergillus</i>	211	115	862	247	154	101	91	11	216	824	1181	101	0	0
<i>Aspergillus</i>	41	88	561	189	0	557	52	93	238	29	182	40	0	0
<i>Aspergillus</i>	29	27	107	51	0	200	63	20	59	0	194	16	0	0
<i>Aspergillus</i>	14	0	24	0	38	14	19	10	10	11	27	0	0	0
<i>Aspergillus</i>	42	82	31	43	79	46	43	18	99	30	17	20	0	0
<i>Aspergillus</i>	275	209	358	85	1528	516	205	158	516	508	2220	234	0	0
<i>Aspergillus</i>	104	10	82	10	21	63	11	11	84	259	95	15	0	0
<i>Aspergillus</i>	32	88	0	70	0	0	17	0	116	0	0	21	0	0
<i>Aspergillus</i>	16	13	0	24	0	0	0	0	30	0	16	0	0	0
<i>Aspergillus</i>	14	14	0	22	96	0	0	0	33	0	0	0	0	0
<i>Aspergillus</i>	35	25	20	11	0	23	0	0	22	0	0	15	0	0
<i>Aspergillus</i>	154	780	187	248	864	13	0	899	1767	541	187	247	0	0
<i>Aspergillus</i>	22	375	0	129	0	31	0	92	872	235	0	91	0	0
<i>Aspergillus</i>	0	90	84	658	0	0	18	17	240	0	0	89	0	0
<i>Aspergillus</i>	0	44	0	27	0	0	0	0	59	94	0	19	0	0
<i>Aspergillus</i>	0	11	10	0	14	16	0	0	24	14	0	0	0	0
<i>Aspergillus</i>	0	10	0	0	34	12	0	0	10	0	0	0	0	0
<i>Aspergillus</i>	0	10	0	0	0	0	0	0	21	0	0	0	0	0
<i>Aspergillus</i>	0	20	14	0	0	113	0	0	10	0	0	0	0	0
<i>Aspergillus</i>	0	11	0	0	0	0	0	0	22	0	0	0	0	0
<i>Aspergillus</i>	0	105	0	70	37	0	0	0	126	0	0	205	0	0
<i>Aspergillus</i>	0	61	11	14	57	14	0	49	131	42	14	25	0	0
<i>Aspergillus</i>	0	0	12	0	28	0	0	0	54	0	0	21	0	0
<i>Aspergillus</i>	0	0	0	19	27	0	0	0	23	0	18	0	0	0
<i>Aspergillus</i>	0	0	0	0	48	0	0	0	30	0	0	0	0	0
<i>Aspergillus</i>	0	0	0	0	21	0	0	0	14	13	119	0	0	0
<i>Aspergillus</i>	0	0	0	0	59	0	0	0	17	0	0	19	0	0
<i>Aspergillus</i>	0	0	0	0	0	0	0	0	40	0	0	0	0	0
<i>Aspergillus</i>	0	0	0	0	0	0	0	0	19	0	0	0	0	0
<i>Aspergillus</i>	0	0	0	0	0	0	0	0	14	14	0	0	0	0
<i>Aspergillus</i>	0	0	0	0	0	0	0	0	44	0	0	0	0	0
<i>Aspergillus</i>	0	0	0	0	0	0	0	0	10	0	0	0	0	0
<i>Aspergillus</i>	0	0	0	0	0	0	0	0	14	0	0	0	0	0
<i>Aspergillus</i>	0	0	0	0	0	0	0	0	16	0	0	0	0	0
<i>Aspergillus</i>	0	0	0	0	0	0	0	0	32	0	0	0	0	0
<i>Aspergillus</i>	0	0	0	0	0	0	0	0	10	0	0	0	0	0
<i>Aspergillus</i>	0	0	0	0	0	0	0	0	11	0	0	0	0	0
<i>Aspergillus</i>	0	0	0	0	0	0	0	0	17	0	0	0	0	0

Fungi

The microbiome is the community of microorganisms that inhabit the human body, including fungi. The diversity of fungal species in the microbiome can have an impact on human health. Studies have shown that a diverse fungal microbiome is generally associated with better health outcomes. This is because a diverse microbiome can help to maintain a balance between different types of microorganisms, which can prevent overgrowth of any one type.

In particular, a diverse fungal microbiome is thought to play a role in regulating the immune system. Certain types of fungi have been shown to stimulate the immune system, while others can help to dampen an overactive immune response. This balance is important in preventing chronic inflammation,

which is associated with a range of health problems, including autoimmune diseases, allergies, and certain cancers.

A diverse fungal microbiome is thought to play a role in regulating the immune system.

11 Students of the LUMC have studied the respiratory tract infections in different postal codes in Ypenburg & Moerwijk.

On the opposing page the most dominant fungi of Patio Island are noted. The majority of these fungi do no harm. The Moraxella Fungi however causes respiratory illnesses in children. Which coincides with the findings of the LUMC¹ students. They have found that the Laryngo-Tracheo-Bronchial Foreign Bodies infection occurs in 1.4% of the population of patio-island, the most out of all the case study area's.

Acinetobacter baumannii - Has emerged as a medically important pathogen because of the increasing number of infections produced by this organism over the preceding three decades and the global spread of strains with resistance to multiple antibiotic classes.

Moraxella - Today, it is recognized as one of the major causes of acute otitis media in children, and its relative frequency of isolation from both the nasopharynx and the middle ear cavity has increased since the introduction of the heptavalent pneumococcal conjugate vaccine, which is associated with a shift in the composition of the nasopharyngeal flora in infants and young children.

Flower rot (*Itersonilia perplexans*) - Is a fungal disease that damages the bud of a chrysanthemum. Serious damage results in an unsaleable product. The mold can also be present on other products, but often without showing any symptoms.

Malassezia restricta - Is one of the most predominant yeasts of the healthy human skin.

Helminthosporium aquaticum - A parasitic fungus of rye grass.

Saccharomyces cerevisiae - Several major discoveries derived from yeast studies highlights the far-reaching impact that the yeast system has had and will continue to have on our understanding of a variety of cellular processes relevant to all eukaryotes, including humans.

Paraglomus occultum - Those fungi are obligate root symbionts in the subphylum Glomeromycotina that can benefit land plants by increasing their soil nutrient uptake in exchange for photosynthetically fixed carbon sources.

Bacteria

The diversity of bacteria in the human microbiome plays a critical role in human health. The bacteria in our microbiome interact with our body in various ways and can affect many aspects of our health, from digestion and metabolism to immune function and mental health.

One of the key functions of the bacteria in the microbiome is to help digest food and extract nutrients from it. Some bacteria in the gut produce enzymes that break down complex carbohydrates, proteins, and fats that our bodies cannot digest on their own. The diversity of bacteria in the microbiome has also been linked to mental health.

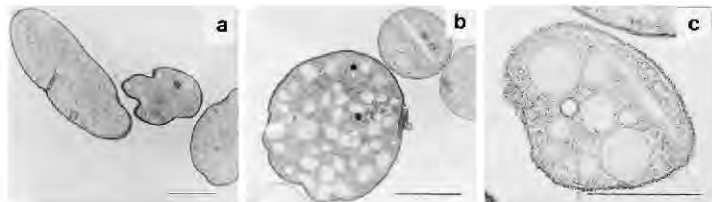
The diversity of bacteria in the human microbiome plays a critical role in human health.

Overall, the diversity of bacteria in the human microbiome is crucial for maintaining optimal health.

An imbalance in the bacterial microbiome, known as dysbiosis, has been linked to a range of health problems, including digestive disorders, immune dysfunction, and mental health disorders. Therefore, it is important to maintain a healthy balance of bacteria in the microbiome through a healthy diet, probiotics, and other lifestyle factors.

Alkanindiges
under the
microscope

Bogan, B.W. et al.
(2003)



Psychrobacter - Are found in a variety of marine and terrestrial environments, including foods, soil, sea water, sea ice and air. Various Psychrobacter species have been found to occasionally cause infections in humans, animals and fish.

Alkanindiges - Are identified as indicators of healthy plants.

Romboutsia - Species are flexible Anaerobes that are adapted to a nutrient-rich environment in which carbohydrates and exogenous sources of amino acids and vitamins are abundantly available.

Terrisporobacter - Has been shown to play important roles in the organic material degradation of compost and encouraging the humification process.

Calothrix - An important function of marine plants on the reef is nitrogen fixation. This function is performed by the cyanobacteria (members of the Calothrix).

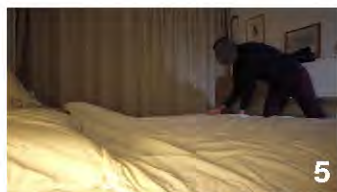
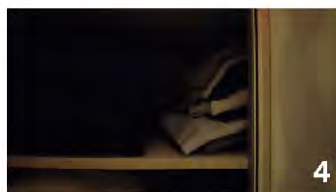
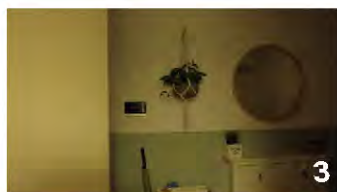
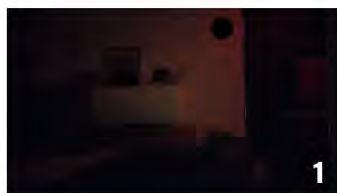
Aerosakkonema - Known as one of the gas-vacuolated oscillatoroid, is a microorganism distributed in the environment such as reservoirs.

Cellvibrio - Those bacteria are quite common and have the capacity to break down lignin and other wood components such as resins, gums, dye, tannic acid, waxes, and fats.

Ignatzschineria - Occurs naturally in the environment and may cause uncontrolled infestation as well as bacterial infection.

Video Diary At the end of the interview we asked the participant how he felt about making a video diary. At first the concept of a video diary was not really clear. But after we explained it would not have to be a VLOG and it could be a documentary or POV filming-style, it was clear. In the videos the participant re-enlivened the routines we discussed during the interview.

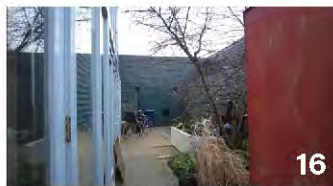
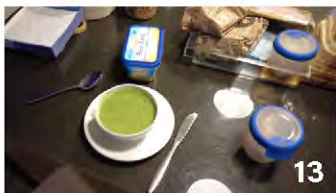
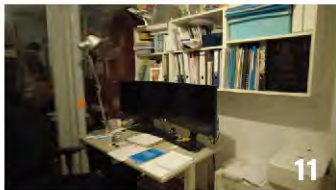
Yet looking at the light outside it seems dark throughout most of the videos. Resulting in the videos, not being an accurate representation of the day.



Stills of the video diary made by our participant (2023)

Below there is a series of stills from the video diary. In this series he (1) wakes up, (2 3) goes to the toilet, (4) dresses, (5) makes his bed, (7) makes a coffe, (8 9 10) drinks a coffee in front of the TV, (11) works, (12) makes lunch, (13) has lunch, (14) works, (15) grabs jacket and (16) goes for a walk.

The serie gives a better understanding what his morning/ afternoon routine looks like. Unfortunatly it is not a reliable source since, assuming because of the darkness, is most likely staged.



Anonymous Survey

To further understand what the residents of patio island think of their neighbourhood, we sent out anonymous google forms¹ to all residents. By making a form we hoped to lower the bar for people to help our research and we would increase the amount of potential participants easily. A disadvantage of this method is the lack of detail in the answers. In total 7 residents of Patio Island answered the survey and none contacted us. Even though this sample size is too small to make any conclusive statements, a few questions got similar answers. These were confirmed by the participants of the interview as well.

In general, residents of patio island enjoy living in their neighbourhood.

Based on our survey, most of them lack a sense of community. Yet they feel like they know their direct

neighbours well enough as to not feel a need to interact more with them. When asked what they miss about the area, besides two equal answers 'Nothing' different responses were given:

- A possibility to socialise, bars, cultural institutions

- Certain shops
- I don't know some of the new neighbours
- More options to recycle separate waste, community solar panels
- Trees

The final 2 questions regarded what they liked most about their neighbourhood

¹ The full survey can be found in the appendix

and home. In their home all respondents enjoy the privacy the most. In the neighbourhood the Answers range from peace and nature to privacy.

Dear resident of Ypenburg!

We are three architecture students from TU Delft and we need your help! We are conducting a research of your neighborhood to see if and how well people leave in the area. The study is linked to Architectural Ethnography, so to everything related to **human, non-human** and **natural organism** interacting in an **urban environment**.

That's why we are conducting a survey that could help in our study. The survey is **anonymous**, and your contribution can give a lot to our research. It won't take you more than **2 minutes** to fill it out! :)



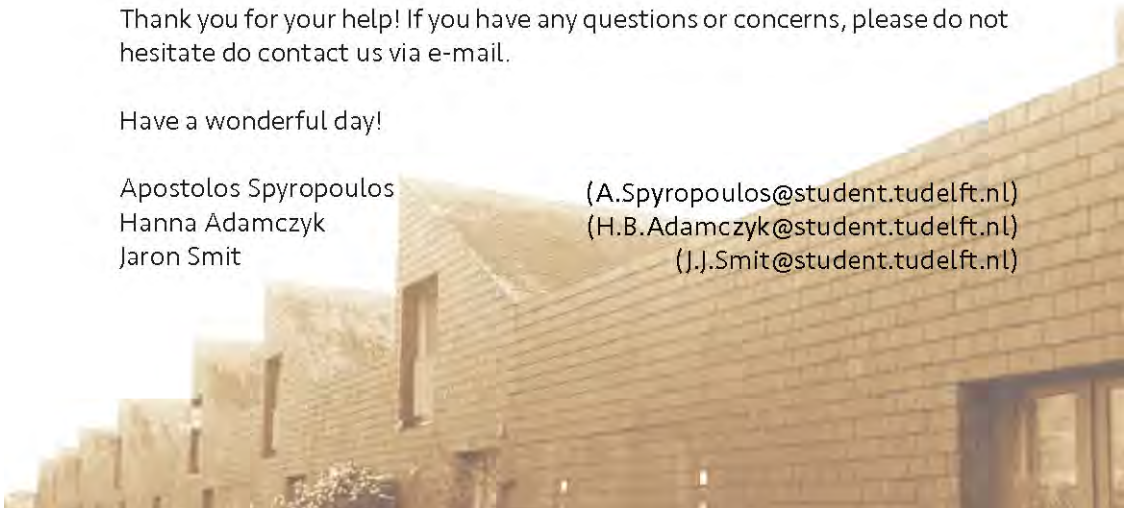
Please scan the QRcode to enter the survey

Thank you for your help! If you have any questions or concerns, please do not hesitate to contact us via e-mail.

Have a wonderful day!

Apostolos Spyropoulos
Hanna Adamczyk
Jaron Smit

(A.Spyropoulos@student.tudelft.nl)
(H.B.Adamczyk@student.tudelft.nl)
(J.J.Smit@student.tudelft.nl)





Conclusion

In this research we have taken a closer look at patio island, a neighbourhood in Ypenburg. This area was developed as a VINEX neighbourhood from 1997 and the construction finished in 2004. The character of Patio Island is introverted and heavily focussed on privacy; A 3 metre monolith wall discloses the housing complex with the rest of the neighbourhood.

In general all neighbourhoods are focussed on housing humans, particularly in a Vinex Neighbourhood the emphasis is on creating human housing. In this research we approach

Patio Island in a multi-scalar, non-human centred way. By analysing other living beings such as; Trees, Plants, Mammals, Birds, Bats Bacteria & Fungi. We try to link how these organisms interact with each other and how this affects human health, both mentally and physically.

The data for this research was collected through interviews, participatory workshops, observations, anonymous survey, video diary, air sampling and from databases.

Ultimately, the influence of the microbiome on human health is vastly underrated.

From the interview we gained knowledge about the routines of a resident of patio island and how he

experienced the neighbourhood. Through the use of several online databases we have mapped which species of birds, trees, plants and other animals live in this area. By using the Pollen Sniffer the type and amount of bacteria and fungi in the air has been analysed.

The compilation of these findings show how in specific cases the different living beings in the neighbourhood interact, mostly transcending the built environment; Birds travelling with the seasons, eating the berries from the trees and spreading the seeds by defecation causing the kids to step in the shit while simultaneously calling and crying impacting the soundscape. The presence of water can attract birds and certain plants. The convergence of this creates a variety of bacteria and fungi. While these microorganisms may provide nutrition for each other, some boost the immune system and some may also cause respiratory issues.

Ultimately, the influence of the microbiome on human health is vastly underrated. More research should be done on how the microbiome and the built environment converge.

YPW1 · PATIO ISLANDS FULL OF BIODIVERSITY

FREQUENCY

10000 X GEL / HOUSEHOLD



Apus Apus



Passer Domesticus



Acroptila



Anser Albifrons



Branta Leucopsis



Anser Anser

98 OM²
AV. EDGE HOUSEHOLD FOOTPRINT
10,000 X GEL / HOUSEHOLD



BIRD BACTERIA IS KEY TO
COMMUNICATION AND MATING



64%
PERCEIVED GOOD
HEALTH AGED 65+

91%
PERCEIVED GOOD
HEALTH AGED 85+

12.9%
INTAKE OF MORE
THAN 5+ TYPES OF
MEDICATION

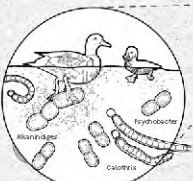
34.3% GROUND FLOOR SURFACE, OCCUPATION / HECTARE



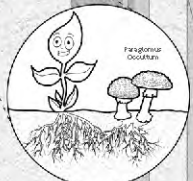
SUPPLY OF RESOURCES
WE APPRECIATE FAMILY



BIRDS DOMINATE THE GREEN AREAS



WATER AS A PLACE TO LIVE AND A SOURCE
OF NUTRITION FOR VARIOUS ORGANISMS



FUNGI PROVIDE MINERALS TO PLANTS,
PLANTS PROVIDE SUGAR TO FUNGI

LEGEND:



Information regarding this is based on
a sampling of plants in the
indicated position and through a grid

Bibliographic References

Amerlinck, M.-J. (2001) *Architectural Anthropology*. Westport, CT: Praeger.

Belkaid, Y., & Hand, T. W. (2014). Role of the microbiota in immunity and inflammation. *Cell*, 157(1), 121-141.

Desai, D. (2002). The Ethnographic Move in Contemporary Art: What Does It Mean for Art education? *Studies in Art Education*, 43(4), 307-323.

van Es, M. (2023, feb 14). Bac2 Building: The health implications of microbes in the build environment. Bac2Nature. <https://bac2nature.org/>

Hagen (eds) *Architectural Anthropology: Exploring Lived Space*. Abingdon, Oxon ; New York: Routledge, pp. 62-75.
Han, L. and Yan, H. (2018) *A Little Bit of Beijing: Nanluoguxiang*. Beijing: Tongji University Press Co., Ltd.

Ingold, T. (2016) *Lines: A Brief History*. London: Routledge.

Lucas, R. (2020) *Anthropology for Architects: Social Relations and the Built Environment*. London; New York: Bloomsbury Visual Arts.

Kaijima, Stalder and Iseki. (2018). *Architectural Ethnography - Japanese Pavilion Venice Biennale*. Tokyo: Toto

Keeton, R., Mota, N. and Tan, E. (2020) 'Participatory Workshops as a Tool for Building Inclusivity in New Towns in Africa', in Wende, W. et al. (eds) *Inclusive Urbanism Advances in research, education and practice*. Delft: TU Delft Open (Research in Urbanism Series (RiUS)), pp. 281-299.

Nash, A. K., Auchtung, T. A., Wong, M. C., Smith, D. P., Gesellchen, F., Ross, M. C., ... & Cope, J. L. (2017). The gut mycobiome of the Human Microbiome Project healthy cohort. *Microbiome*, 5(1), 153.

Smits, M. (2023, feb 14). What's in the Air? LUMC, University of Leiden

Speksneijder, A. (2023, feb 14). Using DNA technology to reveal hidden biodiversity. Leiden Hogeschool.Oorschot, L. (2019) Den Haag Zuidwest in transformatie:balanceren tussen oud en nieuw, gebiedsontwikkeling.nu. Available at: <http://www.gebiedsontwikkeling.nu/artikelen/den-haag-zuidwest-transformatie-balanceren-tussen-oud-en-nieuw/>

Øien, T.B. and Rasmussen, M.K. (2021) 'Mould, microbes, and microscale of architecture: An anthropological approach to indoor environments', in M. Stender, C. Bech-Danielson, and A.L.

Underhill, D. M., & Iliev, I. D. (2014). The mycobiota: interactions between commensal fungi and the host immune system. *Nature Reviews Immunology*, 14(6), 405-416.

Databases and Digital Platforms

AllCharts.info

(Statistical data about neighbourhood in The Netherlands)

Retrieved April 11, 2023, from allcharts.info

Bomenkompas

(Showing allergenic pollen of trees). Retrieved April 11, 2023,

from <https://www.bomenkompas.nl/bomenkompas/>

Cornell Lab of Ornithology,

(Information and bird sounds)

Retrieved April 11, 2023, from <https://www.allaboutbirds.org/news/#>

Development of The Hague SouthWest.

(Municipality of The Hague). Retrieved April 11, 2023, from

<https://www.denhaag.nl/nl/in-de-stad/wonen-en-bouwen/ontwikkelingen-in-de-stad/ontwikkelingen-den-haag-zuidwest.htm>

Gemeente Den Haag,

(GeoPortaal Den Haag). Retrieved April 11, 2023, from

<https://geoportaal-ddh.opendata.arcgis.com/>

Esri Nederland.

(Maps of all insects, mammals, birds and plants in Den

Haagr). Retrieved April 11, 2023, from

<https://stadsnatuur-ddh.hub.arcgis.com/>

Esri. (n.d.)

(ArcGIS Online contains a lot of relevant maps including

tree placement and species. Retrieved April 11, 2023, from

<https://www.arcgis.com/>

Leefbaarometer

(Database with indicators on quality of life). Retrieved April 11, 2023, from www.leefbaarometer.nl

Waarneming.nl.

(Dutch observations over animals, birds and bats). Retrieved April 11, 2023, from <https://waarneming.nl/>

Xeno-canto Foundation.

(Xeno-canto - Sharing bird sounds from around the world.) Retrieved April 11, 2023, from <https://xeno-canto.org/>

Media References

Bogan, B.W., Sullivan, W.R., Kayser, K.J., Derr, K.D., Aldrich, H.C., & Paterek, J.R. (2003). *Alkanindiges illinoisensis* gen. nov., sp. nov., an obligately hydrocarbonoclastic, aerobic squalane-degrading bacterium isolated from oilfield soils. *International journal of systematic and evolutionary microbiology*, 53 Pt 5, 1389-95.

Google LLC. (n.d.). Google Maps. Retrieved April 11, 2023, from <https://www.google.com/maps/>

Royal Society for the Protection of Birds.

(The RSPB: Wildlife Charity - Nature Reserves & Wildlife Conservation.) <https://www.rspb.org.uk/>

MVRDV. (n.d.). Patio Island. Retrieved April 11, 2023, from <https://www.mvrdv.nl/projects/154/patio-island>

World Weather Information Service. (n.d.). Climate - The Hague. Retrieved April 11, 2023, from <https://world-weather.info/archive/netherlands/hague/>



Translations

**VERTALINGEN
ÇEVIRILERI**

مچارت

Samenvatting in het Nederlands

De Buurt

Ypenburg is een buitenwijk in het zuidoosten van Den Haag. Oorspronkelijk was het een militaire vliegbasis, maar inmiddels is het getransformeerd tot woonwijk. Onze casus bevindt zich in de Waterbuurt van Ypenburg, specifiek in de Waterwijk. Zoals de naam „Waterwijk“ al aangeeft is er in de omgeving veel water. Ongeveer 29% van het gebied is bedekt met water, in tegenstelling tot het Ypenburgse gemiddelde van 8%. Waterbuurt is een rustige woonwijk waar 98% van de gebouwen voor woondoeleinden wordt gebruikt. Het woonproject „Patio-eiland“ is ontworpen door MVRDV en opgeleverd in 2004. Patio-Eiland bestaat uit vier rijen patiowoningen. In elke rij is het middelste huis verbonden met de straat door smalle doorgangen. Hier kunnen schilderijen worden opgehangen of tuingereedschap en fietsen opgeslagen. Elk huis heeft ook een apart dak dat strategisch geplaatst is om voor privacy tussen de burens te zorgen. Deze daken zijn toegankelijk vanaf de patio via ladders die doen denken aan de zwembadtrappen, waardoor ze als terras en ontmoetingsplaats voor burens gebruikt kunnen worden. Op de binnenplaats komen verschillende vormen van leven samen, waaronder mensen, vogels, bacteriën en planten. In ons onderzoek dient de binnenplaats als podium dat interacties tussen al deze organismen mogelijk maakt. De aard van deze interacties wordt aanzienlijk beïnvloed door de wisselende seizoenen, aangezien vogels, planten en mensen elk anders reageren op de veranderende temperaturen. Dit resulteert in een verhaal over hoe deze interacties zich in de loop van de tijd ontwikkelen.

Het proces

Ons onderzoek richt zich op de onderlinge relatie tussen de ruimte-indeling, patronen uit het dagelijks leven en de sociale dynamiek van gebouwen en openbare ruimten. Ons onderzoek maakt gebruik van de volgende methode: architectonische visuele ethnografie. Hiermee kunnen we de verbanden bloot leggen tussen menselijke, niet-menselijke en natuurlijke organismen die met elkaar omgaan in de stedelijke omgeving. In dit onderzoek benaderen we Patio Eiland op een multi-schalige, niet-menselijke manier. We analyseren verschillende levende wezens, waaronder bomen, planten, zoogdieren, vogels, vleermuizen, bacteriën en schimmels. Ons doel is om te begrijpen hoe deze organismen op elkaar inwerken en hoe deze interacties de menselijke gezondheid beïnvloeden, zowel mentaal als fysiek. De bevindingen laten zien hoe, in specifieke gevallen, verschillende levende wezens invloed op elkaar hebben, waarbij ze vaak de bebouwde omgeving overstijgen. Vogels reizen bijvoorbeeld met de seizoenen mee, eten bessen van de bomen en verspreiden zaden door te poepen. Dit kan ertoe leiden dat kinderen op hun uitwerpselen trappen en de zaden meenemen en tegelijkertijd beïnvloeden de vogels het geluidslandschap met hun geroep en geschreeuw. De aanwezigheid van water kan vogels en specifieke planten aantrekken, wat leidt tot het samenkomen van verschillende bacteriën en schimmels. Terwijl deze micro-organismen elkaar voeden, kunnen sommige het immuunsysteem versterken, terwijl andere ademhalingsproblemen kunnen veroorzaken. De invloed van het microbioom op de menselijke gezondheid wordt sterk onderschat en er is meer onderzoek nodig om het samenkomen van het microbioom en de bebouwde omgeving te onderzoeken.

