Walkability study in Kumasi, Ghana

Impact assessment after walking safety interventions

August 2025

TRANS SAFE
TRANSFORMING ROAD SAFETY IN AFRICA

AKENTEN APPIAH-MENKA UNIVERSITY
of Skills Training and Entrepreneurial Development

WALKABILITY

WALK21
LEADING THE WALKING MOVEMENT

About Trans Safe Project

The EU-Funded TRANS-SAFE project aims to maximise the impact of these solutions by bringing road safety agencies and experts from Europe and Africa to drive policy actions. Together, they will drive forward effective approaches for road safety development. The project will ensure the road conditions meet the recommendations of the Road Safety Cluster of the African-EU Transport Task Force (2020). The consortium members are highly experienced and knowledgeable in Africa-related research. Overall, the project will help deliver on the Joint EU-Africa Strategy and advance countries' progress towards the 2030 Agenda of Sustainable Development Goals.

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.

About Akenten Appiah-Menka University of Skills Training and Entrepreneurial Development (AAMUSTED), Kumasi, Ghana

Akenten Appiah-Menka University of Skills Training and Entrepreneurial Development, commonly known as AAMUSTED is a public university located in Kumasi, Ashanti Region, Ghana. The university was established under 1026 Act of 2020 of the Parliament of the Republic of Ghana to champion the course of higher technical, vocational and entrepreneurial education in the country.

The mandate is to provide higher education in technical, vocational, and entrepreneurial training to develop skilled manpower for job creation and economic development, It trains and provides teachers with the relevant competence for teaching in technical and vocational education and training institutions, develop strong linkages between academia, industry and the community, to ensure the holistic training of teachers.

Authors & Acknowledgments

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List of contents

1. Executive Summary

1.1. Aim of the project

As part of the Trans-Safe Project, the Akenten Appiah-Menka University in Kumasi and Walk21 collaborated in a walkability project to assess the impact of certain interventions in the public space to improve walking safety in Kumasi ,Ghana. As part of the project, this study measured walking experiences before and after some improvements in the public space and analysed the changes. The aim of the project is to better understand the effects of pedestrian-focused interventions on various aspects of the urban environment, including the construction of two raised pedestrian crossings, provision of road signs (e.g. speed limit, school zone, warning and mandatory), new road markings, and construction of rumble strips (in advance of raised pedestrian crossings, ensuring that walkability improvements are effective, sustainable, and beneficial for the community.

Context

Figure 1. Yaa Asantewa Road in Kumasi, Ghana.

The undivided two-lane carriageway in Kumasi, Ghana connects Osei Tutu II Boulevard and Lake Road. The road is dominated by educational institutions (basic school, Senior High School, university) complemented by a blend of residential and commercial land uses. Additionally, it serves as the location for the Asokwa Circuit Court.

Pedestrians using the road have approximately 3-metre-wide walkway space. Drivers in the 85th percentile speed reached 64 km/h, surpassing the urban limit of 50 km/h. 60.4% of vehicles exceeded 50 km/h, with over 27% exceeding 70 km/h.

Before the project, pictures illustrate worn out speed bumps, a faded crossing marking, a narrow footway with a deep drainage ditch resulting in overcrowding and pedestrians observed walking in the carriage way.

Figure 2. State of Yaa Asantewa Road before the intervention.

Between 2020-2022 there were 86 recorded crashes. This resulted in 57 crash victims (7 fatal, 26 serious injuries and 24 minor injuries). 41% of the crashes (n35) included a pedestrian. 92% of drivers were driving faster than the 50km/h speed limit.

1.2. What we did

In order to improve the safety of pedestrians, a team of seven students from Akenten Appiah-Menka University of Skills Training and Entrepreneurial Development (AAMUSTED) in Kumasi, Ghana, 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.

The project had three main phases. Firstly, data on walking experiences were collected in December 2024, along the Yaa Asantewa Road (2.5Km) in Kumasi, Ghana. Secondly, the study area had some safety walkability interventions, in response to the experiential data. Thirdly, data on walking experience were collected again in February 2025. This report presents the results before and after the walkability interventions and compare them to assess their impact on walking experiences.

In 2024, data were collected on the 17th of December, including 480 interviewed participants who shared 480 walking experiences related to 1,508 environmental determinants. In 2025, data were collected on the 25th of February, including 592 interviewed participants who shared 592 walking experiences related to 2,097 environmental determinants. Overall between 2024 and 2025, a total of

1,072 interviewed participants shared 1,072 walking experiences related to 3,605 environmental determinants, along the Yaa Asantewa Road (2.5Km) in Kumasi, Ghana.

1.3. The baseline

Who walks, why and how?

From the **1,072 pedestrians** interviewed in 2024 and 2025, most were adults (65.3%), followed by children under 18 years old (33.6%) and a small proportion of older adults (1.1%). In addition, 57.4% were men and 42.5% women. Regarding their ability, most participants had mild or moderate difficulty to move or interact with the environment (61.6%), followed by participants with no difficulty to move or interact with the environment (20.9%), while some had severe or extreme difficulty (17.4%). Finally, most participants were active pedestrians (63.2%) followed by very active (28.8%) and a small proportion of inactive ones (7.7%).

Based on their **walk context**, 63.9% of participants were walking out of necessity while 36.1% did it by choice. With regards to the walk purpose, 72.9% participants walked for transport, while 26.2% for leisure. Most participants were walking on their own (56.8%) compared to those walking with others (43.2%). Finally, most participants were familiar with the place (70.7%), while others were not (29.1%). For more information, see tables and graphs about pedestrian profiles and walk contexts on pages 11 and 18.

Which were the main walking experiences before the intervention?

In 2024 before the walkability intervention from the **480 walking experiences**, most were negative (52.5%), followed by neutral (20.4%), positive (14.2%), very negative (7.7%) and very positive (5.2%). Overall, negative and very negative experiences (60.2%) clearly outnumbered positive ad very positive ones (19.4%). When participants were asked to highlight one or more types of experiences, most referred to walking comfort (46.2%) with more uncomfortable and very uncomfortable experiences (73.5%) than comfortable and very comfortable ones (11.5%). Secondly, 37.4% of experiences were related to safety, with many more unsafe and very unsafe experiences (62.9%) than safe or very safe ones (20.6%). Finally, walking enjoyment was the least frequent type of experience shared by participants (16.1%), with more unenjoyable and very unenjoyable experiences (55.1%) than enjoyable and very enjoyable ones (22.4%). For more information, see tables and graphs about this on page 12.

1.4 The intervention

In response to the shared experiences a programme of works was delivered during November - December 2024. The works included:

- Construction of 2 raised pedestrian crossings
- Provision of road signs: Speed limit, school zone, warning and mandatory.
- New road markings
- Construction of rumble strips (in advance of raised pedestrian crossing).

Figure 3. Some safety interventions in Yaa Asantewa Road.

1.5. The positive impacts

Which were the main walking experiences after the interventions?

In 2025 after the walkability interventions, from the **592 walking experiences**, most were positive (37.2%), followed by neutral (34.3%), negative (12.5%), very positive (11.5%) and very negative (4.6%). Overall, positive and very positive experiences (48.7%) outnumbered negative ad very negative ones (17.1%). When participants were asked to highlight one or more types of experiences, most referred to walking comfort (43.6%) with more comfortable and very comfortable experiences (50%) than un comfortable and very uncomfortable ones (16.1%). Secondly, 35.2% of experiences were related to walking safety, with more safe and very safe experiences (49%) than un safe or very unsafe ones (15%). Finally, walking enjoyment was again the least frequent type of experience shared by participants (21.2%), with many more enjoyable and very enjoyable experiences (74.4%) than un enjoyable and very unenjoyable ones (9.9%). For more information, see tables and graphs about this on page 19.

How did the intervention impact walking experiences?

Comparing the results between 2024 and 2025, walking experiences significantly improved after the intervention. Negative and very negative experiences decreased 43.1 percentage points (from 60.2% to 17.1%), while positive and very positive experiences increased 29.3 percentage points (from 19.4% to 48.7%). Finally, natural experiences also increased 13.9 percentage points (from 20.4% to 34.3%). All types of experiences showed similar considerable positive impacts, with fewer unsafe, uncomfortable and unenjoyable experiences, while safe, comfortable and enjoyable ones increased

notably. Unsafe and very unsafe experiences decreased 47.9 percentage points (from 62.9% to 15%), while safe and very safe ones increased 28.4 percentage points (from 20.6%% to 49%). Uncomfortable and very uncomfortable experiences decreased 57.5 percentage points (from 73.5% to 16.1%), while comfortable and very comfortable ones increased 38.5 percentage points (from 11.5% to 50%). Finally, unenjoyable and very unenjoyable experiences decreased 45.2 percentage points (from 55.1% to 9.9%), while enjoyable and very enjoyable ones increased 52 percentage points (from 22.4% to 74.4%).

The Walkability App calculates an *overall perceived walkability* from all the observations shared by participants to identify the central tendency of experiences. It considers a scale where 0 = very negative, 25 = negative, 50 = neutral, 75 = positive, and 100= very positive. As a result, a value between 0 and 100 represents an overall perceived walking experience where values close to 0 express that most participants shared very negative and negative experiences, while values close to 100 express that most participants shared positive and very positive experiences. In this project, the overall perceived walkability before the intervention in 2024 was 39.2 out of 100. While the overall perceived walkability after the intervention in 2025 was 59.6 out of 100, an improvement of 20.4 points. Similarly, walking safety improved 19.6 points (from 38.4 to 58 out of 100), walking comfort improved 27 points (from 33.3 to 60.3 out of 100) and walking enjoyment improved 32 points (from 40.7 to 72.7 out of 100). For more information, see tables and graphs about this on pages 24 and 25.

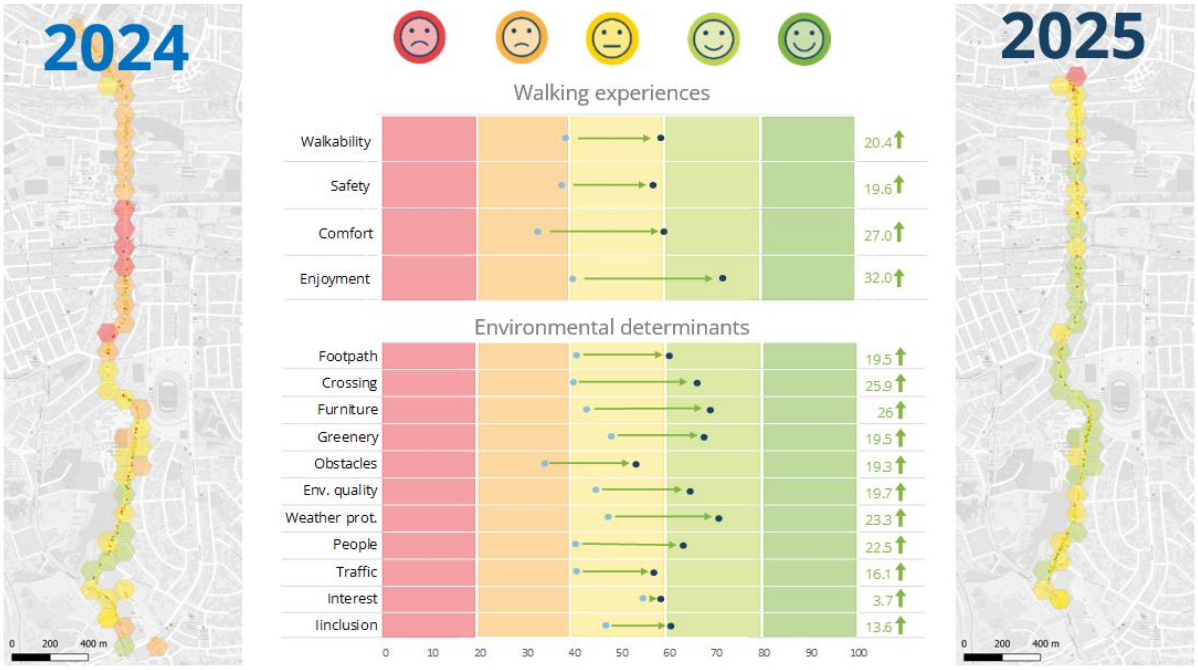


Figure 4. Spatial and content analysis with the positive impacts on walking experiences.

What influenced walking experiences?

In 2024 before the walkability intervention, from the **1,508 environmental determinants** that influenced walking experiences in this study, the most frequent was obstacles, included in 57.7% of all observations, followed by footpath (49.8%), crossings (33.1%), people (32.7%), traffic and interest (both with 31.7%). Participants related these determinants, and others included in the study, to both positive and negative experiences. Overall, almost all determinants were related to more negative experiences, especially obstacles and crossings. The most relevant determinants related to negative

and very negative experiences were obstacles (13.6%), poor or no footpath (9%) and people (6%), while most positive and very positive experiences were related to poor good footpath (3.7%), interest (3%) and lack of obstacles (2.4%).

Regarding safety, the most relevant determinants influencing safe and very safe experiences were good footpaths (3.9%), interest (3.5%) and low traffic (3.3%), while most unsafe and very unsafe experiences were related to obstacles (14.6%), poor footpath (8.3%) and bad crossings (6.7%). Similarly for comfort, the most relevant determinants influencing comfortable and very comfortable experiences were good footpaths (1.9%), people (1.7%) and good crossings (1.5%), while most uncomfortable and very uncomfortable experiences were related to obstacles (18.3%), poor footpath (10.5%) and traffic (8.2%). Finally for enjoyment, the most relevant determinants related to enjoyable and very enjoyable experiences were good footpath (3.1%), people (3%) and interest (2.6%), while most unenjoyable and very unenjoyable experiences were related to obstacles (9.6%), poor footpath (7.4%) and bad crossings (5.9%).

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 footpaths, participants raised concerns about the absence of continuous footpath and bad surfaces, but also shared positive experiences in places with continuous footpath. Participants mostly shared negative experiences related to the presence of obstacles, especially parked vehicles and business equipment, such as street stalls blocking footpaths. On the other hand, participants praised places with no obstacles. Participants also shared positive experiences related to the interest of the place due to their scenery and that hey have key destinations to go. Finally, some participants raised concerns about other people in the street due to negative social behaviour. A detailed list with all categories and subcategories of environmental determinants that influenced walking experiences in a positive or negative way in 2024 can be seen in the tables and graphs on pages 14 to 17.

In 2025 after the walkability intervention, from the **2,097 environmental determinants** that influenced walking experiences in this study, the most frequent was footpath, included in 59.5% of all observations, followed by people (52.4%), obstacles (42.6%), crossings (39%), and environmental quality (35.8%). Participants related these determinants, and others included in the study, to both positive and negative experiences. Overall, almost all determinants were related to more positive experiences, especially protection from weather and street furniture. The most relevant determinants related to positive and very positive experiences were good footpath (8.3%), people (8%) and good crossings (6.4%), while most negative and very negative experiences were related to obstacles (3.5%), poor or no footpath (2.7%) and people (1.9%).

Regarding safety, the most relevant determinants influencing safe and very safe experiences were good footpaths (11.3%), people (9.8%) and good crossings (5.4%), while most unsafe and very unsafe experiences were related to obstacles (3.6%), poor footpath (3.2%) and traffic (2.7%). Similarly for comfort, the most relevant determinants influencing comfortable and very comfortable experiences were good footpaths (9.7%), people (8.6%) and good crossings (6.3%), while most uncomfortable and very uncomfortable experiences were related to obstacles (3.4%), poor footpath (2.3%) and people (1.9%). Finally for enjoyment, the most relevant determinants related to enjoyable and very enjoyable experiences were good crossings (10.4%), good environmental quality (10.3%) and people (10.3%), while most unenjoyable and very unenjoyable experiences were related to poor environmental quality (1.8%), obstacles (1.2%) and people (1.1%).

