

# The Territory of the Strelka of the Volga and Oka Rivers in Nizhny Novgorod. Looking for the Addressee

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**Abstract**—The article is devoted to the identification of functional potential in the organization of the public space on the Strelka site at the confluence of Volga and Oka rivers in Nizhny Novgorod. Strelka, is a defining place for Russia. Underlining natural features of the city, Strelka plays an important town-planning, semantic and symbolic role, forming riverside panorama of the city's lower part that is nicely viewed from its upper part. Conceptual ties of natural and anthropogenic are fundamental for the idea to create here universal public space with unlimited functional potential, which may be demanded by the present and future recipient.

**Keywords**—*Strelka; the functional potential; public space; recipient of architecture*

## I. INTRODUCTION

Strelka, the junction of the two most beautiful rivers, the Volga and the Oka, in Nizhny Novgorod, is a defining place for Russia "Fig. 1". Underlining natural features of the city, Strelka plays an important town-planning, semantic and symbolic role, forming riverside panorama of the city's lower part that is nicely viewed from its upper part. This is the territory that cannot be singled out from the neighboring areas, let them be either adjacent or related visually. This is the place where the streams and people meet. Everything intertwines here: natural, historic, social, human; sacred and profane: cult — AleksandreNevsky Cathedral, and a part of one of the largest Soviet cities with giant industrial plants. However, for a long time this territory has been abandoned. To make it public space for people to meet and associate, we should first think about its functional content [1].

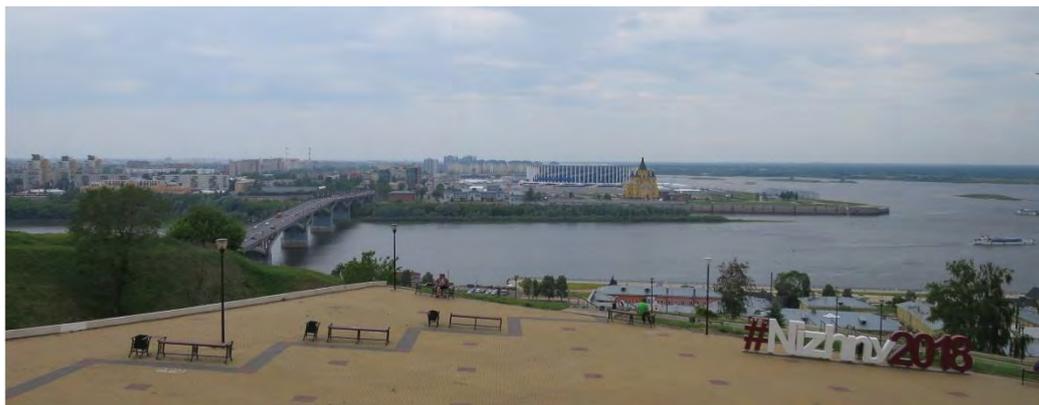


Fig. 1. Strelka the Volga and the Oka in Nizhny Novgorod. Photo 2018.

The territory of Strelka is historical located in the Eastern part of the former Nizhny Novgorod trade fair. The first season of the Nizhny Novgorod trade fair, which were transported from Makariev, located downstream of the Volga river, was opened 20 may 1817. Trade fair were held in temporary booths constructed on the Strelka, and connected to the city by a pontoon bridge across the Oka

River. Commercial buildings were grouped in a tight trading ranges.

Alexander Nevsky Cathedral, built in 1881, plays the dominant role in the territory. The Cathedral forms one of the nodes — the Cathedral Square, now has lost its urban significance. Work on the construction of the Cathedral was led by R.Ja. Killiwein and L.V. Dal. Cathedral square was formed simultaneously with the construction of the temple.

The photos of Nizhny Novgorod photographer M.P. Dmitriev give an idea of the character of its development in the late XIX~early XX century. Basically it was the same type of red brick two-, three-story building with located at the bottom of commercial premises [2, p. 312-317]. Their architecture was eclectic. The construction was of a perimeter nature "Fig. 2".

