Walkability study in the focus region Ulm/Neu-Ulm: Active2Public Transport Needs Assessment

Walking catchment areas around Public Transport Stations and Stops.

December 2024

Interreg Danube Region

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WALK21 LEADING THE WALKING MOVEMENT

Active2Public Transport

About Active To Public Transport (A2PT) Project

The project 'Active2Public Transport' aims to reduce CO2 emissions in the transport sector in the Danube region by promoting active and emission-free forms of mobility such as cycling and walking in combination with public transport such as buses and trains. It is funded by the European Union as part of the Interreg Danube Region programme and runs for 2,5 years until June 2026. The project is jointly implemented by 11 partners from 9 countries under the leadership of the Austrian Energy Agency.

About Donaubüro Gemeinnützige GmbH

The Danube Office (DOU) is a non-profit limited liability company of the cities of Ulm and Neu-Ulm. Within the framework of civil society activities, municipal projects and EU projects, the DOU has been facilitating, supporting and promoting encounters, understanding, interregional cooperation and development in the entire Danube region since 2002. Thematically, the DOU focuses on sustainable mobility, environmental education, development cooperation, youth, culture and current socio-politically relevant topics and challenges.

About Walk21

Walk21 Foundation is a charity registered in the United Kingdom that works internationally to support everyone's right to walk in a safe, inclusive, and welcoming environment by providing evidence, tools, training and accreditation to a global network of concerned communities, politicians, academics and practitioners.

Walk21 helps make cities more walkable to increase access to basic services; enhance road safety and public health; improve gender equality; and ensure accessible, equitable, sustainable transport systems. The key work streams of Walk21 includes:

Advocacy: representing the voice of pedestrians at key global forums to support the delivery of the sustainable development goals and Paris climate agreement target.

Knowledge: supporting governments with the development of effective policies and projects that impact positively on the safety, accessibility and comfort of people walking.

Network: Coordinating a global community of politicians, academics, advocates, engineers, planners, health professionals, architects, artists, and sociologists to advance the agenda for walking and liveable communities globally.

Authors & Acknowledgments

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1. Executive Summary

1.1. Aim of the project

As part of the Active2Public Transport project (A2PT), the Danube Office Ulm/Neu-Ulm conducted a participatory study on walkability around five public transport hubs and stations in Ulm, Neu-Ulm, Neu-Ulm county and Alb-Donau-Kreis county, within the Danube region of Germany. This project is in line with the policy brief Integrating Walking and Public Transport, which highlights the need and potential to considering walking as a key part of a public transport journey.

The aim of the study is to better understand how different elements and characteristics of the public space *(i.e. footpath, traffic, greenery)* influence walking experiences *(i.e. safety, comfort, enjoyment)* in a positive or negative way. The study also looks into how different types of pedestrians *(i.e. age, gender, ability)* and walk contexts *(i.e. purpose, company, familiarity with the place)* might result in different experiences of the same environment, based on specific needs and concerns. As a result, the study aims to identify which areas are considered more or less pedestrian-friendly for all and why. This can greatly guide and assist specific interventions to improve the walkability of areas related to negative walking experiences, while extending or promoting those related to positive ones, considering the needs of all pedestrians.

1.2. What we did

Three members of the Danube Office were trained by Walk21 in the use of the Walkability App to conduct interviews and use it as an audit tool. More information about how to use the Walkability App can be found in Annex A.

Data was collected between 21/10/2024 and 05/11/2024, in five study areas: 1 - Ulm Main Station & Tram and Bus Stop, 2 - Neu-Ulm Station & Central Bus Stop, 3 - Senden Station & Bus Stop, 4 - Böfingen Long-Distance Bus Stop & Tram and Bus Stop Egertweg, and 5 - Tomerdingen Martinusstraße Bus Stop. Data were collected within 500m-radius catchment areas at each public transport hub or station, covering different types of streets and roads within each study area. Overall, a total of 288 interviewed participants shared 288 walking experiences related to 536 environmental determinants. In addition, three trained surveyors shared 215 walking experiences related to 285 determinants. In total, the study collected 503 walking experiences related to 821 environmental determinants, amongst the five study areas.

1.3. What we found

Who walks, why and how?

From the **288 pedestrians interviewed**, most were adults (68.8%), followed by older adults (26%) and teenagers (5.2%). The study only included teenagers from 16 to 17 years old. In addition, 54.5% were women and 45.1% men. Regarding their ability, most participants did not have any difficulty to move or interact with the environment (76.7%), while some had mild or moderate difficulty (17.7%) and a few had severe or extreme difficulty (5.6%). Finally, most participants were active pedestrians (54.5%) followed by very active (41.6%) and a small proportion of inactive ones (3.8%).

Based on **their walk context**, 53.5% of participants were walking by choice while 43.1% did it out of necessity. With regards to the walk purpose, 68.8% participants walked for transport, while 29.9% for leisure. Most participants were walking on their own (71.9%) compared to those walking with others

(24.3%). Finally, most participants were familiar with the place (69.8%), while others were not (27.1%). See tables and graphs about this on page 11.

Which were the main walking experiences?

From the **503 walking experiences** collected from interviews and audits, most experiences were positive (41.2%), followed by negative (33%), very positive (11.9%), neutral (9.3%) and very negative (4.6%). Overall positive and very positive experiences (53.1%) outnumbered negative ad very negative ones (37.6%). When participants were asked to highlight one or more types of experiences, most referred to walking **comfort** (52.5%) with more comfortable and very comfortable experiences (47.7%) than uncomfortable and very uncomfortable ones (41.3%). Secondly, 34.8% of experiences were related to walking **enjoyment**, with more enjoyable and very enjoyable experiences (61.1%) than unenjoyable or very unenjoyable ones (33.1%). Finally, walking **safety** was the least frequent type of experience shared by participants (32.4%), with more very safe and safe experiences (51.6%) than unsafe and very unsafe ones (39.3%). See tables and graphs about this on page 13.

What influenced walking experiences?

From the **821 environmental determinants** that influenced **walking experiences** in this study, the most frequent was *footpath*, included in 16.9% of all observations, followed by *street furniture* (13.1%), *crossings* (12.5%), *environmental quality* (12.4%) and *greenery* (10.2%). Participants related these determinants, and the other ones included in the study, to both **positive and negative experiences**. Overall, almost all determinants were related to more positive experiences, especially *greenery* and *interest*. With the exception of *obstacles*, which were related to more negative experiences. Finally, *weather protection* and *traffic* were related to as many positive as negative ones. The most relevant determinants related to positive and very positive experiences were good *footpath* (10.3%), *greenery* (8.5%) and good *street furniture* (8.3%), while most negative and very negative experiences were related to poor *environmental quality* (5%), bad *footpath* (4.9%), bad *crossings* (3.9%)and bad *street furniture* (3.9%).

Regarding **safety**, the most relevant determinants influencing safe and very safe experiences were good *footpath* (14.5%), good *crossings* (13.1%) and *inclusion* (10%), while most unsafe and very unsafe experiences were related to *people* (5.6%), bad *footpath* (5.5%) and bad *crossings* (4.2%). Similarly for **comfort**, the most relevant determinants influencing comfortable and very comfortable experiences were good *footpath* (13%), good *crossings* (9.9%) and *greenery* (6.6%), while most uncomfortable and very uncomfortable experiences were related to bad *footpath* (5.2%), poor *environmental quality* (5.1%) and bad *street furniture* (4.3%). Finally for **enjoyment**, the most relevant determinants related to enjoyable and very enjoyable experiences were *greenery* (15.9%), good *street furniture* (13.8%) and good *environmental quality* (7.3%), while most unenjoyable and very unenjoyable experiences were related to poor *environmental quality* (9.1%), *obstacles* (3.4%) and bad *footpath* (2.6%).

After identifying the main determinants that influenced their walking experiences, participants could include more information about **specific characteristic or subcategories of determinants**. In the case of *footpath*, participants highlighted the importance of their width, surface, presence or absence. The most relevant aspects of *street furniture* were public lighting and seating. Most experiences related to *environmental quality* identified cleanliness as relevant, followed by noise and air quality. In the case of *crossings*, the most relevant aspects were their absence or presence, followed by their location and priority given to pedestrians. The most frequent aspect of *greenery* was the presence of trees. Finally, some of the determinants related to more negative experiences, the most common types of *obstacles* were vehicles blocking the pavement or crossings and misplaced infrastructure. The most common

concern related to *weather protection* was the absence of shelter, from *traffic* was driving behaviour and for *people* was social behaviour. See tables and graphs about this on pages 14 to 17.

Do different people have different experiences for different reasons?

Generally, not all participants shared the same type of experience or identified the same determinants in the same place. For this reason, the overall main types of experiences and their most relevant determinants can be filtered and reanalysed by the type of pedestrian or their walk context.

Regarding the **walking experience**, this study did not find any major differences between **people** with different ages, gender, ability or activity. However, older adults shared slightly more negative and very negative experiences (41.3%) than adults (38.9%), women shared more negative and very negative experiences (42%) than men (34.6%), people with mild or moderate difficulty to move shared slightly more negative and very negative experiences (39.2%) than people with no difficulties (36.2%). Based on the **walk context**, people walking by choice, for leisure, with others and as locals generally shared more positive and very positive experiences than negative and very negative ones. Similar small differences were present when looking at walking **safety**, **comfort** and **enjoyment**.

Regarding the **environmental determinants**, adults generally shared more negative and very negative experiences related to crossings, greenery, weather protection, people and traffic, whereas older adults shared more negative and very negative experiences related to footpath, street furniture, obstacles, environmental quality and inclusion. By gender, women shared more negative and very negative experiences related to footpath, crossing, greenery, weather protection, people, traffic and inclusion, whereas men shared more negative and very negative experiences related to street furniture, obstacles and environmental quality. People with some difficulty to move and interact with the environment shared more negative and very negative experiences related to all determinants compared to people with no difficulties, except for street furniture, greenery, environmental quality. Finally, very active pedestrians shared more negative and very negative experiences related to bad footpath, crossings, street furniture, greener, obstacles, people, traffic and inclusion when compared to active pedestrians. People with different **walk context** also shared slightly different experiences related to each determinant. See tables and graphs about this on pages 18 to 25.

In this study 288 walking experiences came from 288 volunteered participants amongst the five study areas, whereas another 215 walking experiences came from experts who conducted walking audits in the same areas. The sample size of some categories of pedestrians from the 288 interviews does not provide enough information to generalise outcomes, such as teenagers (n=15), other gender (n=1), people with severe or extreme difficulty to move or interact with the environment (n=16) and inactive pedestrians (n=11).

Were there any differences between study areas?

This project included five study areas, which presented slightly different outcomes. Neu-Ulm Station & Central Bus Stop was the study area with more positive and very positive walking experiences (65.7%) and fewer negative and very negative ones (23.2%). Followed by Tomerdingen Martinusstraße Bus Stop and Böfingen Bus Stop & Tram, Bus Stop Egertweg, and Senden Station & Bus Stop. Ulm Main Station & Tram and Bus Stop was the area with fewer positive and very positive experiences (38%) and more negative and very negative experiences (47%). Similarly, most study areas differed in the main determinants related to walking experiences. Good footpath were the most frequent determinant related to positive experiences in all study areas except Böfingen Bus Stop & Tram and Bus Stop Egertweg (greenery) and Tomerdingen Martinusstraße Bus Stop (street furniture). In the case of negative experiences, bad footpath was the main determinant in Ulm Main Station & Tram and Bus

Stop and Tomerdingen Martinusstraße Bus Stop, but that was not the case for Neu-Ulm Station & Central Bus Stop (people misbehaviour), Senden Station & Bus Stop (poor environmental quality), and Böfingen Bus Stop & Tram and Bus Stop Egertweg (obstacles). Even within each study area, there were different parts considered more or less pedestrians friendly based on experiences shared by the volunteered participants and expert surveyors. See Section 3 for a more detailed analysis of each study area.

1.4. What we recommend

What to fix, improve and expand

Different walking experiences by participants helped identify areas with better and worse walkability and their main reasons. There are positive, neutral and negative experiences in all study areas, which implies that they present a mix of good, adequate and bad walkability, often related to common determinants. Overall, most experiences were related to either positive (41.2%) or very positive experiences (11.9%), mainly related to good footpath, presence of greenery and street furniture, good crossings and environmental quality. These were the determinants that most people praised when sharing safe, comfortable and enjoyable experiences. Areas with this type of positive experiences and quality should be expanded and promoted.

On the other hand, participants also shared a relevant amount of negative (33%) and very negative experiences (4.6%), mainly related to bad footpath, lack of greenery and street furniture, bad crossings and presence of walking obstacles. In order to reduce future negative experiences, these issues should be prioritised and fixed, replicating or implementing similar quality elements from the areas with more positive experiences. While all types of positive experiences (i.e. safe, comfortable, enjoyable) shared a similar list of most relevant determinants (i.e. good footpath, crossings, greenery, street furniture and environmental quality), the different types of negative experiences are related to different determinants. Unsafe experiences are mainly related to people , uncomfortable experiences to footpath, and unenjoyable experiences to poor environmental quality and obstacles.

Finally, places with neutral experiences (9.3%) can be considered “just adequate” environments. While they do not present a priority to fix, small improvements in their most common determinants, such as footpath, crossings and street furniture may enable more positive and very positive experiences.

Consider the needs and concerns of specific target populations

All study areas seem to influence more negative and very negative experiences to older adults, women and people with difficulty to move and interact with the environment, especially with unsafe and uncomfortable experiences related to bad footpath and crossings, lack of street furniture and greenery, and misbehaviour of drivers and other people in the public space. There is a need to better understand the needs and concerns of these target population to provide adequate environments for all.

Future studies and projects

In order to better compare how different types of pedestrians and walk contexts may result in different experiences of the same place, there is a need for bigger samples and more data including teenagers, people with difficulty to move and interact with the environment and inactive pedestrians.

2. Overall analysis for all study areas

2.1. Location of study areas

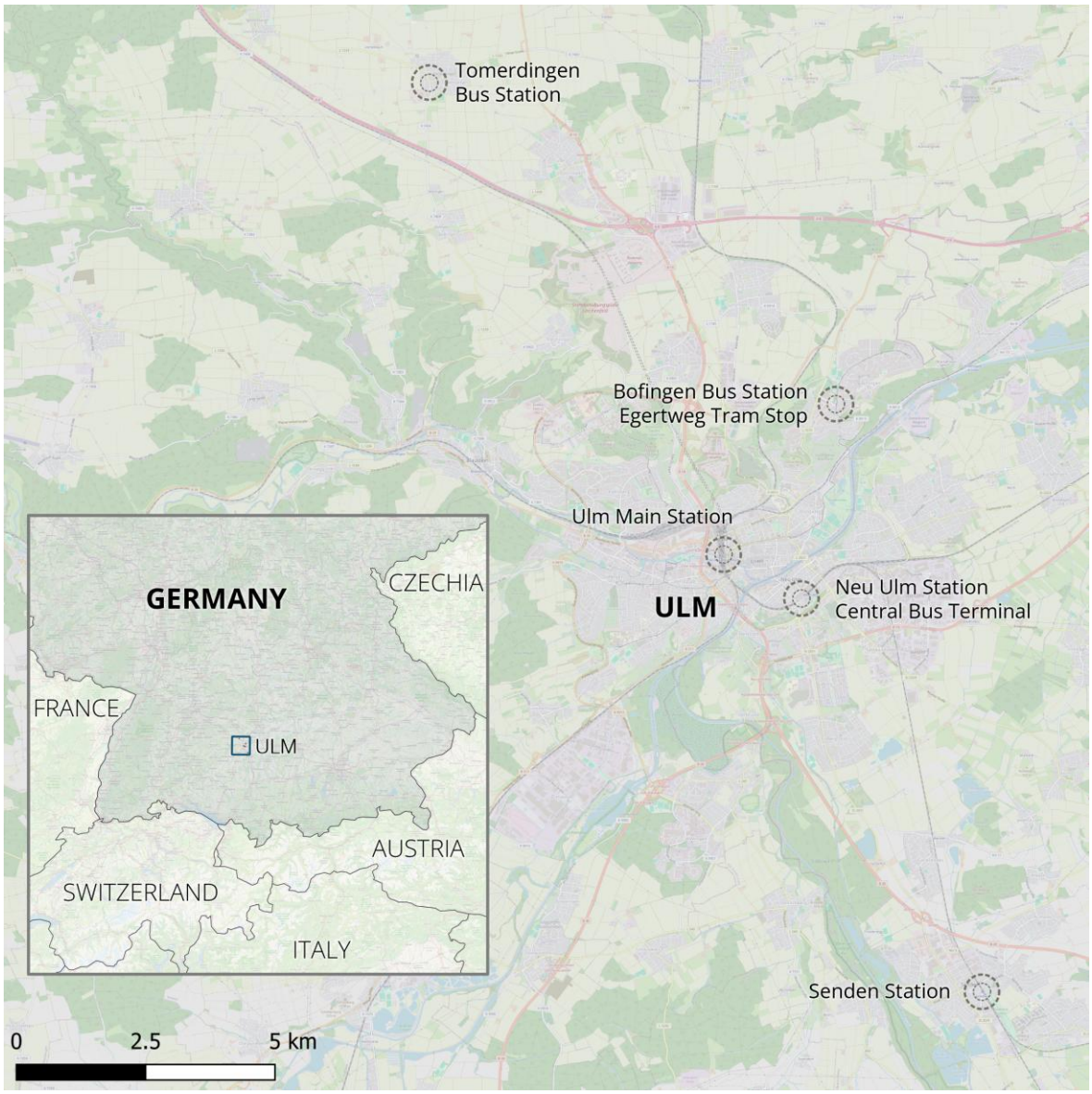


Figure 1. Location of study areas.

2.2. Data collected

Period	21/10/2024 - 05/11/2024	
Timeframe	06:08 - 14:23	
Interviews	Participants	288
	Experiences	288
	Determinants	536
Audits	Experts	5
	Experiences	215
	Determinants	285
Total	Experiences	**503**
	Determinants	**821**

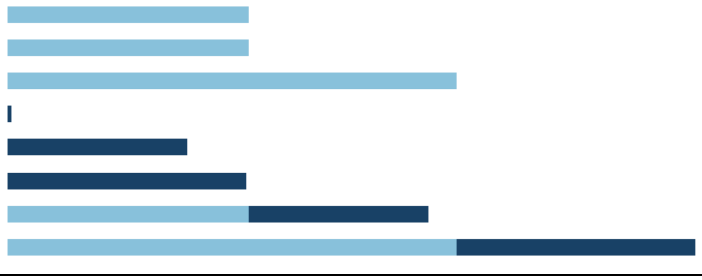


Table 1. Data collected in all study areas.

2.3. Pedestrian profile

Variable	Category	N	%
AGE	Teenagers (13-17)	15	5.2
	Adults (18-65)	198	68.8
	Older people (>65)	75	26
GENDER	Man	130	45.1
	Woman	157	54.5
	Other / No answer	1	0.3
ABILITY (difficulty to move)	None	221	76.7
	Mild or moderate	51	17.7
	Severe or extrerme	16	5.6
ACTIVITY (mins/day)	Less than 10 min	11	3.8
	10 - 60 mins	157	54.5
	More than 60 min	120	41.6

Distribution N=288

Table 2. Pedestrian profile from interviews, in all study areas.

2.4. Walk context

Variable	Category	N	%
DECISION	Choice	154	53.5
	Necessity	124	43.1
	Other	10	3.5
PURPOSE	Transport	198	68.8
	Leisure	86	29.9
	Other	4	1.4
COMPANY	Alone	207	71.9
	Accompanied	70	24.3
	Other	11	3.8
FAMILIARITY	Local	201	69.8
	Visitor	78	27.1
	Other	9	3.1

Distribution N= 288

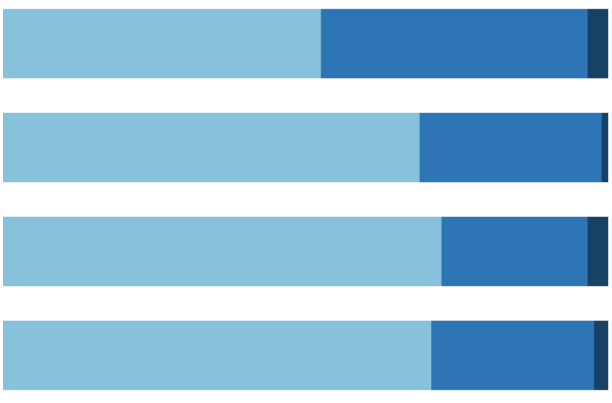


Table 3. Walk context from interviews, in all study areas.

2.5. Walking experiences

EXPERIENCE	N	%
Very positive	60	11.9
Positive	207	41.2
Neutral	47	9.3
Negative	166	33
Very negative	23	4.6
TOTAL	503	100

TOP-5 determinants related to experience

Negative	Positive
Footpath	Footpath
Environmental quality	Greenery
Furniture	Furniture
Crossing	Crossing
Obstacles	Environmental quality

Table 4. Walking experiences and top 5 determinants related to them, in all study areas.

SAFETY	N	%
Very safe	26	16
Safe	58	35.6
Neutral	15	9.2
Unsafe	51	31.3
Very unsafe	13	8
TOTAL	163	100

TOP-5 determinants related to safety

Unsafe	Safe
People	Footpath
Footpath	Crossing
Crossing	Inclusion
Environmental quality	People
Obstacles	Environmental quality

Table 5. Safety and top 5 determinants, in all study areas.

COMFORT	N	%
Very comfortable	32	12.1
Comfortable	94	35.6
Neutral	29	11
Uncomfortable	94	35.6
Very uncomfortable	15	5.7
TOTAL	264	100

TOP-5 determinants related to comfort

Uncomfortable	Comfortable
Footpath	Footpath
Environmental quality	Crossing
Furniture	Greenery
Greenery	Furniture
Obstacles	Environmental quality

Table 6. Comfort and top 5 determinants, in all study areas.

ENJOYMENT	N	%
Very enjoyable	30	17.1
Enjoyable	77	44
Neutral	10	5.7
Unenjoyable	52	29.7
Very unenjoyable	6	3.4
TOTAL	175	100

TOP-5 determinants related to enjoyment

Unenjoyable	Enjoyable
Environmental quality	Greenery
Obstacles	Furniture
Footpath	Environmental quality
Crossing	Footpath
Greenery	Interest

Table 7. Enjoyment and top 5 determinants, in all study areas.

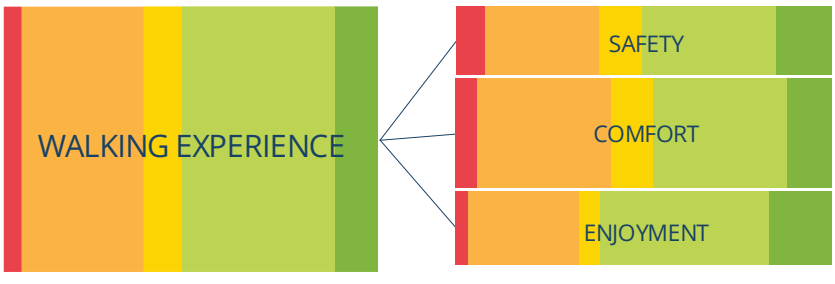


Figure 2. Share of positive and negative experiences and most frequent types, in all study areas.

2.6. Most frequent determinants by experience

Experience	Determinant	n	%	Distribution	N=821
Very Positive	Footpath	25	3		
	Crossing	21	2.6		
	Greenery	20	2.4		
	Inclusion	16	1.9		
	Furniture	14	1.7		
	People	14	1.7		
	Environmental quality	11	1.3		
	Interest	6	0.7		
	Traffic	2	0.2		
	Other	2	0.2		
	Weather protection	1	0.1		
	Obstacles	0	0		
Postive	Footpath	60	7.3		
	Furniture	54	6.6		
	Greenery	50	6.1		
	Environmental quality	43	5.2		
	Crossing	42	5.1		
	Other	33	4		
	Inclusion	28	3.4		
	People	23	2.8		
	Weather protection	13	1.6		
	Traffic	8	1		
	Interest	8	1		
	Obstacles	1	0.1		
Neutral	Footpath	14	1.7		
	Other	11	1.3		
	People	9	1.1		
	Crossing	7	0.9		
	Furniture	7	0.9		
	Environmental quality	7	0.9		
	Greenery	3	0.4		
	Weather protection	3	0.4		
	Traffic	2	0.2		
	Obstacles	1	0.1		
	Interest	1	0.1		
	Inclusion	1	0.1		
Negative	Environmental quality	38	4.6		
	Footpath	32	3.9		
	Furniture	29	3.5		
	Crossing	25	3		
	Obstacles	23	2.8		
	People	21	2.6		
	Weather protection	12	1.5		
	Greenery	11	1.3		
	Inclusion	11	1.3		
	Other	11	1.3		
	Traffic	7	0.9		
	Interest	0	0		
Very negative	Footpath	8	1		
	Crossing	7	0.9		
	Obstacles	6	0.7		
	People	5	0.6		
	Furniture	3	0.4		
	Environmental quality	3	0.4		
	Weather protection	2	0.2		
	Traffic	2	0.2		
	Inclusion	2	0.2		
	Other	2	0.2		
	Greenery	0	0		
	Interest	0	0		

Table 8. Most frequent determinants by type of experience, in all study areas.

2.7. Positive and negative experiences by determinant

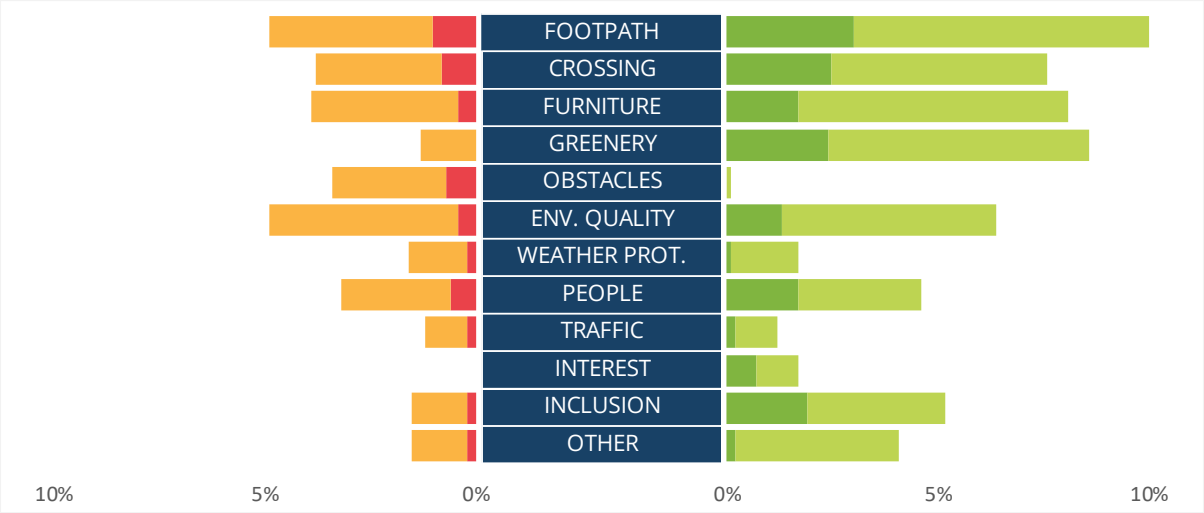


Figure 3. Positive and negative experiences by determinant, in all study areas.

2.8. Determinants by frequency and negative-positive experiences

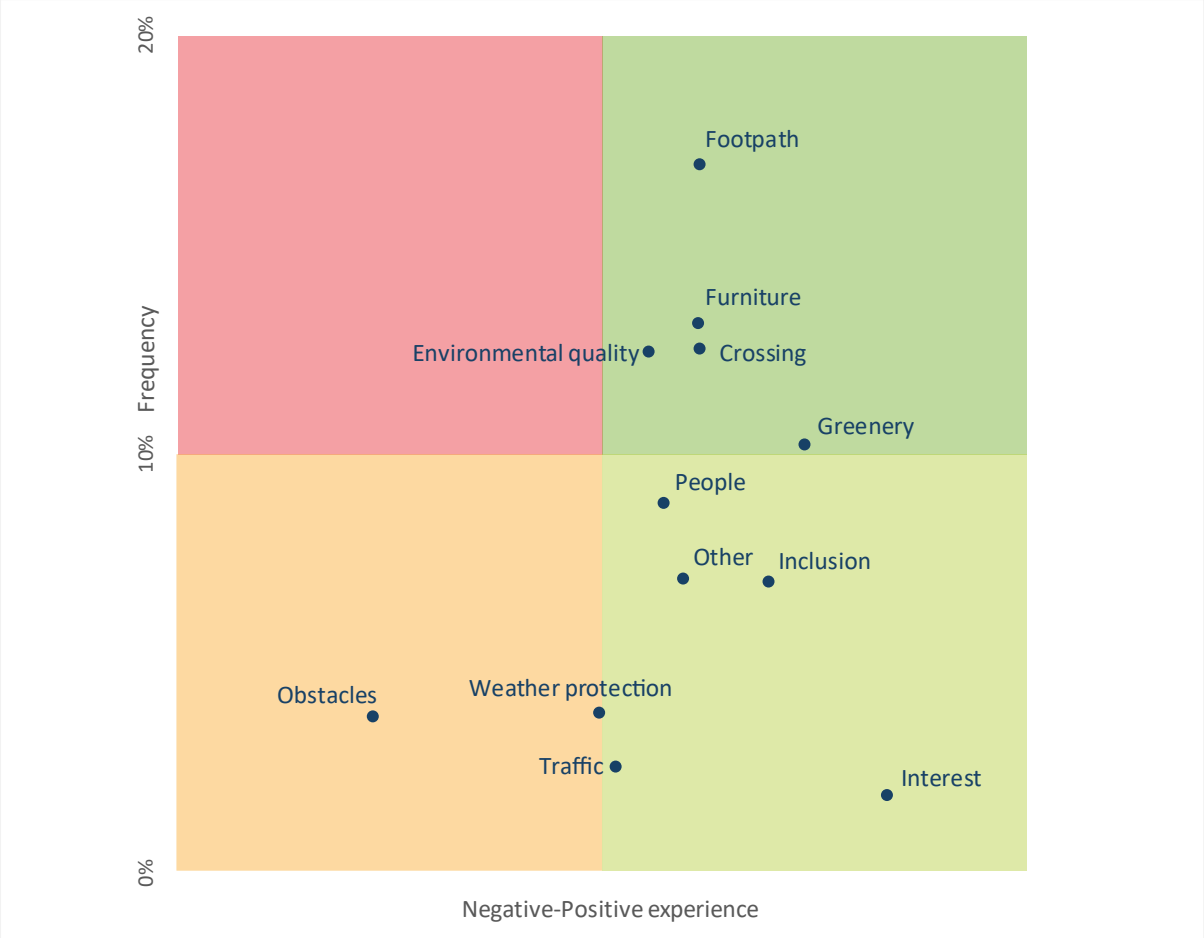


Figure 4. Determinants by frequency and negative-positive experiences, in all study areas.