Looking at specific characteristic or subcategories of determinants, many participants shared positive experiences related to the presence of continuous and wide footpath, although a fee still raised

concerns about absence of footpath at some places. In the case of crossings, most participants praised the presence of crossings at good locations, although some participants shared negative experiences from crossings with poor visibility. Fewer participants shared negative experiences about obstacles, but parked vehicles on the footpath was still a common concern. Finally, most participants shared positive experience about people in the street and positive social interaction with them, although a few participants also shared negative experiences due to negative social behaviour in some cases. A detailed list with all categories and subcategories of environmental determinants that influenced walking experiences in a positive or negative way in 2025 can be seen in the tables and graphs on pages 20 to 23.

Figure 5. State of Yaa Asantewa Road after the intervention.

How did the intervention impact the influence of walking determinants?

Comparing the results between 2024 and 2025, walking experiences related to all environmental determinants significantly improved after the intervention. In 2025, some determinants were more relevant for walking experiences compared to 2024, such as footpath, crossings, environmental quality, people and inclusion. Overall, the determinants that showed a bigger improvement in the walking experiences related to them were street furniture, crossings, weather protection, people and environmental quality. Although other determinants like footpath, greenery and obstacles also were more positively experienced after the interventions.

The negative and very negative experiences related to street furniture decreased 44.8 percentage points (from 47.1% to 2.3%), while the positive and very positive ones increased 47.5 percentage points (from 17.7% to 65.2%). In the case of crossings, the negative and very negative experiences decreased 44.9 percentage points (from 55.3% to 10.4%), while the positive and very positive ones increased 37.6 percentage points (from 20.2% to 57.8%). For weather protection, the negative and very negative experiences decreased 38 percentage points (from 42.3% to 4.3%), while the positive and very positive ones increased 27.9 percentage points (from 33% to 60.9%).

Based on an *overall perceived walkability* linked to each determinant, from 0 (very negative) to 100 (very positive), all determinants notably improved their scores. Street furniture improved 26 points (from 42.6 to 68.6 out of 100), crossings improved 25.9 points (from 39.8 to 65.7 out of 100), weather protection improved 23.3 points (from 47.1 to 70.4 out of 100), people in the street improved 22.5 points (from 40.3 to 62.8 out of 100) and environmental quality improved 19.7 points (from 44.6 to 64.3 out of 100). A detailed list with all changes in walking experiences related to determinants can be seen in the graphs on pages 27 to 30.

Do different people have different experiences for different reasons?

Regarding all **walking experiences** shared in 2024 and 2025, this study did not find any major differences between **people** with different ages, gender, ability or activity. However, adults shared slightly more negative and very negative experiences (37.7%) than children (33.3%). The sample size of older adults (n=12) in this study does not provide enough information to generalise outcomes from this category. Women shared slightly more negative and very negative experiences (40.6%) than men (33.3%). The most relevant difference was with people with severe or extreme difficulty to move, who shared more negative and very negative experiences (63.2%) than people with mild or moderate difficulty (27.7) and people with no difficulties (39.7%). Finally, very active pedestrians shared more negative and very negative experiences (37.9%) than very active pedestrians (35.4%) and inactive ones (29%). Similar results can be seen related to walking safety, comfort and enjoyment.

Based on the **walk context**, people walking out of necessity, for transport, alone and as locals generally shared more negative and very negative experiences compared to people who walk by choice, for leisure, with others and as locals. Similar small differences were present when looking at walking **safety**, **comfort** and **enjoyment**. Other differences can be seen in the way different pedestrians experience specific environmental determinants, with people with difficulty to move often sharing more negative experiences related to obstacles, traffic, bad footpaths and crossings. For a complete list, see tables and graphs about this on pages 39 to 46.

1.4. What we recommend

1. In cities all over the world, but especially in Africa where the burden of road fatalities is highest, there is a need for a low cost, easy to apply approach to address road safety effectively. This approach in Kumasi has proven to easily engage existing street users and efficiently identify what specific investments are required to improve the reality of their safety. The same tool has provided a quantitative and qualitative value on the impact of the interventions. Understanding the immediate impact on perceived safety gives a quick return to decision makers. Overtime, it is hoped, that there will be safer driving behaviour and less crashes and casualties too. It is recommended that this approach (to engage, analyse, understand, respond and evaluate) is adopted as standard practice

across Kumasi, Ghana and the region to help rapidly transform the safety reality that citizens are dealing with every day.

2. It is noted that in this study, older adults were not a focus of the road user engagement (n=12). However parallel use of the walkability app in other countries, such as Lusaka, Zambia, has identified that older adults' needs are different from other sectors of society. It is recommended that in future use of the app a cross section of the population is engaged to share their opinions. Where these people are not visible in the street, to interview, it may be helpful to invite people to walk in the street with a surveyor to collect their experiences.

3. More than 70% of people walking in this study were doing so out of necessity and to get from their home to a specific destination as a routine way to travel. These profiles are likely similar in many other streets in Kumasi, Ghana and across Africa, where there are education facilities and residential neighbourhoods within 30-minute walks of each other. It is recommended that the lessons from this study are scaled to benefit other streets, connecting other schools, to benefit other students, their families and teachers as soon as possible. Likewise, the same could be applied to health care facilities and the catchment areas of public transport stops and interchanges as an additional priority.

4. Measuring traffic speed and crash incidents helps highlight a problem but does not provide an immediate solution pathway. It is recommended that safety perceptions from a people-centred perspective are routinely collected additionally, specifically when there are clusters of crashes and/or investments planned.

2. Walking experiences in 2024 (before intervention)

2.1. Location of study area

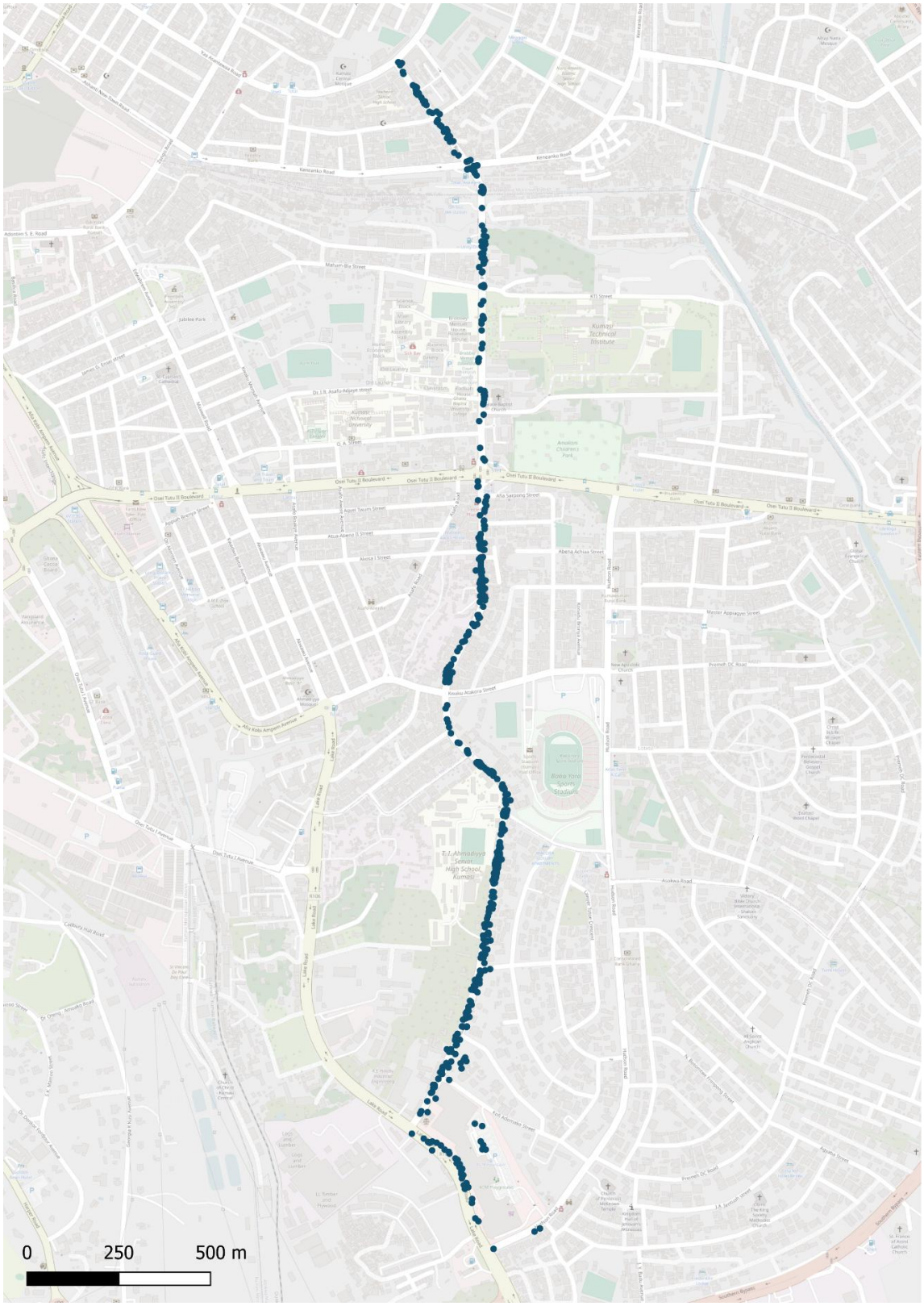


Figure 6. Location of study area in 2024.

2.2. Data collected

Period		17/12/2024
Timeframe		07:16 – 18:06
Interviews	Participants	480
	Experiences	480
	Determinants	1,508

Table 1. Data collected in 2024.

2.3. Pedestrian profile

Variable	Category	N	%	Distribution	N=480
AGE	Children (<18)	151	31.5		
	Adults (18-65)	322	67.1		
	Older people (>65)	7	1.5		
GENDER	Man	303	63.1		
	Woman	177	36.9		
	Other / No answer	0	0		
ABILITY (difficulty to move)	None	148	30.8		
	Mild or moderate	217	45.3		
	Severe or extrerme	114	23.8		
ACTIVITY (mins/day)	Less than 10 min	43	9		
	10 - 60 mins	317	66.1		
	More than 60 min	119	24.8		

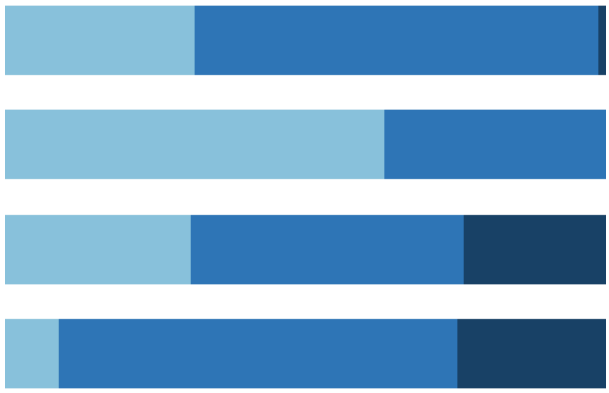


Table 2. Pedestrian profile from interviews, in 2024.

2.4. Walk context

Variable	Category	N	%	Distribution	N=480
DECISION	Choice	138	28.8		
	Necessity	342	71.3		
	Other	0	0		
PURPOSE	Transport	367	76.5		
	Leisure	106	22.1		
	Other	7	1.5		
COMPANY	Alone	328	68.3		
	Accompanied	152	31.7		
	Other	0	0		
FAMILIARITY	Local	366	76.3		
	Visitor	112	23.3		
	Other	2	0.4		

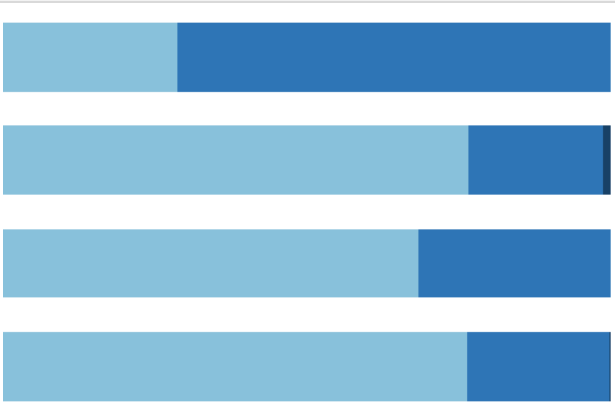


Table 3. Walk context from interviews, in 2024.

2.5. Walking experiences

EXPERIENCE	N	%
Very positive	25	5.2
Positive	68	14.2
Neutral	98	20.4
Negative	252	52.5
Very negative	37	7.7
TOTAL	480	100

TOP-5 determinants related to experience

Negative	Positive
Obstacles	Footpath
Footpath	Interest
People	Obstacles
Traffic	Traffic
Crossing	Crossing

Table 4. Walking experiences and top 5 determinants related to them, in 2024.

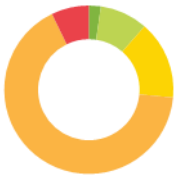
SAFETY	N	%
Very safe	16	6.5
Safe	35	14.1
Neutral	41	16.5
Unsafe	130	52.4
Very unsafe	26	10.5
TOTAL	248	100

TOP-5 determinants related to safety

Unsafe	Safe
Obstacles	Footpath
Footpath	Interest
Crossing	Traffic
Traffic	Obstacles
People	Crossing

Table 5. Safety and top 5 determinants, in 2024.

COMFORT	N	%
Very comfortable	7	2.3
Comfortable	28	9.2
Neutral	46	15
Uncomfortable	203	66.3
Very uncomfortable	22	7.2
TOTAL	306	100



TOP-5 determinants related to comfort

Uncomfortable	Comfortable
Obstacles	Footpath
Footpath	People
Traffic	Crossing
People	Greenery
Crossing	Weather protection

Table 6. Comfort and top 5 determinants, in 2024.

ENJOYMENT	N	%
Very enjoyable	4	3.7
Enjoyable	20	18.7
Neutral	24	22.4
Unenjoyable	50	46.7
Very unenjoyable	9	8.4
TOTAL	107	99.9

TOP-5 determinants related to enjoyment

Unenjoyable	Enjoyable
Obstacles	Footpath
Footpath	People
Crossing	Interest
People	Crossing
Traffic	Greenery

Table 7. Enjoyment and top 5 determinants, in 2024.

Figure 7. Share of positive and negative experiences and most frequent types, in 2024.