Nizhny Novgorod (Gorky, from October 1932 to October 1990 Nizhny Novgorod was named Gorky) river

port was founded in March 1932 on the site of the former Siberian piers Nizhny Novgorod trade fair. The port carried out a large volume of freight traffic and worked until the end of 2015, it was closed at the beginning of 2016.

As the basis of the planning structure was preserved composite core comprising a Strelkastreet and located on the shies axis the Cathedral and parish house. The internal layout is lost.



Fig. 2. Panorama of the trade fair.Gravure.The edition of I.D.Sitin.1895 [2, p. 316-317].

## II. THEORETICAL BACKGROUND TO THE RESEARCH

Viability of an architectural object is directly related to the theme of its user or customer because, as we know, only a structure relevant for people can withstand the test of time.

The Recipient of Creative Works is a group of people to whom a given piece of art, speech, text and et cetera is addressed.

What about The Recipient of Architecture? Asin case of literature and art, an architectural work also has its concept of recipient. By nature, an object of architecture usually survives its creator and customer. In this respect, a serious problem of object existence in the initial appearance designed by the architect occurs [3].

At a certain moment, due to either external factors, such as socio-economic conditions, or internal factors (that may be a failure or deformation of one or several typological constituents — function, structure or form), an architectural object or a public space enters its terminal state. The revival depends on potential capabilities of each of these constituents; meanwhile, just the function is the most active and mobile among them, thanks to its generic sensitivity, flexibility and ties with recipient. Only the function at a certain moment can dictate either form, as well as obey either form. It should be noted, that a construction, striving to survive and to meet new requirements of the time, finds its internal resources, just like a man mobilizes all his abilities at a difficult moment.

Space is always superfluous to the function for which it has been created. Time dictates new requirements to an object. More problems occur when we understand the term "architectural object" not as a building, but a public space as a spatial carcass connecting buildings. We may say that it wasn't designed initially for a particular recipient, but was considered a certain "one's" territory between buildings "possessed" by recipients.

Functional Potential of a Building is a range of potential possibilities of the building at the change of functions.

Functional Potential of a Place is a range of potential possibilities of the territory at the change of functions.

According to Martin Heidegger, "clearing-away brings forth the free, the openness for man's settling and dwelling;clearing-away is release of places;in clearing-away a happening at once speaks and conceals itself" [4]. And such a happening has occurred. In 2015 the warehouses with openwork metal structures located on the bank of the Volga River were identified as pavilions of the XV All-Russian industrial exhibition organized in Moscow in 1882, that then were transferred to Nizhny Novgorod for the XVI All-Russian industrial and art exhibition held in 1896. Since that time the place has been attracting attention of local community [5]. In 2017 they are treated as newly discovered objects of cultural heritage. They were cleared from enclosing structures to be accessible for visitors' viewing in all beauty "Fig. 3".



Fig. 3. The metallic construction of the pavilions of the XVI All-Russian industrial and art exhibition held in 1896. Photo 2018 [6]

### III. FROM THE DESIGN HISTORY ON THE STRELKA

Let me tell you briefly what has been planned on the territory of Strelka for the last 10 years. In 2007, according to the project on the Strelka-city territory development, implemented by the Nizhegorod grazhdanNII proekt company, arrangement of a park was initially planned. The design of the park approved by the Town-planning Council in 2009 was worked out by the —Akhstroy” organization. The crossing point of the longitudinal axes of the Volga and Oka embankments was marked with a round square, where later a belfry for an alarm bell was designed by architect Yuriy Kartsev. In 2013, an Alley of Glory was designed by the NNGASU architectural studio as the first stage of the planned Park of Glory. The project envisaged organization of a square on the bank where the Volga and Oka rivers meet, and an alley that would connect the road to the Alexandre Nevsky Cathedral and the designed square with the dominating belfry in its centre. The square around the belfry is designed as a free space for various cultural and social events with a good view of the upper part of the city. Descents to the water are formed around two obelisks in the honour of the Oka and Volga rivers.

