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RESEARCH ARTICLE

TPOLOGY OF ALMATY'S PUBLIC OPEN SPACES BY SPATIAL PLANNING

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Abstract. *This study examines the typology of public open spaces (POS) in Almaty based on their spatial and planning structures. Urban open spaces play a key role in fostering social interaction, improving environmental quality, and shaping the aesthetics of the urban environment. Despite their significance, systematic studies addressing the structural diversity of POS in Almaty remain limited. The primary objective of this research is to classify POS according to their planning structure and to identify patterns that may inform urban design and policymaking. The study employs a mixed-methods approach that includes field surveys, spatial analysis, and classification techniques. Data were collected for 137 public open spaces in Almaty, including parks, squares, green areas, and other recreational zones. Each site was analyzed in terms of layout configuration, connectivity, and accessibility. Observational mapping and GIS-based analysis were used to establish structural categories. The results reveal the main typologies of POS in Almaty and provide detailed descriptions of each type. Quantitative assessment identifies the distribution of these typologies across the city and their relationship to functional diversity and user engagement. In conclusion, the findings of this study provide a foundation for further research on how planning typologies of public open spaces influence user behavior and the quality of the urban environment. The resulting typological models can be applied to evidence-based urban design, the planning of new public spaces, and the evaluation of existing POS. Moreover, the study contributes to the advancement of urban planning theory and practical approaches to creating functionally and socially sustainable urban environments.*

Keywords: *Public open spaces, urban typology, spatial structure, Almaty, spatial analysis, urban planning, recreational zones*

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АЛМАТЫНЫҢ АШЫҚ ҚОҒАМДЫҚ КЕҢІСТІКТЕРІНІҢ ЖОСПАРЛАУ ҚҰРЫЛЫМЫ БОЙЫНША ТИПОЛОГИЯСЫ

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Аңдатпа. Бұл зерттеуде Алматыдағы ашық қоғамдық кеңістіктердің (АҚК) типологиясы олардың кеңістік-жоспарлау құрылымына негізделе отырып қарастырылады. Қалалық ашық кеңістіктер әлеуметтік өзара әрекеттестікті дамыту, экологиялық сапаны жақсарту және қалалық ортаның эстетикасын қалыптастыруда негізгі рөл атқарады. Олардың маңыздылығына қарамастан, Алматыдағы АҚК құрылымдық әртүрлілігіне арналған жүйелі зерттеулер шектеулі болып қала береді. Зерттеудің негізгі мақсаты – АҚК-ны жоспарлау құрылымына қарай классификациялау және қалалық жобалау мен саясатына пайдалы болуы мүмкін заңдылықтарды анықтау. Зерттеуде аралас методологиялық тәсіл қолданылды, оған алаңдық зерттеулер, кеңістік анализі және классификация әдістері кірді. Алматыдағы 137 ашық қоғамдық кеңістік туралы деректер жинақталды, олардың ішінде парктер, скверлер, алаңдар және басқа рекреациялық аймақтар бар. Әр объект жоспарлау конфигурациясы, байланыстылығы және қолжетімділігі тұрғысынан талданды. Классификация үшін бақылау карталары мен GIS-талдау қолданылды. Нәтижелер Алматыдағы АҚК негізгі типологиясын және олардың сипаттамасын көрсетеді. Сандық бағалау бұл типтердің қала бойынша таралуын, олардың функционалдық әртүрлілігі және пайдаланушылардың қатысуымен байланысын анықтады. Қорытындылай келе, зерттеу нәтижелері ашық қоғамдық кеңістіктердің жоспарлау типологияларының пайдаланушылардың мінез-құлқына және қалалық орта сапасына әсерін әрі қарай талдау үшін негіз береді. Алынған типологиялық модельдер қалалық жобалауды негіздеп жоспарлау, жаңа кеңістіктерді жобалау және бар АҚК-ның тиімділігін бағалау үшін қолданылуы мүмкін, сондай-ақ қалалық жоспарлау теориясы мен функционалды және әлеуметтік тұрғыдан тұрақты қалалық аумақтарды құру тәжірибесін дамытуға үлес қосады.

Түйін сөздер: ашық қоғамдық кеңістіктер, қалалық типология, жоспарлау құрылымы, Алматы, кеңістік анализі, қалалық жобалау, рекреациялық аймақтар

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НАУЧНАЯ СТАТЬЯ

ТИПОЛОГИЯ ОТКРЫТЫХ ОБЩЕСТВЕННЫХ ПРОСТРАНСТВ АЛМАТЫ ПО ПЛАНИРОВОЧНОЙ СТРУКТУРЕ

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Аннотация. В данном исследовании рассматривается типология открытых общественных пространств (ООП) Алматы на основе их пространственно-планировочной структуры. Городские открытые пространства играют ключевую роль в развитии социального взаимодействия, улучшении экологического качества и формировании эстетики городской среды. Несмотря на их значимость, систематические исследования, посвящённые структурному разнообразию ООП Алматы, остаются ограниченными. Основная цель исследования – классифицировать ООП по планировочной структуре и выявить закономерности, которые могут быть полезны для градостроительного проектирования и разработки городской политики. В исследовании использован смешанный методологический подход, включающий полевые обследования, пространственный анализ и методы классификации. Были собраны данные о 137 открытых общественных пространствах Алматы, включая парки, скверы, площади и другие рекреационные зоны. Каждый объект анализировался с точки зрения конфигурации планировки, связности, доступности. Для классификации использовались наблюдательные карты и GIS-анализ. Результаты показывают основные типологии ООП Алматы и их описание. Количественная оценка выявила распределение этих типов по городу и их связь с функциональным разнообразием и вовлечённостью пользователей. В заключение отмечается, что результаты данного исследования предоставляют основу для дальнейшего анализа влияния планировочных типологий открытых общественных пространств на поведение пользователей и качество городской среды. Полученные типологические модели могут быть использованы для обоснованного градостроительного проектирования, планирования новых пространств и оценки эффективности существующих ООП, а также способствуют развитию теории городского планирования и практических подходов к созданию функционально и социально устойчивых городских территорий.