2.6. Most frequent determinants by experience

Experience	Determinant	n	%	Distribution	N=1,508
Very Positive	Interest	14	0.9		
	Footpath	13	0.9		
	Crossing	9	0.6		
	Obstacles	9	0.6		
	People	9	0.6		
	Greenery	7	0.5		
	Environmental quality	7	0.5		
	Traffic	7	0.5		
	Inclusion	7	0.5		
	Weather protection	6	0.4		
	Furniture	3	0.2		
	Other	1	0.1		
Postive	Footpath	42	2.8		
	Interest	32	2.1		
	Obstacles	27	1.8		
	Traffic	27	1.8		
	Crossing	23	1.5		
	Weather protection	22	1.5		
	People	21	1.4		
	Greenery	20	1.3		
	Inclusion	18	1.2		
	Environmental quality	17	1.1		
	Furniture	6	0.4		
	Other	2	0.1		
Neutral	Footpath	49	3.2		
	Crossing	39	2.6		
	People	36	2.4		
	Obstacles	35	2.3		
	Interest	32	2.1		
	Inclusion	30	2		
	Greenery	29	1.9		
	Traffic	29	1.9		
	Weather protection	21	1.4		
	Environmental quality	20	1.3		
	Furniture	18	1.2		
	Other	2	0.1		
Negative	Obstacles	186	12.3		
	Footpath	110	7.3		
	People	82	5.4		
	Traffic	79	5.2		
	Crossing	70	4.6		
	Environmental quality	38	2.5		
	Greenery	30	2		
	Weather protection	28	1.9		
	Interest	28	1.9		
	Inclusion	26	1.7		
	Furniture	21	1.4		
	Other	0	0		
Very negative	Footpath	25	1.7		
	Obstacles	20	1.3		
	Crossing	18	1.2		
	Traffic	10	0.7		
	People	9	0.6		
	Inclusion	9	0.6		
	Weather protection	8	0.5		
	Greenery	6	0.4		
	Environmental quality	6	0.4		
	Interest	6	0.4		
	Furniture	3	0.2		
	Other	1	0.1		

Table 8. Most frequent determinants by type of experience, in 2024.

2.7. Positive and negative experiences by determinant

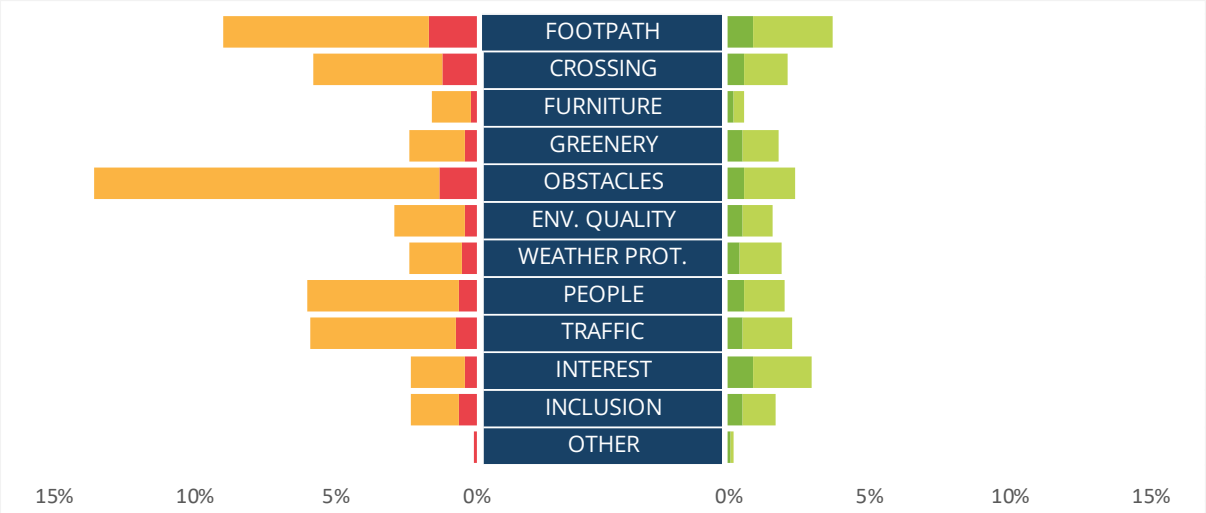


Figure 8. Positive and negative experiences by determinant, in 2024.

2.8. Determinants by frequency and negative-positive experiences

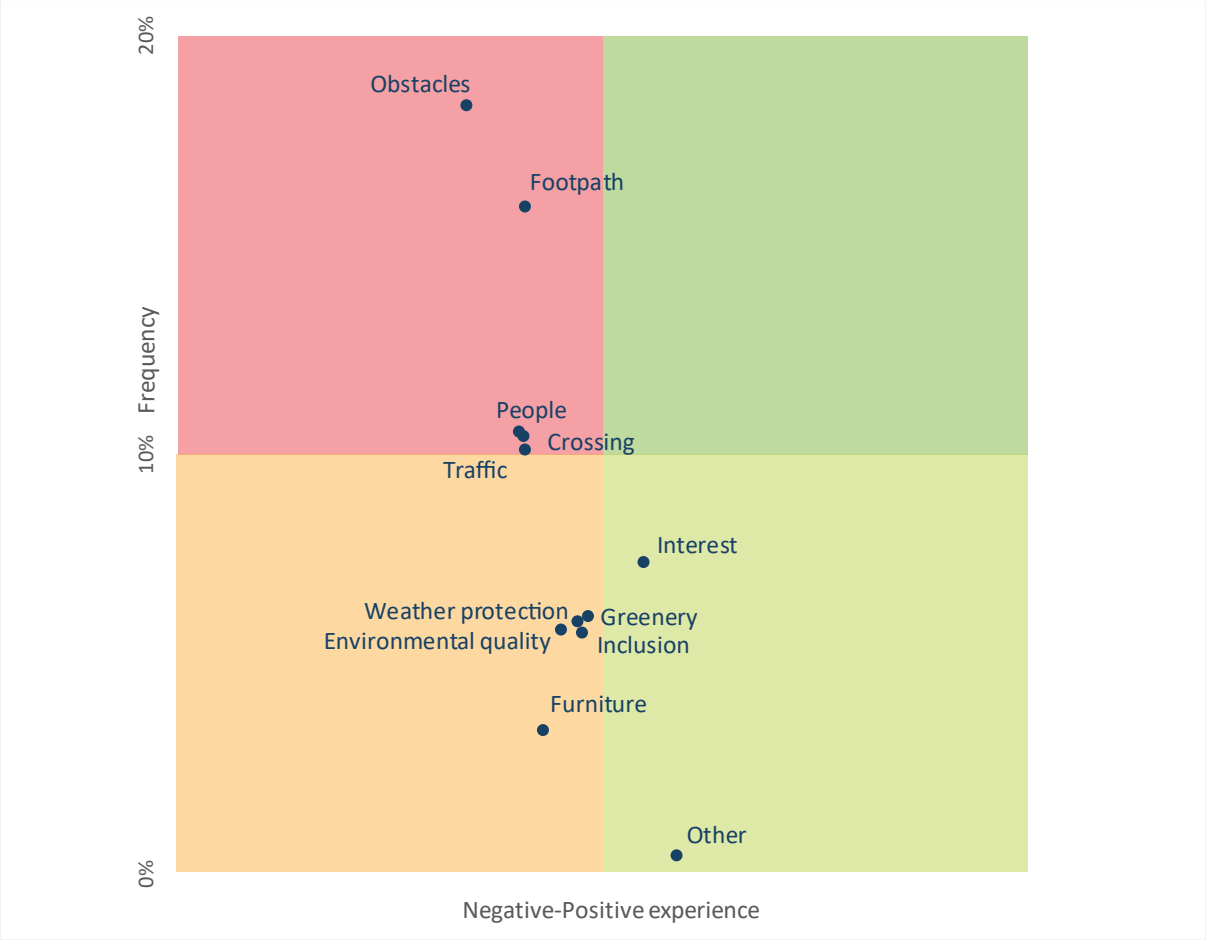


Figure 9. Determinants by frequency and negative-positive experiences, in 2024.

2.9. Positive and negative experiences by subcategory of determinants

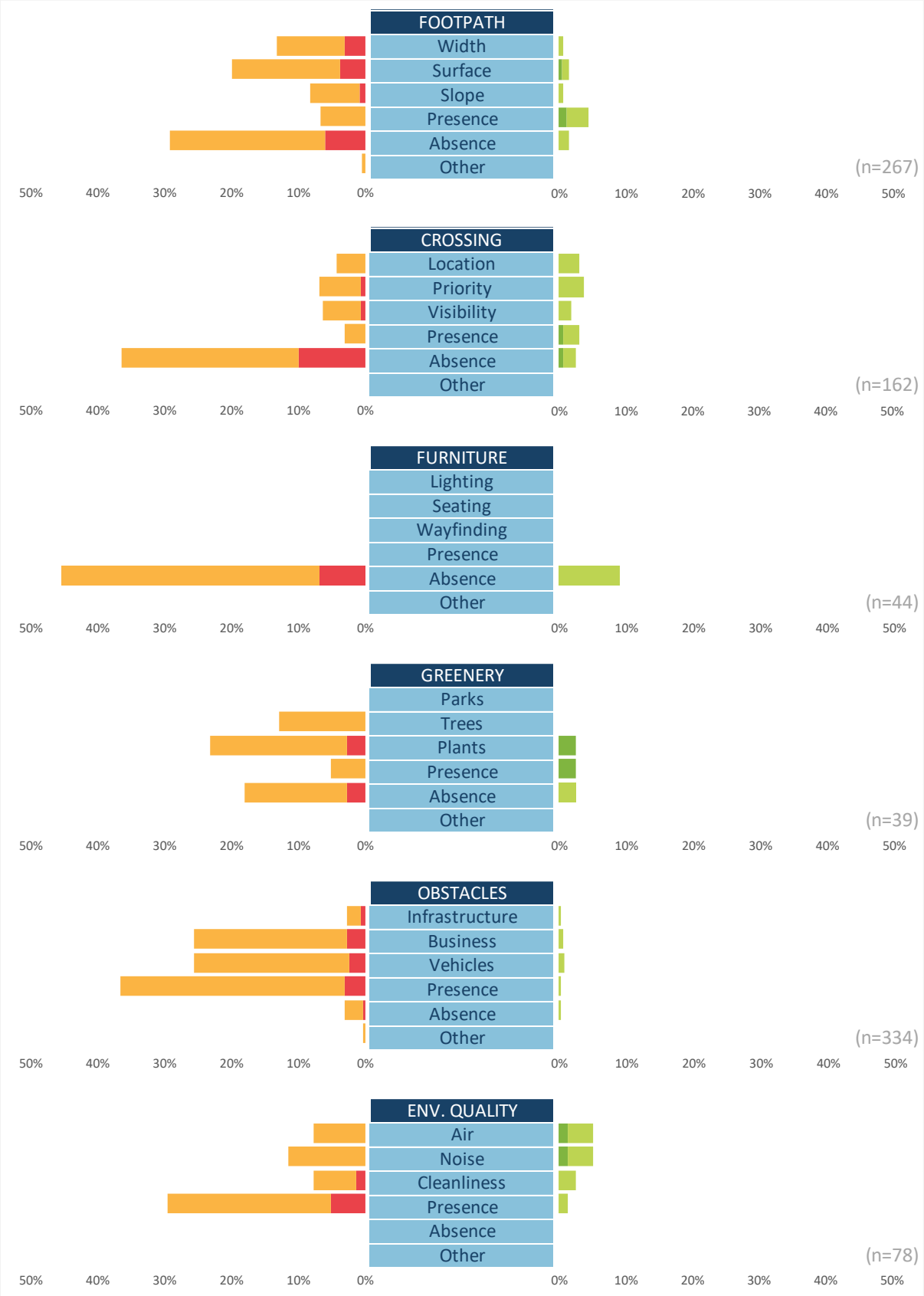


Figure 10. Positive and negative experiences related to subcategories of footpath, crossing, furniture, greenery and obstacles, in 2024.

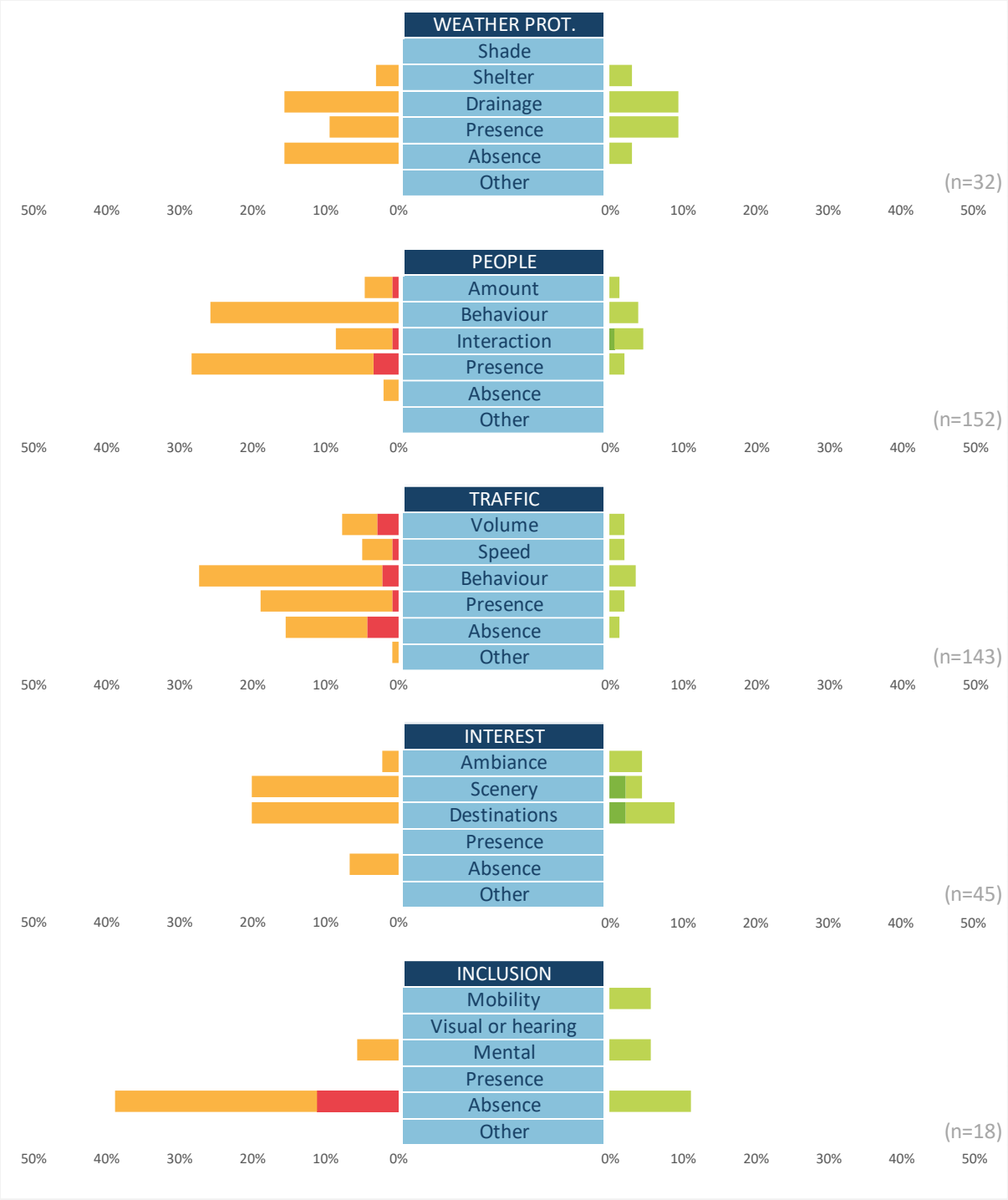


Figure 11. Positive and negative experiences related to subcategories of weather protection, people, traffic, interest and inclusion, in 2024.