Türkçe Özet

Mahalle

Ypenburg, Hollanda'nın Den Haag kentinin güneydoğusunda bulunan bir dış mahallesidir. Bu alan aslen bir askeri hava üssü olarak inşa edilmişti ancak daha sonra bir konut alanına dönüştürüldü. Konu çalışmamız Ypenburg Waterbuurt'ta bulunmaktadır. Waterwijk, Ypenburg'un güneybatısında yer almaktadır. Adıyla da belirtildiği gibi çevre ağırlıklı olarak suya odaklıdır. Alanın %29'u su iken, Ypenburg'un ortalaması %8'dir; Waterbuurt sessiz bir konut alanı olup, binaların %98'i evlerden oluşmaktadır. „Patio Island“ adlı konut projesi MVRDV tarafından tasarlanmış ve 2004 yılında hayata geçirilmiştir. Patio Island, dört sıra patio (ortak yeşil alanlı evler gurubu) evinden oluşur ve her sıranın ortasındaki evler dar geçitler aracılığıyla sokağa bağlanır, bu da resim asmak veya bahçe aletleri ile bisikletleri saklamak için potansiyel sağlar. Her evin ayrı bir çatı ünitesi bulunur ve bu üniteler komşuların birbirlerinin özel hayatlarını görmemelerini sağlar. Çatılara, yüzme havuzu türü merdivenler aracılığıyla patiodan erişilebilir ve komşular için olası bir buluşma yeri olarak hizmet verebilir. İnsan, kuş, bakteri ve bitki yaşamı bu avluda etkileşimde bulunur. Araştırmamızda avlu, her tür organizmalar arasındaki etkileşimleri kolaylaştıran bir sahne olma işlevini görüyor. Bu etkileşimlerin karakteri mevsim değişiklikleri zamanında yoğun bir şekilde görülür. Kuşlar, bitkiler ve insanlar değişen sıcaklıklara farklı tepki verdiği için bu etkileşimlerin nasıl değiştiğine dair bir güzel hikaye açığa çıkar.

Süreç

Araştırmamız, mekân düzenlemesi, günlük yaşam desenleri ve binaların ve kamusal alanların sosyal yaşamı arasındaki etkileşimi incelemeyi amaçlamaktadır. Farklı türdeki yöntemlerle, araştırmamız şehirselsel çevre- de etkileşimde bulunan insan, insan dışı ve doğal organizmalar arasındaki bağlantıları bulmak için mimari görsel etnografiyi keşfedecektir. Bu araştırmada Patio Island'ı çok ölçekli, insan dışı merkezli bir şekilde ele alıyoruz. Ağaçlar, bitkiler, memeliler, kuşlar, yarasalar, bakteriler ve mantarlar gibi diğer canlı varlıkları analiz ederek, bu organizmaların birbirleriyle nasıl etkileşime girdiğini ve bunun hem zihinsel hem de fiziksel olarak insan sağlığına nasıl etki ettiğini bağlamaya çalışıyoruz. Bu bulguların derlemesi, mahalledeki farklı canlı varlıkların özellikle inşa edilmiş çevreyi aşarak nasıl etkileşime girdiğini göstermektedir. Kuşlar değişik mevsimlerle seyahat ederek, ağaçların meyvelerini yiyor ve dışkı ile tohumları yayıyor, çocukların dışkıya basmasıyla da çevreye yayılıyor ve aynı anda bütün kuşlar çıkardıkları seslerle bir ses faunası oluşturuyorlar.. Su varlığı kuşları ve değişik belirli bitkileri de çekebilir. Bunun birleşimi çeşitli bakteri ve mantarları yaratır. Bu mikroorganizmalar birbirlerine besin sağlayabilirken, bazıları bağışıklık sistemi- ni güçlendirebilir ve bazıları solunum sorunlarına neden olabilir. Sonuç olarak, mikrobiyomun insan sağlığı üzerindeki etkisi büyük ölçüde hafife alınmıştır. Mikrobiyomun ve inşa edilmiş çevrenin nasıl birleştiği konusunda daha fazla araştırma yapılmalıdır.

ملخص باللغة العربية

الحي

Ypenburg هو حي في الضواحي يقع في جنوب شرق لاهاي ، هولندا. تم بناء المنطقة في الأصل كقاعدة جوية عسكرية ولكن تم تحويلها لاحقا إلى منطقة سكنية. تقع دراسة الحالة الخاصة بنا في Ypenburg Waterbuurt. يقع Waterwijk في الجنوب الغربي من Ypenburg. البيئة ، كما يوحى اسم Waterwijk ، تركز بشكل كبير على المياه. 29% من المساحة عبارة عن مياه مقارنة بمتوسط Ypenburg وهو 8% ، Waterbuurt هي منطقة سكنية هادئة مع 98% من المباني عبارة عن مساكن. يسمى المشروع السكني «جزيرة الباحة» تم تصميمه من قبل MVRDV وتم تحقيقه في عام 2004. تتكون جزيرة الباحة من أربعة صفوف من منازل الفناء ، مع ربط المنزل الأوسط لكل صف بالشارع بواسطة ممرات ضيقة ، مما يسمح باللوحات المعلقة المحتملة أو تخزين أدوات الحدائق والدراجات. يحتوي كل منزل على وحدة منفصلة على السطح موضوعة لمنع التسلل البصري من وإلى الجيران. يمكن الوصول إلى الأسطح من الفناء عبر سلام من نوع حمام السباحة واستخدامها كتراسات ، وتقديم نفسها كمكان اجتماع محتمل للجيران. في حياة الفناء للبشر ، تتلاقى الطيور والبكتيريا والنباتات. في بحثنا ، يعمل الفناء كمشهد يسهل التفاعلات بين جميع الكائنات الحية الأخرى. تشكل طبيعة هذه التفاعلات بشكل كبير من خلال تغير الفصول. نظرا لأن الطيور والنباتات والبشر يتفاعلون بشكل مختلف مع درجات الحرارة المتغيرة ، تتكشف قصة حول كيفية تغير هذه التفاعلات.

العملية

يهدف بحثنا إلى التحقيق في العلاقة المتبادلة بين تنظيم الفضاء وأمط الحياة اليومية والحياة الاجتماعية للمباني والأماكن العامة. مع أنواع مختلفة من الأساليب ، سوف يستكشف بحثنا الإثنوغرافيا البصرية المعمارية للعثور على الروابط بين الكائنات البشرية وغير البشرية والطبيعية التي تتفاعل في البيئة الحضرية. في هذا البحث ، تقترب من جزيرة باتيو بطريقة متعددة المقاييس وغير متمحورة حول الإنسان. من خلال تحليل الكائنات الحية الأخرى مثل : الأشجار والنباتات والثدييات والطيور والخفافيش والبكتيريا والفطريات. نحاول ربط كيفية تفاعل هذه الكائنات مع بعضها البعض وكيف يؤثر ذلك على صحة الإنسان ، عقليا وجسديا. ويبين تجميع هذه النتائج كيف تتفاعل الكائنات الحية المختلفة في الحي في حالات محددة، وتتجاوز في الغالب البيئة المبنية؛ الطيور التي تسافر مع المواسم ، وتأكل التوت من الأشجار وتنشر البذور عن طريق التغوط مما يجعل الأطفال يخطون في القرف بينما يتصلون ويبكون في نفس الوقت مما يؤثر على المشهد الصوتي. يمكن أن يجذب وجود الماء الطيور وبعض النباتات. تقارب هذا يخلق مجموعة متنوعة من البكتيريا والفطريات. في حين أن هذه الكائنات الحية الدقيقة قد توفر التغذية لبعضها البعض ، فإن بعضها يعزز جهاز المناعة وبعضها قد يسبب أيضا مشاكل في الجهاز التنفسي. في نهاية المطاف ، يتم التقليل من تأثير الميكروبيوم على صحة الإنسان إلى حد كبير. يجب إجراء المزيد من الأبحاث حول كيفية تقارب الميكروبيوم والبيئة المبنية.

YPB1

Ypenburg Bosweide Case Study Area 2

SYMBIOSIS *Symbiose*

Aster Wellerdieck, Ke Ling Neoh, Millie Chieng Qian Yao

Housing and Health in the Hague

The 2022/23 edition of the MSc2 elective course “Architectural Ethnography” explores the interface between the disciplines of architecture, anthropology, microbiology and public health, to investigate how spatial configurations and social practices influence and are influenced by the interactions between humans, non-humans and the diversity of environmental microbiota. Working in collaboration with students, teachers and researchers of Leiden University Medical Centre (LUMC) and Hogeschool Leiden, this report examines a case study areas located in Bosweide, one of the neighbourhoods of Ypenburg, in the Dutch municipality of The Hague. Using a pioneering combination of environmental microbiome research with ethnographic research and spatial analysis this research aims at answering the following research question:

how urban and housing design influences interactions between humans, non-humans and the diversity of environmental microbiota and promotes lung-friendly behaviour?

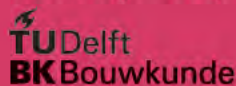
Course Coordinator
Dr. Nelson Mota

Instructors
Ir. Pierijn van der Putt
Dr. Alejandro Campos Uribe
Ir. Rohan Varma

Research Assistant
Antonio Paoletti

Student Assistant
Philomena Vida

Course Organized by



In Collaboration with



With the financial support of



Students

Aster Wellerdieck - 4866908

Ke Ling Neoh - 5764734

Millie Chieng Qian Yao - 5729300

Tutor

Dr. Alejandro Campos Uribe

1. Introduction	7
a. Genius Loci	8
2. Socio-economic Characterization	11
a. Demographics and Livability	12
b. Health	16
c. Background	20
3. Spatial analysis	25
a. Greeneries/ vegetation	29
I Overall Greeneries	30
II Public Trees	32
III Private Garden	38
b. Infrastructures	41
I Traffic intensity	42
II Associated Noise	44
III Street width of Bosweide	46
c. Building	49
I Figure Ground Comparison	50
II Typology	52
d. Climate	55
I. Climate Emergency	56
II. General data and Internal Comfort	58
e. Microbiodata Analysis	63
I. Diversity	64
II. Evenness (Dominance)	68
4. Synthesis Participatory Action Research	71
a. Preparation	72
b. Interview with participants	73
c. Findings/ Results	84
5. Conclusion	91
6. Sources	98



Introduction

The research of YPB1 has been conducted in the neighbourhood of Bosweide in Ypenburg, The Hague. The research will analyse the area's socio-economic status and spatial quality, including greeneries, infrastructure, climate conditions, building typologies and surrounding microbiomes which potentially influence the health and well-being of Bosweide residents. The research will also include participatory research results with a volunteer to get insights into his daily trajectory and interaction with the area's physical environment.

ARCHITECTURAL ETHNOGRAPHY



Pictures taken
around the
neighbourhood of
Bosweide during
site visit.

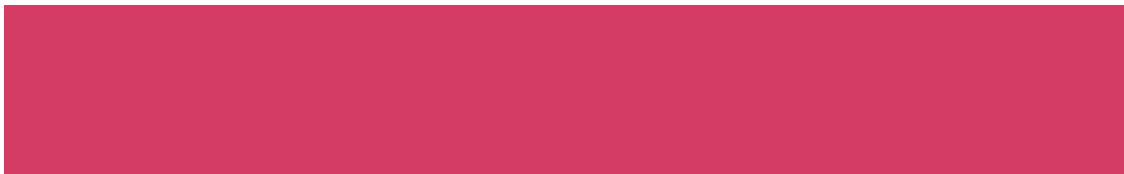
Figure 1 (Top):
Green pocket at
Serpentine Street.
Figure 2 (Middle):
Streetscape of
Bosweide.
Figure 3 (Bottom):
Sound wall
barrier separating
Bosweide and a
highway.

Within Bosweide, the residents are surrounded by a profusion of trees and foliage, which impart a tranquil and relaxing ambience. In contrast, zooming out beyond the neighbourhood, as shown in Figure 4, the neighbourhood is bordered by three highways of high traffic density, as depicted in Figure 4. One side of the neighbourhood is directly adjacent to the highway. In contrast, the other two sides are separated from the highway, either with a natural green buffer zone or by a business park towards its left.

Since it is situated beside a highway, the air quality might be affected by long-term exposure to air contaminants. However, at the same time, the neighbourhood is nearly encircled by green features. Greenery is abundant within the area itself. Hence, the neighbourhood of Bosweide is an interesting case study to analyse the influence of these contradicting spatial features. Yet, to examine the impact of related microbiomes on the health and well-being of the residents of this particular area.



Figure 4: Google map: aerial view depicting the area of Bosweide neighbourhood.

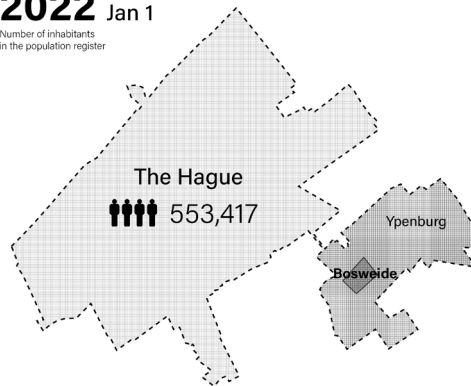


Socio-economic Characterization

Socioeconomic factors are important determinants of health, For example, income, employment, housing and education, people who are disadvantaged in one or more of these areas might face difficulties accessing materials and social resources, which in turn impacting their overall health and wellbeing (Australian Institute of Health and Welfare, 2022). According to WHO (2022), socioeconomic positions correlates with a person's health and illness following a social gradient: the lower the socioeconomic position, the worse the health.

2022 Jan 1

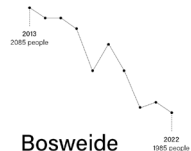
Number of inhabitants
in the population register



Ypenburg

Approx. 5% of
The Hague's population

27,050



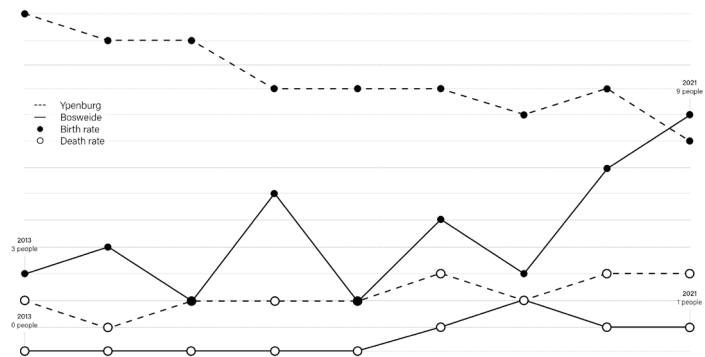
Bosweide

Approx. 7% of
Ypenburg's population

1,985

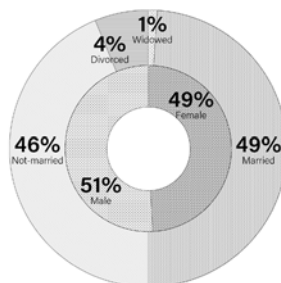
Birth and mortality

Number of birth and death per 1000 inhabitants



Bosweide

Age, Gender and Marital Status
Percentage of inhabitants



18%
0 - 15 years old



18%
15 - 25 years old



14%
25 - 45 years old



39%
45-65 years old



11%
65+ years old



Demographics/
population
of Bosweide
neighbourhood.

Figure 5
(Top): Register
population
comparison.
Figure 6 (Middle):
Birth and mortality
rate comparison.
Figure 7 (Bottom):
Age, Gender and
Marital Status of
Bosweide.

Demographic studies are essential to understand the population health of a particular area. As argued by Kindig and Stoddart (2003), population health as a concept of health can be defined as “the health outcomes of a group of individuals, including the distribution of such outcomes within the group,” including health outcomes, patterns of health determinants and policies and interventions that link these two.

Bosweide, as part of The Hague city, is within its development strategy of becoming a resilient city to survive possible future shocks and stresses. However, even though the population of The Hague has increased significantly, the number of inhabitants in Bosweide has decreased by 100 people, which is 4.8%, from 2013 to 2022, with a growing birth rate and low mortality rate. Bosweide’s population declining trend might result from migration or an ageing population.

According to WHO (2022), the number of people aged 60 years and above will double by 2050, also shown in the statistical trend of Bosweide’s current age group. Majority of Bosweide’s residents is between the age of 45 to 65 years old. Population ageing and demographic shift are highly related to the area’s population health, associated with the gradual decrease in physical and mental capacity and a growing risk of disease and death.

Marital status is also another critical factor in determining the health of a population. A study by Verbrugge (1978) indicates that non-married people have a higher mortality rate than married people as they tend to have unhealthy lifestyles such as smoking and drinking. Divorced people have an especially high rate, followed by widowed, and lastly, singles. Looking at marital status alone, Bosweide’s population of married and non-married are evenly distributed.

Livability is “the extent to which the environment meets the requirements and wishes that people place on it.” The livability meter performs as a signalling and monitoring instrument that provides the statistical prediction of the local quality of life. The diagram on the right demonstrates the livability scale of Bosweide and the surrounding neighbourhood as analysed in 2020. The results are presented in the form of grids of 100x100 meters (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2020). As shown in the diagram (Figure 9), Bosweide achieves an excellent livability meter grading. This indicates that, most likely, Bosweide is performing well in areas such as safety and security, easy access to amenities and public transport, and has a clean and healthy environment with good air quality, green spaces and minimal pollution.

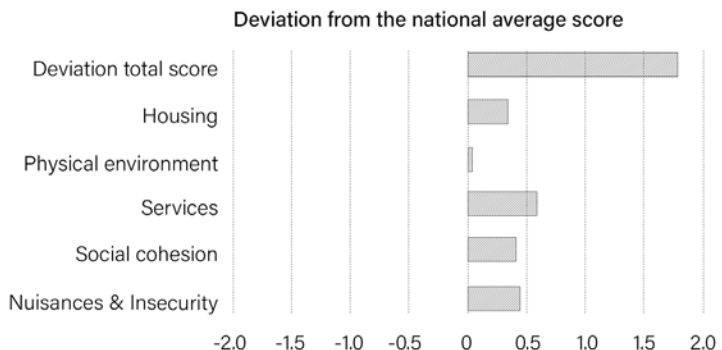
Livability meter monitoring and reflecting the quality of life situation in the neighbourhood of Bosweide.

Bosweide is situated close to major highways and has good public transport connections to other parts of the city. Parks and green

spaces encourage residents to enjoy outdoor activities while interacting with surrounding natural environment. Overall, Bosweide, is an excellent, pleasant living neighbourhood that offers good quality of life for its residents.

Figure 8: The deviation total score compared to the rest of the country, and the contribution to the deviation per dimension.

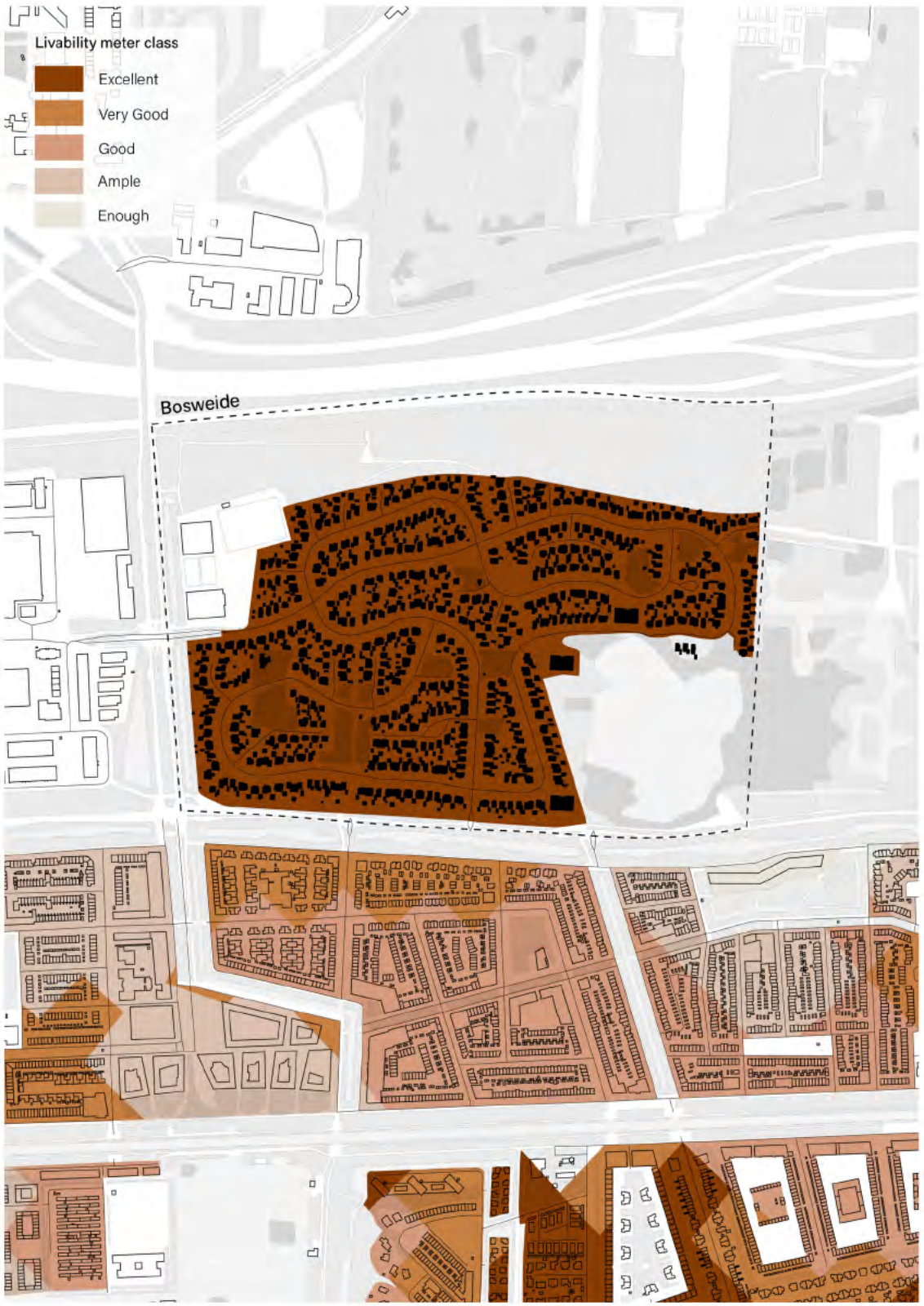
Figure 9 (right): The livability meter of Bosweide and its immediate surrounding.





Livability meter class

- Excellent
- Very Good
- Good
- Ample
- Enough

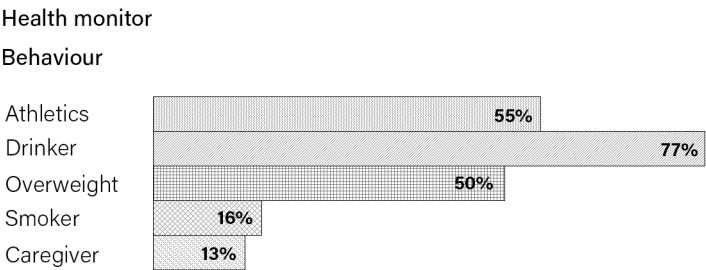


Adding to the livability meter, Boweide is an ageing-friendly neighbourhood with high accessibility to healthcare and well-being amenities. The convenience of accessing healthcare facilities within a close vicinity allows people to swiftly get medical attention, especially people with mobility issues and those who do not have access to transportation. During timely emergencies, residents can get necessary treatment without further delay, significantly improving their chances of recovery. In critical situations, it can mean a difference between life and death.

Healthcare facilities such as GPs, pharmacies, dentists, physiotherapists and psychotherapists are reachable at most within 10 to 12 minutes of walking distance from any point in the neighbourhood. As a consequence, residents of Bosweide

are more likely to take care of their health and prevent the spread of illness, eventually improving the overall health of the entire community.

Healthcare facilities nearby is essential for individual health, community health and emergency situation.



Well perceived health or illness

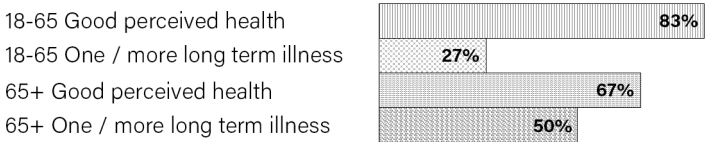


Figure 10: Bosweide residents' health.

Figure 11 (right): Health related amenities within proximity.