Ключевые слова: открытые общественные пространства, городская типология, планировочная структура, Алматы, пространственный анализ, градостроительное проектирование, рекреационные зоны

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CONFLICT OF INTEREST

The authors state that there is no conflict of interest.

During the preparation of this manuscript, the authors used artificial intelligence tools (ChatGPT) solely for editorial assistance, such as improving phrasing and checking grammar, spelling, and punctuation. All ideas, interpretations, and conclusions are the responsibility of the authors, who take full accountability for the content of the article.

АЛҒЫС / ҚАРЖЫЛАНДЫРУ КӨЗІ

Зерттеу жеке қаржыландыру көздерін пайдалана отырып жүргізілді.

МҮДДЕЛЕР ҚАҚТЫҒЫСЫ

Авторлар мүдделер қақтығысы жоқ деп мәлімдейді.

Мақаланы дайындау барысында авторлар жасанды интеллект құралдарын (ChatGPT) тек редакциялық көмек мақсатында пайдаланды: тұжырымдарды жетілдіру, грамматикалық, орфографиялық және тыныс белгілеріндегі қателерді тексеру үшін. Барлық идеялар, интерпретациялар мен қорытындылар авторларға тиесілі, және олар мақаланың мазмұнына толық жауапты.

БЛАГОДАРНОСТИ/ИСТОЧНИК ФИНАНСИРОВАНИЯ

Исследование проводилось с использованием частных источников финансирования.

КОНФЛИКТ ИНТЕРЕСОВ

Авторы заявляют, что конфликта интересов нет.

При подготовке рукописи авторы использовали инструменты искусственного интеллекта (ChatGPT) исключительно для редакторской поддержки: корректировки формулировок, проверки грамматических, орфографических и пунктуационных ошибок. Все идеи, интерпретации и выводы принадлежат авторам, которые несут полную ответственность за содержание статьи.

1 INTRODUCTION

The city of Almaty is characterized by a unique combination of natural, climatic, and urban planning conditions shaped by its proximity to the foothills of the Zailiyskiy Alatau. The mountainous topography determines the meridional orientation of the main transport and pedestrian axes and forms a complex relief that directly influences the configuration of the built environment and the organization of public open spaces (POS). The continental climate, with pronounced seasonality – hot, dry summers and cold winters – imposes specific requirements on comfort, solar exposure, greenery, and the functional programming of urban spaces, making the planning structure one of the key factors in their sustainable functioning.

Almaty is characterized by high building density in central districts and a more dispersed structure on the periphery, which results in an uneven distribution of public open spaces and differences in their typological composition. The historical development of the city, encompassing pre-revolutionary, Soviet, and post-Soviet periods, has led to the formation of diverse morphological types of urban fabric, ranging from the regular blocks of the historic center to the microdistrict and point development of the second half of the twentieth century, as well as contemporary residential complexes. Under these conditions, public open spaces perform not only recreational and ecological functions but also play an important role in ensuring social integration, shaping urban identity, and maintaining the quality of the urban environment.

Studies in urban morphology and spatial syntax demonstrate that the planning structure of public spaces directly affects levels of social activity, urban connectivity, and the intensity of space use. The configuration of the path network, the nature of pedestrian connections, and the degree of openness and spatial legibility shape users' behavioral patterns and determine the social vitality of public open spaces. An analysis of public spaces in Almaty confirms that planning solutions influence the degree of social cohesion and the attractiveness of spaces for different population groups ([Kozhakhmetov et al., 2023](#)).

Despite the growing role of public open spaces in the sustainable development of the city, systematic studies focusing on their planning structure in Almaty remain limited. Existing digital maps and cadastral databases typically record only the boundaries and areas of green spaces, without reflecting their spatial and planning characteristics, functional organization, or degree of integration into the urban fabric. This significantly complicates a comprehensive assessment of the citywide network of public open spaces and the development of well-grounded urban planning decisions.

2 LITERATURE REVIEW

The typology of public open spaces (POS) is one of the key areas in urban studies, as the planning structure directly influences social interaction, pedestrian accessibility, and ecological functions ([Carr et al., 1992](#)). Previous studies have demonstrated a variety of approaches to classifying POS: by functional purpose, by size and significance ([Gehl, 2010](#)), and by spatial configuration ([Alexander et al., 1977](#)).

A number of studies focused on the regeneration and reconstruction of the urban environment emphasize the importance of pre-design analysis and a typological approach when working with public spaces within the structure of Almaty's residential districts ([Murzabayeva et al., 2022](#)). The experience of renovating urban parks of the post-Soviet period demonstrates the transformation of planning schemes and functional use scenarios of open spaces under the influence of contemporary social demands ([Kostcova et al., 2025](#)). In addition, studies examining the architectural environment as a factor of comfortable living ([Chaly, 2025](#)), as well as the use of three-dimensional digital models for the analysis and design of the urban environment ([Tolegen et al., 2024](#)), confirm the relevance of developing a typology of Almaty's open public spaces based on their spatial and planning structure.

Classical typologies of urban planning, such as radial-ring, grid, and linear layouts, have been widely applied in studies of parks and squares in major cities, including metropolitan areas in Europe and North America ([Chiesura, 2004](#)). However, certain gaps have been identified: most studies are

limited to formal classification, do not account for actual usage patterns, and are not adapted to the specific conditions of mountainous cities with continental climates, such as Almaty.

