ASSESSING GATHERING INTENSITY IN OPEN PUBLIC SPACES: A STUDY OF BELGRADE'S URBAN FABRIC

DOI: https://doi.org/10.18485/arh_pt.2025.10.ch15

_ Predrag Jovanović

PhD, Teaching Assistant, University of Belgrade - Faculty of Architecture, Belgrade, Serbia, predrag.jovanovic@arh.bg.ac.rs, [0000-0003-3518-1916]

_ Zoran Đukanović

PhD, Full Professor, University of Belgrade - Faculty of Architecture, Belgrade, Serbia, duke@arh.bg.ac.rs, [0000-0003-1875-1112]

_ Jelena Deletić

Undergraduate, University of Belgrade - Faculty of Architecture, Belgrade, Serbia, 2022_11035@edu.arh.bg.ac.rs

_ Olivera Groznica

Undergraduate, University of Belgrade - Faculty of Architecture, Belgrade, Serbia, 2022_11031@edu.arh.bg.ac.rs

_ Ana Brajović

Undergraduate, University of Belgrade - Faculty of Architecture, Belgrade, Serbia, 2022_11072@edu.arh.bg.ac.rs

_ Mila Jurašević

Undergraduate, University of Belgrade - Faculty of Architecture, Belgrade, Serbia, 2022_11214@edu.arh.bg.ac.rs

_ Anja Stojanović

Undergraduate, University of Belgrade - Faculty of Architecture, Belgrade, Serbia, 2022_11046@edu.arh.bg.ac.rs

_ Jelena Gredić

Undergraduate, University of Belgrade - Faculty of Architecture, Belgrade, Serbia, 2022_11012@edu.arh.bg.ac.rs

ABSTRACT

Open public space is a vital asset to democracy, as it fosters community strengthening by enabling gatherings and the exchange of ideas and values. It has been argued that the spatial characteristics of open public spaces significantly influence the formation of local community gathering places. By analyzing these spatial characteristics, it is possible to identify areas with inherent potential for gatherings, as well as the intensity of such potential. This study explores the nature and extent of gathering intensity in two distinct urban fabrics of Belgrade: traditional and modernist. Beyond analyzing the intensity, the research also examines how adaptable open public spaces are to the needs of local communities within these different urban contexts.

The methodology employed in this study was validated as part of a doctoral dissertation in 2022. It draws upon various urban design theories developed by renowned scholars such as William H. Whyte, Christopher Alexander, Nan Ellin and Jan Gehl. The research was conducted within the elective course

"Open Urban Spaces" at the University of Belgrade - Faculty of Architecture during the fall semester of the 2024/25 academic year.

The primary goal of this research is to inspire the development of a tool or GIS-based application that enables planners and local communities to more easily assess gathering intensity in open public spaces. This would facilitate more effective planning and funding for the development of local community gathering places in the future.

KEYWORDS _ *Open public space, Spatial characteristics, Local community gathering places, Gathering intensity, Belgrade's urban fabric*

INTRODUCTION

One of the primary objectives of this article is to outline a methodology for the future development of a tool that supports the design of open public spaces aimed at fostering joy and social interaction. The concept of intensity in open public spaces is broad and complex (Radović, 2013). However, it can also be understood as a *force* that draws people to a particular space. This force emerges from the spatial characteristics of the surrounding environment.

In an effort to explain this phenomenon, the "Gathering Potential Evaluation Method" was developed as part of the doctoral dissertation "Influence of Modern Blocks' Spatial Characteristics on Local Community Gathering Places Formation: Third Region of New Belgrade" (Јовановић, 2022). This method is grounded in several influential urban design theories (Whyte, 1980; Alexander, 2002a; Ellin, 2006; Gehl, 2011), which primarily focus on traditional urban fabrics while offering critiques of modernist approaches. Le Corbusier, one of the leading modernists, envisioned open public spaces as predominantly green, collective areas that function as extensions of residential units (Le Corbusier, 1987). However, numerous authors have pointed out the physical, functional, and social shortcomings of this concept, often embodied in cold, impersonal spaces dominated by vehicles and lacking traditional gathering places such as streets and squares. (Jacobs, 1961; Perović, 1985; Alexander, 2005; Ellin, 2006; Gehl, 2011).