2.9. Positive and negative experiences by subcategory of determinants

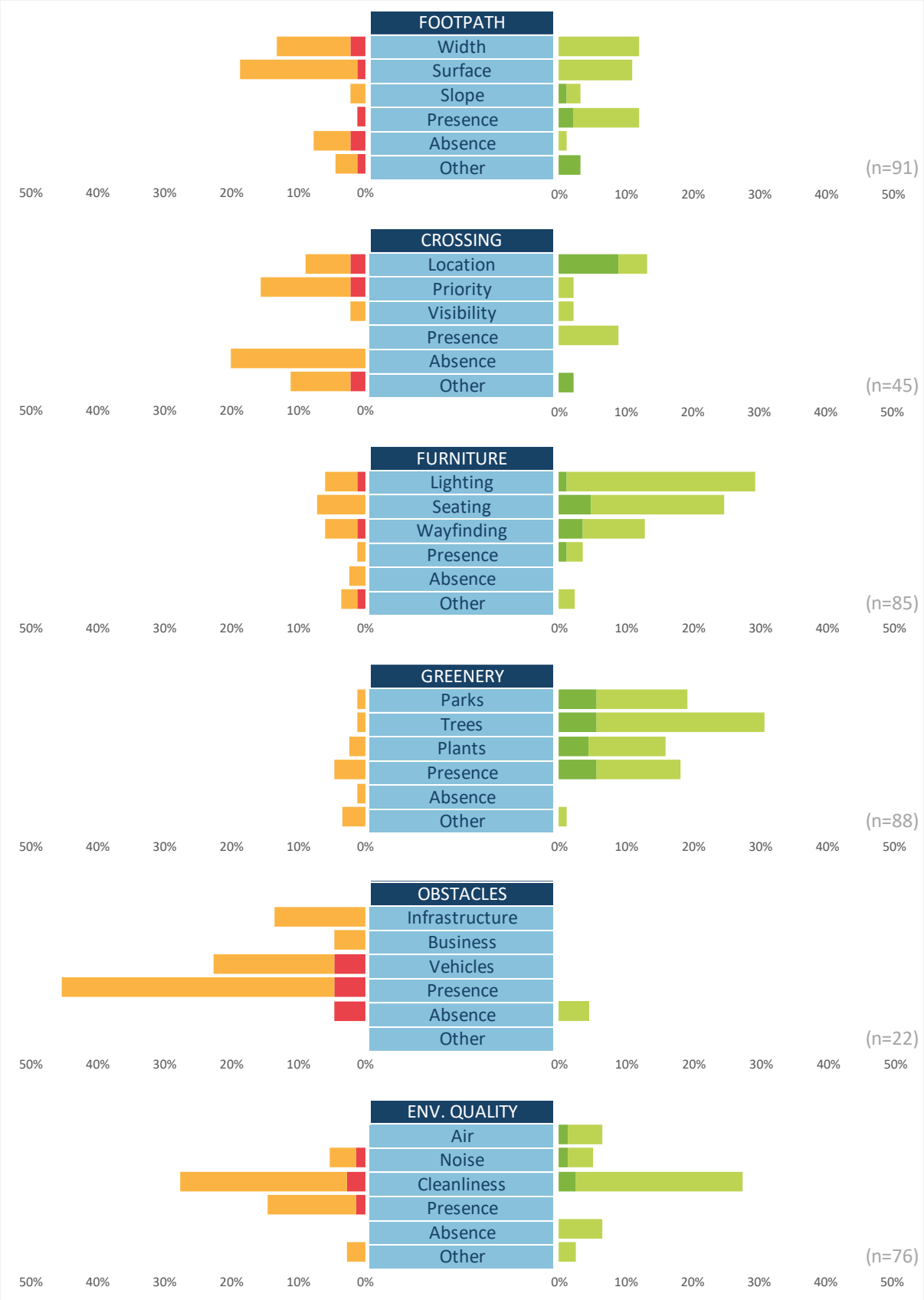


Figure 5. Positive and negative experiences related to subcategories of footpath, crossing, furniture, greenery and obstacles, in all study areas.

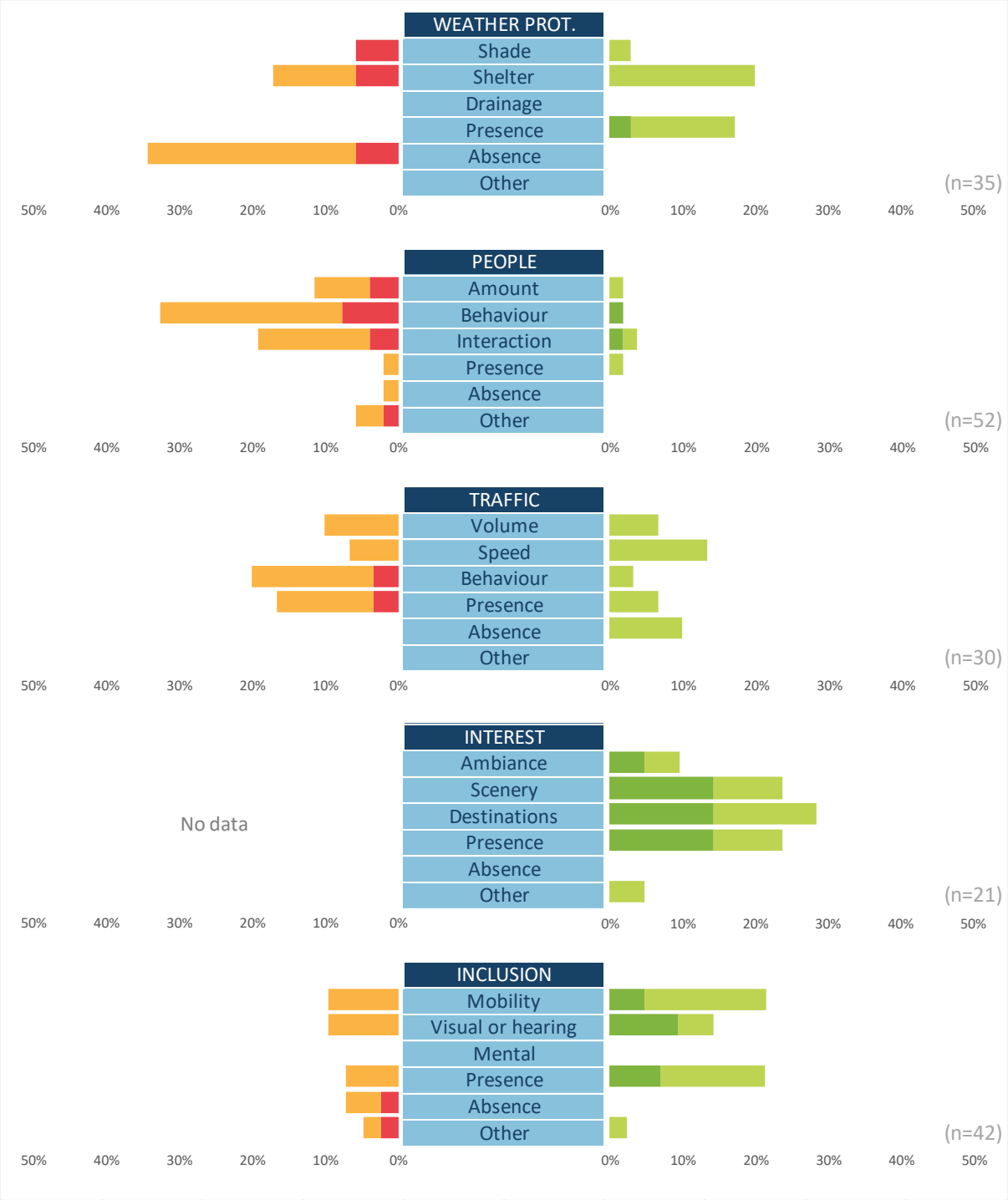


Figure 6. Positive and negative experiences related to subcategories of weather protection, people, traffic, interest and inclusion, in all study areas.

2.10. Experiences by type of pedestrians and walk context

WALKING EXPERIENCE			😞	😕	😐	🙂	😊	N	Distribution
ALL PARTICIPANTS			5.9	33	11.5	36.5	13.2	288	
PEDESTRIAN PROFILE	AGE	Teenagers	0	26.7	6.7	66.7	0	15	
		Adults	7.1	31.8	12.1	36.4	12.6	198	
		Seniors	4	37.3	10.7	30.7	17.3	75	
	GENDER	Men	4.6	30	13.8	37.7	13.8	130	
		Women	7	35	9.6	35.7	12.7	157	
		Other	0	100	0	0	0	1	
	ABILITY	None	5.4	30.8	11.3	40.3	12.2	221	
		Moderate	9.8	29.4	15.7	23.5	21.6	51	
		Severe	0	92.3	0	7.7	0	13	
	ACTIVITY	< 10'	9.1	45.5	0	36.4	9.1	11	
		10' - 60'	3.8	32.5	15.3	38.2	10.2	157	
		+ 60'	8.3	32.5	7.5	34.2	17.5	120	
WALK CONTEXT	DECISION	Choice	4.5	33.1	9.7	35.7	16.9	154	
		Necessity	7.3	33.9	14.5	34.7	9.7	124	
	PURPOSE	Transport	6.6	33.8	10.6	38.4	10.6	198	
		Leisure	4.7	32.6	14	30.2	18.6	86	
	COMPANY	Alone	5.8	34.8	12.1	33.3	14	207	
		With others	7.1	30	8.6	45.7	8.6	70	
	FAMILIARITY	Local	5.5	34.3	10.4	36.8	12.9	201	
		Visitor	6.4	32.1	14.1	34.6	12.8	78	

Table 9. Experiences by pedestrian profile and walk context, in all study areas.

SAFETY			😞	😕	😐	🙂	😊	N	Distribution
ALL PARTICIPANTS			9.1	29.1	10	31.8	20	110	
PEDESTRIAN PROFILE	AGE	Teenagers	0	14.3	0	85.7	0	7	
		Adults	11	29.3	9.8	31.7	18.3	82	
		Seniors	4.8	33.3	14.3	14.3	33.3	21	
	GENDER	Men	8.2	24.5	10.2	32.7	24.5	49	
		Women	10	31.7	10	31.7	16.7	60	
		Other	0	100	0	0	0	1	
	ABILITY	None	10.1	27.8	8.9	35.4	17.7	79	
		Moderate	9.1	18.2	18.2	18.2	36.4	22	
		Severe	0	66.7	0	33.3	0	9	
	ACTIVITY	< 10'	0	50	0	50	0	2	
		10' - 60'	7.3	25.5	12.7	34.5	20	55	
		+ 60'	11.3	32.1	7.5	28.3	20.8	53	
WALK CONTEXT	DECISION	Choice	6.9	36.2	6.9	24.1	25.9	58	
		Necessity	11.6	23.3	16.3	32.6	16.3	43	
	PURPOSE	Transport	11.3	30	7.5	31.3	20	80	
		Leisure	3.7	29.6	18.5	29.6	18.5	27	
	COMPANY	Alone	10.6	31.8	9.1	25.8	22.7	66	
		With others	8.6	28.6	8.6	42.9	11.4	35	
	FAMILIARITY	Local	11	31.5	9.6	30.1	17.8	73	
		Visitor	3.4	27.6	13.8	31	24.1	29	

Table 10. Safety by pedestrian profile and walk context, in all study areas.

COMFORT			😞	😕	😐	🙂	😊	N	Distribution
ALL PARTICIPANTS			6.8	43.8	7.5	21.9	19.9	146	
PEDESTRIAN PROFILE	AGE	Teenagers	0	14.3	14.3	71.4	0	7	
		Adults	6	34.5	6.9	36.2	16.4	116	
		Seniors	5.8	44.2	3.8	26.9	19.2	52	
	GENDER	Men	2.6	33.8	11.7	32.5	19.5	77	
		Women	8.2	38.8	2	36.7	14.3	98	
		Other	0	0	0	0	0	0	
	ABILITY	None	3.8	33.1	7.5	41.4	14.3	133	
		Moderate	10.2	24.5	36.7	8.2	20.4	49	
		Severe	0	80	0	20	0	10	
	ACTIVITY	< 10’	14.3	71.4	0	0	14.3	7	
		10’ - 60’	3.3	40	8.9	33.3	14.4	90	
		+ 60’	7.7	29.5	3.8	39.7	19.2	78	
WALK CONTEXT	DECISION	Choice	3.1	35.7	5.1	36.7	19.4	98	
		Necessity	8.8	41.2	8.8	26.5	14.7	68	
	PURPOSE	Transport	5.3	37.7	7	36.8	13.2	114	
		Leisure	7	36.8	5.3	28.1	22.8	57	
	COMPANY	Alone	5.8	37.5	8.3	29.2	19.2	120	
		With others	6.4	36.2	2.1	46.8	8.5	47	
	FAMILIARITY	Local	4.1	38.8	7.4	33.9	15.7	121	
		Visitor	8.3	35.4	4.2	35.4	16.7	48	

Table 11. Comfort by pedestrian profile and walk context, in all study areas.

ENJOYMENT			😞	😕	😐	🙂	😊	N	Distribution
ALL PARTICIPANTS			9.3	42.6	13	13	22.2	54	
PEDESTRIAN PROFILE	AGE	Teenagers	0	40	0	60	0	5	
		Adults	9.3	39.5	9.3	25.6	16.3	43	
		Seniors	5.6	22.2	16.7	27.8	27.8	18	
	GENDER	Men	3.4	37.9	6.9	37.9	13.8	29	
		Women	10.8	32.4	13.5	21.6	21.6	37	
		Other	0	0	0	0	0	0	
	ABILITY	None	6.5	37	6.5	30.4	19.6	46	
		Moderate	11.8	23.5	23.5	23.5	17.6	17	
		Severe	0	66.7	0	33.3	0	3	
	ACTIVITY	< 10’	25	50	0	25	0	4	
		10’ - 60’	5.1	41	7.7	33.3	12.8	39	
		+ 60’	8.7	21.7	17.4	21.7	30.4	23	
WALK CONTEXT	DECISION	Choice	8.1	27	13.5	24.3	27	37	
		Necessity	3.6	46.4	7.1	35.7	7.1	28	
	PURPOSE	Transport	8.9	35.6	8.9	35.6	11.1	45	
		Leisure	4.8	33.3	14.3	14.3	33.3	21	
	COMPANY	Alone	7.4	37	11.1	25.9	18.5	54	
		With others	9.1	27.3	9.1	45.5	9.1	11	
	FAMILIARITY	Local	4.2	35.4	10.4	27.1	22.9	48	
		Visitor	12.5	37.5	12.5	31.3	6.3	16	

Table 12. Enjoyment by pedestrian profile and walk context, in all study areas

FOOTPATH			😞	🙁	😐	🙂	😊	N	Distribution
ALL PARTICIPANTS			5	18	11	43	23	100	
PEDESTRIAN PROFILE	AGE	Teenagers	0	0	0	100	0	5	
		Adults	7.8	15.6	10.9	43.8	21.9	64	
		Seniors	0	25.8	12.9	32.3	29	31	
	GENDER	Men	2.2	15.6	13.3	42.2	26.7	45	
		Women	7.3	20	9.1	43.6	20	55	
		Other	0	0	0	0	0	0	
	ABILITY	None	5.5	9.6	12.3	52.1	20.5	73	
		Moderate	5	25	10	20	40	20	
		Severe	0	85.7	0	14.3	0	7	
	ACTIVITY	< 10’	50	50	0	0	0	2	
		10’ - 60’	1.9	17	15.1	45.3	20.8	53	
		+ 60’	6.7	17.8	6.7	42.2	26.7	45	
WALK CONTEXT	DECISION	Choice	3.6	14.5	7.3	47.3	27.3	55	
		Necessity	7.9	26.3	18.4	26.3	21.1	38	
	PURPOSE	Transport	7.5	16.4	11.9	44.8	19.4	67	
		Leisure	0	24.1	10.3	34.5	31	29	
	COMPANY	Alone	5.1	20.3	11.9	35.6	27.1	59	
		With others	6.3	18.8	6.3	56.3	12.5	32	
	FAMILIARITY	Local	7.2	17.4	7.2	44.9	23.2	69	
		Visitor	0	23.1	23.1	34.6	19.2	26	

Table 13. Experiences related to footpath by pedestrian profile and walk context, in all study areas.

CROSSING			😞	🙁	😐	🙂	😊	N	Distribution
ALL PARTICIPANTS			5.3	18.4	6.6	44.7	25	76	
PEDESTRIAN PROFILE	AGE	Teenagers	0	16.7	0	83.3	0	6	
		Adults	7.7	21.2	7.7	42.3	21.2	52	
		Seniors	0	11.1	5.6	38.9	44.4	18	
	GENDER	Men	0	19.4	2.8	50	27.8	36	
		Women	10	17.5	10	40	22.5	40	
		Other	0	0	0	0	0	0	
	ABILITY	None	3.4	18.6	6.8	52.5	18.6	59	
		Moderate	11.8	17.6	5.9	17.6	47.1	17	
		Severe	0	0	0	0	0	0	
	ACTIVITY	< 10’	100	0	0	0	0	1	
		10’ - 60’	0	15.4	10.3	51.3	23.1	39	
		+ 60’	8.3	22.2	2.8	38.9	27.8	36	
WALK CONTEXT	DECISION	Choice	2.4	16.7	4.8	42.9	33.3	42	
		Necessity	11.5	23.1	11.5	34.6	19.2	26	
	PURPOSE	Transport	5.7	20.8	9.4	43.4	20.8	53	
		Leisure	5	15	0	45	35	20	
	COMPANY	Alone	2.3	23.3	7	34.9	32.6	43	
		With others	11.5	15.4	3.8	57.7	11.5	26	
	FAMILIARITY	Local	7.3	21.8	5.5	43.6	21.8	55	
		Visitor	0	12.5	12.5	37.5	37.5	16	

Table 14. Experiences related to crossing by pedestrian profile and walk context, in all study areas.

FURNITURE								N	Distribution
ALL PARTICIPANTS			3.8	34.6	9.6	36.5	15.4	52	
PEDESTRIAN PROFILE	AGE	Teenagers	0	0	0	0	0	0	
		Adults	0	31.3	12.5	43.8	12.5	32	
		Seniors	10	40	5	25	20	20	
	GENDER	Men	4.8	38.1	9.5	28.6	19	21	
		Women	3.3	30	10	43.3	13.3	30	
		Other	0	100	0	0	0	1	
	ABILITY	None	2.4	36.6	7.3	39	14.6	41	
		Moderate	12.5	25	25	12.5	25	8	
		Severe	0	33.3	0	66.7	0	3	
	ACTIVITY	< 10'	0	100	0	0	0	1	
		10' - 60'	4.3	26.1	17.4	43.5	8.7	23	
		+ 60'	3.6	39.3	3.6	32.1	21.4	28	
WALK CONTEXT	DECISION	Choice	0	33.3	9.1	39.4	18.2	33	
		Necessity	10.5	36.8	10.5	31.6	10.5	19	
	PURPOSE	Transport	3.2	35.5	12.9	41.9	6.5	31	
		Leisure	4.8	33.3	4.8	28.6	28.6	21	
	COMPANY	Alone	5	35	10	35	15	40	
		With others	0	33.3	8.3	41.7	16.7	12	
	FAMILIARITY	Local	0	37.1	11.4	31.4	20	35	
		Visitor	11.8	29.4	5.9	47.1	5.9	17	

Table 15. Experiences related to furniture by pedestrian profile and walk context, in all study areas.

GREENERY								N	Distribution
ALL PARTICIPANTS			0	16.7	7.1	45.2	31	42	
PEDESTRIAN PROFILE	AGE	Teenagers	0	0	0	100	0	3	
		Adults	0	21.4	7.1	42.9	28.6	28	
		Seniors	0	9.1	9.1	36.4	45.5	11	
	GENDER	Men	0	8	8	56	28	25	
		Women	0	29.4	5.9	29.4	35.3	17	
		Other	0	0	0	0	0	0	
	ABILITY	None	0	18.8	9.4	53.1	18.8	32	
		Moderate	0	10	0	20	70	10	
		Severe	0	0	0	0	0	0	
	ACTIVITY	< 10'	0	100	0	0	0	1	
		10' - 60'	0	13	8.7	52.2	26.1	23	
		+ 60'	0	16.7	5.6	38.9	38.9	18	
WALK CONTEXT	DECISION	Choice	0	12	8	44	36	25	
		Necessity	0	28.6	7.1	35.7	28.6	14	
	PURPOSE	Transport	0	17.2	6.9	44.8	31	29	
		Leisure	0	16.7	8.3	41.7	33.3	12	
	COMPANY	Alone	0	24	8	40	28	25	
		With others	0	8.3	8.3	58.3	25	12	
	FAMILIARITY	Local	0	16.7	3.3	46.7	33.3	30	
		Visitor	0	18.2	18.2	36.4	27.3	11	

Table 16. Experiences related to greenery by pedestrian profile and walk context, in all study areas.

OBSTACLES			😞	😕	😐	🙂	😊	N	Distribution
ALL PARTICIPANTS			21.1	78.9	0	0	0	19	
PEDESTRIAN PROFILE	AGE	Teenagers	0	0	0	0	0	0	
		Adults	26.7	73.3	0	0	0	15	
		Seniors	0	100	0	0	0	4	
	GENDER	Men	14.3	85.7	0	0	0	7	
		Women	25	75	0	0	0	12	
		Other	0	0	0	0	0	0	
	ABILITY	None	30.8	69.2	0	0	0	13	
		Moderate	0	100	0	0	0	6	
		Severe	0	0	0	0	0	0	
	ACTIVITY	< 10'	0	100	0	0	0	1	
		10' - 60'	9.1	90.9	0	0	0	11	
		+ 60'	42.9	57.1	0	0	0	7	
WALK CONTEXT	DECISION	Choice	14.3	85.7	0	0	0	7	
		Necessity	25	75	0	0	0	12	
	PURPOSE	Transport	25	75	0	0	0	16	
		Leisure	0	100	0	0	0	3	
	COMPANY	Alone	23.1	76.9	0	0	0	13	
		With others	16.7	83.3	0	0	0	6	
	FAMILIARITY	Local	21.4	78.6	0	0	0	14	
		Visitor	20	80	0	0	0	5	

Table 17. Experiences related to obstacles by pedestrian profile and walk context, in all study areas.

ENV. QUALITY			😞	😕	😐	🙂	😊	N	Distribution
ALL PARTICIPANTS			4.3	36.2	10.1	37.7	11.6	69	
PEDESTRIAN PROFILE	AGE	Teenagers	0	66.7	0	33.3	0	3	
		Adults	4.3	32.6	10.9	41.3	10.9	46	
		Seniors	5	40	10	30	15	20	
	GENDER	Men	0	40.6	6.3	37.5	15.6	32	
		Women	8.1	32.4	13.5	37.8	8.1	37	
		Other	0	0	0	0	0	0	
	ABILITY	None	1.8	35.7	7.1	44.6	10.7	56	
		Moderate	22.2	11.1	33.3	11.1	22.2	9	
		Severe	0	100	0	0	0	4	
	ACTIVITY	< 10'	50	0	0	50	0	2	
		10' - 60'	2.4	43.9	14.6	34.1	4.9	41	
		+ 60'	3.8	26.9	3.8	42.3	23.1	26	
WALK CONTEXT	DECISION	Choice	2.4	31.7	7.3	41.5	17.1	41	
		Necessity	4	44	16	32	4	25	
	PURPOSE	Transport	6.1	32.7	12.2	36.7	12.2	49	
		Leisure	0	45	5	40	10	20	
	COMPANY	Alone	4.4	35.6	13.3	40	6.7	45	
		With others	5.6	38.9	5.6	38.9	11.1	18	
	FAMILIARITY	Local	4.1	40.8	8.2	34.7	12.2	49	
		Visitor	0	23.5	17.6	47.1	11.8	17	

Table 18. Experiences related to environmental quality by pedestrian profile and walk context, in all study areas.

WEATHER PROT.			😞	😕	😐	🙂	😊	N	Distribution
ALL PARTICIPANTS			7.1	42.9	14.3	28.6	7.1	14	
PEDESTRIAN PROFILE	AGE	Teenagers	0	0	100	0	0	1	
		Adults	12.5	50	0	37.5	0	8	
		Seniors	0	40	20	20	20	5	
	GENDER	Men	10	30	20	30	10	10	
		Women	0	75	0	25	0	4	
		Other	0	0	0	0	0	0	
	ABILITY	None	8.3	41.7	16.7	33.3	0	12	
		Moderate	0	50	0	0	50	2	
		Severe	0	0	0	0	0	0	
	ACTIVITY	< 10'	0	0	0	0	100	1	
		10' - 60'	11.1	44.4	22.2	22.2	0	9	
		+ 60'	0	50	0	50	0	4	
WALK CONTEXT	DECISION	Choice	16.7	50	16.7	16.7	0	6	
		Necessity	0	37.5	12.5	37.5	12.5	8	
	PURPOSE	Transport	8.3	50	8.3	33.3	0	12	
		Leisure	0	0	50	0	50	2	
	COMPANY	Alone	7.1	42.9	14.3	28.6	7.1	14	
		With others	0	0	0	0	0	0	
	FAMILIARITY	Local	0	42.9	28.6	28.6	0	7	
		Visitor	14.3	42.9	0	28.6	14.3	7	

Table 19. Experiences related to weather protection by pedestrian profile and walk context, in all study areas.

PEOPLE			😞	😕	😐	🙂	😊	N	Distribution
ALL PARTICIPANTS			7.8	26.6	10.9	34.4	20.3	64	
PEDESTRIAN PROFILE	AGE	Teenagers	0	20	0	80	0	5	
		Adults	12.2	24.4	12.2	31.7	19.5	41	
		Seniors	0	33.3	11.1	27.8	27.8	18	
	GENDER	Men	9.4	21.9	9.4	34.4	25	32	
		Women	6.3	31.3	12.5	34.4	15.6	32	
		Other	0	0	0	0	0	0	
	ABILITY	None	8.3	22.9	10.4	43.8	14.6	48	
		Moderate	7.7	23.1	15.4	7.7	46.2	13	
		Severe	0	100	0	0	0	3	
	ACTIVITY	< 10'	0	100	0	0	0	1	
		10' - 60'	5.7	25.7	14.3	40	14.3	35	
		+ 60'	10.7	25	7.1	28.6	28.6	28	
WALK CONTEXT	DECISION	Choice	3.2	41.9	6.5	22.6	25.8	31	
		Necessity	13.8	13.8	17.2	37.9	17.2	29	
	PURPOSE	Transport	9.1	27.3	4.5	40.9	18.2	44	
		Leisure	5.3	26.3	26.3	21.1	21.1	19	
	COMPANY	Alone	8.1	32.4	10.8	29.7	18.9	37	
		With others	9.1	22.7	13.6	40.9	13.6	22	
	FAMILIARITY	Local	9.1	27.3	11.4	34.1	18.2	44	
		Visitor	6.7	33.3	13.3	20	26.7	15	

Table 20. Experiences related to people by pedestrian profile and walk context, in all study areas.

TRAFFIC								N	Distribution
ALL PARTICIPANTS			10	40	0	30	20	10	
PEDESTRIAN PROFILE	AGE	Teenagers	0	0	0	0	0	0	
		Adults	12.5	37.5	0	25	25	8	
		Seniors	0	50	0	50	0	2	
	GENDER	Men	14.3	28.6	0	28.6	28.6	7	
		Women	0	66.7	0	33.3	0	3	
		Other	0	0	0	0	0	0	
	ABILITY	None	12.5	37.5	0	25	25	8	
		Moderate	0	0	0	0	0	0	
		Severe	0	50	0	50	0	2	
	ACTIVITY	< 10'	0	0	0	100	0	2	
		10' - 60'	0	60	0	20	20	5	
		+ 60'	33.3	33.3	0	0	33.3	3	
WALK CONTEXT	DECISION	Choice	20	80	0	0	0	5	
		Necessity	0	0	0	60	40	5	
	PURPOSE	Transport	12.5	37.5	0	37.5	12.5	8	
		Leisure	0	50	0	0	50	2	
	COMPANY	Alone	14.3	28.6	0	28.6	28.6	7	
		With others	0	66.7	0	33.3	0	3	
	FAMILIARITY	Local	11.1	44.4	0	22.2	22.2	9	
		Visitor	0	0	0	100	0	1	

Table 21. Experiences related to traffic by pedestrian profile and walk context, in all study areas.

