

Study of Strategies for Spatial Development of the Living Environment in Large Russian Cities

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ABSTRACT

The research is devoted to the analysis of modern practices of implementation strategic programs for spatial development of territories. Unforeseen processes of evolution of urbanized spaces in large cities lead to new approaches in management of their development and to the search for new town planning approaches and solutions. In this case, there is special role of nature of identifying the development resources of the territory, understanding the socio-cultural context, architectural and spatial inventory, as well as intangible values in the decision making. Based on the analysis of studies devoted to spatial and morphological development of Russian cities; as well as the most expressive examples of designed and implemented strategies for the integrated development of territories in Russia. The article concludes that there is a need to consider modern patterns of development of urbanized areas and, as a consequence, the emergence of new urban planning forms in the design and reconstruction of the territories in large cities.

Keywords: *Urban planning, Urban morphology, Strategies for spatial development.*

1. INTRODUCTION

In the twenty-first century, global trends in spatial development include the concentration of population and economy in the largest forms of settlement which is headed by large cities. Due to the complex dynamic processes of society development, a modern Russian city is continuously transformed. At present, approaches to the architectural and planning formation of cities are being redefined. Regional and city-level administrations in Russia initiate applied research projects aimed at solving the problems of improving the quality of living environment. Architectural and urban planning research accentuates the problems of modern understanding of the living environment: morphology, social structure, landscape, environmental and cultural bases of development. It becomes important to comprehend the problems of transformation in the

spatial structure of cities and define the key periods of development and modification of the urban environment.

The study of modern development and renovation of the living environment correlates with the strategic objectives of the Russian Federation President Decree on the National Goals and Strategic Development Goals of the Russian Federation for the period until 2024. The Decree includes four federal projects: "Mortgage", "Housing", "Creating a comfortable urban environment" and "Ensuring sustainable reduction of uninhabitable housing stock". In 2019, a decree of the Government of the Russian Federation approved the "Spatial Development Strategy of the Russian Federation for the period up to 2025", which includes a list of key benchmarks for the spatial development of cities. Recently, a number of federal laws, programs and national projects aimed at improving the quality of the environment in Russian cities have been adopted. Dozens of cities are working on pilot projects - "Spatial Development Strategy" in addition to the existing urban planning documentation. Built-up areas are

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being reimagined. The Federal Law "On Amendments to the Urban Development Code of the Russian Federation in order to ensure integrated development of territories" has been adopted. The law provides a mechanism for identifying strategic territories for integrated reconstruction and development. The federal project "Forming a Comfortable Urban Environment", which has been in force in Russian regions since 2016, aims to improve the quality of urbanized spaces by 2030. Since the launch of this federal project public area, parks and embankments have been improved in all regions of the country. All-Russian contest of the best projects for creating a comfortable urban environment have been conducted with the following implementation of these projects.

At the same time, experts admit that "the formation of comfortable urban environment" is not an improvement of public open spaces in principle. First of all, it is an in-depth study of the current condition of a settlement with its problems and processes of natural restructuring of physical environment caused by social, political, technological and economic changes in the society. It is important that the driving force in the implementation of the strategy should be determined by the community of citizens. At the same time large Russian cities witness almost uncontrolled growth of new development, which is accompanied by simultaneous disharmony and aggressive environment, inefficient development, high traffic loads, degradation of territories and other mistakes of urban planning which later will be difficult and, in some cases, impossible to correct for the future generation. Experts are unanimous in their opinion that the routine renovation of medium-rise high-density residential buildings is not a comfort-oriented improvement of the environment. All measures should be carried out with an in-depth understanding of the urban planning problems of a modern city with post-socialist and post-industrial heritage.

2. METHODOLOGY

The purpose of this study is to define the main directions of transformation and spatial development in the living environment of large Russian cities.

The following research objectives are defined:

To study the trends in the transformation of the living environment in Russia, established in the theory of urban planning;

To analyze planned strategies of spatial development of cities;

To study and systematize the most expressive examples of integrated development of territories in large cities;

To study the mechanisms of urban planning regulation of buildings and public open spaces.