In 2013, the design institute —Arena” designed a football stadium for 45 thousand people, which is now under construction. In 2014, Joint Stock Company —Arkhitektonika” developed a project for planning and surveying the territory within the limits of Sovnarkomovskaya and Kerchenskaya streets and the Oka and Volga embankments. Organization of public transport traffic in the area during the Mondial, as well as a large pedestrian zone on the river banks were planned by the project. A recreation park was also planned to be laid out in the area of the existing river port, and an alley connecting the future park with the territory of the Nizhegorodskaya Yarmarka. The project was approved by the Town-planning Council.

Structures of early reinforced concrete design were used in the above mentioned warehouses of the Oka River:

coffered ceiling and refined tapering downward columns. The constructions were demolished in 2017.

In 2016, a number of final and diploma works dedicated to the architectural and planning solution of the Strelka territory and conversion of the warehouses for modern use was presented by the students of the NNGASU chair of architectural design. In autumn 2016, a competition of design sketches of students in architectural design and design of architectural environment was held at NNGASU within the framework of the project —A new life of Strelka”. The general idea of all the design suggestions is that people should have access to the territory, and at the same time, it shouldn’t lose its identity; a public space should be arranged instead of the restricted area.

### IV. THE FUNCTIONAL POTENTIAL OF THE STRELKA

According to the general layout of the city of Nizhny Novgorod, the following functional zones are attributed to the Strelka’s territory [1]: zone of multifunctional public buildings in the central historic region, zone of cultural heritage preservation and sightseeing; zone of cultural and cult buildings; recreation and park zone.

Historically, the following actual functions reside in this place: cult — because of the Alexandre Nevsky Cathedral and industrial — as the territory of the river port. Potential functions may be museum and exhibition; sportive presence of a stadium, and all public functions related to its maintenance; fan zone of the World Championship 2018.

All the above-mentioned functions in a particular moment of time may be either dominating or concomitant. When an object is being converted for modern use, one or several of its concomitant functions step forward, while the essential, dominating function temporarily recedes, conceals, becomes latent. A mechanism of its transformation and the principle of functional priority change are based exactly on this feature of the function. When all real public functions are tried out, illusive functions are used, such as synthetic application of artistic components [7], elements of

architectural environmental design, alternated events. For example, arrangement of public spaces by art-objects during festivals, holidays, outdoor fetes.

Defining a public space as an alteration of reception and relaxation zones, I would like to underline that during their organization individual elements of attraction and connecting them comfortable walking communications should be planned. They serve as —magnets”, attractors on the transit path of visitors. Depending on the recipient of a public space, main —magnets” change radically: for tourists, this may be a museum, a cafe, a book-shop or a shop of souvenirs; for a citizen, this is a yard of an educational organization for children or a school and a grocery store; for an employee who walks to his working place — a drugstore and a flower shop, and so on. In any case, the task of an architect and developer is to incline the recipient to a certain way of behavior, to dictate their scenario of movement and perception in accordance with which the concepts have been developed.

#### V. COMPETITIVE DESIGN AS AN EXPERIMENT

In 2017 was carried historical and engineering research of metallic constructions of pavilions of the all-Russian industrial and art exhibition 1896 and proposals for their conservation under the direction of Rector NNGASU Professor Andrey Lapschin [8]. The Commission included several groups: to identify historical and cultural significance of structures, assessment of their engineering status, capabilities, functionality. It was revealed that all metallic structures of warehouses are in working condition and are able to be operated after a number of restoration and restoration works. It was planned that the results of the work of the Commission should be the basis for the organization of the competition for the reconstruction of Strelka territory. Projects submitted to the competition should [8]: take into account the dominant role of the Alexander Nevsky Cathedral in the urban organization of space; take into account the possibility of organizing various functional areas in accordance with the master plan for multifunctional

social development of the Central historical district; the zone of protection of cultural heritage; zone of cultural and educational purposes and religious zones; natural and recreational and Park areas; take into account the possibility of year-round operation of the territory; take into account the maximum preservation of historically valuable objects that survived from the period of the Nizhny Novgorod fair and the Gorky port; it is recommended to keep the Park on Strelka with the organization of the open zone of the Nizhny Novgorod Museum of science and technology, including the placement of large exhibits; take into account the interests of different groups of the population, including people with limited mobility.