INTEREST								N	Distribution
ALL PARTICIPANTS			0	0	20	20	60	5	
PEDESTRIAN PROFILE	AGE	Teenagers	0	0	0	0	0	0	
		Adults	0	0	25	25	50	4	
		Seniors	0	0	0	0	100	1	
	GENDER	Men	0	0	0	50	50	2	
		Women	0	0	33.3	0	66.7	3	
		Other	0	0	0	0	0	0	
	ABILITY	None	0	0	0	0	100	2	
		Moderate	0	0	33.3	33.3	33.3	3	
		Severe	0	0	0	0	0	0	
	ACTIVITY	< 10'	0	0	0	0	0	0	
		10' - 60'	0	0	50	0	50	2	
		+ 60'	0	0	0	33.3	66.7	3	
WALK CONTEXT	DECISION	Choice	0	0	20	20	60	5	
		Necessity	0	0	0	0	0	0	
	PURPOSE	Transport	0	0	25	25	50	4	
		Leisure	0	0	0	0	100	1	
	COMPANY	Alone	0	0	20	20	60	5	
		With others	0	0	0	0	0	0	
	FAMILIARITY	Local	0	0	50	0	50	2	
		Visitor	0	0	0	33.3	66.7	3	

Table 22. Experiences related to interest by pedestrian profile and walk context, in all study areas.

INCLUSION								N	Distribution
ALL PARTICIPANTS			5.1	12.8	0	48.7	33.3	39	
PEDESTRIAN PROFILE	AGE	Teenagers	0	0	0	100	0	5	
		Adults	7.4	11.1	0	44.4	37	27	
		Seniors	0	28.6	0	28.6	42.9	7	
	GENDER	Men	0	7.7	0	46.2	46.2	13	
		Women	7.7	15.4	0	50	26.9	26	
		Other	0	0	0	0	0	0	
	ABILITY	None	3.6	10.7	0	57.1	28.6	28	
		Moderate	12.5	0	0	25	62.5	8	
		Severe	0	66.7	0	33.3	0	3	
	ACTIVITY	< 10'	0	0	0	0	0	0	
		10' - 60'	0	5.3	0	63.2	31.6	19	
		+ 60'	10	20	0	35	35	20	
WALK CONTEXT	DECISION	Choice	10	15	0	35	40	20	
		Necessity	0	13.3	0	53.3	33.3	15	
	PURPOSE	Transport	0	4.8	0	61.9	33.3	21	
		Leisure	12.5	25	0	31.3	31.3	16	
	COMPANY	Alone	5	15	0	30	50	20	
		With others	6.7	13.3	0	73.3	6.7	15	
	FAMILIARITY	Local	4	12	0	52	32	25	
		Visitor	11.1	22.2	0	22.2	44.4	9	

Table 23. Experiences related to inclusion by pedestrian profile and walk context, in all study areas.

3. Analysis of individual study areas

The five study areas presented slightly different shared of walking experiences and list of relevant determinants related to them. This section presents the same walkability outcomes previously explained for each individual study area.

Study areas	Overall walking experiences	Main determinants	
		Negative	Positive
Ulm Main Station & Tram and Bus Stop		Footpath Crossing Furniture	Footpath Furniture Inclusion
Neu-Ulm Station & Central Bus Stop		People Environmental quality Furniture	Footpath Greenery Crossing
Senden Station & Bus Stop		Environmental quality Footpath Furniture	Footpath Crossing Greenery
Böfingen Bus Stop & Tram and Bus Stop Egertweg		Obstacles Footpath Crossing	Greenery Footpath Furniture
Tomerdingen Martinusstraße Bus Stop		Footpath Environmental quality Crossing	Furniture Greenery Footpath

Table 24. Walking experiences and relevant determinants in all study areas.

3.1. Ulm Main Station & Tram and Bus Stop

Figure 7. Ulm Main Station & Tram and Bus Stop.

Data was collected between 21/10/2024 and 24/10/2024 in Ulm Main Station & Tram and Bus Stop. A total of 86 interviewed participants shared 86 walking experiences related to 133 environmental determinants. In addition, three trained surveyors shared 14 walking experiences related to 19 determinants. In total, the study collected 100 walking experiences related to 152 environmental determinants.

Who walks, why and how?

From the **86 pedestrians interviewed**, most were adults (83.7%), followed by older adults (14%) and teenagers (2.3%). In addition, 59.3% were women and 39.5% men. Regarding their ability, most participants did not have any difficulty to move or interact with the environment (77.9%), while some had mild or moderate difficulty (16.3%) and a few had severe or extreme difficulty (5.9%). Finally, most participants were active pedestrians (50%) followed by very active (46.5%) and a small proportion of inactive ones (3.5%).

Based on **their walk context**, 51.2% of participants were walking by choice while 47.7% did it out of necessity. With regards to the walk purpose, 60.5% participants walked for transport, while 39.5% for leisure. Most participants were walking on their own (72.1%) compared to those walking with others (27.9%). Finally, most participants were familiar with the place (59.3%), while others were not (40.7%).

Which were the main walking experiences?

From the **100 walking experiences** collected from interviews and audits, most experiences were negative (41%), followed by positive (26%), neutral (15%), very positive (12%) and very negative (6%).Overall, negative and very negative experiences (47%) outnumbered positive and very positive ones (38%). When participants were asked to highlight one or more types of experiences, most

referred to walking **comfort** (66%), with slightly more uncomfortable and very uncomfortable experiences (45.5%) than comfortable and very comfortable ones (42.8%) Secondly, 30% of experiences were related to **safety**, with as many safe and very safe experiences (43.3%) than unsafe and very unsafe ones (43.3%). Finally, walking **enjoyment** was the least frequent type of experience shared by participants (29%), with more unenjoyable and very unenjoyable (55.2%) than enjoyable and very enjoyable ones (34.4%).

What influenced walking experiences?

From the **152 environmental determinants** that influenced **walking experiences** in this study, the most frequent was *footpath*, included in 17.1% of all observations, followed by *environmental quality* (12.6%), *street furniture* (12.5%), *crossings* (11.9%), and *inclusion* (9.8%).Participants related these determinants, and the other ones included in the study, to both **positive and negative experiences**. Overall, most determinants were related to more positive experiences, especially *interest and inclusion*. With the exception of *obstacles, people and traffic* which were related to more negative experiences. Finally, *environmental quality and greenery* were related to as many positive as negative ones. The most relevant determinants related to positive and very positive experiences were good *footpath* (7.2%), *environmental quality* (6%) and good *street furniture* (5.9%), while most negative and very negative experiences were related to bad *footpath* (6.6%), bad *crossings* (6%), bad *street furniture* (4.6%) and obstacles (4.6%).

Regarding **safety**, the most relevant determinants influencing safe and very safe experiences were *inclusion* (14.2%), good *footpath* (10.7%) and *good crossings* (8.9%), while most unsafe and very unsafe experiences were related to bad *footpath* (8.9%), followed by *bad crossings, obstacles, traffic and people* (all with 5.4%). Similarly for **comfort**, the most relevant determinants influencing comfortable and very comfortable experiences were good *footpath* (9.2%), good *street furniture* (8.3%) and environmental quality (8.3%), while most uncomfortable and very uncomfortable experiences were related to bad *footpath* (7.4%), poor *inclusion* (5.6%) and obstacles (5.5%). Finally for **enjoyment**, the most relevant determinants related to enjoyable and very enjoyable experiences were good *footpath*, *crossings and street furniture* (all with 8.5%), while most unenjoyable and very unenjoyable experiences were related to poor *environmental quality* (14.9%), *bad crossings* (4.3%) and lack of *greenery* (4.3%).

Do different people have different experiences for different reasons?

Generally, not all participants shared the same type of experience or identified the same determinants in the same place. For this reason, the overall main types of experiences and their most relevant determinants can be filtered and reanalysed by the type of pedestrian or their walk context. The outcomes on how different people and walk contexts resulted in different experiences and relevant environmental determinants included all observations from all study areas to maintain a representative sample. This information is included in Section 2. Overall analysis for all study areas.

What to fix, improve and expand.

Different walking experiences by participants helped identify areas with better and worse walkability and their main reasons. There are positive, neutral and negative experiences all across the study area, which implies that it presents a mix of good, adequate and bad walkability, often related to common determinants. Positive (26%) and very positive (12%) experiences were mainly related to good footpath, street furniture, inclusion, good environmental quality and crossings. These were the determinants that most people praised when sharing safe, comfortable and enjoyable experiences. Areas with this type of positive experiences and quality should be expanded and promoted. On the

other hand, participants shared many negative (41%) and very negative (6%) experiences related to bad footpath, crossings, street furniture obstacles and poor environmental quality. In order to reduce future negative experiences, these issues should be prioritised and fixed, replicating or implementing similar quality elements from the areas with more positive experiences. Finally, places with neutral experiences (13.3%) can be considered "just adequate" environments. While they do not present a priority to fix, small improvements in their most common determinants, such as footpath, street furniture and environmental quality may enable more positive and very positive experiences.

3.1.1. Location of study area and observations

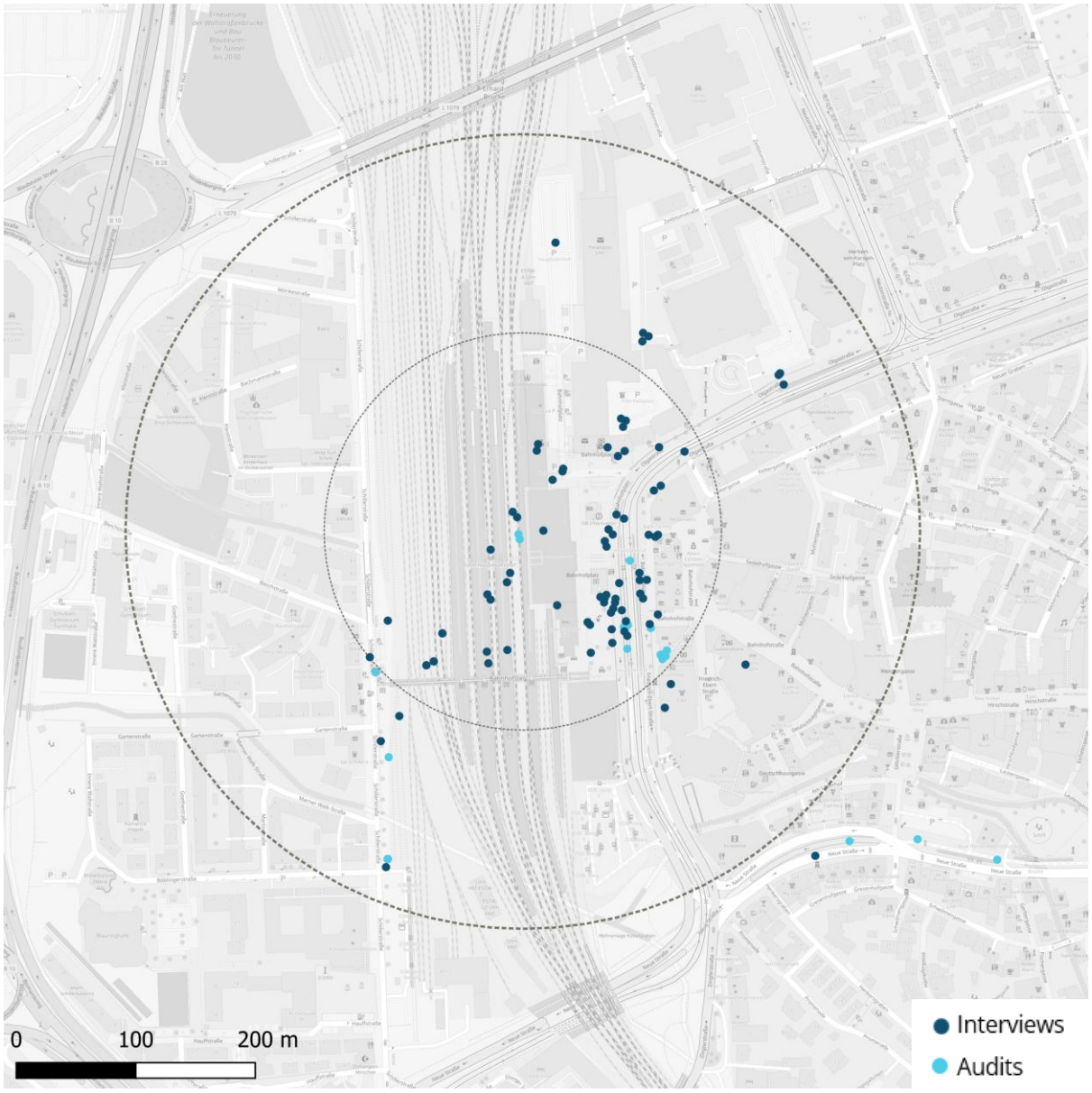


Figure 8. Observations from interviews and audits in Ulm Main Station & Tram and Bus Stop.

3.1.2. Data collected

Period	21/10/2024 - 24/10/2024	
Timeframe	08:40 - 13:39	
Interviews	Participants	86
	Experiences	86
	Determinants	133
Audits	Experts	3
	Experiences	14
	Determinants	19
Total	Experiences	**100**
	Determinants	**152**

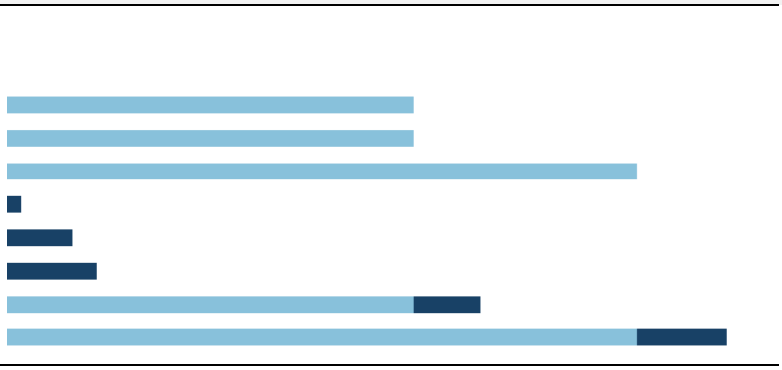


Table 25. Data collected in Ulm Main Station & Tram and Bus Stop.

3.1.3 Pedestrian profile

Variable	Category	N	%	Distribution	N=86
AGE	Teenagers (16-17)	2	2.3		
	Adults (18-65)	72	83.7		
	Older people (>65)	12	14		
GENDER	Man	34	39.5		
	Woman	51	59.3		
	Other / No answer	1	1.2		
ABILITY (difficulty to move)	None	67	77.9		
	Mild or moderate	14	16.3		
	Severe or extrerme	5	5.9		
ACTIVITY (mins/day)	Less than 10 min	3	3.5		
	10 - 60 mins	43	50		
	More than 60 min	40	46.5		

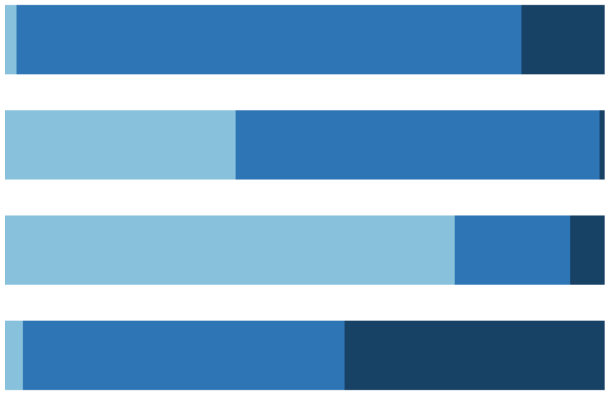


Table 26. Pedestrian profile in Ulm Main Station & Tram and Bus Stop.

3.1.4. Walk context

Variable	Category	N	%	Distribution	N=86
DECISION	Choice	44	51.2		
	Necessity	41	47.7		
	Other	1	1.2		
PURPOSE	Transport	52	60.5		
	Leisure	34	39.5		
	Other	0	0		
COMPANY	Alone	62	72.1		
	Accompanied	24	27.9		
	Other	0	0		
FAMILIARITY	Local	51	59.3		
	Visitor	35	40.7		
	Other	0	0		

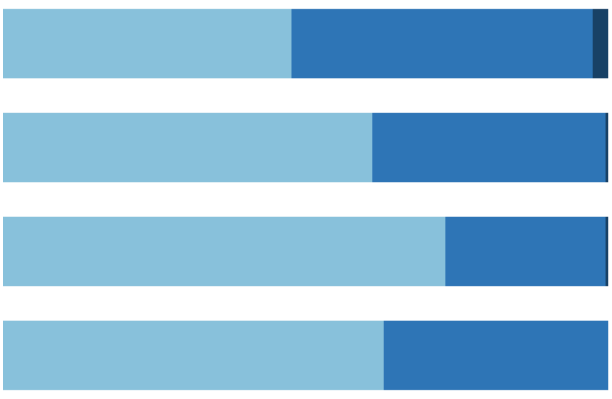


Table 27. Walk context in Ulm Main Station & Tram and Bus Stop.

3.1.5. Walking experiences

EXPERIENCE	N	%
Very positive	12	12
Positive	26	26
Neutral	15	15
Negative	41	41
Very negative	6	6
TOTAL	100	100

TOP-5 determinants related to experience

Negative	Positive
Footpath	Footpath
Crossing	Furniture
Furniture	Inclusion
Obstacles	Environmental quality
Environmental quality	Crossing

Table 28. Walking experiences and top 5 determinants related to them, in Ulm Main Station & Tram and Bus Stop.

SAFETY	N	%
Very safe	6	20
Safe	7	23.3
Neutral	4	13.3
Unsafe	10	33.3
Very unsafe	3	10
TOTAL	30	100

TOP-5 determinants related to safety

Unsafe	Safe
Footpath	Inclusion
Crossing	Footpath
Obstacles	Crossing
People	Furniture
Traffic	Environmental quality

Table 29. Safety experiences and top 5 determinants, in Ulm Main Station & Tram and Bus Stop.

COMFORT	N	%
Very comfortable	9	13.6
Comfortable	19	28.8
Neutral	8	12.1
Uncomfortable	25	37.9
Very uncomfortable	5	7.6
TOTAL	66	100

TOP-5 determinants related to comfort

Uncomfortable	Comfortable
Footpath	Footpath
Inclusion	Furniture
Obstacles	Environmental quality
Other	Crossing
Furniture	Inclusion

Table 30. Comfort experiences and top 5 determinants, in Ulm Main Station & Tram and Bus Stop.

ENJOYMENT	N	%
Very enjoyable	7	24.1
Enjoyable	3	10.3
Neutral	3	10.3
Unenjoyable	14	48.3
Very unenjoyable	2	6.9
TOTAL	29	100

TOP-5 determinants related to enjoyment

Unenjoyable	Enjoyable
Environmental quality	Furniture
Crossing	Footpath
Greenery	Crossing
Other	Inclusion
Footpath	People

Table 31. Enjoyment experiences and top 5 determinants, in Ulm Main Station & Tram and Bus Stop.

Figure 9. Share of positive and negative experiences and most frequent types, in Ulm Main Station & Tram and Bus Stop.

3.1.6. Most frequent determinants by experience

Experience	Determinant	n	%	Distribution	N=152
Very Positive	Footpath	5	3.3		
	Crossing	5	3.3		
	Furniture	4	2.6		
	Inclusion	4	2.6		
	Interest	2	1.3		
	Greenery	1	0.7		
	Environmental quality	1	0.7		
	Traffic	1	0.7		
	Obstacles	0	0		
	Weather protection	0	0		
	People	0	0		
	Other	0	0		
Postive	Environmental quality	8	5.3		
	Footpath	6	3.9		
	Furniture	5	3.3		
	Inclusion	5	3.3		
	People	3	2		
	Other	3	2		
	Crossing	2	1.3		
	Greenery	2	1.3		
	Weather protection	2	1.3		
	Traffic	2	1.3		
	Interest	1	0.7		
	Obstacles	0	0		
Neutral	Footpath	5	3.3		
	Furniture	3	2		
	Environmental quality	3	2		
	People	3	2		
	Other	3	2		
	Crossing	2	1.3		
	Greenery	2	1.3		
	Weather protection	1	0.7		
	Interest	1	0.7		
	Obstacles	0	0		
	Traffic	0	0		
	Inclusion	0	0		
Negative	Footpath	9	5.9		
	Crossing	8	5.3		
	Furniture	6	3.9		
	Environmental quality	6	3.9		
	Greenery	5	3.3		
	Obstacles	5	3.3		
	Other	5	3.3		
	People	4	2.6		
	Inclusion	4	2.6		
	Traffic	3	2		
	Weather protection	1	0.7		
	Interest	0	0		
Very negative	Obstacles	2	1.3		
	Inclusion	2	1.3		
	Footpath	1	0.7		
	Crossing	1	0.7		
	Furniture	1	0.7		
	Environmental quality	1	0.7		
	People	1	0.7		
	Traffic	1	0.7		
	Other	1	0.7		
	Greenery	0	0		
	Weather protection	0	0		
	Interest	0	0		

Table 32. Most frequent determinants by type of experience, in Ulm Main Station & Tram and Bus Stop.

3.1.7. Positive and negative experiences by determinant

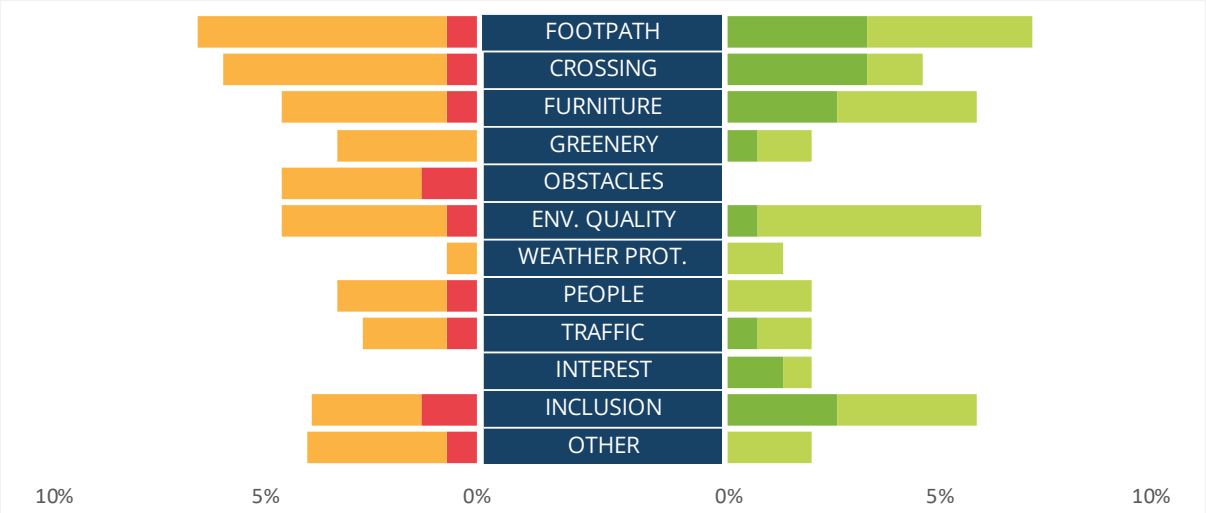


Figure 10. Positive and negative experiences by determinant, in Ulm Main Station & Tram and Bus Stop.

3.1.8. Determinants by frequency and negative-positive experiences

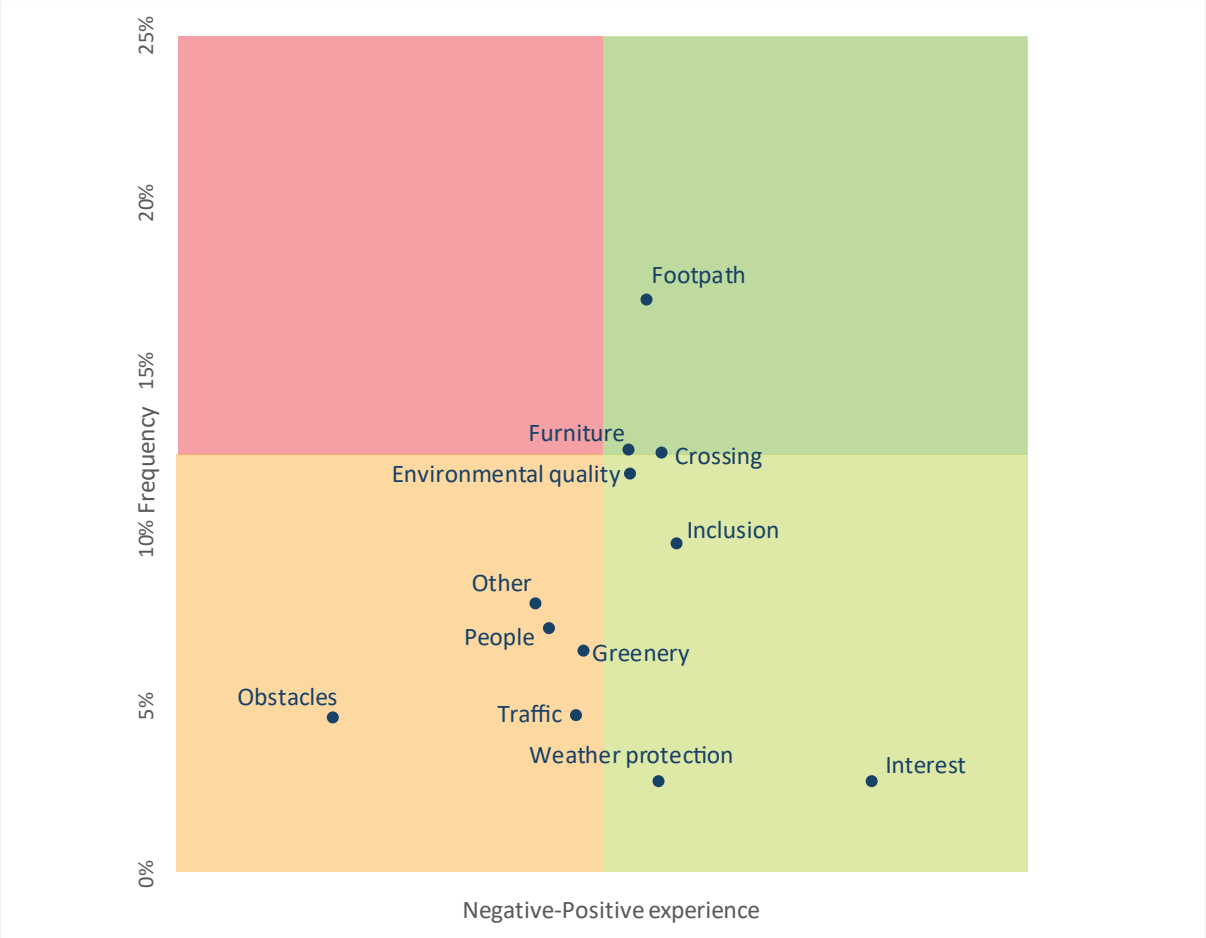


Figure 11. Determinants by frequency and negative-positive experiences, in Ulm Main Station & Tram and Bus Stop.

3.1.9. Positive and negative experiences by subcategory of determinants

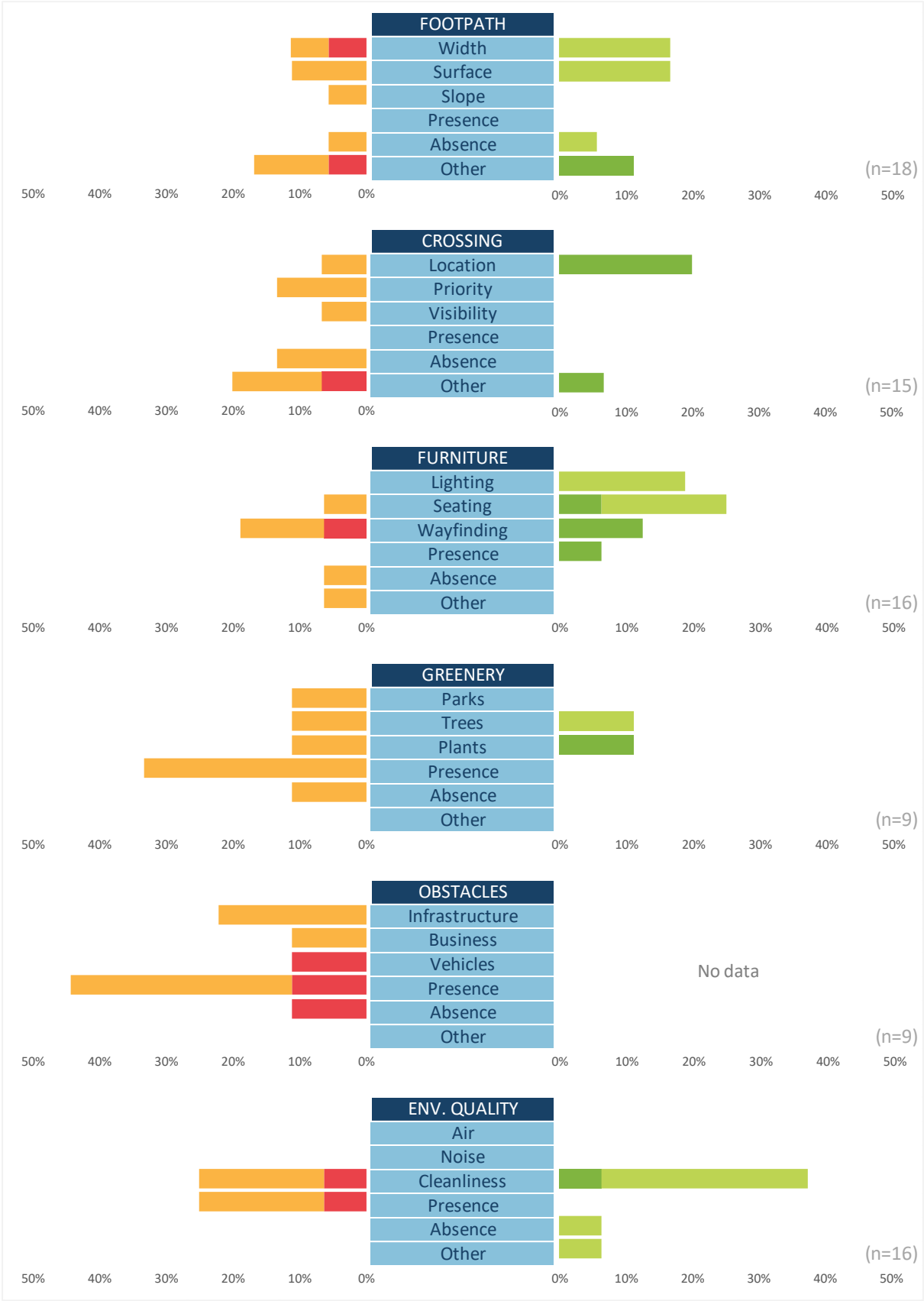


Figure 12. Positive and negative experiences related to subcategories of footpath, crossing, furniture, greenery and obstacles, in Ulm Main Station & Tram and Bus Stop.

