Active Mobility and Design in Vesterbro Torv

Investigating people's active mobilities, practices and interactions with the temporary design of Vesterbro Torv

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ACTIVE MOBILITY AND DESIGN IN VESTERBRO TORV

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Ill. 01: Vesterbro Torv, Aarhus, Denmark

AALBORG UNIVERSITET

Interreg North Sea
Co-funded by the European Union
Active Cities

Active Mobility and Design in Vesterbro Torv – Investigating people's active mobilities, practices and interactions with the temporary design of Vesterbro Torv
By Andrea Victoria Hernandez Bueno and Marwa Shokair

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Abstract

This report investigates active mobilities from the users' perspectives in the temporary design of Vesterbro Torv in Aarhus, Denmark. Ethnographic and urban design research was conducted to understand the temporalities of people's mobilities and interactions on the site, uncovering nuanced everyday life situations. We investigated: How do the temporary design and design elements of Vesterbro Torv facilitate and/or hinder active mobility and social practices? Who are the users, and how do they interact with the square in its temporary condition? What are their movement patterns and motivations?

A multi-method approach was adopted, combining desktop research, ethnography, urban design mapping and analysis, and insights from the collaboration and discussions with Aarhus Municipality to gain a comprehensive understanding of the square's dynamics. The research results indicate that Vesterbro Torv works as an urban node that facilitates active mobility, transit, and social interaction. The temporary arrangement of the square affords diverse and spontaneous cycling and pedestrian mobility patterns through and across the square. In some situations, the interaction between pedestrians and cyclists creates disruptions and conflicts due to the need of defining clear separation between mobility paths. In addition, the temporary spatial arrangement facilitates diverse social activities and opportunities to stay.

The results from the interviews and observations revealed the need for more calm and inclusive areas for resting and moving, particularly for children, families, elderly, and people with mobility challenges (e.g., wheelchair users). Moreover, users expressed the need for more greenery, legibility and organized spaces to stay, linger and move around.

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Reading Guide

This report, conducted by Aalborg University, provides an in-depth analysis of people's active mobility in the temporary condition of Vesterbro Torv in Aarhus. The analysis is based on an analytical model for evaluating active mobility with a particular focus on the relationship between people, place, and site's position (Vestermann, Hernandez Bueno, Hermansen, and Lanng, 2024).
This model has been developed under the Active Cities project to assess and evaluate active mobility in multi modal mobility hubs and meeting points.

References are presented in Harvard style. A reference list is included at the end of the report. All illustrations and images are appropriately cited in the illustration list.

Detailed appendices can be available by request.

Acknowledgement

Thanks to Active Cities project for co-funding this research activity.

Thanks to Aarhus Municipality. In particular, Gustav Friis, Lars Clausen, Troels Kok, Klaus Braad, Jesper Frandsen and the mobility team for inviting us to conduct this research, providing feedback and discussing the findings. Thanks to Astrid Pedersen and Mathias Frederiksen for collaborating and collecting interviews and data with us on site.

Introduction

This research study investigates active mobility with focus on the temporalities of people's movements, practices and interactions in the temporary condition of Vesterbro Torv in Aarhus, Denmark. Vesterbro Torv has been under transformation to remove car traffic and parking to offer more urban public spaces for cycling and walking and green areas for resting and rainwater management (City of Aarhus 2025). During this transition and project development, and after the removal of car parking and traffic, the municipality designed a temporary urban space in Vesterbro Torv in spring 2024 with the intention of giving the opportunity to citizens to experience the future transformation of the square as an urban space that prioritizes green spaces for pedestrians and cyclists (City of Aarhus 2025).

This report aims to follow and understand the process of the urban transformation of Vesterbro square to learn about urban design strategies that can potentially advance green mobility transitions, and to learn which design elements are relevant to achieve such transformations.

This investigation adopts a multi-method approach that includes ethnographic field work and urban design analysis.

Several site visits were conducted during the period of investigation, from September 2024 to December 2024, to answer the following research question:

How do the temporary design and design elements of Vesterbro Torv facilitate and/or hinder active mobility and social practices?

To answer that question, the following sub questions are framed and investigated:

-**Who** are the users?
-**How** do they use the square?
-**How** do users move and in which ways? And **why**?

Theories and Methodologies

The **Active Cities Project** focuses on promoting urban environments that encourage physical activity and sustainable mobility. It emphasizes the integration of policies, design strategies, and community-based initiatives to foster healthier, more livable cities. The project draws on a wealth of international research to underline the benefits of active transportation, such as reducing crime, improving public health, increasing productivity and offer guidelines for implementing supportive urban design and mobility solutions (Active Cities Interreg North Sea, 2024)

The evaluation model for active mobility is a framework developed by Aalborg University as part of the outcomes of the Active Cities Project. The model is developed for understanding, assessing and designing multi-modal mobility hubs (MMHs) for active mobility. It integrates life-centric and sustainability perspectives from academic and grey literature (Vestermann, Hernandez Bueno and Lanng, 2023).

The model considers factors like accessibility, flexibility, user experience, and environmental sustainability, highlighting the need for adaptive, context-sensitive and human-sensitive approaches to mobility infrastructure (Vestermann, Hernandez Bueno, Hermansen, and Lanng, 2024).

The model examines the relationship between different design and urban planning principles and parameters to understand how urban mobility spaces can be re-designed to support active mobility. In addition, the model explores how design processes and strategies can facilitate mobility and urban transformations.

This research uses Vesterbro Torv as a case study to explore the applicability of the model principles. Particularly, place qualities, people's perception and experience and the role of the site to facilitate active mobility are studied. When it comes to the study of people's experience, approaches from universal and inclusive design were used (see Steinfeld and Maisel, 2012).

To analyze the active mobility situations in the temporary design of Vesterbro Torv, a multi-method approach was adopted. This approach combined desktop research, ethnography, and collaboration with Aarhus Municipality, ensuring a comprehensive understanding of the dynamics and temporalities of the square.

The study began with desktop research to establish a contextual foundation. Mapping and reviewing relevant literature provided insights into urban mobility and public space use. An analysis of municipal plans highlighted strategic intentions and frameworks shaping Vesterbro Torv's development. Demographic data was explored to identify the characteristics of the square's users, while historical research illuminated the square's evolution and its influence on current social and spatial dynamics and the role of the square within the city network.

Several ethnographic investigations formed the core of the study, involving eight field visits to Vesterbro Torv. Observations during these visits included detailed notetaking, short interviews on site, photography, counting the number of people walking and cycling, and sketching to capture real-time interactions and movements within the square.

Conversations with the square stakeholders, such as users and shop owners, enriched the understanding of local experiences and perspectives. Spatial and behavioral mappings were used to identify movement patterns, activity hotspots, and potential barriers for active mobility. Shadowing and strolling techniques (Jirón, 2010) allowed for a closer examination of how individuals navigated and interacted with space. Additionally, a reflective diary documented the square's temporalities through detailed descriptions and sketches of situations, capturing how activities and uses varied throughout the day and under different conditions.

Collaboration with Aarhus Municipality was integral to the process. Meetings provided insight into institutional perspectives, existing policies, and future visions for the square. These interactions helped align the study's findings with the broader urban planning goals of the city.

Looking ahead, further interviews with municipal planners will delve deeper into the motivations, challenges, and strategies shaping the development of Vesterbro Torv. Additionally, following the progression of the development process will offer a longitudinal view of the square's transformation and its impact on active mobility and public space use.

This cohesive and multi-layered approach combines theoretical exploration, observational detail, and participatory engagement to capture the complex dynamics of the temporary design of Vesterbro Torv as a site of active mobility.

The case of Vesterbro Torv

The study starts with desktop research to make an overview of Aarhus city and its transportation. This overview aims to understand Vesterbro Torv position and its role in the city's urban network and how people move there.

Ill. 02 Vesterbro Torv position in Aarhus City in relation to important city landmarks

Vesterbro Torv, an urban node where different corridors meet

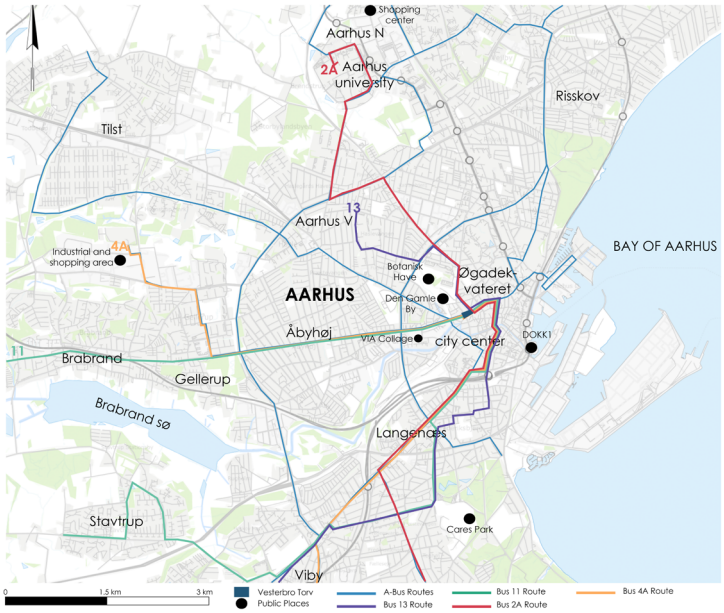
This analysis was made to understand the location and position of Vesterbro Torv, and how people move in Aarhus towards Vesterbro Torv.

Aarhus and the surrounding region offer easy and convenient transportation and mobility options, including walking, biking, buses, trains, the light rail, and car. The city's short distances make biking particularly popular, with many cycling routes available. Notably, Kulturringen, or 'Culture by Bike,' provides scenic routes through areas like the Lake District, Djursland, and Favrskov. Central Aarhus is largely pedestrian-friendly, featuring many car-free zones, narrow streets, squares, and open spaces.

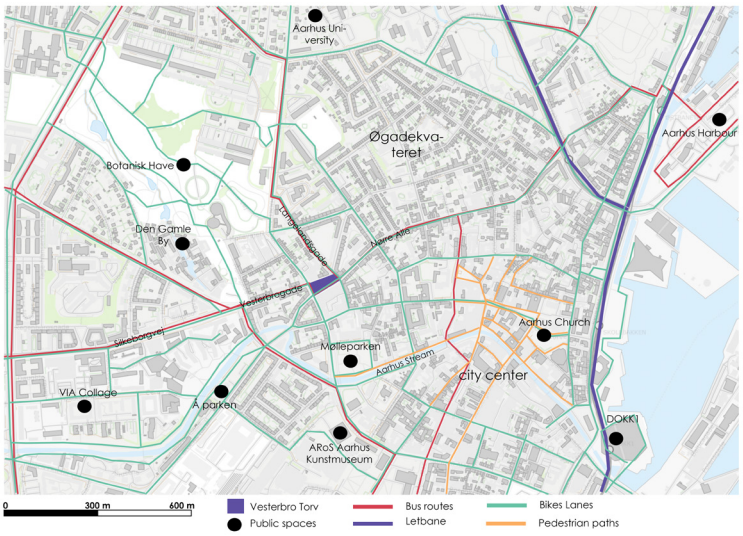
Within a 10-minute walk from the city center, people can reach the City Hall Park, Aarhus City Hall, Vesterbro Torv and other places like the Concert Hall, Scandinavian Congress Center, and ARoS Aarhus Art Museum. From there, it's only a short walk further to the Old Town (VisitAarhus, n.d.).

In Aarhus, public transportation options include city buses, regional buses, and the light rail. The city operates six main bus lines, known as A-lines (1A, 2A, 3A, 4A, 5A, and 6A), which run along major roads and serve the most densely populated areas. During rush hour, A-lines run 6-8 times per hour, while other city buses operate 2-4 times per hour, covering areas not served by the A-lines (City of Aarhus, 2024).