Zoning and Amenities

Business Park

Residential

Physiotherapy

Dentistry

Pharmacy

General Practitioner

Psychotherapy

Elderly



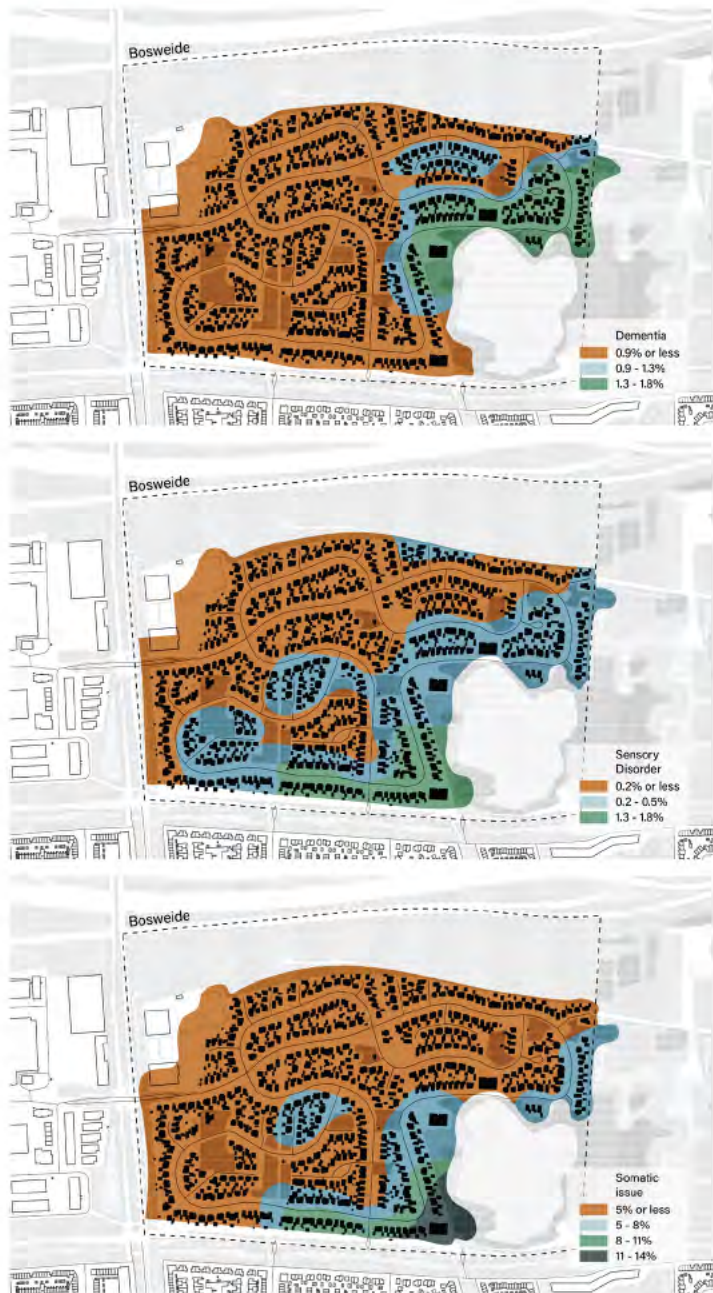
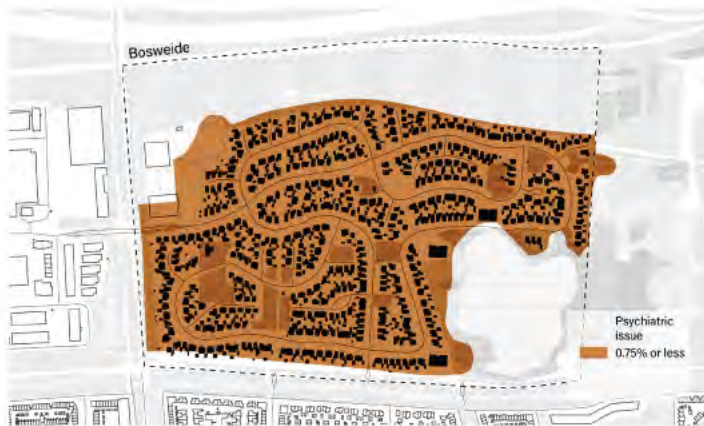


Figure 12:
proportion
of disorders
(Residential Care
Guide 3.0, 2020)

Figure 12a
(Top): Dementia
(extramural)
Figure 12b
(Middle): Sensory
disorder
Figure 12c
(Bottom): Somatic
problem

CASE STUDY AREA: YPB1



Figures showing the proportion of disorders (Residential Care Guide 3.0, 2020)

Figure 12d (Top):
Psychiatric problems
Figure 12e(Middle): Youth service



Only 11% of the population of Bosweide are elderly above 65 years old, resulting in a relatively low ageing-related health condition. Based on the colour distribution for the level of sensory disorder, and somatic and psychiatric problems, the colour red constituted the majority proportion, suggesting that the residents are generally healthy. This could be affected by the physical environment where they reside or could also be related to their wealth and educational level. On the contrary, youth services are relatively high compared to other disorders, which might be in correspondence with the relatively young demographics and the position of schools within proximity.

Several research studies demonstrate the positive correlation between education level with good health. Researchers observed that there is a significant health inequality brought about by education. Generally, adults with higher educational attainment are more likely to live healthier and longer lives, whereas those with low educational attainment struggle with poor health. It is stated that the association between health and education is complicated considering many different indicators, such as the effects of poor health in childhood, appreciation of good health behaviours and greater access to social, psychological and interpersonal resources. (Raghupathi and Raghupathi, 2020)

Education level closely tied to a person's income and wealth, determining one's ability to support a healthy life.

The residents of Bosweide have a majority high level of education, with 51.6% having tertiary education. Completing the highest level of education also means a higher income level and more wealth. Consequently, they can afford healthy lifestyles and provide better living conditions and physical and mental assets for themselves and the next generation (Woolf et al., 2015). As shown in the figure ?, the average gross annual income in the Bosweide neighbourhood is €51,100, which is about €19,000 more than the average annual income of the Ypenburg borough, and €22,200 more compared to the municipality of The Hague. Additionally, mapping out educational amenities around Bosweide shows that children's education is well-considered because elementary and high schools are located within proximity. Moreover, the health monitor also reflects the association between education level and health since 83% of residents in Bosweide between 18 to 65 years old reported having good health.

Figure 13 (right):
educational
amenities within
proximity.

Level of education of residents aged 15 to 75

51.6%

High



31.8%

Intermediate



16.6%

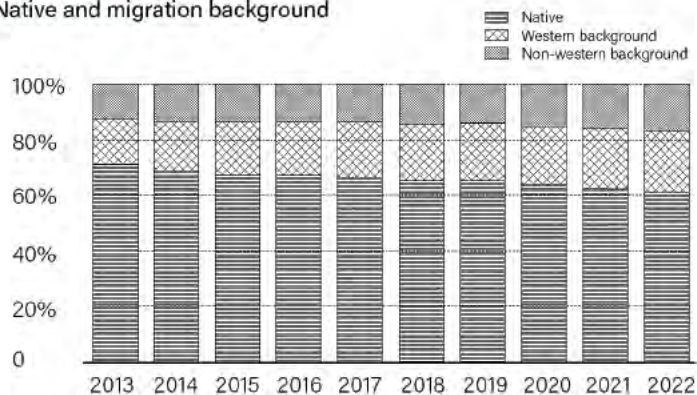
Low



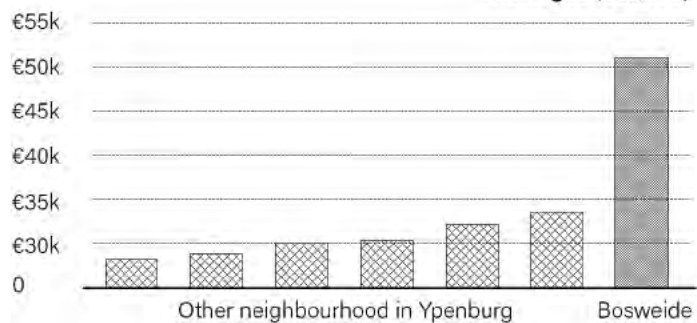
Education facilities

- High School
- Elementary School
- Kindergarten
- Library

Native and migration background



Average income per inhabitants of Bosweide (€51,100)
Ypenburg (€32,100)
The Hague (€28,900)



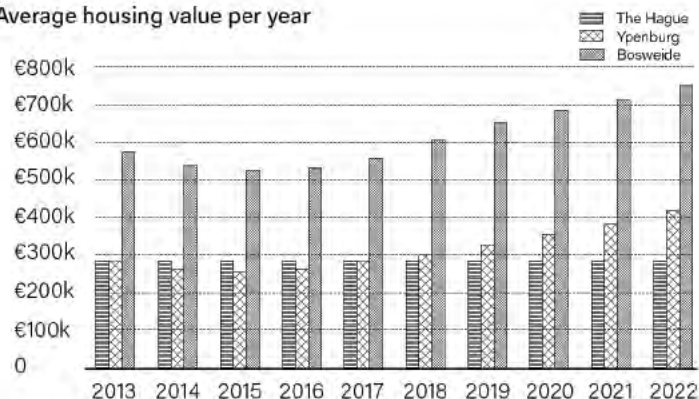
Charts showing distribution of population background, average income and the increment of housing value.

Figure 14 (Top): Native and migration background.

Figure 15 (Middle): Comparison of average income.

Figure 16 (Bottom): Average housing value of Bosweide.

Average housing value per year



The number of indigenous residents of Bosweide has decreased by 18% from 2013 to 2022. Migration might result in difficulties accessing local healthcare facilities and physical and mental adaptation to the new environment. There is a tendency which might cause slight fluctuation when studying the health outcome of a particular area.

There are 669 homes in the Bosweide area, mainly constructed between 1990 and 2010. The average house value has increased by 31%, which is €573,000 in 2013 to €750,000 in 2022, reflecting the rising assets value of Bosweide's residents. Studies conducted between health and wealth demonstrated a positive correlation. It is often viewed as people with higher incomes tend to have better health (Herndon, 2019).

Figure 2.17 demonstrates the level of crime in Bosweide, mainly related to traffic offences. The crime rate of Bosweide contributed 0.07% to Ypenburg and 0.002% to The Hague's overall crime rate, which proved its safeness.

Total recorded crime per month (2022)

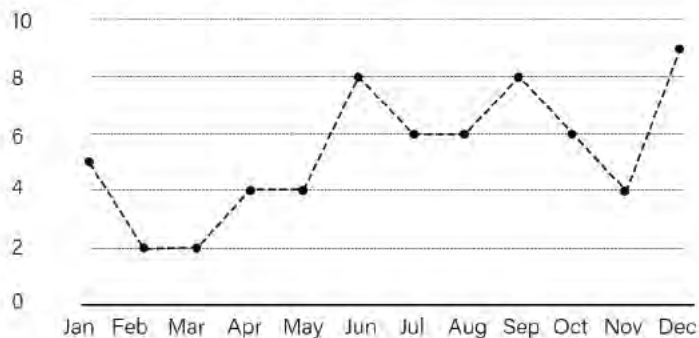


Figure 17:
Crime rate and
safety level
of Bosweide
neighbourhood

In 2022:

64 crimes were registered in the Bosweide.

865 crimes have been registered in the Ypenburg.

37,230 crimes will be registered in the municipality of The Hague.



Spatial Analysis

Bosweide is a low-density housing area with a relatively high household footprint compared to other neighbourhoods in Ypenburg and Moerwijk. The absence of confinement is attributed to the relatively spacious internal environments and external urban planning, such as lower ground space index, wide winding roads for cars, bicycles and pedestrians, as well as a high percentage of public and private greeneries. There are also various amenities within proximity to provide convenience for the everyday life of residents.

**SPATIAL
ANALYSIS
AND HEALTH
INDICATORS**

0,29

Leefbaarometer¹
Total Score
Scale: Grid

22

Residential Density
Dwellings / Hectare

12,9%

Intake of more than 5+
types of medication²
Scale: Ypenburg, 2017

22,6%

Ground Space Index
Groundfloor Surface
Occupation / Hectare

90%

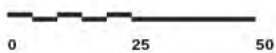
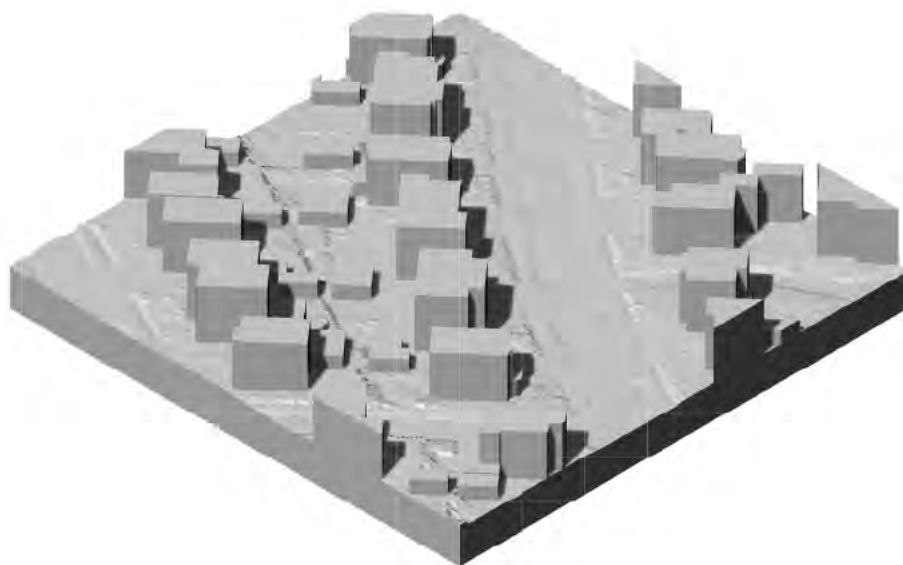
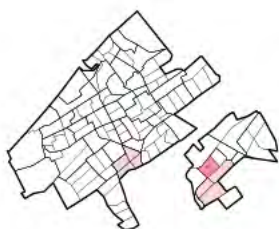
Perceived Good Health
Bosweide,
aged 18-65³

102,7m²

Average Household
Footprint
10,000 x GSI / Households

79%

Perceived Good Health
Bosweide,
aged 65+³





Greeneries/ Vegetation

Bosweide features a diverse array of greenery displayed through double tree-lined streets. Additionally, multiple green pockets of varied sizes can be discovered, adding to the overall lushness of the area. To fully incorporate nature with the everyday life of the residents, pedestrian paths wind seamlessly through the pockets of greens, at one point, running perpendicularly with the central bike lane. It is also crucial to highlight one of the most significant green pockets that housed Lake Boswijk (towards the right of the neighbourhood), which became the beloved recreational spot of the residents.

The neighbourhood is surrounded by green connecting ecology zones (Figure 19). These zones consist of unique flora, some of which are on the Dutch red list of plants because these have declined in number over the past years. On the sound barrier hill, north-west of the neighbourhood, specific flowers grow: like the oriental goat's beard (*Tragopogon pratensis* subsp. *orientalis*), the common fleabane (*Aulicaria dysenterica*), the sand leek (*Allium scorodoprasum*) and the narrow-leaved rattle (*Rhinanthus angustifolius*). The municipality maintains this zone with a particular mown regulation. They mowed the hill several times yearly, but a different part of the vegetation was kept up each time. This way, there are always sufficient lodging places and flowering plants for insects. The flowers will eventually attract bees



and butterflies such as the cabbage white (*Pieris rapae*), the common blue butterfly (*Polyommatus icarus*), the clouded yellow (*Colias croceus*), the meadow brown

(*Maniola jurtina*), the small heath (*Coenonympha pamphilus*) and the painted lady (*Vanessa cardui*).

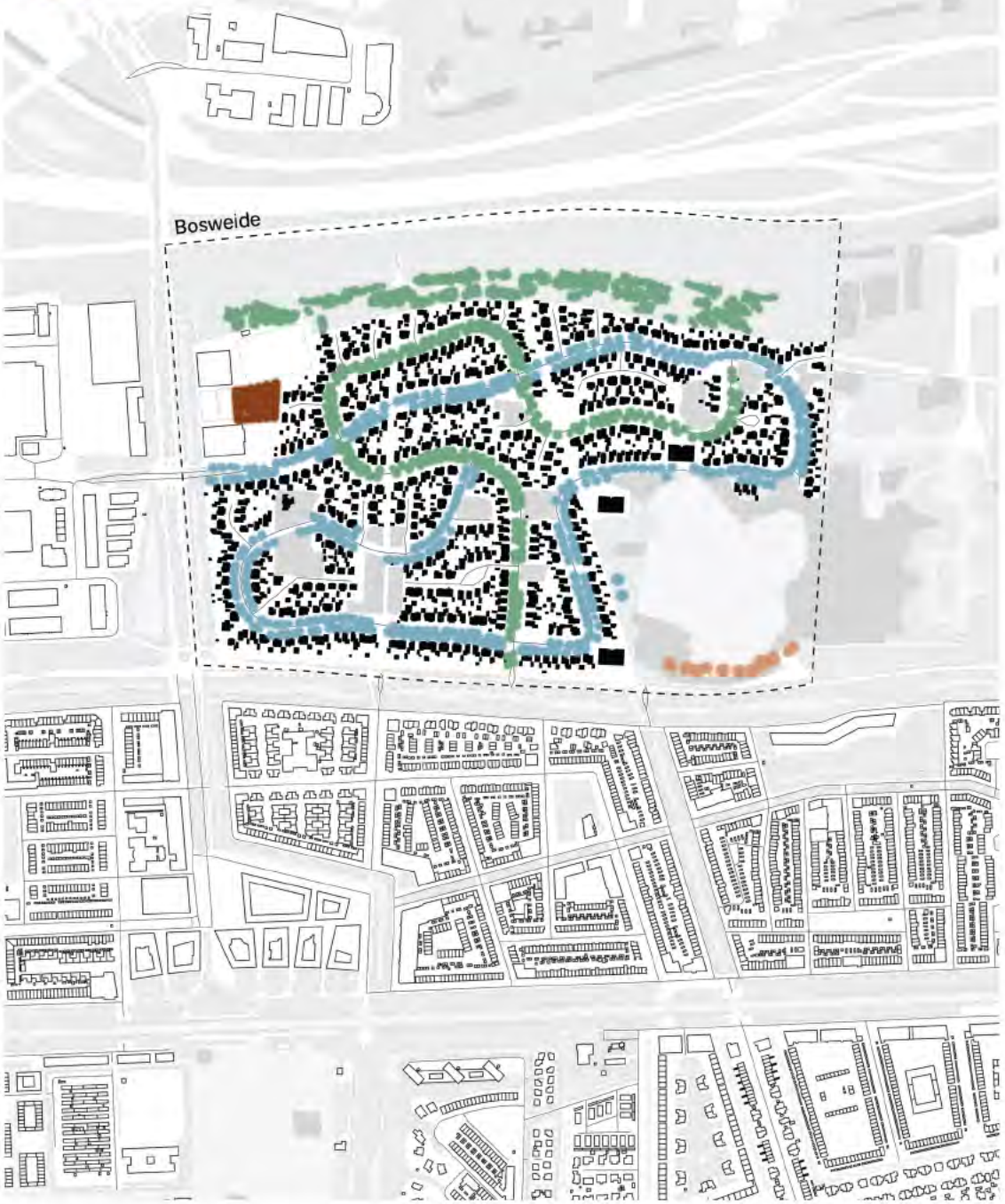
The other two connecting ecology zones have less biodiversity due to their smaller scale. Along the Laan van Hoornwijck, flora like the oxeye daisy (*Leucanthemum vulgare*) and the common self-heal (*Prunella vulgaris*). Flora along the Ypenburgse Boslaan is more concentrated and consists of brown knabweed (*Centaurea jacea*) and the narrow-leaved rattle (*Rhinanthus angustifolius*). Some flora, like the common self-heal (*Prunella vulgaris*) and butterflies, are in the green pocket surrounding the lake. Butterflies that occur are speckled wood (*Pararge aegeria*), the red admiral (*Vanessa atalanta*) and the large cabbage white (*Pieris brassicae*).

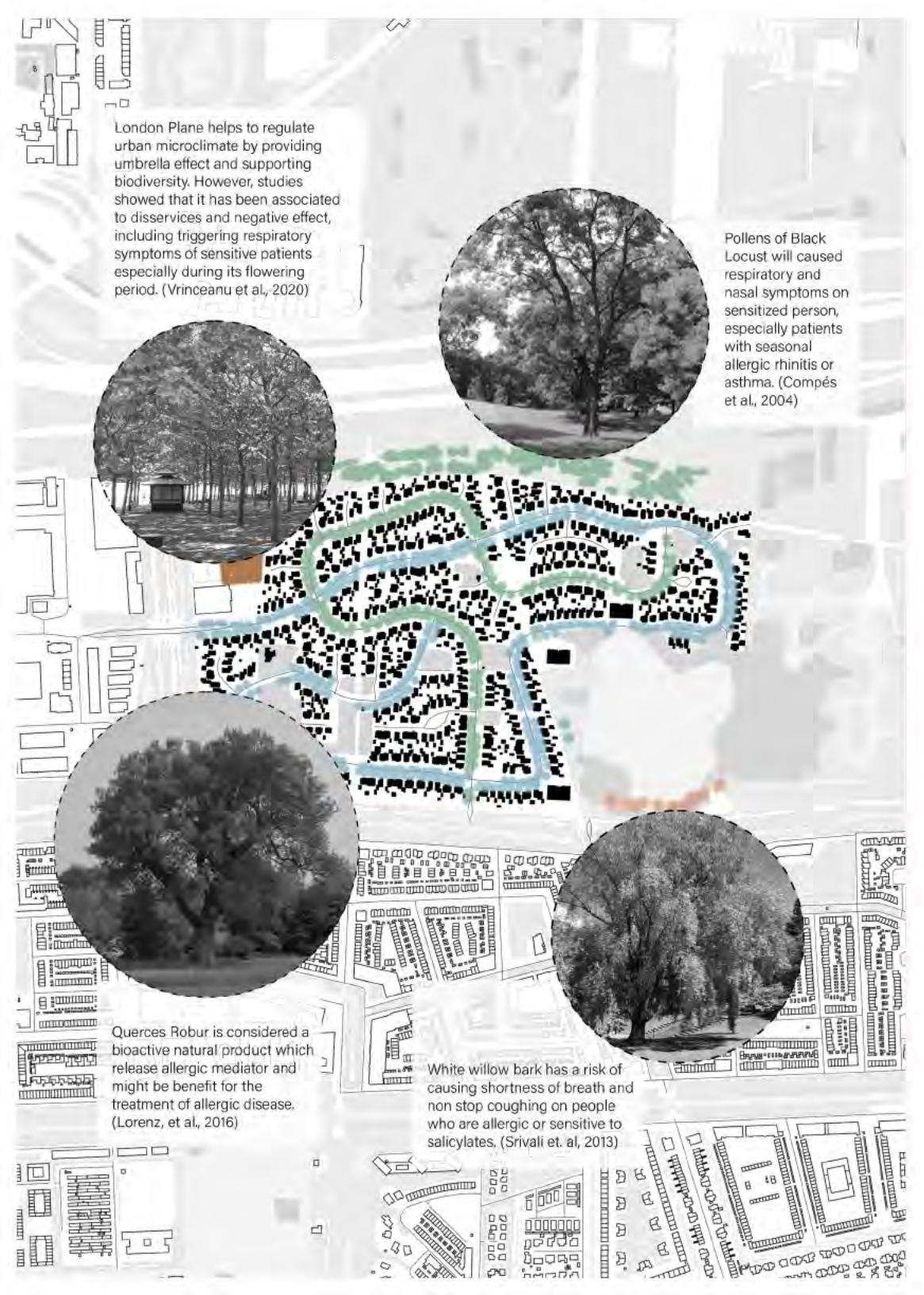
Figure 18 (from left to right):
Allium
Scorodoprasum,
Rhinanthus
angustifolius,
Centaurea
jacea, Aulicaria
dysenterica.

Figure 19 (right):
Bosweide in
Ypenburg is
surrounded
by connecting
ecology zones.



