

Mental health as determining factor of urban district's character: Case study Bratislava – the Pentagon

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Abstract: Drug use and drug addiction have a high prevalence in the population, which has been widely documented since the 1980s. According to the United Nations, the physical environment in which we live is one of the strongest determinants of our health. In the case of drug abuse concentration in a particular urban space, one of the points to consider is the architectural and urban form of the location. In the Slovak context, a significant representative of concentrated drug activity is a part of the Medzi Jarkami housing estate, nicknamed the “Pentagon”. In an effort to eradicate drug activity, local residents fortified the Pentagon, changing its urban landscape and furthering its ghettoisation. Although drug abuse is a criminal act, it is imperative to acknowledge that drug addiction is a mental illness. Therefore, it is not sufficient to look at spaces such as the Pentagon from a criminal perspective but also from that of mental health. Our study aims to explore the connection between the residents’ mental health and the quality of the urban structure they live in. We performed a urban design analysis, utilizing on-site participant observation and structural interviews supplemented by desktop research. The case study analysis proved that the mental status of the local residents has an essential impact on the development of urban neighbourhoods. A number of environmental stressors were detected as present in the built structure. Furthermore, there is the stigmatization of whole urban districts caused by a high incidence of drug addiction as a mental disorder that, in the bigger terms, influences the “image” of the area. The drug problem in the Pentagon left its marks on the whole urban district of Vrakuňa, reducing the residents’ quality of life significantly over the years.

Keywords: design for mental health, urban design, crime prevention, drug addiction, segregated urban areas

INTRODUCTION

The topic of mental health is on the fringe of the interest of architects and urban planners. But the physical environment in which we live is one of the strongest determinants of our health. From the perspective of health determinants, architecture and urban planning is considered to contribute principally to an unhealthy lifestyle (United Nations, 2015). The decisions made by city inhabitants are influenced by many factors, including how the built environment is designed and constructed. This means that certain patterns of behaviour are inherently built into the environment (Rice, 2019). Sometimes, we overlook these issues – or they remain unobserved behind more visible phenomena. This article argues that drug addiction, as a mental disorder, determines the character of a whole spatial entity, according to which a locality is hugely stigmatised and segregated.

Illegal drug activity is seen as an almost irrepressible social phenomenon. The drug problem carries not only economic and social consequences but is also primarily linked to human health. According to the resource of diagnostic criteria for all mental disorders called the Diagnostic Statistical Manual (DSM),

drug use and drug dependence are both recognised as chronic mental health and brain disorder (American Psychiatric Association, 2013). In Slovakia, addictions are the third most prevalent driver of mental health issues (Novák, 2021).

Drug activity has an extensive impact on the everyday life of a community and its reputation (Lupton, Wilson, May, Warburton, Turnbull, 2002). It is not only the adverse effects on society that set drugs to the illegal side of the law but also the criminal activity to which it is connected. Overall, criminal activity may be reasoned by a complex of factors, but its geography depends on the situational opportunities that arise from the environment (Weisburd, Wyckoff, Ready, Eck, Hinkle, Gajewski, 2006; Johnson, 2010; Sherman, Gartin, Buerger, 1989; Tharkanyan, 2015). This sheds light on the architectural and urban qualities and the spatial composition of areas where drug activity concentrates. (Brichtová, Valachovičová, 2015; Suchý, 2017)

An example of a location incorporating all these features forms a part of the housing estate Medzi Jarkami in Bratislava, Slovakia, commonly known as the Pentagon. This spatial unit is recognised as the symbol of the area, although it regrettably holds a negative connotation. Straddling Bratislava’s Vrakuňa

and Podunajské Biskupice neighbourhoods, the Medzi Jarkami housing estate lies on the capital city's outskirts. The entire locality is deeply rooted in the minds of many Slovaks as a drug ghetto. When these urban districts are mentioned, there is no one who would not picture the Pentagon and drugs. The infamous reputation is also underlined by the data on the crime rate, which annually report the highest figures within the city in these parts of the capital (the Bratislava II administrative district) (Ministry of Interior of the Slovak Republic, 2022). The stigmatisation and reputation of the locality has several underlying effects, including notably lower real estate values as compared to any other Bratislava's urban districts and reduced educational opportunities and possible achievements.