The importance of the Vesterbro Torv comes from its location at the intersection of the main streets that connect the Aarhus city from all directions. Vesterbro Torv is well-connected, with four A-lines and additional bus routes passing through or within a 5-minute walk, linking it to various parts of Aarhus, including industrial areas, parks, Aarhus University, and shopping centers.



III.03: Bus routes which go through Vesterbro Torv in Aarhus City



III.04: Bus routes, bike lanes and pedestrian streets around Vesterbro Torv

III.05: Different mobility modalities around Vesterbro Torv

Place Analysis of Vesterbro Torv

Through desktop research and ethnography, the transformation and temporary public spaces of the square, its designed conditions, elements and spatiality (edges) were analyzed in this section.

Ill.06: Vesterbro Torv temporary condition

History

Ill.07: Vesterbro Torv before its temporary transformation

Ill.08: Vesterbro Torv before its temporary transformation

Ill.09: Vesterbro Torv now in its current temporary situation

Vesterbro Torv is a square in the city center of Aarhus, established in 1847 as a cattle marketplace. It was named in 1890. It originally extended from Vesterbrogade. The cattle trade moved in 1907 to the Meatpacking District. Despite efforts to create an appealing living area, the square became a parking space. Eight streets originate from its corners, making it a central but underutilized area in the city. (Dybdahl, 1971)

Municipality Plan

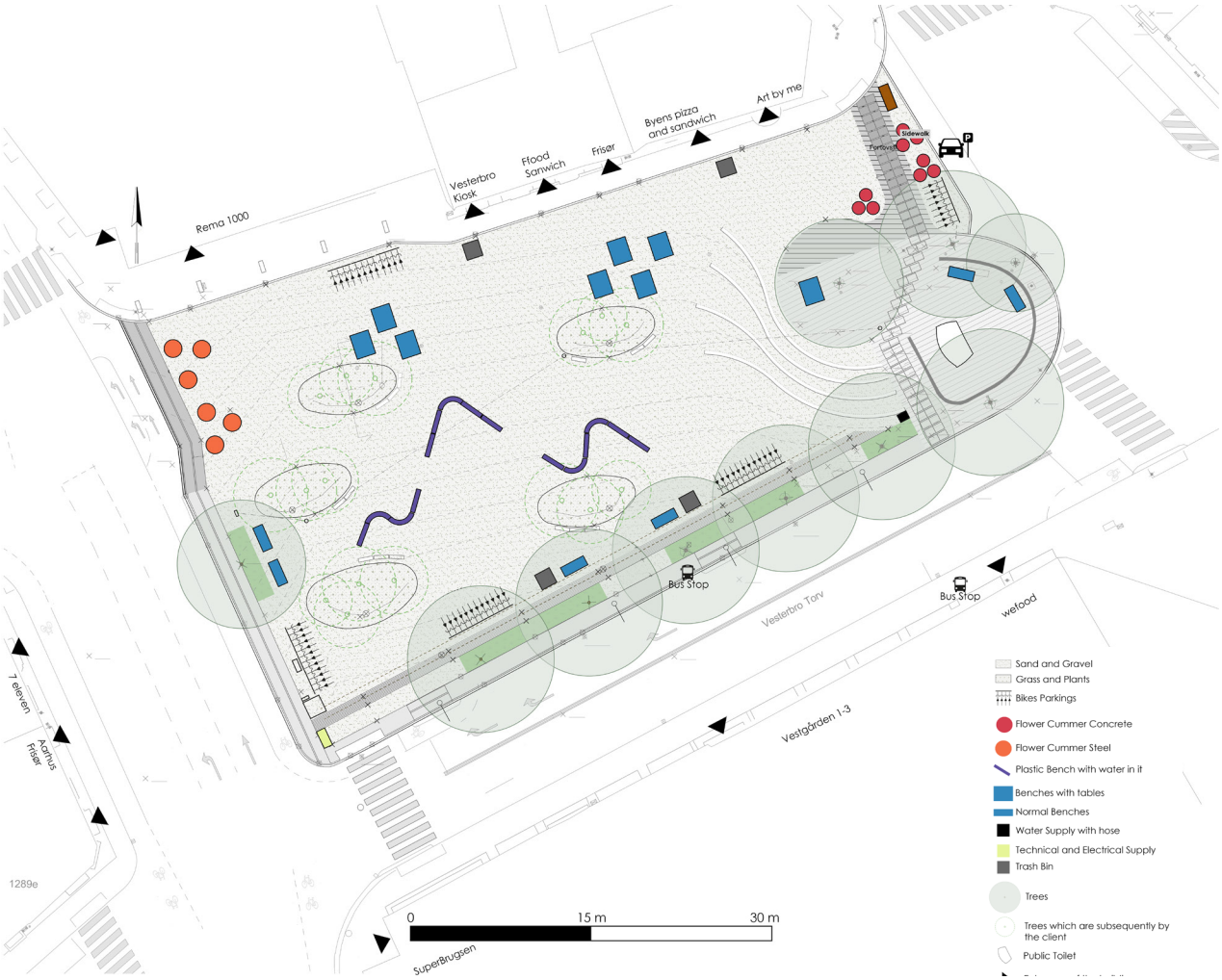
Ill.10: Vesterbro Torv project by Lytt Architects

The transformation of Vesterbro Torv started in spring 2024 with the removal of parking and car traffic to incorporate temporary urban public spaces. The transformation included the demolition of a parking garage, the conversion of street traffic to one-way, closing parts of the square for car traffic, the incorporation of temporary seating areas and plantings, new gravel pavement and the replantation of trees that originally stood in the square (City of Aarhus, 2025).

The final transformation of the square aims at creating a greener and more peaceful urban space. The project attempts to reduce traffic, enhance greenery for recreation and water management, and introduce outdoor seating, trees, and market spaces.

The south side will be reserved for buses and pedestrians. At the time of writing, full revitalization is expected by summer 2025 (Balslev, 2024).

Current Situation



Ill.11: Temporary situation of Vesterbro Torv.

The importance of the Vesterbro Torv comes from its location at the intersection of the main streets that connect the city from all directions, such as Nørre Alle, Langlandsgade, Vester Alle, Viborgvej and Silkeborgvej.

The square has been transformed from a parking lot into a temporary urban space. The northern street has been closed off to expand the public area, and southern street is now reserved exclusively for buses. The temporary layout includes open and shared space for pedestrians to walk and bike, green spaces, and temporary seating furniture. Surrounded by a mix of residential and commercial buildings, the square is bordered by numerous offices, shops, restaurants and a parking space adding to its dynamic atmosphere.

The square has many entrances and it currently works as a shared space. People enter from all directions, finding their own path through the furniture, trees, and flowerbeds based on their destination and route. Some choose the sidewalks surrounding the square for walking or cycling, while others cross the square directly, taking a random path through the middle.

Entrances

Ill.12: Entrances of Vesterbro Torv

Since Vesterbro Torv is currently in a temporary state, its entrances are not yet clearly defined. To better understand how users move within and around the square, the entrances have been categorized based on the square's four corners. This approach helps analyze the number, direction, and patterns of movement within the square.

As illustrated in Ill.12, the entrances were divided into four corners, and pedestrian traffic was observed for 10 minutes at each corner. The flow of people entering and exiting each corner was documented. The data indicates that **Corner 1**, which connects the square to Landlandsgade and Teglværksgade, is the most frequently used.

Additionally, the observations reveal a noticeable difference in users' flow between weekdays and weekends, with higher activity levels observed on weekdays.

Weekday

Corners	06-11-2024, 9:30-11:00					
	Duration (minutes)	Pedestrians		Bikes		
		Enter	Leave	Enter	Leave	
1	10	7	21	10	4	42
2	10	7	11	6	3	27
3	10	9	9	2	0	20
4	10	6	11	1	0	18
Total	40	29	52	19	7	107

Corners	07-11-2024, 12:50-14:10					
	Duration (minutes)	Pedestrians		Bikes		
		Enter	Leave	Enter	Leave	
1	10	29	25	4	4	62
2	10	16	11	2	3	32
3	10	27	17	0	1	45
4	10	10	7	0	2	19
Total	40	82	60	6	10	158

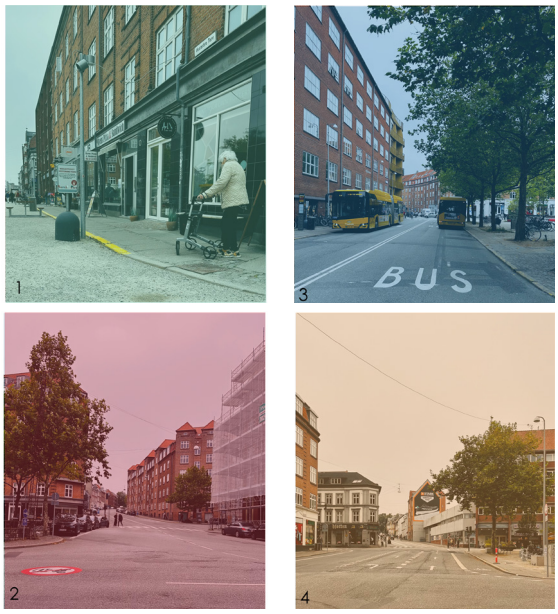
Weekend

Corners	15-11-2024; 9:30-11:00					
	Duration (minutes)	Pedestrians		Bikes		
		Enter	Leave	Enter	Leave	
1	10	31	21	3	3	58
2	10	22	21	3	3	49
3	10	13	10	0	0	23
4	10	8	6	0	0	14
Total	40	43	37	3	3	86

Corners	16-11-2024; 9:30-11:00					
	Duration (minutes)	Pedestrians		Bikes		
		Enter	Leave	Enter	Leave	
1	10	20	22	1	0	43
2	10	18	10	1	4	33
3	10	3	8	0	0	11
4	10 rainy	1	3	1	0	5
Total	40	42	43	3	4	92

Ill.13: Counting pedestrians and bikes in the entrances of Vesterbro Torv

Edges



III.14: Edges of Vesterbro Torv

The square has both hard and soft edges, e.g., closed and active facades respectively. Physically, it is enclosed by buildings ranging from six to seven stories, yet these structures are filled with large windows and glass facades, offering wide views of the square. For instance, it is possible to see the entire square from inside of the pizza restaurant, Rema 1000 and the art store.

The square is bordered by roads on three sides: one road dedicated to buses and bus stops (south), and two for all types of transportation (west and east). From within the square, all the edges are clearly visible, for example Vesterbrogade can be seen distinctly from either side of the square facing it.

The square is bordered to the west by flower beds, a bench, bike racks, and several signs, separating it from Vester Alle. To the south, towering trees, along with benches and bike racks, create a natural barrier. On the east side, the free public toilet in the corner, along with a row of parking spaces and more bike racks, forms a boundary that separates the square from Langelandsgade.

Through studying the square's soft edges and how they affect people's mobilities to and from the site, it was found that some edges accommodate the needs of some individuals while hindering the movement of others. For example, the parking area in the east serves people to come to certain shops like the kiosk or restaurants, while the bus route from the south reduces noise due to the absence of cars, which in turn decreases the traffic. On the other hand the lack of easy access to the sidewalk in the southeastern corner of the square, hinders some people's mobilities, for instance a baby stroller or similar.