A number of recent studies provide useful methodological and empirical tools for typologizing public open spaces specifically from the perspective of their planning structure. Research in Machakos (**Loki et al., 2020**) offers a detailed typology and emphasizes the need to consider symbolic and socio-cultural attributes of places alongside their form, highlighting that planning structure should be interpreted in connection with behavioral patterns and perceived quality. The work (**Wandl, Rooij, & Rocco, 2017**) develops a multidimensional typology called “territories-in-between” in which the classification is based not only on form and function but also on the networked connections with socio-technical and ecological systems. This approach is particularly useful for identifying planning types according to their degree of integration into the urban structure and their role within the interzonal framework of the city.

Modern approaches involve the use of GIS technologies, field surveys, and user behavior observations for accurate POS analysis (**Peters et al., 2010**). In this context, the present study fills a gap by creating a systematized database of Almaty’s public open spaces, analyzing their functional and spatial distribution, and identifying typological patterns.

Empirical studies using field measurements and GIS analysis provide concrete methods to link typology with spatial distribution and service radii. Works (**Obadiah & Haruna, 2025; Savitri, Badaruddin & Charloq, 2023**) demonstrate how field surveys, remote measurements, and buffer (service-area) analyses can identify POS types by service scale, density, and the ratio of POS area to population – parameters directly relevant for typology based on planning structure (hierarchy, service radius, building density).

Researchers view POS as clusters of interconnected territorial systems and propose typology based on spatial organization, which is relevant for analyzing the structure of public spaces in Almaty (**Vadimov & Vasylyev, 2023**). Another studies focus on social, visual, and functional characteristics of POS, emphasizing the importance of accessibility, aesthetics, multifunctionality, and social activity (**Perkova M.V., Zaikina, 2016; Kukina et al., 2019**). These approaches allow the integration of planning structure with qualitative evaluation criteria.

Researches demonstrates the flexibility and multifunctionality of public spaces, as well as quantitative methods for analyzing forms and configurations, which is especially useful for GIS-based analysis and mapping (**Rana & Batty, 2004**). Collectively, these studies provide an interdisciplinary foundation for the typology of POS in Almaty, combining qualitative and quantitative approaches.

3 MATERIALS AND METHODS

The methodological framework of the study is based on a combination of qualitative and quantitative analytical methods, including a review of scientific literature, field surveys, cartographic and GIS analysis, and typological modeling. This integrated approach ensured the comprehensiveness of the research and the comparability of the obtained results with existing international and regional studies in the fields of urban studies and landscape architecture.

At the first stage, a systematic analysis of academic publications devoted to typologies of open public spaces in cities of Europe, North America, Africa, and Asia was conducted. The review included studies examining the planning structures of open public spaces from the perspectives of urban morphology, functional zoning, spatial connectivity, and patterns of social use (**Alexander et al., 1977; Chiesura, 2004; Wandl et al., 2017; Loki et al., 2020**). Particular attention was given to works in which typologies are grounded in empirical data, field surveys, and GIS analysis, which made it possible to establish a solid theoretical and methodological basis for the subsequent classification of spaces in Almaty.

The second stage of the research involved field surveys of open public spaces in the city of Almaty. A total of 137 sites were included, representing all administrative districts of the city. These comprised parks, squares, alleys, boulevards, pedestrian zones, plazas, natural and national parks, as well as specialized facilities such as the zoo. For each site, on-site inspections were carried out to

document the planning structure, the nature of pedestrian connections, functional zoning, landscaping elements, and the degree of spatial integration with the surrounding urban fabric.

In addition, historical materials and cartographic sources reflecting the evolution of the planning structure of open public spaces from the Soviet period to the present were used. This made it possible to account for spatial transformations, changes in functional content, and reconstruction processes that occurred during different stages of the city's development. To systematize the collected data, analytical profile cards of open public spaces were developed, recording site boundaries, main functional zones, path networks, water features, green areas, and compositional elements. These cards became a key tool for comparative analysis and typological classification.

The classification of open public spaces was conducted according to three main criteria: functional purpose, level of significance within the urban structure, and planning structure. The latter criterion was decisive and included an analysis of spatial configuration, the character of axes, the degree of centralization, and the distribution of functional elements. The final classification was formed through the comparison of morphological patterns identified during field surveys and spatial analysis. The developed classification is grounded in empirical data, historical analysis, and international research experience and is adapted to the specific conditions of the city of Almaty.

4 RESULTS AND DISCUSSION

The study revealed that the main concentration of public open spaces (POS) is located in the historic city center: Almaty District – 21 sites, Medeu District – 34 sites, Bostandyk District – 33 sites, with the fewest in the Nauryzbai District – 4 sites (**Figure 1**).