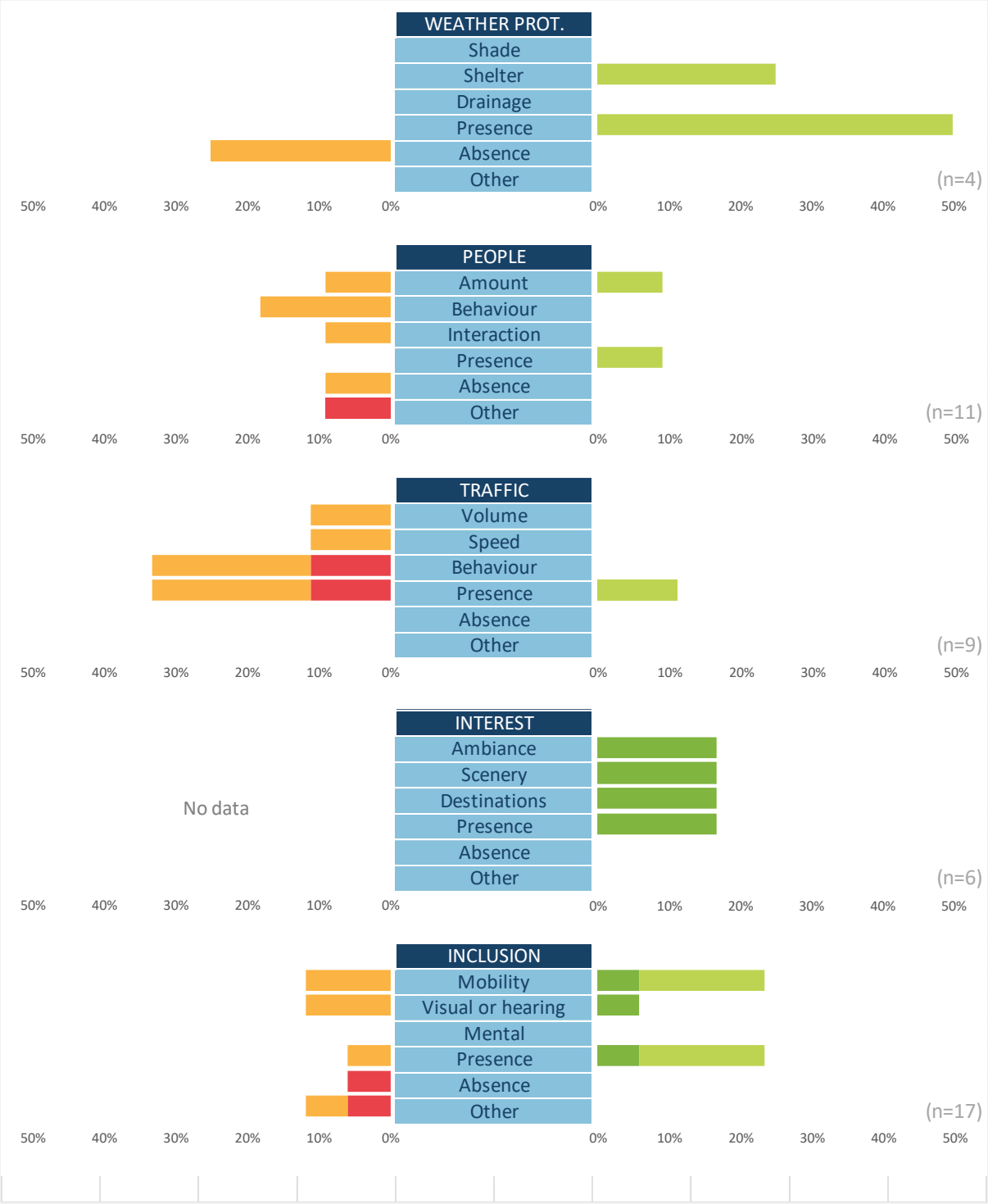


Figure 13. Positive and negative experiences related to subcategories of weather protection, people, traffic, interest and inclusion, in Ulm Main Station & Tram and Bus Stop.

3.1.10. Location of walking experiences

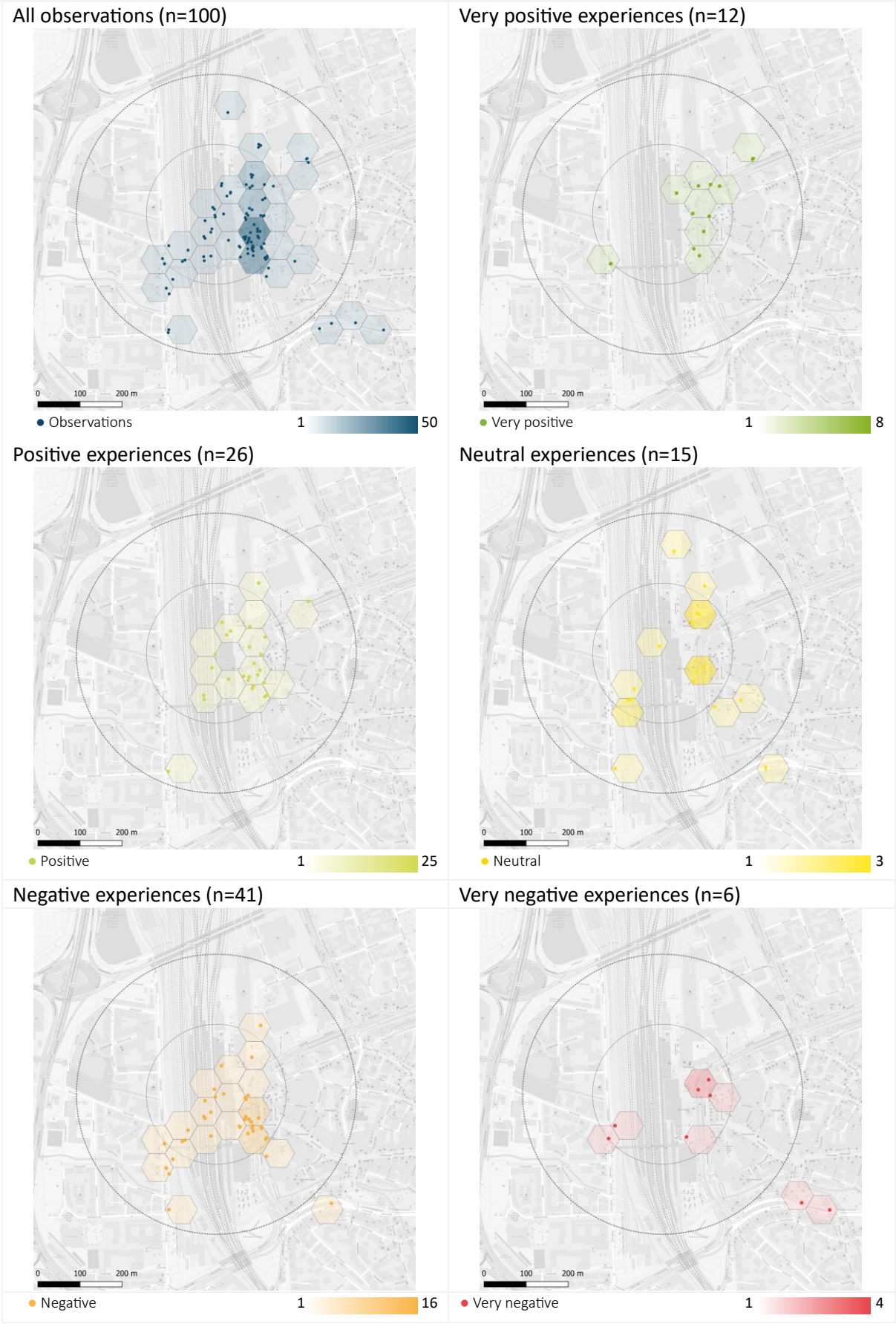


Figure 14. Location of observations and different experiences, in Ulm Main Station & Tram and Bus Stop.

Location of all types of experiences (n=100) and overall perceived walkability.

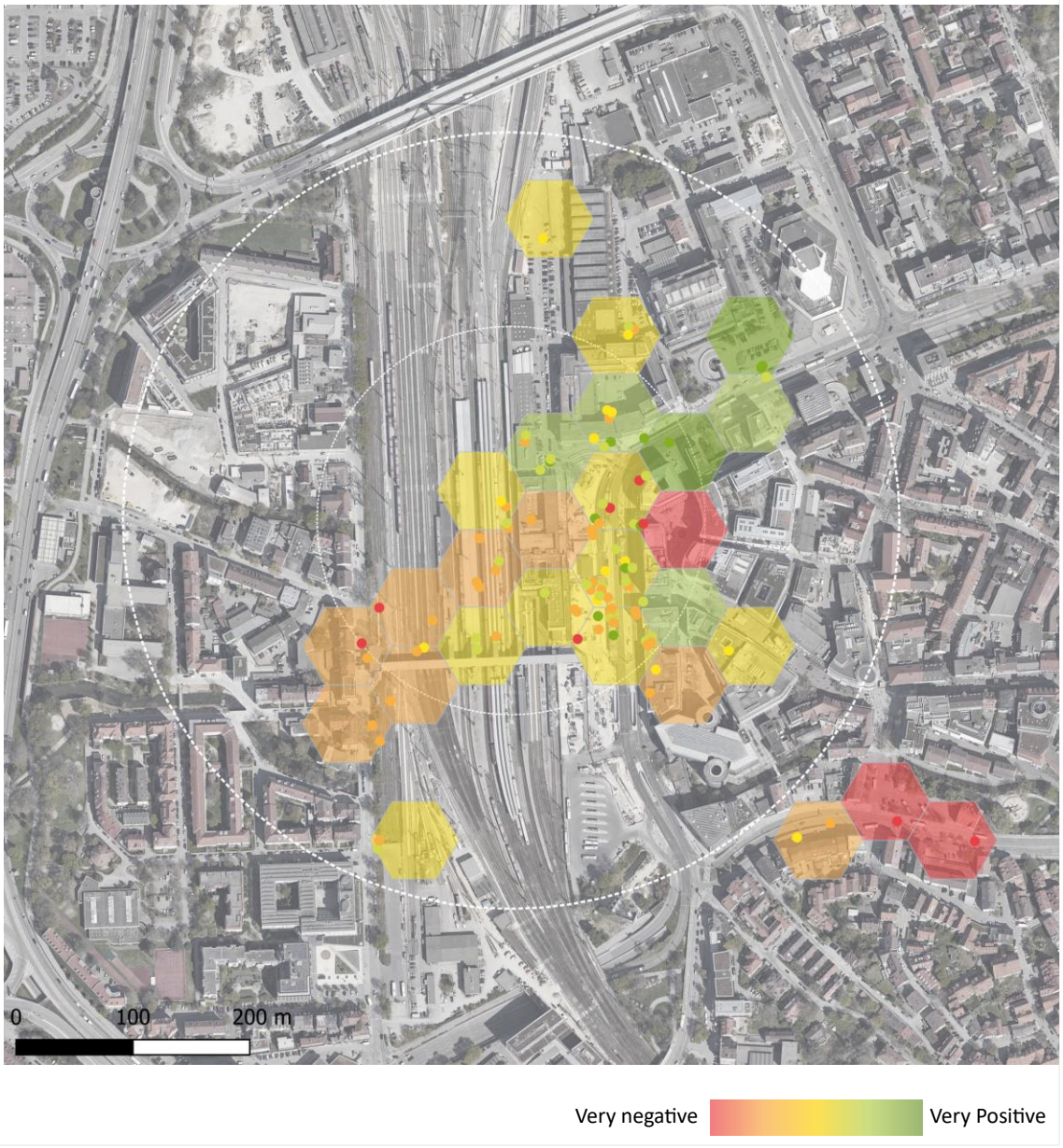


Figure 15. Location of all types of experiences and overall perceived walkability., in Ulm Main Station & Tram and Bus Stop.

3.1.11. Images and comments from participants

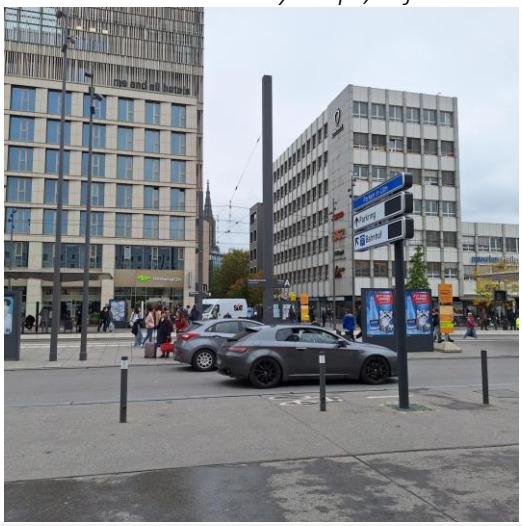
Very Positive. Comfortable and enjoyable	Negative experience. Unenjoyable
"Station looks nice and tidy, easy to navigate"  Man, 43	*"Pedestrians need to wait at traffic light at least twice, mostly three times"*  Expert audit
Very positive. Enjoyable	**Negative experience. Unenjoyable**
"Station is at the entrance of the main pedestrian zone with many shops, cafes etc."  Expert audit	*"Missing Greenery at the station and in the city"*  Woman, 80

Figure 16. Images from the study area with comments from participants, in Ulm Main Station & Tram and Bus Stop.

3.2. Neu-Ulm Station & Central Bus Stop

Figure 17. Neu-Ulm Station & Central Bus Stop.

Data was collected between 03/10/2024 and 23/10/2024 in Neu-Ulm Station & Central Bus Stop. A total of 66 interviewed participants shared 66 walking experiences related to 138 environmental determinants. In addition, three trained surveyors shared 33 walking experiences related to 53 determinants. In total, the study collected 99 walking experiences related to 191 determinants.

Who walks, why and how?

From the **66 pedestrians interviewed**, most were adults (74.2%), followed by older adults (19.7%) and teenagers (6.1%). In addition, 77.3% were men and 22.7% women. Regarding their ability, most participants did not have any difficulty to move or interact with the environment (80.3%), while some had mild or moderate difficulty (19.7%). Finally, most participants were active pedestrians (68.2%) followed by very active (31.8%).

Based on **their walk context**, 53% of participants were walking by choice while 40.9% did it out of necessity. With regards to the walk purpose, 66.3% participants walked for transport, while 33.3% for leisure. Most participants were walking on their own (71.2%) compared to those walking with others (21.2%). Finally, most participants were familiar with the place (56.1%), while others were not (39.4%).

Which were the main walking experiences?

From the **99 walking experiences** collected from interviews and audits, most experiences were positive (47.5%), followed by negative (19.2%), very positive (18.2%), neutral (11.1%) and very negative

(4%). Overall, positive and very positive experiences (65.7%) clearly outnumbered negative and very negative ones (23.2%)

When participants were asked to highlight one or more types of experiences, most referred to walking **comfort** (44.4%), with more comfortable and very comfortable experiences (61.3%) than uncomfortable and very uncomfortable ones (25%) Secondly, 40% of experiences were related to **enjoyment**, with more enjoyable and very enjoyable experiences (70%) than unenjoyable and very unenjoyable ones (25%). Finally, walking **safety** was the least frequent type of experience shared by participants (32%), with more safe and very safe (65.6%) than unsafe and very unsafe ones (25%).

What influenced walking experiences?

From the **191 environmental determinants** that influenced **walking experiences** in this study, the most frequent was *footpath*, included in 16.2% of all observations, followed by *people* (14.6%), *greenery* (13.6%), *crossings* (13.1%), and *environmental quality* (11.5%).Participants related these determinants, and the other ones included in the study, to both **positive and negative experiences**. Overall, most determinants were related to more positive experiences, especially *interest, inclusion* and *greenery*. With the exception of *obstacles,* which were related to more negative experiences. The most relevant determinants related to positive and very positive experiences were good *footpath* (15.2%), *greenery* (13.1%) and good crossings (12.1%), while most negative and very negative experiences were related to people (4.7%), poor environmental quality (3.1%), and bad *street furniture* (2.6%).

Regarding **safety**, the most relevant determinants influencing safe and very safe experiences were *good crossings* (20%), good *footpath* (19.1%) and *people* (14.3%), while most unsafe and very unsafe experiences were related to *people* (6.7%), followed by *poor environmental quality* (1.9%) and bad *street furniture* (1%). Similarly for **comfort**, the most relevant determinants influencing comfortable and very comfortable experiences were good *footpath* (19.3%), good *crossings* (16%) and *greenery* (12.6%), while most uncomfortable and very uncomfortable experiences were related to bad *street furniture* (3.4%)*, poor environmental quality* (3.3%) *and people* (3.3%). Finally for **enjoyment**, the most relevant determinants related to enjoyable and very enjoyable experiences were *greenery* (20.9%), good *street furniture* (18.8%) and good *footpath* (8.4%), while most unenjoyable and very unenjoyable experiences were related to poor *environmental quality* (8.5%), *people* (6.4%) and *obstacles* (4.3%).

Do different people have different experiences for different reasons?

Generally, not all participants shared the same type of experience or identified the same determinants in the same place. For this reason, the overall main types of experiences and their most relevant determinants can be filtered and reanalysed by the type of pedestrian or their walk context. The outcomes on how different people and walk contexts resulted in different experiences and relevant environmental determinants included all observations from all study areas to maintain a representative sample. This information is included in Section 2. Overall analysis for all study areas.

What to fix, improve and expand.

Different walking experiences by participants and experts helped identify areas with better and worse walkability and their main reasons. There are positive, neutral and negative experiences all across the study area, which implies that it presents a mix of good, adequate and bad walkability, often related to common determinants. Positive (47.5%) and very positive (18.2%) experiences were mainly related to good footpath, greenery, good crossings, people and street furniture. These were the determinants that most people praised when sharing safe, comfortable and enjoyable experiences. Areas with this

type of positive experiences and quality should be expanded and promoted. On the other hand, participants shared some negative (19.2%) and few very negative (4%) experiences related to people misbehaving, poor environmental quality, bad street furniture and lack of greenery. In order to reduce future negative experiences, these issues should be prioritised and fixed, replicating or implementing similar quality elements from the areas with more positive experiences. Finally, places with neutral experiences (11.1%) can be considered "just adequate" environments. While they do not present a priority to fix, small improvements in their most common determinants, such as footpath, crossings and street furniture may enable more positive and very positive experiences.

3.2.1. Location of study area and observations

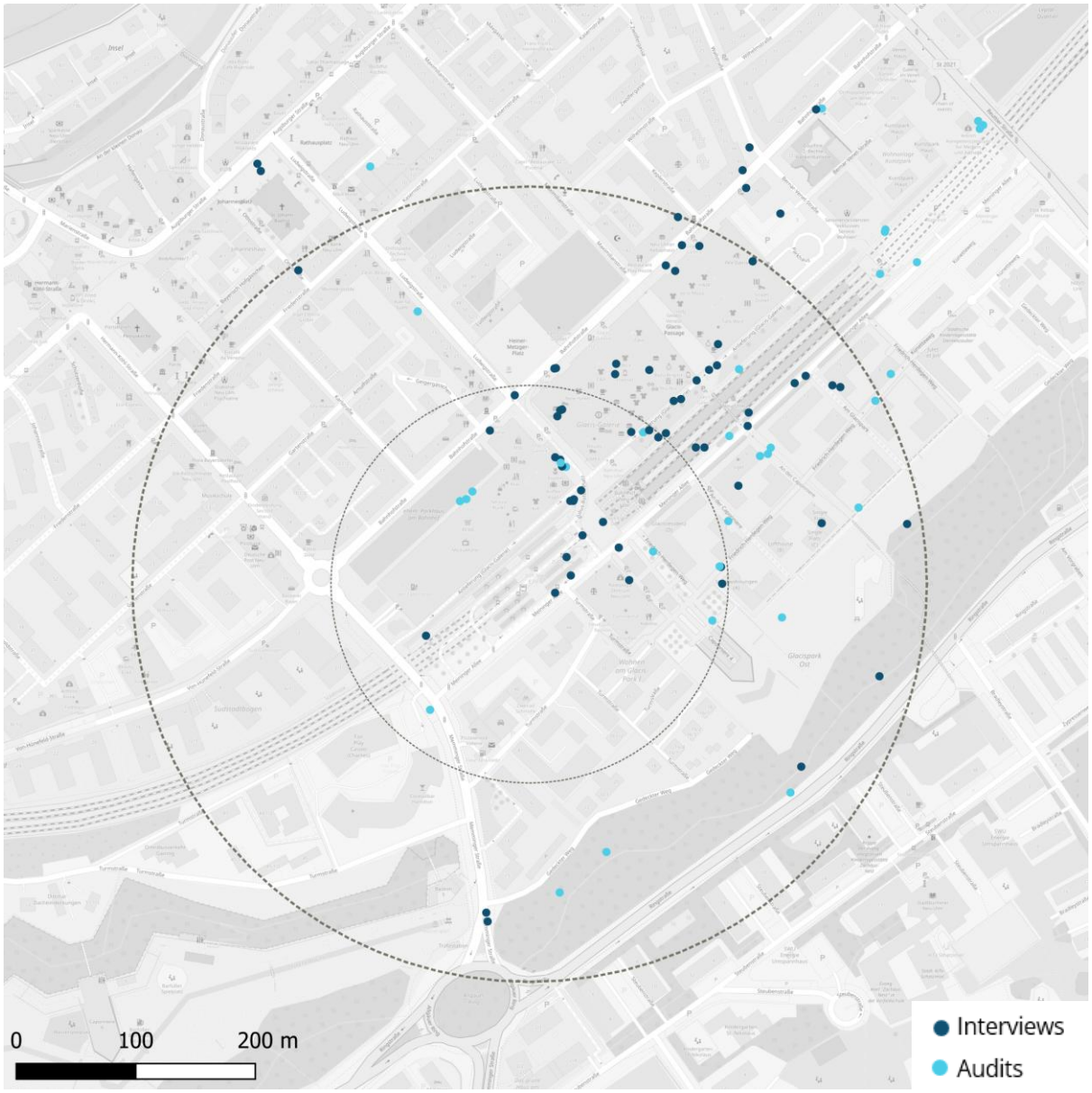


Figure 18. Observations from interviews and audits in *Neu-Ulm Station & Central Bus Stop.*

3.2.2. Data collected

Period	03/10/2024-23/10/2024	
Timeframe	08:53 - 12:42	
Interviews	Participants	66
	Experiences	66
	Determinants	138
Audits	Experts	3
	Experiences	33
	Determinants	53
Total	Experiences	**99**
	Determinants	**191**

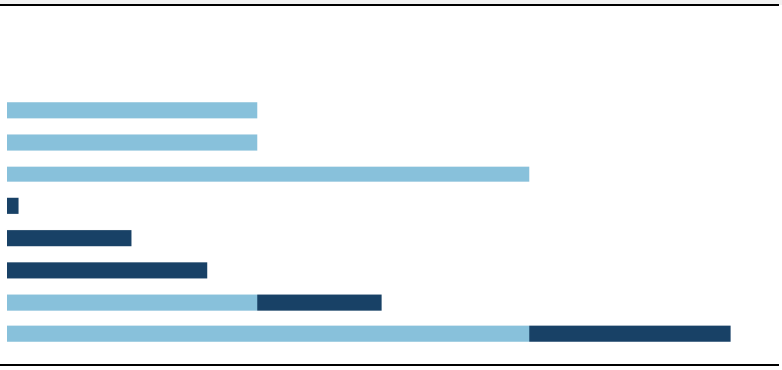


Table 33. Data collected in Neu-Ulm Station & Central Bus Stop.

3.2.3. Pedestrian profile

Variable	Category	N	%	Distribution	N=66
AGE	Teenagers (16-17)	4	6.1		
	Adults (18-65)	49	74.2		
	Older people (>65)	13	19.7		
GENDER	Man	51	77.3		
	Woman	15	22.7		
	Other / No answer	0	0		
ABILITY (difficulty to move)	None	53	80.3		
	Mild or moderate	13	19.7		
	Severe or extrerme	0	0		
ACTIVITY (mins/day)	Less than 10 min	0	0		
	10 - 60 mins	45	68.2		
	More than 60 min	21	31.8		

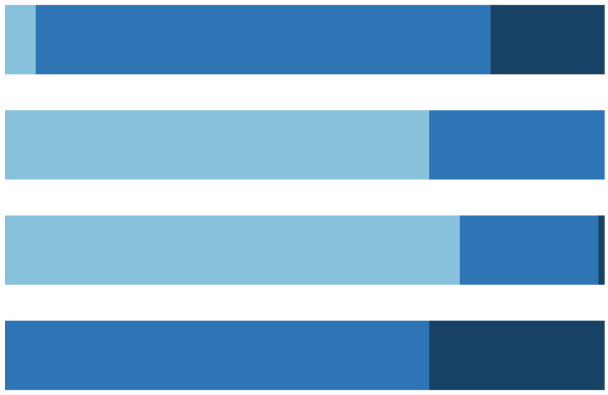


Table 34. Pedestrian profile in Neu-Ulm Station & Central Bus Stop.

3.2.4. Walk context

Variable	Category	N	%	Distribution	N=66
DECISION	Choice	35	53		
	Necessity	27	40.9		
	Other	4	6.1		
PURPOSE	Transport	42	63.6		
	Leisure	22	33.3		
	Other	2	3		
COMPANY	Alone	47	71.2		
	Accompanied	14	21.2		
	Other	5	7.6		
FAMILIARITY	Local	37	56.1		
	Visitor	26	39.4		
	Other	3	4.5		

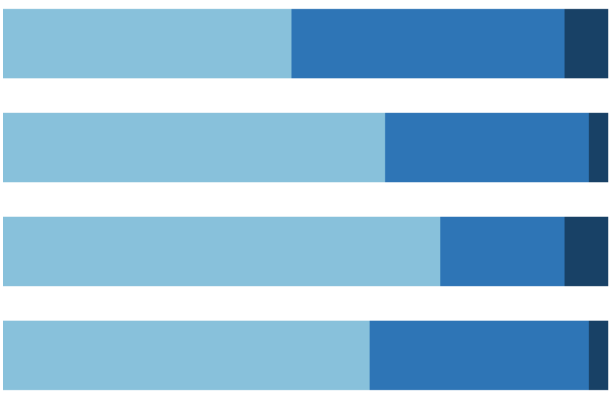


Table 35. Walk context in Neu-Ulm Station & Central Bus Stop.

3.2.5. Walking experiences

EXPERIENCE	N	%
Very positive	18	18.2
Positive	47	47.5
Neutral	11	11.1
Negative	19	19.2
Very negative	4	4
TOTAL	99	100

TOP-5 determinants related to experience

Negative	Positive
People	Footpath
Environmental quality	Greenery
Furniture	Crossing
Obstacles	People
Footpath	Furniture

Table 36. Walking experiences and top 5 determinants related to them, in Neu-Ulm Station & Central Bus Stop.

SAFETY	N	%
Very safe	8	25
Safe	13	40.6
Neutral	3	9.4
Unsafe	5	15.6
Very unsafe	3	9.4
TOTAL	32	100

TOP-5 determinants related to safety

Unsafe	Safe
People	Crossing
Environmental quality	Footpath
Furniture	People
Other	Greenery
Footpath	Inclusion

Table 37. Safety and top 5 determinants related to them, in Neu-Ulm Station & Central Bus Stop.

COMFORT	N	%
Very comfortable	6	13.6
Comfortable	21	47.7
Neutral	6	13.6
Uncomfortable	9	20.5
Very uncomfortable	2	4.5
TOTAL	44	100

TOP-5 determinants related to comfort

Uncomfortable	Comfortable
Environmental quality	Footpath
Furniture	Crossing
People	Greenery
Footpath	People
Crossing	Environmental quality

Table 38. Comforts and top 5 determinants related to them, in Neu-Ulm Station & Central Bus Stop.

ENJOYMENT	N	%
Very enjoyable	9	22.5
Enjoyable	19	47.5
Neutral	2	5
Unenjoyable	10	25
Very unenjoyable	0	0
TOTAL	40	100

TOP-5 determinants related to enjoyment

Unenjoyable	Enjoyable
Environmental quality	Greenery
People	Furniture
Obstacles	Footpath
Furniture	Environmental quality
Greenery	Interest

Table 39. Enjoyment and top 5 determinants related to them, in Neu-Ulm Station & Central Bus Stop.

