

REGENERATION PROBLEMS OF THE ODESA HISTORICAL ENVIRONMENT IN THE CONDITIONS OF POST-WAR RECONSTRUCTION

Oleksandr KULIKOV^{1*}, Tomasz KROTOWSKI²

¹Kyiv National University of Construction and Architecture, 31 Povitrianykh Syl Avenue, Kyiv, 03037, Ukraine

²Lodz University of Technology Institute of Architecture and Urban Planning, 116 Żeromskiego St., Lodz, 90-924, Poland

Abstract

The article raises the problem of the regeneration of Odesa's historical center during post-war reconstruction. The stages of the formation of Odesa's urban planning structure, the main urban planning features and outstanding objects and the determining factors that led to the formation of the historical center and Odesa as a whole are analyzed. The zoning of the historical center and restrictions following the legal status of the zones are analyzed. The negative impact of the war on the destruction of historical objects of Odesa is studied. It is predicted that the main measures for the post-war regeneration of Odesa's historical center will be the reconstruction of individual damaged historical objects, since the overall planning structure of the historical center has been preserved.

Keywords: *Regeneration problem; Historical environment; Odesa; Post-war reconstruction*

Introduction

The war in Ukraine has exacerbated many problems related to monument protection and restoration activities that existed even during peacetime. It is worth paying attention to the fact that the inconsistency of the protection statuses of some historical objects and non-compliance with the regulation of development within the boundaries of protected areas have led to confrontations between activists and developers/owners of historical objects. The unprofitability of the original function of objects of background development, monuments of local importance and newly discovered objects and many restrictions on their restoration have intensified the attempts of the owners to build modern buildings on the site of these objects. Cases have become more frequent when a historical object was hastily entered into the monument protection register already during its destruction and this was also no guarantee of its restoration.

First of all, it is worth focusing on those legislative terms that are contained in the Law of Ukraine "On the Protection of Cultural Heritage" [1] and are among the most important for the preservation and post-war restoration of the historical center of Odesa.

In particular, it is necessary to eliminate problems related to the legal status of the object, excluding the situation when an already dilapidated building is entered into the register. Therefore, this requires clarifying the list of objects that have the status of a "cultural heritage object." Regarding buildings that have the status of a cultural heritage object, the measures listed in the law are mandatory: legal, organizational, financial, material and technical, urban planning, informational and other measures for accounting, preservation, restoration, maintenance,

* Corresponding author: elskrinka@ukr.net

operation that does not spoil the authenticity of the monument and, if necessary, rehabilitation, revitalization and museumization.

During wartime, it is impossible to take measures to protect and restore the historical environment of cities and individual sites, especially in areas of combat operations and those that are actively shelled (Odesa is one of them). Due to shelling and security restrictions, it is impossible to conduct a full-fledged survey of damage and destruction of cultural heritage sites; only rubble is cleared and, if possible, emergency priority conservation measures are taken to preserve the state of the monument until post-war restoration. Monitoring of unique sites is carried out with the participation of UNESCO specialists. Another predicted problem of post-war restoration is limited funding and a lack of relevant specialists.

Compliance with the protection zones of architectural monuments, historical and cultural reserves, historical and cultural protected areas, development regulation zones, protected landscape zones and archaeological cultural layer protection zones remains relevant. It can be predicted that some of the problems in this part of the legislation will worsen during the post-war reconstruction, since, according to some forecasts, there will be trends of population attraction to large centers, including Odesa. Accordingly, the growth of the city's population causes a need for new construction, mainly residential and this is due to the shortage of land plots and in this case, low-rise buildings in the central parts of cities, especially those that have been destroyed, become particularly vulnerable. Even before the war, violations were observed in the rules for ensuring a buffer zone around a world cultural heritage site.

The problems of non-compliance by the owner of the historical object with the requirements of its proper maintenance following the status were caused by the fact that the term "restoration," which is used for the restoration of such objects, includes some measures defined by legislation and legal documents of monument protection and restoration. Restoration measures must be carried out by licensed specialists and such work is significantly more expensive than ordinary repairs. It is worth noting that for a cultural heritage object, it is necessary to include information in the protection document about which part of the object is the subject of protection.