In September 2017 the open architectural and town-planning competition —Nizhny Novgorod Strelka — town-planning understanding of the important urban public space” aimed at modern ecological, town-planning, architectural and design development of the riverside territory at the junction of the Volga and Oka rivers was held within the framework of the International architectural festival ECO-BEREG in Nizhny Novgorod.

Let us turn to analysis of the projects Nizhny Novgorod Strelka – urban-planning conception of an important public space redevelopment carried out by professors and students of NNGASU. Architectural studio of NNGASU, Prof. A. Gelfond, M. Dutsev, D. Ivanov, Master's students A. Ablesimov, K. Filchenkov "Fig. 4".

The project site is organization of modern public space on the Strelka area. In the 16th All-Russia Exhibition pavilions is proposed to host history museum, on the basements of destroyed warehouses built in 1930s is proposed open exhibition area referring to the traditions Nizhny Novgorod Fair. Terraced organization of space of the Oka embankment allows holding of festivals and shows views of the city. The Volga embankment saves the memory of the Gorky river port referring to it in small architectural forms. Space dynamics is emphasized by an observation platform acute angle overhanging the point of two great rivers confluence.



Fig. 4. Competition project development concept of Nizhny Novgorod Strelka. Architectural studio of NNGASU, 2017.

NNGASU, Department of Architectural Design, Prof. S.Norenkov, prof. O.Chebereva. Master’s students A.Kulikova, N.Fomina

The “Strelka” means an arrow, a kind of meeting. It is a sacred place, which can be reached from five seas. Nizhny Novgorod is located on the site of the arrow-strech dialogue of the Russian culture with other ethos. The symbolism of the unity of people and the intersection of winds at the two great rivers has a beat of pan-European significance. The Volga river basin belongs to the great “silk road” on the Trans-Siberian way. The future cableways from the Kremlin to the fair through the Strelka will pass over the places connected with the names of Alexander Nevsky, Ivan the Terrible, Serafim Sarovsky, Kozma Minin and Dmitry Pozharsky, Maxim Gorky and Fedor Chaliapin. The layout of the Park at the Strela contains a number of geometric signs — “memories” of the Nizhny Novgorod art and industrial exhibition in 1896, from where the metal constructions of the pavilions were transferred to the Strelka in the historical port in 1901. These signs are the preserved directions of small historical streets in the Strelka layout and the central part of the park zone with preserved warehouse of 1896 and 1893 exhibitions, designed as a structure of the central building of the Nizhny Novgorod art and industrial exhibition were parts of this central building of the exhibition in 1896 is identical in scale to the new stadium at Strelka (the radius is 300 m). The floating stage-arrow (the Strelka sign) points to the historical cradle of the city-the Kremlin. The development of the Zhelezny (Iron) Island as a recreational zone has also not only functional, but it is the symbolic significance of an open bridge to the future.

NNGASU, Department of Architectural Design, Prof. Yu.Kartsev, Prof. V.Parfenov.

Project territory in the area of merger of the Volga and the Oka is meant to emphasize the special importance of this place for Russia and the Nizhny Novgorod. The main role in the space plays Alexander Nevsky Cathedral. On a promontory with a cathedral belfry alarm bells create a dialogue with the Kremlin and temples on the right-bank part of the city. This attunement determines the identity of place associated with Russian history and Orthodox traditions. Creation of ceremonial quays on the banks of the Oka River and the right bank of the Volga River is complete ensemble perception urban environment. Warehouses at Oka Bank be dismantled, at the same time the warehouses along the embankment of the Volga are reconstructed with a new exterior and is complemented by a similar amount of symmetrically located with respect to an axis of the Cathedral. These three buildings are designed for Museum display. Theme Park on the Strelka is patriotic in nature, is defined as the Russian Fleet glory alley has Great man of Nizhny Novgorod along the Volga and the alley of glory along Oka. The projected new buildings made for public use Formed front of the Samarkadskaj Street. Creates internal axis (Boulevard) connects the two dominant object: Alexander Nevsky Cathedral and the football stadium. Multipurpose buildings include scientific, sporting purpose, as well as cultural and educational functions. New construction emphasizes the accents tent verticals of Alexander Nevsky Cathedral. The draft proposed a decision on organization of the highway-road network on the Samarkanskaj street with junctions at Kanavinski bridge and away on the street of Betancourt. The main pedestrian