Sections

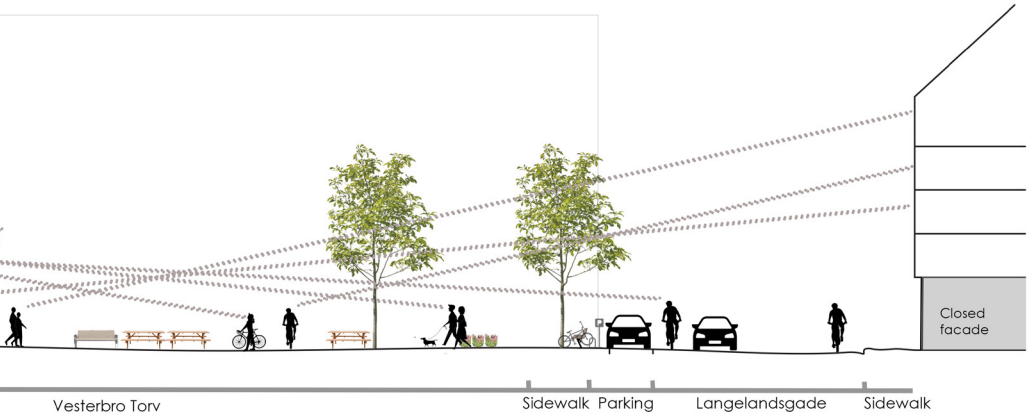
The spatial sections depict the layout of the temporary design of the square in relation to nearby car and bus routes, showing how people use various modes of transportation to navigate Vesterbro Torv. Clearly marked bike lanes and traffic signs are present along Vester Alle, Hjortensgade, Vesterbrogade, and the Vesterbro Torv bus route, while Langlandsgade provides ample space for both vehicles and bikes.

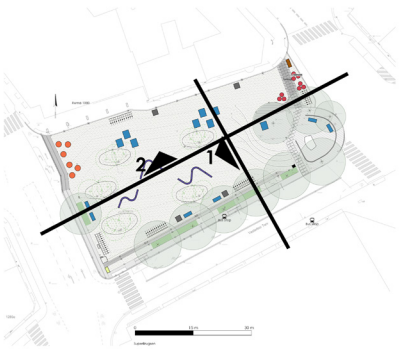
The sections also highlight active facades, (soft edges and open facades) from surrounding residential and commercial buildings that offer views of the square. For instance, people inside the pizza restaurant or Rema 1000 can view the entire square, particularly from buildings on the northern edge of the square and those along Vester Alle. In contrast, the hard or closed facades along the Vesterbro Torv bus route and Langlandsgade on the east side create opportunities for bike parking and merchandise displays. Additionally, tall trees provide privacy for the buildings and shade for the square.

This layout helps illustrate the division of streets around the square, showing which transportation modes are used and how active mobility is facilitated along the site's edges. It also offers insights into whether there is adequate space for both cyclists and pedestrians.

Ill.15: Spatial section 2 of Vesterbro Torv

III.16: Spatial section 1 of Vesterbro Torv





Take Away Points

• An strategic urban node for more than multi modal transit practices

• The temporary design works as a shared space for pedestrians and cyclists. It offers opportunities to stay.

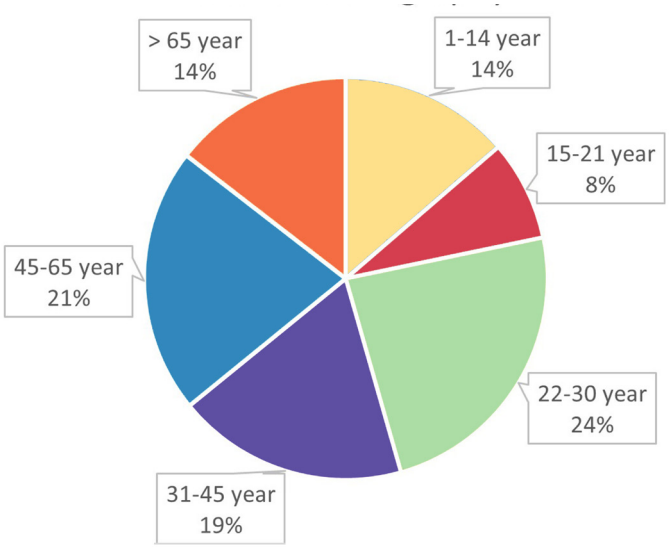
• The square has very different active edges. Some edges have a very commercial and lively character (active facades). Whereas hard edges create opportunities for bike parking and merchandise display (e.g., edge besides dedicated bus route) which hinder pedestrian's mobility.

Who Are The Users?

To answer this research question, desktop research of Aarhus's demography, observations and interviews on site were used.

Ill.17: Collage of the users on the site

Demography of Aarhus



III.18: Diagram showing the demography of Aarhus city

According to the latest data, the population of Aarhus, Denmark is projected to reach approximately 368,000 by 2024 (Statistikbanken, 2020). The city is known for its vibrant cultural scene, high standard of living, and strong economy, attracting both domestic and international residents.

In terms of demographic composition, Aarhus has a relatively young and well-educated population, with a median age of 35 years and a high percentage of residents holding a bachelor's degree or higher (Danmarks Statistik, 2019). The city is also known for its diverse and multicultural population, with residents from various ethnic and cultural backgrounds contributing to the city's dynamic social fabric.

According to the latest statistics in 2024, the youth group makes up the largest portion of the city's population at approximately 25%, followed by individuals aged 45-65 at 21%. Children and adolescents constitute 20% of the population, while adults aged 31-45 make up another 20%. The elderly population falls to 14% (Danmarks Statistik, 2024)

Overall, Aarhus continues to grow and evolve as a cosmopolitan hub in Denmark, with a population that reflects the city's diverse and inclusive ethos.

User Groups

III.19: Collage of the users on the site

Families with children were seen visiting the shops or the art shop at the corner, but they usually do not stop or sit, possibly because there isn't much to capture the children's interest.

Many parents with strollers also move in various directions. Additionally, some school or Via Collage students pass through the square to catch buses or come around noon or in the evening to have sandwiches or pizza, sitting in front of the restaurants, with their numbers increasing in the afternoon.

There is also a presence of elderly people who often sit, walk around the square, or go shopping, especially in the morning and the noon.

Take Away Points

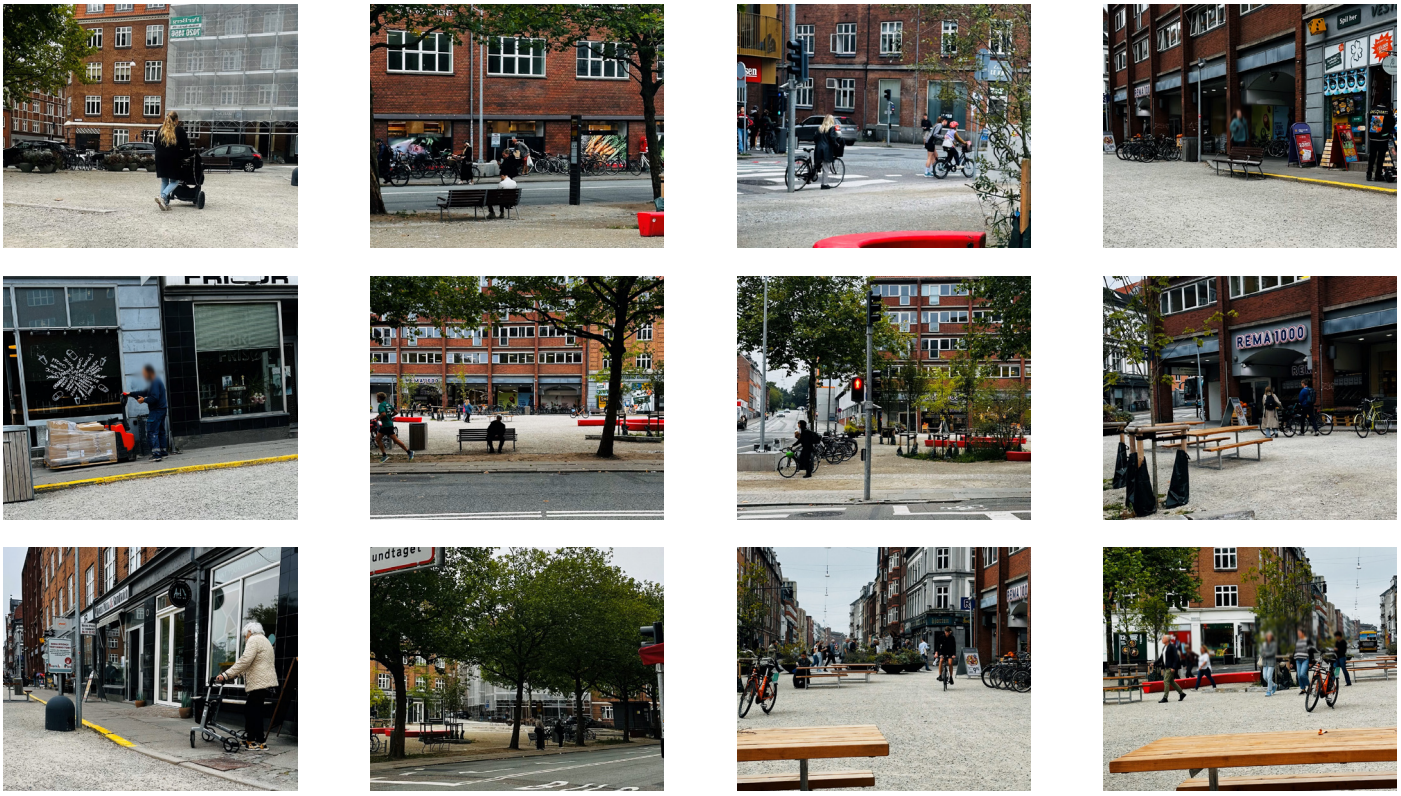
• Diverse user groups use the square at different times. For instance, elderly people in the morning and young people in the afternoon.

How do people use the square?

Observations of people's activities were categorized according to different times and days (week days and weekends).

Ill.20: A social activity taking place in the square

Walk with strollers | Wait for the bus | Ride the bike | Walk / Run



III.21: Pictures of the activities and people's practices in the square

Some people walk through the square with strollers or carts to deliver goods and services to shops. Particularly elderly people with strollers.

Others wait for the bus, using the benches or crossing the square to reach the bus stop. There is also a significant number of cyclists who pass through the square in various directions.

Additionally, some people simply walk around or cross the square just from A to B.

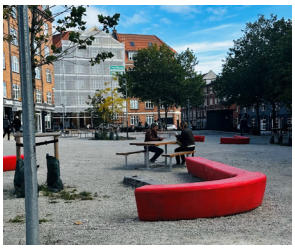
Some activities also include visiting various shops or restaurants, as we can see in the pictures many people come to visit 'Art by Me' shop for instance and use the benches in the square to wait for their booking time.

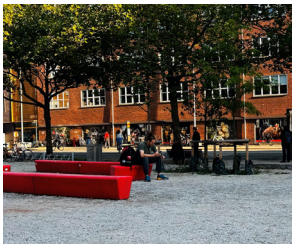
Visit shops and restaurants

Sit/Dwell/Rest

Meet or Eat

Cultural/Traditional Activities







III.22: Pictures of the activities and people's practices in the square

It was observed that other people sitting with their phones for a while on different benches or watching other people, reading a book, meeting friends, eating or drinking, especially at mealtimes.

Some events taking place in the square were also observed, like a cinnamon traditional party where more than 25 people came, moved the benches with tables together, celebrated and then sat to eat cake and drink in the square.

Furthermore, there were signs with advertisements of future events, like Aarhus Festuge (Celebration Week).