An important event was the inclusion of the Odesa historical center in the UNESCO World Heritage List in 2023. At the same time, the inclusion procedure this time was distinguished by its peculiarity, which was due to the exceptional situation in which Ukraine was, because many cities that had historical and cultural monuments, including Odesa, were under constant rocket fire. In particular, the Italian delegation proposed creating a working group to finalize the nomination dossier for the Odesa historical center, which had been on the previous list since 2008. At the 18th extraordinary session of the UNESCO World Heritage Committee in January 2023, the historical center of Odesa was recognized as a UNESCO World Heritage Site with registration number No. 1703, with an area of monument territory of 618.54 hectares and an area of buffer zone of 618.8 hectares.

At the same time, the path to this important event was very long and began at the end of the last century. Thus, in 1985, specialists from the Ukrproektrestavratsiia Institute submitted proposals for the boundaries of the historical and architectural reserve in Odesa based on an integrated environmental approach. These proposals proposed comprehensive protection of the old city center of Odesa with the state registration of more than 300 architectural monuments. The next stage in preserving the valuable historical environment of Odesa was the creation in 1994 of the State Historical and Architectural Reserve "Old Odesa" with objects from the late 18th – early 20th centuries. 915 heritage objects were transferred to the jurisdiction of the newly created reserve and the reserve itself acquired the powers of the local state body for the protection of monuments. In 1989, the Ukrproektrestavratsiia Institute developed a historical and architectural reference plan for the central part of Odesa. In the same year, the Master Plan of the city was approved, but it did not identify historical areas and did not develop a project for monument protection zones.

In 2001, the Odesa branch of the State Scientific and Technical Center "Conrest" submitted its proposals in the "Historical and Architectural Reference Plan and Zones for the Protection of Historical and Cultural Monuments in the Development of the Coastal Territories of Odesa," with the development of the "Scheme for the Protection Zones of the Historical Area of Odesa." In 2004, the Scientific and Research Institute of the Theory and History of Architecture and Urban Planning (SRITHAUP) developed the "Concept for Determining the Boundaries and Modes of Use of the Territories of the Odesa Historical Areas." There, nine historical areas were identified within the cultural heritage zone and the corresponding areas of each area: area I – the historical center (583.78ha); area II – Moldavanka (Moldavanka and Diukivskyi Garden, 403.34ha); area III – Peresyp (221.88ha); area IV – Romanivka settlement (185.44ha); area V – Near and Far Mills (Near and Far Mills, Vorontsovka, 249.59ha); area VI – Oleksandrivskyi Park (T.H. Shevchenko Park, Lanzheron, Otrada, 218.31ha); area VII – the railway station area (railway station area, Sakhalinchyk, hippodrome area, 642.44ha); area VIII—Kuyalnyk resort (25.56ha); and area IX – Fountains (Small, Medium and Large Fountains, Arcadia, 1147.69ha).

However, this division into areas of the historical center of Odesa caused a number of contradictions, which were revealed during the survey of the outlined areas in 2007. In particular, such territories as "Kuyalnyk," "Peresyp," "Moldavanka," and some outskirts did not have legislative signs that would allow them to be attributed to the historical area.

In 2004, the SRITHAUP Institute developed a Draft Proposal for the Inclusion of the Historic Centre of Odessa on the UNESCO World Heritage List. This proposal proposed to delineate the historic part of the city with an area of 95 hectares within the boundaries of Primorska, Bunina (now Niny Strokatoi), Polska and Polskyi Descent streets and grant it the status of a reserve.

In 2006–2007, a quarterly historical and architectural inventory of the historical buildings of Odessa within the central historical part was carried out. An inventory card was drawn up for each of the cultural heritage sites.

Even though the destruction of historical sites in the Odesa center is of a local focal nature, during post-war reconstruction it is necessary to adhere to an environmental urban planning approach, especially since the historical center of Odesa was included in the UNESCO World Cultural Heritage List as a separate protected site.