LITERATURE REVIEW

Mental health as a factor defining architectural characteristics of a building or space is a topic viewed mainly through the lenses of health institutions. Extending the topic to a urban scale to provide guidelines on designing a space that supports good mental health is a relatively new research focus, yet without a robust base for architectural and urban design approaches. On the other hand, the literature is solid in environmental psychology determining environmental factors affecting mental health, known as environmental stressors. Even though mental health is a structured phenomenon that involves various individual and social factors, including a sense of community, safety and security, social cohesion, or place attachment, research suggests that the environment a person lives in can protect from or catalyse the development of a mental disorder. Its direct or indirect influence depends on the exact environmental stressor. These factors, or stressors of a place, affect mental health at both psychological and physical level. The psychological level is affected by raising or lowering stress levels (Helbich, 2018); while the physical level is demonstrated through changes in brain structure and function (Bick, Nelson, 2016). What the factors are and how they are experienced depends on where one spends time socially, where one works or goes to school, and, obviously, also where one lives.

Even though nowadays, most of the city's residents spend their days mostly at work or school, residential areas are still considered impactful. The environmental stressors one is often exposed to in residential areas involve, for example, air pollution, climate, or environmental racism and poverty in some areas, but one of the most concerning environmental stressors overall is crime. A 2016 study by Dustmann and Fasani has determined that crime is a stressful but temporary event creating only provisional mental distress without immediate consequences for long-term mental status. Despite that, results interpreted that living in an area with high crime rates can have a significant impact on mental health in cases when a crime is a repeated shock that can occur frequently. This means that individuals who live in areas with frequent crime shocks may experience more mental distress, which can have ripple effects on their behaviour, productivity and relationships. (Dustmann, Fasani, 2016) However, the study results reported that if a person is exposed to higher crime levels for a long time, the risk of developing anxiety or depression increases (Dustmann, Fasani, 2016).

The correlation between location and crime has been a long-standing subject of study. According to environmental criminology, crime occurs due to the availability of criminogenic opportunities within the environment, which are known by individuals with criminal motivation via their daily interaction with the surroundings (Felson, Clarke, 1998). Through Daily Routine Theory (Felson, Cohen, 1980), authors also suggested that three conditions must collide to make a crime possible to happen in a

specific place and at a given time. The location must dispose of a motivated individual and an available target or victim while social control over the place is not being ensured. If any of the above is missing, the likelihood of possible crime is reduced. Applying this to the drug crime problem, in order for it to occur, a drug dealer and a potential drug buyer must come to the same place. If the social control of the place is not provided, or it is provided insufficiently by someone corrupted or unable to prevent it, it is most likely for crime to happen (Tharkanyan, 2015).

According to the crime pattern theory (Brantingham, Brantingham, 1981), crime targets are identified by criminals as a by-product of daily routine activities. They suggest how street network affects offenders' route choices and contributes to their overall awareness of space and criminal opportunities. (Benkovičová, 2015) Authors of this theory divide activities and awareness spaces into three categories: nodes, representing an actual place where activities occur; paths, representing a route both criminals and targets take to navigate between nodes; and edges, referring to the physical and notional boundaries in places of a particular change in urban form (Brantingham, Brantingham, 1981).