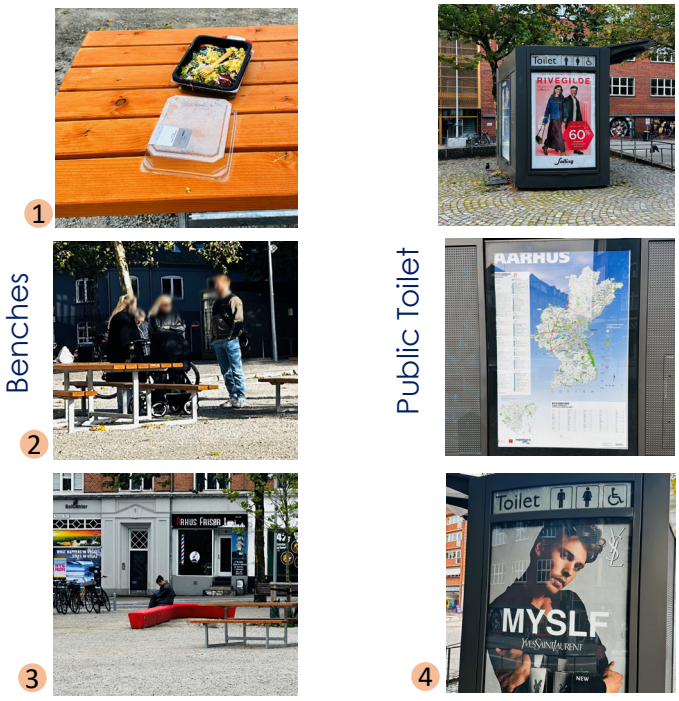
Furniture

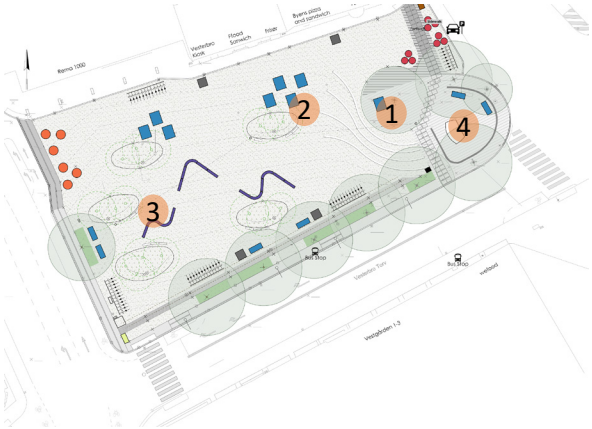
Ill.23: Different types of benches in Vesterbro Torv

The furniture in the square offers a variety of seating options. Simple wooden benches line the edges, particularly popular near the bus stop where people wait, or in front of the kiosk in the center, while other people use the remaining benches to rest. Larger wooden benches with tables are frequently used for dining, especially during peak hours and mealtimes. Another option includes temporary red plastic benches with curved, playful designs. Though they are less commonly used, they are favored by families with children, who find them ideal for sitting, playing, or briefly walking on.

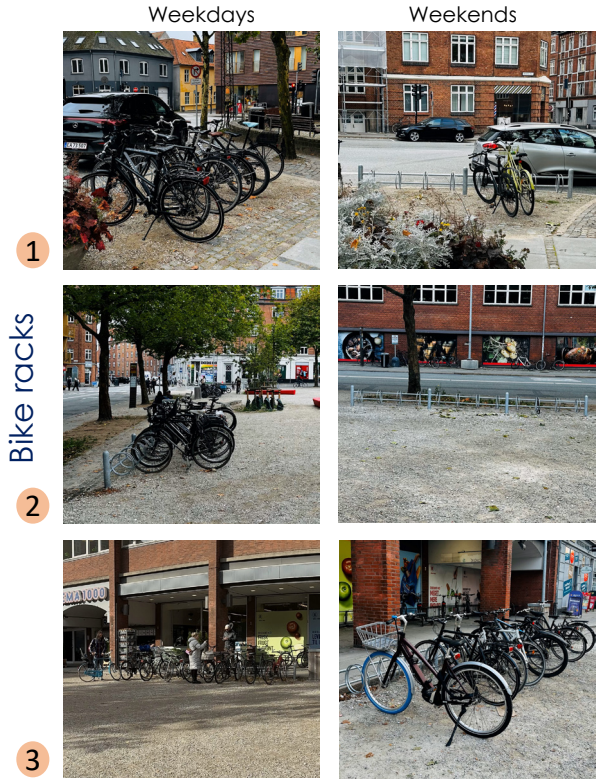
It was also noted that there are people using the public restroom, especially at noon. The toilet module offers advertisements and information on its walls.

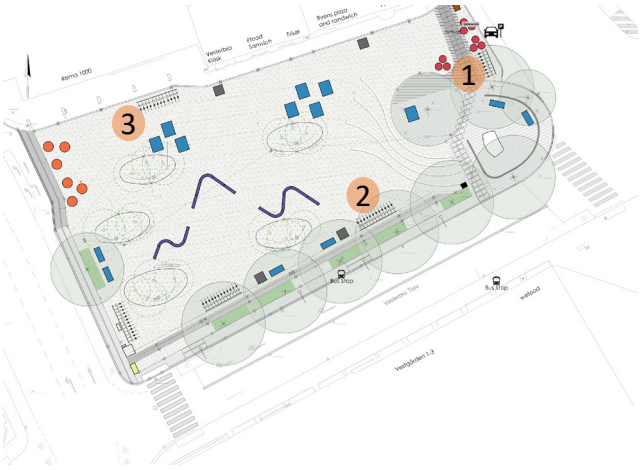
The observations of the bike racks reveal that they are well utilized by cyclists at different times, with the highest usage occurring on weekdays than during the weekends.





III.24: Usage of furniture like benches and public toilet in Vesterbro Torv





III.25: Usage of bike racks in Vesterbro Torv

Bike Racks

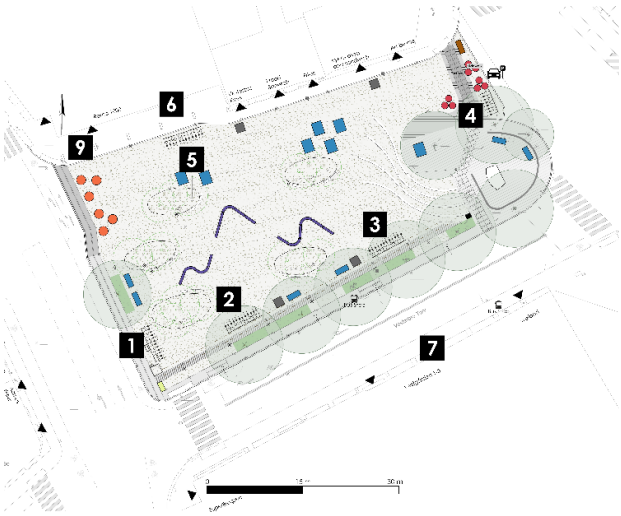
Bike rack number	Real Bike places	6/11/2024 Wednesday			7/11/2024 Thursday			15/11/2024 Friday			16.11.2024 Saturday		
		9:15	12:40	14:30	12:30	14:30	16:30	9:15	12:40	14:30	9:15	11.00	13:30
1	12	14	16	12	16	14	12	15	15	14	1	2	3
2	12	13	13	15	15	17	13	14	15	16	6	7	7
3	12	11	13	12	10	5	4	19	20	20	6	6	6
4	8	5	5	5	4	4	5	5	3	4	3	4	3
5	12	6	6	10	11	14	19	10	8	12	9	7	12
6	25	8	7	8	7	6	6	8	8	7	5	11	6
7 (Vestgården Sidewalk)	0	61	53	58	54	62	54	57	73	67	31	34	37
8 In and around Vesterbro Torv	0	1	1	2	2	1	2	1	1	2	3	3	2
9	5	2	3	7	2	2	3	2	3	6	2	2	5
Sum	86	121	117	129	121	125	118	131	146	148	66	76	81

Ill.26: Counting of bike racks in Vesterbro Torv and bikes passing through and around the square

To obtain quantitative data on the availability of existing bike racks and the actual number of bikes in and around the square, the last four visits included systematic bike counts. These counts were conducted over four days, covering both weekdays and weekends, and performed three times per day (as shown in the table in Ill. 26).

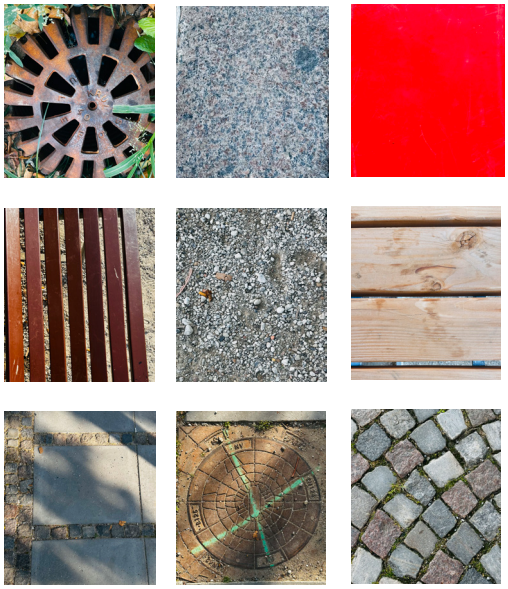
The data revealed that the square provides 86 designated bike parking spaces. However, the actual number of bikes often exceeds this capacity, with over 115 bikes typically observed. On Fridays, this number surged to 150 bikes. A significant issue was identified along the sidewalk by the Vestgården building, where there is no formal bike parking. Despite this, between 30 and 70 bikes were consistently parked there, creating congestion.

The data also showed a noticeable decrease in bike usage on Saturdays, suggesting that most cyclists are either working in or near the square during the week. This pattern highlights the square's role as a transit node and reflects the modality shift of users who integrate cycling into their daily commute.