The Russian-Ukrainian war made adjustments to monument protection and restoration activities, as specifically military destructive factors came to the fore – shelling from various types of weapons. Therefore, this required the development of other technologies for the reconstruction of damaged objects. Since the beginning of the war, specialists from various institutions and organizations have been engaged in the issues of surveying damaged objects in the cities and towns of Kyiv, Odesa, Chernihiv and other regions, including scientists from the Kyiv National University of Construction and Architecture, specialists from the Kyiv Research Institute of Forensic Expertise etc. Surveys of individual damaged objects in Odesa were carried out in 2023 by specialists from the Ukrainian International Institute "Vidnovlennia" ("Reconstruction") involved by the UNESCO Office in Ukraine. The purpose of such surveys was to create an electronic archive of objects using the 3D scanning method.

It is worth noting that the visual inspections of the Museum of Western and Eastern Art, the Museum of the Odesa Trade Port, the Odesa Regional David Oistrakh Philharmonic and some other architectural monuments of the historical part of Odesa conducted by the authors of the article and the conclusions drawn on their basis, are consistent with the conclusions drawn by specialists of the Ukrainian International Institute "Vidnovlennia" ("Reconstruction"), carried out as a result of the analytical and field study of damage to such an object of historical and cultural heritage as the House of Scientists.

In particular, the inspections of damaged architectural monuments of national and local importance confirmed the presence of the following damage:

- displacement of wooden structures and the appearance of cracks and deformations on the rafters;
- damage to the cornice and risalit, destruction of the decor;
- the presence of chips and potholes;
- damage to columns and consoles;
- damage to the stairs;
- interior damage: cracks, loss of decor, peeling paint, falling-off decor, chips, damage to joinery, peeling plaster from window slopes, loss of molding elements, damage to furniture.

At the same time, the damage caused to the Spaso-Preobrazhenskiy Cathedral and the Bristol Hotel is much more destructive and will require a much longer and more complex restoration process, as the damage affected a significant part of the roof, truss structures, floor slabs, staircases, external and internal walls, pediments, stained glass windows and other load-bearing and enclosing structures (Fig. 1).



Fig. 1. Odesa. Bristol Hotel (damage from rocket attacks on the city), 15 Italiiska Street

The purpose of the study was to highlight the value of the historical part of Odessa from the point of view of its preservation, protection and restoration; to analyze the sphere of monument protection legislation; and to outline the problems associated with the war.

To achieve the goal of the study, sources were processed in the following areas:

- publications that highlight the negative impact of the war on cultural heritage [2-13];
- problems of preservation and regeneration of the historical environment [14-17];
- studies that analyze the impact of the environment and ideology on the nature of the historical development of cities [18, 19];
- the concept of art in restoration [22, 23];
- requirements of a barrier-free environment [24];
- publications that highlight various aspects of restoration activities [26-32];
- monument protection and restoration documentation related to Odesa [33, 34].

Materials and Methods

The study used methods of historical analysis, urban planning analysis, comparative analysis and system analysis and analyzed the legislative and legal framework. Important sources of conclusions were the method of statistical analysis, iconographic method, graph-analytical

method and photo fixation method, as well as the forecasting method. The structure of the presented study corresponds to the traditional methodology of historical and urban planning monument protection research with an established methodology for identifying and assessing historical and architectural heritage with the development of a scheme of phased territorial development and identifying the main structural elements in it. In particular, the preservation of territorial formations and elements of city planning is established with an assessment of such components of the city structure as squares, streets and boulevards, compositional axes, the boundaries of the center and the city center, the nature of quarter-scale development etc.

When assessing the development, an inventory of objects within the area is carried out with the determination of the status of the objects and the simultaneous development of their use. Special attention is paid to objects under state protection.

The article analyzes the features of the urban landscape as factors influencing the perception of the architectural environment.

Based on such a comprehensive assessment, conclusions are drawn about the categories of value of the urban environment, landscape and buildings of various functional purposes within the studied area. The analysis will become the basis for compiling a historical and architectural reference plan, which will be supplemented by data from field surveys and research; in turn, the historical and architectural reference plan becomes an integral part of the City Master Plan.

Results and Discussion

A brief historical overview of the Odesa urban development

It should be noted that as of the beginning of the 19th century, the nature of the development of the historical part of Odesa was determined by both natural factors and technical achievements in the field of new materials and structures, as well as the multiculturalism of the population, since each ethnic group of Odesa influenced the image of the development.