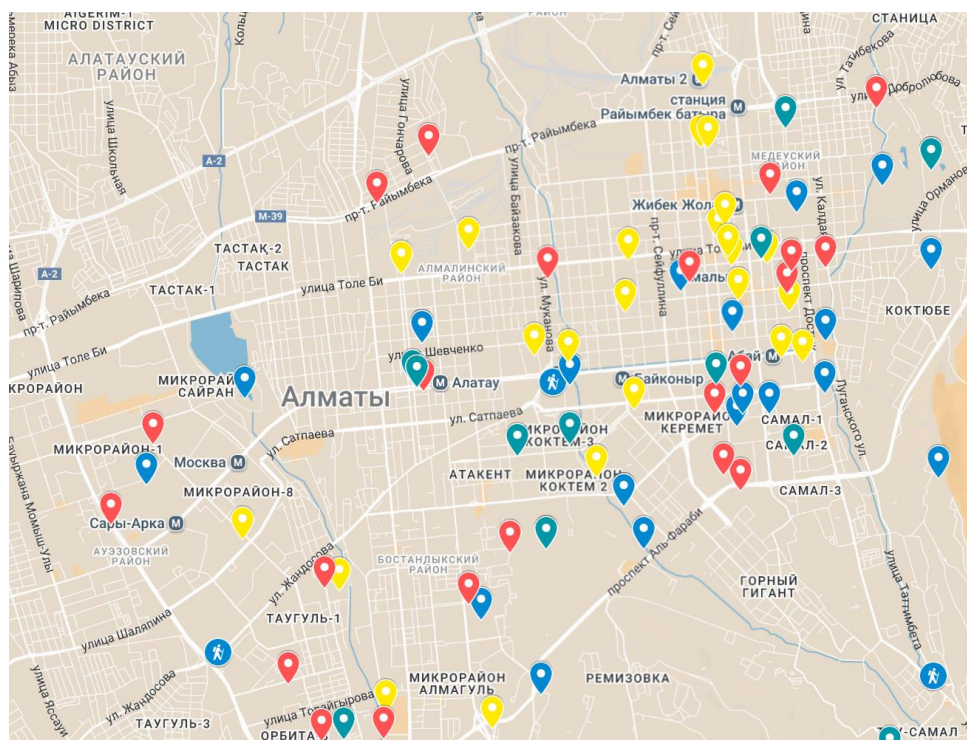


Figure 1 – Map of public open spaces in the city of Almaty, showing the main concentration of POS (author's material)

Functional distribution: most public open spaces (POS) are multifunctional. Linear alleys and boulevards provide both transit and recreational functions; parks and squares support daily recreation and walking; squares host large cultural events; the zoo serves as a specialized educational space. Natural and ecological areas, including national and nature parks, form the ecological framework of the city.

As part of the study, analytical cards were developed for Almaty's public open spaces. All 137

spaces were schematically visualized, with each card documenting the key features of their spatial and planning organization.

Figure 2 shows examples of the data cards created during the study of POS planning structures. The results indicate that the developed methodology allows for classification of spaces by both functional and planning characteristics, revealing patterns in their distribution.



Figure 2 – Examples of Data Cards for Public Open Spaces in Almaty (author’s material)

After the creation of the analytical cards for Almaty’s public open spaces, the next step involved grouping the spaces according to their morphological characteristics. During this stage, the spaces were compared, recurring planning solutions were identified, and patterns were analyzed. For some spaces, the classification process was straightforward: for example, those with radial-axial structures were easily distinguishable and formed a stable subgroup (e.g., M. Makataev Square, Biokombinat Square, S. Seifullin Square, S. Seifullin Park, etc.).

However, other spaces proved more challenging to categorize clearly. Particularly complex was the identification of the “island” structure as an independent group, as many spaces displayed only partial characteristics or combined elements from other types. Through systematic analysis of recurring morphological patterns and comparison of the cards, the island structure was eventually recognized and justified as a distinct sub-type. For instance, Kok-Tobe Park initially appeared to have a circular arrangement of functional zones around a central core. However, the configuration of pathways indicated a more landscape-oriented layout with mixed elements, complicating its definitive classification. After further analysis, the park was categorized as an island-type structure, which implies the presence of separate “islands” – zones organized relatively autonomously and connected by a network of paths, allowing visitors to independently choose their route and sequence of zone visits.

The concept of the “island” structure significantly facilitated the classification of other open public spaces in the city. Almaty Zoo was clearly identified as an island-type space, as was Fantasy World Park. In the case of Family Park, initial ambiguity existed between a mixed and island type. However, visual analysis of the connections between zones – resembling a system of separate islands linked by walkways – ultimately allowed the space to be classified as an island-type structure.

The planning structure of all 137 surveyed POS was identified (**Table 1-8**).

The analysis of public open spaces in the Medeu District (**Table 1**) reveals the highest diversity

of spatial-planning structures compared to other districts of the city. Linear spaces, represented by alleys, boulevards, and pedestrian zones, dominate the landscape, reflecting the district's topographical features, historical development, and growth along transportation and natural axes. Landscape structures, including natural parks, groves, and specially protected areas, account for a significant share, highlighting the district's recreational and ecological role at the city scale. The presence of island-type structures, such as Kok-Tobe Park and Almaty Zoo, reflects the specificity of spaces with autonomous organization of functional zones. Regular, mixed, and central-node structures are less common and are generally associated with historical and memorial sites that form the district's iconic public spaces.

Table 1

Planning Structure Typologies of Almaty's Public Open Spaces in Medeu district (author's material)

Name	Type	Planning Structure
Terrenkur	Pedestrian Zone	Linear
Shukhov Square	Square	Linear
Alley of Medical Workers of the Medeu District	Alley	Linear
Twelve Months Alley	Alley	Linear
Shokan Ualikhanov Square	Square	Linear
Mendikulova	Boulevard	Linear
Unnamed Alley	Alley	Linear
Park near the Almaty Regional Multidisciplinary Clinic	Park	Linear
Unnamed Boulevard	Boulevard	Linear
Unnamed Alley	Alley	Linear
Zhirenshe Sheshen Waterfront	Alley	Linear
Tulebayev Boulevard	Boulevard	Linear
Unnamed Alley	Alley	Linear
Square with the Kunaev Monument	Square	Linear
Green Zone of KazNAIU	Square	Linear
KIMEP Inner Courtyard	Square	Linear
Green Zone around the Palace of the Republic	Park	Fan-shaped (radial)
Park near the Palace of Schoolchildren	Park	Fan-shaped (radial)
Kok-Tobe	Park	Island
Almaty Zoo	Zoo	Island
Kok-Zhailau	Natural Park	Landscape
Birch Grove	Grove	Landscape
Terrenkur Park	Natural Park	Landscape
Oak Grove Park	Grove	Landscape
Park of the Legends of the Peoples of Kazakhstan	Park	Landscape
Ile-Alatau State National Natural Park	National Natural Park	Landscape
Green Area	Square	Landscape
Park at the Central State Museum of Kazakhstan	Park	Landscape
Park of the 28 Panfilov Guardsmen	Park	Regular
Journalists' Square	Square	Regular
Central Park of Culture and Leisure	Park	Mixed
Halyk Square	Alley	Mixed
Square near Halyk Arena	Square	Mixed
Abai Square	Square	Central-nodal