3. Walking experiences in 2025 (after intervention)

2.1. Location of study area

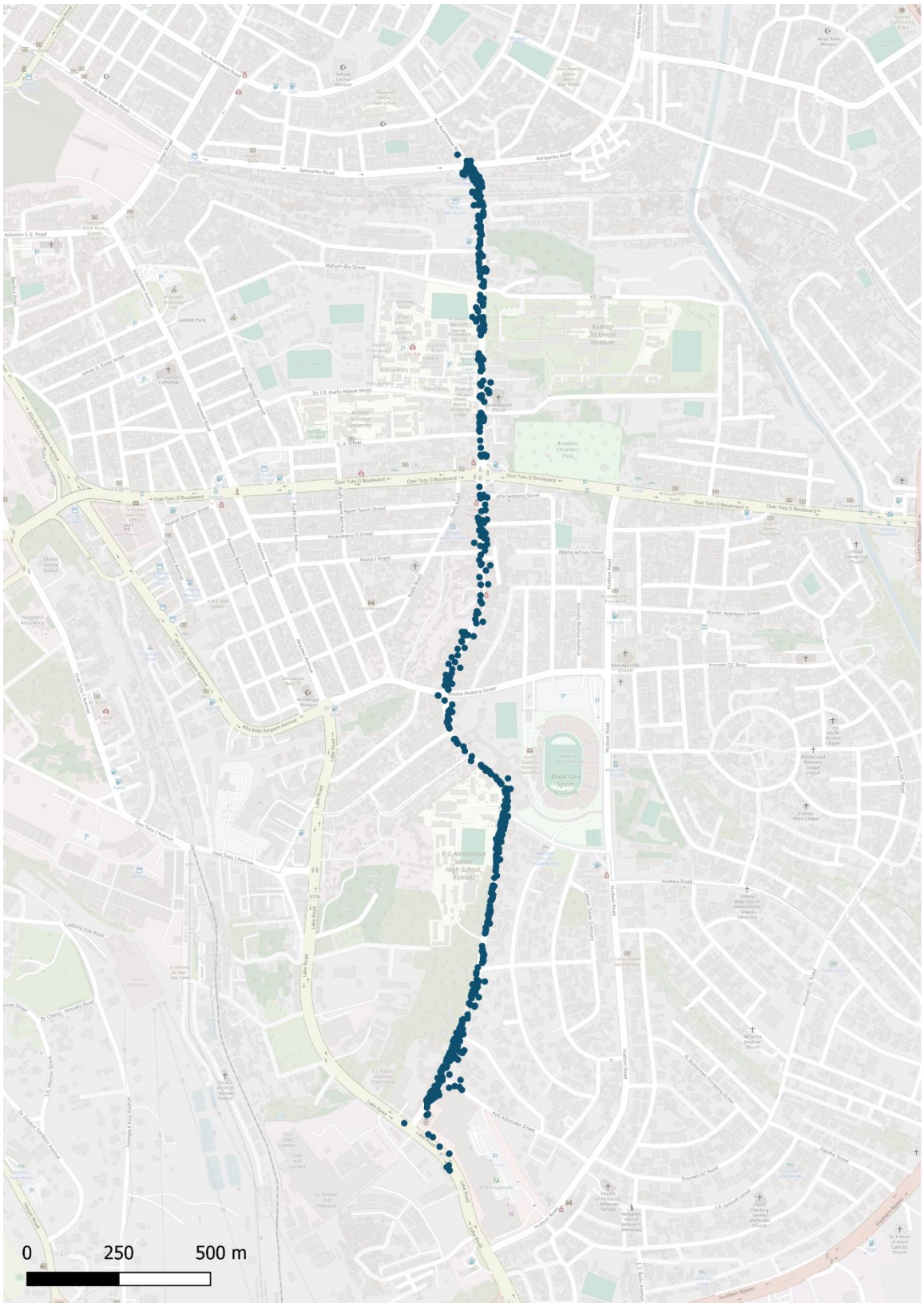


Figure 12.Location of study area, in 2025.

2.2. Data collected

Period		25/02/2025
Timeframe		06:54 – 16:44
Interviews	Participants	592
	Experiences	592
	Determinants	2,097

Table 9. Data collected in 2025.

2.3. Pedestrian profile

Variable	Category	N	%
AGE	Children (<18)	209	35.3
	Adults (18-65)	378	63.9
	Older people (>65)	5	0.8
GENDER	Man	312	52.7
	Woman	279	47.1
	Other / No answer	0	0
ABILITY (difficulty to move)	None	76	12.8
	Mild or moderate	443	74.9
	Severe or extrerme	72	12.2
ACTIVITY (mins/day)	Less than 10 min	40	6.8
	10 - 60 mins	361	61
	More than 60 min	189	32

Distribution N=592

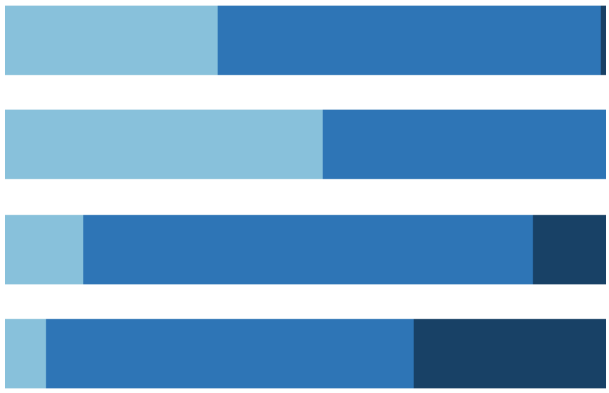


Table 10. Pedestrian profile from interviews, in 2025.

2.4. Walk context

Variable	Category	N	%
DECISION	Choice	249	42.1
	Necessity	343	57.9
	Other	0	0
PURPOSE	Transport	414	69.9
	Leisure	175	29.6
	Other	3	0.5
COMPANY	Alone	281	47.5
	Accompanied	311	52.5
	Other	0	0
FAMILIARITY	Local	392	66.2
	Visitor	200	33.8
	Other	0	0

Distribution N=592

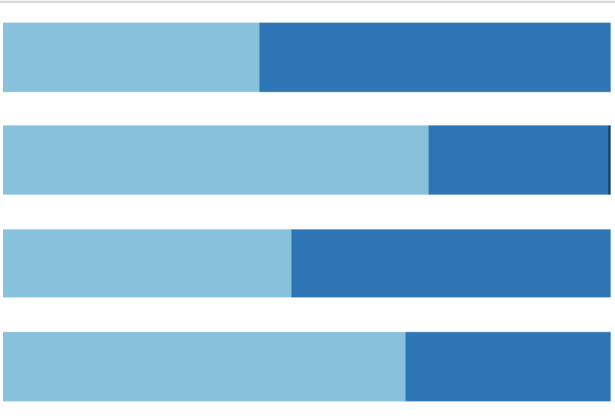


Table 11. Walk context from interviews, in 2025.

2.5. Walking experiences

WALKABILITY	N	%
Very positive	68	11.5
Positive	220	37.2
Neutral	203	34.3
Negative	74	12.5
Very negative	27	4.6
TOTAL	592	100

TOP-5 determinants related to experience

Negative	Positive
Obstacles	Footpath
Footpath	People
People	Crossing
Inclusion	Environmental quality
Traffic	Inclusion

Table 12. Walking experiences and top 5 determinants related to them, in 2025.

SAFETY	N	%
Very safe	20	7
Safe	120	42
Neutral	103	36
Unsafe	18	6.3
Very unsafe	25	8.7
TOTAL	286	100

TOP-5 determinants related to safety

Unsafe	Safe
Obstacles	Footpath
Footpath	People
Traffic	Crossing
People	Environmental quality
Interest	Obstacles

Table 13. Safety and top 5 determinants, in 2025.

COMFORT	N	%
Very comfortable	29	8.2
Comfortable	148	41.8
Neutral	120	33.9
Uncomfortable	54	15.3
Very uncomfortable	3	0.8
TOTAL	354	100

TOP-5 determinants related to comfort

Uncomfortable	Comfortable
Obstacles	Footpath
Footpath	People
People	Crossing
Environmental quality	Environmental quality
Inclusion	Obstacles

Table 14. Comfort and top 5 determinants, in 2025.

ENJOYMENT	N	%
Very enjoyable	46	26.7
Enjoyable	82	47.7
Neutral	27	15.7
Unenjoyable	16	9.3
Very unenjoyable	1	0.6
TOTAL	172	100

TOP-5 determinants related to enjoyment

Unenjoyable	Enjoyable
Environmental quality	Crossing
Obstacles	Environmental quality
People	People
Footpath	Footpath
Inclusion	Obstacles

Table 15. Enjoyment and top 5 determinants, in 2025.

Figure 13. Share of positive and negative experiences and most frequent types, in 2025.

2.6. Most frequent determinants by experience

Experience	Determinant	n	%	Distribution	N=2,097
Very Positive	Crossing	42	2		
	People	40	1.9		
	Footpath	38	1.8		
	Environmental quality	38	1.8		
	Inclusion	37	1.8		
	Obstacles	35	1.7		
	Weather protection	23	1.1		
	Traffic	23	1.1		
	Interest	20	1		
	Greenery	16	0.8		
	Furniture	6	0.3		
	Other	6	0.3		
Postive	Footpath	137	6.5		
	People	127	6.1		
	Crossing	92	4.4		
	Environmental quality	78	3.7		
	Inclusion	59	2.8		
	Obstacles	57	2.7		
	Interest	52	2.5		
	Traffic	47	2.2		
	Greenery	38	1.8		
	Weather protection	34	1.6		
	Furniture	22	1		
	Other	3	0.1		
Neutral	Footpath	121	5.8		
	People	103	4.9		
	Obstacles	86	4.1		
	Crossing	73	3.5		
	Environmental quality	66	3.1		
	Inclusion	63	3		
	Traffic	48	2.3		
	Interest	41	2		
	Weather protection	32	1.5		
	Greenery	31	1.5		
	Furniture	14	0.7		
	Other	3	0.1		
Negative	Obstacles	50	2.4		
	Footpath	38	1.8		
	People	31	1.5		
	Environmental quality	27	1.3		
	Inclusion	26	1.2		
	Traffic	19	0.9		
	Interest	19	0.9		
	Crossing	17	0.8		
	Greenery	5	0.2		
	Weather protection	4	0.2		
	Other	4	0.2		
	Furniture	0	0		
Very negative	Obstacles	24	1.1		
	Footpath	18	0.9		
	Traffic	17	0.8		
	Interest	13	0.6		
	Inclusion	13	0.6		
	People	9	0.4		
	Crossing	7	0.3		
	Environmental quality	3	0.1		
	Furniture	1	0		
	Greenery	1	0		
	Weather protection	0	0		
	Other	0	0		

Table 16. Most frequent determinants by type of experience, in 2025.

2.7. Positive and negative experiences by determinant

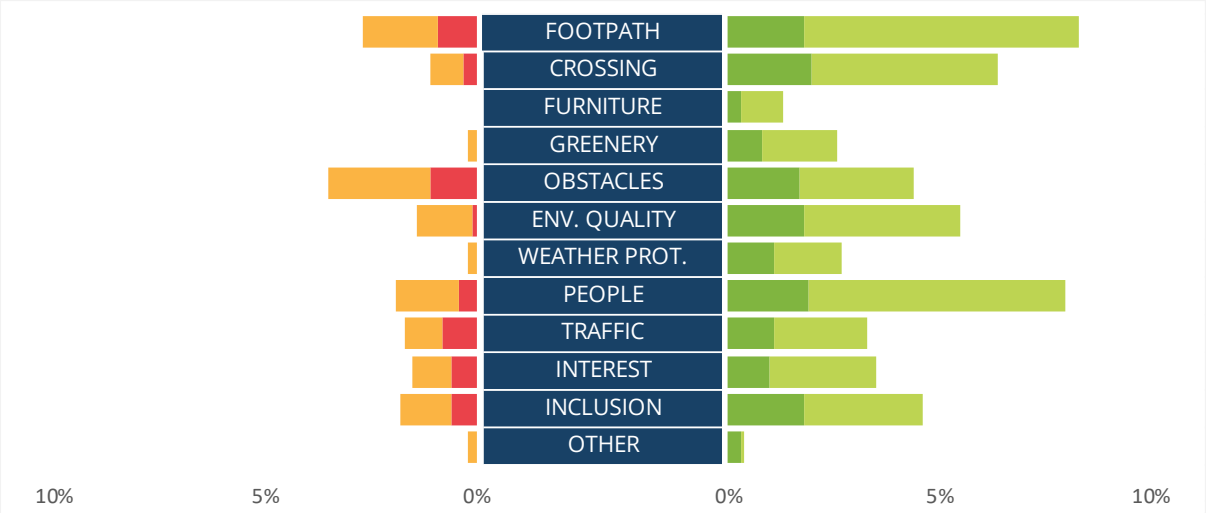


Figure 14. Positive and negative experiences by determinant, in 2025.

2.8. Determinants by frequency and negative-positive experiences

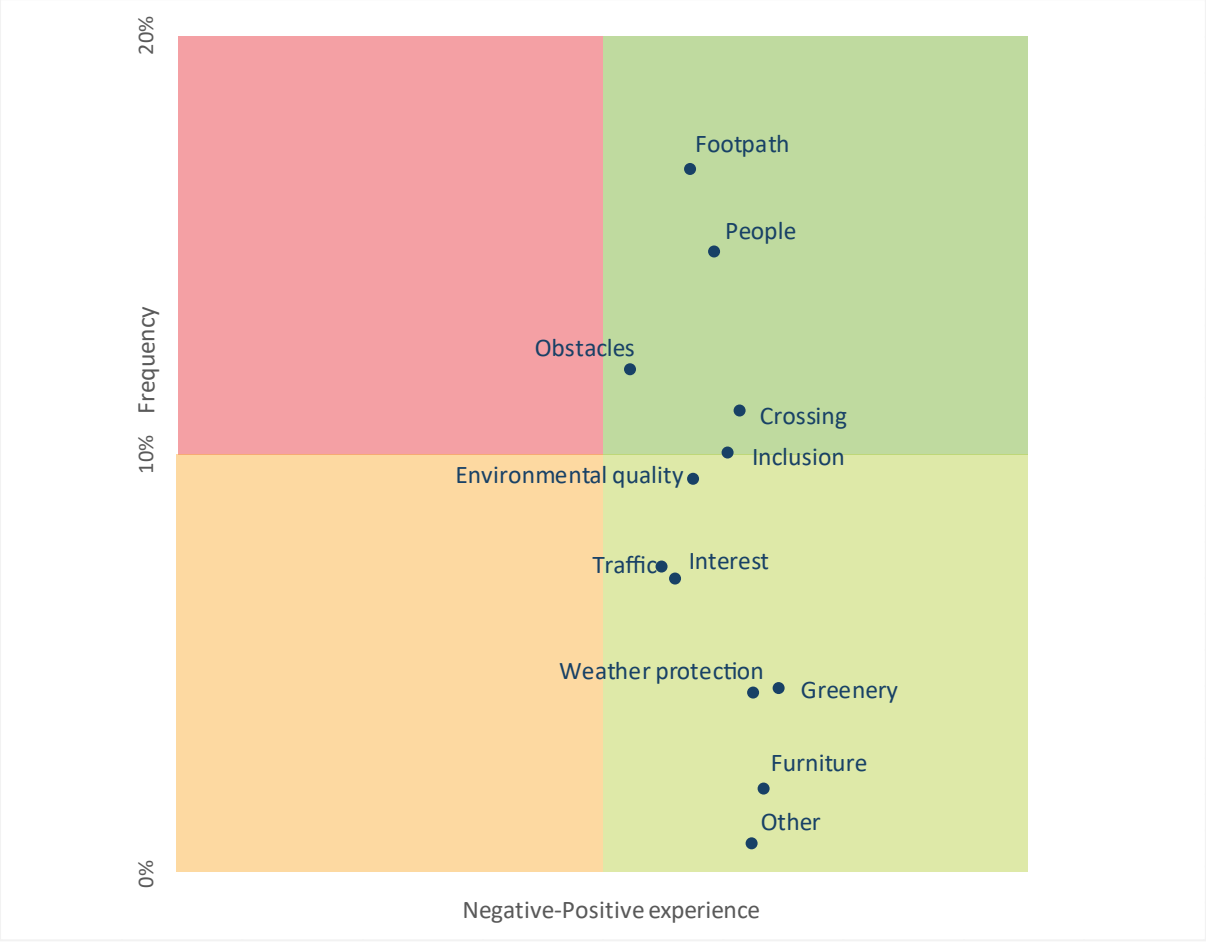


Figure 15. Determinants by frequency and negative-positive experiences, in 2025.