- Public trees
- Black Locust
 - Quercus Robur
 - London Plane
 - White Willow





London Plane helps to regulate urban microclimate by providing umbrella effect and supporting biodiversity. However, studies showed that it has been associated to disservices and negative effect, including triggering respiratory symptoms of sensitive patients especially during its flowering period. (Vrinceanu et al., 2020)

Pollens of Black Locust will cause respiratory and nasal symptoms on sensitized person, especially patients with seasonal allergic rhinitis or asthma. (Compès et al., 2004)

Quercus Robur is considered a bioactive natural product which release allergic mediator and might be benefit for the treatment of allergic disease. (Lorenz, et al., 2016)

White willow bark has a risk of causing shortness of breath and non stop coughing on people who are allergic or sensitive to salicylates. (Srivali et. al, 2013)

ARCHITECTURAL ETHNOGRAPHY



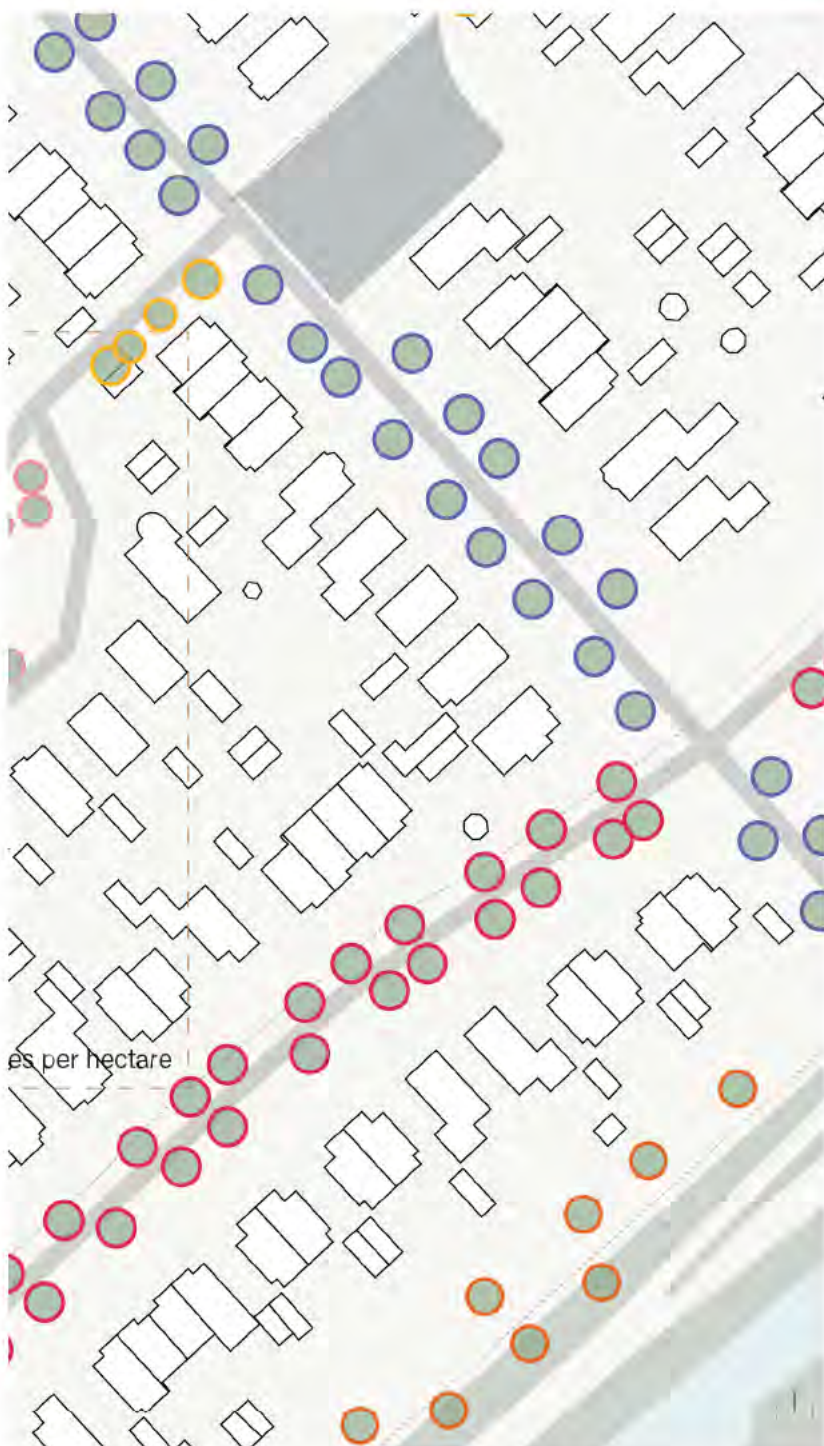
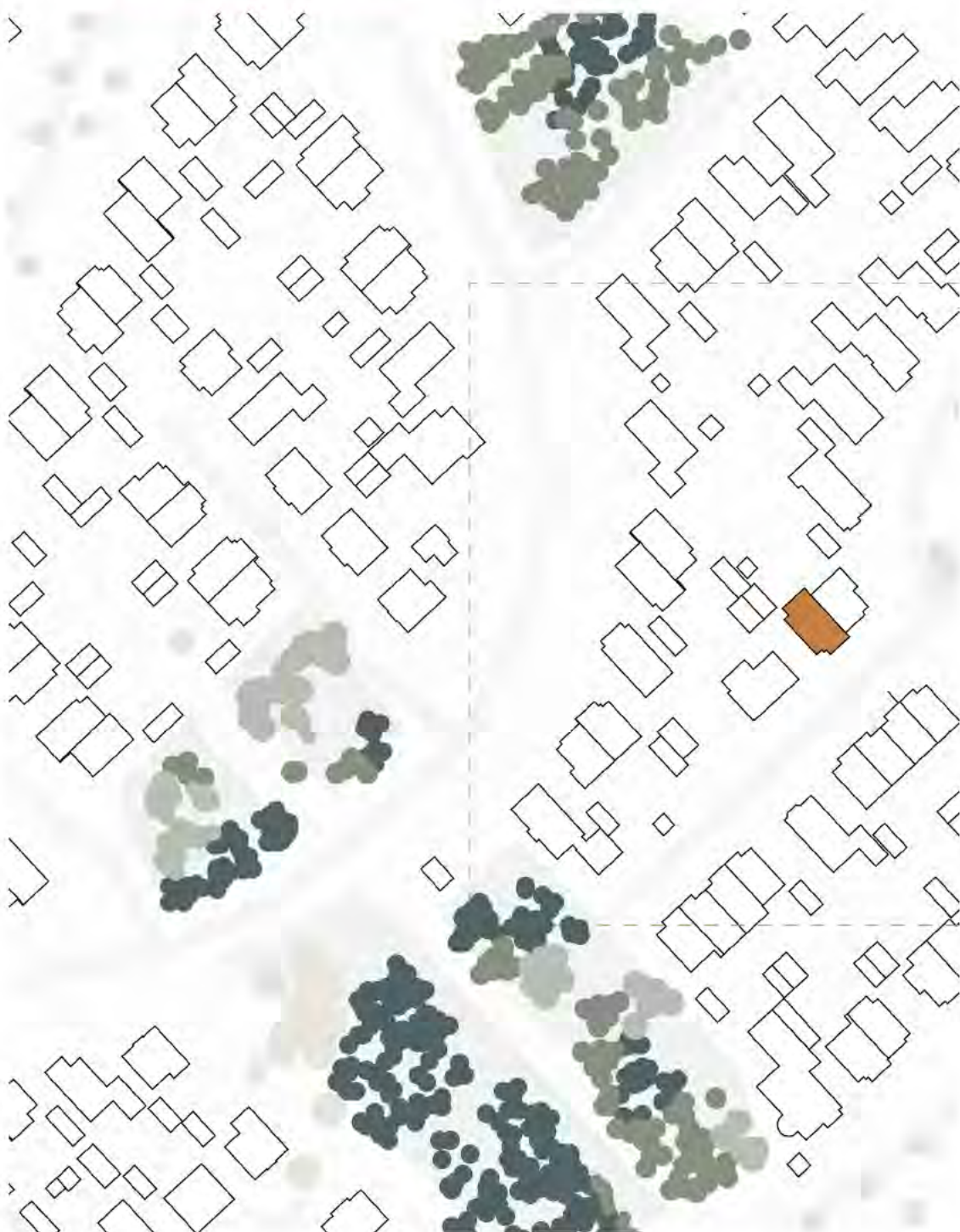


Figure 20 (page 32): Types and density of main public trees.

Figure 21 (page 33): Allergies that associated with tree species.

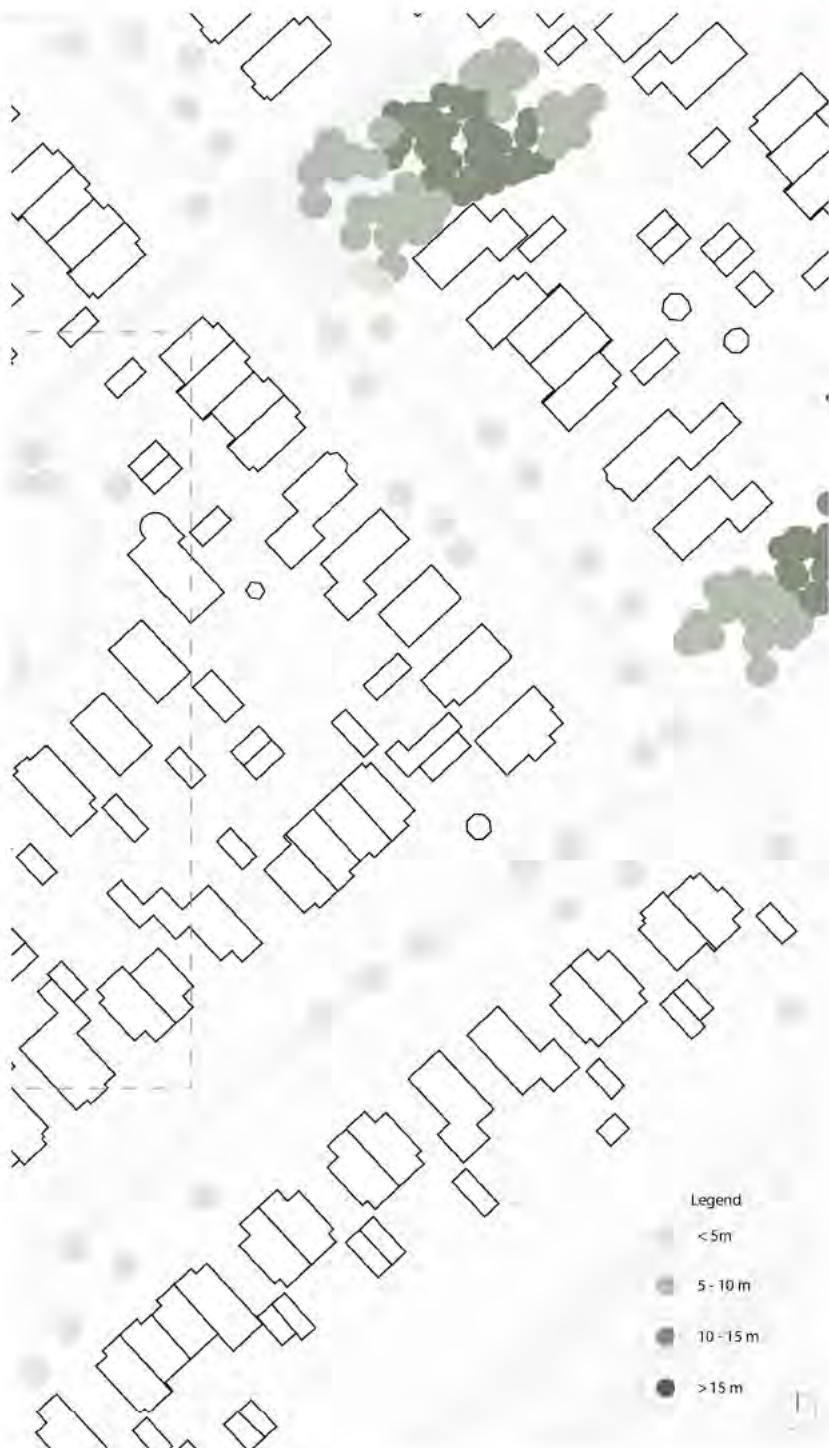
Figure 22 (left): Zoom in version of vegetation species.

ARCHITECTURAL ETHNOGRAPHY



CASE STUDY AREA: YPB1

Figure 23: Tree height surrounding case study area (AHN2)



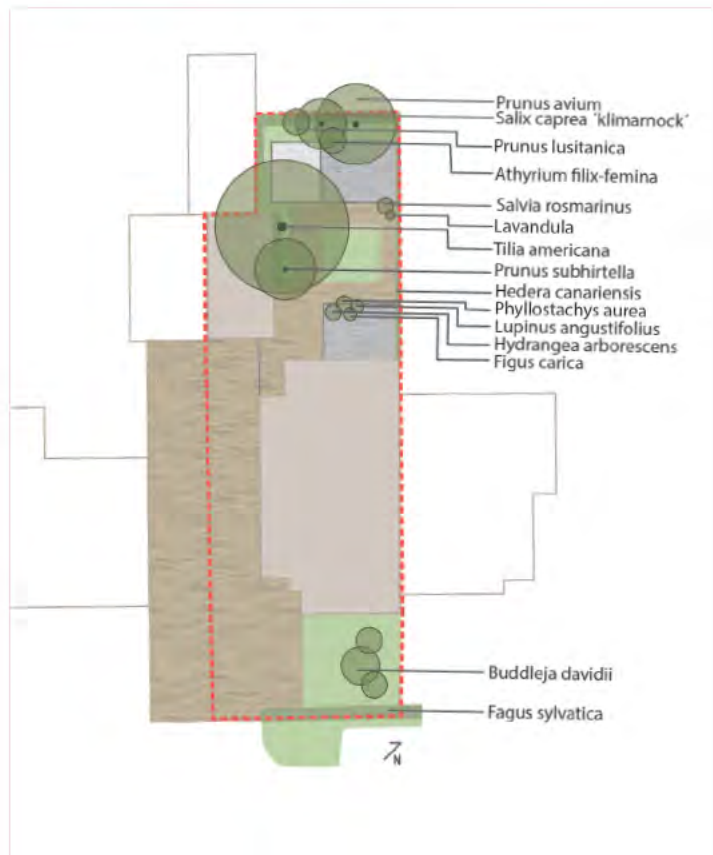


Figure 24 (Top):
 Private owned
 vegetation of
 the participant's
 garden.

Figure 25
 (Bottom):
 Front gardens in
 Bosweide.



The neighbourhood of Bosweide is a relatively green area. The case study area consists of approximately 29 trees per hectare planted by the municipality. Moreover, hedges replaced actual fencing to act as a boundary between the road and each housing compound, separating the public and private space with natural elements. As visible in the bottom picture on the left, private gardens added to the vegetation diversity despite public vegetation and contributed to the neighbourhood's green coverage percentage. The main streets, Boswinde and Guirlande, are designed with trees on both sides, separating the pedestrian sidewalk from the car lane. On Boswinde, the planted trees are *Quercus Robur* (English Oaks), whereas, on Guirlande, they are Black Locusts, which potentially might cause naval and respiratory during the flowering season (Figures 20 and 21). Cars can only travel up to a certain point on Guirlande's side street before reaching a dead end, but the pedestrian path continues and intersect with the bike lane that goes from Postenkade to Bosrank. Field maples grow on the oval roundabout at Serpentine Street, where the children's playground is and along Persian Ironwood Street. Figure 23 demonstrates myriad greens of different heights across all pockets, varying from less than 5m to more than 15m.

Our volunteer participant lives on Serpentine Street in a semi-detached house with a front and backyard. They share a driveway with their neighbours. This driveway is often used by the father and son to play football. In the backyard of the house, there is private garden of diverse vegetation planted on the strip of green. As shown in figure 24, the garden of the participants consist of three major tree types, including cherry blossom and American linden. The family also grows smaller pot plants such as rosemary, hydrangeas and a small figure tree.



Infrastructures

Infrastructures have been a crucial and influential part of the development and environment of both Bosweide and Ypenburg. This is because Ypenburg includes many crucial infrastructures whilst Bosweide is surrounded by main motorways such as the A4, A12, and A13. Significant effort can be seen contributed by the government and municipalities across various scales, not only in the development but also discussion and collaboration with the residents, which hugely improves the well-being, liveability and health of the residents.

In the first variant (Figure 26a), two connecting avenues have been designed, each meeting the criteria for the avenue van Boswijk. The entire program can be opened up with these two avenues, while the resident can quickly get to Boslaan and Laan van Hoornwijk. An attractive feature of this model is that the two avenues in their profile can each show one of the two important tree species of Boswijk: an oak avenue and a beech avenue. At the place where one avenue connects to the other via a T, there is a natural reason to create a special place. In the second variant (Figure 26b) one long, winding avenue of Boswijk has been chosen that opens up almost the entire area. To prevent unnecessary 'detours' for residents and to serve a number of residential areas that are not accessible through the Laan van Boswijk, a number of 'cuts through' have been

provided here. Therefore, these crossings have a less prominent profile and are of a lower order than the Laan van Boswijk.



Figure 26a

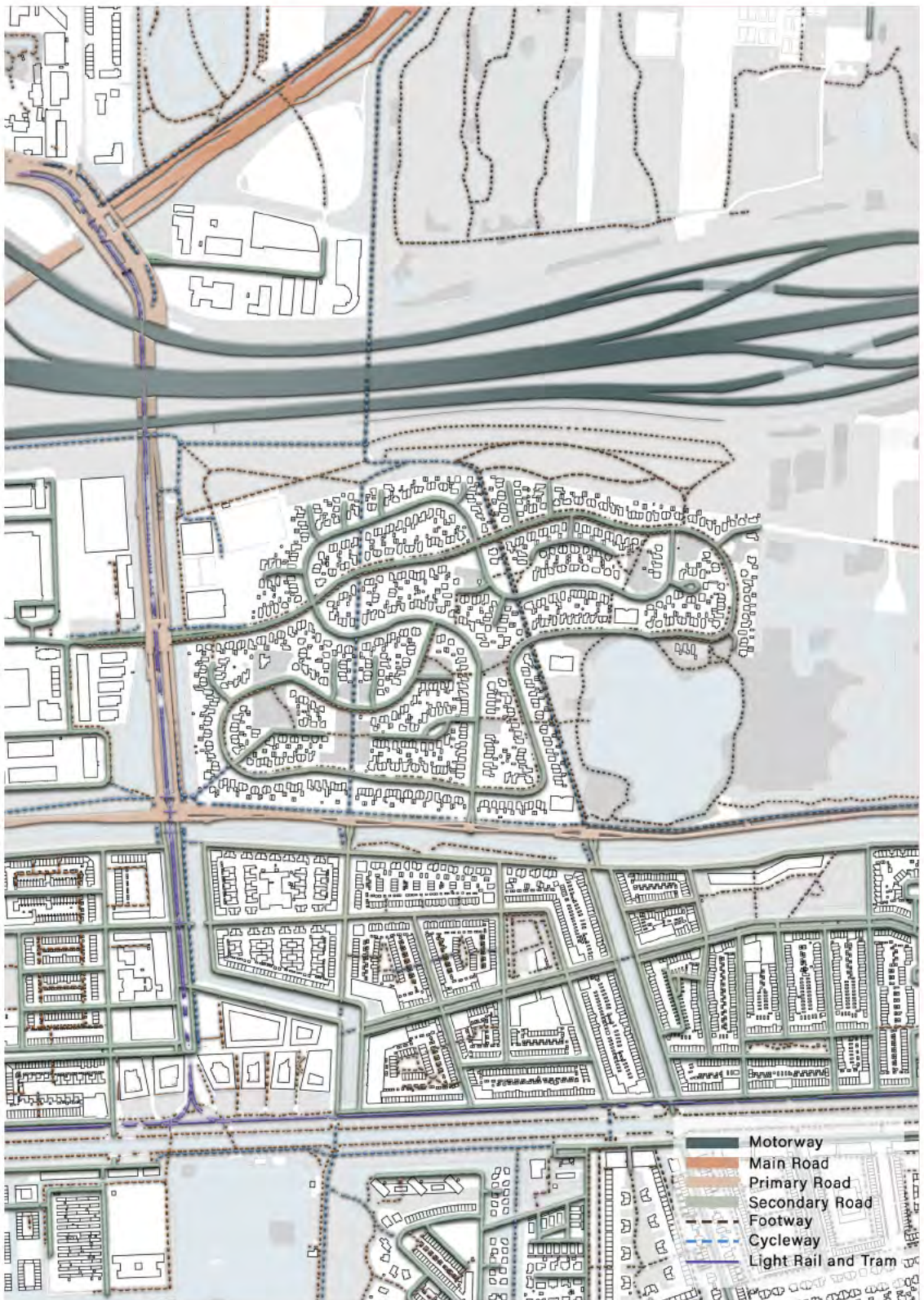


Figure 26b

The main plan structure specifies where the entrances for car traffic will be located. Boswijk can be reached in two ways from the main access roads: Laan van Hoornwijk and Boslaan. These main connecting roads have a 50 km/h regime. Boswijk itself is a 30 km area as a whole and will therefore have to be organized as such. Given the character of Boswijk, it is quite possible to think of an unstretched course of the access roads as a first measure. In addition, the road tmcumr in Boswijk itself may discourage 'creep traffic' niches on Laan van Hoornwijk and Boslaan (to avoid the traffic lights at the intersection between these two main access roads). This means that a not-too-direct connection between these two 'connection points' will have to be made.

Figure 26 (top):
Two diagrams
demonstrating
the profile of the
avenues.

Figure 27 (right):
Types of roads
within and around
Boswijk.



- Motorway
- Main Road
- Primary Road
- Secondary Road
- Footway
- Cycleway
- Light Rail and Tram

The A4 motorway, also called Rijksweg 4, is a motorway in the Netherlands running southwards from Amsterdam to the Belgian border near Zandvliet, north of the city of Antwerp. As of 1979, due to the location of Boswijk on the A4, a noise barrier has been provided in the master plan and in the Hoofdplanstmcumr. This noise barrier reduces the noise from the national highway to 50 db and thus determines where the residential buildings can come. Because the embankment must have stability, there will be embankments on both the motorway side and the side of the residential area. The position of the noise barrier as it is indicated on the map (Figure 29) will still change in connection with the further landscape integration in Boswijk.



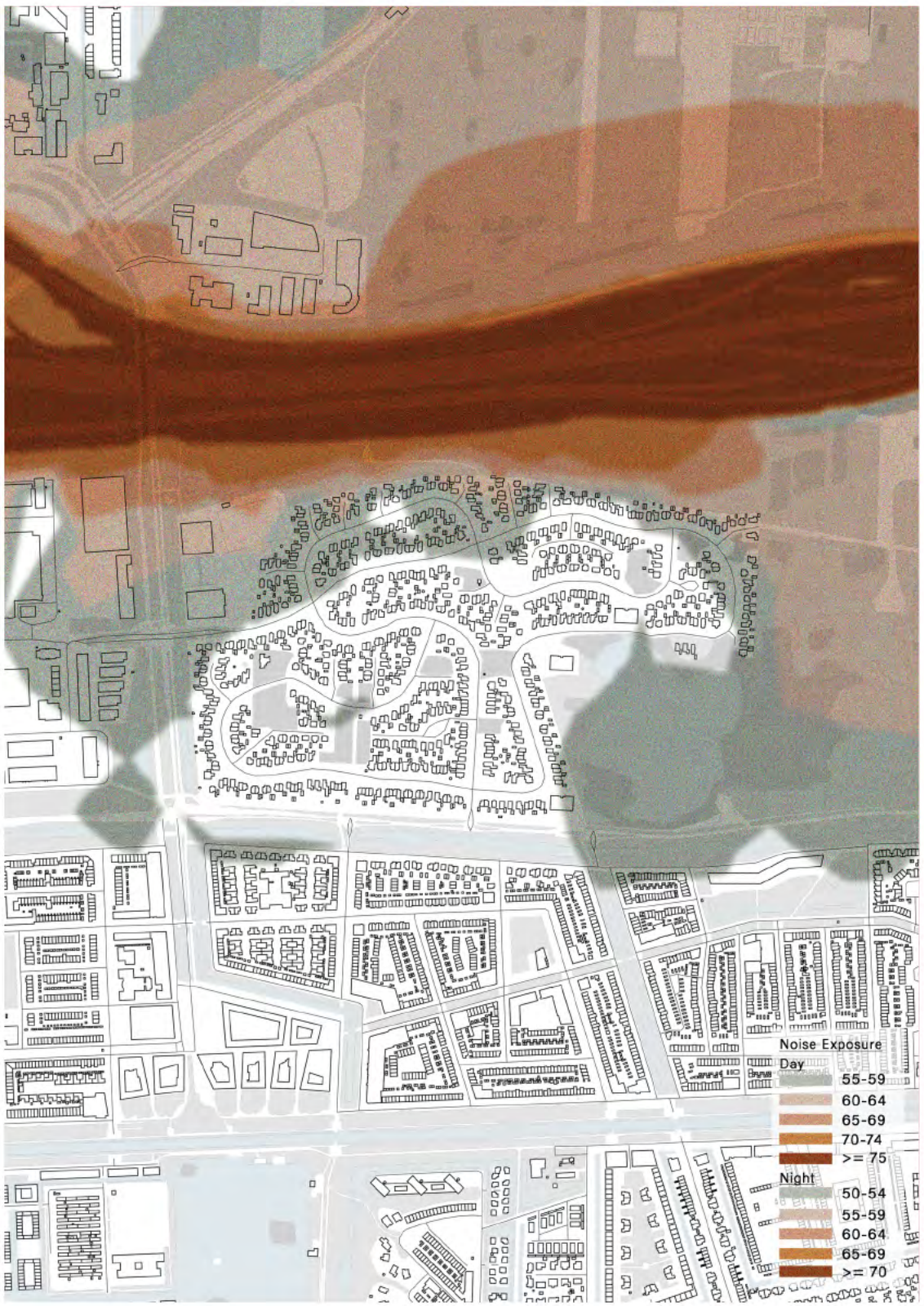
Figure 28

As of 2016, residents of Bosweide and the Bosweide residents' association have complained to the Ministry of Transport, Public Works and Water Management about

the noise nuisance from the A4, which residents believe has increased in recent years. The hope was that people would be willing to install a noise barrier at the underpass at the avenue van Hoornewijk, since there is no sound protection whatsoever here and a lot of noise leaks into Bosweide through this white spot. Unfortunately, these complaints have had little effect. The diagram (Right) shows the noise exposure of the area in 2021. As of 2020, the government wants to broaden the A4 to battle the daily traffic jams and said that it does indeed lead to an increase in noise, but confirmed that the noise will remain within the standards. In June's newsletter, a resident of Bosweide, who lives directly at the noise barrier, reported regularly measure of 90db outside of his house, which is far above the permitted limit.

Figure 28 (Top):
Noise barrier/
Sound wall in
section.

Figure 29 (right):
Noise pollution
indication.



Noise Exposure

- Day
- 55-59
 - 60-64
 - 65-69
 - 70-74
 - >= 75

- Night
- 50-54
 - 55-59
 - 60-64
 - 65-69
 - >= 70

ARCHITECTURAL ETHNOGRAPHY

There are three types of roads in the neighbourhood of Bosweide. The first is the main roads through the neighbourhood (Boswinde and Guirlande). These roads (type A) have a width (from facade to facade) of approximately 30 meters and have a row of trees on each side. The two other types (types B and C) do not have a row of trees and do not have a separate sidewalk: it is all one pavement. Type B is wider than type C because of the grass strips between the road and the frontyards. This type has a width of approximately 18 meters. Type C has a width of approximately 10 meters.

