



A CITY FOR ALL?

**The Gendered
Dimension of
Public Space**

Reactor - Research in Action
Skopje, 2026

Title: A City for All? The Gendered Dimension of Public Space

Title of the original: Град за сите? Родовата димензија на јавните простори

Publisher: Reactor - Research in Action

For the publisher: Tanja Ivanova

Editor-in-Chief: Tanja Ivanova

Editor: Dushica Lazova

Author: Milka Dokuzova

Translation from Macedonian language: Julija Miceva

Design: Darko Aleksovski

Print: PrintCentar, Skopje

Circulation: 50 copies

Skopje, 2026

Free/Non-commercial Copy

REACTOR
research in action

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This publication was produced with financial support from Kvinna till Kvinna Foundation and UK International Development. The views and analysis expressed in the publication belong to Reactor and do not necessarily represent the views of Kvinna till Kvinna Foundation and UK International Development.

CIP - Каталогизација во публикација
Национална и универзитетска библиотека "Св. Климент Охридски", Скопје

711.4:305-048.582(497.711)

ДОКУЗОВА, Милка

Град за сите? : родовата димензија на јавните простори / [авторка Милка Докузова]. - Скопје : Реактор - Истражување во акција, 2026. - 59, 55 стр. : илустр. ; 23 см

Насл. стр. на припечатениот текст: A city for all? : the gendered dimension of public space. - Обата текста меѓусебно печатени во спротивна насока. - Текст на мак. и англ. јазик. - Фусноти кон текстот

ISBN 978-608-4684-63-3

а) Градови -- Урбанистичко планирање -- Родова инклузивност -- Истражувања -- Скопје

COBISS.MK-ID 68438021

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CONTENTS

Introduction	7
1. Literature review	10
2. Methodology	15
3. Key research findings	20
4. Conclusions and further recommendations	42

INTRODUCTION

Inclusive urban planning builds on the idea that a city, in its structure and function, should be equally accessible to everyone, without restricting everyday mobility or access to services and amenities to any user group, regardless of, yet accounting for, age, gender identity, social status and ethnicity, as well as abilities. In this context, gender-sensitive planning focuses on the need to base urban policies and spatial solutions on the daily practices and experiences of various user groups rather than on presumptions based on so-called standardised user experience (World Bank, 2020; UN-Habitat, 2012).

The inclusive urban planning approach simultaneously rejects the concept of the “average user”, pointing out that the average user is not modelled on the diverse experiences of different groups. Instead, it relies on metric data tailored to the experiences and needs of men, treating them as universal or neutral users (Criado Perez, 2019). It is for this reason that urban planning cannot be viewed as a neutral process. Instead, it must be a multidisciplinary and collaborative endeavour that recognises the diverse needs and experiences of all users, translating them into both measurable spatial standards and practical solutions that directly address the requirements of various groups. Given that inclusivity is measured by the degree to which diverse groups can move freely and engage with the city, **safety concerns should be central in discussions about access.**

In this context, the safety of women in public spaces should be viewed as a planning objective, seeing that public space safety is directly contingent upon spatial configuration. (Wilson & Kelling, 1982; Kelling & Coles, 1996). The design and utilisation of public spaces and surfaces, including the features relative to ground-floor amenities of street frontages, directly influence the risk of harassment and violence. The more effectively public space is organised, supported and activated, fostering diverse and continuous social dynamics, the lower the risk of harassment and violence. (Wilson & Kelling, 1982; Kelling &

Coles, 1996). UN Women's 2021 Report supports these findings, pointing out that violence and harassment in public space are not isolated incidents but rather often conditioned by spatial features such as the degree of urban design, maintenance and lighting. The three consecutive studies on gender-based violence against girls and women in public spaces in Skopje and Tetovo, conducted by "Reactor – Research in Action" in 2012, 2020 and 2025, highlight that women and girls often adopt coping strategies, including altering routes, often based on the time of day, or avoid certain areas or public transport as a response to the unfavourable infrastructure (Reactor, 2012; Reactor, 2020; UN Women, 2021; Bojchevska, Mitrevska, Dimitrova, Lazova, 2025), making their "right to the city" (Harvey, 2003) largely conditioned by their gender.

Within this framework, this research aims to understand the relationship between the spatial configuration of selected pedestrian routes across four municipalities in Skopje, the social dynamics along the routes generated by that configuration and, lastly, how these two aspects impact the resulting sense of safety among girls and women as users of this space.



LITERATURE REVIEW

1.1. The issue of women's safety through the concept of "eyes on the street"

Understanding public space safety requires referencing theoretical frameworks that examine the relation between physical-spatial conditions and the perceived sense of security (Valentine, 1989; Pain, 1997). In this context, the physical aspect refers to spatial features such as lighting, clear sightlines, urban design and maintenance, alongside the capacity for rapid orientation and unobstructed movement. The perceived sense of security, on the other hand, refers to how public space is experienced, whether user groups feel free to move without the mental burden of pre-emptively planning routes to avoid potential threats and obstacles (UN Women, 2025; Bojchevska, Mitrevska, Dimitrova and Lazova, 2025). Accordingly, women's safety in public spaces can be interpreted as having two simultaneous dimensions – **physical** (an environment that facilitates or prevents violence) and **perceived** (a sense of security, freedom of movement and human presence), which do not always overlap (Valentine, 1989). Consequently, the analysis of public space safety of girls and women requires careful consideration of spatial configuration as well as practices of quotidian movement and presence.

Within this framework, **Jane Jacobs' "eyes on the street" concept** serves as a critical analytical tool, providing a link between spatial form and social dynamics to explain how these two aspects can either foster or diminish the sense of safety. Jacobs argues that **safety emerges from everyday urban dynamics**, with constant movement and social interaction among users contributing to safer streets, while such social dynamics are themselves conditioned by spatial configuration. Consequently, active ground floors and unobstructed views intensify the sense of safety as they invite "spontaneous surveillance" and social regulation (Jacobs, 1961). According to Jacobs, this form of "natural surveillance" could generate more efficient results than formal modalities of security surveillance, specifically considering the possibility for passersby or observers to react immediately. In criminology, the "broken windows theory", developed by Wilson and Kelling (1982), supports Jacobs' thesis, emphasising that spatial configuration, along with decreased human presence, creates favourable conditions for the escalation of deviant behaviour and crime. Furthermore, signs of neglect, disarray, and a lack of social control indicate the absence of surveillance, which in turn increases the likelihood of disorder and insecurity. For Jacobs, but also Wilson and Kelling, safety is not merely the result of formal security modalities, but rather a product of the interaction between spatial organisation, the upkeep of the surroundings and the continuous human presence.

While Jacobs' work does not focus strictly on gender aspects, the emerging principles bear significant implications for women's safety in urban environments. According to existing research, women feel less safe than men in public spaces, particularly at night (Cui et al., 2023; Prada-Trigo et al., 2025), and often adjust their behaviour and movement to avoid perceived threats (Bojchevska Mitrevska, Dimitrova and Lazova, 2025; Roberts et al., 2022; UN Women, 2021). Jacobs' concept corresponds to the numerous factors women tend to associate with the sense of increased personal safety, such as adequate street lighting, clear sightlines and human presence. Adequate street lighting is another key factor that reduces fear, considering that poorly lit streets often discourage women from walking alone or force them to choose longer but well-lit routes (Bojchevska Mitrevska, Dimitrova and Lazova, 2025; Garfias Royo et al., 2023). Furthermore, the removal of tall and non-porous barriers from public spaces, such as metal fences, ruined and abandoned buildings, as well as unmaintained shrub vegetation, leads to a noticeable improvement in perceived safety, particularly among women, as it increases the depth of the visual field, which in turn heightens the sense of perceived safety (Navarrete-Hernandez et al., 2021). Chen & Hedayati Marzbali's study supports Jacobs' general thesis (1961) that continuous human presence largely contributes to the sense of safety, particularly in new and unfamiliar environments.

1.2. Feminist critique and conceptual expansion

Despite the empirical support for certain aspects of Jacobs' concept, critics warn against the universal validity of her hypothesis, and instead **propose taking into account the spatial context as well as the prevailing social dynamics**. Feminist and postcolonial urban studies indicate that the "eyes on the street" concept is insufficient in securing women's safety, particularly if it disregards issues stemming from power relations and the gender dynamics inherent to that space (Roberts et al., 2022). In this context, feminist criticism, in truth, aims to offer an improved and expanded understanding of the concept, based on three critical views: *whose "eyes" are watching, will the "eyes" react and are the "eyes" the solution to the problem*. These three perspectives are examined further below.

1.2.1. Whose “eyes” are watching?

In a public space dominated by men, the presence of many “eyes” does not necessarily mean that women feel safe. On the contrary, for some women, the sight of an unfamiliar group of men on the street might cause fear or be perceived as a potential harassment threat instead (Bojchevska, Dimitrova and Lazova, 2025; Tandogan & Ilhan, 2016). Research has revealed a complex phenomenon – the variety of people emphasised by Jacobs could potentially lead to an *in-group and out-group dynamics*, where certain individuals could feel unsafe if the “observers” belong to a group they perceive as an out-group or as potentially threatening (te Braak & van Tienoven, 2025). For instance, women could feel unpleasant or unwelcome in a space where they are a minority (whether on ethnic, class or gender grounds) despite the presence of numerous people. Consequently, the mere presence of others fails to guarantee a sense of safety when trust or social cohesion among the various groups is lacking (te Braak & van Tienoven, 2025). It should be noted that some women experience informal surveillance as a means of control rather than protection, particularly in patriarchal environments where “the eyes on the street” serve to regulate women’s behaviour instead of providing their safety (Sandberg & Rönblom, 2015).

1.2.2. Will the “eyes” react?

Jacobs’ theoretical framework assumes an active community where neighbours look after one another and would intervene upon witnessing a woman in danger on the street. Reality, however, does not necessarily reflect this assumption. The phenomenon of the *bystander effect* is common in urban environments to the degree that a large number of witnesses dilutes individual accountability, resulting in no action whatsoever on the part of many bystanders or witnesses (Darley & Latane, 1968). In cases of physical or verbal harassment, specifically, bystanders do not always opt to intervene. Although the sight of witnesses and bystanders might prevent violence (Navarrete-Hernandez et al., 2021), their mere presence fails to guarantee intervention on their part (Darley & Latane, 1968). Informal monitoring is effective only within a cohesive social environment where observers have cultivated a sense of accountability and empathy, and have the courage to act. In the absence of such a proactive culture, “eyes” could remain silent witnesses, making women feel unsafe and unprotected despite their surroundings. Hence, the importance of the research context has to be emphasised and reflected both in the methodology and the ensuing recommendations.

1.2.3. Are the “eyes” the solution to the problem?

Certain feminist literature reveals that relying largely on surveillance (formal or informal) fails to address the root of the problem. In *Feminist City*, Kern (2020), emphasises that increasing the number of cameras or “eyes” in public spaces does not make cities safer. In order to properly address the women’s safety issue, we require more substantial social changes. According to her, “these blinking technological eyes”, i.e., cameras and police presence, are mostly after-the-fact measures, reacting after violence has already occurred instead of preventing it. In this sense, Kern points out that local authorities often resort to visible and measurable interventions, such as police patrolling and cameras, which remain insufficient in dealing with deeply-rooted factors such as male aggression, misogyny and social inequality. Despite her support for common forms of “soft” control through the introduction of mixed-use spaces and diverse user profiles, which aligns with Jacobs’s position, Kern emphasises that technological and physical surveillance alone fails to address the cultural and social conditions that undermine women’s safety. Consequently, instead of dismissing the importance of Jacobs’ concept, she builds upon it by offering an expanded approach that encompasses the cultural, economic and political dimensions of (lack of) safety.