Public open spaces in the Bostandyk District (**Table 2**) are characterized by a pronounced predominance of linear planning structures. This reflects the urban planning logic of the district as an elongated city area with a well-developed system of boulevards, alleys, and green corridors integrated into the street and road network. Island-type structures are represented by large recreational facilities, such as the Main Botanical Garden and the "Mir Fantaziy" Park, which function as independent

spatial entities. Landscape and regular structures appear sporadically and are generally associated with local community centers. The significant number of mixed structures indicates active processes of reconstruction and multifunctional use of spaces, particularly in areas of contemporary development and business activity.

Table 2

Planning Structure Typologies of Almaty's Public Open Spaces in Bostandyk district (author's material)

Name	Type	Planning Structure
Zhas Kanat Square	Square	Linear
Olzhas Suleimenov Alley	Alley	Linear
Accountants' Alley	Alley	Linear
Bukhar Zhyrau	Boulevard	Linear
Musrepov	Boulevard	Linear
Green Zone along Mustafin Street	Alley	Linear
Republic Square	Alley	Linear
Parks around the Akimat	Park	Linear
Landscaping near Ankara Spa Center	Alley	Linear
Boulevard near the "Tauelsizdik Tany" Monument	Boulevard	Linear
Green Area near AFD Plaza	Alley	Linear
Green Zone of Satbayev University	Square	Linear
Alley near KazGASA	Alley	Linear
Boulevard at the Kozhagululy Monument	Boulevard	Linear
Park near the Bolshaya Almatinka River	Park	Linear
Alley near the Bolshaya Almatinka River	Alley	Linear
Square at the Al-Farabi – Zharokov intersection	Square	Linear
Gagarin North	Boulevard	Linear
Alley with a Square	Alley	Linear
Abay Avenue Boulevard	Boulevard	Linear
Square at the Kazakh State Circus	Pedestrian Zone	Linear
Alley in Miras Microdistrict	Alley	Linear
Miras Park	Park	Linear
Fantasy World Park	Park	Island
Main Botanical Garden	Natural Park	Island
R. I. Ognevoy Park	Park	Landscape
Square near MEGA Center	Square	Landscape
South Park	Park	Regular
First President's Fund Park	Park	Mixed
Dostyk Park	Park	Mixed
Esentai Park	Park	Mixed
First President of the Republic of Kazakhstan Park	Park	Mixed
Republic Square	Square	Central-nodal

The spatial planning structure of public open spaces in the Turksib District (**Table 3**) is characterized by a more compact and clearly organized layout. Alongside linear spaces, radial-axial structures play a significant role. Island and landscape structures are limited and primarily serve local recreational functions. Regular planning is typical for memorial spaces, emphasizing their symbolic and compositional significance. Overall, the district demonstrates a combination of functional rationality and traditional approaches to organizing public spaces.

Public open spaces in the Zhetysy District (**Table 4**) are predominantly represented by linear structures, reflecting the microdistrict-style development and an emphasis on pedestrian connectivity within residential areas. Radial-axial and regular structures occur much less frequently and typically form local public centers of district significance. Mixed structures indicate transitional planning types that emerge as a result of partial reconstruction and adaptation of spaces to contemporary requirements. Overall, the spatial planning structure of the district's public open spaces is characterized by functional simplicity and limited morphological diversity.

Table 3

Planning Structure Typologies of Almaty's Public Open Spaces in Turksib district (author's material)

Name	Type	Planning Structure
Baum Grove	Grove	Linear
Mayak Square	Square	Linear
Afghan Veterans Square	Square	Linear
Square in Nizhnyaya Pyatiletka	Square	Linear
Children's Park	Park	Island
Zheltoksan Park	Park	Landscape
S. Seifullin Square	Square	Radial-axial
S. Seifullin Park	Park	Radial-axial
Zhas Kanat Microdistrict Square	Square	Radial-axial
Square at Budyonny–Shymkent Intersection	Square	Radial-axial
Square near Almaty-1 Railway Station	Square	Radial-axial
Eternal Glory Monument Square (WWII Memorial)	Square	Regular
Shugyla Square	Square	Mixed

Table 4

Planning Structure Typologies of Almaty's Public Open Spaces in Zhetysu district (author's material)

Name	Type	Planning Structure
Gulder Park	Park	Linear
Botkin Street	Alley	Linear
Alley at the Northern Ring Highway	Alley	Linear
Square in Aina Bulak-2 Microdistrict	Square	Linear
Square in Aina Bulak-1 Microdistrict	Square	Linear
Alley in Karasu (Turksib District)	Alley	Linear
Square in Aina Bulak-3 Microdistrict	Square	Radial-axial
Square on Ratushny	Square	Regular
Square near Almaty-2 Railway Station	Square	Regular
Zhangeldin Square	Square	Mixed

The Almaty District (**Table 5**) demonstrates the greatest diversity of regular, radial-axial, and fan-shaped planning structures, which is associated with the historical city center and a high concentration of socially significant facilities. Radial-axial structures create prominent compositional centers and provide visual orientation within the urban environment. Regular structures emphasize the ceremonial and representative character of squares associated with cultural institutions. Linear spaces serve as connectors between key public nodes. The presence of a central-node structure, such as Astana Square, highlights the district's role as one of Almaty's main public centers.