Figure 30a: Type 1

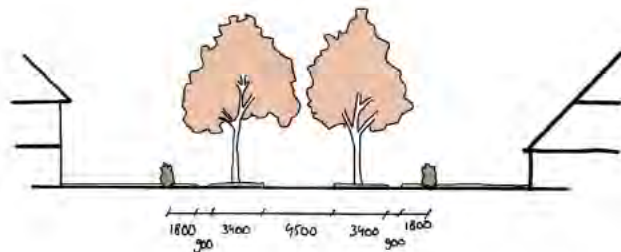


Figure 30b: Type 2

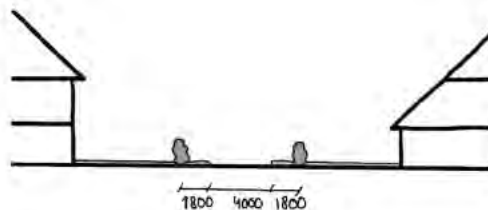


Figure 30c:
Type 3

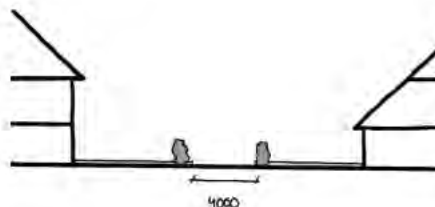
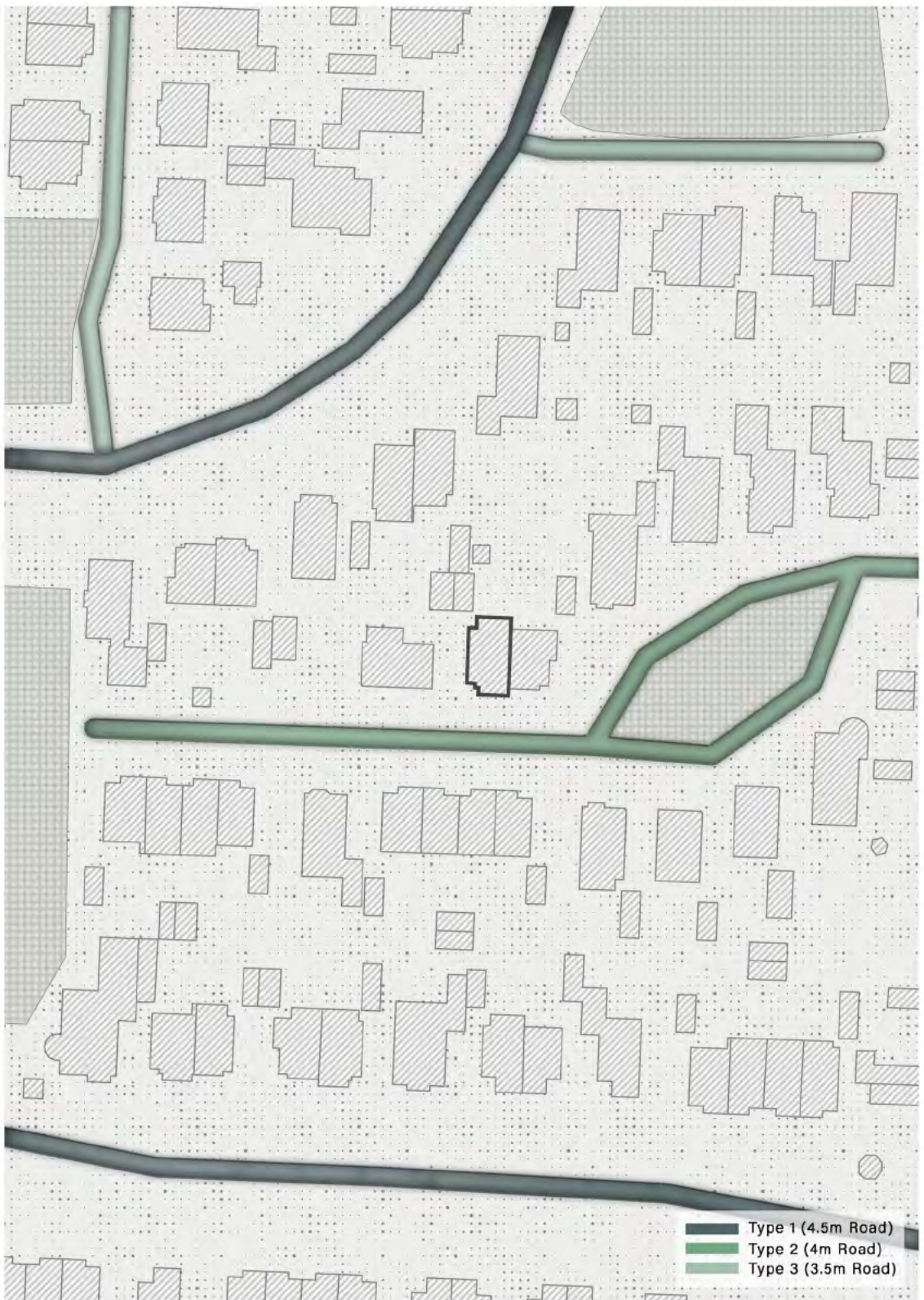


Figure 31:
Highlighting the
different street
types within the
case study area



- Type 1 (4.5m Road)
- Type 2 (4m Road)
- Type 3 (3.5m Road)



Buildings

Bosweide has a relatively low ground space index per hectare and generally low building density compared to other neighbourhoods in Moerwijk and Ypenburg. The figure-ground of Bosweide demonstrated the spacious urban condition. Greeneries, soil types and surface water systems were also considered to improve the quality of life. As a relatively young neighbourhood, the housing in Bosweide also adopted the sustainability concept internally, which will be further discussed in the climate subchapter.

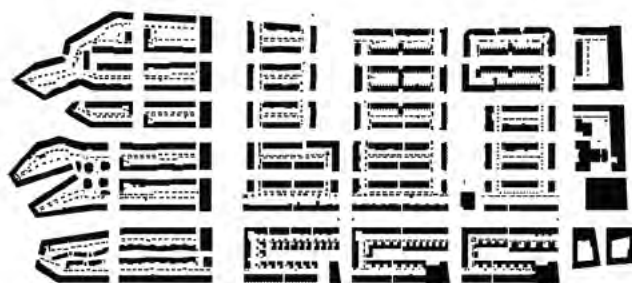
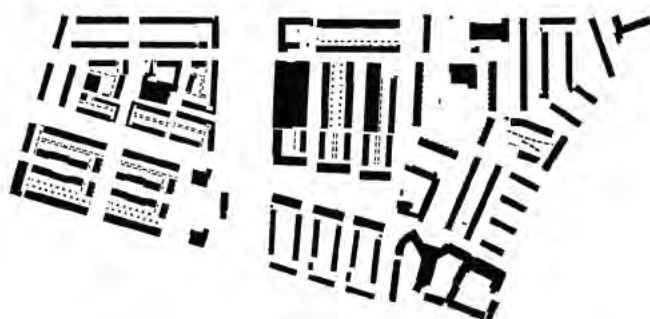


Figure ground of
neighbourhood
in Moerwijk and
Yuenburg

Figure 32a:
Moerwijk South.

Figure 32b:
Moerwijk North.

Figure 32c:
Yuenburg.

The Figure grounds demonstrated (left and bottom) compare the ground space index of Bosweide with Moerwijk south, Moerwijk north and Ypenburg Singels. The positive space depicts the ground space index of each area, whereas the negative space represents the open ground which can be used for parks, greens or other amenities. The comparison demonstrates that Bosweide has a relatively spacious urban environment, which allows various outdoor activities to improve physical and mental health, yet provides efficient infrastructure system for cars, bicycles and pedestrians to avoid unnecessary road offences.

Besides, the winding pattern of Bosweide demonstrated a seamless exploration in a loop within the neighbourhood, developing a strong sense of community and a close relationship with nature. In comparison, neighbourhoods in Moerwijk are arranged in linear form, shaping clear paths and directionality but reducing the opportunity to incorporate green pockets. Moreover, neighbourhood safety and a sense of community are not as strong due to its openness which encourages public accessibility.

Figure 32d:
Figure Ground
of Bosweide
neighbourhood



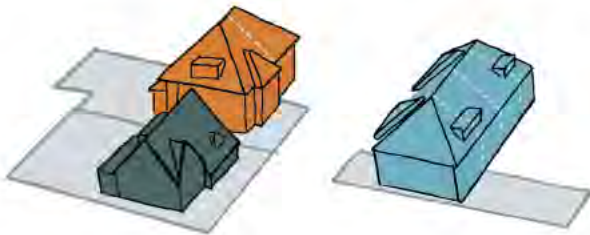


Figure 33: Building typology within the case study zone.

Figure 34 (right): Different building typology within the case study zone.

Bosweide neighbourhood comprises four types of buildings/ housing typologies: detached houses, semi-detached houses, terrace housing and four additional apartment buildings to cater to different needs. Since the studied hectare of the case study presented does not include the apartment buildings, the ground space index study will include only the three dwelling typologies, as mentioned earlier. During the interview with our volunteer, he showed us the brochure promoting Bosweide from the developer. Each house can be modified to the owner's liking, further enhancing the neighbourhood's character. In other say, it strengthens the sense of belonging.

Low building density with a high green percentage represents Bosweide's neighbourhood character. As calculated based on

the map (right), 20% of the ground area is occupied with building structures, whereas 80% remains as open ground that includes the 17m winding avenues and green pockets that invite active outdoor activities. This eventually helps to improve the health and well-being of residents.

Open space: 80%

Terrace: 4%

Semi-detached: 5%

Detached: 11%





Climate

This subchapter will be divided into two categories: firstly, the climate emergency correlated to the neighbourhood of Bosweide; Secondly, the surrounding climate studies evolved around the participant's house along Serpentine Street to understand indoor comfort. The second section of the study will also include the volunteer's thoughts and opinions relating to the house's indoor climatic condition and architectural features of daylighting design that he thinks should be improved.

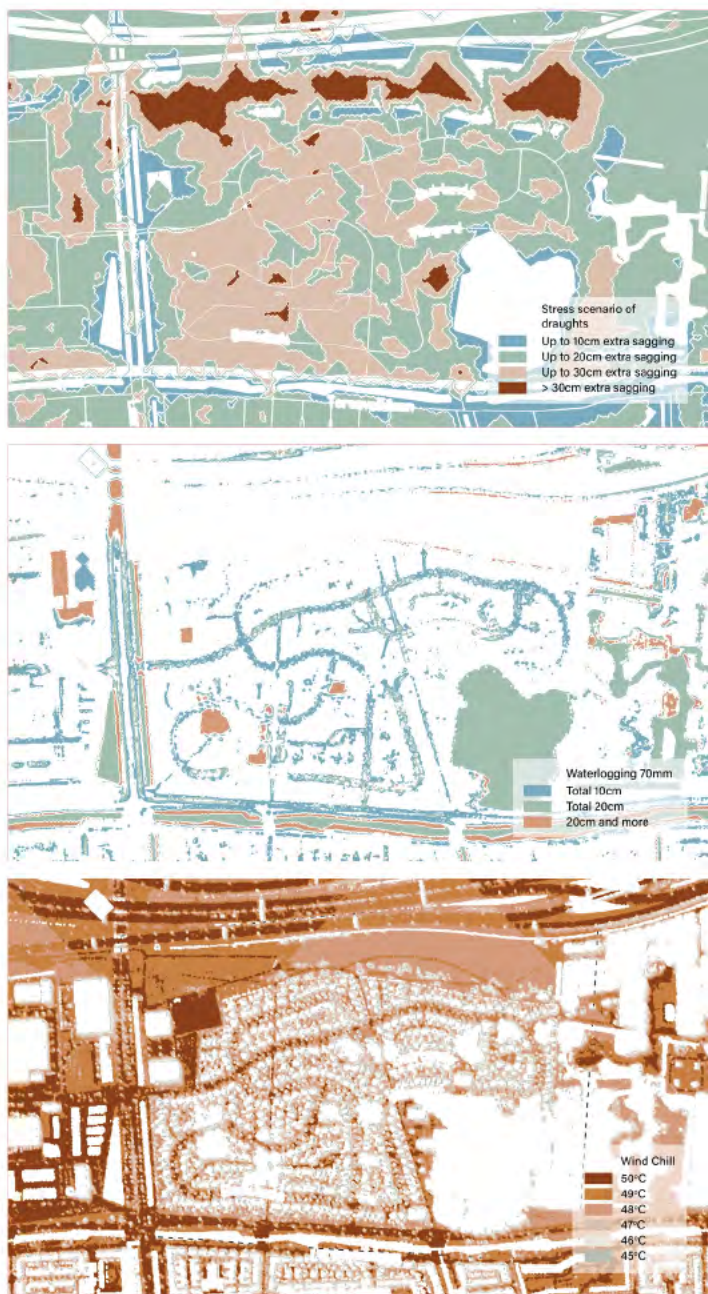


Figure 35: Climate emergencies related to Bosweide neighbourhood

Figure 35a:
Draughts - Ground sagging condition
 Figure 35b:
 Figure 35c: Wind Chill (PET)

Climate change is the biggest threat affecting the social and environmental determinants of health, and could impact health in a myriad of ways, which might lead to increasing death and illness. As estimated by WHO (2021), climate change will cause about 250,000 deaths per year between 2030 and 2050. An increasingly frequent extreme weather events might triggers climate-sensitive health risks that might severely impact the already vulnerable community such as children, poor communities, older populations and migrants.

Figure 35d: Urban heat street effect

The analysis of climate emergency was reproduced based on Den Haag Klimaat Monitor. Figure 35a presents the effect of draughts after two consecutive dry years. Green area will experience a critical drop in groundwater level due to evaporation; Figure 35b depicts an area where flooding is likely to occur after an extreme downpour of 70mm in an hour; Figure 35c (Left Bottom) and 35d (Right) demonstrates the wind chill temperature and urban heat island effect during a hot summer day, indicating the place-sensitivity to heat stress. The highest perceived temperature generally occurs in public spaces, which decreases the quality and comfort of outdoor areas.



The building orientation of Bosweide was tilted 45 degrees to avoid direct South sun, allowing lower intensity daylight to penetrate the house's interior. As depicted in Figure 37, the facade of the building is offset from the roof boundary profile, together with the private and public trees, creating a buffer zone to shade the interior from direct sunlight. Windows along the southwest face of the housing are minimised to avoid overheating in summer. At the same time, they limit the amount of light entering the house, resulting in the dependence on artificial lighting, which will be further discussed on page 60.

Prevailing wind direction in Bosweide vary depending on the season and weather pattern. However, historical wind data shows that the strongest wind intensity is from the southwest,

as depicted in Figure 36.

Indoor and outdoor climate condition will affect the experience, health and well being of residents.

Nevertheless, prevailing wind from a North-West direction will occasionally carry pollutants from the adjacent highway, leading

to increased dust and contaminant levels affecting the surrounding air quality.

The Netherlands has a typical temperate coastal climate. Bosweide's precipitation level varies from 21% to 38% throughout the year, with December being the most humid season. This might relate to the traffic offence of the neighbourhood, where December peaks, as wet road surfaces reduce tire grip, increasing the risk of car accidents. Besides, the rainy season helps clean the air by removing dust and smoke. However, eliminating these particulars might increase mould and pollen levels, especially during spring and summer. Consequently, trigger respiratory conditions, for instance, asthma, hay fever and other allergies.

Figure 36 (right):
Wind and sun
study of Bosweide
neighbourhood

Winter Solstice

N

SW

Summer solstice

Wind Rose



ARCHITECTURAL ETHNOGRAPHY



Figure 37 (top):
Offset facade
from roof outline
as solar shading
device.

Figure 38(Bottom):
Windows with
small openings for
ventilation.

Main spaces, including the kitchen, living room and bedrooms, are encouraged to be naturally ventilated. There is a small window opening in each room that allows for continuous ventilation throughout the year without the need for closure by any of the occupants. Utility spaces such as toilets and laundry areas are mostly mechanically ventilated. Based on the brochure provided by the volunteer from the Bosweide developer, it is stated that properly insulated heat pipes via an underground system are linked to each house for heating and hot water usage. The central heating temperature can be adjusted through a room thermostat to improve indoor comfort. However, through the interview, we know there should be better solutions than the central heating system due to the unevenly distributed direct sunlight.

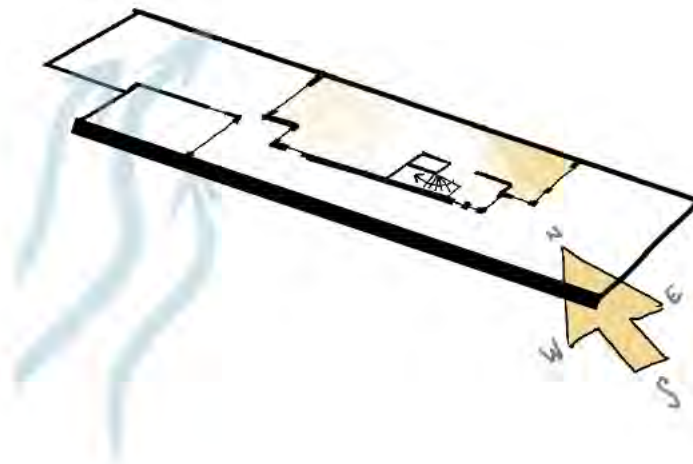


To avoid overheating, as shown in Figure 39, a brick wall is erected to block out the direct sun. It might be efficient regarding bodily temperature during summer, but generally, it created a dark dining and living area on the ground floor

throughout the year. This might not be the healthiest solution concerning spatial planning, as natural daylight physically and psychologically influences occupants' daily routines and moods. A double or triple-insulated window for daylight penetration and temperature control will be more efficient if it replaces the brick wall.

Besides ventilation and daylighting, sound insulation and reduced energy bills were considered during the early planning stage. Again, based on the interview result, whether the sound insulator is sufficient to block noise from the highway is questionable because noise pollution is still transmitted into the interior. Material-wise, more sustainable products such as recycled PVC, recycled rubber particles to replace concrete granulates and environmentally friendly paint were used. Furthermore, the recycled water discharged onto the public pavement is channelled through a system of sunken infiltration berms located below the surface of the road within the designated area of the plan.

Figure 39: Ground floor plan with wind and sun indication.





Microbiodata Analysis

Microbiodata is crucial in people's everyday lives, including improving health outcomes, developing disease prevention and treatment strategies, and promoting environmental sustainability. This subchapter provides results from the lab test, analysing the air quality samples of the Bosweide neighbourhood by measuring fungi and bacteria in the air. It is to note that due to technical reasons, the adapted measuring strategy can only analyse around 5% of the actual microbiome around the neighbourhood.

Through the interdisciplinary collaboration, it is stated that the more diverse the microbial, the better it is to improve the overall environmental health and well being of a neighbourhood. According to the result of the microbiome study, Bosweide neighbourhood has 163 species number, considered to have a moderate level of diversity compared with area MWS2 of 301 species number (high diversity) and MWS1 of 99 species number (low diversity). Based on spatial analysis and on-site observation, the microbiome in Bosweide might be influenced by its location adjacent to the highway and its diverse natural setting. However, due to the neighbourhood enclosure, there is low traffic movement, including pedestrians, cars and bicycle flow, which resulted in a low human-associated microbiome. The microbiome of Bosweide mainly consists of environmental related species that commonly found in soil and water. Thus, affecting the final diversity readings of species number on site.

Through researching different fungi and bacteria function, as shown in the table for YPB1, while the majority of the identified microbial species are considered to be neutral and has no direct impact on human health, still, there exist certain positive and negative species that may have implications on one's overall health, especially on individuals that have underlying health conditions. The following paragraphs will explain

Figure 40(Left) :
Table presenting
the diversity
and evenness of
microbes from
the collected
air samples
in Bosweide,
Ypenburg.

	Species number	ShannonBacteria	ShannonFungi
MW01	204	4.352	2.615
YPM1	296	3.865	2.512
MW02	263	4.452	2.663
YPB1	163	3.588	2.395
MW1	238	4.077	2.477
MW2	143	3.83	2.396
MWS1	99	2.638	2.578
MWS2	301	4.005	2.26
YPW1	157	1.906	2.329
MWN2	201	4.29	2.832
MWN1	156	3.925	1.929
YPS1	125	3.001	2.307

Figure 41(Right):
Table presenting
the detected fungi
species in YPB1

CASE STUDY AREA: YPB1

FUNGI

	MMO1	YPM1	MMO2	YPB1	MMW1	MMW2	MMW1	MMW2	YPM1	MMW2	MMW1	YPS1	YPCult	MMWcult
<i>Acinetobacter</i>	156	509	210	121	321	315	115	1303	409	181	103	2648	0	19613
<i>Moraxella</i>	752	1229	196	998	862	529	1337	159	135	92	544	452	0	320
<i>Neobacillus</i>	66	253	69	75	114	28	34	43	0	104	0	37	0	5719
<i>Pedobacter</i>	80	312	352	96	169	245	424	271	33	183	50	113	0	0
<i>Clostridium</i>	119	1812	202	266	305	529	94	458	406	197	239	328	0	0
<i>Iterospora pyralis</i>	12076	16815	20402	18160	2860	7258	2208	3955	18401	5057	2932	8144	15	32
<i>Iterospora panonica</i>	478	1259	423	1782	74	63	26	35	2822	854	0	814	0	0
<i>Cystofibrosidium maceans</i>	24	17	0	19	0	0	0	11	26	59	0	0	0	0
<i>Cystofibrosidium capitatum</i>	16	0	0	19	0	0	0	32	0	0	0	0	0	0
<i>Fibrosidium stepposum</i>	370	413	655	270	0	102	113	65	214	604	0	149	0	0
<i>Fibrosidium wieringae</i>	143	39	0	217	0	0	0	0	0	0	0	14	0	0
<i>Vishniacozyma victoriae</i>	13	17	17	10	0	0	0	0	0	24	23	0	0	0
<i>Lamelliclavisia petersonii</i>	231	335	662	247	334	915	93	33	236	824	161	191	0	0
<i>Flammulina filiformis</i>	41	88	361	169	0	657	52	95	238	29	282	40	0	0
<i>Flammulina velutipes</i>	29	27	107	33	0	200	65	20	59	0	194	16	0	0
<i>Trametes versicolor</i>	42	62	31	45	79	46	45	18	99	50	17	20	0	0
<i>Matsushita restricta</i>	273	209	368	85	1528	526	203	158	616	508	2220	234	0	0
<i>Massospora arunalokii</i>	104	10	62	10	21	65	11	13	84	259	95	55	0	0
<i>Entyloma nellanthi</i>	32	86	0	70	0	0	17	0	116	0	0	21	0	0
<i>Entyloma eryngii-cretici</i>	16	13	0	24	0	0	0	0	30	0	36	0	0	0
<i>Entyloma jolantiae</i>	14	14	0	22	96	0	0	0	35	0	0	0	0	0
<i>Wallemia muriae</i>	33	23	20	11	0	25	0	0	22	0	0	15	0	0
<i>Helminthosporium aquilinum</i>	134	780	187	248	864	13	0	895	1767	543	367	247	0	0
<i>Saccharomyces cerevisiae</i>	22	373	0	129	0	51	0	92	872	233	0	91	0	0
<i>Fibrosidium ocellense</i>	0	90	64	638	0	0	18	17	240	0	0	89	0	0
<i>Cibacomyces glutinis</i>	0	44	0	27	0	0	0	0	39	94	0	19	0	0
<i>Pseudonectrostroma phyliophylar</i>	0	22	0	24	0	0	10	0	0	26	0	0	0	0
<i>Microstroma bacarum</i>	0	15	16	48	0	0	214	33	0	0	0	19	0	0
<i>Tilletia elthariae</i>	0	16	0	10	0	0	0	0	0	296	13	0	0	0
<i>Kuveniomyces marianus</i>	0	105	0	70	0	0	0	0	126	0	0	205	0	0
<i>Paraglossum oculum</i>	0	61	11	14	37	14	0	49	131	42	14	23	0	0
<i>Cystofibrosidium infirmominii</i>	0	0	17	53	131	0	0	0	0	0	0	0	0	0
<i>Solirocoryza aerea</i>	0	0	0	10	0	0	0	0	0	0	0	0	0	0
<i>Piskurozyna capsuligena</i>	0	0	0	10	0	29	22	0	0	0	0	0	0	0
<i>Trichoderma likae</i>	0	0	0	40	0	0	0	0	0	0	0	0	0	0
<i>Amanita alpinicola</i>	0	0	0	11	0	0	0	0	0	0	0	0	0	0
<i>Hydnium neorepandum</i>	0	0	0	10	18	0	0	0	0	65	0	0	0	0
<i>Rhaphiospora nymphaeae</i>	0	0	0	35	0	27	0	0	60	0	0	16	0	0
<i>Erythrobasidium elongatum</i>	0	0	0	24	63	0	0	0	0	0	0	0	0	0
<i>Erythrobasidium yunnanense</i>	0	0	0	19	27	0	0	0	25	0	18	0	0	0
<i>[Candida] rugopelticulosa</i>	0	0	0	15	0	0	0	0	16	0	0	0	0	0
<i>Taphrina carpini</i>	0	0	0	12	0	0	18	0	0	0	0	0	0	0

these species to highlight the relationship between physical environment and human well-being.

Both fungi and bacteria species can be categorized into two groups: those that are beneficial and those that are harmful associating to either the surrounding environment or aquatic condition (Lake Boswijk).

Fungi species worth pointing out are *Flammulina Filiformis* (Enoki mushroom), *Saccharomyces Cerevisiae* (Commonly known as baker's yeast) and *Helminthosporium Aquaticum*. *Flammulina Filiformis* is associated with deadwood of deciduous trees such as beech, oak and maple. As mentioned in the previous subchapter, oak trees are one of the main species

Beneficial and detrimental microbes recorded through the collected air samples in the Bosweide neighbourhood.

planted along winding avenues; Maple is not a major species but can also be found around children's amenities. This fungi species provides several

environmental benefits in the carbon cycle and may have potential probiotic properties; *Saccharomyces Cerevisiae* is associated with fermenting sugar-rich material such as fruits and flowers and has beneficial effects on human digestive and immune systems. *Helminthosporium Aquaticum*, on the other hand, is a species inhabiting the aquatic environment that is potentially harmful to human health. It might cause infections in immunocompromised individuals, especially those with underlying lung diseases.