1.3. From “eyes on the street” to gender-sensitive city planning

Accordingly, the issue of women’s safety cannot be reduced solely to the presence of “eyes” but rather requires a broader approach where safety is interpreted as the result of urban planning, everyday practices and power relations in public spaces (Kern, 2020). Although certain spatial features, such as lighting, sightlines and human presence, support the perception of safety, according to research, physical and perceived safety are not always aligned. Women frequently experience spatial (in)security due to cultural norms, past experiences and the specific contexts of spatial use (Valentine, 1989; Pain, 1997; Roberts et al., 2022). As a result, instead of treating women’s safety as a “problem to be solved”, this research **frames women’s safety as a matter of fair and inclusive planning, where a gender perspective serves as an analytical and practical tool to reexamine who holds the right to move freely through the city and who has unobstructed access to public spaces.**

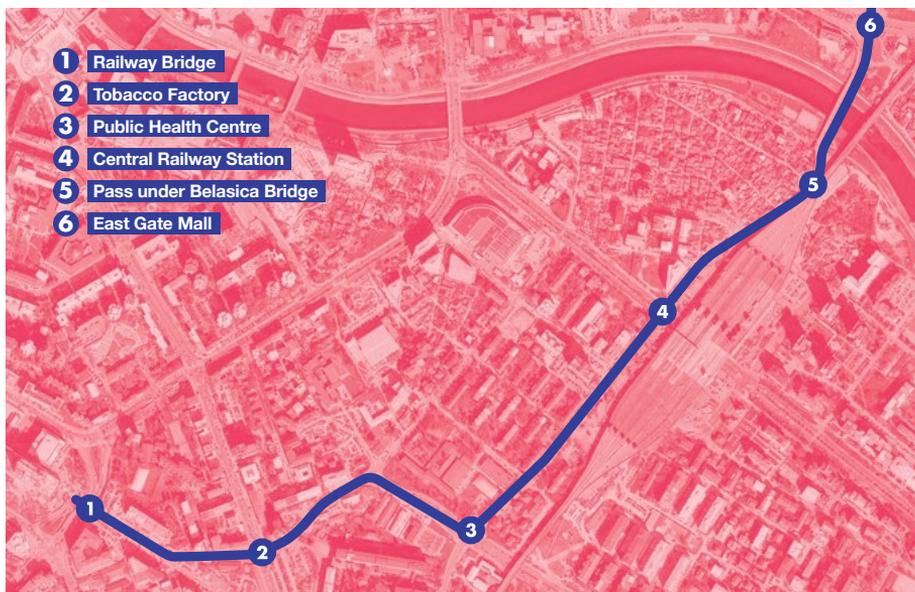


METHODOLOGY

The methodological approach aims to recognise the spatial features directly or indirectly shaping public space safety, prioritising women as users, in addition to examining the relationship between **physical security conditions and the perceived experience of safety**, which often diverge (Valentine, 1989; Pain, 1997). The methodological framework is based on the “eyes on the street” concept (Jacobs, 1961), highlighting the importance of constant human presence and daily interaction towards creating the setting for safe public spaces, while expanding on feminist critiques arguing that the mere presence of “eyes” is not a universally protecting principle, but rather safety is largely dependent on the context, power relations and social dynamics of the space (Kern, 2020; Roberts et al., 2022). By systematically mapping active building fronts, entrances, windows, visibility and human presence in various parts of the day, the methodology allows for a spatial depiction of spaces in which the city provides the continuity of vibrancy versus the “grey spaces” characterised by lack of people and limited activity. Furthermore, by incorporating data on the spatial experiences of women, this research analyses how these spatial features are subjectively perceived, specifically the conditions under which they contribute to a sense of safety and those under which they generate feelings of insecurity or social control. Thus, the methodology generates complementary metric and experiential findings, providing a basis to promote gender-sensitive urban planning and systematic, institutional recognition of limited, unsafe mobility of girls and women in the city, as a precondition towards targeted and measurable interventions in public spaces.

For the purpose of collecting this data, we chose the following route: starting from Hotel Continental (Belasica St), crossing the Belasica Bridge and continuing past the Central Railway Station and Nikola Karev St. We then turn right along Treta Makedonska Brigada Blvd, past the Tobacco Factory, before turning left onto Krushevska Republika Blvd. The route continues to the Makedonija Blvd, concluding at the intersection of Urban Park / Railway Bridge, i.e., Jordan Mijalkov St, Pavel Shatev St and Anton Popov St. The selected route is located on the administrative borders between the Municipality of Centar, Municipality of Gazi Baba, Municipality of Aerodrom and the Municipality of Kisela Voda, connecting several important urban centres. The total length of the selected route is 2.4 kilometres. For the purposes of this research, six positions were chosen along its extent at approximately 400-meter intervals, following a preliminary observation (**Map 1**). These positions represent the most frequented pedestrian nodes, typically situated on the borders between two municipalities. Each position encompasses at least two street frontages¹, increasing to three or four along the crossroads, depending on the number of intersecting streets.

¹ The building frontage that directly meets the street, establishing its spatial framework (Cullen, 1961).



Map 1.
Pedestrian route with
marked pedestrian
count positions (1-6).

Source: Google Earth,
2026

The data collection was organised in three phases, each offering insight into a certain aspect vital to the sense of safety. The first phase depicts the spatial features along the two street frontages (the first vertical barrier) of the selected route, which directly or indirectly condition the experience, and consequently, the sense of safety (Form no.1, p. 51). The intention behind the second phase is to illustrate the level of human presence and type of user activities at each selected position, encompassing pedestrian counts conducted across four daily intervals, over at least two days of the week, of which at least one took place during the weekend (Saturday/Sunday) (Form no.2, p. 52). The third phase focuses on the observers' subjective experience in order to recognise the critical points that remained potentially undetected with previous measurements or were only partially observed. It is based on "safety walks" (Bojchevska Mitrevska, Dimitrova, & Lazova, 2025) conducted with women from three age groups (18–30, 30–45, and 45+), who documented their lived experiences during the walks in the manner they found most convenient or intuitive. At two of the six positions, which previous analysis showed to have fundamental spatial deficiencies, participants completed a questionnaire (Form no.3, p. 53) as a way of providing a structured space assessment. Following each walk, the participants' subjective impressions were summarised and recorded.

2.1 Data collection procedure

The methodology behind measuring and assessing women's safety in public spaces aims to provide a clear portrayal of how the physical features of a certain space might heighten or diminish the sense of safety among women-users. In order to achieve data consistency and comparability of the data across the selected route, data was collected in identical or similar weather conditions, i.e., during periods when the weather is sunny/pleasant and does not impose additional constraints to pedestrian movement. The intention behind this decision was to minimise the impact of external variables on pedestrian dynamics, ensuring a valid comparison among the six positions along the route, each for a duration of 15 minutes. Consequently, differences in presence, movement and safety perception can be attributed to spatial and infrastructural characteristics instead of current weather conditions. It is important to note that adverse weather conditions (rain, snow, extreme heat, etc.) can exacerbate existing infrastructural deficiencies and safety risks, particularly for certain groups of women, such as elderly women, women with disabilities or mothers with strollers. In this context, these conditions constitute relevant analytical dimensions in their own right. To minimise subjectivity during measurements in the first and second phases, the forms offered clear and unambiguous instructions, requiring no specialised equipment or prior training.

2.2 Methodological limitations and challenges

In the first research phase, potential factors towards count discrepancies primarily included temporary construction activities, which often occupy pedestrian zones and obstruct movement. Furthermore, the mandatory safety requirements for securing construction sites typically involve the temporary closure of the street frontage, usually with solid vertical barriers. Consequently, at the time of conducting the counts, these frontages were treated as inactive, even though the ground floor may host commercial or business activities once construction is completed.

During the second research phase, weather conditions and air quality had the greatest influence on the findings. To minimise variation in the results and ensure consistency, the counts were conducted in November 2025, on days with stable temperatures, weather conditions, and ambient air quality within the permitted range. Discrepancies may arise when counts are conducted in different seasons or under conditions of extreme temperature fluctuation, as these factors may increase or decrease pedestrian movement.

In the third phase of the research, the findings may have been influenced by participants' subjectivity and the variability of their individual spatial experiences, shaped by personal history, current psycho-physical state, sense of safety, and familiarity with the location. Furthermore, the format of the walks may introduce slight differences in the results due to group dynamics and the presence of other participants, potentially diminishing or heightening the sense of safety compared with individual use of the space. Variations may also result from contextual factors that are difficult to control on site, such as fluctuations in lighting, noise levels, traffic intensity, or random events. Also, different documentation styles affect the level of detail and comparability of data across the walks and the different age groups. Importantly, the groups ranged in size from 5 to 13 women, meaning that the sample cannot be considered representative of the broader population. However, representativeness is not the key goal of safety walks as a methodological tool. Rather, the value here lies in the participatory nature and qualitative insights focusing on lived experiences and the embodied, spatial knowledge of the various groups of women, often invisible in quantitative research.

Furthermore, the research did not include a differentiated analysis of specific groups of women, such as LGBT+ women, mothers of young children, women with caregiving responsibilities, women with disabilities, or women from different ethnic backgrounds. This methodological positioning reflects the research aim of examining safety perceptions across different age groups of women as a broad, normatively present category of public space users, in order to establish a baseline comparative framework. With further methodological adjustments, the framework has the potential to examine the perceptions and experiences of women in specific and/or marginalised living and social settings, and thus provide deeper insight into the intersectional dimension of how infrastructure conditions public space safety. It is important to emphasise that during the pedestrian counts, the assessment of the presence and mobility of women and girls versus men and boys relied on individual interpretation of the gender expression of passersby, based on physical features such as clothing, bodily language and movement. As such, we acknowledge that this assessment is inherently subjective and socially conditioned and does not necessarily align with the actual gender identity or self-perception of those observed. Furthermore, while we recognise that trans women are included in the category of women, and trans men in the category of men, the movement dynamics of transgender individuals cannot be equated with those of cisgender individuals. Unfortunately, a detailed overview of the presence and activities of this marginalised group remains outside the scope of current measurements.



KEY RESEARCH FINDINGS

The research was conducted between October 2025 and January 2026. The first phase, which involved analysing and assessing the physical features of the selected route, was completed in October, 2025. A total of 48 pedestrian counts were conducted in November in accordance with the established methodology. Between December 2025 and January 2026, three group walks were organised with three distinct age groups: 18-30, 30-45 and over 45 years old. In order to maintain consistency in experience, all group walks were organised on a weekend day (Saturday), between 12:00 and 14:00, under similar weather conditions.

