

# Conception of Potential Spatial Frameworks of Historic Cities

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**Abstract**—The article introduces the notion of “potential spatial framework (PSF) of a historic settlement”, which is formed as an integral one on the basis of natural-ecological, historical-cultural and public-business spatial frameworks of the city. Depending on a dominant dictating a certain type of potential spatial framework, it may be museum-exhibition, pilgrim, touristic, ethnological, etc. It points out the potential spatial framework and fixes up accordingly valuable natural landscapes, cultural heritage objects, and service system elements. The axes are transport and pedestrian communications maintained on different hierarchic levels: connecting cultural heritage sites in a historic settlement, connecting transit public spaces, connecting sites within districts, connecting historic settlements between each other, and those with a large city. The approach to revitalization of historic settlements is seen in creation of potential spatial frameworks in small historic towns and historic centers of large cities, where cultural heritage sites form a basis for spatial development, and where the principle of the potential spatial framework may be realized.

**Keywords**—*spatial framework; historic settlement; potential of development; public space; cultural heritage*

## I. INTRODUCTION

One of the most significant losses for a historic settlement is the loss of integrity of architectural and town-planning heritage, as well as the historical-architectural environment in the whole, which brings forward the necessity of developing methods of its evaluation and reconstruction. The priority project “Formation of comfortable city environment”, the All-Russian competition “Historic settlements and small towns”, and the work of the scientific-expert council for historic settlements at the “Russian province” Association on a new list of historic settlements of the Russian Federation are aimed at that.

Overall motivation unites these processes, determines their ideology and focuses the theme of synthesis of criteria of referring settlements to the historic category based on the spatial and compositional interrelation of the elements of the architectural and town-planning heritage.

The regulations of the competition say: “The goal of the competition (historic settlements and small towns) is to support projects on creation of attractive city spaces that

improve quality of life, attract visitors and promote development of the service industry. In the case of historic settlements, it means usage of available potential of remaining planning solutions of the historic part of the city, unique objects of heritage, specific environment development and attractive landscapes” [1]. Important directives on synergetic development of the historical-architectural environment with its natural and anthropogenic constituencies, on one hand, and on search of the recipient of public spaces, on the other hand, underlie in this wording.

According to the existing definition, “a historic settlement is a settlement or part of it included in the list of historic settlements on the federal or regional level, within the boundaries of which objects of cultural heritage are located, identified and registered, as well as objects protected as part of historic settlement” [2]. This definition lacks such notions as “historical-architectural environment” or “cultural landscape” related to the “joint creation work of man and nature”. Meanwhile, exactly the integrity is the “measure of completeness or originality of features proving the outstanding universal value [of an object]” [3].

## II. FROM A BUILDING TO A PUBLIC SPACE AND FROM A CULTURAL HERITAGE OBJECT TO A CULTURAL LANDSCAPE

In the ideology of this article the “integrity” of a historic settlement is understood as a continuous network of its public spaces. Exactly a public space (PS) is that typological unit of the architectural environment in which its natural, historic and social components merge together.

A hypothesis — to ensure integrity of the architectural environment of a historic settlement, establishing potential spatial frameworks of its public spaces, is suggested. A potential spatial framework (PSF) is formed as integral on the basis of natural-ecological, historical-cultural and public-business spatial frameworks of the city. Depending on the assigned “dominant” dictating a certain type of potential spatial framework, it may be museum-exhibition, pilgrim, touristic, ethnological, etc.

An important role in this process play communications being maintained on different hierarchic levels and forming spatial frameworks: connecting cultural heritage objects (CHO) in a historic settlement; connecting transit public

spaces; connecting sites within districts of a particular region; connecting historic settlements between each other, and those with a large city.

The term “urban framework” was introduced by P. George in the 1950s, in France as one of the most important notions of the spatial economic analysis. Two basic theses lie in the basis of the territory framework concept [4]:

- cities are not isolated economic agents, they are included in the system of ties with other cities;
- collectively, cities and their interconnections determine the character of the economic space of the country.