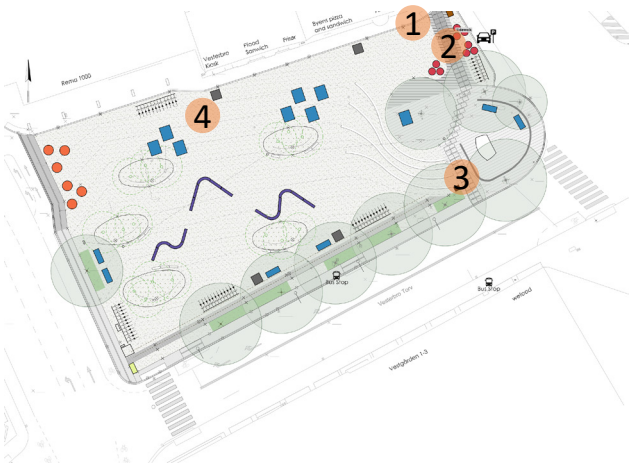


III.27: Position of bike racks in Vesterbro Torv

Materiality



III.28: Types of materials in Vesterbro Torv



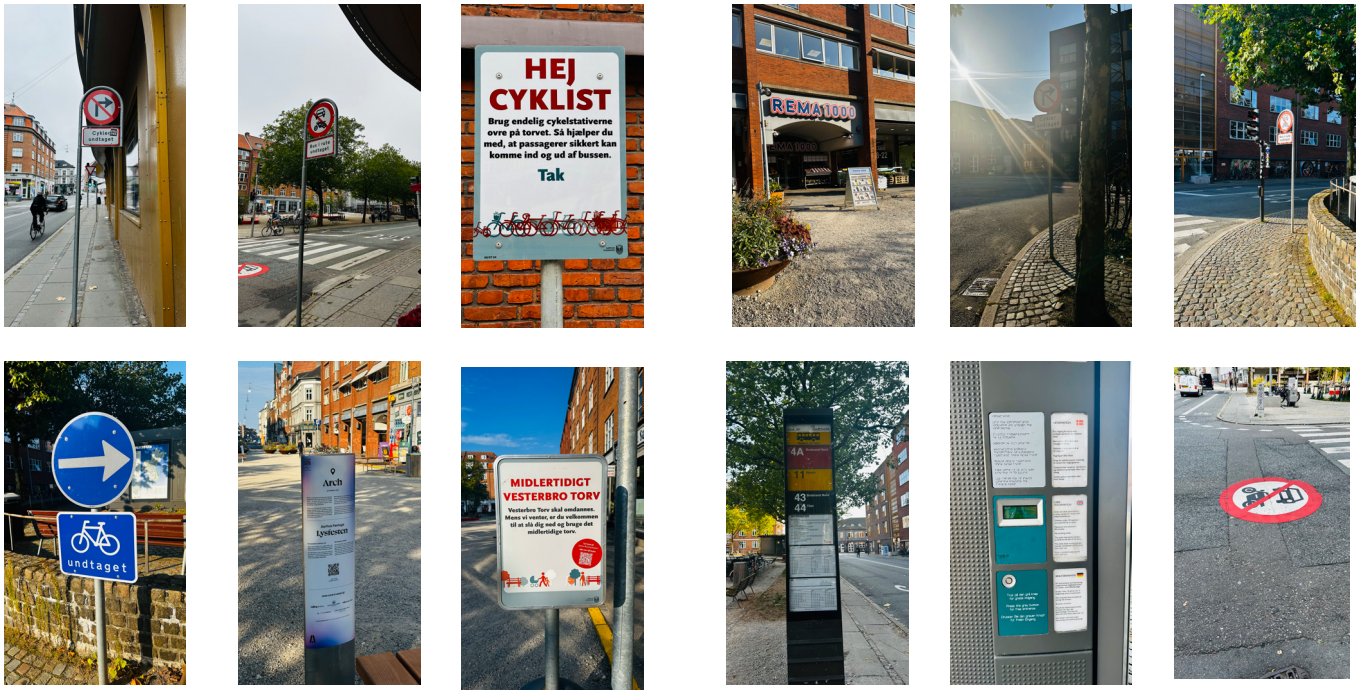
III.29: Map showing the position of the pictures below

III.30: Usage of different surface materials in Vesterbro Torv

The square features a variety of materials. Hard plastic is used in some types of benches, while wood is used in others, including a different kind of wood that supports the trees scattered throughout the square.
Metal is also visible in certain elements around the square, such as signs, trash bins, water drainage covers, and more. Since the square is temporary, it is filled with gravel and sand across its surface. Surrounding the square, the sidewalks are paved with tiles interspersed with stones often seen in urban areas.

As for the materials on the ground, sidewalks, and paths within the square, they vary affording different usage. For instance, the sandy and gravel-covered ground is suitable for cyclists but may hinder the movement of the elderly with strollers. Some can be seen following paths with material that facilitate easily their mobility. In addition, the ramp besides the restroom is well-used also.

Signs



III.31: Signs in and around Vesterbro Torv

A variety of signs are scattered throughout and within the square, each reflecting the character of space.

Their shapes and sizes differ based on their intended purpose. For instance, there are signs at the bus stops and traffic signals at the corners where the streets intersect.

Other signs within the square indicate specific events or are positioned in front of shops and restaurants.

Additionally, various advertising boards are displayed on the walls of the public toilet.

Take Away Points

• Social, recreational and mobility activities take place in the square: people cross, walk, meet, sit, eat, and make events and social activities on the square.

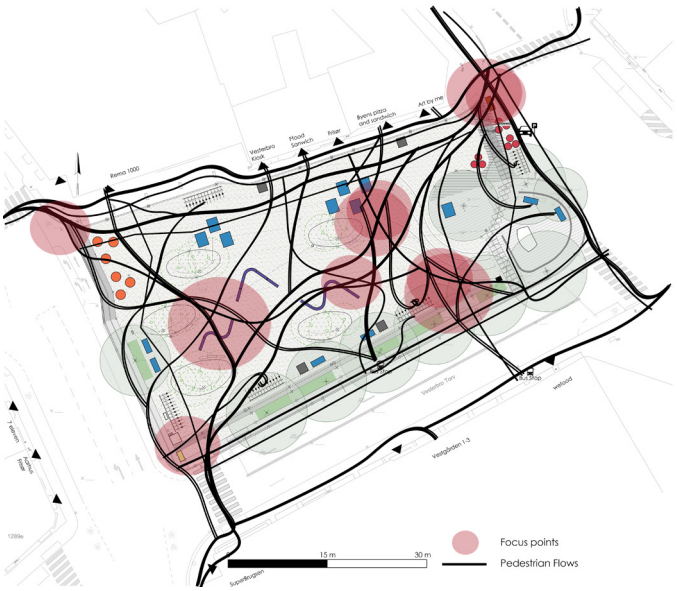
• The furniture is well used by people, especially the benches with tables and the one beside the bus stop, and the bike racks besides Rema1000

• There are differences in the usage of the furniture based on time and day (e.g., morning vs afternoon; shopping vs work time; weekdays vs weekend). Particularly, bike racks are well-used in their full capacity during weekdays.

How do users move? In which way and why?

The observations and interviews were used to understand how and why people move in and around the square. To answer the last research question, why do people use the site in that way? We developed fictional journeys of representative group users based on the interviews and observations.

Flows



Ill. 32: Critical points of pedestrians plows

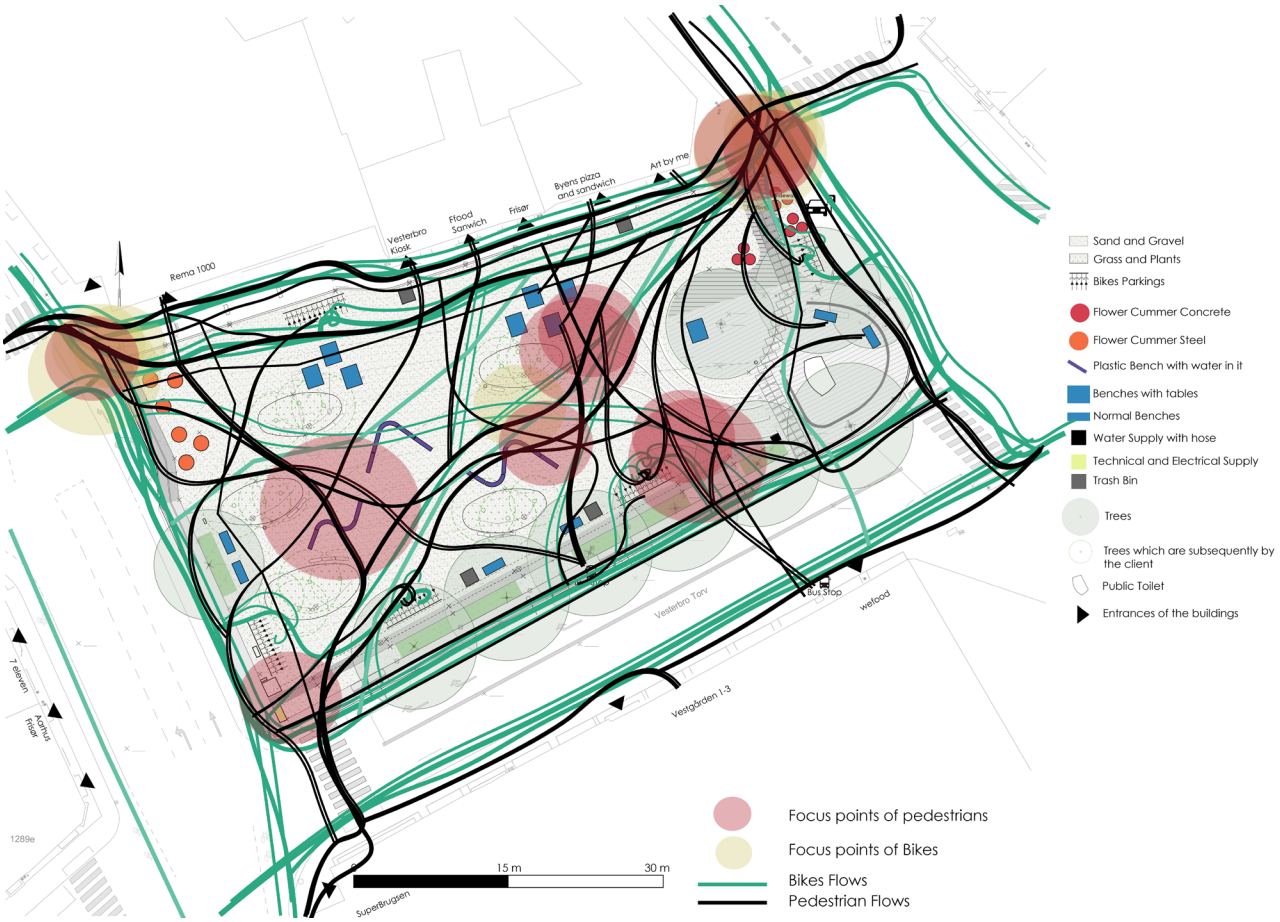
Ill. 33: Critical points of bikes flows

The mobility flows of some pedestrians were mapped in each visit, attempting to track them to determine the purpose behind their movement patterns. A thick line was used to indicate an increase in flow, while the broader flows observed on the fourth visit and all the maps were marked with red circles to show the most frequently used points.

The same method was applied to the bicycle flows, with focus points marked yellow to indicate the most used routes.

During the last four visits, quantitative data was gathered by counting pedestrians and cyclists within the square over 15-minute intervals on both weekdays and weekends. The results, (as shown in Ill. 35 and Ill. 36), highlight distinct usage patterns. Pedestrians predominantly use the sidewalk adjacent to Rema 1000 and the nearby restaurants, while cyclists primarily utilize the main axis.

Critical Points



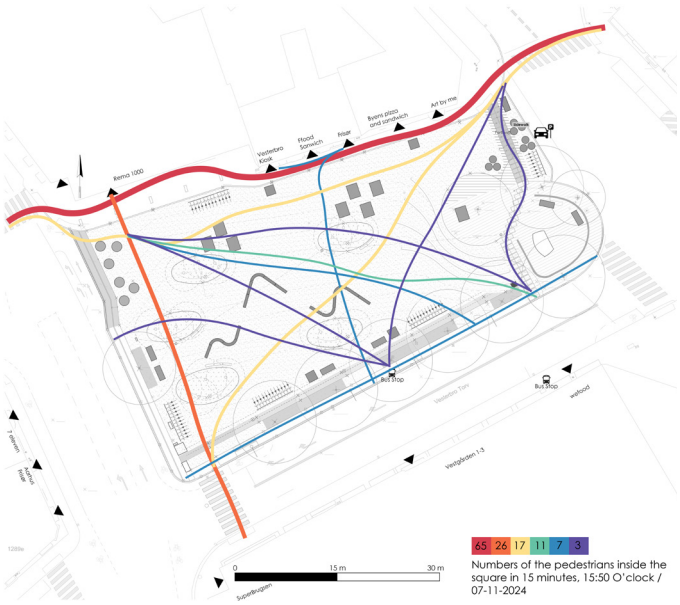
Ill. 34: Overlaying all the flow maps and intersecting critical points

The maps from all visits were combined to identify the areas with the highest flow for both bicycles and pedestrians. Ill. 32 shows that pedestrians move in diverse directions across the square. Pedestrians walk between the urban furniture to reach their destination. Moreover, there are many pedestrians that come from the bus stop on Langlandsgade to the bus stop on Vesterbro Torv and vice versa. Some of them park their bikes and continue their journey to the bus or by walking.