Theoretical basis of the study is formed by the works devoted to the evolution of spatial and morphological development of cities. The study is based on analysis the designed implemented strategies for the integrated development of territories in Russia.

3. MAJOR TRANSFORMATION TRENDS OF THE PLANNING STRUCTURE IN LARGE RUSSIAN CITIES

The theory of urban witnessed the emergence of studies aiming to determine the main periods of the urban transformation and dynamics of the spatial development of large cities at the turn of the twentieth to twenty-first century. Portnov notes that the period when a city transitions to a market economy can be characterized as critical and identifies the following transition factors: the privatization of land, real estate and service sphere; the introduction of differentiated cost indicators of land use; the collapse of state building industry; the emergence of small, private construction firms; conversion processes of industrial enterprises [1]. Kolyasnikov defines two stages of transitional development in post-Soviet urban planning: the first stage (1992–1998) "system-space" and the second stage (1992–2004) "territorial-structural" [2]. Ptichnikova defines two states of spatial and planning structure of cities: the last decades of the twentieth century and the early twenty-first century.¹ The study showed that in the 1980s (the first stage), there began a gradual process of urban fabric densification and strengthening of its framework, accompanied by an active public and residential development, which was interrupted during the transition to market economy. The next period (2000–2010) was characterized by urban sprawl at the expense of the inclusion of suburban areas into the boundaries of the city, thereby forming large spatial "voids". Comparative analysis of the transformation of the spatial structure in 15

1. Based on a comparative analysis of spatial structure transformation in 15 major post-soviet Russian cities (see further: [3]).

large Russian cities in the post-Soviet period revealed that the stage of territorial growth in large Russian cities is coming to an end. Urban morphology is becoming more heterogeneous. Urban fabric is compacted with varying degrees of intensity creating a variety of development types - from diffuse low-density to relatively high-density. Urbanized framework develops along the streets and roads and new develop morphotypes emerge [3]. Shubenkov characterizes modern urban planning systems of Russia as a dynamically developing object and notes the following trends of the transformation: involvement of urban planning systems in global economic, cultural, social and resource processes, which inevitably affects the nature of their organization; deindustrialization of large urban planning systems and highly dynamic nature of urban processes contribute to the appearance of their new variations; availability of technology and informatization of society contribute to the formation of new forms of social and economic relations and their provision [4]. In his works, Fesenko defines a characteristic feature of environmental changes in Russian cities at the turn of the century - the shift of emphasis from volumetric design to urban planning, the appeal to megaprojects as a tool for the development of territories, experimental reloading of capital city planning and the reflection of strategic development programs in the regions, the increasing role of landscape architecture in the development of urban environment [5].

In the modern theory of urban planning there are a number of works devoted to the morphological development of urbanized territories. Kukina defines the patterns of morphological transformation and development of the territories in the post-socialist city [6]. Bolshakov notes that the effectiveness of urban planning should be understood as the creation of functional and planning conditions for social reproduction of the urban community: physical, material, cultural, professional [7]. The works of Oliveira analyze the formation of interdisciplinary scientific field - urban morphology - at the conflux of engineering, technical sciences and architecture [8]. In his work, the author explains the principles of analysis of the city's physical form, how different agents change this form over time and how different processes participate in this transformation. In their analysis of post-socialist cities, Axenov, Brade and Bondarchuk argue that the era of transformation can be considered largely completed. They suggest that it is now time and

place for a new stage of development within the global and economic system: post-transformation [9].

Urban planning problems such as improving the administrative and territorial structure of a city on the basis of continuous development are discussed in the works of Vladimirov, Smolyar, and Anikeyev. Vysokovsky, Trutnev, Alexeev, and Krashennnikov studied methods of urban planning regulation of residential development in a market economy in Russia and abroad. Potential directions of urban planning in the Russian Federation reflecting the strategy of sustainable development of the country including enhancement of quality and safety of living environment and formation of social comfort within urban environment were developed in the "Urban Planning Doctrine of the Russian Federation" headed by Esaulov [10].