In the context of the mentioned theory, there have been various studies and debates regarding the correlation between illegal drug activity and crime. Some researchers, such as Bennet and Sibbitt, Chaiken and Chaiken, and Parker and Newcombe, have suggested that drug use may lead to other types of crime, including robbery, burglary, and violent crime. However, others have argued that there is little evidence to support a direct link between drug use and criminal behaviour. More recent research findings indicated that community-based policing interventions targeting drug hot spots in partnership with local communities are more effective than only using law enforcement approaches. (Haracopos, Hough, 2005; Mazerolle, Ransley, 2006; Weisburd, Eck, 2004). One thing that is clear, though, is that illegal drug activity can have a negative impact on the social organisation of a community and can contribute to the fear of crime among local residents (Cyster, Rowe, 2006). As a result, researchers suggest that, to combat street drug dealing, specific locations should be targeted instead of individual dealers or gangs. Collaborative strategies involving multiple agencies have been found to be the most successful (Tharkanyan, 2015).

METHODOLOGY

The goal of our study is to understand the connection between and the impact of the mental health of residents and the urban structure they live in through the identification of particular physical aspects of their environment. The complexity of the situation required continuous data collection. First, the literature review of theories connecting mental health and physical aspects on the urban scale was completed. After that, an analysis of the Pentagon case study was elaborated at two levels: on-site participant observations and structured interviews. On-site participant observations comprised three phases. Each phase took place in a different season – the first phase took place during June, July, and August 2022; the second phase observations were realised during winter months – from October 2022 until early January 2023; and the last, third phase took place during the spring of 2023 – from April to late May.

Structured interviews were conducted in parallel with the participant observation. Based on Haracopos and Hough (2005); Mazerolle and Ransley (2006); Weisburd and Eck (2004), findings mentioned in the literature review, at first, relevant stakeholders were identified. The low-threshold Centre MIX Klub takes care of children and young from the locality. Poverty experienced by low-income social groups living here is also respon-

sible for young people spending their free time on the streets, exposed to contact with dealers, sex businesses and drug addiction. The K2 Centre – Odysseus organisation deals with drug activity and drug users. The goal is to cultivate and reduce the activity to the smallest possible well-controlled space, clean up the environment from drug waste, and, where possible, help drug addicts with their situation. With approximately 60 clients daily (500 clients annually), the centre assists with sharpened conflicts between addicts as well as with addicts' homelessness and camping in the inner block. Lastly, the municipality's urban field team works with around ten clients annually, providing them with social assistance. The Municipality office is on the 2nd parterre floor.

To understand the broader context, inhabitants of other octagonal units of the Medzi Jarkami housing estate were also interviewed. Structured interviews took place directly in the locality and its immediate surroundings, while a maximum of two people were interviewed at once. In the latter part of this analysis, Pentagon residents are marked as Respondents 1–5; organisation employees are marked as Respondent 6 and Respondent 7. Medzi Jarkami residents are marked as Respondents 8–14. In the meantime, desktop research was conducted to gather information on the building itself and the locality's history. Secondary data comprised open-source data, including press articles, news reports and architecture magazine articles.

LOCATIONAL BACKGROUND

Medzi Jarkami is an experimental residential complex built in the 1970s. The area where the whole housing estate is situated was initially filled with the water branches of the nearside river Malý Dunaj (Little Danube). Most of the terrain irregularities created by the water were evened out when Medzi Jarkami panel blocks of flats were being built, but at the Pentagon's site, terrain irregularities were incorporated into the building concept (Varga, 2023). Medzi Jarkami consists of four octagonal units and was the first housing estate in Slovakia to prioritize public space and recreational activities while keeping traffic to its outer edges. (Fig. 1)