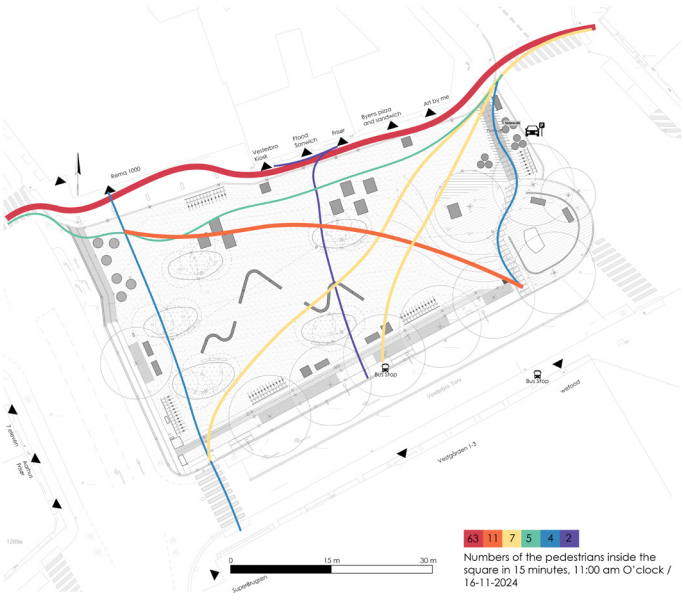
Bicycles are mostly passing around and across the square and on the streets. Particularly along the northern edge of the square, possibly because this was a remembered pathway before the street was closed and turned into a part of the square, or because it is the shortest route for bikes coming from the north-east. It could also be due to the shared space character of the temporary design of the square.

Finally, by overlaying all the maps to assess the level of safety of active mobility in the square and the likelihood of pedestrian and bicycle collisions, the final map shows that the two corners along the northern edge are the most critical and congested.

Weekdays



Weekends

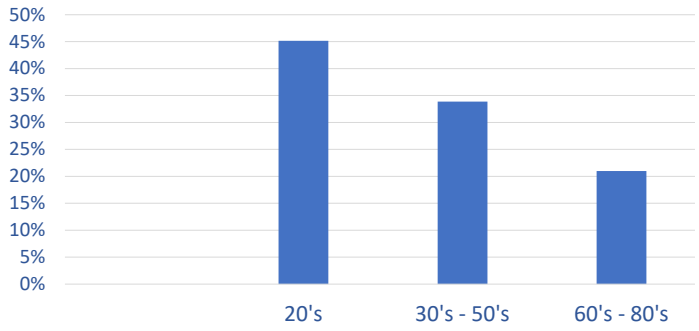


Ill. 35: Maps showing the counting of pedestrians inside Vesterbro Torv

Ill. 36: Maps showing the counting of bikes inside Vesterbro Torv

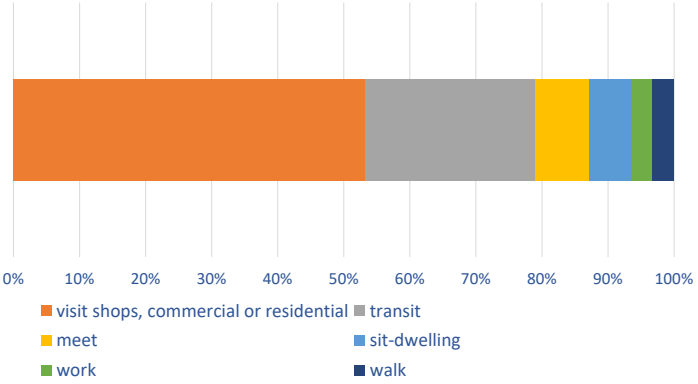
Interviews

To get an understanding of people's mobilities and practices, interviews with the users around Vesterbro Torv were conducted. The interview strategy was based on asking three main questions to users: What brings you to / through Vesterbro Torv? And how did you get here? By bus, car, bike or walk. How is it to (bike, walk) at Vesterbro Torv? Age and gender were estimated, and the table was completed after they left the site.



Ill. 37: Diagram showing user group ages of people interviewed.

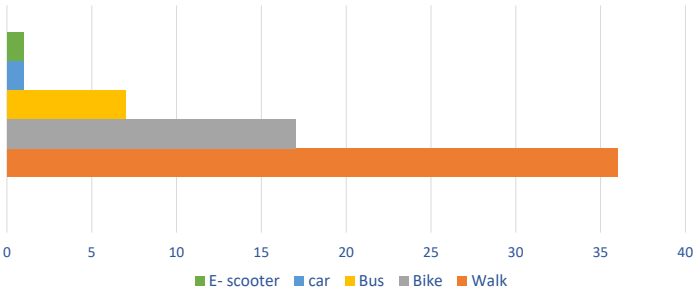
Aarhus municipality helped to do these interviews during the last four visits. Sixty-two interviews were conducted. Participants had diverse ages and gender from 20's to 70's. 45% of them were young in their 20's, 34% were between 30's and 50's, and 21% were between 60's and 80's, which gives us an understanding of types of users which visit the site or live around.



Ill. 38: Diagram illustrating the variation of people's reasons for being in Vesterbro Torv, based on interviews.

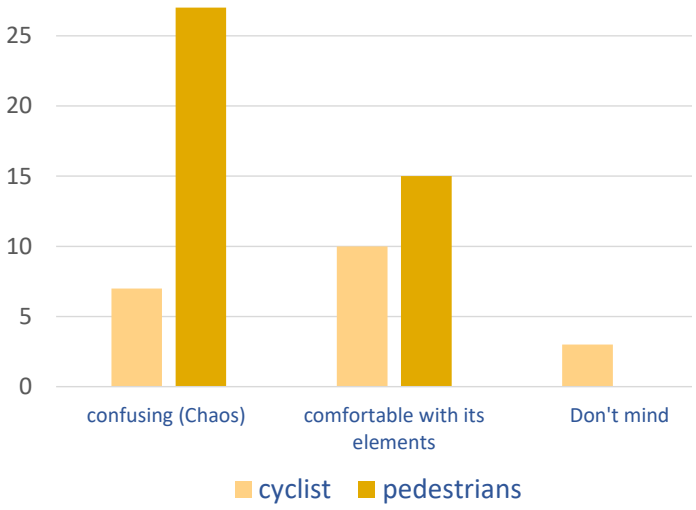
The first question was about the reason they came to the square and the answers were varied, but the dominant answers were visiting shops and the area around, and just moving from A to B (see diagram in Ill.38). This gives a sense that the square is used as a transit and activity node because of its position and perhaps temporary re-design.

The second question was about how the users get to Vesterbro Torv to understand the types



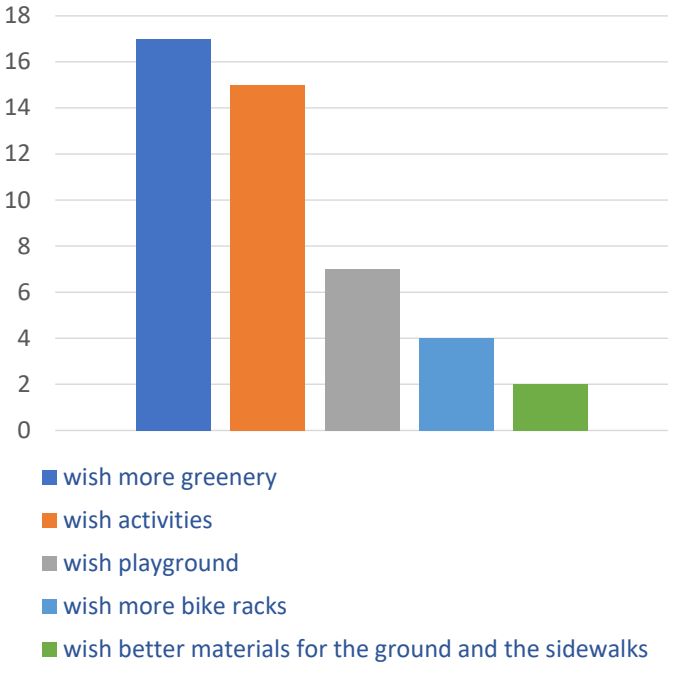
Ill. 39: Diagram showing how people get to Vesterbro Torv, based on interviews.

of modalities they use. Most of the users come walking to the site for different reasons, some of them live nearby and others park their cars far away and continue walking towards the city center. Other users come with their bikes to or around the site for different purposes. There were many that come with the buses and use the bus stops on both Langlandsgade and Vesterbro Torv, thereby facilitating a modal shift between Bus-Bus and Bike-Bus. Finally, the rest of the users come to the square with cars or e-scooters (see Ill.39). The results give a sense of the temporalities of mobilities and mobility modes.



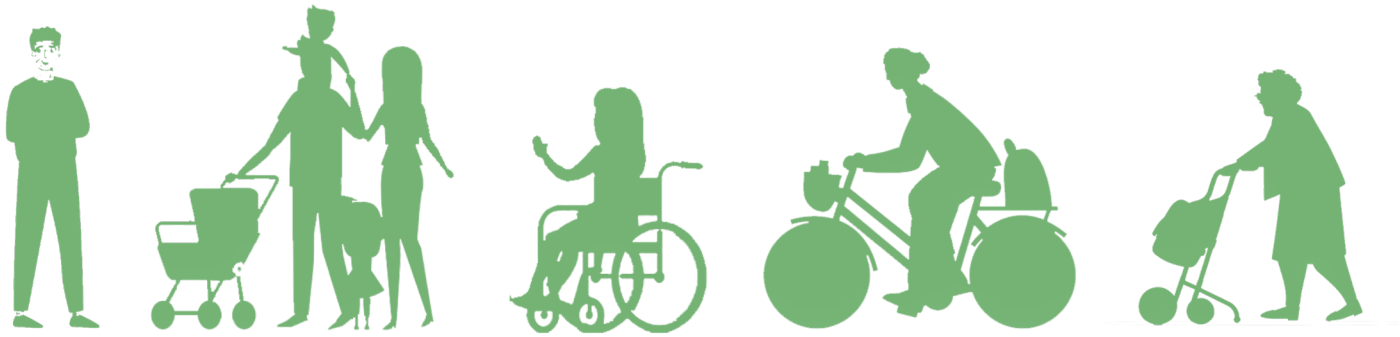
Ill. 40: Diagram showing how people feel in Vesterbro Torv.

The final question was related to how the users felt in Vesterbro Torv to understand the current situation of the square and the arrangement of its elements. The users provided varied asnwers. Some of them mentioned to be satisfied with the square condition now in comparison with the previous situation when it was a street and a parking lot. Others found very confusing to move around and in the square because of the random location of the furniture, the temporary gravel pavement and lack of signs and clear paths. In addition, most of the users wished more greenery, activities, bike racks, playgrounds and reduction of the noise. Furthermore, there was a small group of people that did not show interest about the activities and designed conditions of the square because they rarely use it (see Ill. 40 and Ill. 41).



Ill. 41: Diagram showing what people wish to have in Vesterbro Torv.