Analyzing framework models in the regional schemes of territorial planning, S.I. Yakovleva points out three types of frameworks forming the basis of the functional-planning structure of the territory: urbanized, natural-ecological and historical-cultural. She writes: “An urbanized framework of the territory is formed by the planning-communication axes and adjoining frameworks points — town-planning formations of different kinds. The natural-ecological framework of the territory is a system of functionally and territorially interconnected natural complexes ensuring ecological sustainability of the territory. The historical-cultural framework is represented by historic settlements linked with each other by linear elements, i.e. rivers and their populated valleys, historic communication lines, numerous areas of various memorial sites of history and culture, centers of folk arts and crafts, as well as territories with original appearance, cultural heritage and way of living” [5].

From the territorial planning level let us turn to the level of an individual historic settlement and dwell on one of the actual concepts of modern architecture, which may be defined “from a building to a space”. It manifests in a tendency of practicing architects’, architecture theoreticians’ and city communities’ attention turning from buildings and constructions to public spaces. In this respect, a lot of questions arise, for, above all, this is an ideologically new approach to the understanding of a city or a settlement, which sometimes does not correlate with the established system of territory functional zoning and the system of population servicing. And speaking about a historic settlement, this thesis sounds: “from a cultural heritage object to a cultural landscape” in the course of evolution.

From the definition of public spaces as spaces of communication and social activity the criteria of their viability assessment are derived [6]:

- presence of people in public spaces;
- interrelation and interaction of public spaces;
- possibility of changing on the basis of functional potential;
- scenic content depending on concrete recipients.

The notion “public space” is not stipulated in SP-42, unlike that of heritage town-planning potential, which is defined as “the totality of heritage qualities determining

limits and capabilities of its impact on the town-planning development of the city territories, its districts and local areas, and the role which is decisive” [7].

It is well-known, that when speaking about preservation of city originality, one should not consider individual buildings or even separate fragments of the site development. It is necessary to consider the historically established architectural environment or cultural landscapes, including both natural and anthropogenic components, which have been subject of special attention since the 1990s. Taking a cultural landscape as an object of heritage, Yu.A. Vedenin stated, “Integrity is defined not only by visual ties, but also by semantic content; it is defined not only through viewing landscapes from one or five visual points, but also through a possibility to see sites related to the history of the place during the walk” [8].

At the spatial-time approach to the work with heritage, the historical-architectural environment becomes the main object of protection and use. Its quality and quality of living in the city in many respects are determined by public spaces treated as spaces of communication and social activity uniting people in city communities. And it refers to not just every individual public space, but to their interrelated framework, to the dramatic movement along the historic settlement, which is dictated by cultural heritage objects, remaining planning structure and volumetric-spatial composition of the site development. According to A.E. Gutnov and I.G. Lezhava, these spatial frameworks not always coincide with the “functional-spatial framework of the city organisms”, which was described in their book “Future of the city. Creative tribune of an architect.” [9]

In the light of the aim at potential spatial frameworks this theory is being modernized. Certain new knots emerge on the city texture; interrelations are established between them, based on which new frameworks in the dramatic movement are formed. These processes are controlled by a number of factors, among them are:

- significant events in the public life of a settlement — large forums, festivals;
- implementation of programs on organizing various tourist routes;
- implementation of pilgrim routes.

### III. URBANIZATION PROCESS AND EVOLUTION OF PUBLIC SPACES OF HISTORIC SETTLEMENTS

Introducing this paragraph, it should be mentioned that for ten years the NNGASU Architectural studio has been working under the scientific supervision of the author of the article on illustrated catalogues of cultural heritage objects of Nizhny Novgorod, towns and districts of the Nizhny Novgorod region. As a result, during the period from 2010 to 2018 collective monographs dedicated to the architectural monuments of Gorodets, Pavlovo, Lyskovo districts and the city of Arzamas, as well as a two-volume edition about the federal cultural heritage of Nizhny Novgorod were published. The books describe the history of the architectural and town-

planning development of the cities and settlements of the region, analyze historic complexes of the main streets, individual objects of cultural heritage, and ensembles. The main objective of this research is to provide a comprehensive picture of the heritage depicting its unique and common features.