3.1. Infrastructural challenges

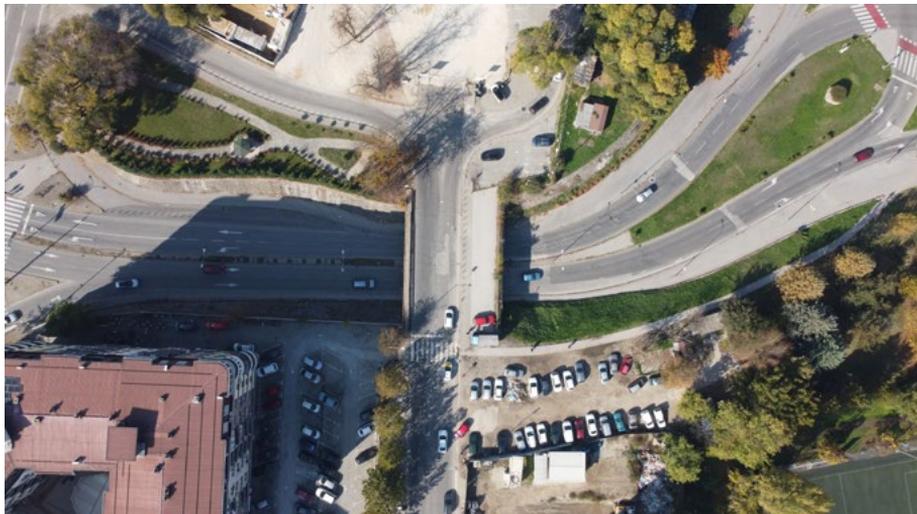
During the initial phase of analysing the specific route's spatial features, the focus was on assessing the prevalence of "active frontages"² on the ground floors of the buildings defining the street front. Active frontages are an important tool in the assessment and perception of public space safety since they could result in better lighting more human presence and urban vitality. The analysis revealed that despite the route being central, connecting important urban centres and intersecting four of the ten municipalities in Skopje: Centar, Kisela Voda, Aerodrom and Gazi Baba, active frontages are largely absent. Namely, given that the route is 2.4 kilometres long, the total ground-floor street frontage on both sides amounts to 4.8 kilometres.

Of the total street frontage length, only 12%, or 590 metres, is occupied by ground-floor commercial or business activities. However, despite the active frontages in certain residential buildings, access along this route is mostly difficult due to the vast parking areas or vacant, unattended spaces positioned directly in front of the ground floors (**Photographs 1, 4 and 5**). In 46% of the mapped active frontages, the active zone is situated more than 5 meters away from the sidewalk, with parking spaces positioned between the pedestrian path and the buildings' ground floor. The distance from the sidewalks to the active frontage ranges from 8.5 to 44 meters. This seemingly unobstructed, spacious layer completely negates the positive effects of the active frontage. Moreover, it heightens the sense of insecurity precisely due to the hindered visibility and blind spots.

² Active street frontage implies ground floors with engaging amenities, clear transparent façades and uninterrupted street contact, leading to social interaction and perceived safety (Jacobs, 1961).

Photograph 1.
Parking space in the
vicinity of Railway
Bridge.

Photograph by
Pavel Veljanoski,
November 2025



However, pedestrian safety is not determined solely by active frontages. Adequate width of pedestrian spaces or sidewalks is among the most important indicators for safe pedestrian mobility, in addition to continuous vertical alignment (grade)³ along the pedestrian spaces, which ensures unimpeded movement for people using mobility aids, parents with strollers etc. Subsequently, across 729.5 meters of the total 4.8 kilometres (15%), sidewalks are either entirely absent or fail to provide sufficient width for pedestrian mobility (**Photograph 2**). Designated pedestrian areas exist along 256.5 meters (5%) of the route, yet they are poorly maintained, and thus unsafe to use. **In total, 20% of the route is inadequate for pedestrian movement.** The continuous vertical alignment along the pedestrian spaces is lacking (**Photograph 3**), significantly obstructing pedestrian movement of people with limited mobility, parents with children in strollers, most of whom are women, rendering it impossible to walk without compromising personal safety.

³ Vertical alignment is the height variation between two horizontal surfaces (a street and a sidewalk). Continuous vertical alignment implies surfaces without sudden height variations (sloped curbs between the street and the sidewalk).



Photograph 2.
Insufficient sidewalk
width for pedestrian
movement near
Railway Bridge.

*Photograph by Milka
Dokuzova, November
2025*



Photograph 3.
Lack of continuous
sidewalk level along
Treta Makedonska
Brigada Blvd.

*Photograph by Milka
Dokuzova, November
2025*

Cycling mobility is equally problematic. Along the selected route, in both directions, **the total length of constructed and properly marked bicycle lanes is only 180 meters out of 4.8 kilometres or 3.75% of the total infrastructure.** Still, the on-site counts indicate that cycling is an existent mode of transportation throughout the city. This is particularly prominent along the Aerodrom–Centar and Kisela Voda–Centar stretches. The lack of adequate, constant and safe cycling infrastructure challenges the commitments and measures defined in the official documents of the City of Skopje. The **2019-2021 Plan for Improvement of Cycling Traffic** (City of Skopje, 2019) is the latest official document for cycling network development and improvement of cycling conditions, adopted by the Council of the City of Skopje. The Plan prescribes reconstruction of cycling and pedestrians paths along part of the route analysed in this research (City of Skopje, 2019, p.7), while certain sections, such as the stretch from the Tobacco Factory to the Public Health Centre, are supposed to be already renovated despite the fact that there is still a lack of clearly demarcated cycling infrastructure along the entire route (**Photographs 5**). While the sidewalks along Treta Makedonska Brigada Blvd have been widened, horizontal signage indicating that a portion of the width is intended for cycling is absent (**Photographs 3 and 4**).

Photograph 4.

Unorganised or partially organised public spaces at the intersection between Treta Makedonska Blvd and Nikola Karev St (Public Health Centre).

Photograph by Pavel Veljanoski, November 2025



Cycling and pedestrian infrastructure is addressed in other strategic documents as well, such as the **2020-2026 Local Environmental Action Plan (LEAP 3) of the City of Skopje** (City of Skopje, 2020) and the **City of Skopje's 2023-2027 Road Safety Strategy** (City of Skopje, 2023), where cycling mobility is recognised as an integral part of the broader policies for accessibility, safety and sustainable urban transformation. Furthermore, the City of Skopje adopts annual programs for the construction, maintenance and reconstruction of roadways,

pedestrian and cycling routes. While these serve as an operational framework towards achieving these efforts, practical implementation is often fragmented and lacking. In October 2024, the Association for Sustainable Development and Environmental Protection “Go Green” drafted a Rulebook for the planning, design, construction and maintenance of cycling infrastructure, submitted to the Ministry of Transport. In September 2025, the Ministry of Transport announced the development of a draft proposal in cooperation with the civil sector, confirming the adoption of the Rulebook “within the following period” (Ministry of Transport, 2025). Nevertheless, as of January 2026, the document is yet to be formally adopted and published through official procedures.

Considering that **65.5% of public transport users** in Skopje are women, compared to only **27.7% who are drivers, of whom a mere 18% own their own vehicle** (Reactor, 2022; Bojchevska Mitrevska, Dimitrova, & Lazova, 2025), it is evident that **women rely more heavily on public transit (when available) and walking as their primary forms of everyday mobility**. Consequently, as more frequent users of public spaces and areas, women are considerably more exposed to infrastructural shortcomings in comparison to men. This conclusion is further supported by data from the State Statistical Office (2022), according to which **57.5% of all pedestrians in the City of Skopje were women**. Regarding cycling as a means of transport, only **38% of women in Skopje reported using a bicycle, compared to 62% of men** (SSO, 2022), a statistic corroborated by the on-site counts and observations in the second research phase. Seeing that women walk and use public transport more frequently, **infrastructural weaknesses are not gender-neutral**, but rather create unequal risk exposure and impose restrictions on everyday movement. Therefore, assessing the infrastructural conditions along the selected route was crucial to understanding the factors shaping safety perceptions and actual accessibility of public space.

In this sense, the analysis of the infrastructural conditions along the chosen route revealed that the spatial preconditions crucial to the sense of safety, particularly among women, are significantly disrupted. The general lack of active ground floor frontages, in addition to the vast parking areas between active frontages (where spatially existent) and sidewalks, creates blind spots and reduces visibility, which, in turn, diminishes the “natural surveillance” effect seen as directly impacting perceived safety. Simultaneously, inadequate sidewalk width and the lack of continuous level access make the route both unsafe and exhausting for pedestrians, most severely affecting people with limited mobility and parents with strollers, groups in which women are disproportionately represented due to everyday caregiving and mobility patterns. Underdeveloped cycling infrastructure further limits choices for safe movement. Although strategic documents and commitments to improve pedestrian and cycling infrastructure

exist, field findings indicate a gap between planning and implementation, highlighting the need to address safety not only as a traffic issue but as a gender-related one.

In conclusion, the route could be interpreted as an example of how **infra-structural deficiencies directly diminish accessibility, increase vulnerability and limit women's right to free, unhindered and safe public space use**, particularly during times of reduced activity and poor lighting.

3.2. Specific thematic findings

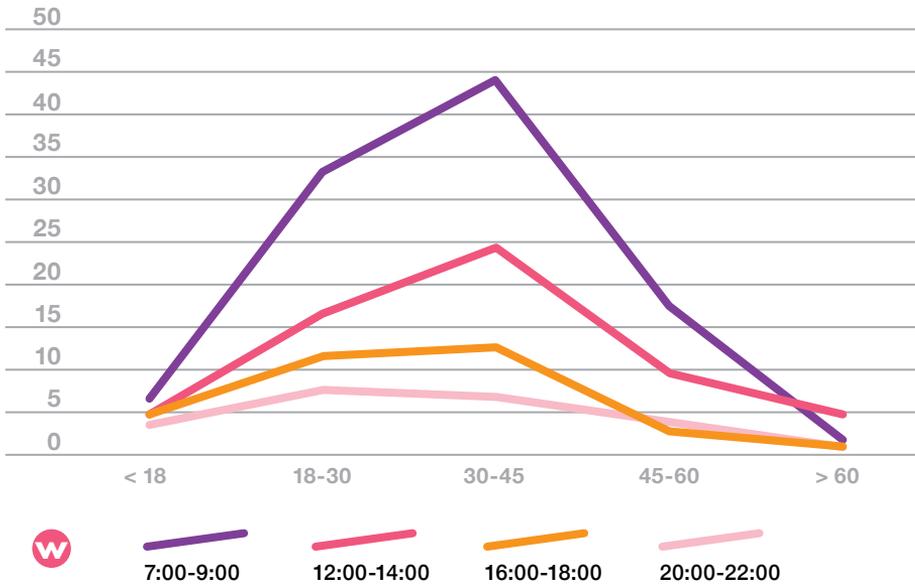
The specific findings refer to the spatial features identified as being directly linked to users' trends at each of the six positions. The findings are organised thematically in the sections below, each theme examining a specific issue present at one or several locations, though these issues do not necessarily occur in all positions or at least occur with varying intensity. **This section synthesises the infrastructural findings, the location-specific count results, and the experiential insights gathered through group walks in order to demonstrate how spatial features shape patterns of use and perceptions of safety throughout the day.**

Where, when and how do women move around?