Bacillus and *Calotrix* are environmentally beneficial species in terms of bacteria, possibly related to the high-green-coverage neighbourhood and the lake, where organic matter is decomposed for nutrient cycling whilst potentially helping

Figure 42 (Right):
Table presenting
the detected
bacteria species
in YPB1

BACTERIA

CASE STUDY AREA: YPB1

	MWO1	YPM1	MWO2	YPB1	MWW1	MWW2	MWS1	MWS2	YPW1	MWN2
Bacillus	219	225	547	106	128	19	30	221	25	91
Staphylococcus	235	123	568	19	163	52	38	74	29	105
Paenibacillus	105	204	126	49	131	63	70	266	0	141
Metabacillus	108	74	257	59	0	69	65	49	38	51
Psychrobacter	626	793	358	173	698	392	155	5109	122	323
Thermomona	61	155	328	43	261	0	10	145	24	126
Massilia	344	776	738	194	242	228	300	895	92	187
Noviherbaspir	59	63	50	57	56	0	0	969	35	57
Rhizobacter	13	12	42	46	22	0	20	51	0	24
Methylobacter	29	100	37	33	63	0	0	61	0	19
Sphingorhabd	73	157	117	93	137	25	0	193	0	116
Sphingomona	45	202	98	82	105	62	63	672	10	68
Tsuneonella	11	15	0	11	18	0	0	11	0	0
Amaricoccus	107	125	113	74	43	20	0	82	26	91
Cereibacter	18	0	55	18	111	0	0	47	0	45
Roseomonas	59	245	229	255	216	0	96	782	15	298
Labilithrix	19	0	11	12	33	0	0	11	0	0
Streptococcus	1841	517	229	107	306	338	230	721	71	226
Dolosigranulu	126	1681	76	26	388	0	278	294	31	46
Limosilactoba	386	222	366	180	477	187	43	1186	64	514
Aerococcus	100	92	150	96	148	25	0	1092	73	152
Ignavigranum	14	0	0	11	0	0	0	0	0	0
Salinicoccus	490	51	957	68	506	71	0	270	39	373
Jeotgalicoccus	196	65	253	17	109	67	31	132	0	120
Mammallicocci	175	251	146	12	220	0	23	53	17	73
Planococcus	238	91	350	19	0	0	0	28	0	58
Sporosarcina	230	326	317	120	216	341	54	473	24	165
Niallia	46	56	96	18	12	27	60	55	0	49
Lysinibacillus	18	167	102	12	56	41	105	32	0	0
Ammoniphilus	32	0	38	27	0	0	20	62	0	99
Romboutsia	628	1433	1342	414	1271	879	835	1553	332	1144
Terrisporobac	179	1280	265	612	198	0	40	149	222	178
Paeniclostridium	42	69	118	51	78	0	101	69	54	66
Intestinibacter	16	31	14	25	0	0	31	20	13	0
Blautia	54	244	90	12	34	0	0	147	11	25
Fusicatenibacter	33	34	0	23	34	14	0	0	0	14
Merdimonas	32	11	0	16	0	0	0	0	10	0
Cellulosilyticus	21	0	22	20	0	33	0	0	0	14
Enterocloster	14	32	0	17	67	0	0	10	0	0
Mediterraneibacter	12	127	0	87	54	0	0	52	0	10
Faecalibacterium	30	275	65	75	218	0	0	94	28	58
Oscillibacter	18	123	0	14	42	0	0	0	25	0
Thermoclostridium	13	0	0	11	0	0	0	0	0	0
Sporobacter	12	56	33	78	28	0	0	49	0	0
Turicibacter	169	303	362	92	290	73	23	254	46	146
Calothrix	195	10356	1580	3227	3403	1736	5121	1142	16950	776
Nostoc	17	259	20	85	21	0	71	37	462	31
Oscillatoria	165	119	26	17	0	0	0	64	30	0
Lyngbya	110	319	1094	44	104	0	0	272	69	0
Sodalinema	162	504	321	168	551	871	24	422	396	911
Pseudoscillatoria	47	3108	1552	909	775	79	322	370	3412	96
Aliterella	83	843	67	359	113	0	0	1977	204	74
Ilumatobacter	155	182	381	148	269	0	28	243	38	98
Gaiella	84	142	81	141	101	0	0	84	28	40
Rubrobacter	15	27	70	10	0	38	0	0	13	12
Deinococcus	19	312	350	43	154	89	37	948	30	81
Truepera	15	187	69	10	11	39	0	102	99	27
Gillisia	20	0	43	138	71	0	0	34	0	37
Prevotella	134	464	28	34	97	103	0	0	48	23
Phocaecicola	23	172	0	30	19	0	0	18	0	0
Flavitalea	109	49	52	17	84	0	0	113	29	38
Ferruginibacter	47	49	113	48	178	44	0	133	0	156
Chitinophaga	15	38	0	13	0	20	20	44	0	12

ARCHITECTURAL ETHNOGRAPHY

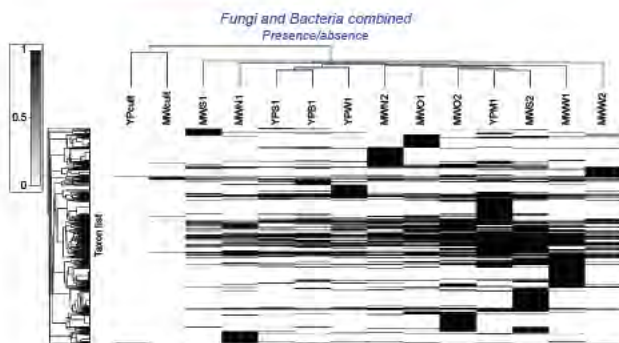


Figure 43: Table provided from the laboratory result comparing the presence and absence of microbes.

Figure 44 (Right): Potential distribution of microbes.

with air pollutants and nutrient cycling. On the contrary, *Romboutsia* has been isolated from wastewater treatment plants, soil, and the faecal microbiomes of animals. It will lead to digestive related diseases. Although the number of *Romboutsia* bacteria is relatively high compared to other bacterial species in Bosweide, it is still considered low compared to the numbers found in other neighbourhoods. Figure 44 marks out the possible location of some important microbiomes.

Microbial evenness is another indicator to examine whether the distribution of fungi and bacteria across the neighbourhood. The dominance of any one species can indicate an imbalance in the surrounding environment, which is why no species

	ShannonBact ria	ShannonFung
MWw1	4.352	2.615
YPw1	3.865	2.512
MWw2	4.452	2.663
YPS1	3.588	2.205
MWw1	4.077	2.477
MWw2	3.83	2.396
MWS1	2.638	2.578
MWS2	4.005	2.26
YPw1	1.906	2.329
MWw2	4.29	2.832
MWw1	3.925	1.929
YPS1	3.001	2.307

should be overly dominant in a healthy environment. Based on the findings, the evenness of bacteria is slightly lower in Bosweide due to the lower number of human-associated bacteria. In contrast, the evenness of fungi is of average value compared to other neighbourhoods.

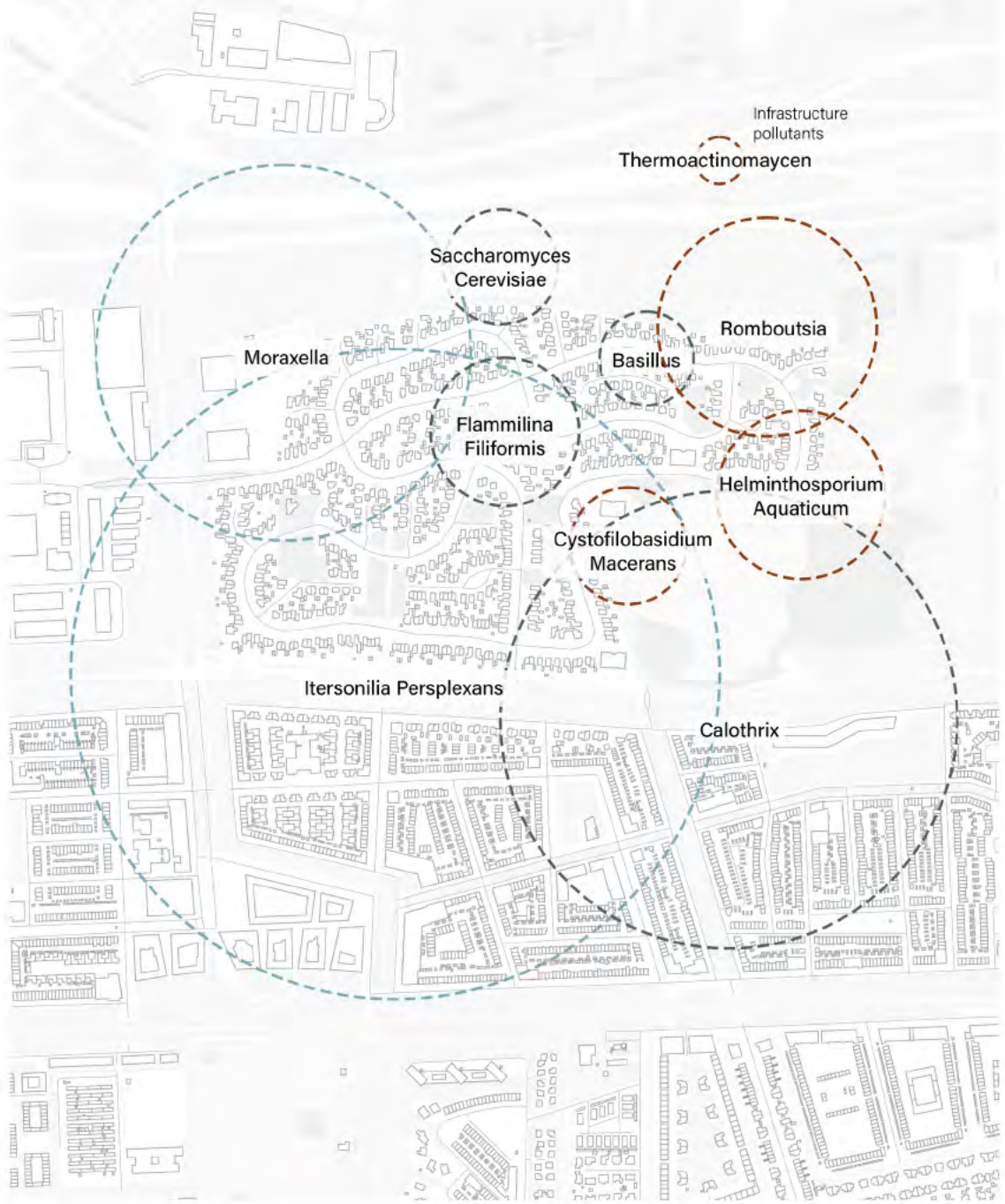


Microbiomes

--- Beneficial

--- Detrimental

--- Neutral



Infrastructure pollutants

Thermoactinomyces

Saccharomyces
Cerevisiae

Moraxella

Basillus

Romboutsia

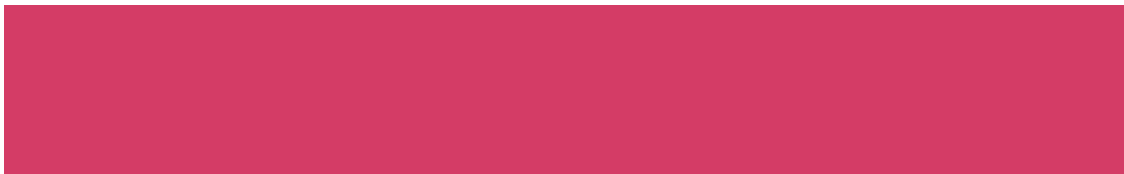
Flammilina
Filiformis

Helminthosporium
Aquaticum

Cystofilobasidium
Macerans

Itersonilia Persplexans

Calothrix



Synthesis Participatory Action Research

The floorplan-timeline activity was an interactive interview, where the participant was asked to map out his (and his family's) morning routine (inside and outside), point out things in his house and the neighbourhood that he thinks contribute to his health and what he thinks of the design of the neighbourhood and house. The following pages are a collection of scanned documents, questionnaire and transcript examples from the interview. Ultimately, sketches are being made to conclude things the participant pointed out in the interview.

ARCHITECTURAL ETHNOGRAPHY

A summary of
how we met
the volunteer
within Bosweide
neighbourhood
and preparation
for the interview.

Our first visit to Bosweide was on a Wednesday afternoon. Our first impression of the neighbourhood was tranquil and relaxing as we were immersed in a natural setting surrounded by trees. However, few passersby were along the streets, slightly increasing the difficulties in finding volunteers. Fortunately, while we were collecting air samples along Serpentine Street (the street in Bosweide with a playground on the oval green pocket), a father and son were outside their house playing football. The noise of the "Pollensniffer" was loud in contrast with the neighbourhood's quiet environment, and the form of the machine was also similar to a video camera camcorder, which attracted their full attention. They got intrigued by what we were doing then and agreed to volunteer for this housing research.

Approximately one week later, we were invited to his house to conduct the interview. In our previous conversation with the volunteer, we realised that the highway was the primary source of pollution even though greens surround the neighbourhood. Hence, we decided to focus on the relationship between infrastructure and greeneries, examining the associated microbiomes linking to each factor and how they affect the health and well-being of Bosweide's inhabitants. The interview questions were based on the selected theme and divided into three major categories: house, neighbourhood and Ypenburg. Questions related to "House" includes indoor climates such as ventilation, humidity, daylight and seasonal change, everyday routine and most used area in the house; In the neighbourhood category, we would like to know the amount of time where the volunteer and his family spent outdoor because, upon our initial meeting, they were engaged in outdoor activities, suggesting that they maintain an active lifestyle. Questions such as his opinion on the vegetation/ biodiversity of the area and the area that he likes or dislikes within the neighbourhood were asked. Lastly, questions related to Ypenburg would be

to understand their relationship with the district, including the standard mode of transportation and the convenience of surrounding amenities. The categorisation of topics leads to preparing different scale maps for the floor plan activities, as shown in Figures 46 and 47, to comprehend their daily and weekly routine better.

The interview session with the participant (the father and the son) was voice recorded and transcribed. The interview was structured in five sections: Floor plan and spatial design, surrounding neighbourhood (within and beyond Bosweide), everyday routine, tour and allergies. Some examples of the transcript can be seen in Figure 48, and the following paragraphs aim to summarise the output of the interviews. The house occupies four family members, the dad and son (11 years old), who were present all along during the interview; the mom made some comments towards the end; and the daughter (9 years old), who was at school at that moment.

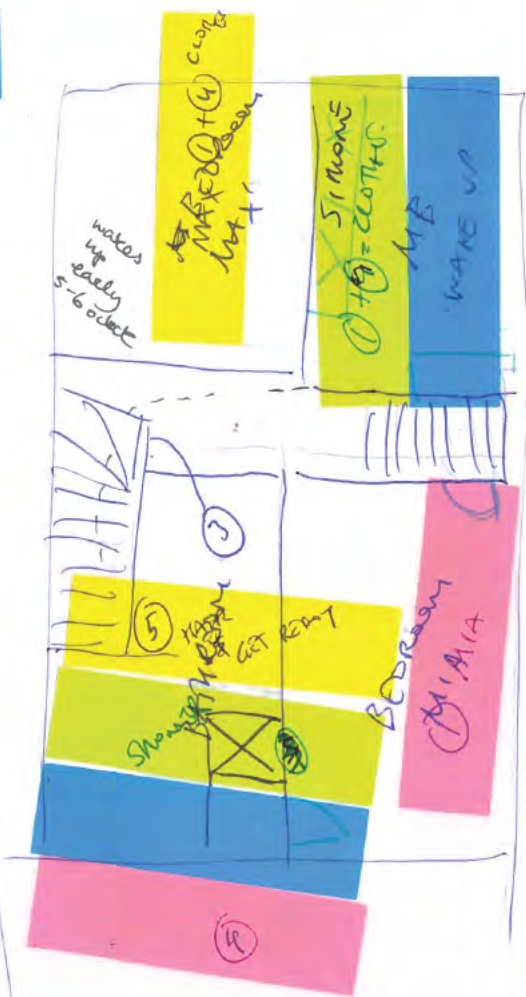
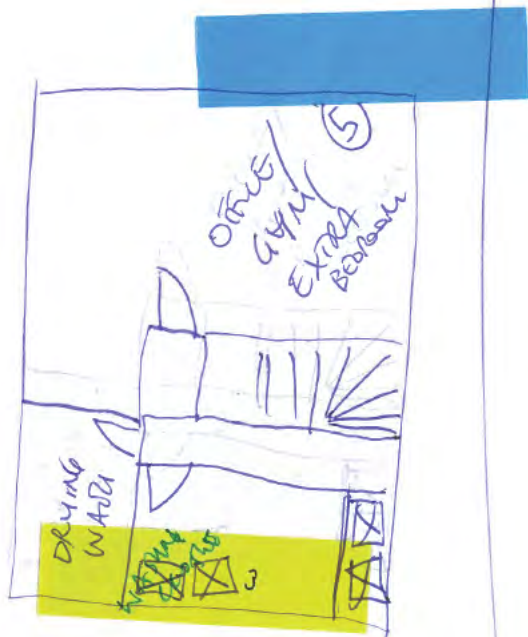
Interview as ethnography research method to get insights into the everyday life of resident living in the research housing area.

Firstly, starting from the floor plan activities on the smallest scale, the participant's house (Figure 45). The volunteer drew the floor plan of the three-storey semi-detached

Narrative of father and son deepens the understanding towards the neighbourhood of Bosweide.

house, highlighting some crucial zones in the house, especially the kitchen bench. He was drawing, concurrently explaining the likes and dislikes of the house design. He mentioned: "This house has a massive brick wall... it is really frustrating (as it is) actually quite a dark house inside... If I could have done this all again, I probably would have had a bigger window over here as well, even though I am looking at my neighbour's car," emphasizing the importance of natural light, which is where the kitchen bench became the hotspot the house, as it is the

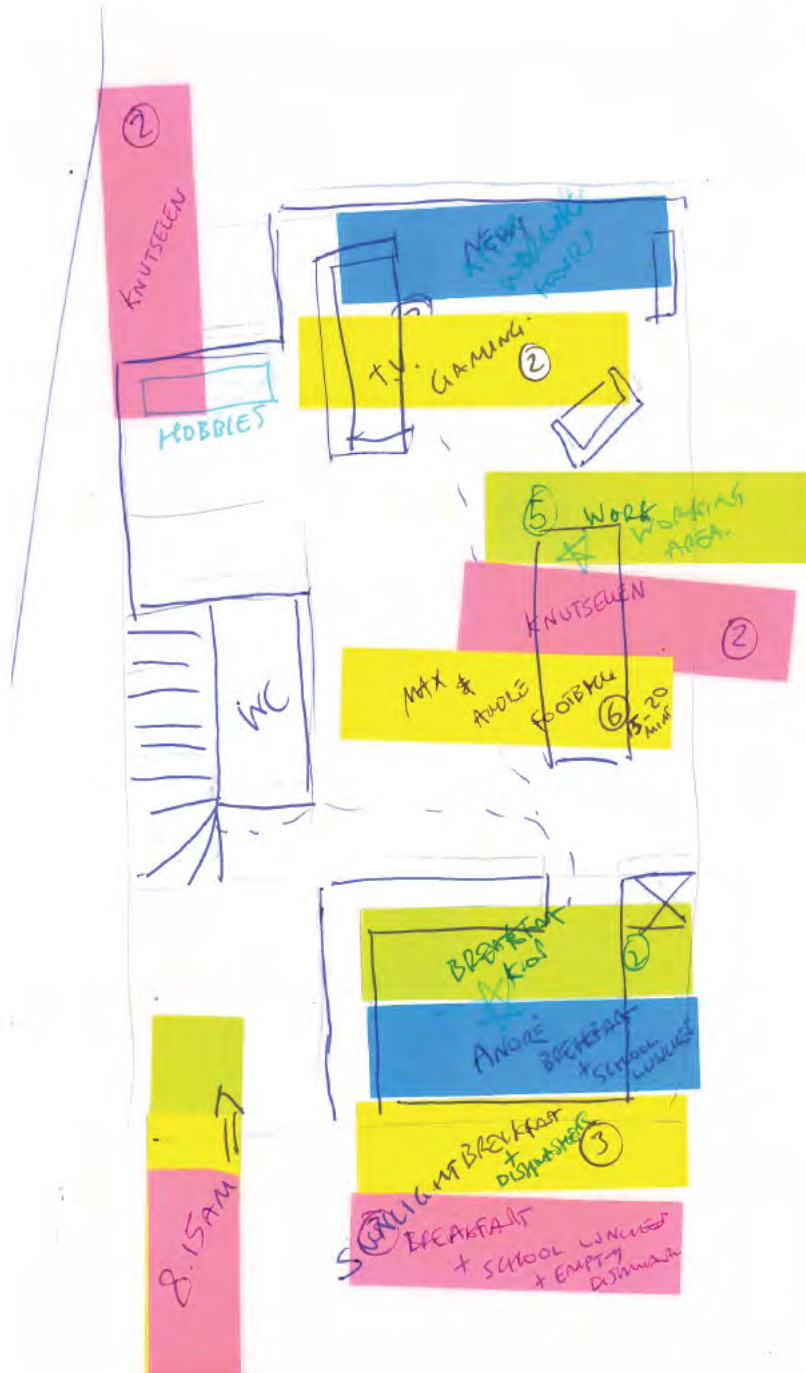
ARCHITECTURAL ETHNOGRAPHY



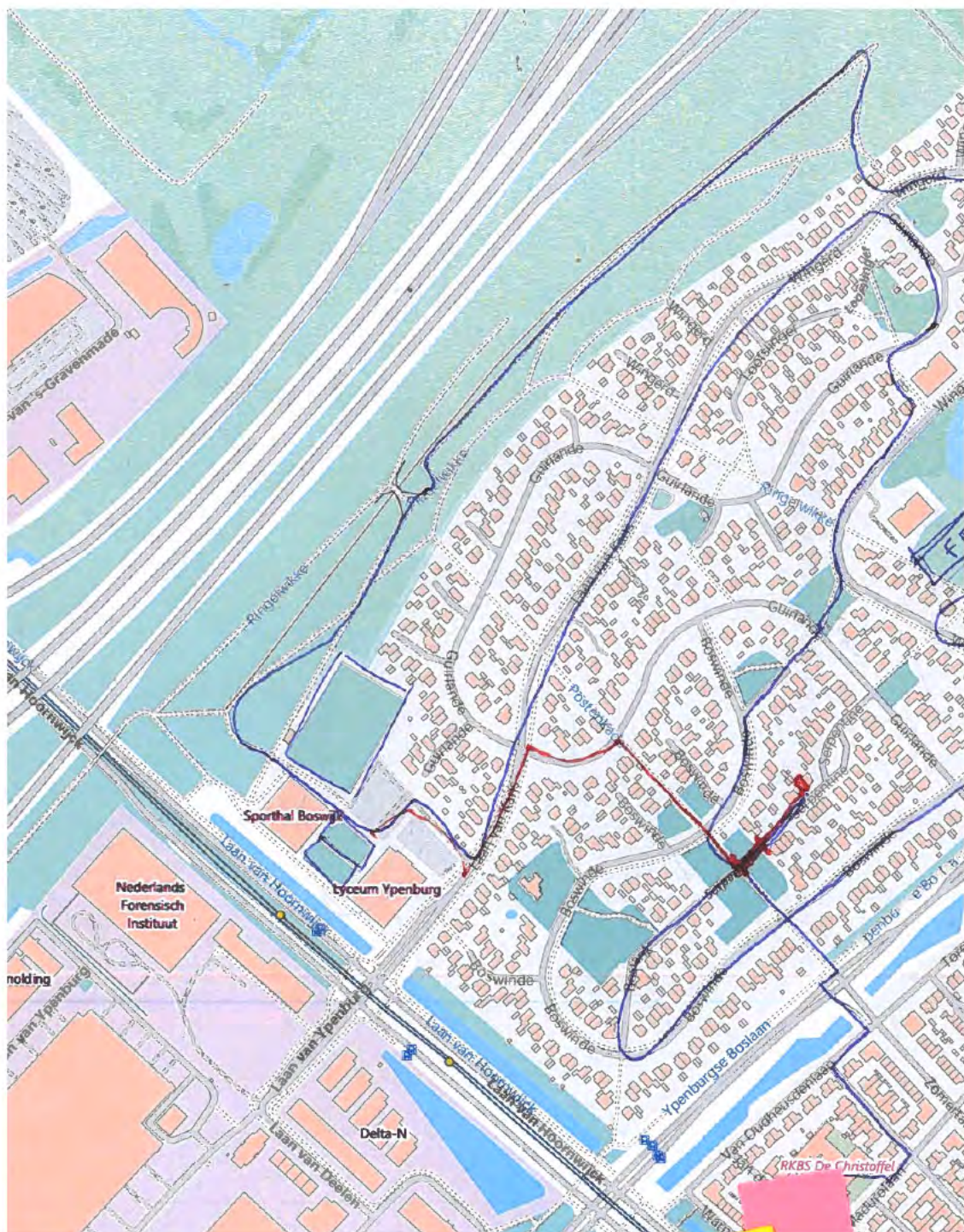
CASE STUDY AREA: YPB1

Figure 45:
Floorplan drawn
by participant,
with post its
morning routine.