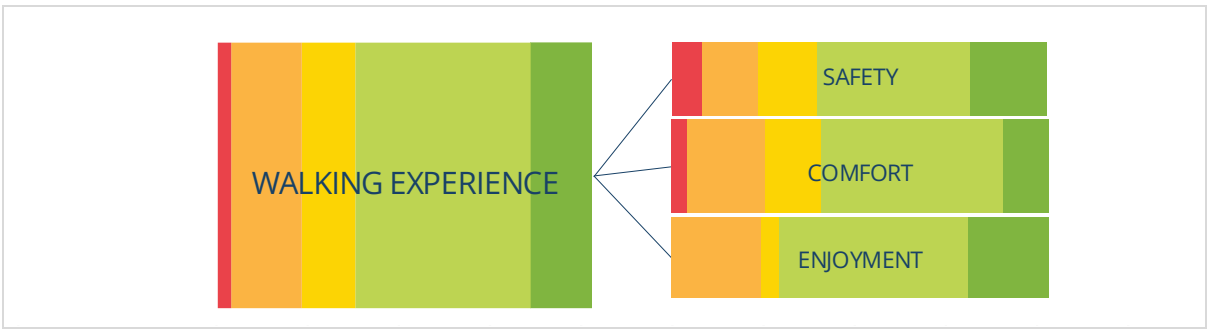


Figure 19. Share of positive and negative experiences and most frequent types, in Neu-Ulm & Central Bus Stop.

3.2.6. Most frequent determinants by experience

Experience	Determinant	n	%	Distribution	N=191
Very Positive	Greenery	10	5.2		
	Footpath	9	4.7		
	Crossing	8	4.2		
	People	7	3.7		
	Inclusion	5	2.6		
	Furniture	4	2.1		
	Environmental quality	4	2.1		
	Interest	3	1.6		
	Obstacles	0	0		
	Weather protection	0	0		
	Traffic	0	0		
	Other	0	0		
Postive	Footpath	20	10.5		
	Crossing	15	7.9		
	Greenery	15	7.9		
	Furniture	11	5.8		
	Environmental quality	11	5.8		
	People	10	5.2		
	Other	10	5.2		
	Inclusion	5	2.6		
	Weather protection	4	2.1		
	Traffic	1	0.5		
	Interest	1	0.5		
	Obstacles	0	0		
Neutral	Other	4	2.1		
	People	2	1		
	Footpath	1	0.5		
	Crossing	1	0.5		
	Furniture	1	0.5		
	Environmental quality	1	0.5		
	Weather protection	1	0.5		
	Greenery	0	0		
	Obstacles	0	0		
	Traffic	0	0		
	Interest	0	0		
	Inclusion	0	0		
Negative	Environmental quality	6	3.1		
	People	6	3.1		
	Furniture	4	2.1		
	Obstacles	2	1		
	Footpath	1	0.5		
	Crossing	1	0.5		
	Greenery	1	0.5		
	Weather protection	1	0.5		
	Other	1	0.5		
	Traffic	0	0		
	Interest	0	0		
	Inclusion	0	0		
Very negative	People	3	1.6		
	Furniture	1	0.5		
	Footpath	0	0		
	Crossing	0	0		
	Greenery	0	0		
	Obstacles	0	0		
	Environmental quality	0	0		
	Weather protection	0	0		
	Traffic	0	0		
	Interest	0	0		
	Inclusion	0	0		
	Other	0	0		

Table 40. Most frequent determinants by type of experience, in Neu-Ulm & Central Bus Stop.

3.2.7. Positive and negative experiences by determinant

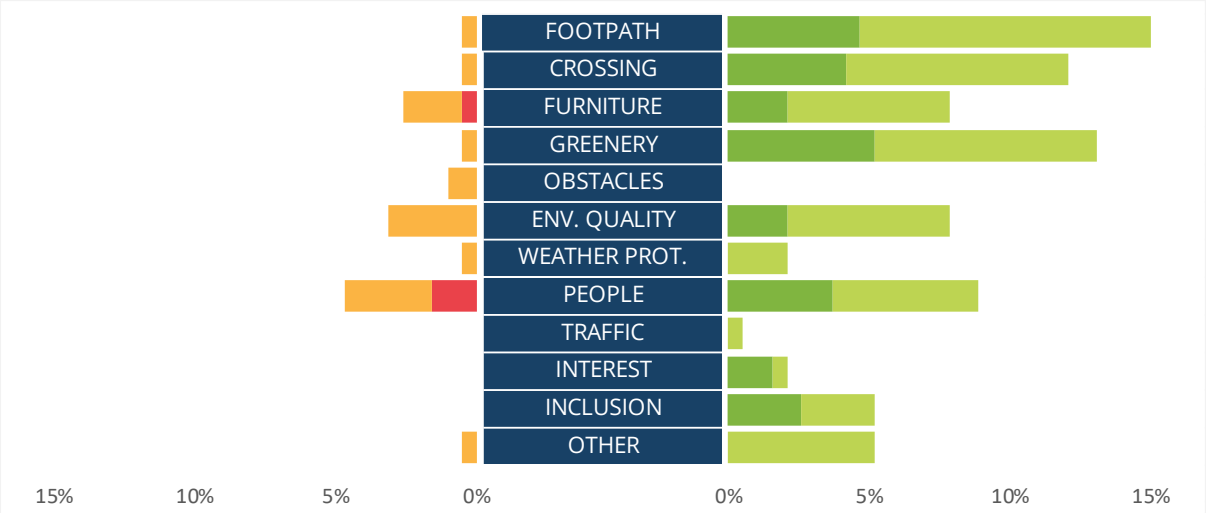


Figure 20. Positive and negative experiences by determinant, in Neu-Ulm & Central Bus Stop.

3.2.8. Determinants by frequency and negative-positive experiences

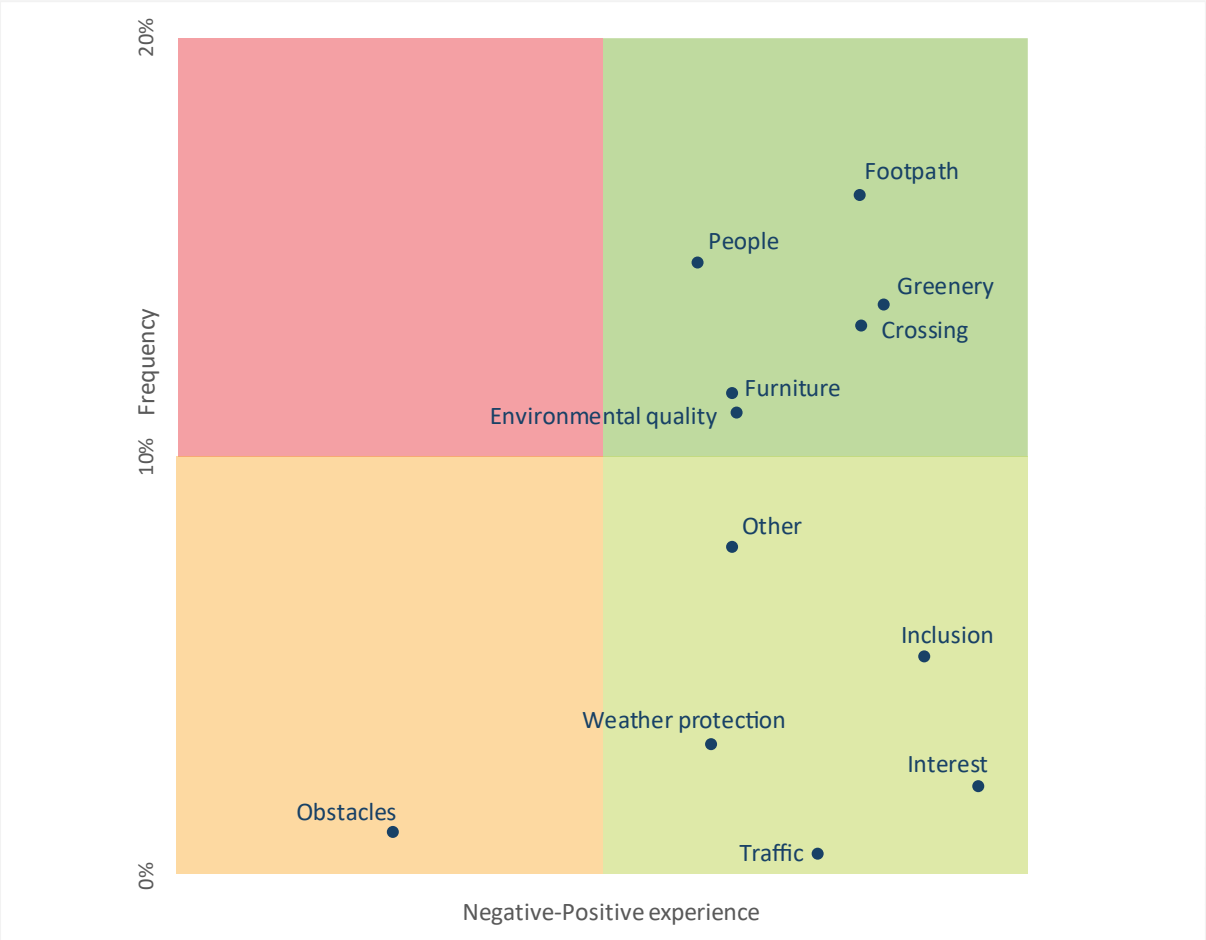


Figure 21. Determinants by frequency and negative-positive experiences, in Neu-Ulm & Central Bus Stop.

3.2.9. Positive and negative experiences by subcategory of determinants

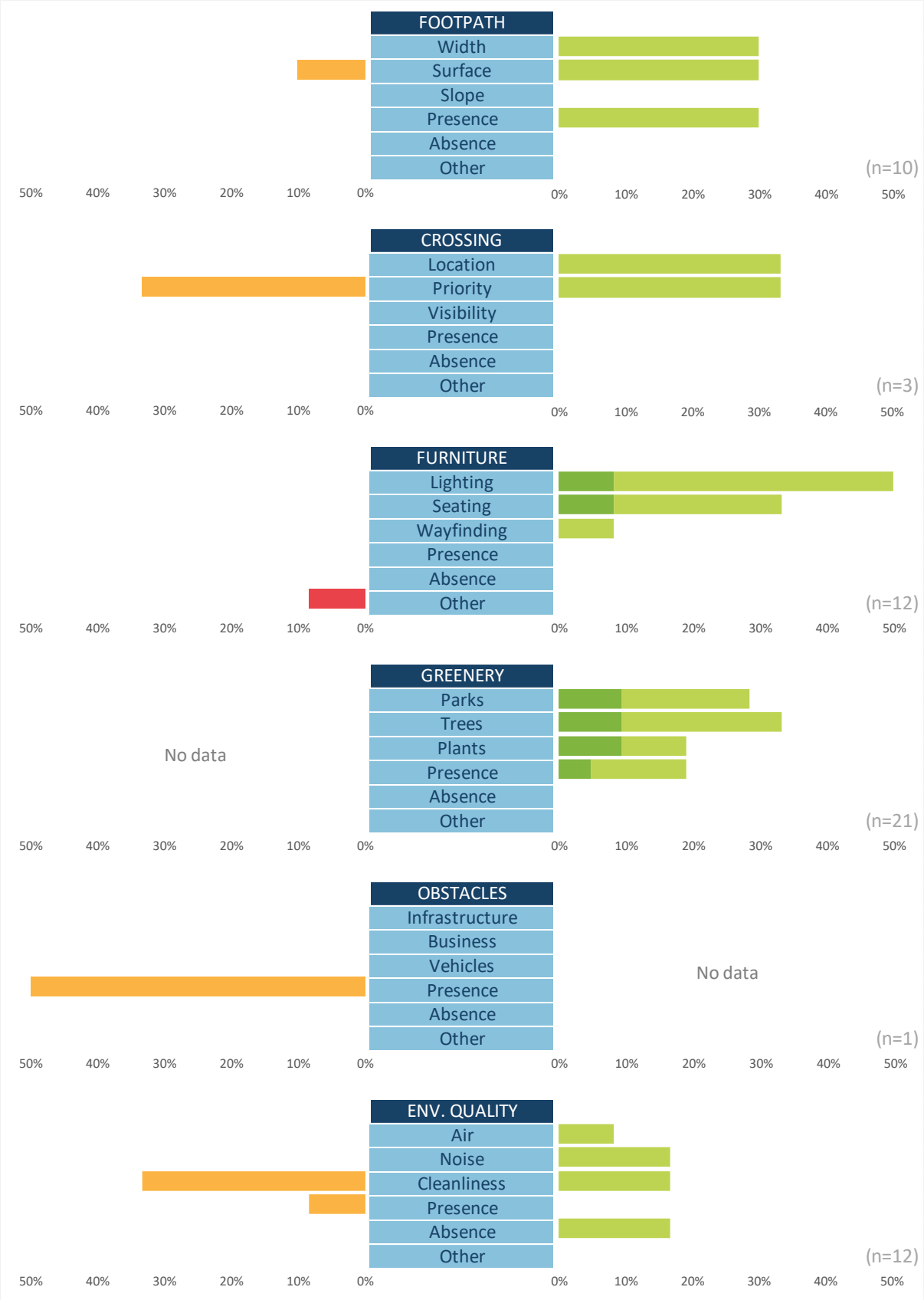


Figure 22. Positive and negative experiences related to subcategories of footpath, crossing, furniture, greenery and obstacles, in Neu-Ulm & Central Bus Stop.

Figure 23. Positive and negative experiences related to subcategories of weather protection, people, traffic, interest and inclusion, in Neu-Ulm & Central Bus Stop.

3.2.10. Location of walking experiences

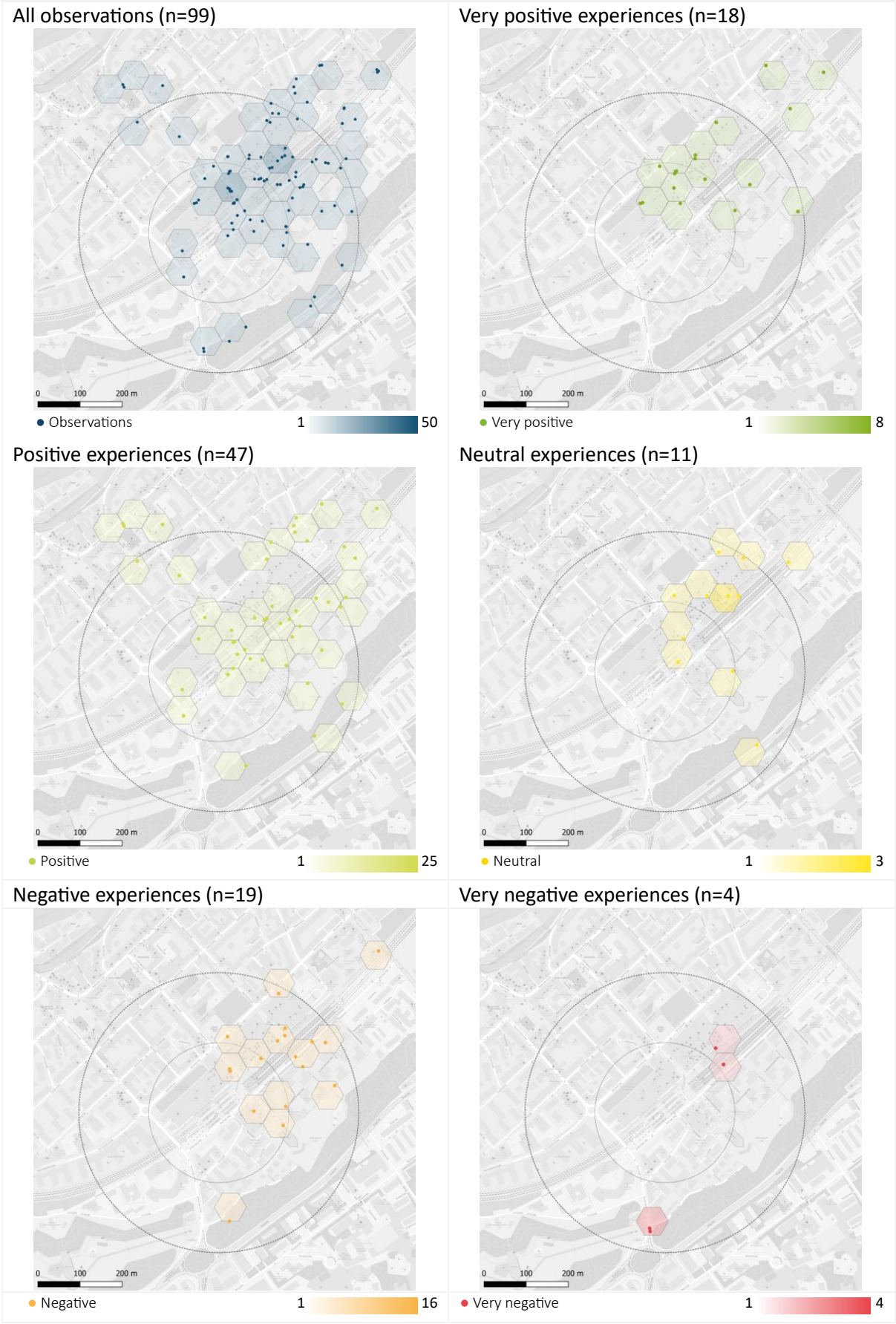


Figure 24. Location of observations and different experiences, in Neu-Ulm Station & Central Bus Stop.

Location of all types of experiences (n=99) and overall perceived walkability.

Figure 25. Location of all types of experiences and overall perceived walkability, in Neu-Ulm Station & Central Bus Stop.

3.2.11. Images and comments from participants

Positive experience. Comfortable	Negative experience. Unsafe and uncomfortable
"Elevators work, platforms are well lit"  Woman, 55	*"In evening is not possible to walk alone. At the end of the street, drunk and loud people gather around."*  Man, 22
Very positive. Enjoyable	**Very positive. Safe.**
"Shopping mall nearby"  Expert audit	*"But there is not enough weather protection"*  Man, 24

Figure 26. Images from the study area with comments from participants, in Neu-Ulm Station & Central Bus Stop.

3.3. Senden Station & Bus Stop

Figure 27. Senden Station & Bus Stop.

Data was collected between 21/10/2024 and 04/11/2024 in Senden Station & Bus Stop. A total of 87 interviewed participants shared 87 walking experiences related to 178 environmental determinants. In addition, three trained surveyors shared 13 walking experiences related to 19 determinants. In total, the study collected 100 walking experiences related to 197 environmental determinants.

Who walks, why and how?

From the **87 pedestrians interviewed**, most were adults (50.6%), followed by older adults (40.2%) and teenagers (9.2%). In addition, 77% were women and 23% men. Regarding their ability, most participants did not have any difficulty to move or interact with the environment (72.8%), while some had mild or moderate difficulty (11.5%) and sever or extreme difficulty (10.3%). Finally, most participants were very active pedestrians (52.9%), followed by active (43.7%) and a few inactive ones (3.4%). Based on **their walk context**, 63.2% of participants were walking by choice while 31% did it out of necessity. With regards to the walk purpose, 77% participants walked for transport, while 20.7% for leisure. Most participants were walking on their own (66.7%) compared to those walking with others (27.6%). Finally, most participants were familiar with the place (83.9%), while others were not (10.3%).

Which were the main walking experiences?

From the **100 walking experiences** collected from interviews and audits, most experiences were positive (43%), followed by negative (39%), very positive (9%), neutral (6%) and very negative (3%).

Overall, positive and very positive experiences (52%) outnumbered negative and very negative ones (42%).

When participants were asked to highlight one or more types of experiences, most referred to walking **comfort** (67%), with more comfortable and very comfortable experiences (53.7%) than uncomfortable and very uncomfortable ones (39.3%) Secondly, 45% of experiences were related to **safety**, with more unsafe and very unsafe experiences (48.8%) than safe and very safe ones (44.5%). Finally, walking **enjoyment** was the least frequent type of experience shared by participants (20%), with more enjoyable and very enjoyable (60%) than unenjoyable and very unenjoyable ones (30%).

What influenced walking experiences?

From the **197 environmental determinants** that influenced **walking experiences** in this study, the most frequent was *footpath*, included in 21.3% of all observations, followed by *environmental quality* (16.7%), *crossings* (16.2%), *people* (11.2%), and *street furniture* (10.7%).Participants related these determinants, and the other ones included in the study, to both **positive and negative experiences**. Overall, most determinants were related to more positive experiences, especially *interest, greenery* and *inclusion*. With the exception of *obstacles, traffic* and *weather protection,* which were related to more negative experiences*. Environmental quality, street furniture* and *people* were related to as many positive and negative experiences. The most relevant determinants related to positive and very positive experiences were good *footpath* (14.7%), *good crossings* (12.2%) and *good environmental quality* (7.1%), while most negative and very negative experiences were related to poor *environmental quality* (8.1%), bad *street furniture* (5.1%) and bad *footpath* (4.6%).

Regarding **safety**, the most relevant determinants influencing safe and very safe experiences were good *footpath* (16.4%), good *crossings* (13.5%) and *inclusion* (9.6%), while most unsafe and very unsafe experiences were related to *poor environmental quality* (8.7%), followed by *people* (7.7%) and bad *footpath* (4.8%). Similarly for **comfort**, the most relevant determinants influencing comfortable and very comfortable experiences were good *footpath* (17.4%), good *crossings* (15.1%) and *inclusion* (7.9%), while most uncomfortable and very uncomfortable experiences were related to *poor environmental quality* (8.5%), bad *footpath* (4%) and bad *street furniture* (3.7%). Finally for **enjoyment**, the most relevant determinants related to enjoyable and very enjoyable experiences were *greenery* (17.2%), good *environmental quality* (10.3%) and good *footpath* (6.9%), while most unenjoyable and very unenjoyable experiences were related to poor *environmental quality* (20.7%), *bad crossings* (6.8%) and *bad footpath* (3.4%).

Do different people have different experiences for different reasons?

Generally, not all participants shared the same type of experience or identified the same determinants in the same place. For this reason, the overall main types of experiences and their most relevant determinants can be filtered and reanalysed by the type of pedestrian or their walk context. The outcomes on how different people and walk contexts resulted in different experiences and relevant environmental determinants included all observations from all study areas to maintain a representative sample. This information is included in Section 2. Overall analysis for all study areas.

What to fix, improve and expand.

Different walking experiences by participants and experts helped identify areas with better and worse walkability and their main reasons. There are positive, neutral and negative experiences all across the study area, which implies that it presents a mix of good, adequate and bad walkability, often related to common determinants. Positive (43%) and very positive (9%) experiences were mainly related to

good footpath, good crossings, environmental quality, inclusion and greenery. These were the determinants that most people praised when sharing safe, comfortable and enjoyable experiences. Areas with this type of positive experiences and quality should be expanded and promoted. On the other hand, participants shared negative (39%) and few very negative (3%) experiences related to poor environmental quality, bad street furniture, footpath, people and crossings. In order to reduce future negative experiences, these issues should be prioritised and fixed, replicating or implementing similar quality elements from the areas with more positive experiences. Finally, places with neutral experiences (6%) can be considered "just adequate" environments. While they do not present a priority to fix, small improvements in their most common determinants, such as footpath, environmental quality and people may enable more positive and very positive experiences.

3.3.1. Location of study area and observations

Figure 28. Observations from interviews and audits in Senden Station & Bus Stop.

3.3.2. Data collected

Period		21/10/2024 - 04/11/2024	
Timeframe		06:22 - 14:09	
Interviews	Participants	87	
	Experiences	87	
	Determinants	178	
Audits	Experts	3	
	Experiences	13	
	Determinants	19	
Total	Experiences	**100**	
	Determinants	**197**	

Table 41. Data collected in Senden Station & Bus Stop.

3.3.3. Pedestrian profile

Variable	Category	N	%
AGE	Teenagers (16-17)	8	9.2
	Adults (18-65)	44	50.6
	Older people (>65)	35	40.2
GENDER	Man	20	23
	Woman	67	77
	Other / No answer	0	0
ABILITY (difficulty to move)	None	68	78.2
	Mild or moderate	10	11.5
	Severe or extrerme	9	10.3
ACTIVITY (mins/day)	Less than 10 min	3	3.4
	10 - 60 mins	38	43.7
	More than 60 min	46	52.9

Distribution N=87

Table 42. Pedestrian profile in Senden Station & Bus Stop.

3.3.4. Walk context

Variable	Category	N	%
DECISION	Choice	55	63.2
	Necessity	27	31
	Other	5	5.7
PURPOSE	Transport	67	77
	Leisure	18	20.7
	Other	2	2.3
COMPANY	Alone	58	66.7
	Accompanied	24	27.6
	Other	5	5.7
FAMILIARITY	Local	73	83.9
	Visitor	9	10.3
	Other	5	5.7

Distribution N=87

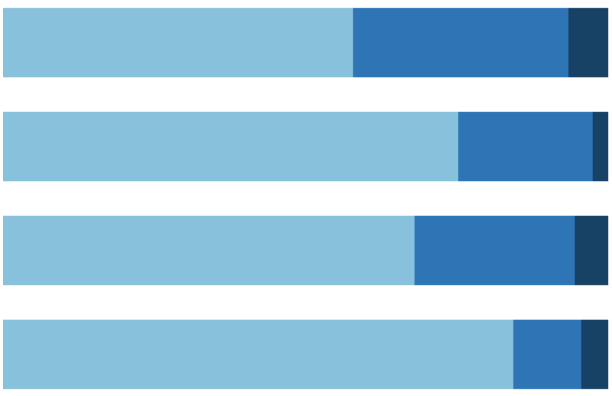


Table 43. Walk context in Senden Station & Bus Stop.

3.3.5. Walking experiences

EXPERIENCE	N	%
Very positive	9	9
Positive	43	43
Neutral	6	6
Negative	39	39
Very negative	3	3
TOTAL	100	100

TOP-5 determinants related to experience

Negative	Positive
Environmental quality	Footpath
Furniture	Crossing
Footpath	Environmental quality
People	Inclusion
Crossing	Greenery

Table 44. Walking experiences and top 5 determinants related to them, in Senden Station & Bus Stop.

SAFETY	N	%
Very safe	3	6.7
Safe	17	37.8
Neutral	3	6.7
Unsafe	20	44.4
Very unsafe	2	4.4
TOTAL	45	100

TOP-5 determinants related to safety

Unsafe	Safe
Environmental quality	Footpath
People	Crossing
Footpath	Inclusion
Furniture	People
Greenery	Environmental quality

Table 45. Safety and top 5 determinants related to them, in Senden Station & Bus Stop.

COMFORT	N	%
Very comfortable	7	10.4
Comfortable	29	43.3
Neutral	4	6
Uncomfortable	25	37.3
Very uncomfortable	2	3
TOTAL	67	100

TOP-5 determinants related to comfort

Uncomfortable	Comfortable
Environmental quality	Footpath
Footpath	Crossing
Furniture	Inclusion
Weather protection	Furniture
Crossing	People

Table 46. Comforts and top 5 determinants related to them, in Senden Station & Bus Stop.

ENJOYMENT	N	%
Very enjoyable	3	15
Enjoyable	9	45
Neutral	2	10
Unenjoyable	4	20
Very unenjoyable	2	10
TOTAL	20	100

TOP-5 determinants related to enjoyment

Unenjoyable	Enjoyable
Environmental quality	Greenery
Crossing	Environmental quality
Footpath	Footpath
-	Inclusion
-	People

Table 47. Enjoyment and top 5 determinants related to them, in Senden Station & Bus Stop.

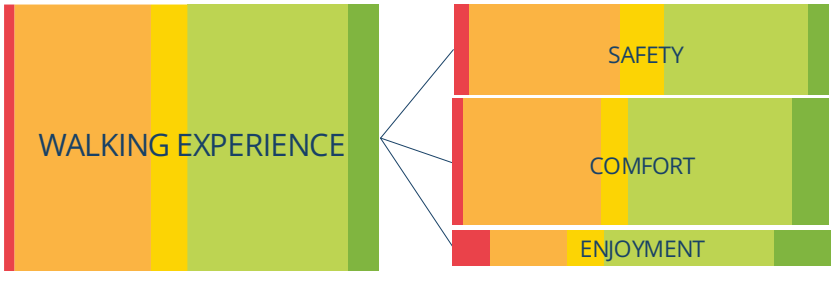


Figure 29. Share of positive and negative experiences and most frequent types, in Seden Station & Bus Stop.

3.3.6. Most frequent determinants by experience

Experience	Determinant	n	%	Distribution	N=197
Very Positive	Footpath	5	2.5		
	Crossing	4	2		
	Greenery	4	2		
	Furniture	3	1.5		
	People	3	1.5		
	Environmental quality	2	1		
	Interest	1	0.5		
	Obstacles	0	0		
	Weather protection	0	0		
	Traffic	0	0		
	Inclusion	0	0		
	Other	0	0		
Postive	Footpath	24	12.2		
	Crossing	20	10.2		
	Inclusion	13	6.6		
	Environmental quality	12	6.1		
	People	9	4.6		
	Other	9	4.6		
	Furniture	8	4.1		
	Greenery	8	4.1		
	Obstacles	0	0		
	Weather protection	0	0		
	Traffic	0	0		
	Interest	0	0		
Neutral	Footpath	4	2		
	Environmental quality	3	1.5		
	Crossing	2	1		
	People	2	1		
	Furniture	0	0		
	Greenery	0	0		
	Obstacles	0	0		
	Weather protection	0	0		
	Traffic	0	0		
	Interest	0	0		
	Inclusion	0	0		
	Other	0	0		
Negative	Environmental quality	14	7.1		
	Furniture	10	5.1		
	Footpath	8	4.1		
	People	7	3.6		
	Crossing	5	2.5		
	Weather protection	5	2.5		
	Obstacles	2	1		
	Traffic	2	1		
	Greenery	1	0.5		
	Inclusion	1	0.5		
	Other	1	0.5		
	Interest	0	0		
Very negative	Environmental quality	2	1		
	Footpath	1	0.5		
	Crossing	1	0.5		
	People	1	0.5		
	Furniture	0	0		
	Greenery	0	0		
	Obstacles	0	0		
	Weather protection	0	0		
	Traffic	0	0		
	Interest	0	0		
	Inclusion	0	0		
	Other	0	0		

Table 48. Most frequent determinants by type of experience, in Senden Station & Bus Stop.