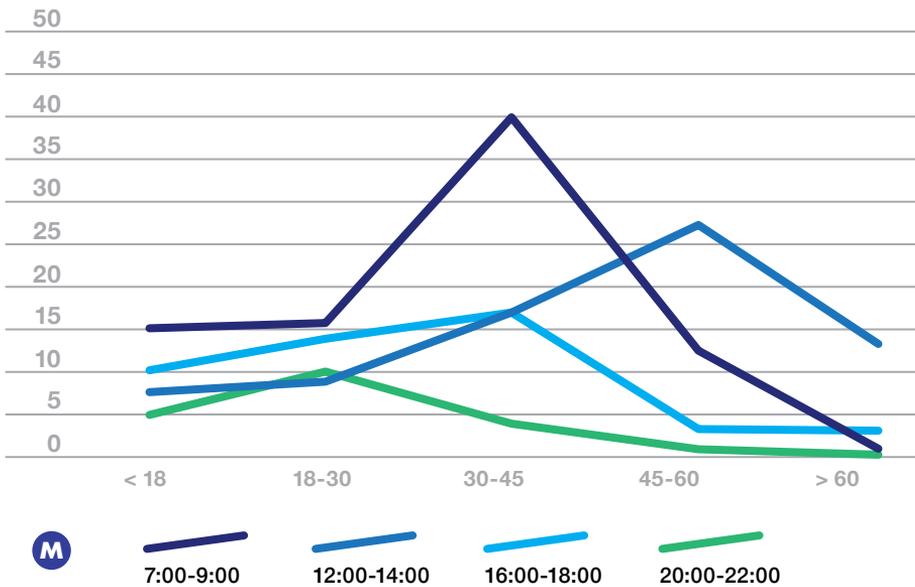
Contrary to the above section focusing on infrastructural safety preconditions, the following section analyses the social dynamics of two specific positions along the chosen route. Certain socio-spatial characteristics, uncommon for the other four positions, stood out during the counts conducted at these two. By employing a comparative analysis of the time intervals, gender structure and forms of grouping, patterns of selective public space use have been identified, particularly at nighttime. The analysis focuses on absence, grouping, mode of travel, and movement patterns as indicators of perceived safety and spatial autonomy.

One of the locations covered with the analysis was the Railway Bridge, i.e., the overpass above the intersection of Jordan Mijalkov St, Pavel Shatev St and Anton Popov St. This space functions primarily as a transit zone, with particularly high traffic frequency during morning and afternoon hours. However, **a consistent pattern emerges in the evening: an absence of women walking**

alone. The evening absence of women aged 30 to 45 is especially notable, a group accounting for 65% of the total number of women recorded across the other count intervals. Furthermore, **both women and men over the age of 60 are entirely absent as users in the evening hours (Graphs 1, 2, 3, 4),** regardless of whether it was on a weekday or during the weekend.



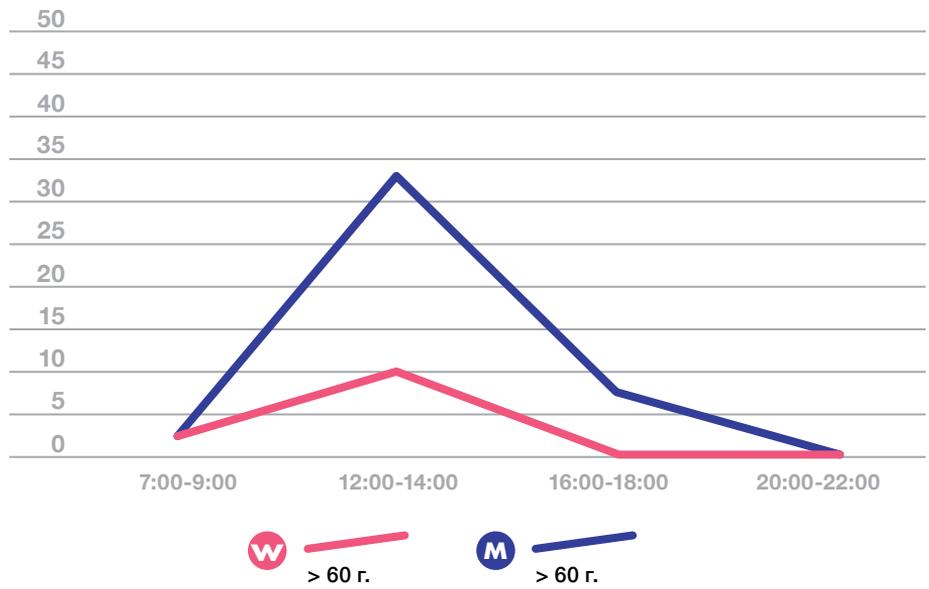
Graph 1.
Total number of passersby during a weekday at the Railway Bridge position according to age and time.



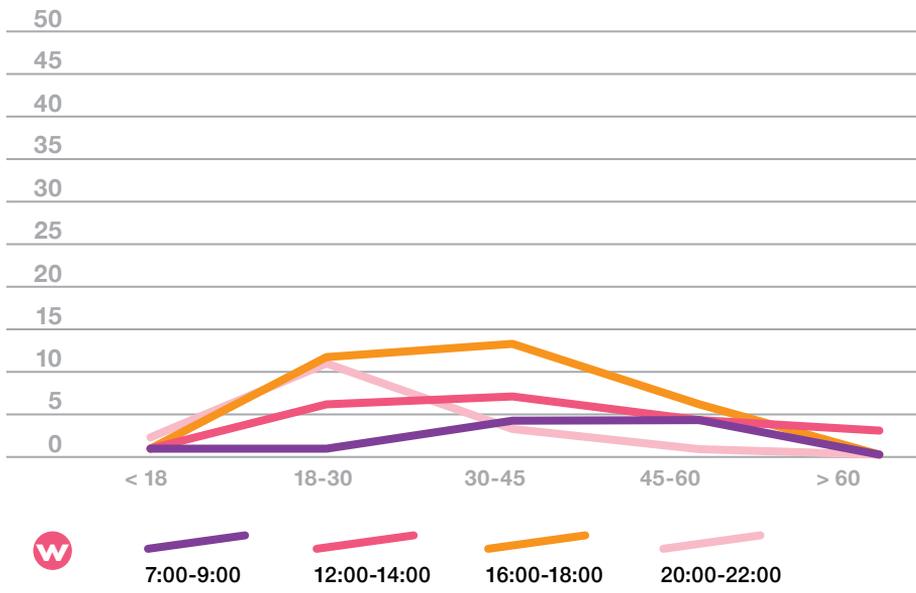
Graph 2.
Total number of passersby during a weekday at the Railway Bridge position according to age and time.

Graph 3.

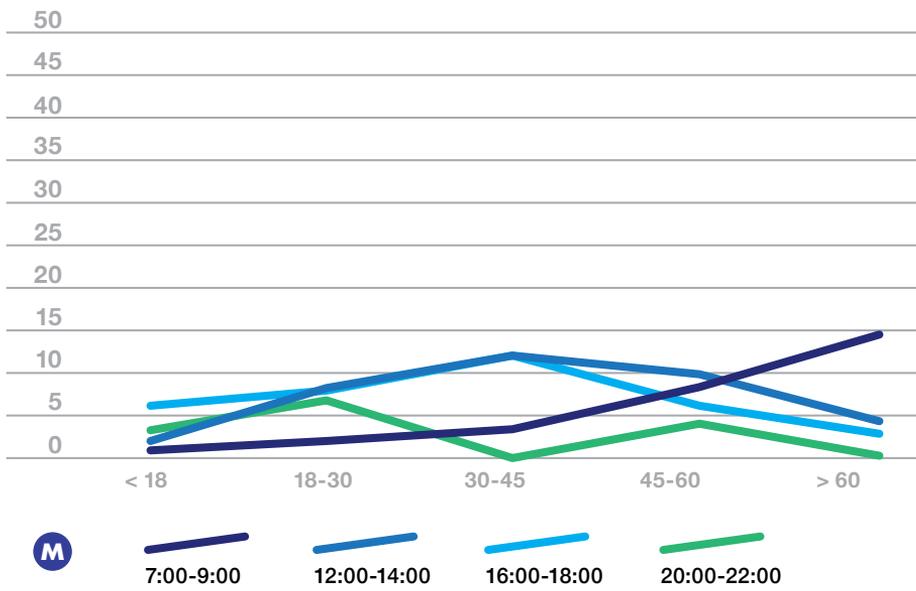
Total number of passersby aged over 60 during a weekday at the Railway Bridge position according to time.



In comparison, **during the morning hours (7–9 AM) at the weekend, men over 60 emerge as the most dominant age group**, accounting for 50% of all male age groups, most frequently travelling by bicycle (Graph 5). **Women of the same age group are once again absent during this same time interval (Graph 6)**, suggesting a socio-spatial dynamic potentially conditioned by the gendered division of household chores, where men run errands outside the home while women attend to domestic duties. On the other hand, this absence could also be interpreted as a result of poor public transport accessibility, unfavourable pedestrian and cycling conditions among this age group or other factors that diminish the perception of safety, as confirmed by research (Yuan et al., 2023). These findings highlight the need to investigate why space is used so selectively, particularly to determine the barriers that restrict the mobility of older women.

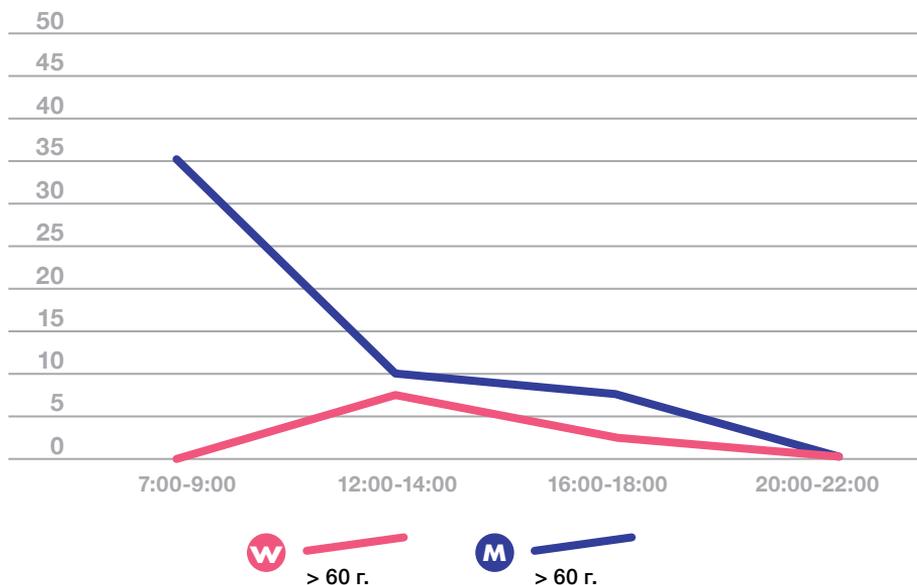


Graph 4.
Total number of passersby during the weekend at the Railway Bridge position according to age and time of day.



Graph 5.
Total number of passersby during the weekend at the Railway Bridge position, according to age and time of day.

Graph 6.
Total number of passersby aged over 60 during the weekend at the Railway Bridge position, according to time of day.