2.9. Positive and negative experiences by subcategory of determinants

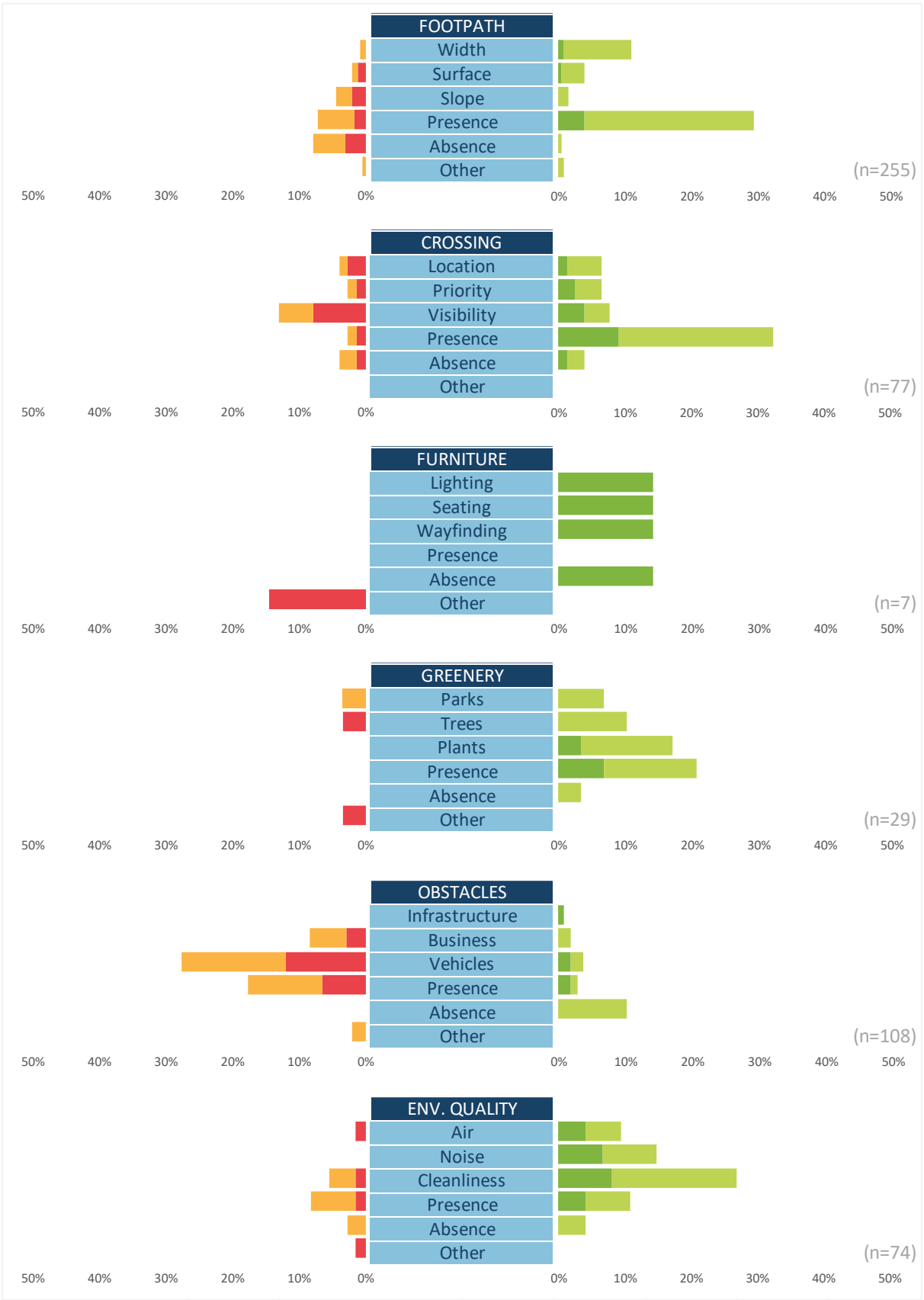


Figure 16. Positive and negative experiences related to subcategories of footpath, crossing, furniture, greenery and obstacles, in 2025.

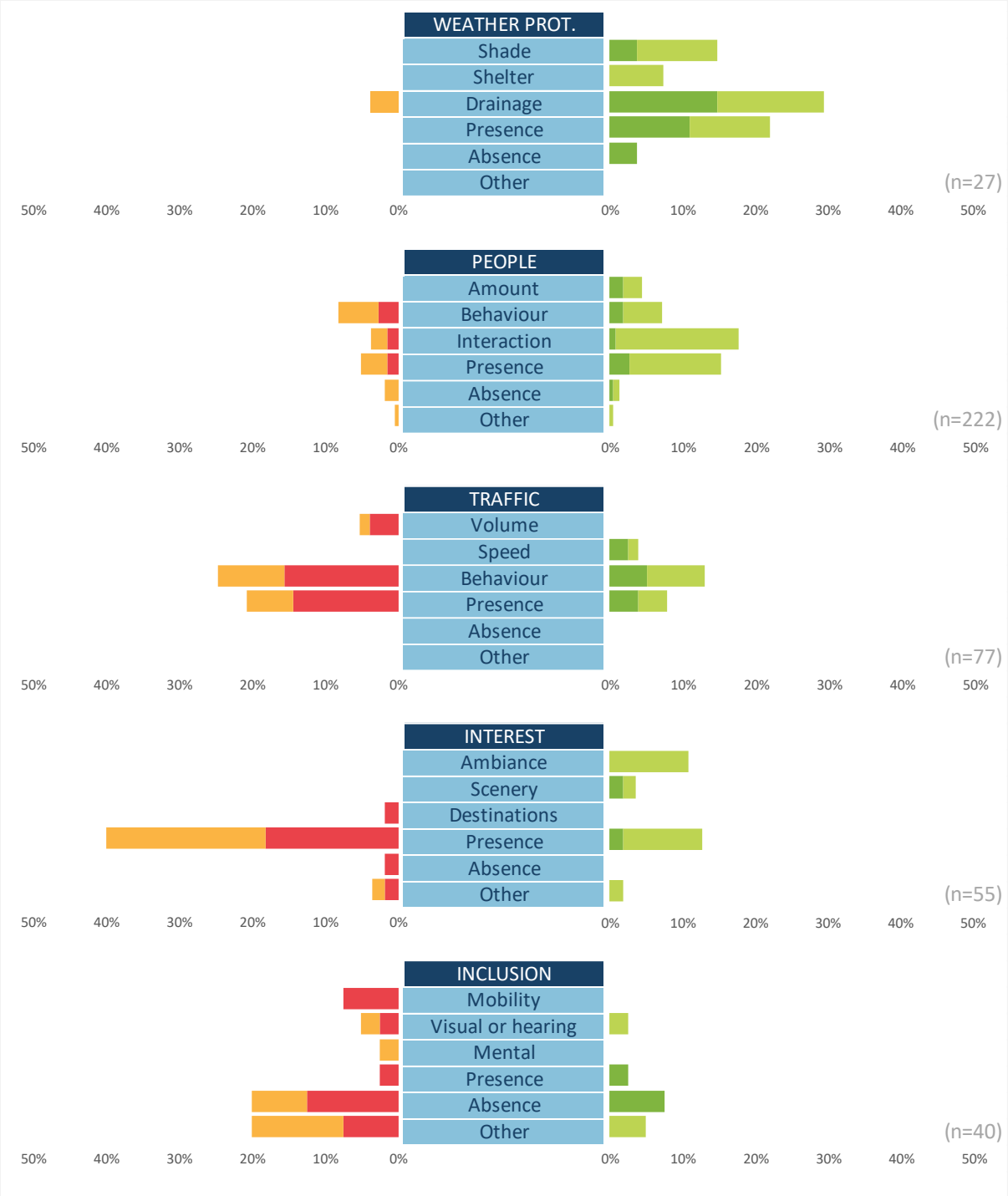


Figure 17. Positive and negative experiences related to subcategories of weather protection, people, traffic, interest and inclusion, in 2025.

4. Impact assessment before and after interventions

4.1. Percentage of experiences related to safety, comfort and enjoyment

Experience	Period	N	%	Distribution
SAFETY	Before	248	37.4	
	After	286	35.2	
COMFORT	Before	306	46.2	
	After	354	43.6	
ENJOYMENT	Before	107	16.1	
	After	172	21.2	

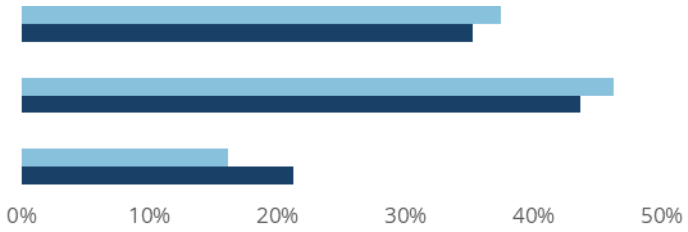


Table 17. Percentage of experiences related to safety, comfort and enjoyment.

4.2. Overall perceived experiences for walking safety, comfort and enjoyment

The Walkability App calculates an *overall perceived experience* from all the observations shared by participants to identify the central tendency of experiences. It considers a scale where 0 = very negative, 25 = negative, 50 = neutral, 75 = positive, and 100= very positive. As a result, a value between 0 and 100 represents an overall perceived walking experience where values close to 0 express that most participants shared very negative and negative experiences, while values close to 100 express that most participants shared positive and very positive experiences.

	OVERALL PERCEIVED EXPERIENCE		
	BEFORE	AFTER	DIFFERENCE
WALKABILITY	39.2	59.6	+20.4
SAFETY	38.4	58	+19.6
COMFORT	33.3	60.3	+27
ENJOYMENT	40.7	72.7	+32

Table 18. Changes in overall perceived experiences.

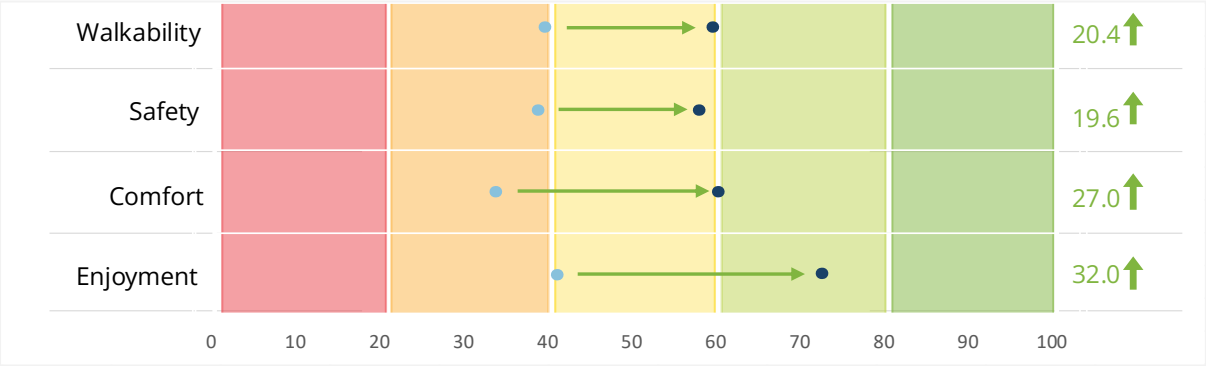


Figure 18. Changes in overall perceived experiences.

4.3. Changes in the proportion of different experiences before and after the intervention

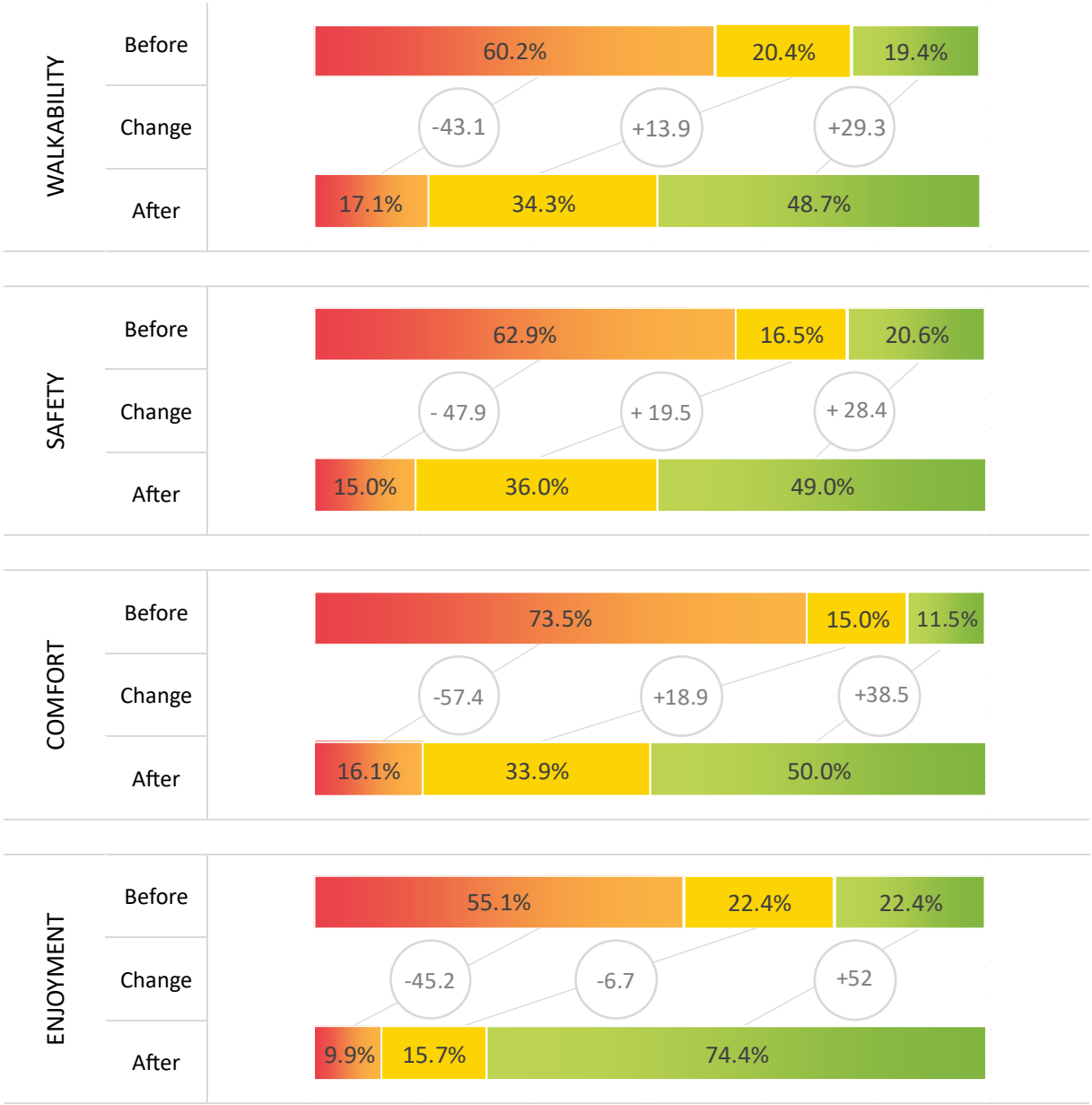


Figure 19. Changes in the proportion of different experiences before and after the intervention.