Blue: the father
Green: the mother
Yellow: the son
Pink: the daughter



ARCHITECTURAL ETHNOGRAPHY

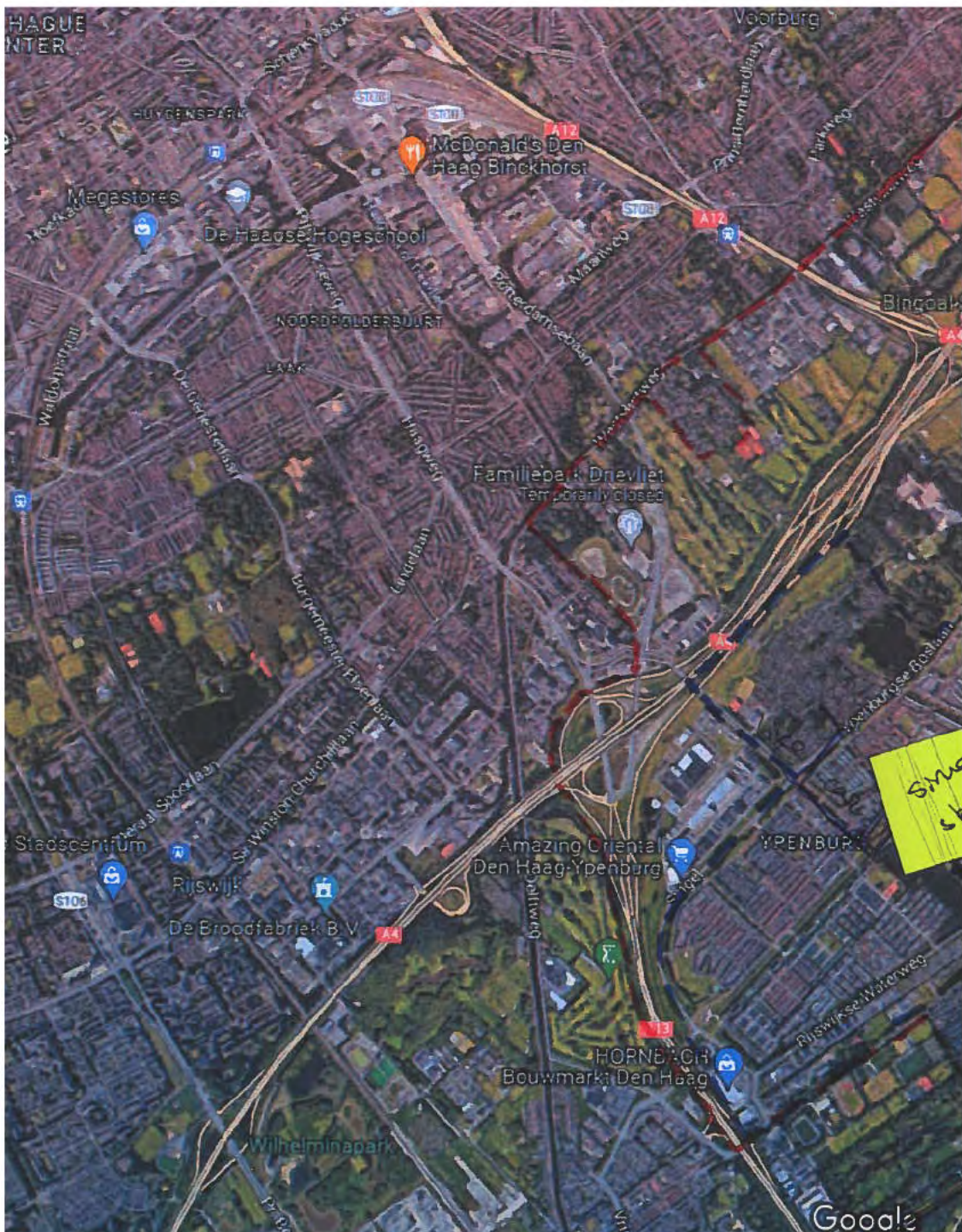


CASE STUDY AREA: YPB1



Figure 46: Map of neighbourhood with notes participant (5km run, way to school, way to sportsfields etc.)

ARCHITECTURAL ETHNOGRAPHY



CASE STUDY AREA: YPB1



Figure 47: Map of the area with notes (groceries and 10km running round)

ARCHITECTURAL ETHNOGRAPHY

The whole interview lasted for about two hours. And text on the right summarised the participant's thought and opinion.

only communal space that receives natural light during the day. He also described the dining area as a multifunctional zone, where his wife works on this table to oversight the situation in the house, especially when the kids are around, whereas he (the dad) prefers to work in a quiet environment, in a dedicated workroom on the second floor. The area behind the couch in the living room was also important as it stores a keyboard, guitar, drum, and art and craft materials, and is where the kids and the dad perform their hobbies during their free time.

After concluding the first section of the interview, the participant graciously provided us with a tour of his house. While visiting the son's room, he had a newspaper of Bosweide during construction which raised our curiosity. This is where the son starts comparing Bosweide to Delftse Hout's neighbourhood, which eventually inspires the final narrative that we are producing. From the son's perspective, he thinks the bike lanes cutting through Bosweide were 'not pretty' but fun as it has many hiding spots for him to play water gun pranks with his friends. In contrast, in Delftse Hout, where they usually go on a biking trip, the area is greener, creating an environment where one can fully immerse in the beauty of nature. He also talked about the noise disturbance from the highways and the low temperature of his bedroom, especially in the morning on Winter days. The difference in temperature compared to other rooms was also noticeable for us while touring around the house. Due to the position of the bedroom facing southwest, it experienced lower temperatures in Winter but higher temperatures in Summer, which does not provide sufficient internal comfort for the inhabitants.

The working area of the dad is located directly above the son's bedroom, which results in the same internal temperature

issues: "My colleagues always laugh at me... they are in the office with like (only) a shirt on. I have three layers of clothes." Regardless of issues with internal room comfort, the dad praised the municipality for being actively involved in the green amenities by making additional footpaths and putting up green fences and plants, significantly improving the quality of life and the overall well-being on an urban scale.

After the tour, the interview continues to understand the participant's weekly and weekend routines, as presented in Figures 45, 46 and 47. All family members generally adopted a healthy lifestyle, waking up early between 5 to 7 am and going to bed early at night. The family also prefers outdoor activities. For example, they often go biking or jogging within Bosweide, going through the sound barrier and Lake Boswijk, also beyond Bosweide to Delftse Hout and Delft. The son had hockey classes thrice weekly, and the daughter had gymnastics classes. The volunteer described the neighbourhood as "well-designed and perfect for families... the lake as well, put a little boat on it, and it is really nice."

Considering the family's frequent engagement in outdoor activities, the quality of the surrounding environment will hugely impact their health and everyday life.

The interview was concluded by asking about allergies history and if the Bosweide environment triggers any allergy reaction. According to the volunteer's wife, she initially experienced some stuffiness upon relocating to Bosweide, but it quickly subsided. Generally, their experience with the physical environment exceeds expectations and undoubtedly improves life's quality physically and mentally.

Summary of the tour given around the participant's house.

Bosweide green amenities increase natural interaction, improve the overall life quality and well-being of residents.

ARCHITECTURAL ETHNOGRAPHY

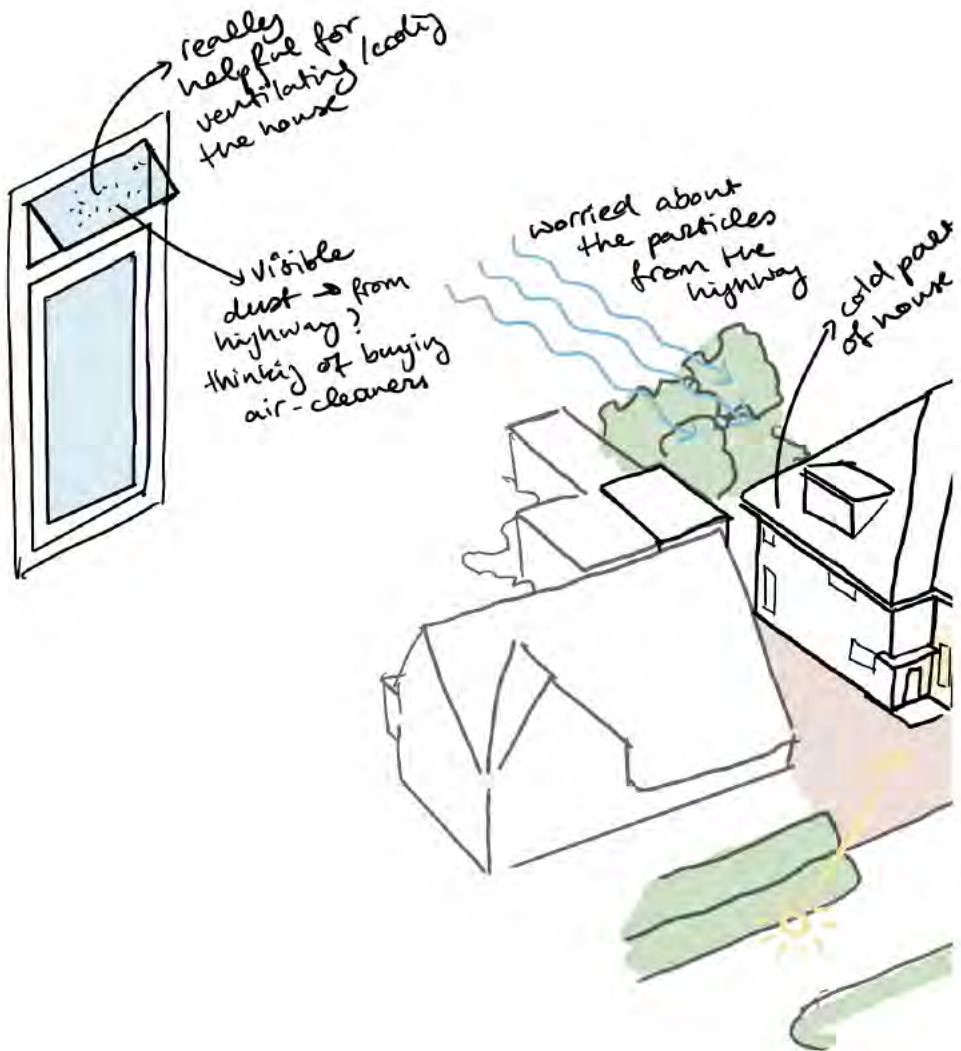
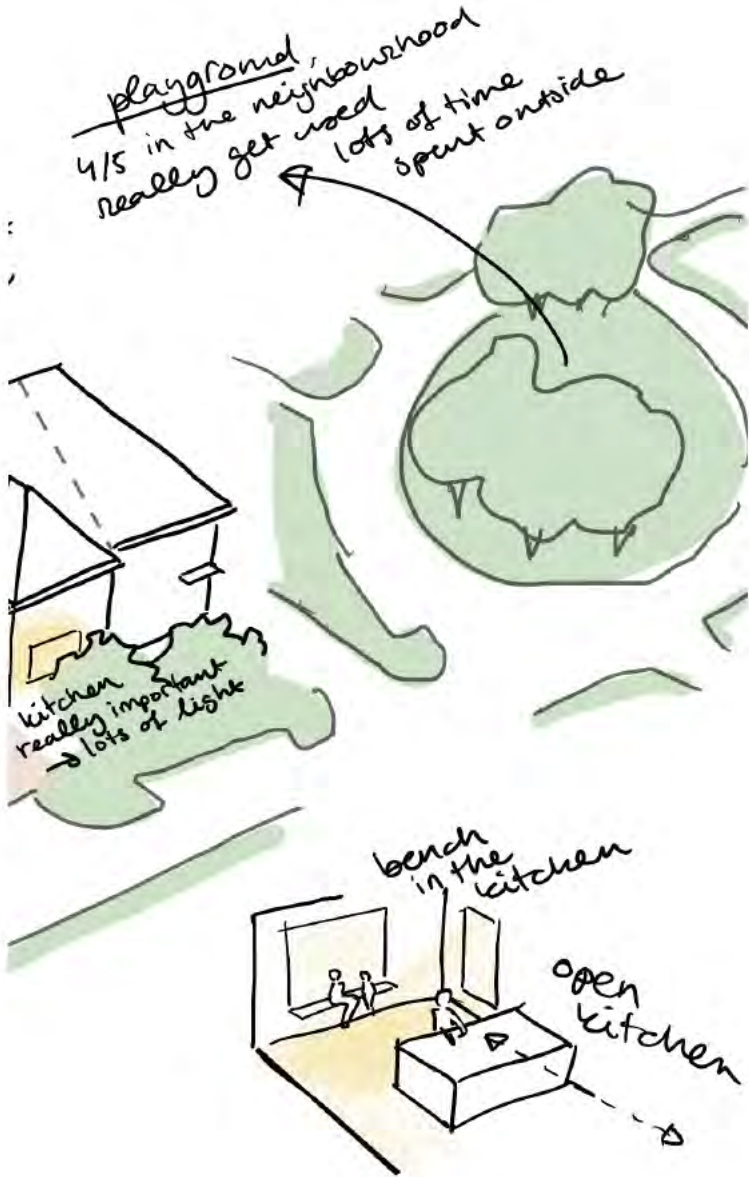
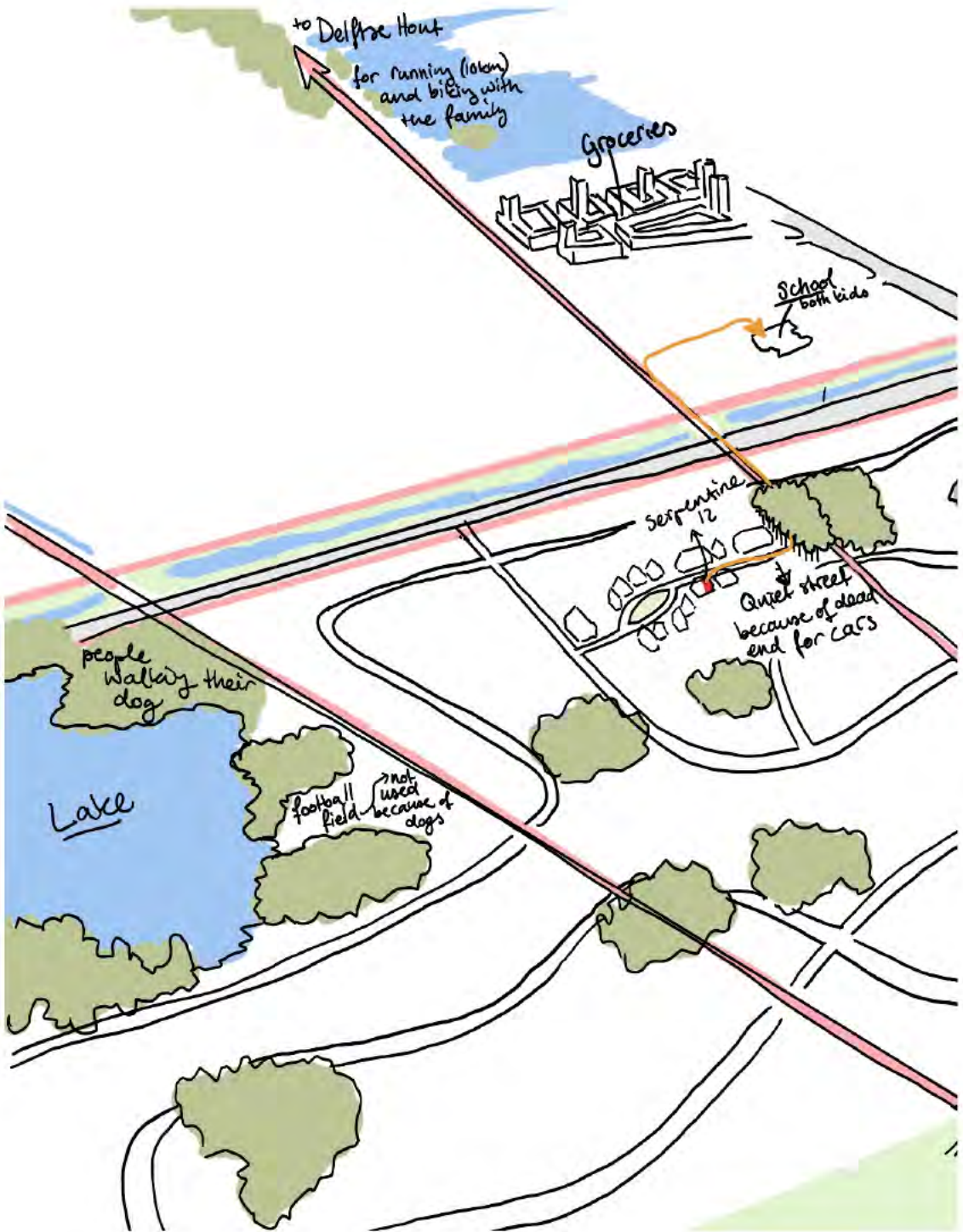


Figure 49:
Participatory
interview results
about the house

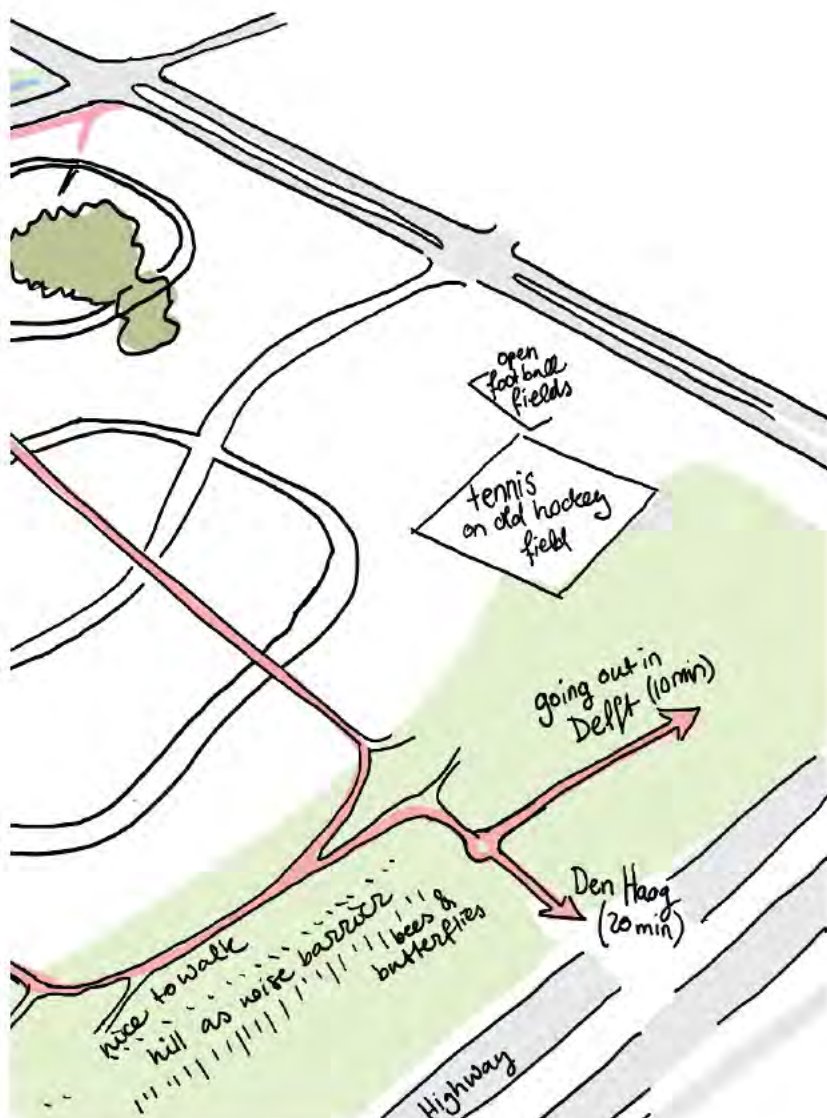


ARCHITECTURAL ETHNOGRAPHY



CASE STUDY AREA: YPB1

Figure 50:
Participatory
interview results
about the
neighbourhood



ARCHITECTURAL ETHNOGRAPHY

After deciding to focus on the narratives of the dad and son bike ride journey, we did a follow-up session via email with the participant to further understand the preferred routes and activities along the journey beyond Bosweide and get insights into their perspectives and emotions throughout the experience. Figure 51 demonstrates the participant's response marking their weekend 11km round trip from Bosweide to Delftse Hout neighbourhood. He further explained the reason for choosing this route due to the extensive greenery and nature and the feeling of being able to distance themselves from urban areas crowded with buildings. Cafe Midi (marked as 1), the straight natural field pads (marked as 2) and the lake (marked as 3) were highlighted, representing their favourite/prioritised stop point along the journey (Figures on the

Delftse Hout, a lush natural area connecting to and beyond Bosweide that encourage active lifestyle.

right). The chosen journey showcases the family's appreciation for nature and highlights their commitment to leading a healthy lifestyle.

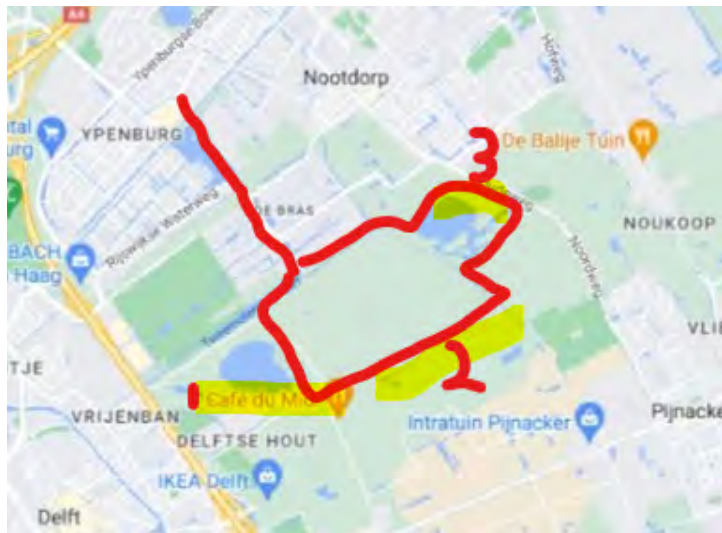


Figure 51: Cycles journey beyond Bosweide.



Figure 52a (Top), Figure 52b (Middle) and Figure 52c (Bottom): Pictures of Cafe Midi and the scenery towards the cafe based on the volunteer mark up.



Conclusion

The characteristic of Bosweide is defined by the personalised housing typology and the curved and winding roads of the green avenues represented by two main tree species, namely English Oak Avenue and Black Locust Avenue. Microbiomes associated with air quality are generally neutral and harmless. The ethnography research methods of interviewing residents provide a new perspective for us as a researcher to look at urban spaces through the lens of actual users, understanding the benefit and drawbacks they face daily.

The result of spatial analysis through data collection and on-site observation, together with the synthesis of participatory action research, was concluded in the poster (Figure 5.1) and the continuous sectional/ elevational journey of a bike ride between a father and a son. Parts of the narratives emphasising important scenarios or facts along the journey are demonstrated in Figure 5.2.

The poster on the right synthesized the idea of symbiosis by integrating the relationship between humans, nature, infrastructure and microbes to explore their correlation in impacting the neighbourhood's quality of life. The spatial attributes of Bosweide were explored through four different scales: micro-scale indicates the number of microbes and

Symbiosis, living in harmony with nature to improve the overall health and wellbeing of the residents of Bosweide.

their association with the surrounding environment. The scale of the housing plan depicts the private vegetation and the internal daylighting conditions. In contrast, the

neighbourhood's hectare shows the municipality's effort to improve the public natural environment. Lastly, the larger scale exhibiting the whole of Bosweide represents the contradiction between infrastructure pollution and the number of existing greens to reduce negative implications.

The bike journey presents the findings of interviews and their correlation with the detailed spatial analysis conducted. The narrative aimed to allow readers to visualise the experience and grasp the interdependence interaction between human and non-human aspects. By incorporating the four-scale concept, both tangible and intangible elements were revealed in accordance with the bike journey within and beyond the Bosweide neighbour of the Ypenburg district.

Figure 53: Poster created using four different scales to represent different elements associated with the neighbourhood.



Figure 54a:
Continuous
sections with
loop ups of the
bike ride journey
between a father
and a son.

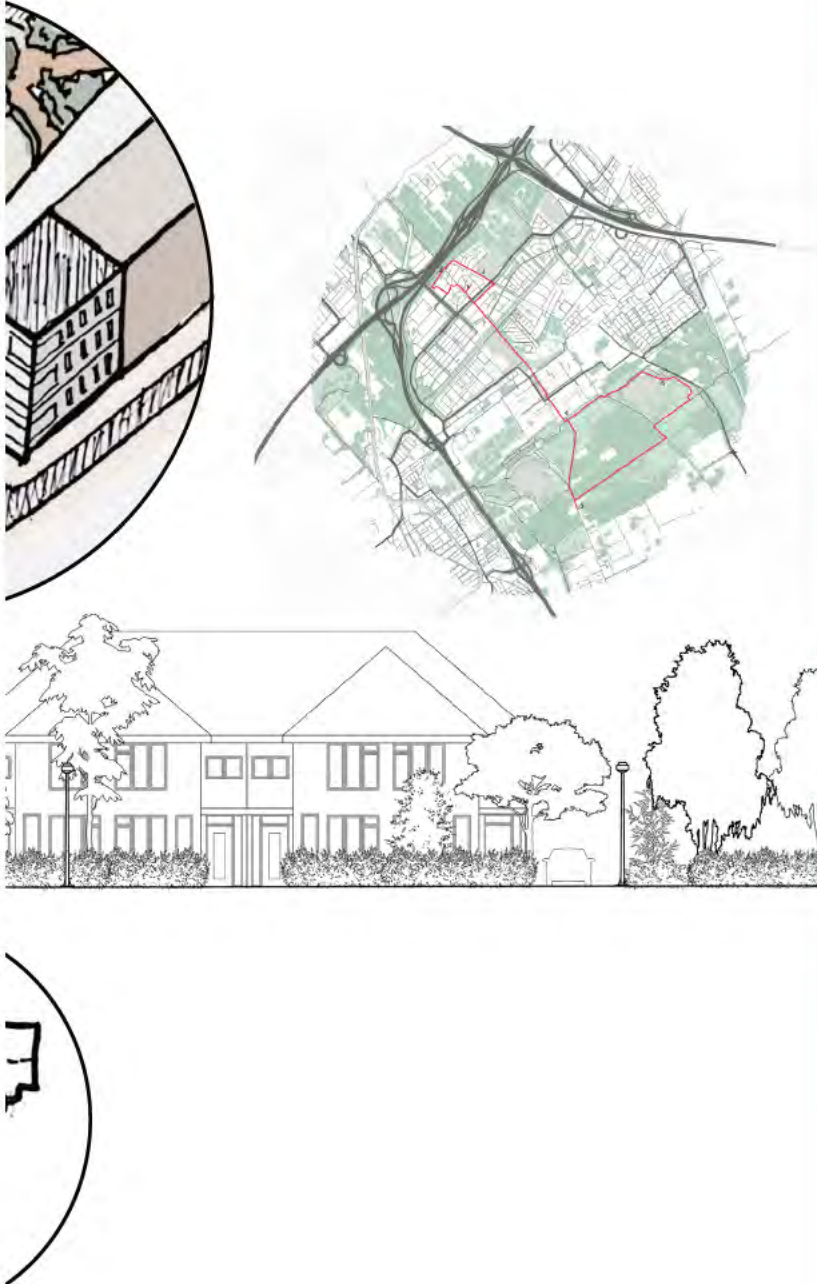
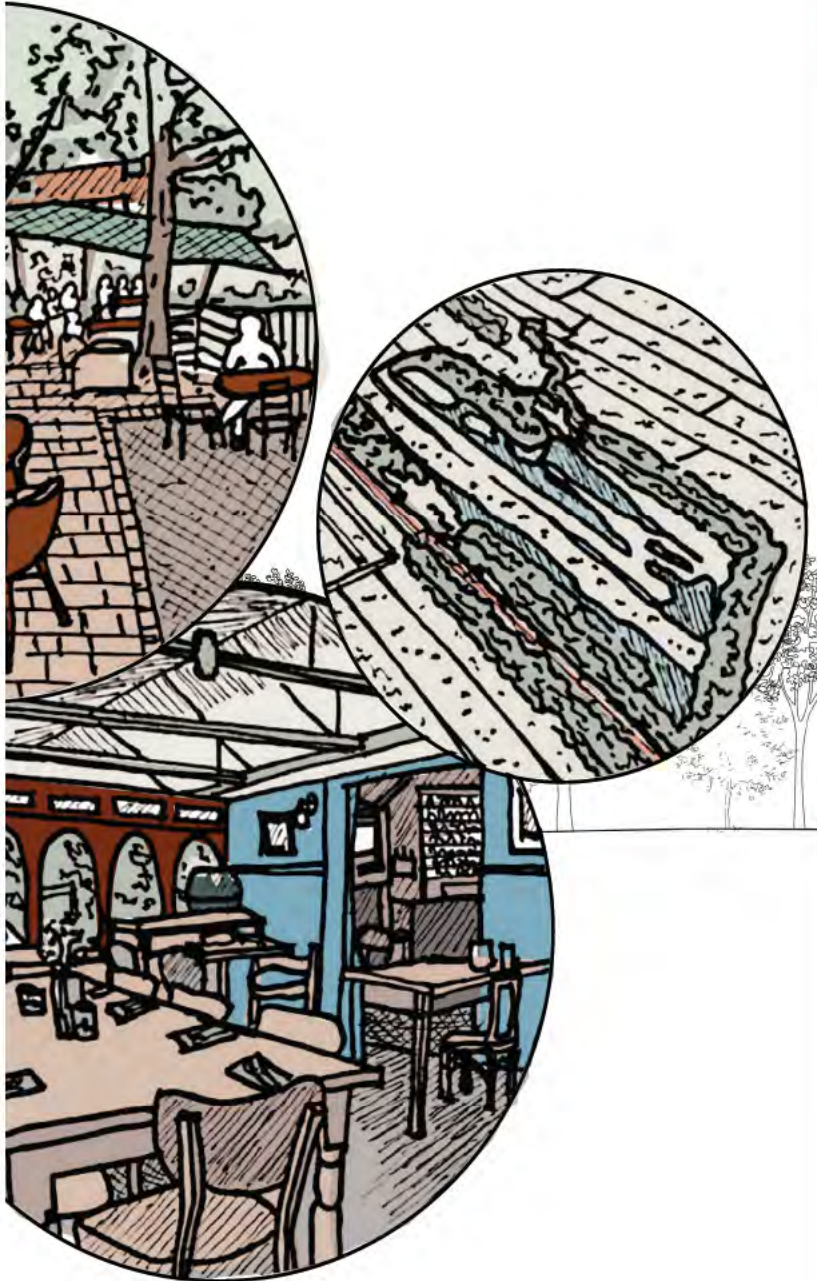




Figure 54b:
Continuous
sections with
top ups of the
bike ride journey
between a father
and a son.