3.3.7. Positive and negative experiences by determinant

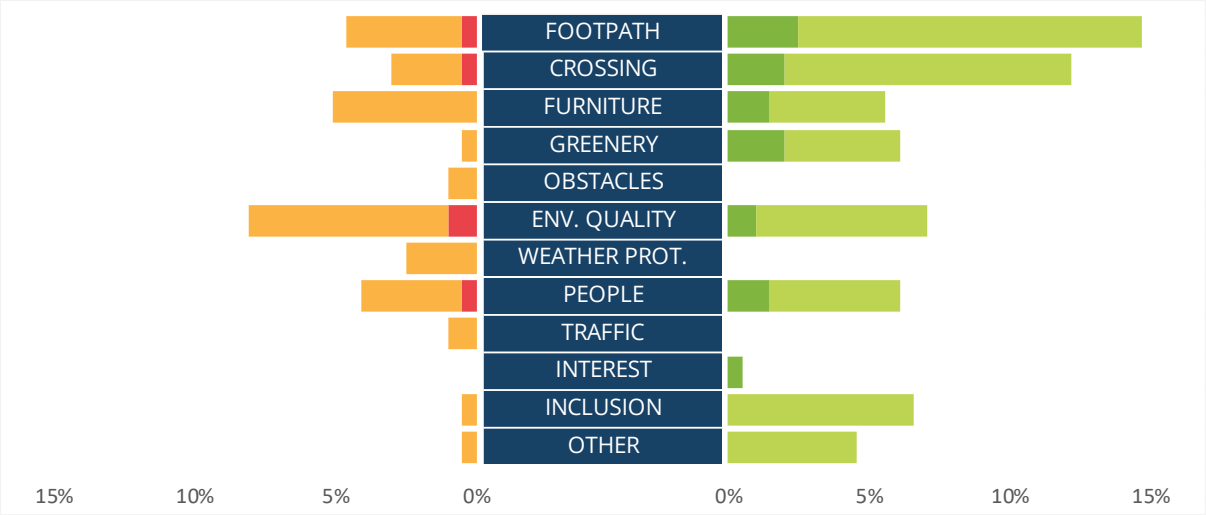


Figure 30. Positive and negative experiences by determinant, in Senden Station & Bus Stop.

3.3.8. Determinants by frequency and negative-positive experiences

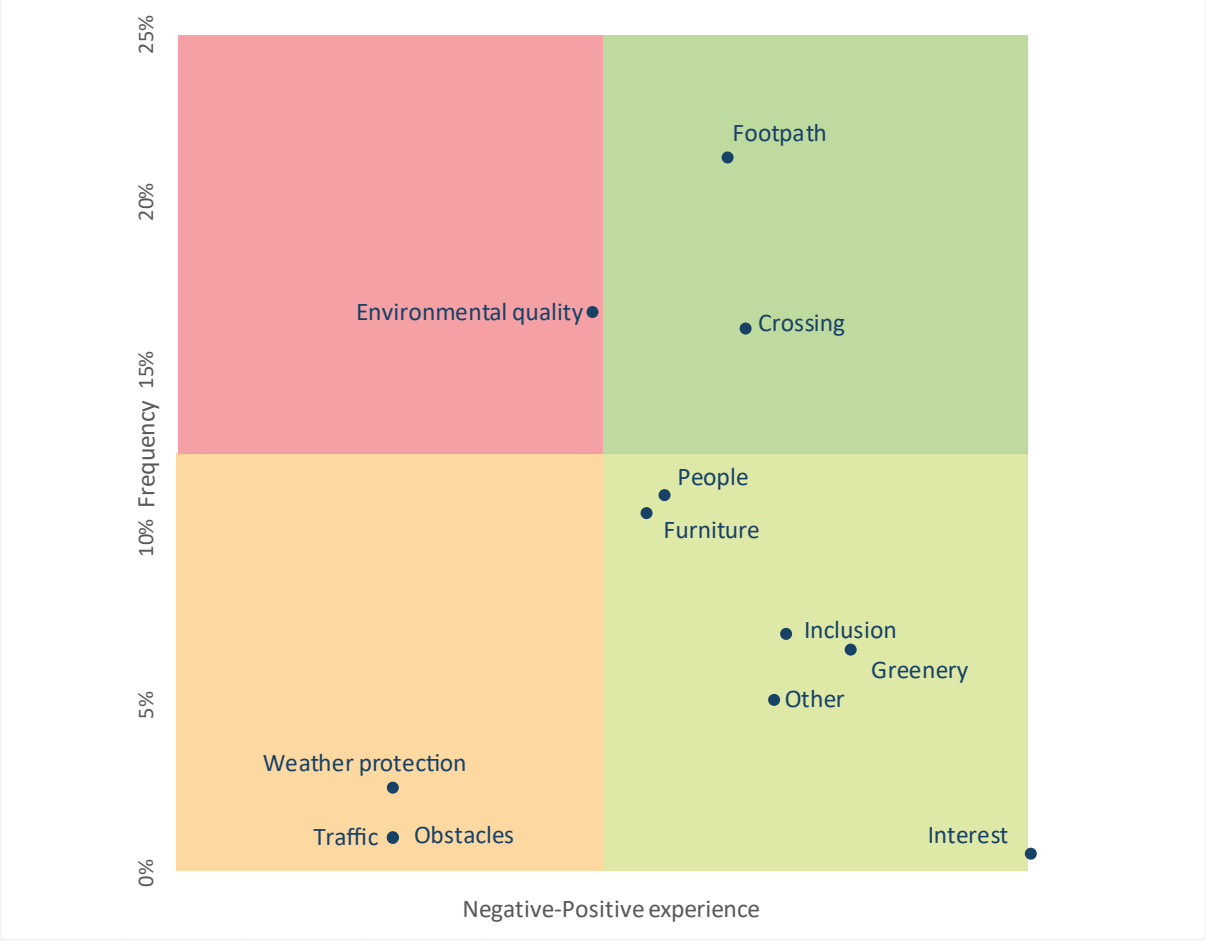


Figure 31. Determinants by frequency and negative-positive experiences, in Senden Station & Bus Stop.

3.3.9. Positive and negative experiences by subcategory of determinants

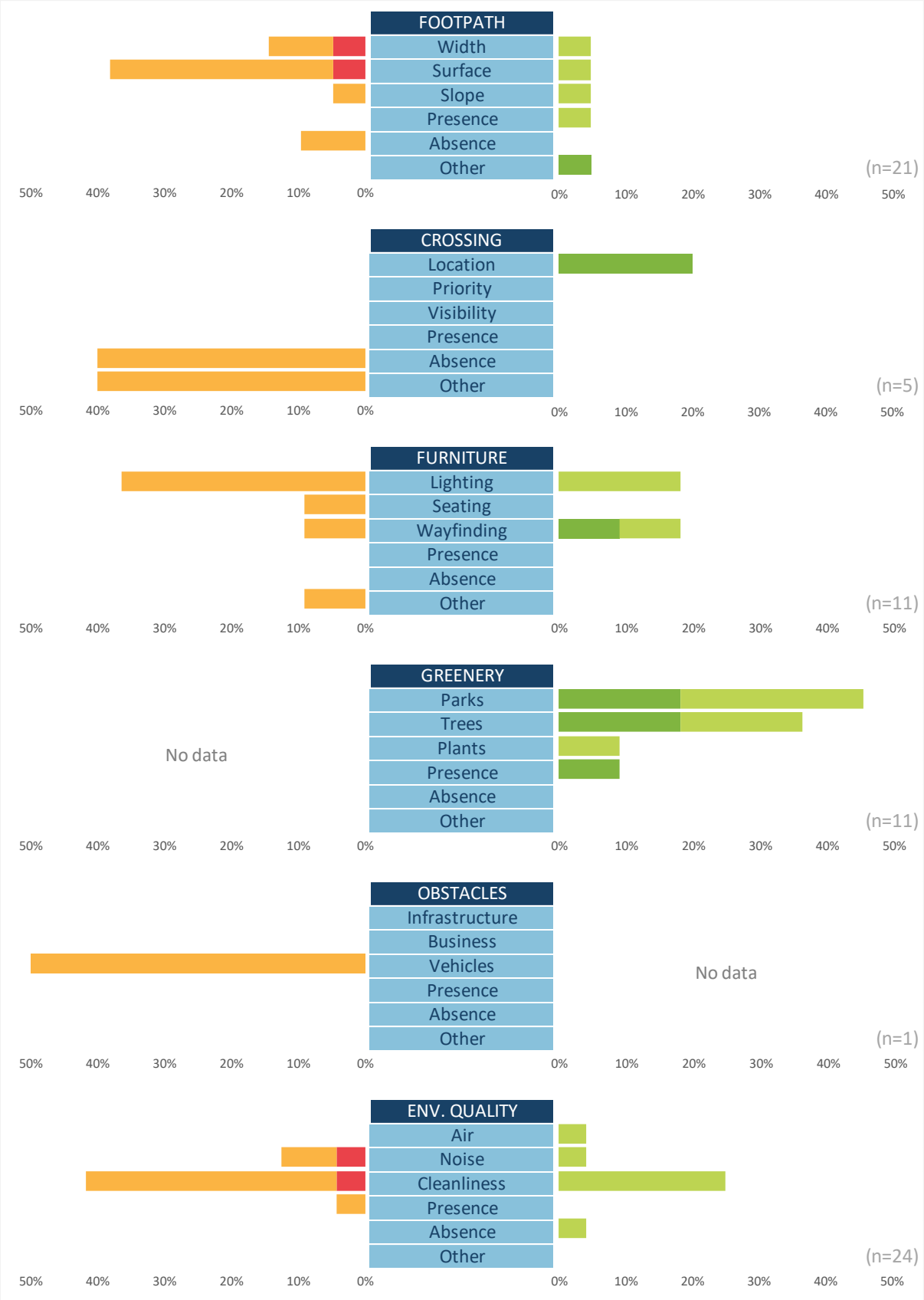


Figure 32. Positive and negative experiences related to subcategories of footpath, crossing, furniture, greenery and obstacles, in Senden Station & Bus Stop.

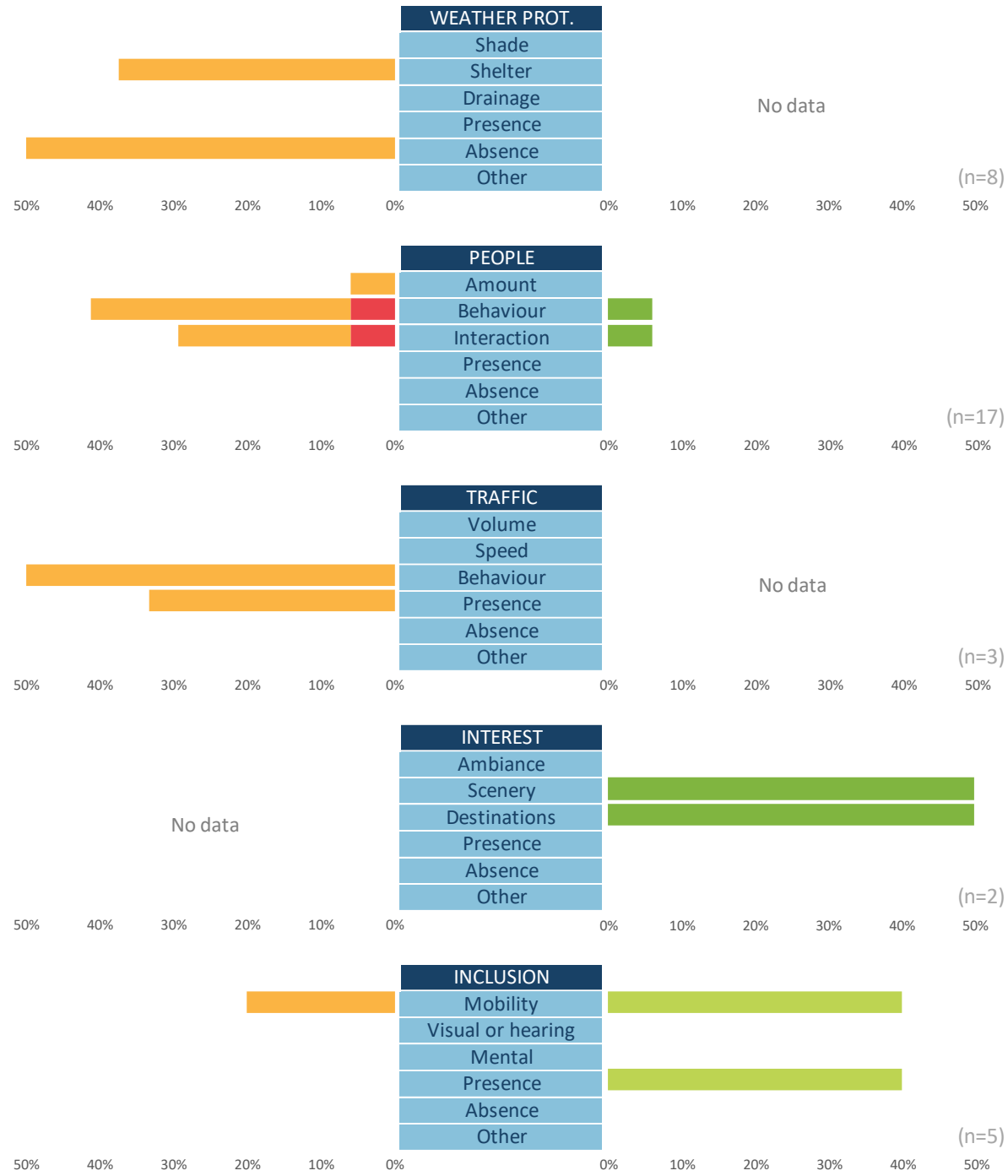


Figure 33. Positive and negative experiences related to subcategories of weather protection, people, traffic, interest and inclusion, in Senden Station & Bus Stop.

3.3.10. Location of walking experiences

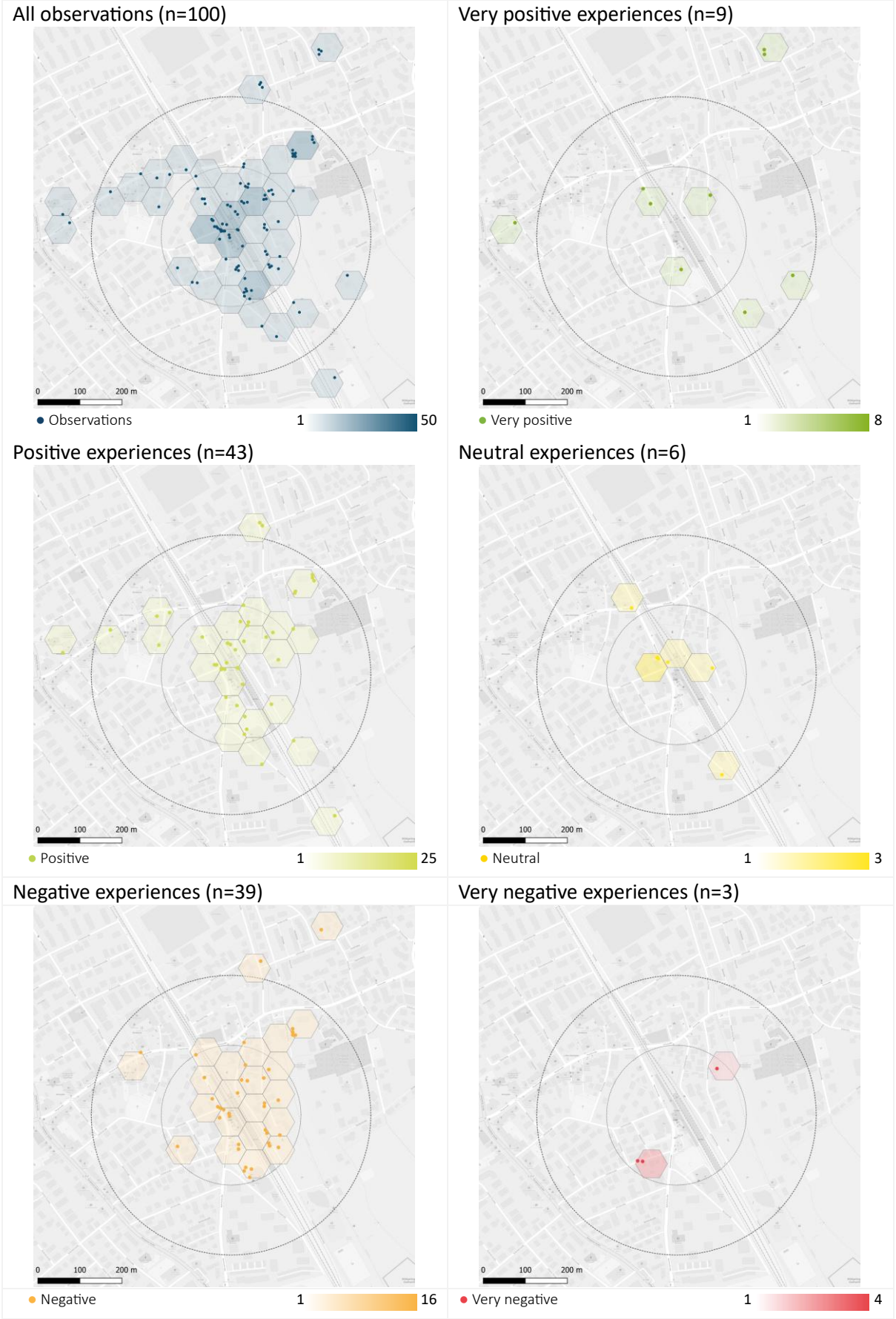


Figure 34. Location of observations and different experiences, in Senden Station & Bus Stop.

Location of all types of experiences (n=100) and overall perceived walkability.

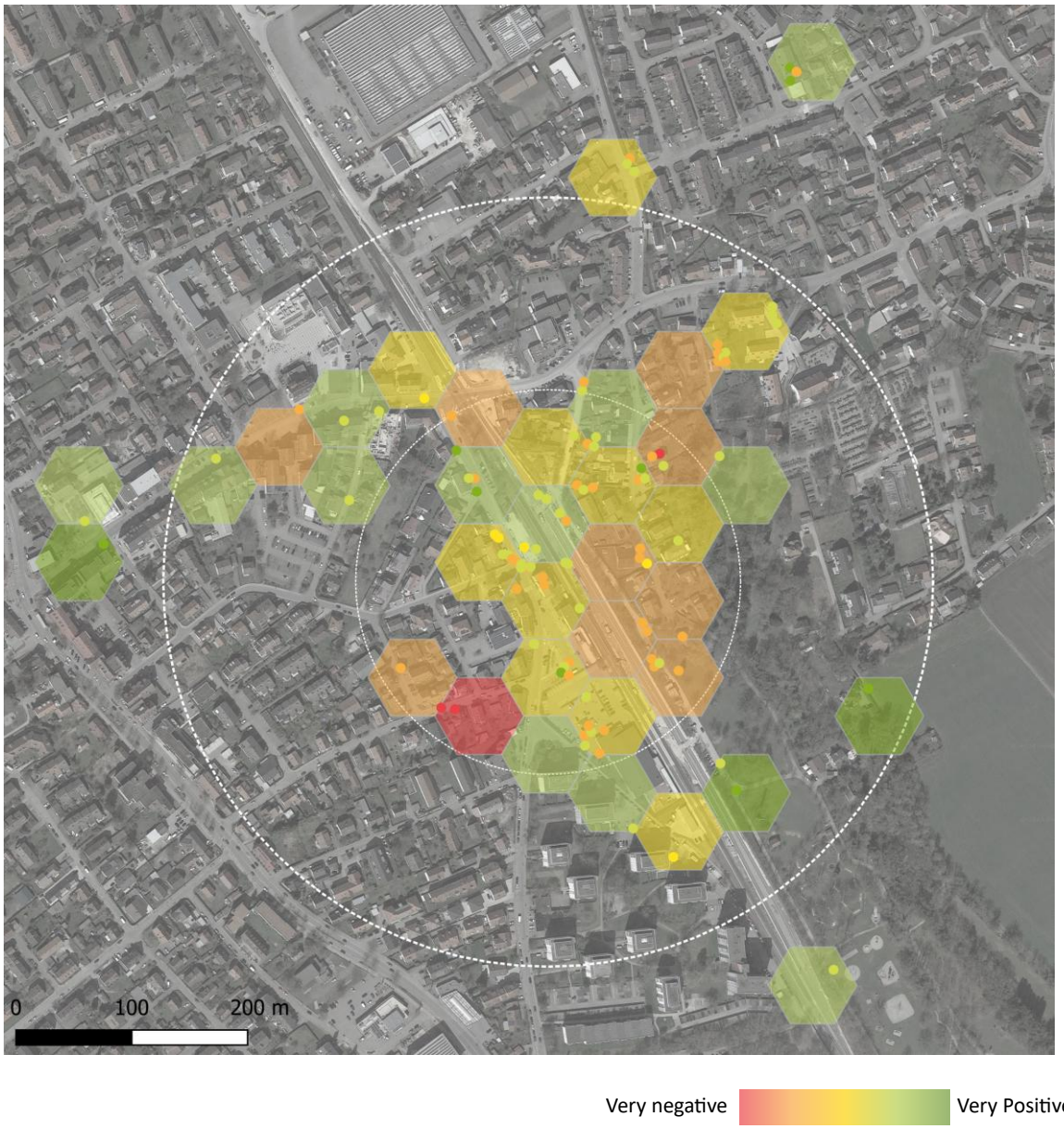


Figure 35. Location of all types of experiences and overall perceived walkability, in Senden Station & Bus Stop.

3.3.11. Images and comments from participants

Very positive experience. Comfortable	Negative experience. Unsafe
"Digital monitors are very useful and convenient"  Woman, 23	*"Unsafe in the evening, bus station can be better and clear"*  Woman, 74
Positive experience. Comfortable	**Negative experience. Unsafe and uncomfortable**
"Everything is fine, elevators are nice for people who cannot walk well"  Woman, 23	*"Don't feel safe in evening, bike path and footpath are mixed. The crossing line is too far apart"*  Man, 75

Figure 36. Iimages from the study area with comments from participants, in Senden Station & Bus Stop.

3.4 Böfingen Long-Distance Bus Stop & Tram and Bus Stop Egertweg

Figure 37. Böfingen Long-Distance Bus Stop & Tram and Bus Stop Egertweg.

Data was collected between 21/10/2024 and 04/11/2024 in Böfingen Long-Distance Bus Stop & Tram and Bus Stop Egertweg. A total of 45 interviewed participants shared 45 walking experiences related to 78 environmental determinants. In addition, three trained surveyors shared 55 walking experiences related to 69 determinants. In total, the study collected 100 walking experiences related to 147 environmental determinants.

Who walks, why and how?

From the **45 pedestrians interviewed**, most were adults (66.7%), followed by older adults (31.1%) and teenagers (2.2%). In addition, 51.1% were men and 48.9% women. Regarding their ability, most participants did not have any difficulty to move or interact with the environment (64.4%), while some had mild or moderate difficulty (31.1%) and sever or extreme difficulty (4.4%). Finally, most participants were active pedestrians (66.6%), followed by very active (22.2%) and inactive ones (11.1%). Based on **their walk context**, 42.2% of participants were walking by choice while 57.8% did it out of necessity. With regards to the walk purpose, 80% participants walked for transport, while 20% for leisure. Most participants were walking on their own (80%) compared to those walking with others (17.8%). Finally, most participants were familiar with the place (82.2%), while others were not (15.6%).

Which were the main walking experiences?

From the **100 walking experiences** collected from interviews and audits, most experiences were positive (41%), followed by negative (29%), neutral (12%), very positive (11%) and very negative (7%).

Overall, positive and very positive experiences (52%) outnumbered negative and very negative ones (36%). When participants were asked to highlight one or more types of experiences, most referred to walking **comfort** (54%), with more uncomfortable and very uncomfortable experiences (46.3%) than comfortable and very comfortable ones (38.9%) Secondly, 37% of experiences were related to **enjoyment**, with more enjoyable and very enjoyable experiences (64.9%) than unenjoyable and very unenjoyable ones (27%). Finally, walking **safety** was the least frequent type of experience shared by participants (20%), with more safe and very safe (55%) than unsafe and very unsafe ones (35%).

What influenced walking experiences?

From the **147 environmental determinants** that influenced **walking experiences** in this study, the most frequent was *footpath*, included in 17% of all observations, followed by *street furniture* (14.3%), *crossings* (10.9%), *greenery* (10.9%), and *environmental quality* (9.5%).Participants related these determinants, and the other ones included in the study, to both **positive and negative experiences**. Overall, most determinants were related to more positive experiences, especially *greenery, inclusion* and *people*. With the exception of *obstacles, weather protection* and *crossings,* which were related to more negative experiences. The most relevant determinants related to positive and very positive experiences were greenery (10.2%), *good footpath* (7.5%) and *good street furniture* (7.5%), while most negative and very negative experiences were related to poor *obstacles* (8.8%), bad *footpath* (7.5%) and bad *crossings* (6.8%).

Regarding **safety**, the most relevant determinants influencing safe and very safe experiences were good *footpath* (13.3%), *inclusion* (11.1%) and *crossings* (8.9%), while most unsafe and very unsafe experiences were related to bad *footpath* (11.1%), followed by bad *crossings* (8.8%) and *obstacles* (8.8%). Similarly for **comfort**, the most relevant determinants influencing comfortable and very comfortable experiences were good *footpath* (8.6%), *inclusion* (6.5%) and *environmental quality* (5.5%), while most uncomfortable and very uncomfortable experiences were related to *obstacles* (10.9%), bad *crossings* (9.7%) and bad *footpath* (8.6%). Finally for **enjoyment**, the most relevant determinants related to enjoyable and very enjoyable experiences were *greenery* (20.9%), *street furniture* (14.6%) and good *environmental quality* (10.5%), while most unenjoyable and very unenjoyable experiences were related to *obstacles* (8.4%), bad *footpath* (4.2%) *and no street furniture* (4.2%).

Do different people have different experiences for different reasons?

Generally, not all participants shared the same type of experience or identified the same determinants in the same place. For this reason, the overall main types of experiences and their most relevant determinants can be filtered and reanalysed by the type of pedestrian or their walk context. The outcomes on how different people and walk contexts resulted in different experiences and relevant environmental determinants included all observations from all study areas to maintain a representative sample. This information is included in Section 2. Overall analysis for all study areas.

What to fix, improve and expand.

Different walking experiences by participants and experts helped identify areas with better and worse walkability and their main reasons. There are positive, neutral and negative experiences all across the study area, which implies that it presents a mix of good, adequate and bad walkability, often related to common determinants. Positive (41%) and very positive (11%) experiences were mainly related to greenery, good footpath, street furniture and environmental quality. These were the determinants that most people praised when sharing safe, comfortable and enjoyable experiences. Areas with this type of positive experiences and quality should be expanded and promoted. On the other hand, participants

shared negative (29%) and few very negative (7%) experiences related to obstacles, bad footpath, crossings, street furniture and lack of weather protection. In order to reduce future negative experiences, these issues should be prioritised and fixed, replicating or implementing similar quality elements from the areas with more positive experiences. Finally, places with neutral experiences (6%) can be considered "just adequate" environments. While they do not present a priority to fix, small improvements in their most common determinants, such as adequate footpath, crossings and street furniture may enable more positive and very positive experiences.