Regarding the location-specific features that may negatively affect users' experience and expose all user groups to direct risk, these include an illegal parking area on one side, and, on the other, a parking area with obstructed sightlines, a construction site completely the sidewalk, and an inadequately marked pedestrian crossing. Poor lighting in the parking lot and lack of active frontages increase the sense of insecurity, and could encourage loitering or illicit activity, particularly at night, as observed during the on-site counts of the space around the unmarked parking area and the construction site. Movement for both pedestrians and cyclists predominantly occurs along the blocked sidewalk, highlighting the need for a secure pedestrian and bicycle connection between the Municipality of Kisela Voda and Centar (Photograph 6). In this context, the poorly marked pedestrian crossing on the bridge – used by both groups – combined with inadequate lighting, further compromises safety levels in this segment. During on-site counts alone, several incidents were observed where the safety of pedestrians and cyclists was directly threatened by vehicles travelling along the bridge while they were attempting to move through the pedestrian crossing.



Photograph 6.
Pedestrian crossing
across the Railway
Bridge.

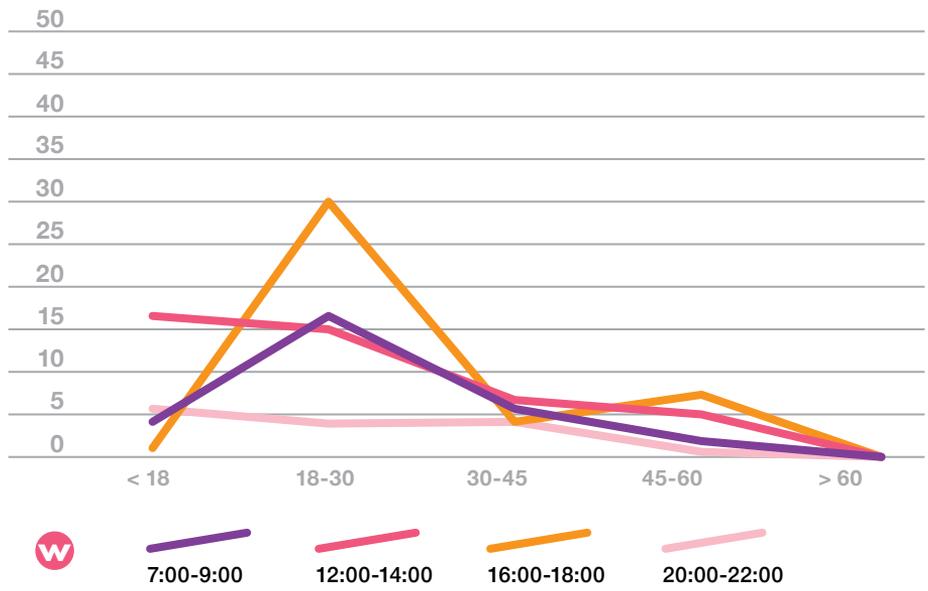
Photograph by:
Milka Dokuzova,
November 2025

The second position analysed in this research was the pedestrian path after the Belasica Bridge, moving along under the Central Railway Station. It is the only pedestrian route connecting East Gate Mall, the university campus and the Faculty of Natural Sciences and Mathematics with the Central Railway Station. The most prevalent age group among users, both among men and women, during a weekday is the group under 18 and from 18 to 35 years old, or high school and university students (Graphs 7, 8). Despite the fact that measurements point to a seemingly proportional presence of men and women as pedestrians on this route in the first three time intervals (7:00-9:00, 12:00-14:00 and 16:00-18:00), variations in user experiences emerge at night, more precisely between 20:00 and 22:00. (Graph 9).

On weekdays, during this interval, women accounted for 36% of total passersby, while men represented 64%. **Of this 36%, with the exception of one woman in the 45-60 age group, all others walked in pairs (woman-woman, woman-man) or groups (>2).** Weekend statistics for the same interval show a slightly different gender distribution, with female users of this pedestrian route increasing to 45% compared to 55% for men (Graphs 10, 11, 12). **However, despite the higher representation, women, without exception, walked in pairs – most commonly woman-woman.** The tendency to group together undoubtedly indicates a perceived lack of safety along the route, despite the adequate lighting and the proper design of the ground-level infrastructure to accommodate pedestrian and cycling movement. Ultimately, this sense of insecurity may be linked to the lack of amenities that would encourage a lingering and continuous human presence, moving beyond simple daily transit.

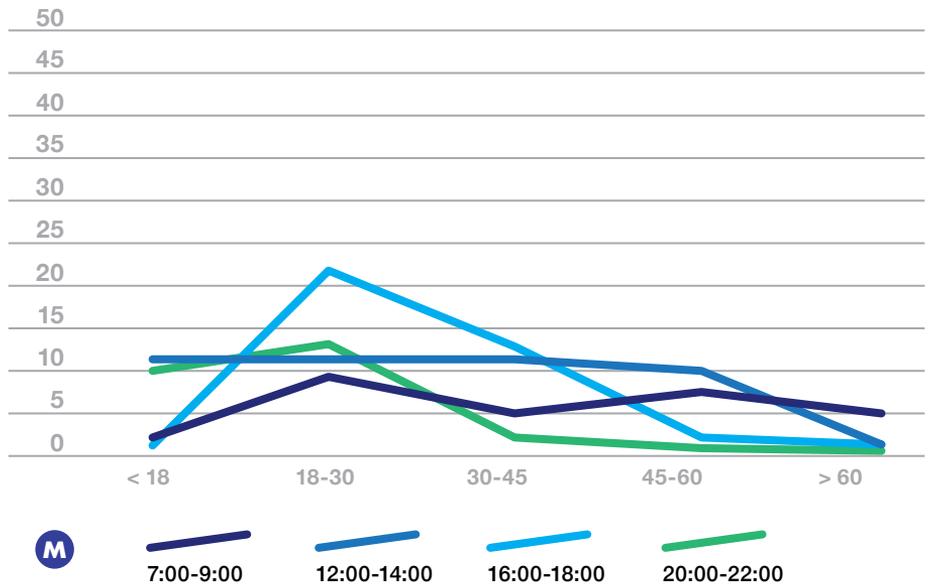
Graph 7.

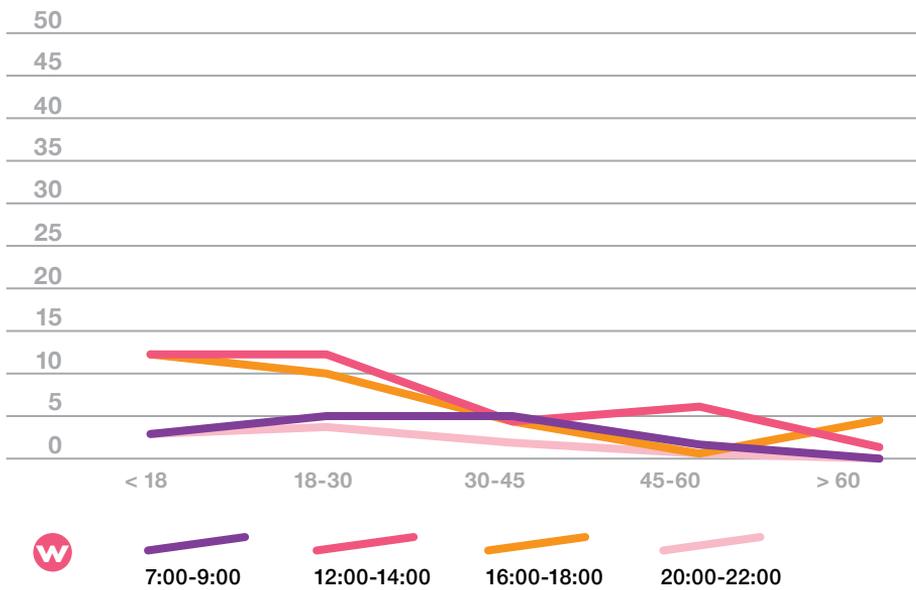
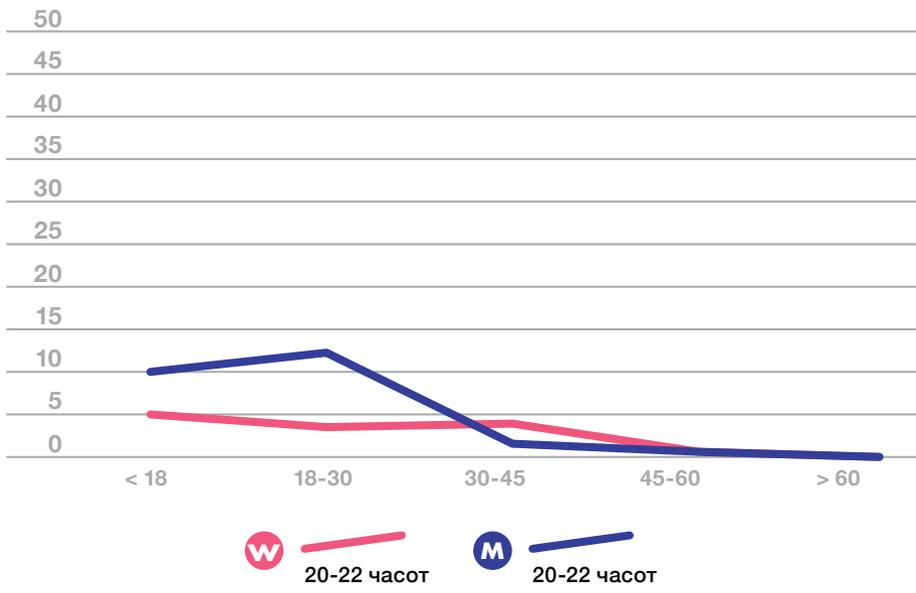
Total number of women passersby during weekday along the pass under the railway tracks / Belasica St according to age and time of day



Graph 8.