As a result of the theoretical analysis, this article summarizes the main trends in the planning transformation of large cities:

The trend toward a shrinking city, integrated development within the urbanized space;

Deindustrialization of large urban systems and a highly dynamic urban processes, the development of small and medium-sized businesses;

The inclusion of urban development in the global economic, cultural, social and resource processes change the approach to strategic spatial planning of territorial development;

The increasing urban load on the transportation networks of cities;

Changes of volume and planning characteristics of development - departure from discrete forms to increase of density. Changes of private and public relations in residential areas due to different types of land tenure and land use;

Changes in the structural components of public spaces - the formation of a hierarchy on the principles of social activity;

Changes in the functional characteristics of residential development;

There is also a noteworthy tendency of landscape-ecological worldview emerging in the theoretical studies and design proposals of architects, which partially found implementation in the spatial development of cities.

The generalization of the main trends in the transformation of the spatial structures of Russian

cities leads to an understanding of the need to revise approaches to their development in the future. A number of adopted laws on the strategic and integrated development of Russian cities have led to the emergence of a series of programs and experimental design solutions which should be critically analyzed and systematized.

relevant restrictions, which would form a unique scenario of effective development for the historic city ("Figure 2").

4. ANALYSIS OF PLANNING PRACTICES OF SPATIAL DEVELOPMENT IN RUSSIAN CITIES

In the early 21st century, large Russian cities witness a reconstruction of not only the existing residential areas, historic center, industrial areas, but also of city planning structure as a whole. Modern planning activities have changed and became more focused on the development of design strategies, multivariance, adaptability and flexibility in decision-making.

According to the project "Strategy for Spatial Development of the Russian Federation until 2025" the practice of urban planning witnessed an update in projects for strategic planning. For example, in 2016, the All-Russian contest "Yugra - City of the Future 2050" featured experimental strategies for a number of cities ("Figure 1"). Later, the fund "DOM.RF" (joint-stock company- financial institution for development in the housing sector) launched a series of pilot projects to develop strategies for spatial development of cities: In 2016, the Concept of development (master plan) of Vladivostok urban district was developed (together with Nikken, DBK Rus). Then in 2018-2019, in collaboration with design office "Strelka" they developed strategies for spatial development (master plan) until 2025-2030 for such cities as Sergiev Posad, Magadan, Gelendzhik, resort city Kislovodsk, etc².

It is time to realize the cultural uniqueness of each settlement of the big country, to work out targeted concepts of development: capitals, nuclear cities of economic growth, cities with tourist and recreational orientation, cultural and historical cities. For example, the project "Strategy of spatial development (master plan) of Suzdal till 2030" is based on the comprehension of historical phenomenon of Suzdal city, the analysis of the status of a museum city, a city-reserve, with

2. Fund "DOM.RF" (joint-stock company- financial institution for development in the housing sector). URL: <https://xn--d1aqf.xn--p1ai/urban/projects/>