3.4.1. Location of study area and observations

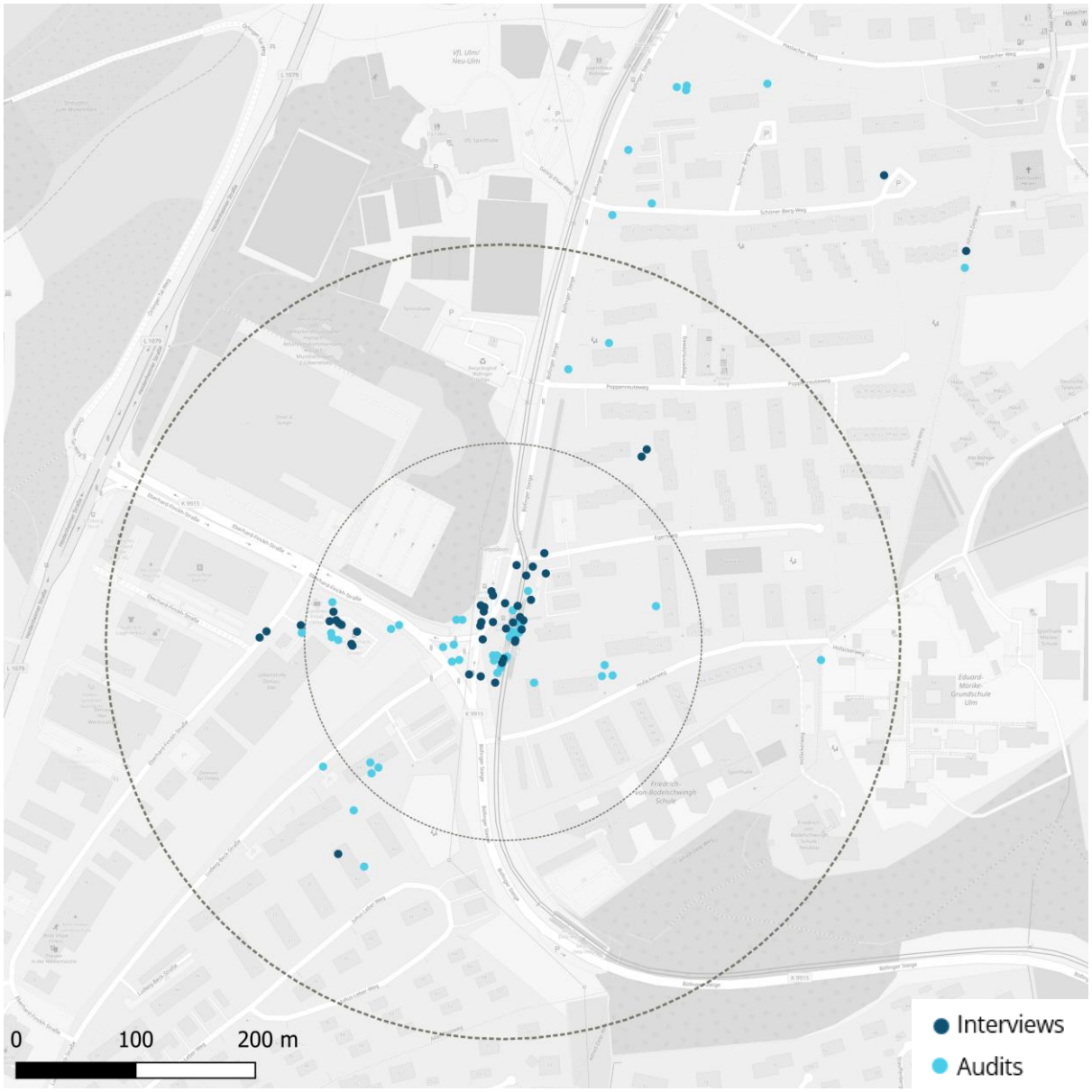


Figure 38. Observations from interviews and audits in *Böfingen Long-Distance Bus Stop & Tram and Bus Stop Egertweg.*

3.4.2. Data collected

Period		21/10/2024 - 04/11/2024	
Timeframe		06:08 - 14:23	
Interviews	Participants	45	
	Experiences	45	
	Determinants	78	
Audits	Experts	3	
	Experiences	55	
	Determinants	69	
Total	Experiences	**100**	
	Determinants	**147**	

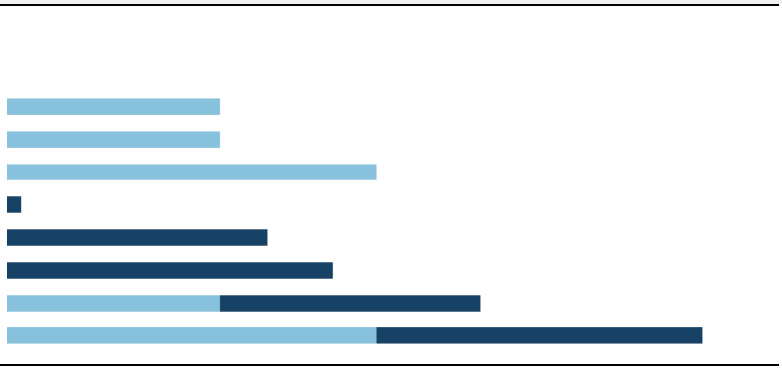


Table 49. Data collected in Böfingen Long-Distance Bus Stop & Tram and Bus Stop Egertweg.

3.4.3. Pedestrian profile

Variable	Category	N	%	Distribution	N=45
AGE	Teenagers (16-17)	1	2.2		
	Adults (18-65)	30	66.7		
	Older people (>65)	14	31.1		
GENDER	Man	23	51.1		
	Woman	22	48.9		
	Other / No answer	0	0		
ABILITY (difficulty to move)	None	29	64.4		
	Mild or moderate	14	31.1		
	Severe or extrerme	2	4.4		
ACTIVITY (mins/day)	Less than 10 min	5	11.1		
	10 - 60 mins	30	66.6		
	More than 60 min	10	22.2		

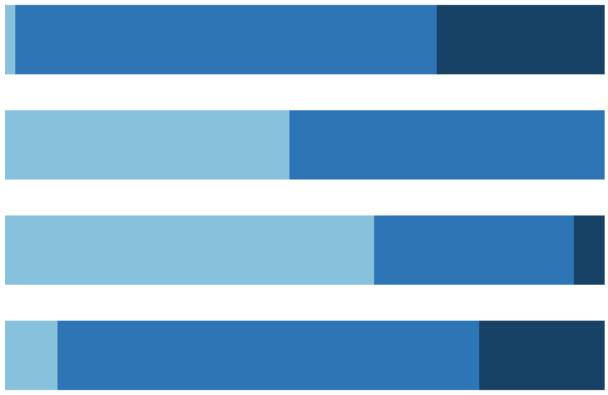


Table 50. Pedestrian profile in Böfingen Long-Distance Bus Stop & Tram and Bus Stop Egertweg.

3.4.4. Walk context

Variable	Category	N	%	Distribution	N=45
DECISION	Choice	19	42.2		
	Necessity	26	57.8		
	Other	0	0		
PURPOSE	Transport	36	80		
	Leisure	9	20		
	Other	0	0		
COMPANY	Alone	36	80		
	Accompanied	8	17.8		
	Other	1	2.2		
FAMILIARITY	Local	37	82.2		
	Visitor	7	15.6		
	Other	1	2.2		

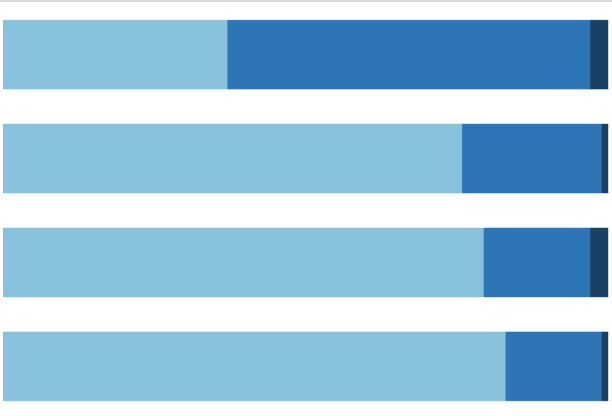


Table 51. Walk context in Böfingen Long-Distance Bus Stop & Tram and Bus Stop Egertweg.

3.4.5. Walking experiences

EXPERIENCE	N	%
Very positive	11	11
Positive	41	41
Neutral	12	12
Negative	29	29
Very negative	7	7
TOTAL	100	100

TOP-5 determinants related to experience

Negative	Positive
Obstacles	Greenery
Footpath	Footpath
Crossing	Furniture
Furniture	Environmental quality
Weather protection	Other

Table 52. Walking experiences and top 5 determinants, in Böfingen Long-Distance Bus Stop & Tram and Bus Stop Egertweg.

SAFETY	N	%
Very safe	6	30
Safe	5	25
Neutral	2	10
Unsafe	4	20
Very unsafe	3	15
TOTAL	20	100

TOP-5 determinants related to safety

Unsafe	Safe
Footpath	Footpath
Crossing	Inclusion
Obstacles	Crossing
People	People
-	Greenery

Table 53. Safety and top 5 determinants, in Böfingen Long-Distance Bus Stop & Tram and Bus Stop Egertweg.

COMFORT	N	%
Very comfortable	7	13
Comfortable	14	25.9
Neutral	8	14.8
Uncomfortable	21	38.9
Very uncomfortable	4	7.4
TOTAL	54	100

TOP-5 determinants related to comfort

Uncomfortable	Comfortable
Obstacles	Footpath
Crossing	Inclusion
Footpath	Environmental quality
Furniture	Greenery
Environmental quality	Crossing

Table 54. Comforts and top 5 determinants, in Böfingen Long-Distance Bus Stop & Tram and Bus Stop Egertweg.

ENJOYMENT	N	%
Very enjoyable	4	10.8
Enjoyable	20	54.1
Neutral	3	8.1
Unenjoyable	8	21.6
Very unenjoyable	2	5.4
TOTAL	37	100

TOP-5 determinants related to enjoyment

Unenjoyable	Enjoyable
Obstacles	Greenery
Footpath	Furniture
Furniture	Environmental quality
Weather protection	Footpath
Crossing	People

Table 55. Enjoyment and top 5 determinants, in Böfingen Long-Distance Bus Stop & Tram and Bus Stop Egertweg.

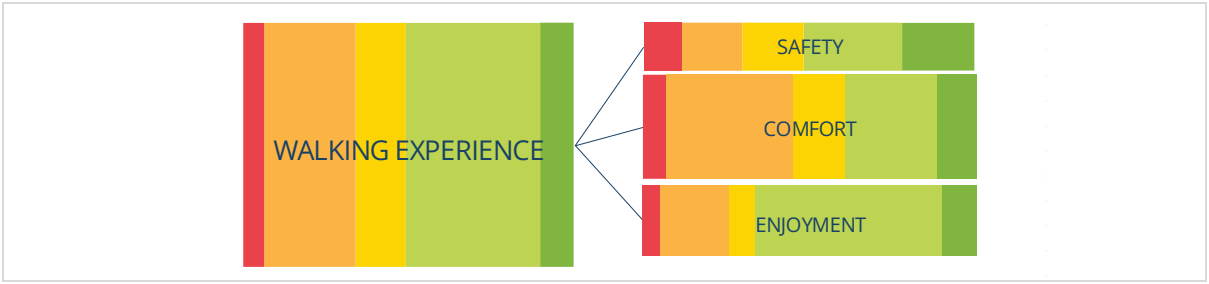


Figure 39. Share of positive and negative experiences and most frequent types, in B Böfingen Long-Distance Bus Stop & Tram and Bus Stop Egertweg.

3.4.6. Most frequent determinants by experience

Experience	Determinant	n	%	Distribution	N=147
Very Positive	Footpath	5	3.4		
	People	4	2.7		
	Inclusion	4	2.7		
	Crossing	3	2		
	Greenery	3	2		
	Environmental quality	3	2		
	Weather protection	1	0.7		
	Traffic	1	0.7		
	Furniture	0	0		
	Obstacles	0	0		
	Interest	0	0		
	Other	0	0		
Postive	Greenery	12	8.2		
	Furniture	11	7.5		
	Other	8	5.4		
	Environmental quality	7	4.8		
	Footpath	6	4.1		
	Crossing	2	1.4		
	Inclusion	2	1.4		
	Weather protection	1	0.7		
	People	1	0.7		
	Traffic	1	0.7		
	Obstacles	0	0		
	Interest	0	0		
Neutral	Footpath	3	2		
	Furniture	3	2		
	Other	3	2		
	Traffic	2	1.4		
	Crossing	1	0.7		
	Greenery	1	0.7		
	Obstacles	1	0.7		
	Weather protection	1	0.7		
	People	1	0.7		
	Inclusion	1	0.7		
	Environmental quality	0	0		
	Interest	0	0		
Negative	Obstacles	9	6.1		
	Furniture	7	4.8		
	Footpath	5	3.4		
	Crossing	5	3.4		
	Environmental quality	4	2.7		
	Weather protection	4	2.7		
	People	2	1.4		
	Other	2	1.4		
	Inclusion	1	0.7		
	Greenery	0	0		
	Traffic	0	0		
	Interest	0	0		
Very negative	Footpath	6	4.1		
	Crossing	5	3.4		
	Obstacles	4	2.7		
	Weather protection	1	0.7		
	Furniture	0	0		
	Greenery	0	0		
	Environmental quality	0	0		
	People	0	0		
	Traffic	0	0		
	Interest	0	0		
	Inclusion	0	0		
	Other	0	0		

Table 56. Most frequent determinants by type of experience, in Böfingen Bus Stop & Tram and Bus Stop Egertweg.

3.4.7. Positive and negative experiences by determinant

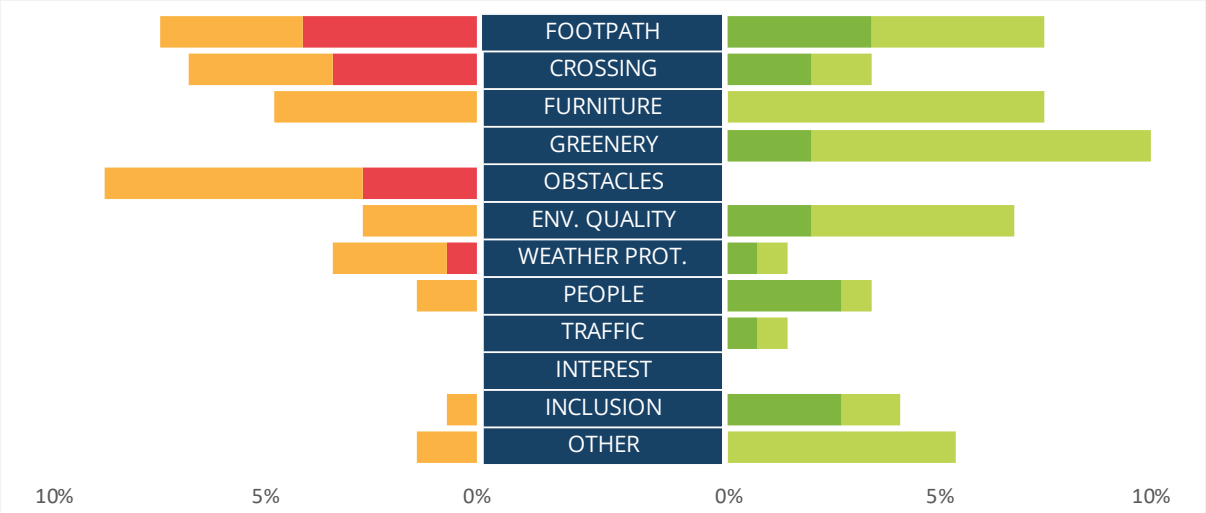


Figure 40. Positive and negative experiences by determinant, in Böfingen Long-Distance Bus Stop & Tram and Bus Stop Egertweg.

3.4.8. Determinants by frequency and negative-positive experiences

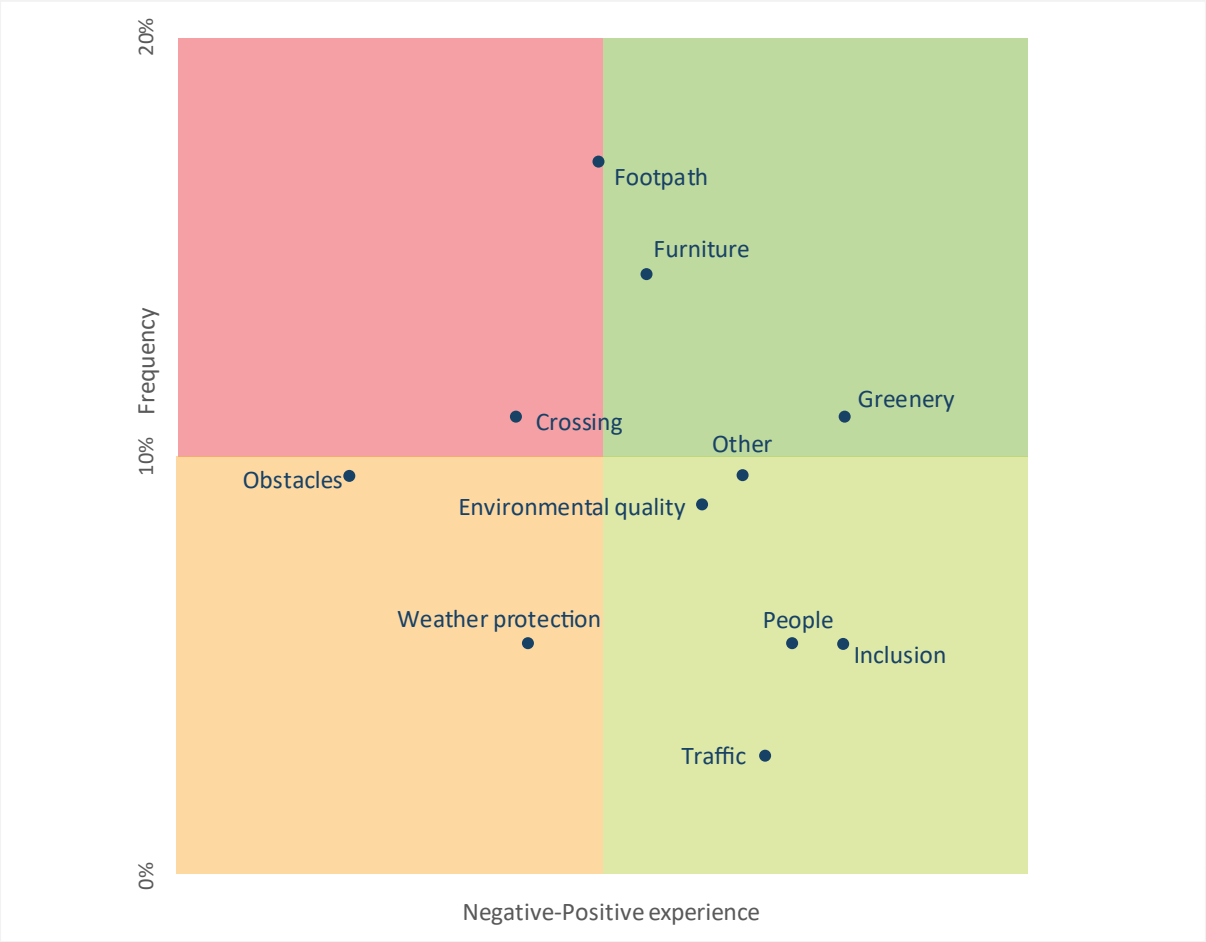


Figure 41. Determinants by frequency and negative-positive experiences, in Böfingen Long-Distance Bus Stop & Tram and Bus Stop Egertweg.

3.4.9. Positive and negative experiences by subcategory of determinants

Figure 42. Positive and negative experiences related to subcategories of footpath, crossing, furniture, greenery and obstacles, in Böfingen Long-Distance Bus Stop & Tram and Bus Stop Egertweg.

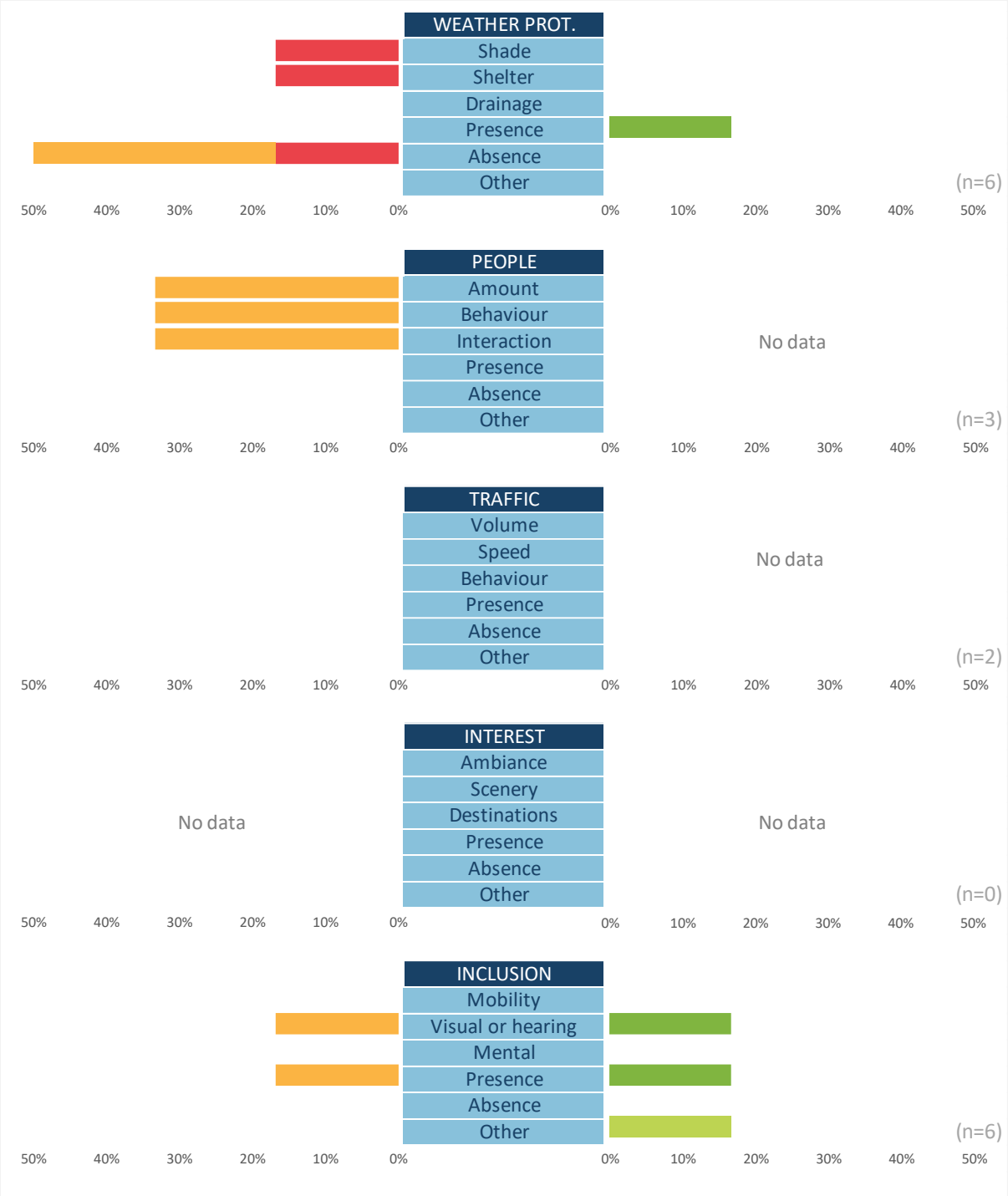


Figure 43. Positive and negative experiences related to subcategories of weather protection, people, traffic, interest and inclusion, in Böfingen Long-Distance Bus Stop & Tram and Bus Stop Egertweg.

3.4.10. Location of walking experiences

Figure 44. Location of observations and different experiences, in Böfingen Bus Stop & Tram and Bus Stop Egertweg.

Location of all types of experiences (n=100) and overall perceived walkability.

Figure 45. Location of all types of experiences and overall perceived walkability, in Böfingen Bus Stop & Tram and Bus Stop Egertweg.

3.4.11. Images and comments from participants

Very positive experience. Safe and comfortable	Negative experience. Unsafe and uncomfortable
"Everything is perfect"  Man, 38	*"It's difficult to navigate and get across the construction site with Teenagers. It's also loud"*  Woman, 22, moderate dificulty to walk
Negative experience. Uncomfortable	**Negative experience. Uncomfortable**
"Stop could be cleaner"  Man, 72	*"There could be more seats"*  Expert audit

Figure 46. Images from the study area with comments from participants, in Böfingen Bus Stop & Tram and Bus Stop Egertweg.

3.5. Tomerdingen Martinusstraße Bus Stop

Figure 47. Tomerdingen Martinusstraße Bus Stop.

Data was collected between 21/10/2024 and 04/11/2024 in Tomerdingen Martinusstraße Bus Stop. A total of 4 interviewed participants shared 4 walking experiences related to 9 environmental determinants. Due to challenges to engage with volunteered participants, most observations in this study area were conducted by three trained surveyors, who shared 100 walking experiences related to 134 determinants. In total, the study collected 104 walking experiences related to 134 environmental determinants. However, since almost all observations come from expert audits, there is no data analysis on the people who walk in this study area.

Which were the main walking experiences?

From the **104 walking experiences** collected from interviews and audits, most experiences were positive (48.1%), followed by negative (36.5%), very positive (9.6%), neutral and very negative (both 2.9%). Overall, positive and very positive experiences (57.7%) outnumbered negative and very negative ones (38.4%). When participants were asked to highlight one or more types of experiences, most referred to walking **enjoyment** (52%), with more enjoyable and very enjoyable experiences (68.6%) than unenjoyable and very unenjoyable ones (31.4%). Secondly, 37% of experiences were related to walking **safety,** with more safe and very safe (52.7%) than unsafe and very unsafe ones (38.9%). Finally, **comfort** was the least frequent type of experience shared by participants (34%), with more uncomfortable and very uncomfortable experiences (48.5%) than comfortable and very comfortable ones (42.4%)

What influenced walking experiences?

From the **134 environmental determinants** that influenced **walking experiences** in this study, the most frequent was *street furniture*, included in 18.6% of all observations, followed by *greenery* (14.2%), *footpath* (11.1%), *environmental quality* (10.4%), and *crossings* (8.1%).Participants related these determinants, and the other ones included in the study, to both **positive and negative experiences**. Overall, most determinants were related to more positive experiences, especially *interest*, *greenery,* and *furniture*. With the exception of *obstacles* and *people,* which were related to more negative experiences. The most relevant determinants related to positive and very positive experiences were *street furniture* (16.4%), *greenery* (11.2%) and *weather protection* (4.5%), while most negative and very negative experiences were related to bad *footpath* (6.7%), poor *environmental quality* (6%) and bad *crossings* (4.5%).

Regarding **safety**, the most relevant determinants influencing safe and very safe experiences were good *street furniture* (14%), *inclusion* (8%) and good *footpath* (6%), while most unsafe and very unsafe experiences were related to *bad footpath* (10%), followed by *bad crossings* (10%) and *traffic* (6%). Similarly for **comfort**, the most relevant determinants influencing comfortable and very comfortable experiences were good *furniture* (15.4%), *greenery* (13.4%) and *weather protection* (7.7%), while most uncomfortable and very uncomfortable experiences were related to bad *footpath* (9.6%), poor *environmental quality* (9.6%) and bad *inclusion* (5.8%). Finally for **enjoyment**, the most relevant determinants related to enjoyable and very enjoyable experiences were good *street furniture* (20%), *greenery* (18.3%) and interest (8.3%), while most unenjoyable and very unenjoyable experiences were related to *lack of greenery* (5%), poor *environmental quality* (5%) and bad *footpath* (3.3%)

Do different people have different experiences for different reasons?

Generally, not all participants shared the same type of experience or identified the same determinants in the same place. For this reason, the overall main types of experiences and their most relevant determinants can be filtered and reanalysed by the type of pedestrian or their walk context. The outcomes on how different people and walk contexts resulted in different experiences and relevant environmental determinants included all observations from all study areas to maintain a representative sample. This information is included in Section 2. Overall analysis for all study areas.

What to fix, improve and expand.

Different walking experiences by participants and experts helped identify areas with better and worse walkability and their main reasons. There are positive, neutral and negative experiences all across the study area, which implies that it presents a mix of good, adequate and bad walkability, often related to common determinants. Positive (48.1%) and very positive (9.6%) experiences were mainly related to street furniture, greenery, weather protection, interest and environmental quality. These were the determinants that most people praised when sharing safe, comfortable and enjoyable experiences. Areas with this type of positive experiences and quality should be expanded and promoted. On the other hand, participants shared negative (36.5%) and few very negative (2.9%) experiences related to bad footpath, poor environmental quality, bad crossings, obstacles and poor inclusion. In order to reduce future negative experiences, these issues should be prioritised and fixed, replicating or implementing similar quality elements from the areas with more positive experiences. Finally, places with neutral experiences (2.9%) can be considered “just adequate” environments. While they do not present a priority to fix, small improvements in their most common determinants, such as adequate footpath, crossings and street furniture may enable more positive and very positive experiences.

3.5.1. Location of study area and observations

Figure 48. Observations from interviews and audits in *Tomerdingen Martinusstraße Bus Stop.*

3.5.2. Data collected

Period		21/10/2024 - 04/11/2024	
Timeframe		10:06 - 11:11	
Interviews	Participants	4	
	Experiences	4	
	Determinants	9	
Audits	Experts	4	
	Experiences	100	
	Determinants	125	
Total	Experiences	**104**	
	Determinants	**134**	

Table 57. Data collected in Tomerdingen Martinusstraße Bus Stop.

3.5.3. Pedestrian profile

Variable	Category	N	%
AGE	Teenagers (16-17)	0	0
	Adults (18-65)	3	75
	Older people (>65)	1	25
GENDER	Man	2	50
	Woman	2	50
	Other / No answer	0	0
ABILITY (difficulty to move)	None	4	100
	Mild or moderate	0	0
	Severe or extrerme	0	0
ACTIVITY (mins/day)	Less than 10 min	0	0
	10 - 60 mins	1	25
	More than 60 min	3	75

Distribution N=4

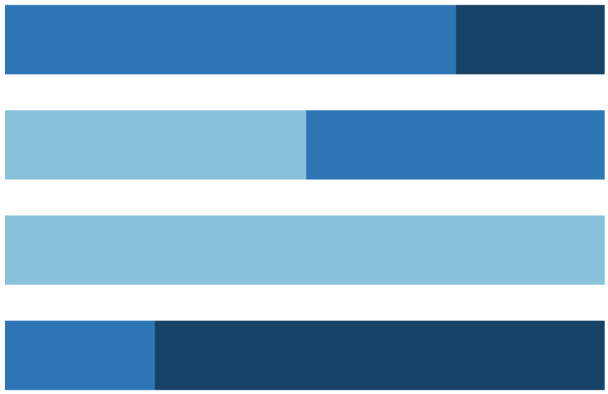


Table 58. Pedestrian profile in Tomerdingen Martinusstraße Bus Stop.