The aforementioned urban design theories highlight key elements of traditional urban fabric that influence the social dimension of open public spaces and shape them as local community gathering places (hereinafter *lcgp*). These elements were identified and re-synthesized to form the foundation of the "Gathering Potential Evaluation Method", which is used to analyze fields of gathering intensity within modernist urban environments. This method provides insight into, on the one hand, the levels of intensity present in existing *lcgp*-s, and on the other, the potential of currently undefined open public spaces to evolve into such places through future development. The method consists of three levels of spatial analysis: the movement network, *lcgp*, and the field of opportunities for encounters. The intersection of insights drawn from these three levels offers a more comprehensive understanding of the intensity of open public spaces. The specific criteria used to assess this intensity are presented in Table 1.

Table 1: Criteria for assessing the potential for the development of a lcgp

	Criterion	Indicator	A tool for analysis
MOVEMENT NETWORK	**Route continuity**	Path without barriers.	_expert observation; _mapping of paths and barriers.
	Route network	The number of intersections of the observed path with other paths.	_recording the total number of intersections along each continuous route.
	Route content	The number of different types of content along or at the end of each observed continuous route.	_mapping movement goals; _evaluating routes and recording changes.
	Route comfort	**Visibility**_percentage of path fronts enclosed by buildings, cars, or bushes.	_positive assessment of paths if more than 50% of their length is visible; record changes
		Microclimate comfort_percentage of presence of tall vegetation or covered space along a route.	_positive assessment of paths if more than 50% of their length is covered; record changes
		Traffic-buffering design_percentage of buffer protection between the path and the road/parking lot along a path.	_positive assessment of paths if more than 50% of their length has a buffer; record changes
LCGP	**Diversity and distribution of *lcgp***	The appearance of a specific *lcgp* at a specific location in the neighborhood.	_mapping the position and size of all *lcgp*-s of the same type _analysis of the satisfaction of relevant criteria for a particular *lcgp* (presence and distribution)
	Complementarity	The presence of content in the immediate vicinity of the observed *lcgp*.	_analysis of the presence and relationship of the observed *lcgp* with the contents in the immediate environment.
	Equipment	Seating capacities and the presence of other elements within the *lcgp* area.	_analysis and assessment of seating capacity; _assessment of the presence of other elements within the *lcgp*.
FIELD OF OPPORTUNITIES FOR ENCOUNTERS	**Entrance influence field**	The ratio of the number of apartments in the observed housing community to the available residential living area.	_drawing a 50m radius around each entrance; _adjusting the radius for barriers; _determining the degree of chance of encounter within the remaining area of the radius; _overlapping the resulting shapes and classifying newly formed fields based on the scale of chance of encounter.
	Field comfort	The presence of tall vegetation, roads and parking lots around the field, and activities within the field.	_evaluating the resulting fields in terms of the presence of tall vegetation, proximity to roads and parking lots, and the presence of activity; record changes
	The interrelationship of the network, fields, and *lcgp*	The coexistence of the *lcgp* in relation to the other two levels of spatial analysis.	_recording the frequency coefficients and the scale of the chances of meeting that are in relation to the observed *lcgp*

APPLICATION OF THE METHOD IN TWO CASES

This article explores how the "Gathering Potential Evaluation Method" can be applied to various types of urban fabric in Belgrade, such as traditional and modernist ones. The method was applied during the elective course "Open Urban Spaces" proved insightful, revealing distinct and logical patterns in the results. Although more than ten cases were analyzed, this article presents only two representative examples. The "Vračar" case illustrates a traditional urban fabric, while the "Mirijevo" case predominantly reflects a modernist urban fabric partially integrated with the traditional one.