4.3. Changes in the proportion of positive and negative experiences before and after

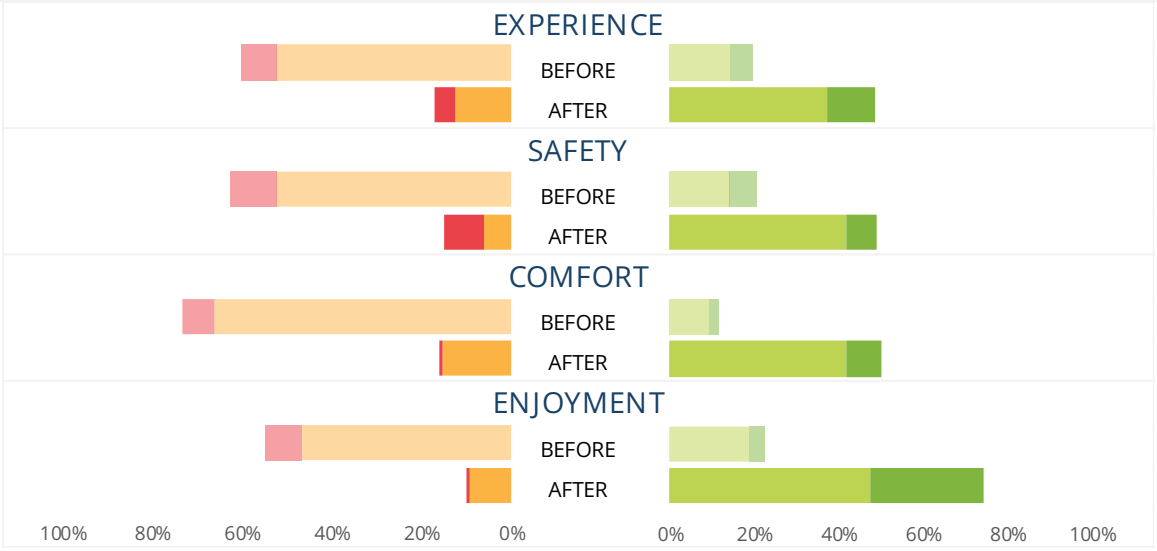


Figure 20. Changes in the proportion of positive and negative experiences before and after the intervention.

4.4. Changes in the proportion of experiences related to determinants before and after

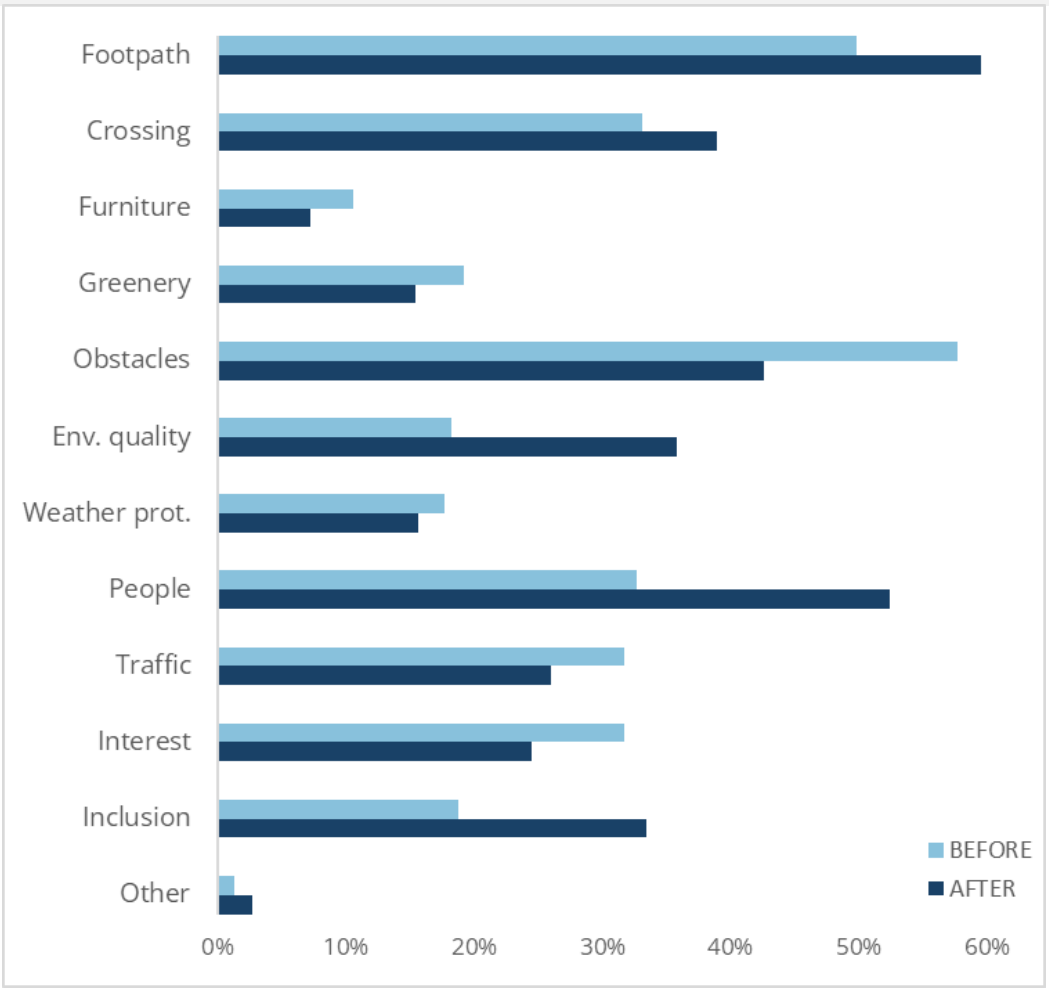


Figure 21. Changes in the proportion of experiences related to determinants before and after.

4.5. Changes in the proportion of different experiences related to determinants before and after

Figure 22. Changes in the proportion of different experiences related to footpath, crossing, furniture, greenery and obstacles before and after.

Figure 23. . Changes in the proportion of different experiences related to environmental quality, weather protection, people, traffic, interest and inclusion before and after.

4.6. Changes in the proportion of positive and negative experiences related to each determinant before and after

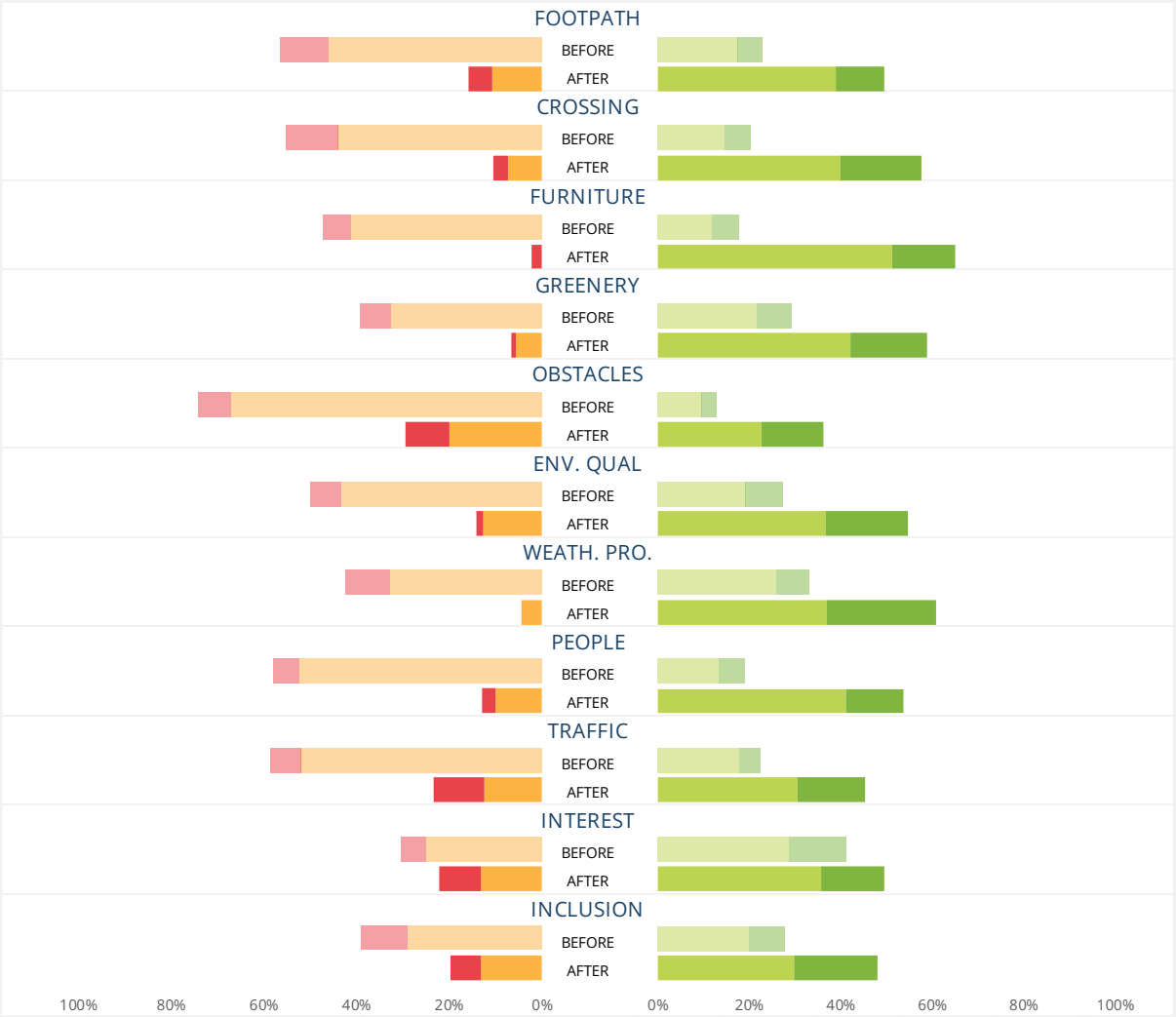


Figure 24. Changes in the proportion of positive and negative experiences related to determinants before and after.

4.7. Overall perceived experiences for each determinant before and after

	OVERALL PERCEIVED EXPERIENCE		
	BEFORE	AFTER	DIFFERENCE
FOOTPATH	40.4	59.9	+19.5
CROSSINGS	39.8	65.7	+25.9
FURNITURE	42.6	68.6	+26.0
GREENERY	47.8	67.3	+19.5
OBSTACLES	33.7	53	+19.3
ENV. QUALITY	44.6	64.3	+19.7
WEATHER PROT.	47.1	70.4	+23.3
PEOPLE	40.3	62.8	+22.5
TRAFFIC	40.5	56.6	+16.1
INTEREST	54.5	58.2	+3.7
INCLUSION	46.7	60.3	+13.6

Table 19. Changes in overall perceived experiences related to determinants.

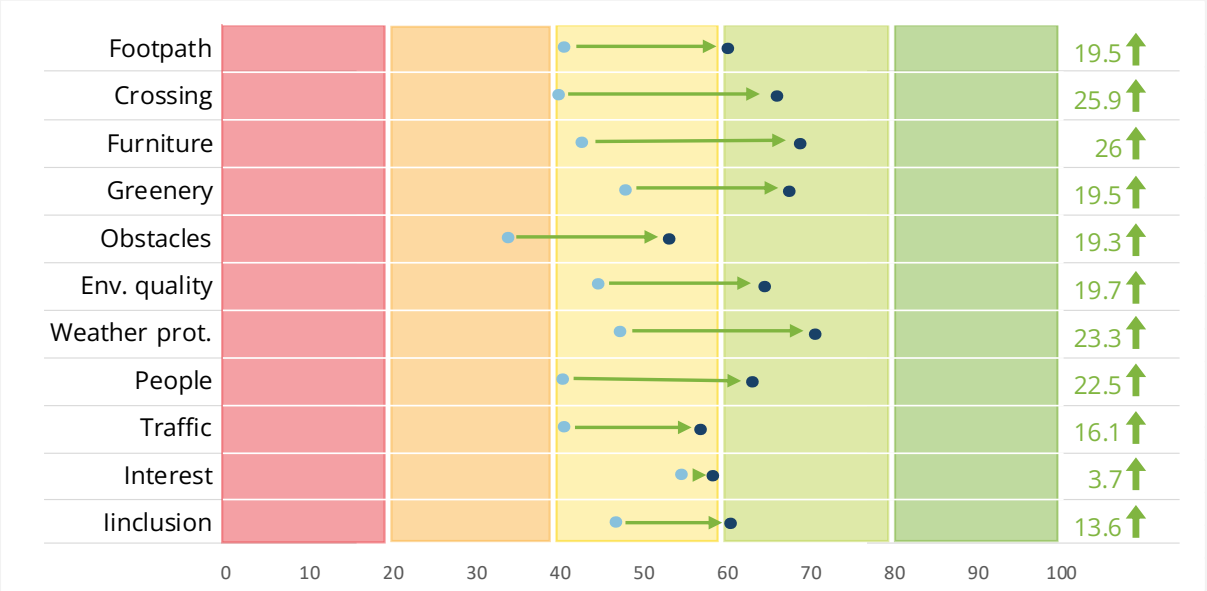


Figure 25. Changes in overall perceived experiences related to determinants.