As early as the second half of the 18th century, exemplary facades were developed for private construction in cities. In 1809–1812, 224 projects of typical “exemplary facades” were drawn up. In Odesa, such one- and two-story houses were also built according to “exemplary projects,” although they did not play a decisive role in the development of the historical part of the city and the formation of its image. Still, most of the buildings were built according to individual projects. One of the factors why “exemplary facades” did not become widespread in Odesa was that they did not take into account the natural and climatic conditions and did not correspond to the multiculturalism of the region; even the projects of the approved “exemplary facades” were reworked on the spot.

If we talk about the specifics of the urban planning structure of Odesa, it is worth noting that the dynamic development of the city’s trade function had a direct impact. The initial stage of Odesa’s planning was influenced by classicism, which coincided with the emergence of the city; therefore, the basic principles of classicism were applied, using the requirements of the relief, the regularity of the street network, the presence of accent squares and dominants, as well as the formation of the city’s representative parade center.

The first approved planning project for Odesa dates back to May 1794 and was dominated by fortification functions and technical issues, with much less attention paid to the planning of residential quarters [32]. However, this plan already laid the foundations for the city’s development: a residential area on a raised plateau, a port – a coastal zone in the lower part—ravines used as descents and communications between the upper and lower tiers of the city. Thus, a two-level principle of functional zoning was immediately established. Despite the imperfections of this project, it was the beginning of the formation of the planning structure of the central historical part of Odesa.

In August 1794, François Sainte de Wollant developed a plan for improving the layout of Odesa, where the emphasis was already shifted to residential quarters, the area of which was

increasing. In December 1794, he developed a promising project with the development of denser residential quarters, a harbor and a port development. Other places of religious buildings are also shown there.

Another project of 1794 made several cartographic errors, in particular buildings on the relief, the number of streets, the scale of quarter development etc. It is known that as of 1794, Odesa had two districts – the Greek and Military suburbs [32]. The rapid development of the city was caused by the next long-term plan for the development of Odesa by F. de Wollant, when the city expansion toward the south was envisaged and the residential area increased to 230 blocks, 10 squares and 54 streets. The initial combination of the beehive grids at an angle was preserved, but their connection was provided for by ledges. The meridional grid was expanded to the south like a staircase. Significantly, the nature of the settlement was influenced by the ethnic composition of Odesa. The squares were to serve as public centers of national and religious formations.

It was also proposed to create two esplanades in front of the Admiralty and the hospital, a rectangular square at the intersection of Sadova and Kinna streets with a church in the center and two market squares. The main market was planned along the axis of the Viiskova Balka (Military Ravine). This was the idea of an elongated ribbon structure for the Odesa shopping center.

In addition to developing proposals for the urban development of Odesa, F. de Wollant also designed the suburbs between the sea and the estuary. Despite the shortcomings of the 1794 project proposals, it influenced the subsequent plans for Odesa, developed under the leadership of P. Kharlamov in 1799. The changes concerned minor additions to the settlement area, changes in the outlines of squares etc. In general, the significance of F. de Wollant's and P. Kharlamov's projects also lies in fixing the prospects for the further growth of the city, which is also reflected in statistical indicators, where from 1797 to 1799 the number of brick houses increased from 346 to 506 and shops from 384 to 501.

By the beginning of the 19th century, the city's development had intensified and a new plan for the layout of Odesa was drawn up in 1802 by engineer Y. Ferster, based mainly on the previous plans of F. de Wollant [32]. The next plan for the development of Odesa dates back to 1803. By 1802, the number of residential buildings in Odesa and its outskirts had increased to 1,092 and shops and storerooms to 414.

An important role in the composition of the representative center was played by the appearance of the theater. The place for the theater was proposed in 1803, on the site of the destroyed barracks. The theater was built in 1804–1809; it was proposed to make a square around it and thus the theater was transformed into one of the main dominants of the city [32]. Another perspective plan for the Odesa development dates back to 1809. On the plan of Y. Ferster of 1811, the residential area was reduced for military reasons.

The following plans of Odesa are dated 1812, 1814 and 1815. The total period of formation of the main features of the city core and the outline of the planning vector was 25 years.