The Almaty District is located on the approximate location of the medieval city of Almaty/Almaty (10th-9th centuries AD). The Almaty District is located in the very center of the city. This district has long been the administrative center and the center of social and cultural life in Almaty. The district's border begins at the intersection of Raimbek Avenue and the Bolshaya Almatinka River, where the Tastak microdistrict is located. T

he border runs along the axis of Raimbek Avenue to the east to the axis of Nazarbayev Avenue, runs along Nazarbayev Avenue to the intersection with Abay Avenue, turns left along Abay Avenue and runs along its axis to the intersection with the Bolshaya Almatinka River. It runs north along the axes of the river and the Sairan Reservoir to the intersection with Raimbek Avenue. The district borders all other districts except Nauryzbay and Turksib. Early 20th-century buildings, including a large number of cultural, educational, administrative, and industrial facilities, have been preserved here. This district is considered the main center of Almaty.

Table 5

Planning Structure Typologies of Almaty's Public Open Spaces in Almaty district (author's material)

Name	Type	Planning Structure
Rescuers' Alley	Alley	Linear
Alley of Prominent Figures / Northern Square	Square	Linear
Unnamed Alley	Alley	Linear
Square near the M. Auezov Theater	Square	Linear
Pernod Ricard Square (Square near ATU)	Square	Linear
Raiymbek Batyr Alley	Alley	Linear
Karagayly	Park	Fan-shaped (radial)
Amangeldy Imanov Square	Square	Fan-shaped (radial)
Makatayev Square	Square	Radial-axial
Biocombinat Square	Square	Radial-axial
M. K. Gandhi Park	Park	Radial-axial
AZTM Square	Square	Radial-axial
Moldagulova and Mametova Square	Square	Radial-axial
"Dandelion Fountain" Square	Square	Radial-axial
Auezov–Gogol Square	Square	Radial-axial
Square near the G. Musrepov Youth Theater	Square	Regular
Square near KBTU	Square	Regular
Square near the Abai Opera and Ballet Theater	Square	Regular
A. Baitursynov Square	Square	Mixed
Denis Ten Memorial Park	Park	Mixed
Astana Square	Square	Central-nodal

The planning structure of open public spaces in the Auezov District (**Table 6**) is characterized by the predominance of linear forms, typical for residential areas with mass housing. These spaces are oriented toward everyday use and primarily serve transit and recreational functions. The island (pavilion) structure is represented by Family Park, which stands out due to its autonomous organization and recreational focus. Regular and mixed structures create local public highlights; however, overall, the district exhibits limited morphological diversity, reflecting its functional specialization as a primarily residential area.

Table 6

Planning Structure Typologies of Almaty's Public Open Spaces in Auezov district (author's material)

Name	Type	Planning Structure
Sairan Park	Park	Linear
Altynsarin Avenue Alley	Alley	Linear
Square near the Sats Theater	Square	Linear
Tausamal Square on Navoi	Square	Linear
Alley near the "Nauai" Residential Complex	Alley	Linear
Green Zone near Zhandosov	Pedestrian Zone	Linear
Alley between Saina Street and Small Saina	Alley	Linear
Family Park	Park	Island
Sary Arka Square	Square	Regular
Altyn Besik Square	Square	Mixed

The open public spaces in the Nauryzbay District (**Table 7**) are limited in number and feature a simplified planning structure. Linear spaces dominate and are primarily associated with intra-quarter pedestrian connections. The island (pavilion) structure of Alibi City Park reflects modern approaches to creating recreational spaces in newly developed areas. Regular and radial-axis structures are present only sporadically and have not yet formed a stable system of public centers, indicating an early stage in the development of the district's public spaces.

Table 7

Planning Structure Typologies of Almaty's Public Open Spaces in Nauryzbay district (author's material)

Name	Type	Planning Structure
Courtyards of the Gulder Residential Complex	Alley	Linear
Alibi City Park	Park	Island
Unnamed Alley	Alley	Radial-axial
Alem Park	Park	Regular

The Alatau District (**Table 8**) is characterized by a pronounced predominance of linear planning structures, reflecting the peripheral nature of the area and its orientation toward serving residential developments. Landscape structures are represented by individual sites associated with natural and historical-cultural heritage, such as the Boroldai Scythian Kurgans Archaeological Park. Regular structures serve as local centers of public activity. Overall, the planning organization of the district's open public spaces is still in the developmental stage and holds potential for further structural complexity within the framework of prospective territorial development.

A comparative analysis of the city's districts revealed distinct patterns in the distribution of planning structures. In the Medeu (**Table 1**) and Bostandyk (**Table 2**) districts, linear structures predominate, characteristic of alleys, boulevards, and pedestrian zones. In contrast, the central districts of Almaty (**Table 5**) and Turksib (**Table 3**) exhibit a significant concentration of radial-axial and radial-concentric spaces, reflecting the historical layout of central squares and parks. Landscape parks are generally located on the outskirts of the city or within natural zones, such as Kok-Zhailau, Ile-Alatau State National Park, and Boraldai Saka Mounds Archaeological Park, and are almost absent in the central areas. Regular and mixed planning typologies are typical for formal urban spaces with symmetrical structures or combined functional zone arrangements, while central-node structures are found exclusively in key squares, such as Abai Square, Astana Square, and Republic Square.