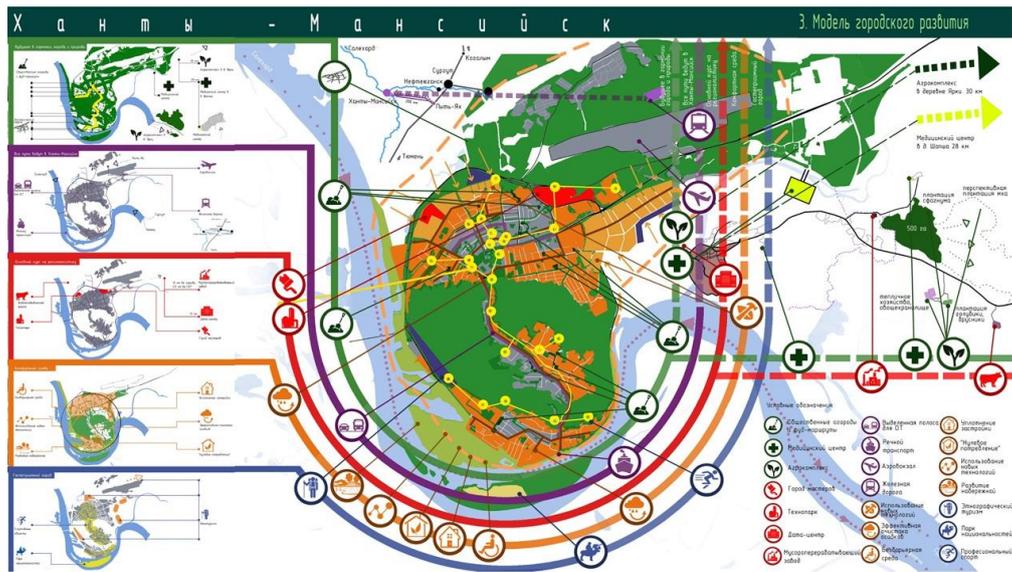


Figure 1 Project work of graduate students of the department of urban planning IA&D SFU "Development Strategy of Khanty-Mansiysk city until 2050", under the authorship of Voronkov, Dolgopolova K.A., Dolgopolova A.A., and Beloborodova, under the leadership of Professor Kukina, associate professors Unagaeva, Fedchenko, Chuy, and senior lecturer Kamalova. This project took the 2nd place in the All-Russian contest "Yugra City of the Future – 2050", held in 2016.

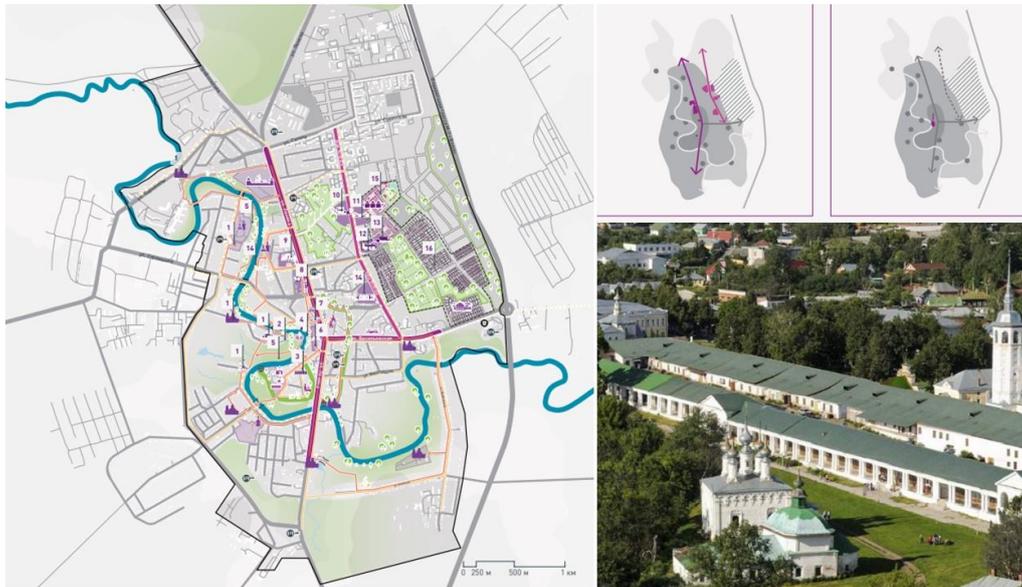


Figure 2 Fragment of the "Strategy of spatial development (master plan) of Suzdal till 2030".

Modern formation of residential areas in Russian cities is based on the emergence of mass residential development and renovation of the existing housing stock. Since the adoption of the law on integrated development of existing areas within a city, there appear various conferences, round tables, materials on the introduction of changes to the regulatory acts of cities, examples of architectural and planning solutions for integrated

development of territories [11]. Analysis of the projects showed that most of them reflect the trend for increasing development density in places of demolished dilapidated housing stock or vacant areas in the urbanized boundaries. Development, as a rule, is a structure of closed quarters with a standard construction ("Figure 3").