The next part of the analysis will concern the nature of Odesa's development at the level of plot development. If we analyze historical plans, the city consisted of small blocks, which were square in the city center. In the solution of street facades, there is a noticeable discrepancy with the “model facades” by W. Hastie; instead, they directly depended on the social and property composition of the population. The change in the social and property composition led to the densification of development and the appearance of a pattern in the development of streets along the building lines. Wealthy segments of the population developed mainly in the eastern part of the city with an approach to the port and port infrastructure.

The study of iconographic sources has shown that at the end of the 18th century, processes of densification of residential quarters began [33]. In the first decade of the 19th century, the trend of perimeter development of plots with the formation of closed courtyards spread. This period includes the beginning of the grid structure of the quarter planning and the appearance of a specific type of development – an apartment gallery building. The beginning of the 19th century

dates back to the trend of building retail spaces with shops with galleries in front of the front walls. Such shops were built on a modular basis, as were the quarters. Small plots were built up with L- and U-shaped buildings in plan. Significantly, the principles of building areas with residential and public buildings were the same, as well as when some kind of production was located in the estate.

The public architecture of Odesa has developed from modest one-story administrative buildings to exquisite large-scale buildings such as the Opera House by the Viennese architects G. Helmer and F. Fellner. The early 19th century was a period of hiatus in the construction of new public buildings. At a time when the role of the city-wide shopping center was played by the Oleksandrivska (Hretska) Square (1804–1814), the structure of Odesa's urban development was characterized by its two-story shopping buildings, united by galleries with columns. The role of high-rise dominants was taken over by the St. Catherine Church and the Spaso-Preobrazhenskiy Cathedral.

However, the most widespread type of building at all stages of the formation of Odessa remained the residential building, which developed from a one-story house with a certain number of windows to a multi-story, large-scale apartment building of the Historicism and Art Nouveau eras.

The next stage of Odesa's development dates back to 1820–1850; it was during this period that trade intensified and the city received the privileges of duty-free trade. Thus, this contributed to the economic development of Odesa and the development of industrial production and construction processes. Education also developed: examples include the Richelieu Lyceum, the Institute of Noble Maidens and the Gymnasium. In 1825, the City Museum of Antiquities was opened and in 1839, the Odesa Society of History and Antiquities began its scientific and research activities.

The flourishing of the city's economy had a positive impact on the development of architecture. If we trace the spread of styles chronologically, then in the 1820s and 1830s there was the flourishing of the Empire style and in the next twenty years there was the flourishing of Historicism-Romanticism. From the end of the 19th century and especially in the first decade of the 20th century, there were the traditions of Art Nouveau. The ensemble of Primorskiy Boulevard and the ensemble of the Old Bazaar date back to the first half of the 19th century. At the turn of the first and second half of the 19th century, the Institute for Noble Young Ladies, a school, and the Richelieu Lyceum were built.

Gradually, a tendency is emerging to build up the central part of Odesa with apartment buildings along the frontage lines of the streets.

If we characterize the image of Odesa at the turn of the first and second half of the 19th century, it is the correspondence of the scale of the center and the medium city zone in terms of development, the expressiveness of architecture and the formation of ensembles and panoramas from the seaside [33]. The height of the buildings gradually increased in the direction from the outskirts to the center.

The economic development of Odesa became even more active in the second half of the 19th century, namely from the 1890s, when industrial production developed. This period dates back to the reorganization of the Richelieu Lyceum into Novorossiyskiy University and the emergence of commercial schools. The development of monumental art was expressed in the appearance of new monuments and fountains. Starting from the end of the 19th century, Odesa is experiencing another "construction boom," the scale of construction is increasing and projects are being developed by famous architects and civil engineers. Since 1864, the Society of Engineers and Architects has been operating. In the second half of the 19th century, Historicism buildings spread and from the beginning of the 20th century, the style of Art Nouveau is observed, often in combination with Historicism.