direction create the solemnity of the place led to the Cathedral in the Centre and operate the stadium, around which shaped public space with underground parking underneath.

NNGASU, Department of Architectural Design. Architectural studio –Archstroy”, Prof. A.Dehtyar, V.Bandakov, O. Barabanova, M.Kotikova, A.Dryahlova.

The center of a spatial structure of this area is the CATHEDRAL with its adjacent QUARTERS, which show the historical urban planning structure of this part of Nizhny Novgorod. Territory development towards the Volga opens the MUSEUM — complicated spatial complex with buildings for co-working scaled with a quarter structure on the one side and the GALLERY with three exhibition pavilions on the other. The most important element of the interaction between the city and the river is the EMBANKMENT — a linear sloping inhabited hill. The green side of it is oriented to a natural landscape, and the –material” side, filled with built-in functions — to the city. One of the significant elements here is the FAIR — a seasonal complex of festival grounds, recreating dimensions of the recently lost reinforced concrete warehouses. The coastal objects are combined by the BRIDGE — a direct walking trail along the top of the hill, and at the same time a sightseeing route and additional communication. Semantic and spatial culminates in the steam system of squares —

PIAZZETTA and STRELKA. The main spatial idea of this area is the quarterly MATRIX (IT-park), gradually dissolving as you move away from the city highway to the riverbank in green areas of the PARK. Compositional and semantic completion of this territory is the ARENA — an amphitheater formed in a hill and equipped with a frame structure for placing seasonal lightweight coatings.

NNGASU, Department of architectural environment design, Prof. M.Dutsev, Prof. G.Kachemchev, Students P.Vokhlachev, A.Makalova, E. Kondratov "Fig. 5".

The project follows the principle of –From old to new”, which implies the preservation and reconstruction of the historical environment in conjunction with the formation of modern public spaces and relevant urban functions. The main idea was the –Live of Strelka”: an attempt to revive the liveliness and social significance of the territory, as in the XIX century. An important part of the project is the attention to traditional details, for example the reconstruction of the historical names of the area. The goal of the project is to create an organic environment for all population groups. The wooden walking zone is the connecting link of three zones: public, historical and park. The tree in the composition reflects the concept of –Strelka, as an informal center of Nizhny Novgorod”. The territory of the –village” has great tourist, cultural and business potential.



Fig. 5. Competition project development concept of Nizhny Novgorod Strelka. NNGASU, Department of architectural environment design, 2017.

NNGASU, Department of Architectural Design, Park at the –Strelka”. Course project, Prof. Y. Shaboldin, M. Rymarenko, Students A.Goguyeva, E.Polesskaya, L.Ivanova

The main purpose of the projects was to revive the territory of the former port and to create a landscaped waterfront. The first park is multi-functional, there are conditions for different types of recreation, which will

attract visitors of different categories. On the headland there is an art object with an observation platform in the form of Shukhov tower. The main function of the second park is a quiet rest. There is a picturesque pond which can be used as an ice rink in winter. On the headland there is a fountain with a front alley. The third project is a walking park with many playgrounds and recreation areas. Also there are several fountains, the largest of which is located at the confluence of the rivers and is an accent.