Bibliographic References

- Australian Institute of Health and Welfare. (2022) Health across socioeconomic groups. Australian Government. Available at: <https://www.aihw.gov.au/reports/australias-health/health-across-socioeconomic-groups>
- Bosmans, C., Li, J. Pang, C.L. and Auria, V. (2022). Homing social housing in Brussels: engagement in architectural anthropology through three visualisations, 1-24.
- Compes, E. Quirce, S. Hernandez, E., Cuesta, J., Heras, M. and Satre, J. (2004) Sensitization to black locust pollen among patients with pollinosis in Madrid. *The Journal of Allergy and Clinical Immunology*, 113(2), pp
- Herndon, M.C. (2019) Correlations Between Health and Wealth, One Op. Available at: <https://oneop.org/2019/08/08/correlations-between-health-and-wealth/>
- Ingold, T. (2022) 'Foreword', in Stender, M. et al. (eds) *Architectural Anthropology*. London: Routledge, pp. xiii-xvii
- Kaijima, Stalder and Iseki. (2018). *Architectural Ethnography - Japanese Pavilion Venice Biennale*. Tokyo: Toto
- Kindig, D. and Stoddart, G. (2003) What is Population Health? *National Library of Medicine*, 93(3), pp. 380-383.
- Lorenz, P. Heinrich, M., Garcia-Kaufer, M., Grunewald, F., Messerschmidt, S., Herrick, A., Gruber, K., Beckmann, C., Knoedler, M., Huber, R., Steinborn, C., Stintzing, F.C. and Grundermann, C. (2016) Constituents from

oak bark (*Quercus robur* L.) inhibit degranulation and allergic mediator release from basophils and mast cells in vitro. *National Library of Medicine*, 194, pp. 642-650.

Oien, T.B. and Rasmussen M.K. (2022) 'Mould, microbes, and microscale architecture: an anthropological approach to indoor environment' in Stender, M. et al. (eds) *Architectural Anthropology*. London: Routledge, pp. 62-75

Pink, S. (2017) 'Methods for Researching Homes', in Pink, S. et al., *Making Homes: Ethnography and Design*. Delft: Taylor & Francis Group, pp. 94-126.

Raghupathi, V. and Raghupathi, W. (2020) The influence of education on health: an empirical assessment of OECD countries for period 1995-2015. *Archives of Public Health*, 78(20).

Srivali, N., Cheungpasitporn, W., Chongnarungsin, D. and Edmonds, L.C. (2013) White Willow Bark Induced Acute Respiratory Distress Syndrome. *National Library of Medicine*, 5(5), pp.330.

Verbrugge, L.M. (1979) Marital Status and Health. *Journal of Marriage and Family*, 40(2), pp. 267 - 285)

Vrinceanu, D., Berghi, O.N., Cergan, R., Dumitru, M., Ciuluica, R.C., Giurcaneanu, C., and Neagos, A. (2021) Urban allergy review: Allergic rhinitis and asthma with plane tree sensitization (Review). *Experimental and therapeutic medicine*, 21(275), pp.1-4.

WHO (2019) *Global Health Estimates: Life expectancy and*

leading causes of death and disability. World Health Organization. Available at: <https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates>

WHO (2021) Climate change and health. World Health Organization. Available at: <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>

WHO (2022) Ageing and health. World Health Organization. Available at: <https://www.who.int/news-room/fact-sheets/detail/ageing-and-health>

Woolf, S.H., Aron, L., Dubay, L., Simon, S.M., Zimmerman, E. and Luk, K.X. (2015) How are income and wealth linked to health and longevity? Virginia: Urban Institute and Virginia Commonwealth University.

Databases and Digital Platforms

Leefbaarometer
(Database with indicators on quality of life)
www.leefbaarometer.nl

Development of The Hague SouthWest
(Municipality of The Hague)
<https://www.denhaag.nl/nl/in-de-stad/wonen-en-bouwen/ontwikkelingen-in-de-stad/ontwikkelingen-den-haag-zuidwest.htm>

AllCharts.info
(Statistical data about neighbourhood in The Netherlands)
allcharts.info

Den Haag Klimaat Monitor.net

(Data regarding climate emergency)
<https://denhaag.klimaatmonitor.net/>

Den Haag Gemeente Residential Care Guide 3.0
(Statistical data about health and senior friendly)
<https://dh.wzwkaart.nl/app/maps>

Arcgis Hague Tree.
(Statistical data about trees)
<https://www.arcgis.com/apps/mapviewer/index.html?webmap=6cb9371f18584708b01723d9c72714c2>

Media References

Projectbureau Ypenburg. De Slingerende Laan. 1997.
Buitenplaats Ypenburg Structuurschets Boswijk, 3.2.
The Hague: Projectbureau Ypenburg, 1997.

Projectbureau Ypenburg. Optimal Inpassing Geluidwal. 1997.
Buitenplaats Ypenburg Structuurschets Boswijk, 4.2.
The Hague: Projectbureau Ypenburg, 1997.

List of Illustrations

Chieng, M.Q.Y. Figure 1: Green pocket at Serpentine Street
Digital photographs. Taken with phone camera.

Chieng, M.Q.Y. Figure 2: Streetscape of Bosweide. Digital
photographs. Taken with phone camera on site.

Chieng, M.Q.Y. Figure 3: Sound wall barrier separating
Bosweide and a highway. Digital photographs. Taken
with phone camera on site.

Chieng, M.Q.Y. Figure 27: Types of Roads within and around

Bosweide. Mapping. Open Street Map reproduction.

Chieng, M.Q.Y. Figure 29: Noise Pollution Indication. Mapping. Technique. Bewonersvereniging Bosweide Report Reproduction.

Chieng, M.Q.Y. Figure 31: Highlighting the different street types within the case study area. Mapping. Measure from exported CAD files and Gemeente report.

Chieng, M.Q.Y., Neoh, K.L. and Wellerdieck, A. Figure 48: Examples of Interview Transcript. Transcript. Revision of the recorded interview session.

Chieng, M.Q.Y., Neoh, K.L. and Wellerdieck, A. Figure 53: Poster created using four different scales to represent different elements associated with the neighbourhood. Mapping and sketches. Information concluded from the spatial analysis.

Chieng, M.Q.Y., Neoh, K.L. and Wellerdieck, A. Continuous sections with pop ups of the bike ride journey between a father and a son. Autocad, Sketches and Photoshop. Refer to Google Street view, on site observation and analysis of interview result.

Neoh, K.L. Figure 5: Register Population Comparison. Data mapping and graph. All Chart.nl data comparison and reproduction.

Neoh, K.L. Figure 6: Birth and mortality rate comparison. Graph. All Chart.nl data comparison and reproduction.

Neoh, K.L. Figure 7: Age, Gender and Marital Status. Charts. All

Chart.nl data comparison and reproduction.

Neoh, K.L. Figure 8: The deviation total score compared to the rest of the country, and the contribution to the deviation per demension. Bar charts. Reproduction of The Hague Resilience Strategy.

Neoh, K.L. Figure 9: The livability meter of Bosweide and its immediate surrounding. Mapping. Reproduction of The Hague Resilience Strategy.

Neoh, K.L. Figure 10: Bosweide residents' health. Bar chart. All Chart.nl data reproduction.

Neoh, K.L. Figure 11: Health related amenities within proximity. Mapping. Google map reference.

Neoh, K.L. Figure 12: Proportion of Disorders. Mapping. Reproduction of Den Haag Gemeente Residential Care Guide 3.0.

Neoh, K.L. Figure 13: Educational amenities within proximity. Mapping. On site observation , google map reference and All Chart data.nl reproduction.

Neoh, K.L. Figure 14: Native and migration background. Bar charts. All chart.nl data reproduction.

Neoh, K.L. Figure 15: Comparison of average income. Bar charts. All chart.nl data comparison reproduction.

Neoh, K.L. Figure 16: Average housing value of Bosweide. Bar charts. All chart.nl data reproduction.

- Neoh, K.L. Figure 17: Crime rate and safety level of Bosweide neighbourhood. Graph. All chart.nl data comparison reproduction.
- Neoh, K.L. Figure 20: Types and Density of Main Public Trees. Mapping. Arcgis Hague Tree reproduction.
- Neoh, K.L. Figure 21: Allergies associated with tree species. Mapping. Referencing various journal articles.
- Neoh, K.L. Figure 32: Figure ground of neighbourhood in Moerwijk and Ypenburg. Mapping. Extracted and reproduced from Open Street Map.
- Neoh, K.L. Figure: 34: Different building typology within the case study zone. Mapping. Open Street Map reference.
- Neoh, K.L. Figure 35: Climate emergencies related to Bosweide neighbourhood. Mapping. Den Haag Klimaatatlas reproduction.
- Neoh, K.L. Figure 36: Wind and sun study of Bosweide neighbourhood. Mapping. Refer to climate data.
- Neoh, K.L. Figure 37: Offset facade from roof outline as solar shading device. Digital photograph. Taken with phone camera on site.
- Neoh, K.L. Figure 38: Windows with small openings for ventilation. Digital photograph. Taken with phone camera on site.
- Neoh, K.L. Figure 44: Potential distribution of Microbes. Mapping. Analysis based on microbe result and the

results of air sample collection.

Wellerdieck, A. Figure 18: *Allium Scorodopasum*, *Rhinanthus Angustifolius*, *Centaurea Jaceae*, *Aulicaria Dysenterica*. Digital Photograph. Taken with phone camera.

Wellerdieck, A. Figure 19: Bosweide in Ypenburg surrounded by connecting ecology zones. Mapping. On site observation and google map reference.

Wellerdieck, A. Figure 22: Zoom in version of vegetation species. Mapping. Arcgis Hague Tree reproduction.

Wellerdieck, A. Figure 23: Tree height surrounding case study area (AHN2). Arcgis Hague Tree reproduction.

Wellerdieck, A. Figure 24: Private owned vegetation of the participant's garden. Plan Sketch. On site observation

Wellerdieck, A. Figure 25. Digital Photograph. Taken with phone camera.

Wellerdieck, A. Figure 30: Street Type. Sketches. Measurement from exported CAD files.

Wellerdieck, A. Figure 33: Building Typology within the Case Study Zone. Sketches. On site observation.

Wellerdieck, A. Figure 39: Ground Floor Plan with Wind and Sun Indication. Sketches. Analysis of interview result.

Wellerdieck, A. Figure 49: Participatory Interview results about the house. Sketches. Analysis of interview result.

Wellerdieck, A. Figure 50: Participatory Interview results about the neighbourhood. Sketches. Analysis of interview result.

Wellerdieck, A. Figure 52: Pictures of Cafe Midi and the scenery towards the cafe based on the volunteer mark up. Taken with phone camera on site.



Translations

VERTALINGEN

ÇEVIRILERI

مچارت

Samenvatting in het Nederlands

De Buurt

Het onderzoek van YPB1 focust op de Bosweide wijk in Ypenburg in Den Haag. Hier werd de sociaaleconomische status en ruimtelijke kwaliteit van het gebied geanalyseerd, zoals de aanwezigheid van groen, infrastructuur, klimaatomstandigheden, gebouwtypes en het omringende microbiom dat mogelijk van invloed is op de gezondheid en het welzijn van de bewoners. Bosweide is gunstig gelegen naast belangrijke snelwegen en heeft uitstekende verbindingen met het openbaar vervoer naar andere delen van de stad. De aanwezigheid van parken en groene ruimten moedigt bewoners aan om buitenactiviteiten te ondernemen en contact te maken met de natuur. Over het algemeen is Bosweide een uitstekende en aangename woonwijk die een hoge kwaliteit van leven biedt voor haar bewoners. Bosweide wordt gekenmerkt door een lage woningdichtheid en een relatief grote huishoudelijke voetafdruk in vergelijking met Ypenburg en Moerwijk. De afwezigheid van verkeersdrukte komt door de ruime omgeving en de goed stedenbouwkundige opzet zoals brede wegen voor auto's, fietsers en voetgangers. Ook zijn er veel openbare ruimtes en particuliere groene gebieden. Bovendien zijn verschillende voorzieningen gunstig gelegen in de buurt, waardoor het dagelijks leven van de bewoners wordt verbeterd. Bosweide heeft een gevarieerd aanbod aan groen, met bomen omringde straten en meerdere groene gebieden die bijdragen aan het groene straatbeeld. Om de natuur te laten overlopen in het dagelijks leven van de bewoners, slingeren voetpaden door deze groene zones, soms direct aan het centrale fietspad. Een van de belangrijkste groene gebieden is het Boswijkmeer (gelegen aan de rechterkant van de wijk), dat een geliefde recreatieplek is geworden voor de bewoners.

Het proces

Het unieke van Bosweide zijn de speciale huizen en de kronkelende wegen met groene bomen zoals de Engelse Eikenlaan en de Zwarte Sprinkhaanlaan. De microbiomen die in verband worden gebracht met de luchtkwaliteit zijn meestal onschadelijk. Voor dit onderzoek maakten we gebruik van een etnografische onderzoeksmethode, waarbij we bewoners interviewden om meer te leren over hun ervaringen en uitdagingen in het gebied. Dit biedt een nieuw perspectief en hierdoor krijgen we een beter beeld van de dagelijkse voor- en nadelen waar bewoners mee te maken hebben. De rechter poster laat het idee zien van samenleven, waarbij we onderzoeken hoe mensen, natuur, infrastructuur en microben samenwerken en de kwaliteit van de buurt beïnvloeden. De eigenschappen van Bosweide werden onderzocht op vier schalen. (1) De microschaal geeft de aanwezigheid van microben en hun interactie met de omgeving weer. (2) De 'woningplattegrond-schaal' geeft privé groen en daglicht in huizen weer. (3) Omgekeerd weerspiegelt de 'hectare-schaal' van de buurt de inspanningen van de gemeente om de openbare ruimte te verbeteren. (4) De grotere schaal die Bosweide volledig representeert, laat zien hoe wegen en bomen zich tot elkaar verhouden. De fietstocht die we door Bosweide maakten, kwam overeen met het beeld dat deelnemers van de interviews schetsten over de omgeving. Ons verhaal is ontworpen om laten zien hoe mensen verbonden zijn met alles om hen heen. Door het concept van vier schalen te gebruiken, worden zowel tastbare als ontastbare elementen binnen- en buiten Bosweide in Ypenburg weergegeven.

Türkçe Özet

Mahalle

YPB1 araştırması, Lahey'deki Ypenburg'un Bosweide mahallesinde gerçekleştirilmiştir. Araştırma, bölgenin sosyo-ekonomik durumunu ve mekân-sal kalitesini analiz ederek, yeşil alanlar, altyapı, iklim koşulları, bina tipleri ve çevresel mikrobiyomları içerecek şekilde tasarlanmıştır; bu faktörler Bosweide sakinlerinin sağlığı ve refahını potansiyel olarak etkilemektedir. Bosweide, ana otoyollara yakın bir konumda bulunup, şehrin diğer bölgelerine iyi toplu taşıma bağlantılarına sahiptir. Parklar ve yeşil alanların durumu, mahalle sakinlerini açık hava etkinlikleri yapmaya teşvik edecek ve doğal çevreyle etkileşime girmelerini teşvik edecek potansiyele sahiptir. Genel olarak Bosweide, sakinleri için iyi bir yaşam kalitesi sunan mükemmel ve hoş bir yaşam mahallesidir. Bosweide, Ypenburg ve Moerwijk'deki diğer mahallelere kıyasla nispeten yüksek bir yapı kalitesi, sakin trafiği ve geniş caddeleri ile araç, bisiklet ve yayalar için çok rahat bir mahalledir. Mahalledeki geniş olanaklar, mahalle sakinlerinin yaşamlarını kolaylaştırmaktadır. Ayrıca, sakinlerin günlük yaşamına kolaylık sağlamak için yakınlarda çeşitli olanaklar bulunmaktadır. Bosweide, çift ağaç sıralı caddelerle ifade edilen çeşitli yeşil alanlara sahiptir. Ayrıca, farklı boyutlardaki çok sayıda yeşil alan cephesi vardır, bu da alanın genel yeşillik durumuna katkı sağlar. Sakinlerin günlük yaşamını doğayla tam olarak bütünleştirmek için yaya yolları yeşil alan cephesinin içinden kesintisiz bir şekilde dolanır; bir noktada merkezi bisiklet yoluna dik bir şekilde ilerler. Ayrıca, sakinlerin sevdiği rekreasyon alanı olan Lake Boswijk'i (mahallenin sağ tarafına doğru) barındıran en önemli yeşil alan cebini vurgulamak da son derece önemlidir.

Süreç

Bosweide'nin özgünlüğü, kişiselleştirilmiş konut tipleri ve iki ana ağaç türü olan İngiliz Meşe Caddesi ve Siyah Locust Caddesi tarafından temsil edilen dolambaçlı, kıvrımlı yeşil caddelerle tanımlanır. Hava kalitesi ile ilişkilendirilen mikrobiyomlar genellikle nötr ve zararsızdır. Sakinlerle yapılan görüşmeleri içeren etnografik araştırma yöntemleri, araştırmacılar olarak bize gerçek kullanıcıların bakış açısından kentsel alanları inceleme fırsatı sunar, günlük olarak karşılaştıkları faydaları ve zorlukları anlama olanağı vermiştir. Sağ taraftaki poster, insanlar, doğa, altyapı ve mikroplar arasındaki ilişkiyi keşfederek simbiyoz kavramını sentezler. Bunların nasıl ilişkilendiğini ve mahallenin yaşam kalitesine nasıl etki ettiğini araştırır. Bosweide'nin mekânsal özellikleri dört farklı ölçekte incelendi: mikro-ölçek, mikropların varlığını ve çevreleriyle etkileşimlerini gösterir. Konut planı ölçeği, özel yeşil alanları ve iç mekan aydınlatma koşullarını gösterir. Öte yandan, mahallenin hektar ölçeği, belediyenin genel doğal çevreyi geliştirmeye yönelik çabalarını yansıtır. Son olarak, Bosweide'nin tümünü temsil eden daha büyük ölçek, altyapı kirliliği ile mevcut yeşil alan miktarı arasındaki gerilimi vurgular, olumsuz sonuçları hafifletmeye yöneliktir. Bosweide'de yaptığımız yolculukta gördüklerimiz, görüşmelerden elde edilen bulguları ve yapılan detaylı mekânsal analizle olan ilişkileri doğrulamaktadır. Hikaye, okuyucuların deneyimi görselleştirmesine ve insan ile insan olmayan unsurlar arasındaki ilişkileri açıkça göstermektedir

ملخص باللغة العربية

الحي

م إجراء بحث YPB1 في حي Bosweide في Ypenburg ، لاهاي. سيحلل البحث الوضع الاجتماعي والاقتصادي للمنطقة والجودة المكانية ، بما في ذلك المساحات الخضراء والبنية التحتية والظروف المناخية وأنماط البناء والميكروبيوم المحيط بها والتي من المحتمل أن تؤثر على صحة ورفاهية سكان Bosweide . تقع Bosweide بالقرب من الطرق السريعة الرئيسية وتوفر وصلات نقل عام جيدة إلى أجزاء أخرى من المدينة. الحدائق والخضراء تشجع المساحات السكان على الاستمتاع بالأنشطة الخارجية أثناء التفاعل مع البيئة الطبيعية المحيطة. بشكل عام ، Bosweide ، هو حي معيشة ممتاز وممتع يوفر نوعية حياة جيدة لسكانه. Bosweide هي منطقة سكنية منخفضة الكثافة ذات بصمة منزلية عالية نسبيا مقارنة بالأحياء الأخرى في Ypenburg و Moerwijk. ويعزى غياب الحبس إلى البيئات الداخلية الواسعة نسبيا والتخطيط الحضري الخارجي، مثل مؤشر المساحة الأرضية المنخفضة، والطرق المتعرجة الواسعة للسيارات والدراجات والمشاة، فضلا عن ارتفاع نسبة المساحات الخضراء العامة والخاصة. هناك أيضا العديد من المرافق على مقربة لتوفير الراحة للحياة اليومية للسكان. يتميز Bosweide مجموعة متنوعة من المساحات الخضراء المعروضة من خلال الشوارع المزودة التي تصطف على جانبيها الأشجار. بالإضافة إلى ذلك ، يمكن اكتشاف جيوب خضراء متعددة بأحجام متنوعة ، مما يزيد من الخصوبة الكلية للمنطقة. لدمج الطبيعة بشكل كامل مع الحياة اليومية للسكان ، تم مسارات المشاة بسلاسة عبر جيوب الخضر ، في مرحلة ما ، تعمل بشكل عمودي مع ممر الدراجات المركزي. من المهم أيضا تسليط الضوء على أحد أهم الجيوب الخضراء التي تضم بحيرة Boswijk (باتجاه يمين الحي) ، والتي أصبحت المكان الترفيهي المحبوب للسكان.

العملية

تميز بوسويدي يتجلى في أنماط المساكن المخصصة والطرق المتعرجة والمنحنية التي تحيط بها طرق خضراء، يُمثّلها نوعان رئيسيان من الأشجار، وهما شارع البلوط الإنجليزية وشارع اللوكست الأسود. الكائنات الحية الدقيقة المرتبطة بجودة الهواء عادةً ما تكون محايدة وغير ضارة. تقدم طرق البحث الأثنوغرافية، التي تشمل مقابلات مع السكان، منظورًا جديدًا لنا كباحثين لفحص الأماكن الحضرية من وجهة نظر المستخدمين الفعليين، مفهوميّ الفوائد والتحديات التي يواجهونها يوميًا. يقوم الملصق على اليمين بتجميع مفهوم التكامل من خلال استكشاف العلاقة بين البشر والطبيعة والبنية التحتية والميكروبات، باستكشاف كيفية ترابطها وتأثيرها على جودة حياة الحي. تم استكشاف الخصائص الفضائية لـ بوسويدي عبر أربع مقاييس مختلفة: تشير الميكرو-المقياس إلى وجود الكائنات الحية الدقيقة وتفاعلها مع البيئة المحيطة. يصور مقياس خطة الإسكان المساحات الخضراء الخاصة وظروف الضوء الداخلي. على الجانب الآخر، يعكس مقياس هكتار الحي جهود البلدية في تعزيز البيئة الطبيعية العامة. وأخيرًا، يسلط المقياس الأكبر الذي يمثل مجمل بوسويدي الضوء على التوتر بين تلوث البنية التحتية وكمية الأماكن الخضراء الحالية، بهدف التخفيف من العواقب السلبية. يوضح رحلة الدراجة النتائج من المقابلات وترابطها مع التحليل المكاني المفصل. تم تصميم السرد لتمكين القراء من تصوير التجربة وفهم التفاعل المترابط بين العناصر البشرية وغير البشرية. من خلال دمج مفهوم الأربعة مقاييس، يتم الكشف عن العناصر القابلة للمس والشعور، سواء داخل وخارج حي بوسويدي في منطقة إينبورخ.