Gorodets is known as the most ancient town of the Nizhegorodskoe Povolzhe (Nizhny Novgorod Volga area), founded in the second half of the XII century. Large-scale earthworks, the rare in integrity historical-architectural environment of the 19th–early 20th century formed by combination of the developed relief, irregular planning and dense development of the area with features of classicism, eclectics and Art Nouveau, wooden architecture with hand carved elements give the town uniqueness and originality. At present Gorodets is the best tourist attraction in the region.

Unlike ancient Gorodets, Zavolzhe is a young industrial city that appeared on the right bank of the Volga River in the 1950s in connection with the construction of the Gorkovskaya hydraulic power plant. The main public space is Lenin square, a picturesque and harmonious architectural ensemble, including a building of the City Soviet, a house of culture, a college, a hotel, dwelling buildings that represent vivid examples of neoclassicism of the 1950s.

Arzamas was historically the most developed provincial town and a spiritual center of the Nizhny Novgorod province. The “face” of the town is the Resurrection Cathedral and the heritage of the epoch of classicism. During the Soviet period three general plans were implemented (in 1955, 1965, and 1979). All of them were focused on designing city-forming industrial enterprises and related to them dwelling buildings, which did not affect the historical center.

Pavlovo, a developed trade-industrial village in the middle of the 19th–early 20th century, was the core of the largest in the country handicraft metal-working region. A specific feature of Pavlovo is its preserved irregular planning caused by broken up by ravines complicated relief, which had already been formed in the late 18th century, and the unique appearance of wooden and brick-wooden living houses comprising features of the Art Nouveau and Russian style. Four general plans (1939, 1958, 1968, and 1986) were implemented in the 20th century. Their comparison allows tracing changes in the State policy with regard to historic cities.

The main public space of Lyskovo, i.e. Bazarnaya square, was formed by the ensemble of the Church of Ascension constructed in the classicism style and surrounded by trade buildings. The riverside image of the city was radically changed by the structures of engineering protection built due to the expected rise of water level following the commission of the Cheboksarskaya hydraulic power plant.

Provincial town Makarev, founded in 1789, held a special place in the Nizhny Novgorod province. There, near the Trinity Makarevo-Zheltovodsky monastery with its unassailable fortress walls and towers and grand stone temples, Makarevskaya fair, the largest in the country, had been located since the first half of the XVII century.

In respect of the historic settlements that are located as outposts at all points of the compass: Gorodets — in the North, Lyskovo — in the East, Pavlovo — in the West, and Arzamas — in the South of the region, Nizhny Novgorod serves as a center of globalization. They have preserved their originality in spite of quite developed ties with other regions along the Volga and the Oka rivers. In that time the processes of urbanization would not have but affected the historical-architectural environment of those towns, anyhow, population growth has not been noticed yet. According to J. Gibbs’ urbanization stage concept, urbanization includes the following stages [10]:

- city growth lags behind the growth of rural population;
- cities outrun, the growth of rural population slows down;
- cities grow at the expense of rural population inflow;
- large cities grow actively, small cities loose population;
- large cities’ growing slows down, population moves to small towns and villages.