Persona and Users' journeys



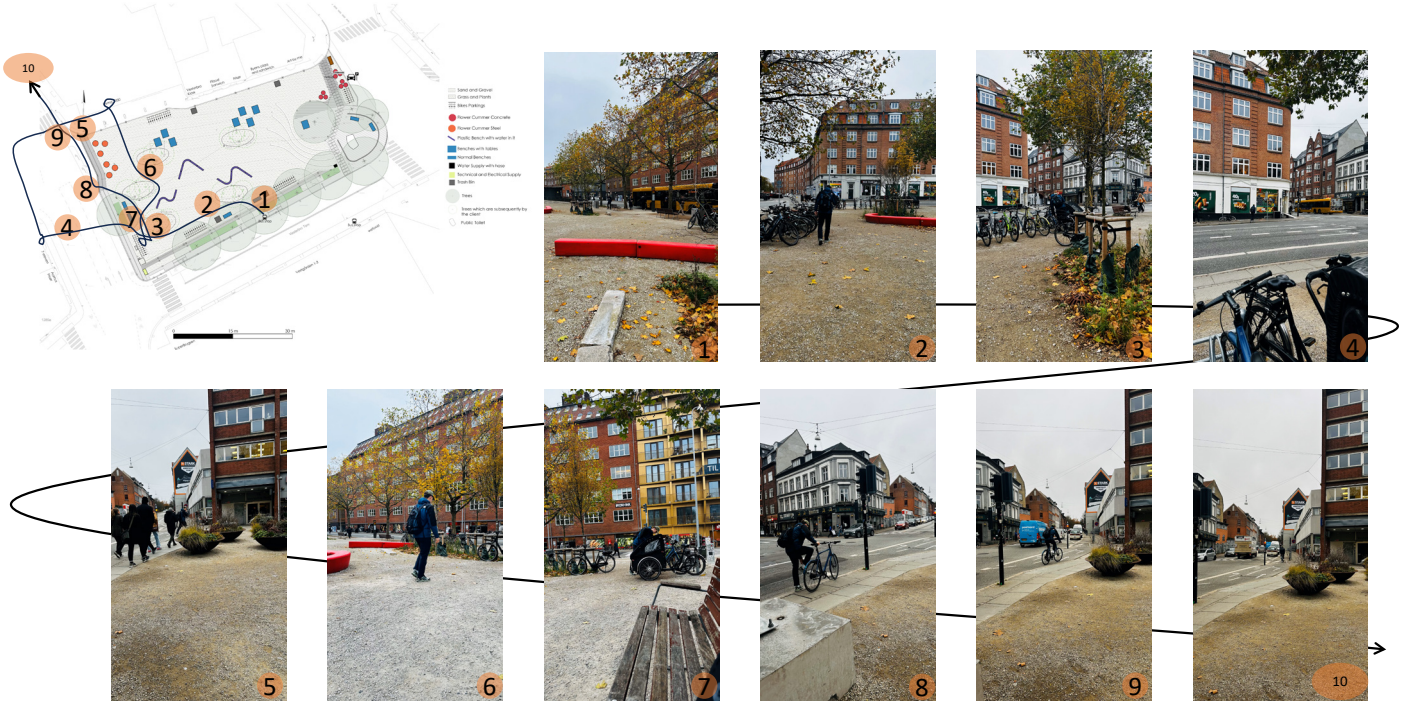
Ill. 42: Personas who represent the user groups

One of the most effective methods used to address multiple questions simultaneously was mapping journeys—a form of shadowing and strolling that consists of following users as they navigate the site (see Jirón, 2010). This method provided valuable insights of the people's flows and movements, the types of users, the paths they chose, and the potential reasons behind these choices. It also allowed us to understand which designed elements facilitated or hindered their mobility within space.

During the site visits, numerous user journeys were observed and documented to better understand how individuals moved through the square and the factors influencing their movements. These observations were complemented by interview data to build a comprehensive picture of user practices and experiences.

The findings will be synthesized and represented through five personas, each illustrating a specific user group and their typical journey through the site. These personas include examples of a young user, family groups, wheelchair users, a cyclist, and an elderly user. Each persona will not only reflect the unique needs and practices of their respective group but also provide a detailed account of one representative journey, offering a human-sensitive lens to understand active mobility in Vesterbro Torv.

A Young Man



Ill. 43: A journey of a young man observed in Vesterbro Torv

Age: Mid-20s
Occupation: Student at Aarhus University
Status: Single

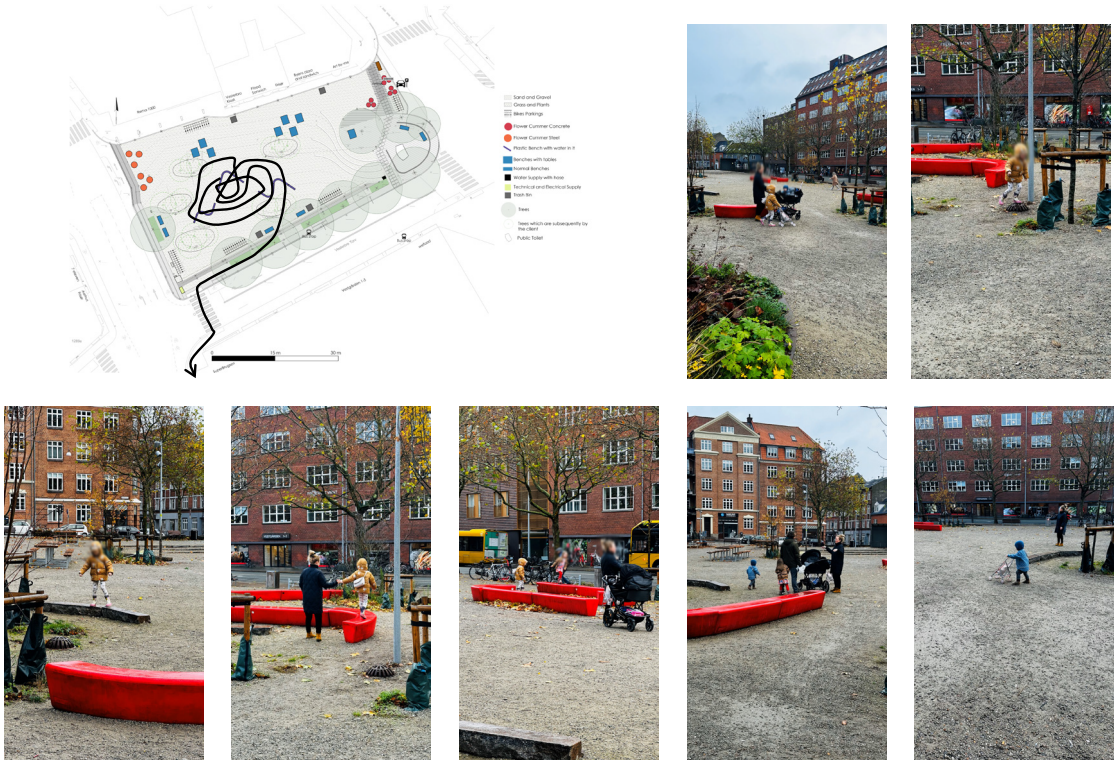
Journey & Experience:
He lives near the square, and frequently visits the square, mainly to park his bike and catch the bus to university. However, the limited availability of bike racks frustrates him. The square feels chaotic with unclear paths and confusing navigation. On his way home, he often stops by Rema 1000 or 7-Eleven to grab something to eat.

While he appreciates the transformation of the area from its previous state into a square, he finds the gravel surface unsteady and dislikes the disorganized mingling of pedestrians and cyclists. Crossing flower beds feel awkward and impractical. The square doesn't appeal to him as a place to linger, lacking a sense of "hygge" or coziness.

Wishes & Aspirations:
Additional bike racks to meet the high demand.
More greenery and visually appealing elements to soften the environment.
Unique features not found nearby (e.g., in Mølleparken or the Botanical Garden).
Cozy spaces that foster social interaction, like a pétanque court or small exercise machines.

One observed journey exemplified a modality shift within the square (see Ill.43). A young man arrived by bus, disembarking and heading directly to the bike rack to check on his bicycle. From there, he crossed Vester Allé mid-street, bypassing the designated crosswalk and traffic light, and made his way toward 7-Eleven. After a brief stop, he proceeded toward Rema 1000, this time using the crosswalks to navigate both Vesterbrogade and Vester Allé. After spending about 10 minutes in Rema 1000, he returned to the bike rack, retrieved his bicycle, and exited the square via the bike lane, heading north along Vester Allé.

Family with children



Ill. 44: A journey of a family with children observed in Vesterbro Torv

Age: 30s (Mother of 2 children)
Occupation: School Teacher
Status: In a Relationship

Journey & Experience:
As a local resident, she frequently passes through the square, using it mostly as a transit, especially during winter. In summer, however, the square becomes a more appealing place to stop, meet friends, and visit the art shop with her children. Occasionally, she and her family dine at the restaurants in the square.

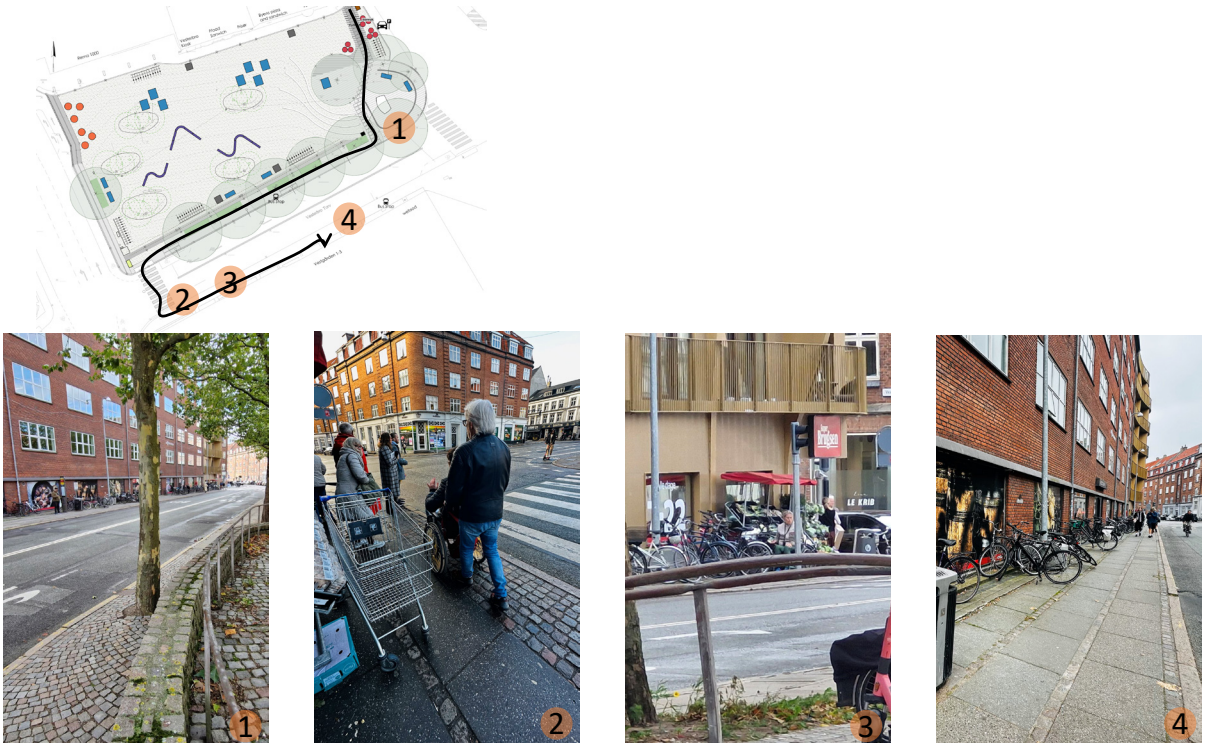
While she appreciates the square as a pedestrian, she finds it less functional than before. The noise from people gathering can disturb her baby's sleep, and the space feels impacted by heavy traffic. She often chooses routes along the axis of the square for a quicker and more direct path. She finds the square to be a generally pleasant place with potential for improvement.

Wishes & Aspirations:
A playground where her children can safely play and interact.

A more inviting and structured layout to encourage people to stay and enjoy the space.