NNGASU, Department of Architectural Design, Metropolitan Park on the Strelka Course project, Prof. A. Gelfond, A. Murunov, Students A. Kalisheva, D. Nuzhdin

Located at the confluence of the two rivers Oka and Volga, the unique area of the Strelka (–spit” in Russian) gave rise to the city of Nizhny Novgorod and once played the role of the largest marketplace in all of Russia. The aim of this project is to return the Strelka to its former glory, which once upon a time inspired the Russian architect Shukhov to create his amazing structures. The open spaces and shopping areas bring us back to the All-Russian Industrial and Art Exhibition of 1896. The style chosen for the project, inspired by the Russian avant-garde, reveals the dynamic potential of the area, inviting people to go beyond known limits and reconsider their perception of reality.

NNGASU, Department of Architectural Design, Science and Technology Park at Strelka, Prof. A. Gelfond, Prof. M. Dutsev, Master's student M. Andreeva

Strelka is the key place for Nizhny Novgorod emphasizing natural features of the city. The objective of the project is to identify the potential of this place and highlight the features of the city. The concept of Science and Technology Park at Strelka in Nizhny Novgorod is based on universal space establishment for leisure, carrying out mass educational, entertaining and creative events, presenting scientific-technical achievements and exhibits of different scales and themes, both historical and modern. The remarkable atmosphere of the place is completed by a combination of the plan structure which is close to classical and the embankment port area with an outdoor display. It is also maintained by an associative array created by means of Park appearance elements, the materials employed in it, and selective atmosphere revival where the machinery is really used. Thus, the machines are not just exhibited objects, they can also serve as pavilions of different applications. The playing aspect is of great importance. The scales-play makes it possible to arrange nicely even the largest sites prototypes on this territory. Keeping in mind that this is a port area, the elements that were historically its integral part, such as port cranes and warehouses, are preserved partially. A new feature is assigned to them. They are supposed to be used for educational and exhibition purposes. The Park is connected with Science and Technology Museum (which could be presumably located next to Planetarium) by a public monorail branch road.

## VI. CONCLUSION

An exhibition function, as the most flexible by nature, implies continuous changes, therefore, it is offered as

dominating. The outdoor exposition zone of the Nizhny Novgorod Museum of Science and Technology is to be connected with the building of the Museum of Science and Technology near the Planetarium by a monorail railway. Outstanding technical achievements — ships, hydrofoils, wing-in-ground craft — are associated with water, and this is just logical to position them on the embankments. The revised positioning of Nizhny Novgorod as a large scientific, innovative and industrial centre of a world scale with rich traditions and actual tasks will permit to fulfill the following:

- to form new public spaces as places of social activities;
- to use world best practices of establishing such objects;
- to identify functional potentials of areas essential for the city — the Oka embankment and Strelka, the junction of the Volga and Oka rivers.

The conception is based on establishment of a multi-purpose space for recreation, educational and entertainment events, exhibitions of scientific and engineering achievements, various scale and themes expositions, both historic and contemporary.

The specific atmosphere of the place is created in the park by combination of almost classic planning structure and a port zone of the embankment with an open-air exposition. It is backed up by an associative series of park elements, such as an entrance group, resembling a factory chimney; a viewing platform in the form of a submarine hull; a canal, resembling one designed by Betancourt around it; warehouses and special building materials — metal, aged red bricks, spare parts as decoration elements for reconstruction of exact real surroundings in which the equipment operate. The equipment are not just exhibits, they also may be used as pavilions for various purposes. Part of them is shaped so that they change gradually into a green zone by means of specially designed roofing. The construction in the form of a submarine is used as a viewing platform, a playing ground and a berth. A play of scales makes it possible to install tactfully prototypes of even very large objects. The cleared out metal structures of the warehouses on the Volga embankment become also part of the exposition.

The functional potential of the place is based on a number of reasons. First of all, Nizhny Novgorod is a city located on the great rivers. Therefore, their embankments are significant natural places fit to demonstrate unique achievements of people. Conceptual ties of natural and anthropogenic, underlined in this approach, are fundamental for the idea to establish a universal public space with unlimited functional potential, which may be demanded by the present and future recipient.

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