Probably, the recent actual tendencies stipulated by the vector to “formation of comfortable city environment”, that attracted attention of city administrations, city communities, architects and town-planners to public spaces, are focused on exactly the last promise. The problem is urgent both in megapolises and in small and middle-size towns — district centers. The goal of the pilot, priority and further on national project “Formation of comfortable city environment” is the search for a recipient, an effort to bring people back to small towns, or to prevent their moving out. In small towns, the working-out of the concept of public spaces often comes down to the development of projects on improvement of individual domestic territories. Though, not always: urban and rural settlements gradually begin to turn to recreation of parks and squares, as well as to newly designed and historically formed public spaces, basic types of which in small towns are an embankment, a commercial street, a cathedral and (or) market square, a city park. Herewith, an obvious problem is the lack of public space integral network which now looks like a “patchwork quilt” randomly stitched together.

In 2013, the analysis of public spaces of historic cities permitted the author of the article to offer a theoretical model of evolution of public spaces for a historic settlement.

Evolution of public spaces of historic settlements is based on the real and potential interaction of the History, Nature and Society, and is determined by the type of their relations with the Man — Recipient [11]. The potential part of the model comprises nature, history, society and, in its turn, the fourth potential constituent. And so on as per the fractal scheme.

According to the public space evolution model, the potential of development of historic settlements includes

natural, historic, social-economic, as well as new potential opportunities.

Constituents of the theoretical model in the historic cities of the Nizhny Novgorod region become apparent in concrete material manifestations [12]:

- Nature (geographic environment) — a forest, a river, a mountain;
- History (of human activity) — a kremlin, a posad, a temple;
- Society (various kinds of collective work) — city communities, trading, crafts, tourism.

#### IV. EXPERIMENT: POTENTIAL SPATIAL FRAMEWORK OF A HISTORIC CITY

According to the public space evolution model spatial frameworks of historic settlements are ("Fig. 1"):

- a natural-ecological spatial framework;
- a historical-cultural spatial framework;
- a public-business spatial framework;
- a potential spatial framework.

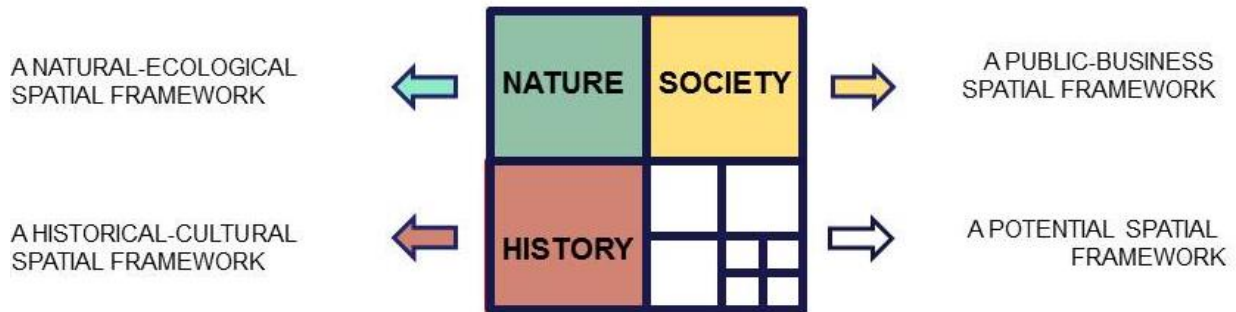


Fig. 1. Model of formation of spatial frameworks of historical settlements.

The potential spatial framework of a historic settlement is formed as an integral one on the basis of the natural-ecological, historical-cultural, and public-business spatial frameworks and shows originality of the polylog of Nature, History and people's creativity.

Natural-ecological, historical-cultural and public-business frameworks of cities and settlements are formed according to their own autonomous principles. They add integrity to the city providing connection of its basic planning elements; but in the course of urbanization units of these frameworks often stop to coincide and continue to work according to their own schemes. The public space, according to its definition, is a type of structure that integrates all constituents. One of the approaches to revitalization of historic settlements in the aspect of urbanization is to identify spatial units of connection and design their integral and indissoluble network. In small historic towns it manifests especially clearly, where cultural heritage objects constitute the basis of spatial development, and where the principle of public space continuity can be realized.