4.8. Location of observations in the study

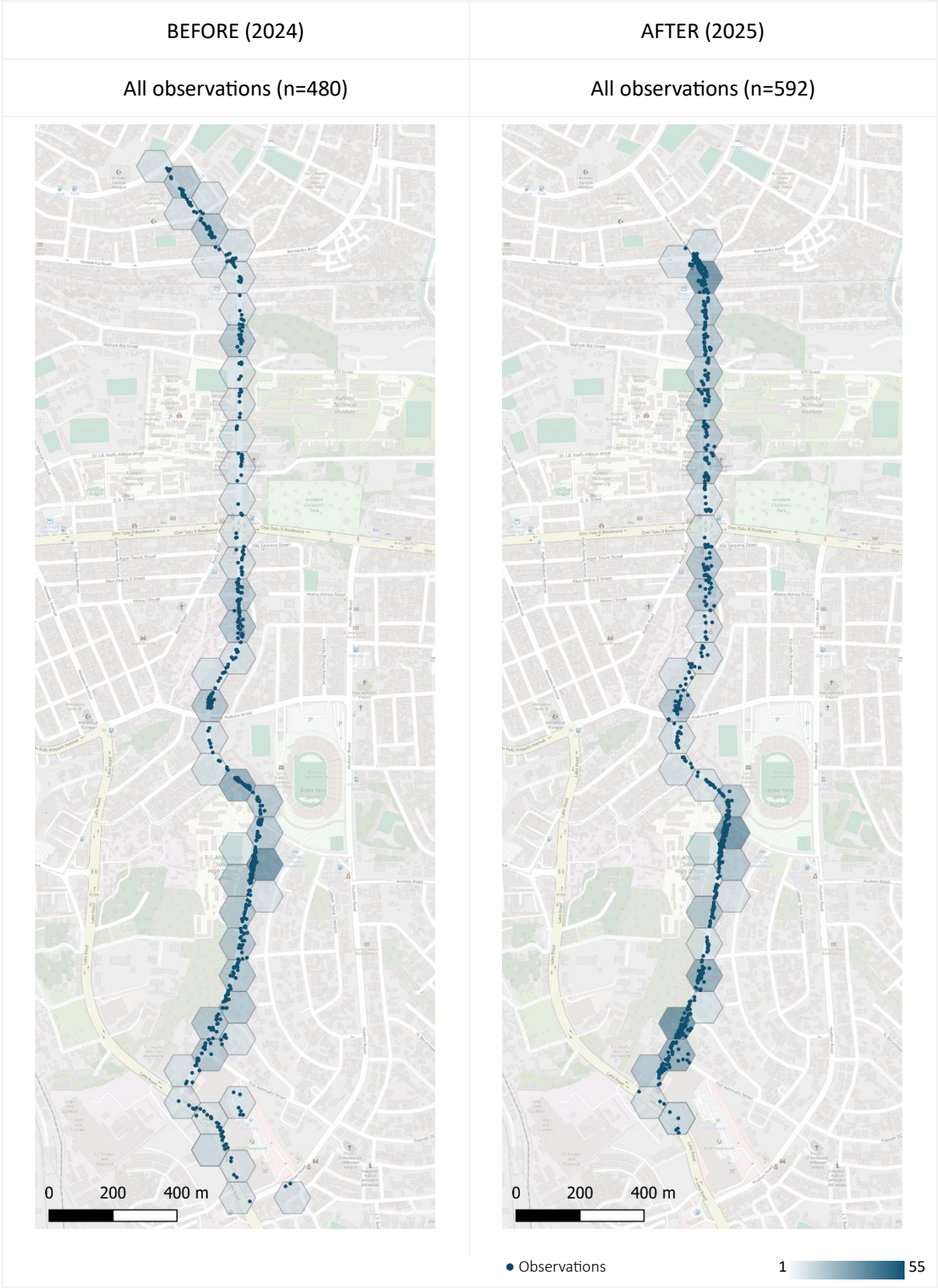


Figure 26. Maps with all observations in 2024 and 2025.

BEFORE (2024)	AFTER (2025)
Very positive experiences (n=25)	Very positive experiences (n=68)

Figure 27. Maps with very positive experiences in 2024 and 2025.

BEFORE (2024)	AFTER (2025)
Positive experiences (n=68)	Positive experiences (n=220)

Figure 28. Maps with positive experiences in 2024 and 2025.

BEFORE (2024)	AFTER (2025)
Neutral experiences (n=98)	Neutral experiences (n=203)

Figure 29. Maps with neutral experiences in 2024 and 2025.

BEFORE (2024)	AFTER (2025)
Negative experiences (n=252)	Negative experiences (n=74)

Figure 30. Maps with negative experiences in 2024 and 2025.

BEFORE (2024)	AFTER (2025)
Very negative experiences (n=37)	Very negative experiences (n=27)

Figure 31. Maps with very negative experiences in 2024 and 2025.

BEFORE (2024)	AFTER (2025)
Perceived walkability	Perceived walkability

Figure 32. Maps with overall perceived walkability in 2024 and 2025.

5. Experiences by pedestrians and walk contexts

WALKING EXPERIENCE									N	Distribution
ALL PARTICIPANTS			6	30.4	28.1	26.9	8.7	1072	
PEDESTRIAN PROFILE	AGE	Children	7.5	25.8	29.2	28.3	9.2	360	
		Adults	5.3	32.4	27.6	26.3	8.4	700	
		Seniors	0	50	25	16.7	8.3	12	
	GENDER	Men	5.7	27.6	28.9	27.6	10.1	615	
		Women	6.4	34.2	27	25.9	6.6	456	
	ABILITY	None	7.1	32.6	14.3	28.1	17.9	224	
		Moderate	5.9	21.8	35.5	30.9	5.9	660	
		Severe	1.1	62.1	20.1	9.2	7.5	174	
	ACTIVITY	< 10'	14.5	14.5	34.9	24.1	12	83	
		10' - 60'	4.6	33.3	27	27.6	7.5	678	
		+ 60'	6.8	28.6	28.6	26	10.1	308	
WALK CONTEXT	DECISION	Choice	3.9	18.3	31	35.1	11.6	387	
		Necessity	7.2	37.2	26.4	22.2	7	685	
	PURPOSE	Transport	5.9	36	27	25.2	5.9	781	
		Leisure	6.4	15.3	30.2	32	16	281	
	COMPANY	Alone	6.7	35.3	26.4	24.6	6.9	609	
		With others	5	24	30.2	29.8	11	463	
	FAMILIARITY	Local	6.2	36.9	26.1	25.2	5.5	758	
		Visitor	5.4	14.7	32.4	31.1	16.3	312	

Table 20. Experiences by pedestrian profile and walk context, in all observations.

SAFETY									N	Distribution
ALL PARTICIPANTS			9.6	27.7	27	29	6.7	534	
PEDESTRIAN PROFILE	AGE	Children	10.2	26.5	24.7	34	4.7	215	
		Adults	9.3	28.4	28.1	26.2	8	313	
		Seniors	0	33.3	50	0	16.7	6	
	GENDER	Men	8.3	26.1	24.2	33.8	7.6	314	
		Women	11.4	30	30.9	22.3	5.5	220	
	ABILITY	None	12.2	27.8	13.9	28.7	17.4	115	
		Moderate	9.4	18.7	34.1	33.8	3.9	331	
		Severe	6.9	60.9	17.2	11.5	3.4	87	
	ACTIVITY	< 10'	25	20.8	29.2	16.7	8.3	24	
		10' - 60'	7.3	32.7	25.2	29.6	5.2	385	
		+ 60'	13.6	13.6	32	29.6	11.2	125	
WALK CONTEXT	DECISION	Choice	4.7	18.3	29.8	37.7	9.4	191	
		Necessity	12.2	32.9	25.4	24.2	5.2	343	
	PURPOSE	Transport	8.7	32.2	26.2	27.9	5	423	
		Leisure	13.2	10.4	28.3	34	14.2	106	
	COMPANY	Alone	10.9	33	23.8	24.8	7.5	294	
		With others	7.9	21.3	30.8	34.2	5.8	240	
	FAMILIARITY	Local	8.9	32.5	26.4	28.3	3.9	406	
		Visitor	11.7	12.5	28.9	31.3	15.6	128	

Table 21. Safety by pedestrian profile and walk context, in all observations.

COMFORT								N	Distribution
ALL PARTICIPANTS			4.4	45.3	19.2	24.7	6.3	567	
PEDESTRIAN PROFILE	AGE	Children	5.3	38.5	18.7	33.2	4.3	187	
		Adults	3.6	44	18	27.5	6.8	411	
		Seniors	0	80	0	20	0	5	
	GENDER	Men	3.9	39.1	20.3	30.1	6.6	335	
		Women	4.5	47	15.3	28	5.2	268	
	ABILITY	None	11	47.5	11	22	8.5	118	
		Moderate	1.3	18.8	53.1	23.4	3.4	595	
		Severe	3.4	74.8	8.4	9.2	4.2	119	
	ACTIVITY	< 10'	12.5	10	40	22.5	15	40	
		10' - 60'	3.6	48.3	15.8	28.6	3.6	385	
		+ 60'	3.4	38.3	17.7	32	8.6	175	
WALK CONTEXT	DECISION	Choice	4.2	23.6	26.2	40.8	5.2	191	
		Necessity	4.1	51.5	14.3	23.8	6.3	412	
	PURPOSE	Transport	4.4	49.3	14.6	26.6	5.1	473	
		Leisure	3.1	18.8	29.7	39.1	9.4	128	
	COMPANY	Alone	4	49.1	18.5	24.7	3.7	352	
		With others	4.4	33.5	17.5	35.5	9.2	251	
	FAMILIARITY	Local	4.9	48.6	14.4	27.7	4.3	465	
		Visitor	1.5	22.6	29.9	34.3	11.7	137	

Table 22. Comfort by pedestrian profile and walk context, in all observations.

ENJOYMENT								N	Distribution
ALL PARTICIPANTS			4.4	28.8	22.3	22.7	21.8	229	
PEDESTRIAN PROFILE	AGE	Children	6.3	20.3	18.8	23.4	31.3	64	
		Adults	2.9	23.9	18.2	40.7	14.4	209	
		Seniors	0	50	16.7	33.3	0	6	
	GENDER	Men	1.4	19.6	19.6	35.7	23.8	143	
		Women	5.9	28.1	17	37.8	11.1	135	
	ABILITY	None	6.8	22.7	6.8	31.8	31.8	44	
		Moderate	2.7	18.8	23.1	40.3	15.1	186	
		Severe	4.1	42.9	10.2	26.5	16.3	49	
	ACTIVITY	< 10'	15	5	15	40	25	20	
		10' - 60'	5.2	23.9	12.7	38.1	20.1	134	
		+ 60'	0	26.6	25	34.7	13.7	124	
WALK CONTEXT	DECISION	Choice	4.4	17.6	9.9	46.2	22	91	
		Necessity	3.2	26.6	22.3	31.9	16	188	
	PURPOSE	Transport	4.5	27.8	21.2	31.3	15.2	198	
		Leisure	1.3	12.7	11.4	50.6	24.1	79	
	COMPANY	Alone	4	26.7	16	38.7	14.7	150	
		With others	3.1	20.2	20.9	34.1	21.7	129	
	FAMILIARITY	Local	6	33.1	15.7	29.5	15.7	166	
		Visitor	0	9.7	22.1	46.9	21.2	113	

Table 23. Enjoyment by pedestrian profile and walk context, in all observations.

FOOTPATH								N	Distribution
ALL PARTICIPANTS			7.3	25	28.8	30.3	8.6	591	
PEDESTRIAN PROFILE	AGE	Children	7.7	18.8	31.2	35.5	6.8	234	
		Adults	7.1	28.3	27.1	27.4	10	350	
		Seniors	0	71.4	28.6	0	0	7	
	GENDER	Men	6.7	20.8	27.8	34.3	10.4	356	
		Women	8.1	31.5	30.2	24.3	6	235	
	ABILITY	None	10.1	36.2	12.1	26.8	14.8	149	
		Moderate	6.8	16.8	36.9	34.6	5	382	
		Severe	3.3	50	18.3	11.7	16.7	60	
	ACTIVITY	< 10'	16.3	18.4	30.6	22.4	12.2	49	
		10' - 60'	6.2	25	28	33.6	7.3	372	
		+ 60'	7.1	27.2	30.2	25.4	10.1	169	
WALK CONTEXT	DECISION	Choice	4.7	16.7	30.7	40	7.9	215	
		Necessity	8.8	29.8	27.7	24.7	9	376	
	PURPOSE	Transport	6.9	26.5	29.6	30.8	6.2	452	
		Leisure	8.8	19.9	25.7	28.7	16.9	136	
	COMPANY	Alone	9	27.6	27.2	29.2	7.1	312	
		With others	5.4	22.2	30.5	31.5	10.4	279	
	FAMILIARITY	Local	7.1	29.2	27.4	30.6	5.7	438	
		Visitor	7.8	13.1	32.7	29.4	17	153	

Table 24. Experiences related to footpath by pedestrian profile and walk context, in all observations.

CROSSING								N	Distribution
ALL PARTICIPANTS			6.4	22.4	28.8	29.6	12.9	389	
PEDESTRIAN PROFILE	AGE	Children	10.2	27.1	24.6	22.9	15.3	118	
		Adults	4.9	19.7	30.7	32.6	12.1	264	
		Seniors	0	37.5	25	25	12.5	8	
	GENDER	Men	6.1	16.4	30.5	31.5	15.5	213	
		Women	6.8	29.5	26.7	27.3	9.7	176	
	ABILITY	None	10.6	35.1	13.8	20.2	20.2	94	
		Moderate	4.2	15.5	34.9	35.3	10.1	238	
		Severe	8.9	28.6	28.6	21.4	12.5	56	
	ACTIVITY	< 10'	10.8	8.1	40.5	21.6	18.9	37	
		10' - 60'	7.2	26.1	26.1	28.8	11.7	222	
		+ 60'	3.8	20	30	32.3	13.8	130	
WALK CONTEXT	DECISION	Choice	3.6	12.3	32.6	34.1	17.4	138	
		Necessity	7.9	27.8	26.6	27	10.7	252	
	PURPOSE	Transport	7.9	27.9	28.7	24.9	10.6	265	
		Leisure	3.3	10.7	27.3	40.5	18.2	121	
	COMPANY	Alone	5.7	24.2	29.9	28.4	11.9	194	
		With others	7.1	20.4	27.6	30.6	14.3	196	
	FAMILIARITY	Local	8.2	29.1	28.3	24.2	10.2	244	
		Visitor	3.4	11	29.5	38.4	17.8	146	

Table 25. Experiences related to crossing by pedestrian profile and walk context, in all observations.

FURNITURE								N	Distribution
ALL PARTICIPANTS			4.3	22.3	34	29.8	9.6	94	
PEDESTRIAN PROFILE	AGE	Children	5	25	45	15	10	20	
		Adults	4.2	20.8	30.6	34.7	9.7	72	
		Seniors	0	50	50	0	0	2	
	GENDER	Men	5.9	11.8	33.3	35.3	13.7	51	
		Women	2.3	34.9	34.9	23.3	4.7	43	
	ABILITY	None	8.7	39.1	13	13	26.1	23	
		Moderate	3.4	15.3	42.4	35.6	3.4	59	
		Severe	0	25	33.3	33.3	8.3	12	
	ACTIVITY	< 10'	0	0	60	40	0	5	
		10' - 60'	8	30	26	26	10	50	
		+ 60'	0	15.8	39.5	34.2	10.5	38	
WALK CONTEXT	DECISION	Choice	0	10	33.3	36.7	20	30	
		Necessity	6.3	28.1	34.4	26.6	4.7	64	
	PURPOSE	Transport	6	28.4	31.3	28.4	6	67	
		Leisure	0	7.4	40.7	33.3	18.5	27	
	COMPANY	Alone	5.6	18.5	31.5	33.3	11.1	54	
		With others	2.5	27.5	37.5	25	7.5	40	
	FAMILIARITY	Local	6.6	26.2	39.3	23	4.9	61	
		Visitor	0	15.2	24.2	42.4	18.2	33	

Table 26. Experiences related to furniture by pedestrian profile and walk context, in all observations.