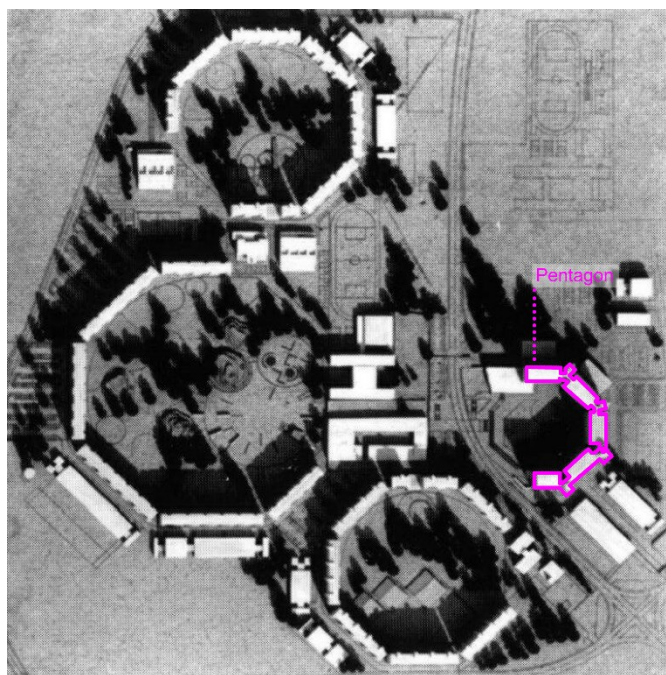


Fig. 1. Model of Medzi Jarkami housing estate. Architects: Štefan Svetko, Štefan Ďurkovič. (Source: Slovak Chamber of Architects, 2023)

The smallest unit of the complex, the Pentagon, comprises five objects connected through vertical cores. Compared with the architecture of the other three octagonal units, it was a very different architectural approach that was also reflected in how the building was positioned on the site. The existing terrain formed a two-storey base space with spaces for commercial services. In contrast, the terrain break on the vacant side of the site plot was filled with a built-in staircase and a driveway on its edges – situating the whole inner block of this site below the street level (Varga, 2023).

The reasons for building the Pentagon differently from the other octagonal units came from an initial intention to provide temporary housing for employees of large state-owned companies (Janák, 2020). The social intention led to filling all five objects with only two types of small apartments (a total of 450 flats) where rooms are only 2.5 meters wide with an overall size of an apartment of 38 square meters (Varga, Kvitkovský, 2023). The original plans for the construction envisaged a community kitchen situated at the base of the objects as well as a swimming pool and spaces for other recreational activities on its outer facades (Varga, 2023). Unfortunately, free-time spaces and ambitious plans to create a collective living house have never seen the light of day.

The change in the political system brought owner-whip rights modification and characterised the era of the 1990s. The lack of diversity in flats predestined the locality to only be interesting to specific social-income groups, mainly with low economic status and racial determination. Principally, the greater the concentration of a particular social group, the more protuberant and visible the social group's issues. Around this time, drug activity gained its place, and the locality started to be seen as problematic.

FINDINGS

The observations and interviews conducted in three phases corresponded to the changes and developments that occurred in the study area during the research period. Tab. 1 provides a summary of the main issues raised by various respondent groups during the interviews, specifically relating to the built environment.

Tab. 1. Overview of main issues concerning the built environment of the Pentagon and its surroundings raised during interviews, information by respondent groups. (Source: Authors, 2023)

	Research phase 1 (Jun – Aug 2022)	Research phase 2 (Oct – Jan 2023)	Research phase 3 (Apr – May 2023)
Respondent group 1 – residents of the Pentagon (1–5)	Acoustic pollution caused by doorbells		Reduced night pollution
Respondent group 2 – organisations employees (6–7)	Neglected vegetation, missing safe spaces		Drug users present in other parts of the neighbourhood
Respondent group 3 – residents of Medzi Jarkami (8–14)			

At the beginning of the first observation phase, drug dealing concentrated mainly around the building (Fig. 2). A few weeks later, a fence surrounding the building was built, and the drug activity returned to the inner block of the Pentagon and dominated the built-in staircase of the terrain break. None of the people had any inhibitions when using drugs anytime during the day. The space of the built-in stairs lies next to the Odysseus