Case "Vračar"

The study area covers a section of the Vračar municipality, situated in Belgrade's city center. It is bounded by key landmarks: the Church of Saint Sava to the west, Kalenić Market to the north, and Čuburski Park to the southeast. This part of Belgrade faces several challenges, including a lack of green spaces and playgrounds, limited accessibility to pedestrian zones, and the occupation of these zones by parked cars. After applying the "Gathering Potential Evaluation Method", it was concluded that the highest gathering intensity occurs along the local streets, particularly within very narrow pedestrian paths. Only a few *lcgp*-s are found next to the streets, either between the buildings within urban blocks or at their ends in the form of plateaus. Čuburski Park is located along frequently used pedestrian routes and contains numerous lcgp-s. However, this park is more oriented toward a wider city area and lacks a strong "local community" character.

Based on the analysis, the proposed intervention involves transforming Mačvanska Street, a vehicle-dominated thoroughfare, into an integrated urban space. Additionally, abandoned buildings and parking lots would be repurposed into a children's playground. The goal of this intervention is to increase access to playgrounds for a larger proportion of the local population, specifically within a 50-meter radius. Currently, only 10% of the population has such access, but the proposed changes would significantly improve accessibility, benefiting a greater percentage of the local community.

Figure 1: Synthesized map of three layer anaysis for case "Vračar"

Figure 2: Current look of an area with high intensity for case “Vračar”

Figure 3: Proposal for the design of an area with high intensity for case “Vračar”

Case "Mirjevo"

This case area is located in the Mirijevo neighborhood in the municipality of Zvezdara, delineated by four key streets: Vladislava Bajčevića to the north, Rableova to the southwest, Matice srpske to the east, and Mirijevski venac to the northwest. This section exemplifies a residential urban fabric shaped by modernist principles. From an infrastructural standpoint, the area is predominantly vehicle-oriented. Sidewalks tend to be narrow, uneven, and often obstructed, while designated bicycle paths and street furniture are notably absent. Parking frequently encroaches upon green spaces, thereby diminishing the quality of the public realm. Consequently, pedestrian movement is relegated to a secondary status, which negatively impacts the neighborhood's walkability and social vibrancy.

The Gathering Potential Evaluation Method has been applied to this sector of Mirijevo to assess social dynamics and patterns of spatial use. The analysis revealed that the *lcgp*-s are dispersed throughout the area, typically located alongside residential buildings, in the spaces between them, and along smaller pedestrian pathways.

The area with the highest frequency of gatherings is an open green space situated adjacent to one of the busiest streets within the studied zone. This space exhibits a high level of daily use and spontaneous social interactions, highlighting its significance for the local community. To strengthen its role as a community focal point and encourage enhanced social cohesion, we propose the introduction of a small-scale outdoor amphitheater. This would serve as flexible and inclusive public infrastructure, designed to activate the green space further by providing a platform for interaction, performance, and shared experiences. Importantly, the proposed amphitheater does not aim to replace or overdevelop the existing green zone. Rather, it seeks to enhance its inherent value by transforming an informal gathering spot into a carefully designed community asset.