Figure 3 Experimental integrated development plan of the compensation area (as exemplified by Ramenskoye, Moscow region): a) proposal of GAU MO "NIPI urban planning"; b) GBU MOSOBLGEOTREST; c) GIP OOO "InGrad". Fragments of the presentations made at the Scientific and Practical Conference "Changes in the Urban Planning Legislation 2021. Master Plan, integrated territorial development, Standards. Application" held by the Committee on Architecture and Urban Planning of the Moscow region in conjunction with the Union of Architects of Russia and the Association of Planners of Moscow region on February 26, 2021.

a source: screenshots of live broadcasts, which took place on YOUTUBE <https://www.youtube.com/watch?v=hl7xszF2Ygg&feature=youtu.be>.

At the turn of the twentieth and twenty-first centuries, with the development of a market economy in Russia there occur omnipresent processes of conversion of industrial enterprises, municipal and warehousing areas. For modern Russian cities the territories occupied in the past by industrial objects, empty tram and bus depots, gas reservoirs, utility and warehouse areas represent a special problem and a resource for spatial development. Former factories are repurposed into creative clusters, modern art centers, less often into loft housing, business spaces, and more often into shopping and office centers ("Figure 4"). Currently, there are large creative clusters in 28 Russian cities. According to official statistics, the creative industries sector is one of the fastest growing in Russia, expanding annually by 15%. The federal program "Rurban Creative Lab"³ was launched at the beginning of 2021 to develop and implement mechanisms for establishing creative clusters in the territories of former industrial enterprises and

abandoned property. It is obvious that today we need a new approach to redevelopment of industrial zones, we need stock control and identification of valuable industrial and cultural heritage sites. A deep interdisciplinary effort is required for the redevelopment of such objects [12].

3. The program is implemented by the Agency for Strategic Initiatives (ASI) in partnership with DOM.RF. URL: <https://rurban.space/lab>



Figure 4 ARTPLAY Design Center, Moscow. The territory of the former plant "Manometer" in 75,000 m² is now a business, shopping and exhibition center ARTPLAY.

A special challenge for the balanced spatial development of large cities in Russia is represented by projects for the renovation of historic city centers. The main principles of renovation of historic centers are to define the boundaries of historically and culturally significant objects; to develop a strategy for increasing the efficiency of land use while preserving the historic appearance of buildings and structures; to develop a convenient pedestrian network and movement of non-motorized vehicles; to create integrated design solutions [13]. For example, in Krasnoyarsk, the reconstruction of the historical quarter within the

boundaries of Karl Marx, Gorky, Bograda, Dekabristov, Krasnoyarsk streets is being completed. ("Figure 5") Preservation of urban planning culture is possible through developing mechanisms for planning regulation of development within the territories of historical and cultural value. To date, the city planning code does not contain the necessary information about the value of architectural and urban environment, integrity of the historical appearance of a city, the definition of historical place boundaries in the structure of a city, which is a particular problem [14].



Figure 5 Project of reconstruction for the historical quarter in Krasnoyarsk within the boundaries of streets Karla Marksa, Gorky, Bograda, Dekabristov (the project was made in the design studio "A-2").

a Illustration source: <http://www.proa2.ru/projects/kvartal-na-markovskogo> , photo by Fedchenko I.G.

Recently, the practice of urban planning regulation witnessed a separate type of activity - the formation of volumetric and spatial regulations of development and public open spaces. In modern Russian practice of urban planning, there is a gradual introduction of recommendations ("Design Codes" or "Album of standard solutions") to preserve the historical and cultural image and development of the modern appearance of cities.

For example, in recent years there emerged "Design code" documents for the cities of Ivanovo, Arkhangelsk, Voronezh, Belgorod, which contain the architectural and spatial solutions for street facades and public open spaces with the standard illustrative solutions ("Figure 6"). Separately, the regions are developing regulations for the improvement of public open spaces.