Centre, which equipped the area with trash bins for syringes and systematically cleans the environment. Since the inner block space was mostly occupied, other resident groups used urban spaces adjacent to the Pentagon. A very visible social group in the area are the Roma people who live in the non-residential premises in the Pentagon (2nd parterre floor). The youngest children were mostly seen playing on the paved area next to the street market, forming an entrance into the pedestrian zone from the Pentagon. This pedestrian zone is bounded by a low-rise building with an active parterre with pubs, where many Roma adults and seniors spend their time. At the end of the pedestrian zone, in a small round square with benches, older children and young adults could be seen mainly in the evening. Other social groups of residents were less visible and more deconcentrated in the broader area of the whole housing estate, using parks, cycle paths and playgrounds. (Fig. 3)

During the on-site observation phase, several environmental stressors were detected. The most evident proved to be the acoustics of the Pentagon's inner block. The internal facades of the building's half-circle-like composition reflect all the sounds from the inner block, causing acoustic pollution. It is common for residents to hear everything that is happening there, which was referred to in the interviews as unsettling and especially stressful at night (Respondent 1, 3-5). This stressor is reinforced by the absence of doorbells. Many people often resort to shouting at each other to get the building's front door open, which creates a lot of unnecessary tension and anxiety (Respondent 1-5). The second environmental stressor present here was characterised by low social control. This is caused by the low utilisation of the parterre floors, mainly the first one, which is in direct

contact with the inner block. Commercial services situated there have storefronts plastered with advertisements through which one cannot see in and out or they are unused since they were covered with metal sheets to prevent addicts from gathering under the arcades. (Fig. 4) On the one hand, the metal sheet solution reduces the permeability of the whole structure, which is desired in locations affected by drugs and crime (Tharkanyan, 2015). On the other hand, the suitability of the used material is questionable since it reduces the friendliness of the environment and increases acoustic stress when it is hit by the wind, or sometimes even a person.

While the intention of having green spaces in a neighbourhood is to encourage relaxation and a sense of tranquillity, in Pentagon, the condition of the vegetation space contributes to elevated stress levels (Respondent 1, 3-7). Neglected vegetation maintenance and surfaces destroyed by drug users and homeless' camping foster the residents' fears of crime, feelings of apprehension and discomfort as cited by the residents. Lastly observed are the dark and "invisible" corners referring mainly to the built-in staircase in the terrain break. This predicament is primarily attributed to the terrain, which renders certain sections of the inner block difficult to discern from other vantage points, resulting in isolation from the surroundings. Approximately a quarter of the inner block is concealed from the view, and when combined with the surrounding vegetation, the issue extends to roughly a third of the entire area. This fact is subconsciously realised by both inner block users and residents. For one group, it forms a space to hide from the "outside" world, while the other sees it as a concern for their safety. (Fig. 5)



Fig. 2. Areas of drug concentration at the beginning of the first observation phase. (Source: Authors, 2023)



Fig. 3. The movement of drug activity during the first observation phase. (Source: Authors, 2023)



Fig. 4. Pentagon's parterre covered with metal sheets. (Photo: Šimkovičová, 2023)

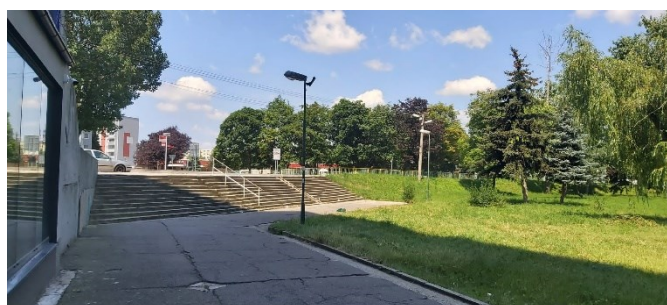


Fig. 5. Photo of the terrain break and built-in staircase. (Photo: Šimkovičová, 2023)

The need for residents to protect themselves is evident and appropriate. The other measures arise from drug use in the common interior spaces and the building's base (1st and 2nd

floors). The situation led the residents to implement measures ranging from simple non-reproducible magnetic keys to complex surveillance systems installed in every single space of the entrance and along the vertical communications, which the elected person controls round the clock. The outer spaces, especially the spaces of the lower parterre arcade, were covered with metal sheets to prevent the gathering of drug users (Respondent 2, 5, 11, 12).