A feature of this period in the development of Odesa is that the main attention was paid not so much to urban planning proposals as to specific development. However, certain changes

are noticeable. This is the increase in the production zone towards Peresyp, the construction of the railway, the densification of the quarter-based development of the center of Odesa and the formation of new residential areas on the outskirts [33]. Significantly, the new quarters did not have the modularity of the original development, which created the effect of the diversity of development. If we talk about urban planning changes, then this is the loss of the ensembles of Primorskyi Boulevard and the Old Bazaar of their original role as city-wide centers due to the emergence of other new centers of attraction. The transformation of the planning structure of Odesa was influenced by the transport factor and active industrial development with the emergence of a large number of industrial facilities. During this period, the reconstruction of the port infrastructure is underway.

In general, the “construction boom” in Odesa was expressed in the same way as in Kyiv and Kharkiv: maximum compaction of development within the boundaries of the site, the appearance of a “main” house and courtyard wings and the gradual transformation of the type of sectional multi-apartment medium-story commercial residential building into the main type of residential development. Similar to other large cities, apartments had different numbers of rooms according to the social status of the tenants. The main facades were designed in the style of Historicism-Romanticism, “brick style,” and Art Nouveau.

In parallel, the construction of hotels continued (the Bristol Hotel on 15 Pushkinska Street (now Italiiska Street) and the London Hotel on 11 Primorskyi Boulevard) (Fig. 2).

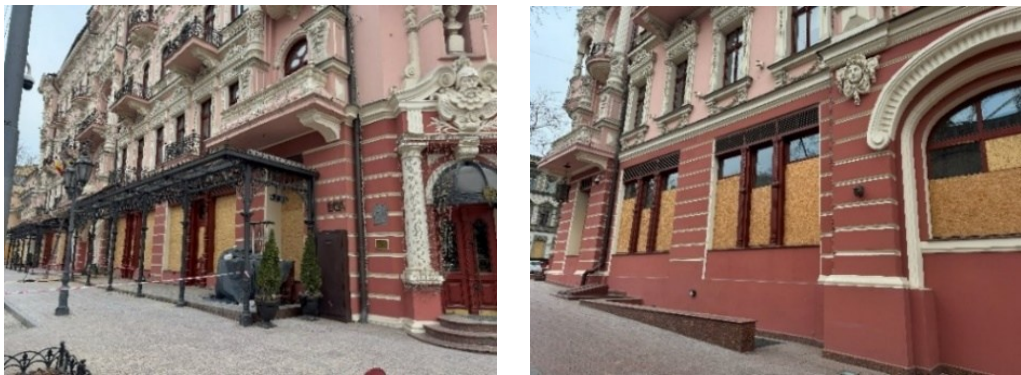


Fig. 2. Odesa. View of the damage to the facade of the Bristol Hotel from rocket attacks on the city, 15 Italiiska Street

The late 19th and early 20th centuries saw the emergence of new functional types of buildings, such as arcades, covered markets, banks (Zemskyi Bank, Credit Societies, Bessarabian-Tavrian Bank, United Bank, Accounting Bank, Land Bank, Russian-Asian Bank) and the New Exchange. The business center of Odesa is forming in the area of Deribasivska Street.

In 1884–1887, the central part of the city was adorned with the majestic City Theatre. At the same time, the New Theatre, the Sibiriakov’s Theatre, a circus and a skating rink were being built. Landscape work was underway, including the establishment of the so-called Oleksandrivskyi Park, public squares and street landscaping.

So, in the late 19th and early 20th centuries, the image of Odesa underwent radical changes due to a change in the scale of development, the formation of several urban centers at the same time and a variety of styles.

Urban planning characteristics of Odesa’s central part

Staroportofrankivska Street, Mechnikova Street and Manezhna Street border the central part of Odesa. They were laid out on the site of the original Voznesenskyi Boulevard. Important components of the historical part of Odesa include the development of Primorskyi Boulevard, Katerynynska and Birzhova Squares and the development of Hoholia, Pushkinska (now Italiiska),

Pastera, Dvorianska, Marazliivska, Preobrazhenska, Sofiivska, Derybasivska, Gretska, Bunina (now Niny Strokatoi), Sadova, Torhova and Katerynynska streets and Oleksandrivskyi Avenue. Unfortunately, the ensemble of the historical shopping center with the three squares united by Oleksandrivskyi Avenue has not survived yet [33]. The Potemkinska Stairs, Primorskyi Boulevard, Frantsuzkyi Boulevard, Birzhova Square and Teatralna Square play an important role in shaping the layout of Odesa.