Table 8

Planning Structure Typologies of Almaty's Public Open Spaces in Alatau district (author's material)

Name	Type	Planning Structure
Alatau Park	Park	Linear
Kurman Almerikuly Square	Square	Linear
Square and Alley near Almaty Arena	Alley	Linear
Square opposite the Alatau Theater	Square	Linear
"Victims of Repression" Square	Square	Linear
Square in Karasu	Square	Linear
Square in Terekti	Square	Linear
Akbulak Square	Square	Linear
Square near the Athletic Village	Square	Linear
Boraldai Saka Mounds Archaeological Park	Park	Landscape
Square in Zerdeli Microdistrict	Square	Landscape
Sayaly Park	Park	Regular

Based on the analysis of the data cards, a scheme of the planning structures of Almaty's public open spaces POS was created. The scheme classifies the spaces by typology and highlights their main planning elements, including territory boundaries and pedestrian pathway networks. This framework enabled the systematization of data and the identification of patterns in spatial organization (**Figure 3**).

Planning Structures:

1. Linear – elongated spaces located along water corridors or streets;
2. Radial-axial – pedestrian routes diverging from a central point;
3. Fan-shaped (radial) – walkway arrangements forming a fan-like pattern;
4. Central-nodal – activity concentrated around a core, typical for squares and plazas;
5. Pavilion/Island – separate functional "islands" within parks;

6. Regular/Grid-based – a mesh of walkways and functional zones;
7. Landscape/Dispersed – free-form layouts characteristic of natural parks;
8. Composite/Mixed – combinations of several planning types.

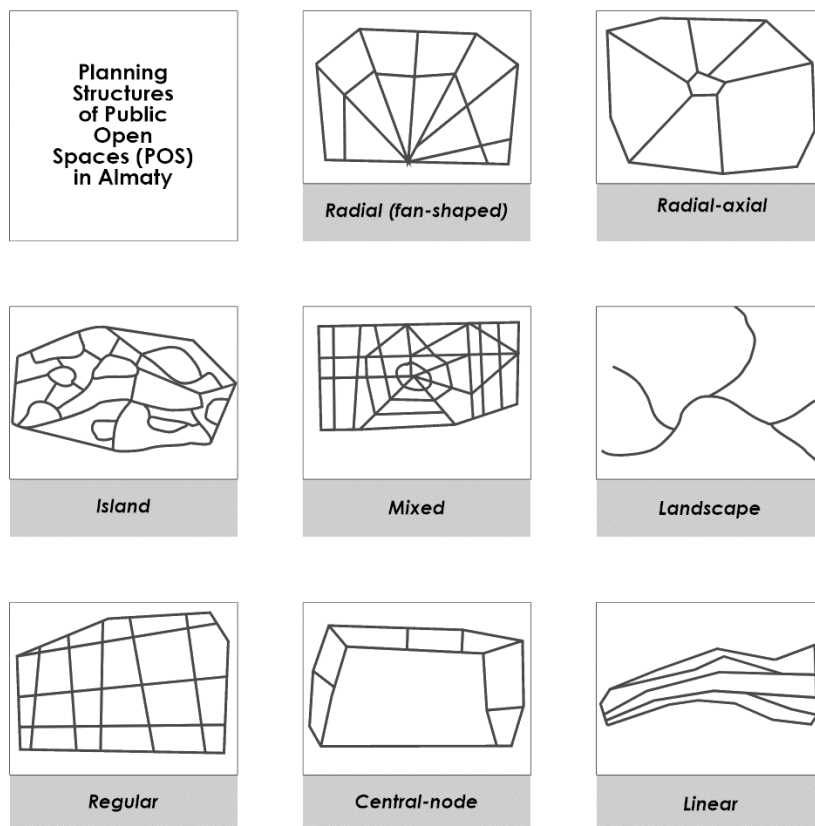


Figure 3 – Planning Structures of Public Open Spaces in Almaty (author's material)

The analysis revealed that structural typology directly influences user behavior: linear and transit-oriented spaces are primarily used for movement; central-nodal and radial-axial structures facilitate mass events and social interaction; and landscape spaces support long-term recreation and wellness activities. These findings emphasize the importance of a typological approach in the design and redevelopment of public open spaces, especially in a mountainous city with a continental climate.

The results confirm that Almaty's open public spaces form a complex and heterogeneous system, whose planning structure is closely linked to the city's historical development, natural conditions, and contemporary urban processes. The analysis of 137 POS allowed the identification of stable typological groups and the establishment of patterns in their spatial distribution across the city's administrative districts.

The scientific novelty of this study lies in the development of an original typology of Almaty's open public spaces, based on a detailed analysis of their planning structures and validated by empirical data from field surveys. Unlike existing classifications, which are primarily focused on functional or visual characteristics, the proposed typology integrates morphological features, spatial connectivity, and usage patterns. For the first time in Almaty, a comprehensive network of POS has been systematized, highlighting linear, radial-axial, fan-shaped, central-node, island, regular, landscape, and mixed structures.

The findings have practical significance within the context of Almaty's Master Plan and the City Development Program up to 2027. The identified typological characteristics allow for the assessment of the existing POS structure in terms of functional adequacy, connectivity, and development potential. For example, the predominance of linear structures in several peripheral districts indicates the need to establish more pronounced public centers, while central districts require

careful reconstruction that preserves historically established radial-axial and regular planning schemes.

The developed typology can serve as an analytical tool for planning new open public spaces, reconstructing and modernizing existing territories, and forming a sustainable green framework for the urban environment. The universality of this approach is due to the similarity of historical and urban planning conditions, planning principles, and stages of urban development, which are characteristic not only of Almaty but also of most cities in Kazakhstan and a significant portion of post-Soviet cities.