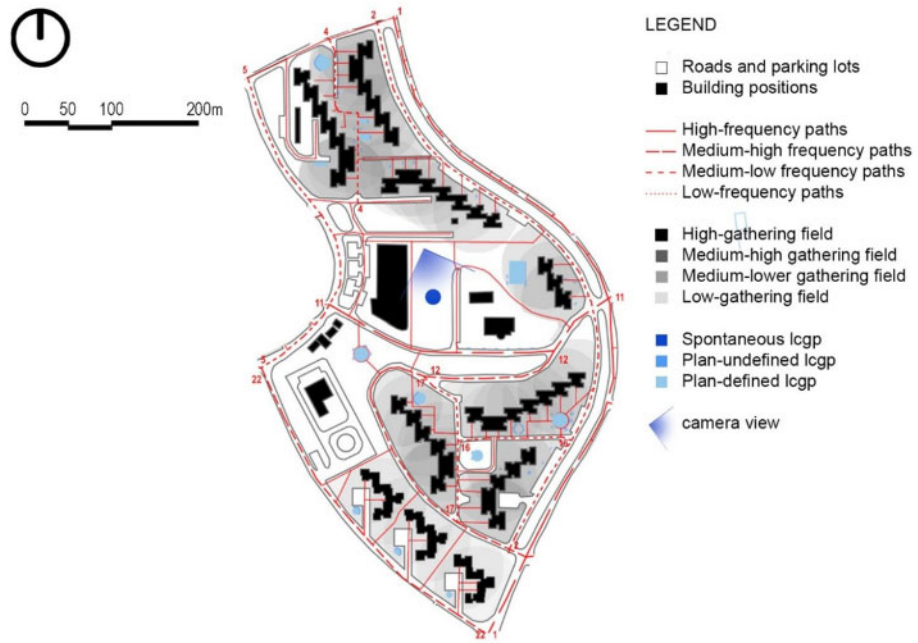

Figure 4: Synthesized map of three layer anaysis for case "Mirjevo"

Figure 5: Current look of an area with high intensity for case “Mirjevo”

Figure 6: Proposal for the design of an area with high intensity for case “Mirjevo”

Conclusions

This research shows that gathering intensity potential reflects both measurable spatial qualities and social patterns within urban form. The method bridges spatial analysis with community needs, offering planners a tool to design more inclusive and responsive public spaces. Its adaptability to different urban morphologies suggests broad applicability in cities with mixed or evolving fabrics. The method also proves useful in identifying which types of *lcgp*-s urban planners should encourage in different parts of a neighborhood. While traditional urban tissue seems less flexible, it can still be transformed, such as by making streets more pedestrian-friendly. Analysis of the two cases shows that areas with the greatest potential for lcgp-s usually already contain some, and new lcgp-s can significantly improve the situation. The Vračar case particularly highlights the central role of streets as traditional urban elements with the highest gathering intensity, alongside squares and parks toward which streets direct people.

Applying this method can greatly assist the planning of *lcgp*-s by guiding the selection of both their location and type in alignment with the specific logic of a given urban fabric. Moreover, the method could be adapted into a digital GIS-based tool that enables communities to mark their favorite gathering spots and helps planners identify amenity gaps, better understand community needs, and improve the participatory process. If places were created in this way, communities would be more strongly attracted to enjoy their everyday environments.

REFERENCES

- Alexander, Christopher. 2002. *The Nature of Order - The Phenomenon of Life (Vol. 9)*. Berkeley, California, United States: The Center for Environmental Structure.
- Alexander, Christopher. 2005. *The Nature of Order - A Vision of a Living World (Vol. 11)*. Berkeley, California, United States: The Center for Environmental Structure.
- Ellin, Nan. 2006. *Integral Urbanism*. New York: Routledge.
- Gehl, Jan. 2011. *Life Between Buildings - Using Public Space*. (J. Koch, Trans.) London: Island Press.
- Jacobs, Jane. 1961. *The Death and Life of Great American Cities*. New York, NY, USA: Vintage books.
- Le Corbusier. 1987. *The City of Tomorrow and its Planning* (8th ed.). New York, NY, USA: Dover publications inc.
- Perović, Miloš. 1985. *Lesons of the past*. Belgrade: The Institute for Development Planning of the City of Belgrade.
- Radović, Darko. 2013. *Mn'M Workbook 1 - Intensities in Ten Cities*. Tokyo: IKI (International Keio Institute)+flick studio co.,ltd.
- Whyte, William Holly. (1980). *The Social Life of Small Urban Spaces*. New York: Project for Public spaces.
- *Јовановић, Предраг.* 2022. Утицај просторних карактеристика модернистичких блокова на формирање места окупљања локалне заједнице: трећи рејон Новог Београда, докторска дисертација. Београд: Универзитет у Београду - Архитектонски факултет.