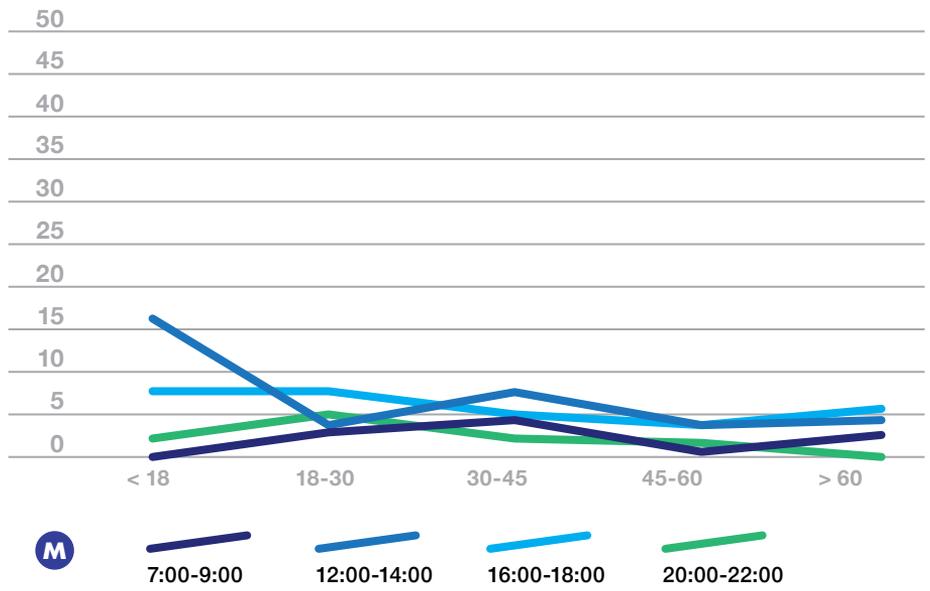
Total number of men passersby during a weekday along pass under the railway tracks / Belasica St according to age and time of day





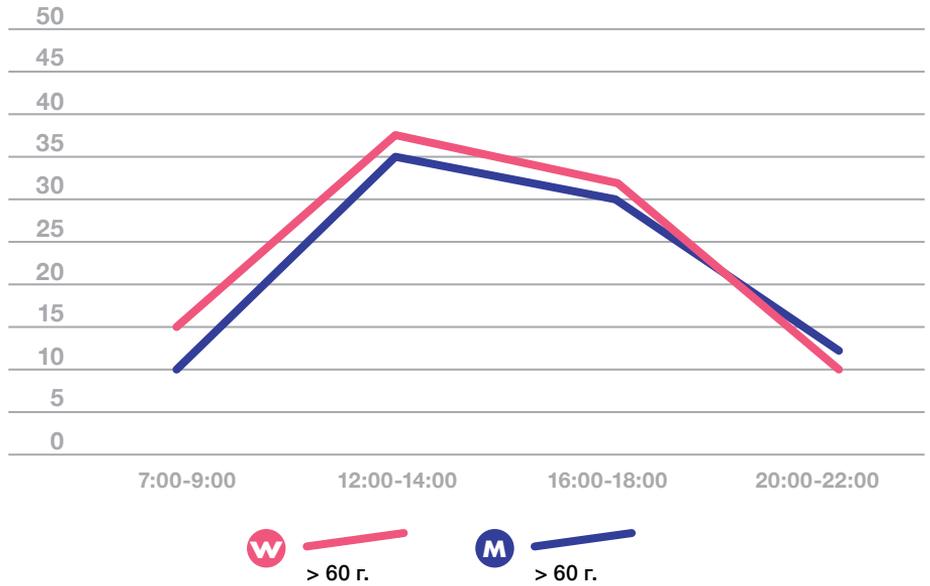
Graph 11.

Total number of men passersby during the weekend along the pass under the railway tracks / Belasica St, according to age and time of day.



Graph 12.

Total number of men and women passersby during the weekend along the pass under the railway tracks / Belasica St, according to time of day.



The only activity in the immediate vicinity is the security service for the parking area used by intercity buses and official vehicles (**Photograph 7**). The sporadic presence of people, aside from those in transit, is closely linked to this activity and consists almost exclusively of men in the 45-60 age group. Furthermore, the site's drop in elevation relative to Belasica St contributes to a sense of spatial isolation, intensified by the high retaining wall facing the street, which restricts visibility and blocks sightlines from one side (**Photograph 8**).



Photograph 7.
The pass under the railway tracks of the Central Railway Station.

*Photograph by:
Pavel Veljanoski,
November 2025*



Photograph 8.
A vertical obstacle between the pass under railway tracks and Belasica St.

*Photograph by:
Pavel Veljanoski,
November 2025*

During the group walks conducted with the most prominent category of female users (ages 18-30), 3 out of 11 participants reported using this route daily only due to a lack of alternatives, noting that if given a choice, they would avoid it due to perceived safety risks, particularly in the evening. The remaining participants use this path occasionally to reach the East Gate Mall, though they rarely do so without a companion. When walking alone, they rely on phone calls as a safety strategy (Bojchevska Mitrevska, Dimitrova, Lazova, 2025). **Women over the age of 60 were not observed at all along this stretch during weekdays at any time of day.** On weekends, minimal activity was recorded for this age group between 12:00 and 18:00, with women representing 35% of passersby in this age category (60+), compared to 65% for men. Notably, the men were mostly cycling, whereas the women were predominantly walking. During the evening hours, neither of these two age groups was recorded at this location.

Skopje – A cycling city for men?

Notable differences in gender distribution regarding bicycle use as a primary mode of transport were observed at Positions 2 and 3 (Map 1). These locations include the intersection of Macedonia Blvd and 11 October St, specifically the Kisela Voda – Centar (Tobacco Factory) (Photograph 5) course and vice versa, as well as the intersection of Treta Makedonska Brigada Blvd and Nikola Karev St on the Aerodrom – Centar (Centre for Public Health) route (Photograph 4) and vice versa. On the Kisela Voda – Centar course, 8 out of 10 cyclists were men, while on the Aerodrom – Centar route, the gap was slightly smaller, with 7 out of 10 users being male. These ratios remained consistent regardless of the day or time of measurement. Such observations align with official traffic participation data on women versus men for the cyclist category (State Statistical Office, 2022). However, reaching a more comprehensive understanding of why women choose cycling less frequently requires further research and contextual analysis that incorporates infrastructural, safety, and socio-cultural factors.

In conversations with participants aged 18–30, **every respondent, without exception, stated they would not** use a bicycle as a mode of transport along the selected route. The primary reason cited was **unsafe infrastructure**, specifically the lack of properly planned and executed bike lanes. Furthermore, the combination of **inadequate infrastructure, poor traffic behaviour, and the increased frequency of traffic accidents over the past decade** additionally discourage women from choosing cycling as transport means. Similar perceptions were shared by the 30–45 age group. One participant stopped cycling after becoming a mother, citing an increased awareness of the traffic risks she would

be exposed to. She also highlighted **the limitations of public transport for parents with children**, particularly with young children or parents using strollers. Although she was an active public transport user in Skopje before motherhood, it became inaccessible afterward; the height discrepancies between sidewalks and bus entrances, along with the lack of a dedicated, secure space for parents with children within the bus vehicles. As a result, she was forced to rely on a car as the only safe means of navigating the city. Another participant in the same group, who lives in Kumanovo but works in Skopje, pointed to the limitations of intercity transport as an explanation for not cycling in Skopje. Despite being an active cyclist when she lived in Skopje, her mobility is now restricted to intercity and local transit because there is no way to transport a bicycle. **This inability to use combined transport modes** indicates to a serious oversight in strategic planning and a lack of integration between transport systems, where the impossibility to carry a bicycle on intercity lines directly limits sustainable and flexible mobility.

These conclusions are aligned with the wider scientific insights indicating that the gender gap in cycling traffic is most commonly associated with **risk perception and infrastructural safety**, where in average, women are less likely to accept the traffic risk and maintain a higher threshold for “acceptable” traffic exposure compared to men (Byrnes, Miller, & Schafer, 1999). Consequently, in environments where cycling infrastructure is integrated into motorized traffic lanes, women avoid cycling more often, preferring solutions featuring physically separated and continuous infrastructure that reduces uncertainty and conflict points with vehicles (Aldred et al., 2017; Emond et al., 2009). Recent research utilising extensive data from the Strava app for tracking cycling activities across 61 urban centres in the US, UK, Italy, and the Benelux countries further confirms these findings, demonstrating that **streets with physically separated cycling paths exhibit a significantly more balanced gender ratio** (Battiston et al., 2023). Furthermore, comparative analyses from Scandinavian countries, characterised by developed and appropriately designed cycling infrastructure, indicate that the gender gap in cycling significantly narrows, even potentially fades, when clearly demarcated lanes and adequate safety measures are in place (Emond et al., 2009; Garrard et al., 2012). In this context, the negative responses from participants aged 18–30 can be interpreted as a rational adaptation to the local traffic context since insufficient infrastructural protection and poor traffic culture heighten perceived risk exposure, particularly among groups that generally demonstrate a higher orientation toward safety-conscious practices as traffic users, including as drivers (Cordellieri et al., 2024; World Health Organization, 2023).

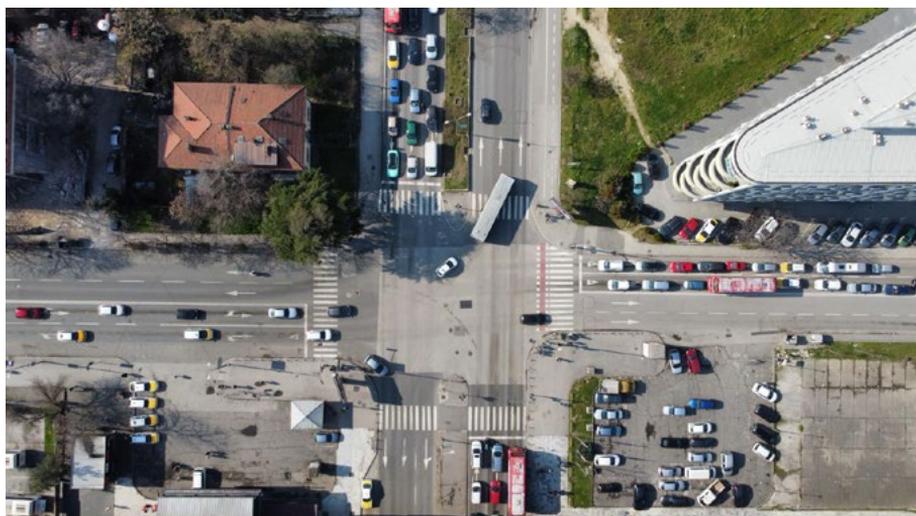
For comparison, the intersection of Kuzman Josifovski Pitu Blvd and Nikola Karev St (Central Railway Station) (**Photograph 9**), presents a completely different gender dynamic regarding transport choices. Women and men are

approximately equally represented as both cyclists and pedestrians here. Given the previous findings, this parity is likely due to the fact that the Aerodrom – Centar stretch passing under the Central Railway Station features a clearly separated bicycle lane that is grade-separated from the motorised traffic lanes. This design enhances the sense of security and corroborates the findings of Battiston et al. (2023) that the gender aspect among users tends to balance out when cycling infrastructure is distinctly separated from automotive traffic.

Photograph 9.

The intersection of Kuzman Josifovski Pitu Blvd and Nikola Karev St (Central Railway Station).

Photograph by: Pavel Veljanoski, March 2025



Who takes care, and how do they move around?

Within the on-site counts conducted at each of the six positions, the forms of grouping (pairs or groups of >2) were recorded, alongside their gender and social structures (Form 2, p. 52). In mixed groups, interpersonal relationships were noted, where obvious, such as families, groups of friends or similar. Across all six positions, in the context of mixed grouping on weekdays (Table 1), the parent-child group accounted for 44% (n=15) of all mixed groups (n=34). On weekends, out of 47 mixed groups, parents with children represented 36% (n=17). Regarding the total number of passersby, irrespective of grouping, the representation of the parent-child group was 1.7% on weekdays and 3.7% on weekends. The absence of parents with children as pedestrians suggests the existence of **spatial and infrastructural barriers discouraging pedestrian mobility in favour of car use**. Further on-site counts, observations, and structured interviews with this user group are necessary to better understand the reasons behind their

absence. Additionally, the grandmother-child and grandfather-child pairs were almost entirely absent from the pedestrian dynamics across all time intervals and locations. The two recorded exceptions further support the finding that women over 60 are generally absent along this route.