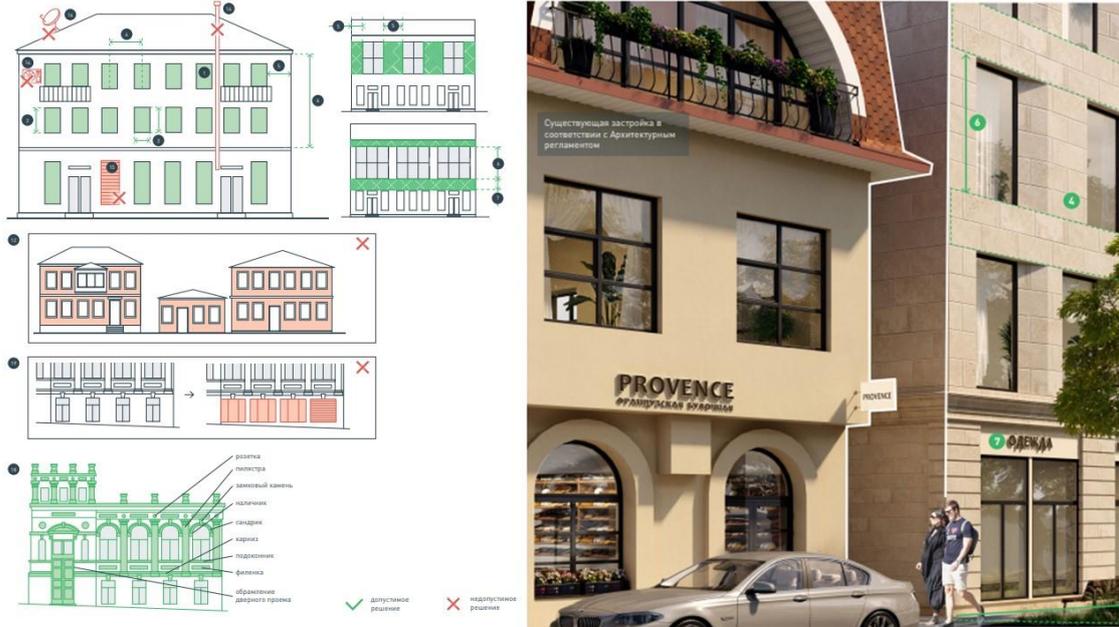


Figure 6 Fragment of the Design Code of Kislovodsk, Strategy for Spatial Development (Master Plan) of the city-resort of Kislovodsk until 2030. volume 2. Priority project. Part 1. Architectural Regulations for the Historic District of Kislovodsk.

5. CONCLUSION

Modern urban planning is in a process of a great shift from traditional approaches to the formation and development of settlements to the search for new directions. Analysis of the transformation of the spatial structure in largest post-soviet Russian cities denotes a tendency toward the "shrinking" city - a search for integrated development within urbanized space; changes in private and public relations in residential areas due to different types of land ownership and land use; development of self-government and urban planning regulation of volumetric and spatial development of construction. Deindustrialization of large urban systems and highly dynamic urban processes, development of small and medium-sized businesses determines the appearance of the latest morphotypes of residential development in the cities; increasing urbanized load on the transportation networks of cities; changes in the volume and planning characteristics of

development - a departure from the discrete forms to the increased density.

At the present time, there is a need for creating a perfect urban environment - safe and comfortable, which requires the development of new requirements in the design methodology and process. Modern reconstruction of cities requires active promotion of new strategic thinking in urban planning to solve the design problems of spatial development: renovation of post-socialist housing stock; reconstruction of industrial areas; development of historic city centers. The inclusion of urban development in the global economic, cultural, social and resource processes change the approach to strategic spatial planning of territorial development: increased demands to the modernization of transportation systems; development of large spatial development projects related to global action and the formation of economic growth cores. At the spatial level of urban development, there is a need for revision of

the concept of "comfortable city" in light of increasing quality demands, which should be expressed in the ecological and landscape organization of public open spaces and the development of spatial regulations for construction, based on deep understanding of the cultural foundations and uniqueness of each settlement. Urban planning science faces more and more complex tasks in searching for reliable guidelines for new urban development of settlements for future generations.

AUTHORS' CONTRIBUTIONS

This paper is independently completed by Irina Fedchenko.

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