Numerous journeys involving families with strollers and children were observed at Vesterbro Torv, each navigating the space in unique ways and for varying purposes. One notable example featured a family with two children and a baby in a stroller (see Ill.44). They initially wandered around the square, weaving through the furniture before stopping near the red benches. The vibrant red benches, particularly appealing to children, caught the attention of the little girl, who eagerly climbed and jumped from one bench to another.
While the girl played, her mother stood nearby, engaged in conversation with a friend in the center of the square. After some time, the young boy in the stroller expressed a desire to join in the play. Although his mother allowed him to explore, she appeared concerned about his safety near the street with its traffic of cars and buses. After approximately 30 minutes, the family gathered their belongings and left the square, heading south toward Vester Allé.

A Wheelchair user



Ill. 45: A journey of a wheelchair user observed in Vesterbro Torv

Age: 40s
Occupation: Accountant
Status: Single

Journey & Experience:
She often passes through the square on her way home to the “bottom” of Langelandsgade after shopping at Brugsen or finishing work at the Vestgården building. Her interaction with the square is primarily as a transit space, walking along the sidewalk.
While she appreciates the improved atmosphere compared to the square’s previous state, she finds the sidewalks crowded and cramped, especially during rush hours. The lack of organization, particularly with bikes on the sidewalk of Vestgården, adds to the sense of disorder and confusing her mobility.

Wishes & Aspirations:
Improved sidewalk materials to enhance comfort and durability.
Better organization of bike parking to reduce clutter.

This journey (as shown in Ill. 45) illustrates the challenges faced by a wheelchair user navigating the square. The user had to take a longer route due to various obstructions and obstacles. The uneven sidewalk materials, such as rough stones, caused discomfort and physical strain, while the narrow dimensions of the pathway further complicated mobility. Additionally, a tree positioned in the middle of the sidewalk, as shown in picture 1, created a significant barrier.
The situation was exacerbated near Super Brugsen, where the placement of shop goods and parked bicycles created chaos, further reducing the available space for passage, see picture 2. These factors made the journey more cumbersome and highlighted the need for more inclusive design considerations in the square.

A cyclist

Ill. 46: A journey of a cyclist observed in Vesterbro Torv

Age: 50s
Occupation: Unemployed
Status: Widow

Journey & Experience:
Living on Carl Blochs Gade, she frequently passes through the square during her daily routines, such as shopping at Rema 1000 or heading to the city center, where she often visits Espresso House. Occasionally, she also passes through while visiting her mother in a nearby nursing home.

As a cyclist, her experience is frustrating and inconvenient. Finding space for her bike at the bike racks is challenging, with tightly packed handlebars making it difficult to park. The inability to cycle through the square means she often must take a longer route, which can be time-consuming, especially when coming from Vesterbrogade, where she may encounter up to six red lights.

Despite these frustrations, she finds the square pleasant as a pedestrian, though she's concerned about whether the space will be used effectively by the community.

Wishes & Aspirations:
Clearer paths and better traffic organization to improve navigation for both cyclists and pedestrians.
More signage to reduce confusion and guide movement effectively.
Enhanced greenery to create a more inviting and enjoyable atmosphere.

Cyclists' journeys through Vesterbro Torv were diverse, with movement observed in all directions reflecting varied flow patterns. One particularly notable journey involved a woman arriving from Langelandsgade (see Ill. 46). She followed the most frequently used path through the square to reach the bike rack located in front of Rema 1000. After spending approximately 15 minutes inside the store, she retrieved her bicycle and continued her route, exiting the square toward Vesterbrogade.

Elderly Woman

Ill. 47: A journey of an elderly woman observed in Vesterbro Torv

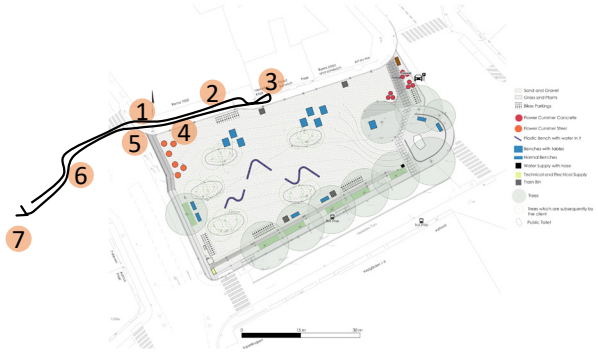
Age: 80s
Occupation: Retired
Status: Married

Journey & Experience:
She frequently visits the square, traveling from Langelandsgade to shop at Super Brugsen and to visit her daughter, who lives nearby at Vesterbro Torv. Passing through the area approximately three times a week, her routine has remained unchanged despite the square's transformation. She follows the same route each time, and the changes haven't impacted on her movement.
Her perception of the square is largely negative, finding it visually unappealing and lacking the clear function it had before. She also finds the area noisy and busy with traffic, making it an unattractive place to spend time or linger.

Wishes & Aspirations:
Regular activities that foster community engagement.
Markets provide a dynamic, lively atmosphere.
Cafés where she can sit, relax, and enjoy.

Observations revealed that elderly individuals frequently use the square, particularly in the morning and around noon. One observed journey featured an elderly woman with a stroller who entered the square from Langelandsgade, following the tiled pathway. She moved carefully along the ramp leading to the sidewalk and approached the traffic light opposite Super Brugsen. Instead of crossing at the designated crosswalk, she utilized a small ramp connecting the edge of the sidewalk to the street, which made her movement easier (as shown in picture 7, Ill. 47). From there, she continued toward the shop.

Shop Services Journey

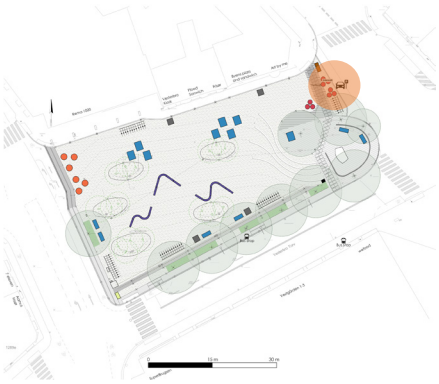


Ill. 48: A journey of a shop service observed in Vesterbro Torv

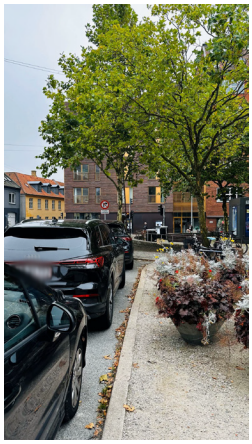
One notable observation during the final four visits was the removal of car parking from the eastern edge of the square in November 2024, which had been present and consistently well-used in October. Despite the policy change, some individuals continued to park their cars in this area for private purposes, such as visiting shops or transporting goods from the kiosk, as well as for shop-related services (as shown in Ill. 49)

The removal of the parking also altered the routes used for shop deliveries and services. It became evident that vehicles now park along Vester Allé or Vesterbrogade (as shown in Ill. 50), with service providers navigating their way into the square to reach the shops. However, this new route introduced several challenges.

Observations of their journeys revealed obstacles, such as the cluttered sidewalk in front of Rema 1000, where goods and other items narrow the passage (as shown in Ill. 48, Picture 2). Additionally, the gravel surface along alternative routes create further difficulties, hindering smooth mobility for both pedestrians and service providers.

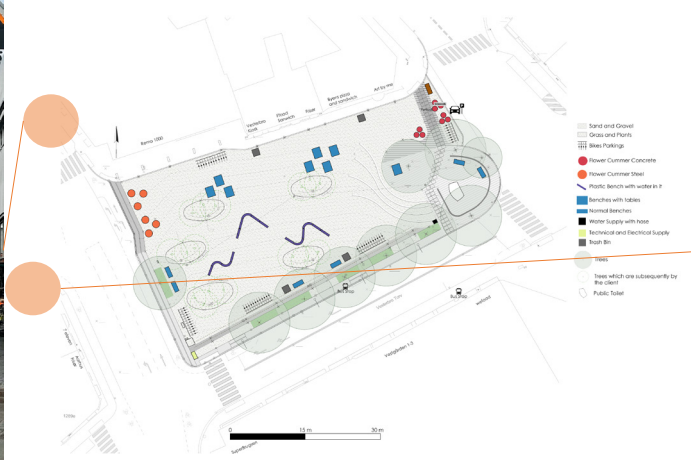


October 2024



November 2024

III. 49: The removal of car parking from the eastern edge of the square in November 2024



III. 50: The removal of car parking changes the services' route

Take Away Points

• Most of the active mobility flows (i.e., cycling and walking) take place in the northern and southern edge of the site, and from the south-west corner to both north-west and north-east corners. These dominant flows take place close to active facades and follow direct connections across the square to other mobility corridors.

• Critical points are identified in both north-west and north-east corners, and the middle areas of the square where pedestrians and cyclists meet, and potential conflicts can occur.

• Clear modal shift on the site between Bus-Bus, Bike-Bus was observed that integrates everyday life activities and errands (e.g., grocery shopping).

• The square affords both transit and stay.

• The spatial arrangements for flows and stay condition and affect the mobility of certain vulnerable groups thereby excluding them and making it difficult for them to move freely.

• Confusing and lack of legibility of active mobility paths and entrances of the square. For example, not having a clearly established/ signalized path for both pedestrians and cyclists can create confusing situations. This lack of legibility can exclude certain vulnerable groups according to universal design principles (e.g., neuro-diverse users, children) (see Steinfeld and Maisel, 2012).

• For some users, it is perceived as unsafe and not suitable/friendly for children.

Users' wishes:

• More than a transit space – People desire a more appealing space that accommodates both social and leisurely activities, making the square a pleasant place to visit rather than just a thoroughfare.

• Calm atmosphere – Users desire a more streamlined and organized space that balances functionality with a welcoming atmosphere, making their journey through the square smoother and less stressful.

• Integrate families and vulnerable users - Some users hope the square evolves into a more peaceful, multifunctional space that serves both families and the broader community while reducing noise and traffic-related disturbances.

• Safety for cyclist mobility – Users hope for a square that is safer for cyclists and better organized for all users, balancing functionality with aesthetic improvements to make it a vibrant and accessible space for the community.

Conclusions

Vesterbro Torv serves as a critical urban node that facilitates active mobility, transit, stay and social interaction. By the time of writing, the current spatial arrangement of the temporary square caters unevenly the active mobility and the temporal diversity of practices and movements of different groups, posing challenges for vulnerable populations.

Key issues include inadequate distribution and density of bike parking and the lack of clear and legible mobility paths for both cyclists and pedestrians. These challenges lead to confusion and frequent points of conflict between user groups. Pedestrian mobility dominates the square, followed by cycling, yet the absence of safety measures, such as signalization and defined paths for cyclists, highlights a need for improving the legibility of the infrastructure. In particular, it is important to take into consideration the relationship between the flows and activities taking place in the square and the edges around it (i.e., sidewalks, streets, bus stops).

To address those challenges, a clear separation of pedestrians and cyclists is recommended, as well as the incorporation of signage and nudging elements to guide movement. In addition, it is recommended to optimize sidewalk dimensions, refine road levels for better accessibility of specific user groups (e.g., wheelchair), redistribution of urban furniture to organize people's movement and stay, and increase the number and accessibility of bike racks.

Additional improvements should focus on creating calm and inclusive areas, particularly for families with children, accommodating user demand for more greenery and organized spaces, and incorporating diverse activities. Addressing these issues will ensure that Vesterbro Torv becomes a safer and more accessible public space for all users.

It is important to recall that the municipality is aware of the challenges concerning pavement material due to the temporal state of the square. Therefore, those issues were not discussed in this report. They are addressed in the project for the permanent design of the square. At the time of writing, the project for the permanent design of the square is still under development.

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