5 CONCLUSIONS

The main results and conclusions obtained in the course of the study are as follows:

1. A comprehensive analysis of Almaty's open public spaces was conducted, covering 137 sites across all administrative districts and encompassing the main types of POS.
2. An original classification of Almaty's open public spaces by planning structure was developed, based on field surveys, historical analysis, and comparison with international typological approaches.
3. The primary types of planning structures of POS were identified: linear, radial-axial, fan-shaped, central-node, island, regular, landscape, and mixed, along with patterns of their spatial distribution across the city's districts.
4. It was established that the planning structure of POS is directly related to the way spaces are used, the level of social activity, and functional density.
5. The practical significance of the proposed typology was determined for urban design tasks, assessing the effectiveness of existing public spaces, and implementing the provisions of Almaty's Master Plan and City Development Program up to 2027.
6. The obtained results provide a methodological foundation for further research aimed at analyzing the influence of POS planning structure on user behavior and the quality of the urban environment.

REFERENCES

1. **Carr S., Francis M., Rivlin L. G. & Stone A. M.** (1992). *Public Space*. Cambridge University Press: Cambridge, UK.
2. **Chiesura A.** (2004). The role of urban parks for the sustainable city. *Landscape and Urban Planning*, 68(1), 129-138. <https://doi.org/10.1016/j.landurbplan.2003.08.003>
3. **Gehl J.** (2010). *Cities for People*. Island Press: Washington, DC, USA.
4. **Peters K., Elands B. & Buijs A.** (2010). Social interactions in urban parks. *Urban Forestry & Urban Greening*, 9(2), 93-100. <https://doi.org/10.1016/j.ufug.2009.11.003>
5. **Vadimov V. & Vasylyev P.** (2023). Cluster organization of open public spaces of the post-socialist city. *Urban and Regional Planning*, 8(1) <https://doi.org/10.11648/j.urp.20230801.12>
6. **Perkova M.V., Zaikina A.S.** (2016). Kharakteristika otkrytykh obshchestvennykh prostranstv kak strukturnykh elementov gorodskoy sredy [Characteristics of open public spaces as structural elements of the urban environment]. *Vestnik BGTU*, (7), 74-77.
7. **Kukina I. V., Chuy Ya. V. & Gorsha A. A.** (2019). Key aspects of formation of open public spaces in residential territories. *Urban Construction and Architecture*. (In Russ.)
8. **Rana S. & Batty M.** (2004). Visualising the structure of architectural open spaces based on shape analysis. *International Journal of Architectural Computing* 2(1), <https://doi.org/10.1260/1478077041220241>
9. **Loki M., Aloyo P., Majale C. & Kigundu S.** (2020). The typology of public open spaces: Classification and challenges from Machakos Municipality, Machakos County, Kenya. *International Journal of Advanced Research*, 8(Dec), 241–255.

- <https://doi.org/10.21474/IJAR01/12144>
10. **Wandl A., Rooij R. & Rocco R.** (2017). Towards sustainable territories-in-between: A multidimensional typology of open spaces in Europe. *Planning Practice & Research*, 32(1), 55–84. <https://doi.org/10.1080/02697459.2016.1187978>
 11. **Obadiah B. & Haruna B. B.** (2025). Examination of the typology of public open spaces in Lafia Town, Nasarawa State, Nigeria. *IIARD International Journal of Geography & Environmental Management*, 11(1), 28–49. <https://doi.org/10.56201/ijgem.vol.11.no1.2025.pg28.49>
 12. **Savitri C. B., Badaruddin B. & Charloq C.** (2023). Study on the availability of public green open space using Geographic Information System data on public green open space in the City of Tebing Tinggi. *International Journal of Science, Technology & Management*, 4(6), 1491–1500 <https://doi.org/10.46729/ijstm.v4i6.975>
 13. **Kozhakhmetov A. E., Abilov A. Z., Seidakhmetova A. S.** (2023). Urban morphology's impact on public realm social cohesiveness in Almaty. *Bulletin of Kazakh Leading Academy of Architecture and Civil Engineering*, №4 (90), 6-21. <https://doi.org/10.51488/1680-080X/2023.4-02>
 14. **Chaly S. I.** (2025). Architectural environment as a factor of comfortable living by the example of Astana city. *Bulletin of Kazakh Leading Academy of Architecture and Civil Engineering*, №1 (95), 103-113. <https://doi.org/10.51488/1680-080X/2025.1-06>
 15. **Tolegen Z. Z., Popov Y. G., Mugzhanova G. S., Kostcova A. A., Eismont O. P.** (2024). Creating safe urban environments through three-dimensional digital models of cities: Insights from Kazakhstan. *Bulletin of Kazakh Leading Academy of Architecture and Civil Engineering*, №4 (94), 102-117. <https://doi.org/10.51488/1680-080X/2024.4-08>
 16. **Kostcova A. A., Popov Y. G., Mugzhanova G. S., Trofimov V. P., Assylbekova A. M.** (2025). Experience of renovation of city parks of the post-Soviet period. *Bulletin of Kazakh Leading Academy of Architecture and Civil Engineering*, №2 (96), 20-36. <https://doi.org/10.51488/1680-080X/2025.2-02>
 17. **Murzabayeva K.S., Selmukhan M.A., Tuyakayeva A.K.** (2022). Pre-project studies in the regeneration of the urban environment of microdistricts in the western part of Almaty. *Bulletin of Kazakh Leading Academy of Architecture and Civil Engineering*, №1 (83), 48-54 <https://doi.org/10.51488/1680-080X/2022.1-22>