Areas with valuable urban development

The object of the study is the central historical part of Odesa, bounded by Primorska, Staroportofrankivska, Panteleimonivska, Lidersovskyi Boulevard and the seashore. A feature of this part of the city is the use of active relief forms to enhance the expressiveness of architecture and reveal panoramas from the sea. The historical part has generally retained its planning structure, accents and dominants. An important role in the structuring of the center is played by streets (Lanzheronivska, Derybasivska, Gretska, Bunina (now Niny Strokatoi), Zhukovskoho (now Sviatoslava Karavanskoho), Yevreiska, Troitska, Uspenska streets, Oleksandrivskyi Avenue, Preobrazhenska, Katerynynska, Richelievskaya, Pushkinska (now Italiyska), Marazliivska, Pastera, Sadova, Hoholia, Novoselskoho, Nizhynska streets, Sabaneiv Bridge, Vorontsovskyi and Tchaikovskoho (now Teatralny) alleys) and squares (Dumska, Katerynynska, Mytna, Gretska, Soborna, Viry Kholodnoi, Pryvokzalna) and Primorskyi Boulevard. It is within their boundaries that the main objects of cultural heritage are concentrated.

Experts surveyed the historical center and divided the development into two categories [33]. The first category included development with notable objects of national and local significance and its area was defined from Soborna Square within Bunina (now Niny Strokatoi), Polska, Polskyi Descent, Prymorska, Preobrazhenska, Yelyzavetynska, Dvorianska, Nizhynska and Spyrydonivska streets. One of the proposals concerned the creation within the first category of development of an urban planning monument of national significance, "Old Odesa," with its corresponding entry into the State Register of Immovable Monuments of Ukraine [33].

The lower density and value of the monuments led to the definition of the area with buildings of the second category of value. Here, historical background buildings prevail and there are areas with low-value buildings.

The inclusion of the historical center of Odesa as a site in the UNESCO World Heritage List concerned the area within the boundaries of Polskyi Descent – Prymorska Street – Preobrazhenska Street – Derybasivska Street. Instead, another territory of the historical center was proposed as a buffer zone [33].

In 2008, the functional zones of the historical center of Odesa, which were proposed to be included in the protected monument, consisted of 237.5 hectares of the directly protected part of the territory of the central part of the city, which was limited by Podilskyi Spusk Street, Zhukovskoho Street (now Sviatoslava Karavanskoho), Sadova and Torgova Streets and in the northeast direction ended with the coastline of the Odesa Sea Port (Fig. 3). At the same time, the buffer zone was 1067.5 hectares and its borders passed through Frantsuzkyi Boulevard, Panteleimonivska, Staroportofrankivska and Balkivska streets. In the northeast and the east, the buffer zone of the historical center of Odesa was limited by the coastline of the Odesa Sea Port and the long coastline of the recreational part of the city, which included the territory of Shevchenko Park and the recreational zone of the city beach Lanzheron [34].

Analysis of the nature of the development within the historical center of Odesa and the state of preservation of the objects proved the concentration of cultural heritage objects within the historical center, the authentic nature of the urban structure and the high level of preservation of residential quarters with historical buildings with a harmonious stylistic combination. The main number of historical dominants and prominent public objects has also been preserved. However, at the same time, it was noted that a certain number of historical residential buildings require restoration measures. By analyzing the proportional construction of the historical center, it was proven that the center maintains the appropriate ratio of building height and street width; in this

case, it is the compliance with the principles of urban planning of Classicism and Empire style, ancient Roman urban planning. Accordingly, this imposes certain restrictions on the reconstruction of the historical center.



Fig. 3. Graphical representation of the boundaries of the protected and buffer zones of the historical center of the port city of Odesa according to the 2008 nomination dossier and UNESCO data

Determining the boundaries of protected areas

The following protected areas were identified [33]:

- the zone of the historical center of Odesa;
- protected areas around specific monuments.

The protected area of the historical center is surrounded by Prymorska, Staroportofrankivska, Bohdana Khmelnytskoho, Mechnikova, Panteleimonivska and Belinskoho (now Leontovycha) streets and Lidersovskyi Boulevard to Prymorska Street.