The second observation phase took place after the opening of a new police station. The Municipality decided to locate it in a parterre of the Pentagon next to the aforementioned staircase and Odysseus Centre. The establishment of the police station in September 2022 partially changed the spatial pattern of drug activity. Drug dealing and using moved from the outer edges – behind the terrain block – to the other side of the street. During winter, drug activity could be observed at the entrance of the pedestrian zone, a space where young Roma children used to play. Plus, at the corner of the small health centre situated nearby. (Fig. 6) At this time of the year, any other social groups were not visible in the adjacent urban public spaces (Respondent 6, 8, 10)

The third phase of observations demonstrated the drug activity still occupying the outer edges of the Pentagon. Corners of the health centre were widely being used, along with the neighbouring parking lots and their vegetation belt. With warmer weather, the Roma social group returned to the pedestrian zone to the same places as described in the first phase. (Fig. 7) During the last observations, it was evident that the locality reports lower acoustic pollution. The functioning of the police station helped reduce the noise rate, mainly during nighttime, which raised the

quality of life and is highly appreciated by the residents. (Respondent 2-4). The provided social control helped to strengthen the feeling of safety (Respondent 2, 4, 7, 10, 12, 13).

CONCLUSION

As we can see from the site-specific findings, the observations proved that there is a direct correlation between the urban structure of the neighbourhood of Medzi Jarkami and the mental health of its residents. Firstly, it is the stigmatisation of the whole urban district caused by a high level of incidence of drug addiction as a mental disorder that, in the bigger terms, influences the “image” of the area, which affects the further social structure of the residents. The drug problem in the Pentagon left marks on the whole urban district of Vrakuňa. The quality of the residents’ life has significantly reduced over the years. Moreover, this unfavourable and stigmatised perception also leads to diminished educational opportunities and achievements within the community. Even though many measures to prevent drug activity in the locality were taken, the study showed that the mental health of the local residents has an essential impact on the development of urban neighbourhoods.

Furthermore, the on-site observations also clearly identified a number of physical features of the built structure of the area – environmental stressors (acoustic pollution, low social control, etc.) – that have a strong influence on the unhealthy mental status of the residents and actually contribute to its worsening.

Therefore, when addressing the problems of the Pentagon, this perspective cannot be overlooked. In similar urban districts, behind the high crime rate lies drug addiction as a mental disorder that has its connections with the settings of the surroundings. Thus, in order to propose a sustainable solution parallel to “soft” interventions (medical, social help), the above-mentioned environmental features must also be addressed in an architectural way.

This can be further observed in the situation with the opening of the police station, which has significantly reduced the use of the built-in staircase as the place most frequently used for drug dealing and drug use. Since it is seen that drug activity moves from place to place within a few hundred meters of the locality, however, in the minor concentration, it would be worth researching if the drug activity is reduced or just deconcentrated into the other parts of the Medzi Jarkami housing estate as it used to be several years ago. Another point for further research is the inner common spaces – vertical cores, hallways and corridors, of the Pentagon itself and determining the architectural stressors that make the interior unfriendly and crime-encouraging. The same applies to researching methods of architectural regeneration. Examining the overlooked areas from a mental health perspective is a valuable contribution to addressing problematic spaces, forming the potential for a discovery of effective regeneration solutions.