GREENERY								N	Distribution
ALL PARTICIPANTS			3.8	19.2	33	31.9	12.1	182	
PEDESTRIAN PROFILE	AGE	Children	5.4	17.9	33.9	26.8	16.1	56	
		Adults	3.3	19.5	31.7	34.1	11.4	123	
		Seniors	0	25	50	25	0	4	
	GENDER	Men	5.5	20.9	35.5	24.5	13.6	110	
		Women	1.4	16.7	29.2	43.1	9.7	72	
	ABILITY	None	5.4	24.3	24.3	24.3	21.6	37	
		Moderate	2.6	14.8	35.7	38.3	8.7	115	
		Severe	6.5	29	32.3	16.1	16.1	31	
	ACTIVITY	< 10'	10.7	14.3	53.6	10.7	10.7	28	
		10' - 60'	3.6	10.7	29.8	40.5	15.5	84	
		+ 60'	1.4	31.4	28.6	28.6	10	70	
WALK CONTEXT	DECISION	Choice	4.1	13.7	27.4	37	17.8	73	
		Necessity	3.6	22.7	36.4	28.2	9.1	110	
	PURPOSE	Transport	4.4	19.3	36	29.8	10.5	114	
		Leisure	2.9	17.6	27.9	35.3	16.2	68	
	COMPANY	Alone	5.1	23.2	25.3	33.3	13.1	99	
		With others	2.4	14.3	41.7	29.8	11.9	84	
	FAMILIARITY	Local	6.4	19.3	31.2	33	10.1	109	
		Visitor	0	18.9	35.1	29.7	16.2	74	

Table 27. Experiences related to greenery by pedestrian profile and walk context, in all observations.

OBSTACLES								N	Distribution
ALL PARTICIPANTS			8.3	44.7	22.9	15.9	8.1	528	
PEDESTRIAN PROFILE	AGE	Children	10.2	38	26.2	16	9.6	187	
		Adults	7.5	48.7	20.6	15.5	7.8	335	
		Seniors	0	28.6	42.9	28.6	0	7	
	GENDER	Men	7.1	42.2	23.5	17.7	9.5	294	
		Women	9.8	47.9	22.2	13.7	6.4	234	
	ABILITY	None	9.4	44.5	13.3	21.9	10.9	128	
		Moderate	10.2	33.4	31.1	16.7	8.5	293	
		Severe	1.9	75	12	6.5	4.6	108	
	ACTIVITY	< 10'	16.7	11.1	33.3	22.2	16.7	36	
		10' - 60'	6.6	53.4	19.3	14.7	6	348	
		+ 60'	10.4	31.9	28.5	17.4	11.8	144	
WALK CONTEXT	DECISION	Choice	5	23.9	31.7	25.6	13.9	180	
		Necessity	10	55.3	18.3	10.9	5.4	349	
	PURPOSE	Transport	8	54	19.7	13.2	5.2	402	
		Leisure	9.8	15.6	32	24.6	18	122	
	COMPANY	Alone	9.2	49.7	21.2	13	7	316	
		With others	7	37.1	25.4	20.2	10.3	213	
	FAMILIARITY	Local	7.6	55.6	19.9	12.3	4.5	381	
		Visitor	10.1	16.2	30.4	25	18.2	148	

Table 28. Experiences related to obstacles by pedestrian profile and walk context, in all observations.

ENV. QUALITY								N	Distribution
ALL PARTICIPANTS			3	21.7	28.7	31.7	15	300	
PEDESTRIAN PROFILE	AGE	Children	4.8	16.1	25.8	30.6	22.6	62	
		Adults	2.6	22.7	29.2	32.6	12.9	233	
		Seniors	0	40	40	0	20	5	
	GENDER	Men	2.5	16.7	30.9	30.9	19.1	162	
		Women	3.6	27.5	26.1	32.6	10.1	138	
	ABILITY	None	5.5	26	15.1	27.4	26	73	
		Moderate	2.8	14.4	36.7	36.7	9.4	180	
		Severe	0	43.5	19.6	19.6	17.4	46	
	ACTIVITY	< 10'	0	5	50	25	20	20	
		10' - 60'	4.4	20.1	27.7	30.8	17	159	
		+ 60'	1.7	26.4	26.4	33.9	11.6	121	
WALK CONTEXT	DECISION	Choice	1.9	16.7	29.6	36.1	15.7	108	
		Necessity	3.6	24.5	28.1	29.2	14.6	192	
	PURPOSE	Transport	4.2	28.4	27.4	27.4	12.6	190	
		Leisure	0.9	9.3	30.6	39.8	19.4	108	
	COMPANY	Alone	2.5	24.5	26.4	34	12.6	159	
		With others	3.5	18.4	31.2	29.1	17.7	141	
	FAMILIARITY	Local	4.4	27.3	26.2	30.1	12	183	
		Visitor	0.9	12.9	31.9	34.5	19.8	116	

Table 29. Experiences related to environmental quality by pedestrian profile and walk context, in all observations.

WEATHER PROT.								N	Distribution
ALL PARTICIPANTS			4.5	18.1	29.9	31.6	15.8	177	
PEDESTRIAN PROFILE	AGE	Children	4.4	17.8	33.3	24.4	20	45	
		Adults	4.6	16.9	28.5	34.6	15.4	130	
		Seniors	0	66.7	33.3	0	0	3	
	GENDER	Men	7.2	18.9	28.8	27.9	17.1	111	
		Women	0	16.7	31.8	37.9	13.6	66	
	ABILITY	None	9.4	31.3	12.5	28.1	18.8	32	
		Moderate	3.3	12.5	34.2	35	15	120	
		Severe	3.8	26.9	30.8	19.2	19.2	26	
	ACTIVITY	< 10'	20.8	20.8	33.3	20.8	4.2	24	
		10' - 60'	1.2	8.5	35.4	36.6	18.3	82	
		+ 60'	2.8	28.2	22.5	29.6	16.9	71	
WALK CONTEXT	DECISION	Choice	9	11.9	25.4	35.8	17.9	67	
		Necessity	1.8	21.6	32.4	28.8	15.3	111	
	PURPOSE	Transport	5.1	18.8	30.8	30.8	14.5	117	
		Leisure	3.3	16.7	28.3	33.3	18.3	60	
	COMPANY	Alone	7.1	20.4	26.5	31.6	14.3	98	
		With others	1.3	15	33.8	31.3	18.8	80	
	FAMILIARITY	Local	6.4	18.2	29.1	32.7	13.6	110	
		Visitor	1.5	17.9	29.9	29.9	20.9	67	

Table 30. Experiences related to weather protection by pedestrian profile and walk context, in all observations.

PEOPLE								N	Distribution
ALL PARTICIPANTS			3.9	24.2	29.8	31.8	10.3	466	
PEDESTRIAN PROFILE	AGE	Children	4.8	22.3	32.4	30.9	9.6	188	
		Adults	3.3	25.3	27.8	32.2	11.4	273	
		Seniors	0	33.3	33.3	33.3	0	6	
	GENDER	Men	3.8	19.2	30.2	35.1	11.7	265	
		Women	4	30.8	29.4	27.4	8.5	201	
	ABILITY	None	7.8	9.4	25	25	32.8	64	
		Moderate	3.1	20.8	33.6	35.8	6.7	327	
		Severe	4	52	17.3	20	6.7	75	
	ACTIVITY	< 10'	11.1	5.6	41.7	16.7	25	36	
		10' - 60'	3.2	26.3	28.8	33.1	8.5	281	
		+ 60'	3.4	24.8	28.9	32.2	10.7	149	
WALK CONTEXT	DECISION	Choice	2.6	11.6	31.6	40	14.2	155	
		Necessity	4.5	30.4	28.8	27.6	8.7	312	
	PURPOSE	Transport	3.3	26.5	31.7	31.4	7.1	366	
		Leisure	6	15	23	33	23	100	
	COMPANY	Alone	3.5	26.8	29.4	32	8.3	228	
		With others	4.2	21.8	30.1	31.4	12.6	239	
	FAMILIARITY	Local	4	29	28.4	32.4	6.2	324	
		Visitor	3.5	13.3	32.9	30.1	20.3	143	

Table 31. Experiences related to people by pedestrian profile and walk context, in all observations.

TRAFFIC								N	Distribution
ALL PARTICIPANTS			8.8	32	25.2	24.2	9.8	306	
PEDESTRIAN PROFILE	AGE	Children	12.6	34	26.2	17.5	9.7	103	
		Adults	7	30.8	24.9	27.9	9.5	201	
		Seniors	0	50	0	0	50	2	
	GENDER	Men	7.9	28.8	26	25.4	11.9	177	
		Women	10.1	36.4	24	22.5	7	129	
	ABILITY	None	8.8	19.1	16.2	35.3	20.6	68	
		Moderate	11.5	25.3	32.4	24.7	6	182	
		Severe	0	69.6	12.5	8.9	8.9	56	
	ACTIVITY	< 10'	5.9	11.8	41.2	23.5	17.6	17	
		10' - 60'	8.1	34.3	24.8	25.7	7.1	210	
		+ 60'	11.5	30.8	21.8	20.5	15.4	78	
WALK CONTEXT	DECISION	Choice	1.9	16.2	32.4	34.3	15.2	105	
		Necessity	12.4	40.3	21.4	18.9	7	201	
	PURPOSE	Transport	9.3	42.2	23.5	18.1	6.9	204	
		Leisure	8.2	12.2	26.5	36.7	16.3	98	
	COMPANY	Alone	10.3	33.5	25.9	22.7	7.6	185	
		With others	6.6	29.8	24	26.4	13.2	121	
	FAMILIARITY	Local	7.9	41.9	26.1	17.7	6.4	203	
		Visitor	10.7	12.6	23.3	36.9	16.5	103	

Table 32. Experiences related to traffic by pedestrian profile and walk context, in all observations.

INTEREST								N	Distribution
ALL PARTICIPANTS			7.4	18.3	28.4	32.7	13.2	257	
PEDESTRIAN PROFILE	AGE	Children	7.8	10.8	33.3	31.4	16.7	102	
		Adults	7.2	23	25	33.6	11.2	152	
		Seniors	0	33.3	33.3	33.3	0	3	
	GENDER	Men	5.5	14.5	30.3	35.2	14.5	165	
		Women	10.9	25	25	28.3	10.9	92	
	ABILITY	None	1.5	7.7	21.5	38.5	30.8	65	
		Moderate	9.1	19.4	33.9	32.1	5.5	165	
		Severe	11.1	37	11.1	22.2	18.5	27	
	ACTIVITY	< 10'	13.3	20	40	16.7	10	30	
		10' - 60'	4.9	11.3	29.6	38.7	15.5	142	
		+ 60'	9.4	29.4	22.4	28.2	10.6	85	
WALK CONTEXT	DECISION	Choice	3.6	8.1	26.1	44.1	18	111	
		Necessity	10.3	26	30.1	24	9.6	146	
	PURPOSE	Transport	8.8	21.8	32	29.9	7.5	147	
		Leisure	5.7	14.3	21.9	37.1	21	105	
	COMPANY	Alone	10.9	17.5	24.1	36.5	10.9	137	
		With others	3.3	19.2	33.3	28.3	15.8	120	
	FAMILIARITY	Local	9.1	21	31.5	30.1	8.4	143	
		Visitor	5.3	14.9	24.6	36	19.3	114	

Table 33. Experiences related to interest by pedestrian profile and walk context, in all observations.

INCLUSION			😞	😕	😐	🙂	😊	N	Distribution
ALL PARTICIPANTS			7.7	18.1	32.4	26.8	15	287	
PEDESTRIAN PROFILE	AGE	Children	9.2	12.6	36.8	19.5	21.8	87	
		Adults	7	20.5	30.5	29.5	12.5	200	
		Seniors	0	0	0	100	0	1	
	GENDER	Men	7.8	17.5	30.7	26.5	17.5	166	
		Women	7.4	19	34.7	27.3	11.6	121	
	ABILITY	None	3.3	15	26.7	30	25	60	
		Moderate	10.7	14	36.5	27	11.8	178	
		Severe	2	36.7	24.5	22.4	14.3	49	
	ACTIVITY	< 10'	11.4	4.5	40.9	27.3	15.9	44	
		10' - 60'	6.8	17	34.7	26.5	15	147	
		+ 60'	7.4	26.3	24.2	26.3	15.8	95	
WALK CONTEXT	DECISION	Choice	4.1	14.8	32	29.5	19.7	122	
		Necessity	10.2	20.5	32.5	24.7	12	166	
	PURPOSE	Transport	7.8	22.2	30.5	26.3	13.2	167	
		Leisure	7.6	11.8	35.3	27.7	17.6	119	
	COMPANY	Alone	9.1	19.4	32.1	27.3	12.1	165	
		With others	5.7	16.3	32.5	26	19.5	123	
	FAMILIARITY	Local	7.6	22.8	33.9	25.1	10.5	171	
		Visitor	7.7	11.1	29.9	29.1	22.2	117	

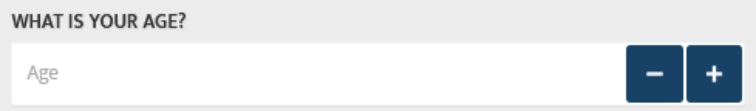
Table 34. Experiences related to inclusion by pedestrian profile and walk context, in all observations.

Annex A: App use and Glossary

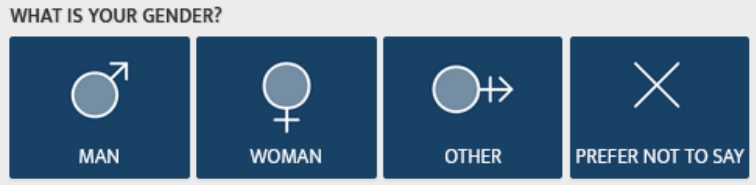
1. PEDESTRIAN PROFILE

Information about the people under study.

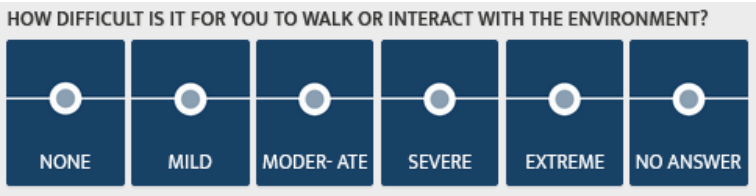
1.1. AGE The length of time that a person has lived[1].
Ask the participant: *"How old are you?" and add the value accordingly.*



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.*



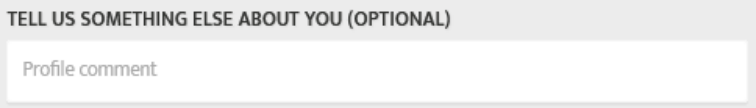
[1] Oxford English Dictionary (www.oed.com).
[2] Oxford English Dictionary, Psychology and Sociology (www.oed.com).
[3] Measuring Health and Disability: Manual for WHO Disability Assessment Schedule.

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

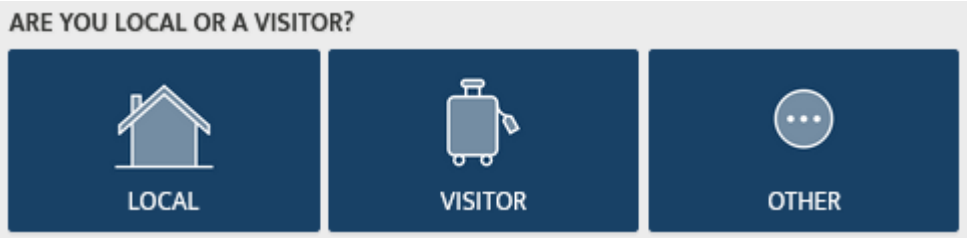
2.1. DECISION Indicates whether participants walk by choice or out of necessity.
Ask the participant: *"Are you walking by choice or out of necessity?" and select the icon accordingly.*
"By choice" means that walking is the preferred option, even if there were other alternatives.
"Out of necessity" means 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