Approbation and application of the suggested solutions were implemented in the NNGASU Architectural studio during the work on the concept of comfortable city environment of historic settlements, namely, the concept of Arzamas development within the frameworks of establishment of the pilgrim-tourist cluster "Arzamas-Divevo-Sarov" [13].

Arzamas is a large district center, the third largest and important city in the region, having rich historical and cultural heritage. On its territory there are 101 monuments of historical, architecture and monumental arts, including 17

objects of federal status [14]. The role of the city as an important spiritual center is fixed up in the city's structure by numerous churches and monasteries. The "Golden age" of Arzamas is the last quarter of 18<sup>th</sup> – first half of 19<sup>th</sup> centuries. The stately Resurrection cathedral built by the design of M.P. Korinsky and decorated with paintings by students of the A.V. Stupin art school, the first in Russian province, dominates in the Arzamas' panoramas. Expressive examples of wooden classicism — the Khanykovs house, the main house of the Panyutins country estate, the main house of the Popov-Schetinins country estate — are unique in scale of the entire region. The town-planning development of Arzamas in the Soviet period is of special interest, in the course of which three general plans were implemented. Their comparison allows seeing changes in the State ideology and policy with regard to historic cities.

A hypothesis of the project: a pilgrim-tourist cluster as an integrated and indissoluble structurally organized public space should be formed on the basis of synthesis of historical-cultural, natural-ecological, and public-business spatial frameworks of the city. Units of the pilgrim-tourist cluster fix up accordingly the cultural heritage objects, valuable natural landscapes, as well as service objects.

The objective of the project, the general concept of which is based on this hypothesis, is establishing accessible and comfortable pedestrian and transport routes presenting main landmarks along pilgrims and tourists path. To achieve this objective, the following tasks must be solved:

- to carry out a complex scientific-research analysis of existing town-planning situation identifying potential as well as problem areas;



- to offer a scheme of transport-pedestrian routes;
- to offer schemes of natural-ecological, historical-cultural, public-business and pilgrim-tourist spatial frameworks.

The offered solutions are [15]:

- the transport scheme presupposes: removing transport out of Sobornaya square and historic streets of the city, widening existing roads, widening the exit road from the city, relocation of the bus station near to the railway stations; arranging parking lots on the outskirts of the city;
- the scheme of the natural-ecological spatial framework includes identification of valuable natural landscapes, water areas, existing parks, squares and suggests arrangement of continuous network of green spaces, improvement of embankments, arrangement of a park on the place of the bus station;
- the scheme of the historical-cultural spatial framework is based on the historical-cultural basic plan and includes cultural heritage objects of different status with zones of protection and basins of dominants viewing;
- the scheme of public-business spatial framework supposes arrangement of a system of public centers of the city and includes service institutions for various kinds of customers — city communities, pilgrims, and tourists, comprising hotels, motels, camping areas, hostels, trading and food enterprises, and transport service centers;
- the scheme of pilgrim-tourist spatial framework is to be developed as a uniting one representing the space of the city as integral with units represented by historic and natural constituencies and axes — communications with numerous service facilities for pilgrims, tourists and city inhabitants.

## V. CONCLUSION

In every individual inimitable historic settlement, potential spatial frameworks will be unique; anyhow, an algorithm of their formation will be the same.

Units of potential spatial frameworks fix up accordingly valuable natural landscapes, cultural heritage objects, and service system elements. Axes — transport and pedestrian communications, maintained on different hierarchic levels — are formed depending on the idea assigned in technical specification and focused on attracting a specific recipient, i.e. an inhabitant, a guest, a member of a certain city community, a pilgrim or a tourist, to a historic settlement.

Transformation of public spaces on the common principles allows forming a level, multilayered, urbanized framework of historic settlements with urbanized centers and urbanized axes, which is formed as integral on the basis of synthesis of the natural-ecological, historical-cultural and

social-economic spatial frameworks, focusing on historic settlements as centers of viability.

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