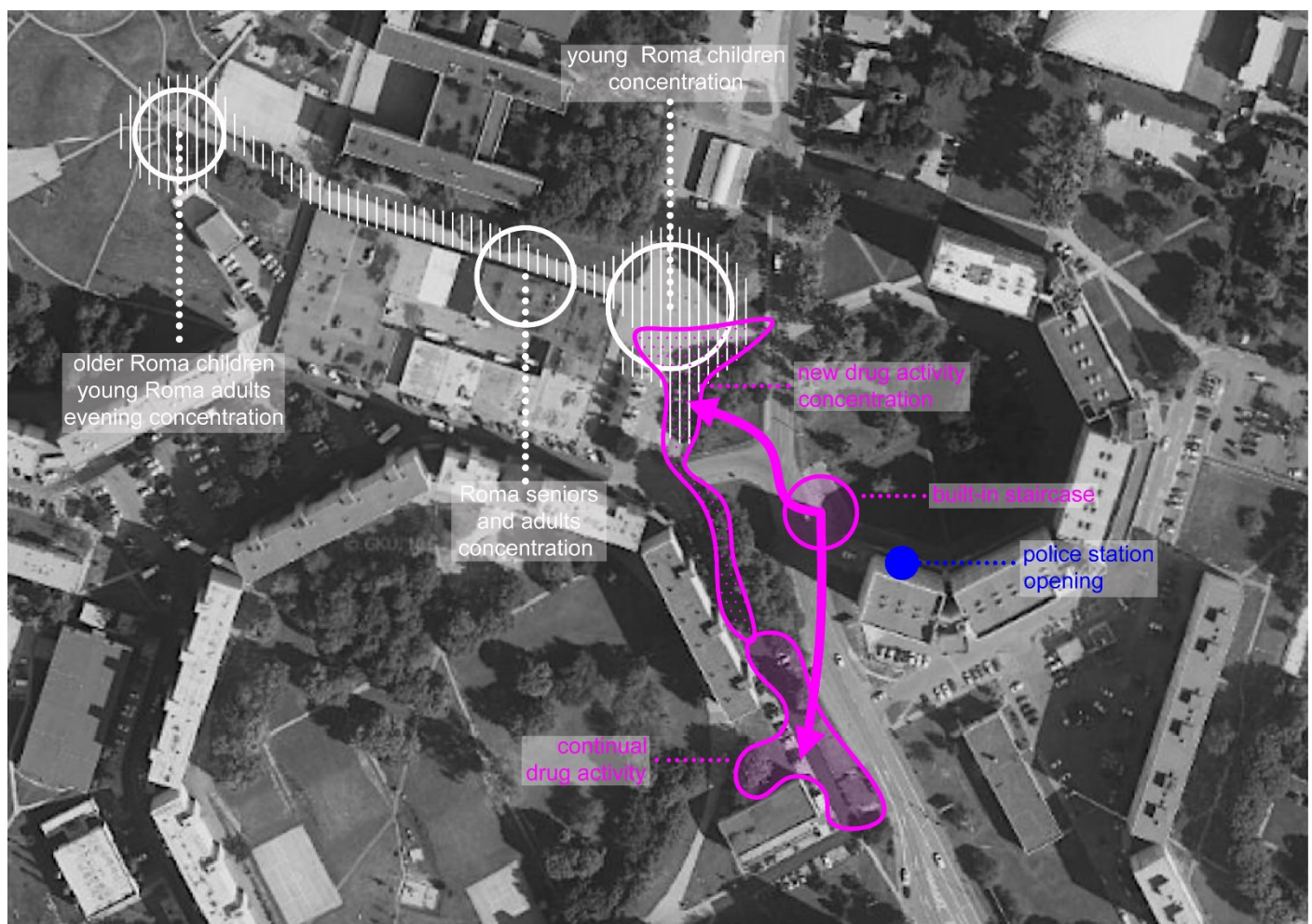


Fig. 6. The movement of drug activity during the second observation phase. (Source: Authors, 2023)