On weekdays, across all six positions, the mother-child pair accounted for 60% of the total parent-child representation, while the father-child pair represented 40%. These pairs moved most frequently along or across the Railway Bridge, in the morning and afternoon. According to site observations, this corresponds with school commutes – a responsibility that, based on the on-site counts, falls predominantly on women. These disparities are even more pronounced on weekends, when mother-child pairs account for 75% of all such pairs, compared with only 25% for father-child pairs, suggesting that women remain primarily responsible for children during leisure time, particularly in walking-related activities. The absence of father-child pairs as pedestrians may suggest a different socio-spatial dynamic. According to the latest public data from the State Statistical Office (2022), men accounted for 66% of drivers in Skopje, compared to 34% for women. This data indicates that male mobility is closely tied to the car, providing an alternative explanation for the absence of father-child pairs on pedestrian walkways.

Furthermore, this data corresponds with the publicly available figures from the State Statistical Office (2022), as well as findings from research conducted by Reactor (2022), which indicate that only 27.7% of drivers are women and only 18% of women own a car, thereby conditioning their mobility on alternative modes of transport. Additionally, these findings confirm the fact that women – in their roles as mothers – emerge as the dominant users of public space (Dokuzova, Rafailovska, & Veljanoski, 2024). Hence, the critical importance of appropriately designed and constructed pedestrian infrastructure prioritising not only the safety, but also the comfort of women as a prerequisite for their equal and unimpeded use of public spaces. Neglecting the needs of this user group in urban planning effectively restricts the mobility of women in their roles as mothers or caregivers, thereby reinforcing gender inequalities. **It is essential to emphasize that these recommendations do not aim to normalise a reality where childcare is predominantly left to women; rather, they indicate that existing spatial solutions and infrastructural standards must account for actual patterns of daily care and movement until a (more) equitable distribution of care is established.**

	East Gate	Pass under the Belasica Bridge	Central Railway Station	Public Health Centre	Tobacco Factory	Railway Bridge
individuals						
all	299	156	419	332	387	298
pairs (number of pairs)						
female - female	24	11	22	14	22	11
female - male	28	14	25	8	20	13
male - male	17	7	22	8	8	7
mother - child	3	2	1	3	7	11
father - child	1	1	6	0	3	10
grandmother - child	0	0	0	0	0	0
grandfather - child	0	0	0	1	0	0
groups (>2) (number of groups)						
women	8 (24)	2 (6)	2 (7)	1 (3)	4 (11)	1 (3)
men	5 (19)	2 (6)	6 (21)	4 (13)	4 (11)	3 (11)
mixed groups*	4 (14)	6 (23)	9 (30)	6 (21)	6 (18)	3 (9)

Table 1.
An overview of group formation during the weekday

	East Gate	Pass under the Belasica Bridge	Central Railway Station	Public Health Centre	Tobacco Factory	Railway Bridge
individuals						
all	109	82	183	86	167	103
pairs (number of pairs)						
female - female	22	12	17	0	6	9
female - male	39	16	28	8	20	15
male - male	11	3	13	7	8	3
mother - child	7	2	7	3	2	3
father - child	3	1	3	0	0	1
grandmother - child	0	0	0	0	1	0
grandfather - child	0	0	0	0	0	0
groups (>2) (number of groups)						
women	4 (14)	2 (7)	7 (21)	0	0	1 (3)
men	6 (20)	1 (3)	5 (15)	3 (10)	2 (6)	4 (13)
mixed groups*	13 (30)	6 (19)	16 (55)	3 (9)	7 (22)	2 (7)

Table 2.
An overview of group formation during weekends

4

CONCLUSIONS AND FURTHER RECOMMENDATIONS

4.1. Conclusions from the conducted research

Infrastructure deficiencies are not gender-neutral

The research shows that the key spatial preconditions for women's perceived safety along the selected route are generally compromised due to weak ground-floor activity (active frontages) as well as poorly planned spaces that most often extend between the sidewalks and the buildings. Although this is a central urban route connecting several urban centres, commercial/business activity on the ground floors was observed along only 12% of the street frontages. Even where active ground floors appear, their purpose is often partially achieved due to large parking areas and poorly organised spaces between pedestrian walkways, i.e., sidewalks and the buildings themselves. This spatial configuration undermines the logic of "natural surveillance", which is essential for women's sense of safety, and instead contributes to a sense of insecurity, especially when natural light is absent.

The lack of adequate pedestrian infrastructure significantly hinders pedestrian movement for all user groups. Along 15% of the route (729.5 m), there are no sidewalks at all, or they are too narrow to be used. An additional 5% of the route (256.5 m) – although designated for pedestrian movement – remains unsafe due to inadequate design and maintenance. Construction activities further affect and alter this spatial dynamic. The installation of metal construction fences right at the edge of the sidewalks and the redirection of pedestrian movement onto the roadway, instead of the sidewalk, directly exposes pedestrians to risk. Improperly secured construction sites (**Photograph 10**) located next to pedestrian areas increase the risk of injuries while moving along the route. The absence of a continuous level surface further affects people with limited mobility and parents with strollers, predominantly women. Although these findings apply to all users, women are the most affected user group as they represent the largest proportion of pedestrians (State Statistical Office, 2022).

Photograph 10.

Improperly secured construction site between the Blvd. "Treta Makedonska Brigada" and St. "Nikola Karev" (Centre for Public Health).

*Photograph by:
Emilija Petreska,
January 2026.*



The gender gap in cycling is directly related to the quality of cycling infrastructure

Cycling infrastructure is generally fragmented and inadequately implemented. Only 180 meters (3.75%) of the total infrastructure was properly built and marked. There is a clear gap between strategic planning documents and the actual situation on the ground, as well as between the criteria for reconstructing existing or constructing new cycling infrastructure. The rough marking of cycling lanes and their inadequate separation from car traffic using plastic bollards cannot be considered a permanent solution, precisely because of the safety risks it creates. Women demonstrably have a greater aversion to such risks than men; consequently, they are less likely to choose cycling as a mode of transport when there is no clearly separated, well-marked and properly secured infrastructure.

Women's sense of safety has a clear temporal and spatial dimension

There is a consistent pattern of women from different age groups being absent from independent movement in the evening hours, and this is closely linked to specific spatial characteristics. The main contributing factors include inadequate street lighting, limited human presence, and obstructed sightlines. Route planning often begins even before leaving the home, particularly among

women with children. They most often choose routes with unobstructed and sufficiently wide sidewalks that are not occupied by vehicles. Especially when moving around with a stroller, they look for routes without significant level differences. Their choice of route is further influenced by the number of road crossings, i.e., they tend to choose routes that minimise the need to cross streets. In the first few years of their children's lives, the spatial experience of women with children is generally limited to their immediate surroundings. Distrust in traffic regulation and the absence of a strong traffic culture make women pedestrians across all age groups significantly more cautious and attentive to their surroundings.

Women over the age of 60 are excluded from public spaces

Women over the age of 60 are noticeably absent from public spaces along the selected route, particularly in the evening. In the morning, this age group appears sporadically, but men of the same age group are significantly more present, accounting for 69% of the total passersby on a working day and 88% in the same time interval on a non-working day. This absence can be interpreted as the result of several factors, including the gendered distribution of domestic responsibilities, the inadequate infrastructure for people with limited mobility and perceived insecurity.

Spatial realities reflect the unequal distribution of childcare

The mother-child pair accounts for 60% on weekdays and 75% on weekends, compared to the father-child pair, indicating that women are primarily responsible for accompanying children in walking-related activities as well. The grandmother-child and grandfather-child pairs are entirely absent from the observed pedestrian dynamics, which may reflect the hostile infrastructure along this route. The absence of continuous level sidewalks and inadequate access to public transport for parents with strollers further complicates the mobility of this user group, significantly affecting women.

There is a significant gap between strategic planning and on-the-ground implementation

Despite the existence of several strategic documents, such as the Plan for the Advancement of Cycling Traffic 2019–2021 (City of Skopje, 2019), LEAP 3 (City of Skopje, 2020), and the Traffic Safety Strategy 2023–2027 (City of Skopje, 2023), the field findings indicate that implementation remains fragmented and insufficient. The draft Rulebook on Cycling Infrastructure, prepared in cooperation with civil society organisations, has still not been formally adopted as of January 2026 (Ministry of Transport, 2025).

4.2 Further recommendations

Based on the key findings and in line with the principles of gender-sensitive urban planning (UN-Habitat, 2012; World Bank, 2020), the following recommendations are proposed, organised across two levels of intervention.

4.2.1. Systemic and institutional interventions

- **Integrating a gender perspective into urban planning** through systematic inclusion of gender-disaggregated data in the planning and design of pedestrian, cycling and public transport infrastructure, in accordance with the recommendations of UN-Habitat (2012) and UN Women (2021).
- **Improving pedestrian infrastructure** through the consistent application of spatial standards defined in relevant laws and bylaws. This includes ensuring continuous level sidewalks, adequate sidewalk width and the removal of physical barriers (such as metal construction fences and billboards) that obstruct pedestrian movement. These interventions are particularly important for people with limited mobility and for parents with children in strollers.
- **Improving cycling infrastructure** through the adoption and consistent implementation of the Rulebook on the Planning, Design, Construction and Maintenance of Cycling Infrastructure. This would help increase women's participation in cycling and reduce constraints on their mobility.

- **Improving accessibility to public transport** by aligning the level of sidewalks at bus stops with the entrance level of buses, as well as ensuring a designated and safe space for parents with children within public transport vehicles. The aim is to reduce dependence on private cars, particularly among women in their roles as mothers or caregivers. This aspect is equally important for people with limited mobility whose movement depends on assistive devices.
- **Establishing a regular monitoring system** for the implementation of existing strategic documents, using gender-disaggregated indicators, in order to bridge the gap between strategic planning and on-the-ground implementation.

4.2.2. Directions for further research

- Applying an intersectional framework that recognises the different identity-based, social and functional positions of women.
- Conducting more in-depth research on the absence of women over the age of 60 from public spaces, including structured interviews and an analysis of both spatial and systemic barriers that limit their mobility.
- Carrying out additional on-site counts across different seasons to assess the impact of weather conditions and ambient air quality on patterns of use, particularly among women.
- Conducting structured interviews with parents with children as a user group to better understand the reasons behind their low participation in pedestrian movement (1.7% on working days and 3.7% on non-working days) and the factors that discourage them.
- Expanding the methodology to additional routes and municipalities in Skopje to determine whether the findings from this route are representative of the broader urban context.