3.5.4. Walk context

Variable	Category	N	%
DECISION	Choice	1	25
	Necessity	3	75
	Other	0	0
PURPOSE	Transport	1	25
	Leisure	3	75
	Other	0	0
COMPANY	Alone	4	100
	Accompanied	0	0
	Other	0	0
FAMILIARITY	Local	3	75
	Visitor	1	25
	Other	0	0

Distribution N=4

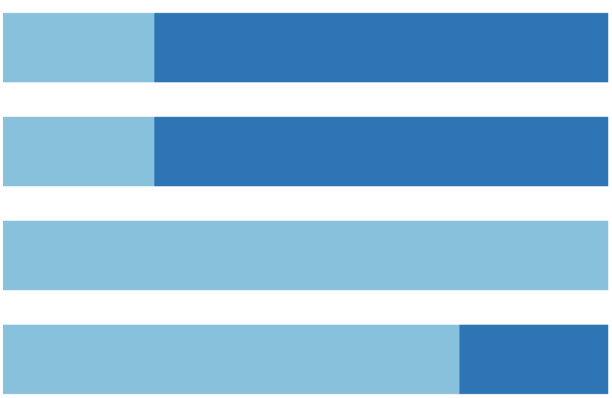


Table 59. Walk context in Tomerdingen Martinusstraße Bus Stop.

2.5.5. Walking experiences

EXPERIENCE	N	%
Very positive	10	9.6
Positive	50	48.1
Neutral	3	2.9
Negative	38	36.5
Very negative	3	2.9
TOTAL	104	100

TOP-5 determinants related to experience

Negative	Positive
Footpath	Furniture
Environmental quality	Greenery
Crossing	Weather protection
Obstacles	Interest
Inclusion	Environmental quality

Table 60. Walking experiences and top 5 determinants related to them, in Tomerdingen Martinusstraße Bus Stop.

SAFETY	N	%
Very safe	3	8.3
Safe	16	44.4
Neutral	3	8.3
Unsafe	12	33.3
Very unsafe	2	5.6
TOTAL	36	100

TOP-5 determinants related to safety

Unsafe	Safe
Footpath	Furniture
Crossing	Inclusion
Traffic	Footpath
Inclusion	Crossing
Furniture	Traffic

Table 61. Safety and top 5 determinants related to them, in Tomerdingen Martinusstraße Bus Stop.

COMFORT	N	%
Very comfortable	3	9.1
Comfortable	11	33.3
Neutral	3	9.1
Uncomfortable	14	42.4
Very uncomfortable	2	6.1
TOTAL	33	100

TOP-5 determinants related to comfort

Uncomfortable	Comfortable
Footpath	Furniture
Environmental quality	Greenery
Inclusion	Weather protection
Furniture	Footpath
Obstacles	Environmental quality

Table 62. Comforts and top 5 determinants related to them, in Tomerdingen Martinusstraße Bus Stop.

ENJOYMENT	N	%
Very enjoyable	7	13.7
Enjoyable	28	54.9
Neutral	0	0
Unenjoyable	16	31.4
Very unenjoyable	0	0
TOTAL	51	100

TOP-5 determinants related to enjoyment

Unenjoyable	Enjoyable
Greenery	Furniture
Environmental quality	Greenery
Footpath	Interest
Obstacles	Environmental quality
People	Other

Table 63. Enjoyment and top 5 determinants related to them, in Tomerdingen Martinusstraße Bus Stop.

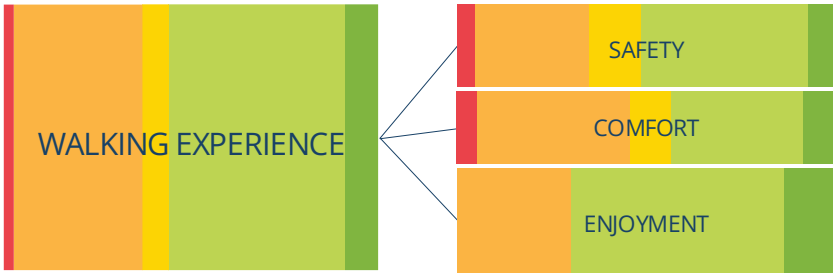


Figure 49. Share of positive and negative experiences and most frequent types, in Tomerdingen Martinusstraße Bus Stop.

3.5.6. Most frequent determinants by experience

Experience	Determinant	n	%	Distribution	N=134
Very Positive	Furniture	3	2.2		
	Inclusion	3	2.2		
	Greenery	2	1.5		
	Other	2	1.5		
	Footpath	1	0.7		
	Crossing	1	0.7		
	Environmental quality	1	0.7		
	Obstacles	0	0		
	Weather protection	0	0		
	People	0	0		
	Traffic	0	0		
	Interest	0	0		
Postive	Furniture	19	14.2		
	Greenery	13	9.7		
	Weather protection	6	4.5		
	Interest	6	4.5		
	Environmental quality	5	3.7		
	Footpath	4	3		
	Traffic	4	3		
	Crossing	3	2.2		
	Inclusion	3	2.2		
	Other	3	2.2		
	Obstacles	1	0.7		
	People	0	0		
Neutral	Footpath	1	0.7		
	Crossing	1	0.7		
	People	1	0.7		
	Other	1	0.7		
	Furniture	0	0		
	Greenery	0	0		
	Obstacles	0	0		
	Environmental quality	0	0		
	Weather protection	0	0		
	Traffic	0	0		
	Interest	0	0		
	Inclusion	0	0		
Negative	Footpath	9	6.7		
	Environmental quality	8	6		
	Crossing	6	4.5		
	Obstacles	5	3.7		
	Inclusion	5	3.7		
	Greenery	4	3		
	Furniture	2	1.5		
	People	2	1.5		
	Traffic	2	1.5		
	Other	2	1.5		
	Weather protection	1	0.7		
	Interest	0	0		
Very negative	Furniture	1	0.7		
	Weather protection	1	0.7		
	Traffic	1	0.7		
	Other	1	0.7		
	Footpath	0	0		
	Crossing	0	0		
	Greenery	0	0		
	Obstacles	0	0		
	Environmental quality	0	0		
	People	0	0		
	Interest	0	0		
	Inclusion	0	0		

Tablee 64. Most frequent determinants by type of experience, in Tomerdingen Martinusstraße Bus Stop.

3.5.7. Positive and negative experiences by determinant

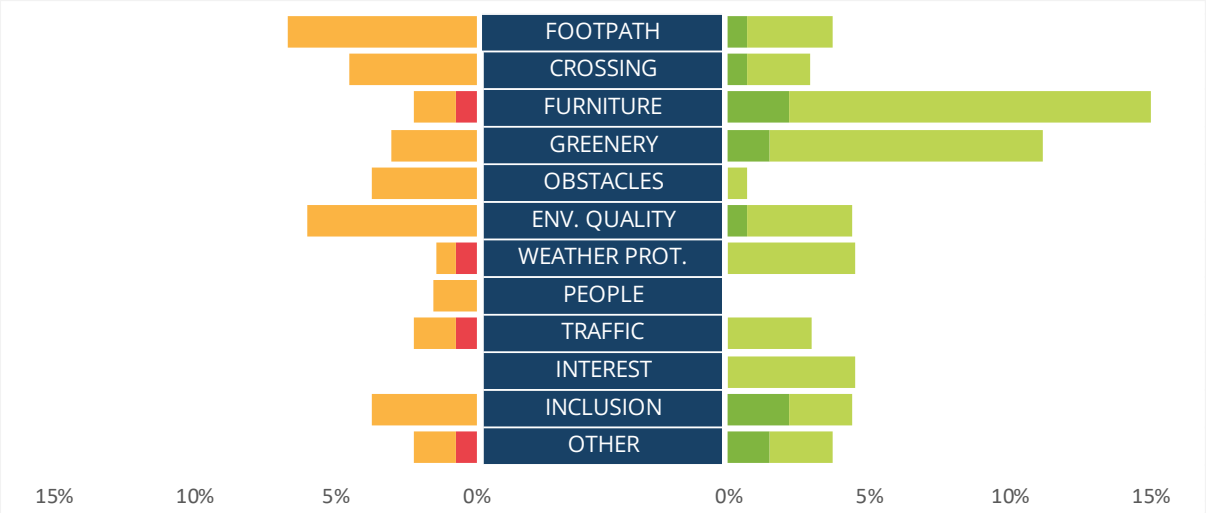


Figure 50. Positive and negative experiences by determinant, in Tomerdingen Martinusstraße Bus Stop.

3.5.8. Determinants by frequency and negative-positive experiences

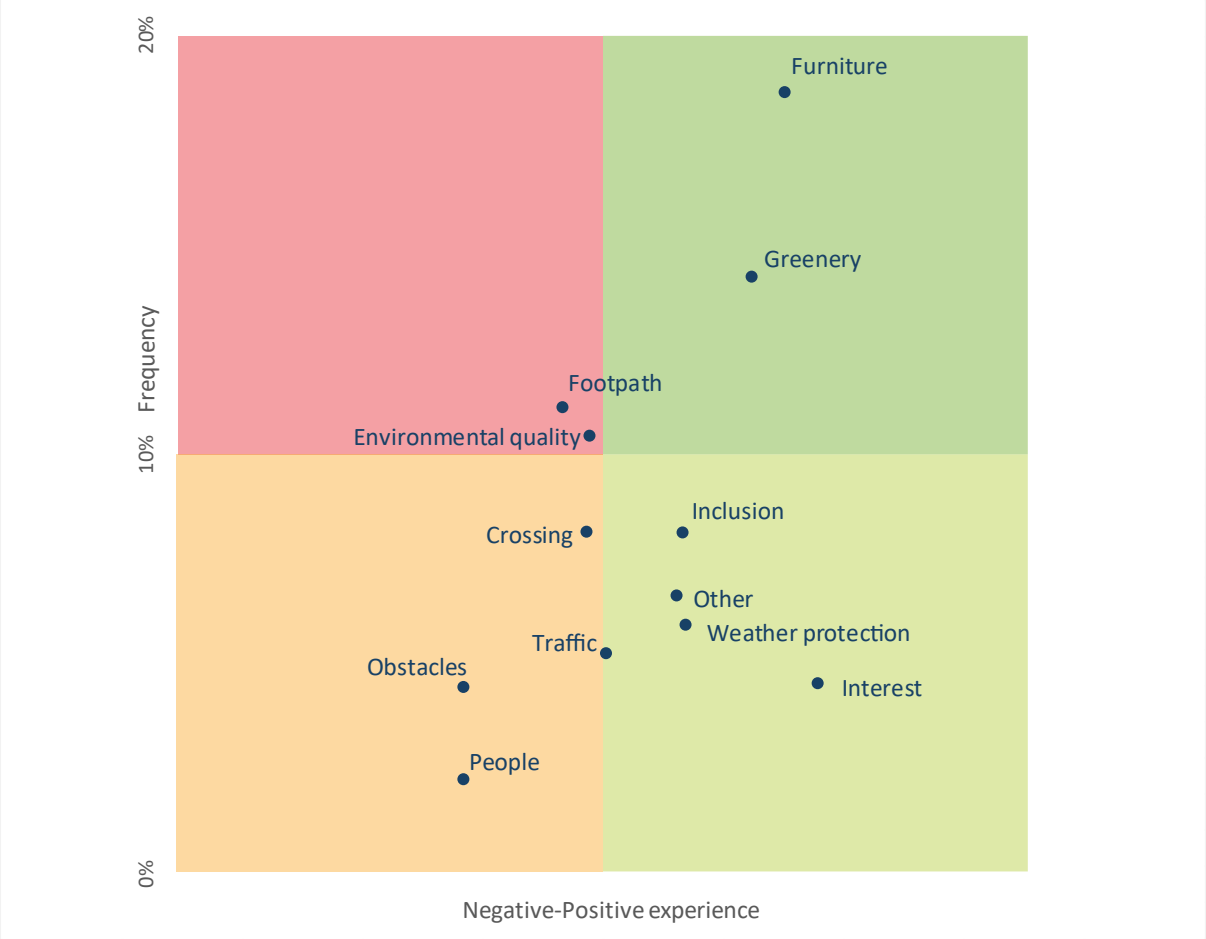


Figure 51. Determinants by frequency and negative-positive experiences, in Tomerdingen Martinusstraße Bus Stop.

3.5.9. Positive and negative experiences by subcategory of determinants

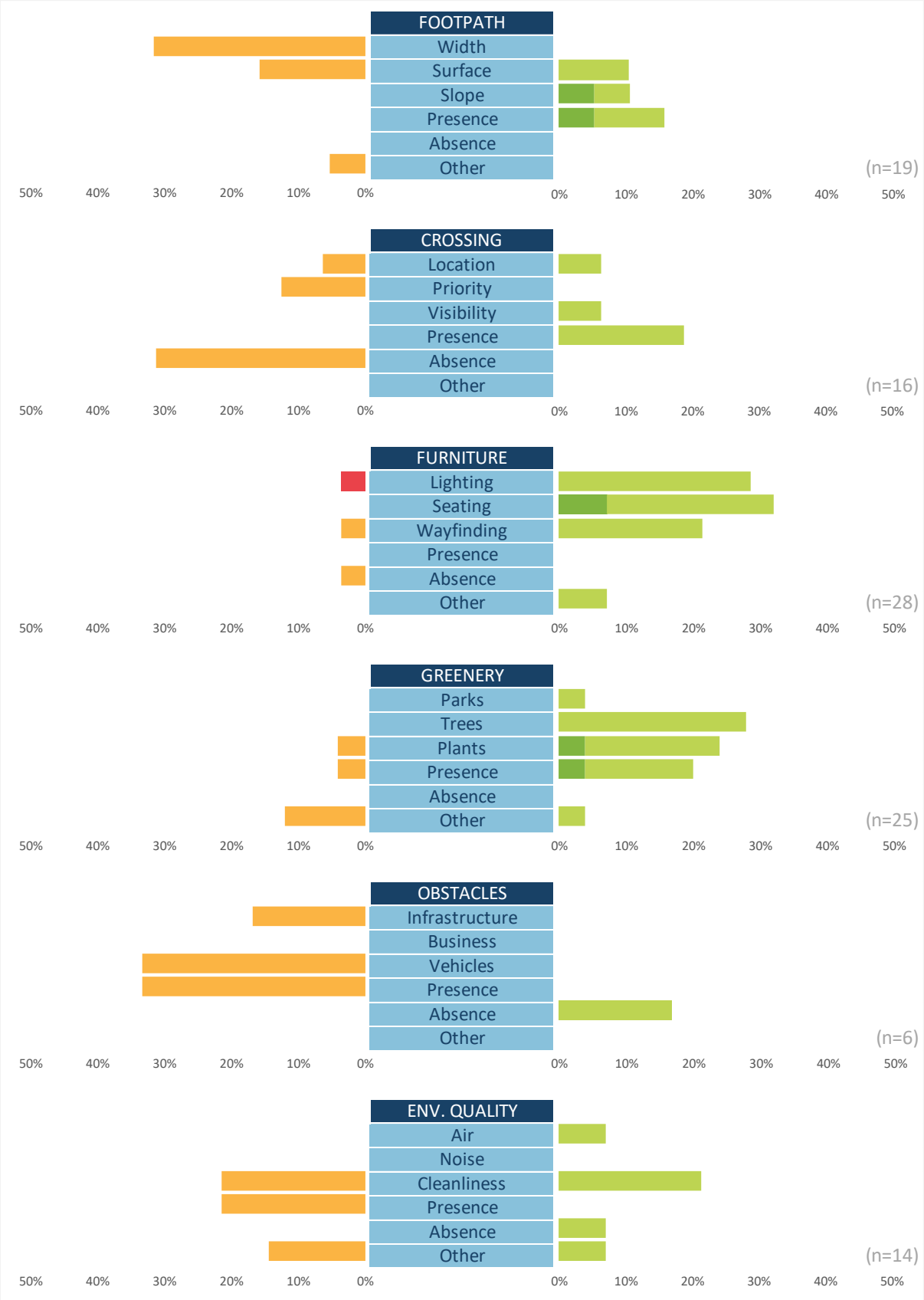


Figure 52. Positive and negative experiences related to subcategories of footpath, crossing, furniture, greenery and obstacles, in Tomerdingen Martinusstraße Bus Stop.

Figure 53. Positive and negative experiences related to subcategories of weather protection, people, traffic, interest and inclusion, in Tomerdingen Martinusstraße Bus Stop.

3.5.10. Location of walking experiences

Figure 54. Location of observations and different experiences, in Tomerdingen Martinusstraße Bus Stop

Location of all types of experiences (n=104) and overall perceived walkability.

Figure 55. Location of all types of experiences and overall perceived walkability, in Tomerdingen Martinusstraße Bus Stop.

3.5.11. Images and comments from participants

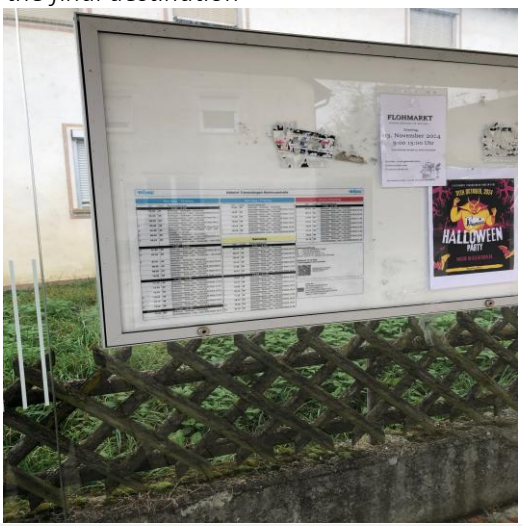
Positive experience. Enjoyable	Negative experiences
"Near the Bus station signs to important places in the village"  Expert audit	*"Not too much traffic but many heavy vehicles, which are very big and create a lot of noise"*  Expert audit
Very positive experience. Comfortable and enjoyable	**Negative experience. Unenjoyable**
"There is a bench under a tree next to the bus station. Shade in summer"  Expert audit	*"You cannot observe the Route with the times of the follow up station. It's just written the arrival at the final destination"*  Expert audit

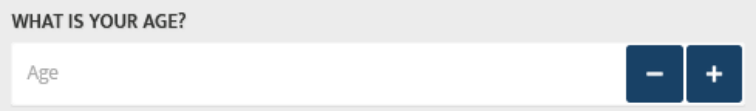
Figure 56. Images from the study area with comments from participants, in Tomerdingen Martinusstraße Bus Stop.

Annex A: App use and Glossary

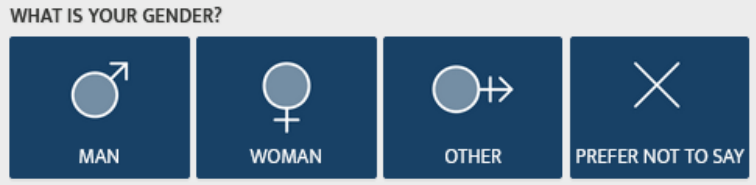
1. PEDESTRIAN PROFILE

Information about the people under study.

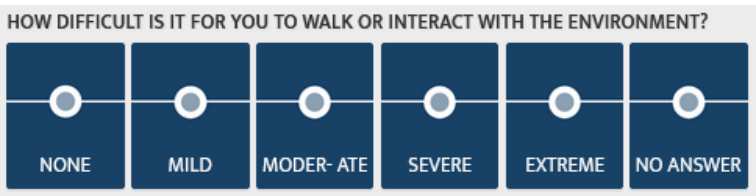
1.1. AGE The length of time that a person has lived[1].
Ask the participant: *"How old are you?" and add the value accordingly.*



1.2. GENDER The collective attributes or traits associated with a particular sex, or determined as a result of one's sex. The state of being male or female as expressed by social or cultural distinctions and differences[2].
Ask the participant: *"What is your gender?" and select the icon accordingly.*



1.3. ABILITY Based on the difficulty to walk or interact with the environment: Having difficulty means increased effort, discomfort or pain, slowness, and changes in the way you do the activity[3].
Ask the participant: *"Do you have any difficulty walking or interacting with the environment?" Tell them to choose from the scale: None / Mild / Moderate / Severe / Extreme, and select the icon accordingly.*



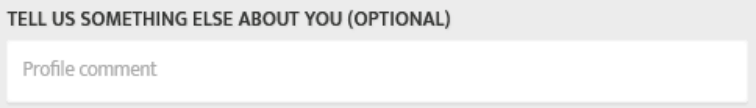
[1] Oxford English Dictionary (www.oed.com).
[2] Oxford English Dictionary, Psychology and Sociology (www.oed.com).
[3] Measuring Health and Disability: Manual for WHO Disability Assessment Schedule.

1.4. ACTIVITY The amount of time, in minutes, that a person normally walks a day.

Ask the participant: *"How many minutes do you normally walk on a typical day? and select the icon accordingly.*
"Typical day" means a day when the participant is engaged in their usual activities.

1.5. OTHER (Optional) Any other relevant information about the participant

Ask the participant any other relevant question related to your project (e.g. socioeconomic status, education, etc.) *and include it as an open comment in the textbox.*



2. WALK CONTEXT

Information about the walk under study

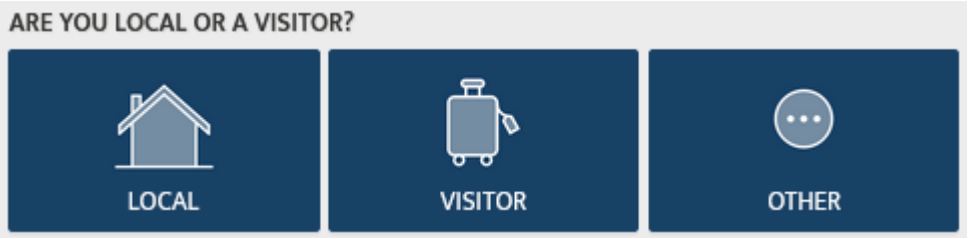
2.1. DECISION Indicates whether participants walk by choice or out of necessity.
Ask the participant: *"Are you walking by choice or out of necessity?" and select the icon accordingly.*
"By choice" means that walking is the preferred option, even if there were other alternatives.
"Out of necessity" means that walking is the only (feasible or affordable) option. Also known as "captive pedestrians", due to personal or service constraints.

2.2. PURPOSE Indicates whether participants walk for transport or leisure.
Ask the participant: *"Are you walking as a means of transport or as a leisure activity?" and select the icon accordingly.*

"Transport" means that the main purpose of the walk is to access or reach a certain destination (within a specific time), such as commute to work or school on foot.
"Leisure activity" means that the main aim of walking is not to reach a certain destination, but to walk in itself, such as doing restorative or moderate physical activity through walking, socialising while walking, walking the dog or walking sightseeing.

2.3. COMPANY Indicates the number of other pedestrians walking with the participant.
Ask the participant: *"Are you walking alone or with others?" and select the icon accordingly.*
"Alone" means that the participant walks or use the public space on their own.
"With others" means that the participant walks accompanied with others, including carrying babies or walking dogs.

2.4. FAMILIARITY Indicates the close acquaintance or knowledge of the participant with the place.
Ask the participant: *"Are you a local or visitor? Or "Are you familiar with this place?"" and select the icon accordingly.*
"Local" means that the participant is familiar with the place.
"Visitors" means that the participant is not familiar with the place. They have never (or hardly ever) been in the place.



2.5. OTHER (Optional) Any other relevant information about the walk context

Ask the participant any other relevant question about the walk related to your project (e.g. need to carry heavy or bulky loads) *and include it as an open comment in the textbox.*

3. WALK EXPERIENCE

Information about the participant's experience while walking at the place under study.

3.1. WALKING EXPERIENCE Indicates the rate of positive-negative intensity of the walking experience from the participant.
Ask the participant: *"How is your walking experience in this place?" and select the icon based on the Likert scale: Very negative / Negative / Neutral / Positive / Very positive.*

3.2. TYPE OF EXPERIENCE Participants can specify the most relevant type of walking experience by selecting one (or more) predefined categories: safety, comfort and enjoyment. Participants can also identify "other" types of experiences.
Ask the participant: *"Is your (positive/negative) experience related to safety, comfort, enjoyment or other type of experience?" and select the icon(s) accordingly. If the participant identifies "other" experiences, add them as comments.*

Experience related to "safety" means exposure or protection to risk, danger or injury. Primarily from traffic, crime or other hazards while walking, such as falls, extreme weather or pollution.

Experience related to "comfort" means ease or effort required to walk to certain destinations or use and interact with elements of the public space as a pedestrian.

Experience related to "enjoyment" means presence or absence of satisfaction, pleasure or content while walking and interacting with the elements and characteristics of the public space as a pedestrian.

"Other" experiences might include accessibility, attractiveness, vibrancy, etc.

4. ENVIRONMENTAL DETERMINANTS

Information about the elements and characteristics of the place under study that influenced walking experiences to participants.

4.1. MAIN DETERMINANTS Elements and characteristic of the place under study that influenced the participant`s walking experience.
Ask the participant: *"What (elements and characteristics of this place) influenced your experience? and select the icon(s) accordingly.*

FOOTPATH	*Public space exclusively dedicated to pedestrians*
CROSSING	*Specific part of the road where pedestrians have the right of way to cross*
FURNITURE	*Public equipment provided to support pedestrians in the street*
GREENERY	*Vegetation in public space*
OBSTACLES	*The presence (or absence) of physical barriers on the footpath or crossings, which hinder, discourage or make it impossible to walk*
ENVIRONMENTAL QUALITY	*The presence or absence of pollution in public space*
WEATHER PROTECTION	*Equipment provided to mitigate adverse weather conditions in public space*
PEOPLE	*The presence (or absence) of other people in public space and the way they interact and behave*
TRAFFIC	*The presence (or absence) of traffic in public space and the way the behave*
INTEREST	*The presence (or absence) of interesting things to access, see or experience in public space*
INCLUSION	*The design and composition of public space so that it can be accessed, understood and used by all types of pedestrians, regardless their age, gender, ability or other personal characteristics and circumstances*

4.2. DETERMINANTS - SUBCATEGORIES (Optional) Further information about main determinants can be subdivided into different subcategories, if the participant identifies some specific characteristics, elements or typologies of a main determinant that are relevant for their walking experience.

Ask the participant: *"What about the (main determinant) influence your experience? and select the options accordingly.*

FOOTPATH	Subcategory	Description
	WIDTH	The extent of the footpath from side to side
	SURFACE	The uppermost part of the footpath
	SLOPE	The steepness of the footpath
	PRESENCE	Presence of continuous footpath
	ABSENCE	Lack of continuous footpath
	OTHER	*E.g. Design, maintenance, etc.*

CROSSING	Subcategory	Description
	LOCATION	The designated place for pedestrians to cross the road
	PRIORITY	The priority given to pedestrians on waiting and crossing time (compared to traffic)
	VISIBILITY	The ability to see and be seen by traffic
	PRESENCE	Presence of designated crossing
	ABSENCE	Lack of designated crossing
	OTHER	*E.g. Raised crossings, pedestrian island, etc.*

FURNITURE	Subcategory	Description
	LIGHTING	The provision of lighting in public space
	SEATING	The provision of seats in public space
	WAYFINDING	The provision of information to navigate through public space and reach destinations
	PRESENCE	Presence of street furniture
	ABSENCE	Absence of street furniture
	OTHER	*E.g. Public fountain, public toilets, bins, etc.*

GREENERY	Subcategory	Description
	PARKS	Public green spaces
	TREES	Trees in public spaces outside parks and gardens
	PLANTS	Isolated or ground level plants in public space
	PRESENCE	Presence of vegetation
	ABSENCE	Lack of vegetation
	OTHER	*E.g. Vertical gardens, roof gardens, etc.*

OBSTACLES	Subcategory	Description
	MISPLACED EQUIPMENT	Street furniture or infrastructure blocking the footpath
	BUSINESS ACTIVITIES	Business and commerce equipment placed on the footpath
	PARKED VEHICLES	Parked vehicles blocking the footpath or crossings
	PRESENCE	Presence of obstacles
	ABSENCE	Lack of obstacles
	OTHER	*E.g. Bulky waste, building protrusions, etc.*

ENVIRONMENTAL QUALITY	Subcategory	Description
	AIR QUALITY	The level of air pollution in public space
	NOISE QUALITY	The level of noise pollution in public space
	CLEANLINESS	The state or quality of being clean or well kept
	PRESENCE	Presence of pollution
	ABSENCE	Lack of pollution
	OTHER	*E.g. Bad odour, construction dust, etc.*

WEATHER PROTECTION	Subcategory	Description
	SHADE	Public equipment to block sunlight and heat
	SHELTER	Public equipment to provide shield from precipitation and wind
	DRAINAGE	Infrastructure for dispersing rain water in public space
	PRESENCE	Presence of protection from weather
	ABSENCE	Lack of protection from weather
	OTHER	*E.g. Misting systems, air conditioner, etc.*

PEOPLE	Subcategory	Description
	AMOUNT	The amount of other people in public space
	BEHAVIOUR	The way other people act in public space
	INTERACTION	Social exchange between people in public space (including visual contact)
	PRESENCE	Presence of people in public space
	ABSENCE	Lack of people in public pace

TRAFFIC	Subcategory	Description
	VOLUME	The amount of traffic in public space
	SPEED	The distance traffic moves per unit of time, often in km/h or mph
	DRIVING BEHAVIOUR	The way drivers interact with other road users and obey traffic laws
	PRESENCE	Presence of traffic
	ABSENCE	Lack of traffic
	OTHER	*E.g. E-scooters, etc.*

INTEREST	Subcategory	Description
	AMBIENCE	Socioeconomic and cultural activities in public space
	SCENERY	Visual aesthetic of the public space and views
	DESTINATIONS	Places that pedestrians want to visit
	PRESENCE	Presence of interest
	ABSENCE	Lack of interest
	OTHER	*E.g. Live street music, street art, etc.*

INCLUSION	Subcategory	Description
	MOBILITY AID	Equipment to provide support to pedestrians with reduced or assisted mobility
	VISUAL & HEARING AID	Equipment to provide support to pedestrians with visual or hearing impairment
	MENTAL AID	Equipment to provide support to pedestrians with mental disorders
	PRESENCE	Presence of supporting aids
	ABSENCE	Lack of suporting aids