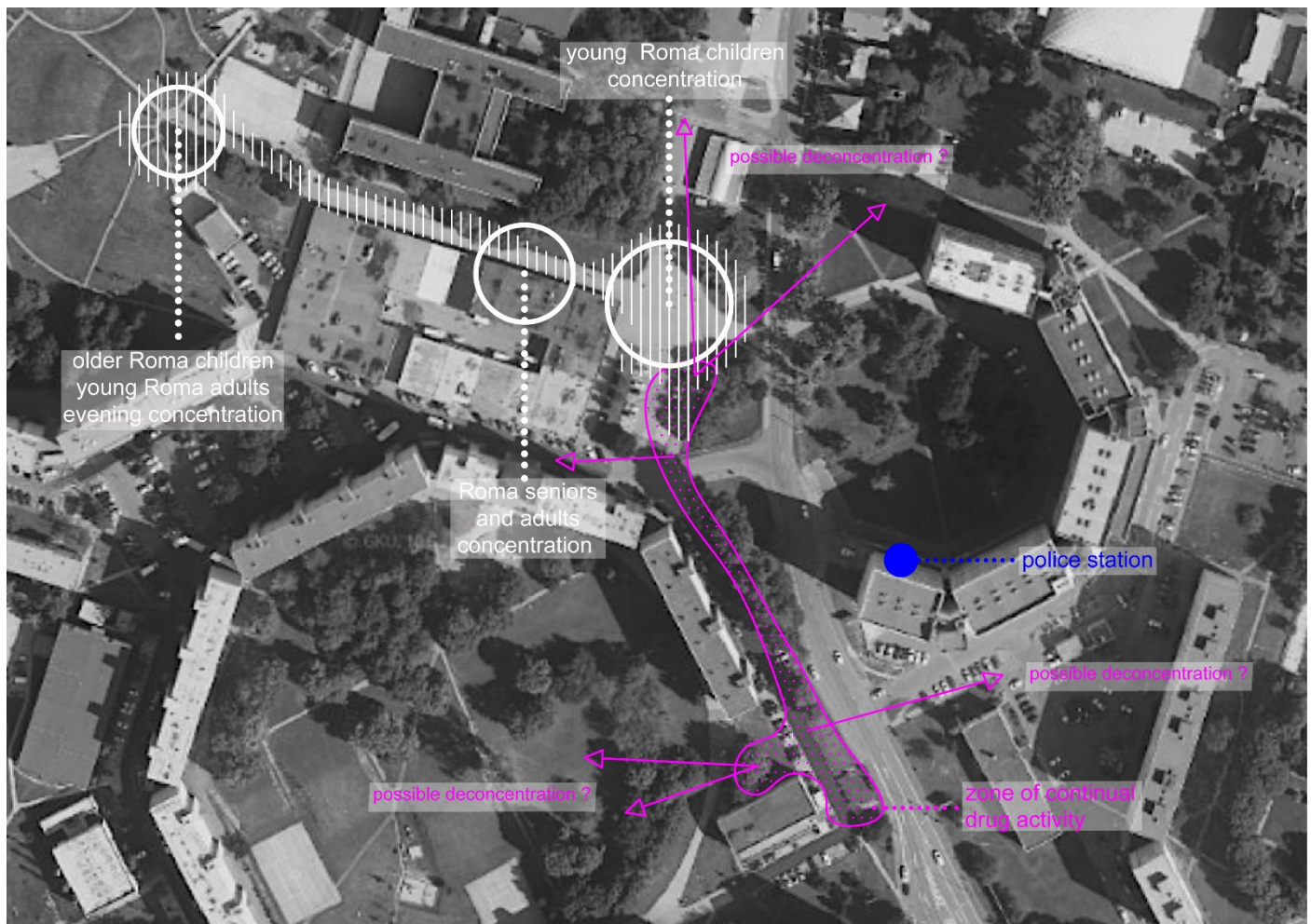


Fig. 7. The movement of drug activity during the third observation phase and possible directions of the de-concentration of drug activity. (Source: Authors, 2023)

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