References

- Aldred, R., Elliott, B., Woodcock, J., & Goodman, A.** (2017). *Cycling provision separated from motor traffic: A systematic review exploring whether stated preferences vary by gender and age*. *Transport Reviews*, 37(1), 29–55.
- Battiston, A., Napoli, L., Bajardi, P. et al.** (2023). *Revealing the determinants of gender inequality in urban cycling with large-scale data*. *EPJ Data Science*, 12, Article 9.
- Bojchevska Mitrevska, A., Dimitrova, J., & Lazova, D.** (2025). *Gender-based Violence Against Women and Girls in Public Spaces in Skopje and Tetovo* [PDF]. Reactor – Research in Action. Available at: https://reactor.org.mk/en/wp-content/uploads/sites/4/2025/04/gbv_public_spaces.pdf
- Byrnes, J. P., Miller, D. C., & Schafer, W. D.** (1999). *Gender differences in risk taking: A meta-analysis*. *Psychological Bulletin*, 125(3), 367–383.
- City of Skopje.** (2019). *Plan for the Improvement of Bicycle Traffic in Skopje 2019–2021* [PDF]. City of Skopje. Available at: <https://skopje.gov.mk/media/4370/predlog-plan-za-unapreduvanje-na-velosipedski-soobrakaj-2019-2021.pdf>
- City of Skopje.** (2020). *Local Environmental Action Plan (LEAP 3) of the City of Skopje 2020–2026* [PDF]. Electronic Official Gazette of the City of Skopje. Available at: <https://skopje.gov.mk/media/6058/leap-2020-2026.pdf>
- City of Skopje.** (2023). *Road Traffic Safety Strategy for the City of Skopje 2023–2027* [PDF]. City of Skopje. Available at: https://skopje.gov.mk/media/9690/rsm_rs-strategy-and-ap-for-skopje_mk.pdf
- Chen, X., & Hedayati Marzbali, M.** (2024). *How urban park features impact perceived safety by considering the role of time spent in the park, gender, and parental status*. *Cities*, 153, 105272.
- Cordellieri, P., Piccardi, L., Giancola, M., Giannini, A. M., & Nori, R.** (2024). *On the road safety: Gender differences in risk-taking driving behaviors among seniors aged 65 and older*. *Geriatrics*, 9(5), 136.
- Criado Perez, C.** (2019). *Invisible women: Data bias in a world designed for men*. Abrams Press.
- Cui, Q., Zhang, Y., Yang, G., Huang, Y., & Chen, Y.** (2023). *Analysing gender differences in the perceived safety from street view imagery*. *International Journal of Applied Earth Observation and Geoinformation*, 124, 103537.
- Cullen, G.** (1961). *The concise townscape*. Architectural Press.
- Darley, J. M., & Latane, B.** (1968). *Bystander intervention in emergencies: Diffusion of responsibility*. *Journal of Personality and Social Psychology*, 8(4, Pt.1), 377–383.
- Harvey, D.** (2003). *The right to the city*. *International Journal of Urban and Regional Research*, 27(4), 939–941.

Државен завод за статистика (2022). *Вкупно работоспособно население на возраст од 15 години и повеќе според пол и видот на превозното средство кое најчесто го користи до работа или школо, по општини*. Попис 2021. Достапно на: <https://urلزs.com/9modDy>

Emond, C. R., Tang, W., & Handy, S. L. (2009). *Explaining gender difference in bicycling behavior (with discussion)*. Transportation Research Record: Journal of the Transportation Research Board, 2125(1), 16–25.

Garfias Royo, M., Parikh, P., Walker, J., & Belur, J. (2023). *The response to violence against women and fear of violence and the coping strategies of women in Corregidora, Mexico*. Cities, 132, 104113.

Garrard, J., Handy, S., & Dill, J. (2012). *Women and cycling*. In J. Pucher & R. Buehler (Eds.), *City cycling* (pp. 211–234). MIT Press.

Jacobs, J. (1961). *The Death and Life of Great American Cities*. Random House.

Kelling, G. L., & Coles, C. M. (1996). *Fixing broken windows: Restoring order and reducing crime in our communities*. Free Press.

Kern, L. (2020). *Feminist City: Claiming Space in a Man-Made World*. Verso.

Ministry of Transport. (2025, September 18). *Nikolovski: We are creating a new Rulebook for the construction of bicycle infrastructure; road safety is a top priority* [Press release]. <https://mtc.gov.mk/mk-MK/odnosi-so-javnost/novosti/nikoloski-kreirame-nov-pravilnik-za-izgradba-na-velosipedska-infrastruktura-bezbednost-vo-soobrakjajot-e-vrven-prioritet>

Navarrete-Hernandez, P., Vetro, A., & Concha, P. (2021). *Building safer public spaces: Exploring gender differences in the perception of safety in public space through urban design interventions*. Landscape and Urban Planning, 214, 104180.

Pain, R. H. (1997). *Social geographies of women's fear of crime*. Transactions of the Institute of British Geographers, 22(2), 231–244.

Prada-Trigo, J., Quijada, P., & Varela, G. (2025). *Use of space and safety perceptions from a gender perspective: University campus, student lodging, and leisure spots in Concepción (Chile)*. Social Sciences, 14(6), 348.

Reactor. (2012). *Scoping Study on Gender Based Violence and Discrimination Against Women and Girls in Urban Public Spaces of The City of Skopje*. Reactor – Research in Action. Available at: <https://urلزs.com/qJoMm8>

Reactor. (2020). *Gender-Based Violence in Public Spaces in Skopje: A Scoping Study*. Reactor – Research in Action. Available at: <https://urلزs.com/qJoMm8>

Reactor (2022). *Gender Statistics and Gender Mainstreaming of the Statistical System of North Macedonia – Gender Analysis*. Reactor – Research in Action. Available at: https://reactor.org.mk/en/wp-content/uploads/sites/4/2022/08/rodova_analiza_en-1.pdf

Roberts, N., Donovan, C., & Durey, M. (2022). Gendered landscapes of safety: How women construct and navigate the urban landscape to avoid sexual violence. *Criminology & Criminal Justice*, 22(2), 287–303.

Sandberg, L., & Rönnblom, M. (2015). “I don’t think we’ll ever be finished with this”: Fear and safety in policy and practice. *Urban Studies*, 52(14), 2663–2678.

State Statistical Office (2022). *Total working-age population aged 15 and over by sex and by the type of means of transport most often used to travel to work or school, by municipalities*. Census 2021. Available at: <https://urlzs.com/9modDy>

Tandogan, O., & Ilhan, B. S. (2016). *Fear of crime in public spaces: From the view of women living in cities*. *Procedia Engineering*, 161, 2011–2018.

te Braak, P., & van Tienoven, T. P. (2025). *Navigating the city: A systematic literature review on women’s perceived safety in urban public space*. *Cities*, 162, 105907.

UN-Habitat. (2012). *Gender Issue Guide: Urban Planning and Design*. Достапно на: <https://unhabitat.org/sites/default/files/download-manager-files/Gender%20Responsive%20Urban%20Planning%20and%20Design.pdf>

UN Women. (2021). *Safe cities and safe public spaces for women and girls: Global results report 2017–2020*. Достапно на: <https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/Library/Publications/2021/Safe-Cities-and-Safe-Public-Spaces-global-results-report-2017-2020-en.pdf>

Valentine, G. (1989). *The geography of women’s fear*. *Area*, 21(4), 385–390.

Wilson, J. Q., & Kelling, G. L. (1982). *Broken windows*. The Atlantic.

World Bank. (2020). *Handbook for gender-inclusive urban planning and design*. Достапно на: <https://documents1.worldbank.org/curated/en/363451579616767708/pdf/Handbook-for-Gender-Inclusive-Urban-Planning-and-Design.pdf>

World Health Organization. (2023). *Global status report on road safety 2023*. World Health Organization [PDF]. Достапно на: <https://assets.bbhub.io/dotorg/sites/64/2023/12/WHO-Global-status-report-on-road-safety-2023.pdf>

Yuan, Y., Masud, M., Chan, H., Chan, W., & Brubacher, J. R. (2023). *Intersectionality and urban mobility: A systematic review on gender differences in active transport uptake*. *Journal of Transport & Health*, 29, 101572.

ANNEXES

Form 1: Spatial features

street segment	location/GPS coordinates (from-to)	time interval (from-to)	weather conditions	observer
variable	definition	measurement/counting instructions	number/length	notes
active entrances	Number of doors, gates, or shops opening onto the street/public space.	Mark the exact location of active entrances on the map and determine whether they are concentrated in one area or evenly distributed along the route.		
windows/balconies overlooking the street/public space	Total number of street-facing windows or balconies at eye level (~150cm).	Only those that are visible from the street/public space are counted.		
transparent façade length	Total length of frontage that is glass/visually permeable (shopfronts, open yards).	Length is measured by the number of steps (1 step = 70 cm). The segments should be marked on the map.		
length of blank walls /vertical barriers	Total length of blank/solid walls, high and impermeable fences, parking lots or garages facing the street/public space.	Length is measured by the number of steps (1 step = 70 cm). The segments should be marked on the map.		

Form 2: Human presence

street segment	location/GPS coordinates	time interval (from-to)	weather conditions	observer	note

age distribution of passers-by

2.1	< 18	18-30	30-45	45-60	> 65
women					
men					

grouping

2.2	individuals
all	
	pairs
woman - woman	
woman - man	
man - man	
mother - child	
father - child	
grandmother - child	
grandfather - child	
	groups (>2)
women	
men	
mixed group	

activities

2.3	mobile activities
running	
cycling	
riding a scooter	
walking a dog	
	stationary activities
standing	
waiting	
observing	
talking	

Form 3: Perception of safety

Observer:

Part of route:

Time interval:

Weather conditions:

1. Describe your experience of the space in one sentence:

2. General sense of safety along the route

Rating (1–5): ____

1 = very unsafe

2 = unsafe

3 = neutral

4 = safe

5 = very safe

3. Up to this point on the route, were you able to walk on a sidewalk?

Yes

No

4. What percentage of the route had an accessible sidewalk?

0%

25%

50%

75%

100%

5. Were there any potholes or unpaved sections on the route you were moving along?

Yes

No

6. Were there parked cars along the route that restricted your movement?

- Yes
- No

7. Is the route easily reachable and accessible for people with limited mobility?

- Yes
- No

8. Perception of presence

Select one of the following choices:

- The space feels abandoned, with no presence of people and/or activities
- There is occasional presence of people and/or activities in the space
- There is a moderate presence of people and/or activities in the space
- There is a significant presence of people and/or activities in the space
- The space is vibrant, with a high presence of people and/or activities

9. Perception of visibility and lighting

Select one of the following choices:

- The space is dark, with no lighting or visibility at all
- There is some lighting, but visibility is limited
- There is moderate lighting, and a moderate degree of visibility
- There is good lighting and a good degree of visibility
- The space is highly illuminated, with a high degree of visibility

10. Elements contributing to the feeling of unsafety.

List the specific sources of threat, if any

(e.g. traffic, poorly maintained sidewalks, insufficient space for pedestrian movement, etc.).

11. Elements contributing to the feeling of safety.

List the specific aspects that contribute to an increased feeling of safety (e.g. regulated traffic, wide pavements/sidewalks, protective greenery, resting spaces, etc.).

12. Are women, children, and older people present along this route, or is one user group dominant?

Select one of the following choices:

- Yes, there are different user groups
- No, the route is dominated by one user group

Note: _____

13. Is there any smell, noise visual or physical disturbance that affects your experience?

More than one answer may be selected. If the answer is not offered, specify it under "Other".

- Smell
- Noise
- Visual/Physical disturbance
- Other _____

14. Notes and recommendations for improvement

15. Photo documentation

If possible, take photographs illustrating the specific experiences of this space/route, indicating whether they reflect a positive or negative experience.