Protection zones around individual monuments – in Arcadia, around the school headquarters building on Fontanska Road, around the Cadet School at Fontanska Road – corner of Armiiska Street, around the Technological Institute at 112 Kanatna Street, around the Odessa-Mala station at 2 Liustdorfska Road, around the Sichnevoho Povstannia (January Uprising) plant complex at Oleksiivska Square, around the Diukovskyi Garden, around the city hospital complex on Akademika Vorobyova Street, around the Kuialnyk resort [33].

Also, zones of regulated development in the port area and on Moldavanka and zones of protected landscape were outlined.

Such a determination of the different nature of zoning led to recommendations for the use and functioning of these territories.

The following requirements were formulated for the historical center zone:

- to ensure the preservation of cultural heritage sites of various monument protection status in their authentic form;
- preservation requirements also apply to the original layout structure;

- the subject of protection is not only historical buildings but also the landscape and elements of landscaping;
- in this territory, following the State Building Standards, it is allowed to carry out regeneration, which includes restoration, museumization and, if necessary, revitalization, which does not spoil the authentic appearance of historical sites, as well as restitution, i.e., reconstruction following the original appearance of lost buildings;
- measures taken to regenerate the historical environment of the center of Odesa should not spoil historical ensembles, panoramas and vistas.

All proposed measures are coordinated with the cultural heritage protection authorities, in particular with the Department for the Protection of Cultural Heritage Sites of the Odesa City Council and with the Department for the Protection of Cultural Heritage Sites of the Odesa Regional State Administration. Regeneration measures provide for the removal of disharmonious elements of the historical environment that appeared as a result of later reconstructions. In place of such disharmonious elements, it is allowed, in agreement with these authorities, which prepare the relevant documentation, to build new facilities that correspond to the character of the urban environment or to arrange green spaces. New facilities must correspond to the scale and layout of the adjacent development. It is prohibited to lay underground or above-ground communications that may disrupt the hydrogeology of the site or the historical environment and architectural monuments.

The same restrictions apply to protected zones around individual monuments and their groups. If it is a monument of local importance, all documentation is coordinated with the Department for the Protection of Cultural Heritage Sites of the Odesa City State Administration; if it is a monument of national importance, the documentation is coordinated with the Department for the Protection of Cultural Heritage Sites of the Odesa Regional State Administration.

Separately, regulated development zones with historical planning, development, landscaping etc. are outlined, so new construction is also subject to the requirement of compliance with the established environment. The restrictions apply to some transport networks and the location of industrial and warehouse enterprises. For example, any objects in the port area should not exceed the height of the Marine Station. Similarly, the height of the Moldavanka development is limited to 48m.

Damage to the established structure of the historical part of Odesa as a result of the war

Although the Russian-Ukrainian war continues and the number of destroyed cultural heritage sites is increasing daily, mainly in the east and south of Ukraine, preliminary estimates indicate the following. In the Odesa region, including the city of Odesa, 119 cultural heritage sites have been destroyed and damaged, of which 28 are of national importance and 91 are of local importance. Among the damaged cultural heritage sites in Odesa are such monuments of national importance as the House of the Odesa Regional D. Oistrakh Philharmonic (New Exchange Building) (Fig. 4), the Odesa Museum of Western and Eastern Art (Abaza's Palace) (Fig. 5), the Vuchina Residential House, the House of Scientists (former Count Tolstoi's palace), the Odesa Museum of the Naval Fleet, the Odesa National Art Museum, the Odesa Literary Museum and monuments of local importance: the Bristol Hotel, the Spaso-Preobrazhenskiy Cathedral, the Odesa M. Vodyanyi Academic Theatre of Musical Comedy, Dormitory of the Municipal Institution "Odesa K.F. Dankevych Professional College of Arts", Odesa Museum of History and Local Lore, Arkadia Sanatorium, Bruni's Mansion and School of Horticulture Building.



Fig. 4. Odesa. The building of the Odesa Regional Philharmonic (New Exchange) (damaged as a result of rocket attacks on the city), 15 Niny Strokatoi Street, 2025

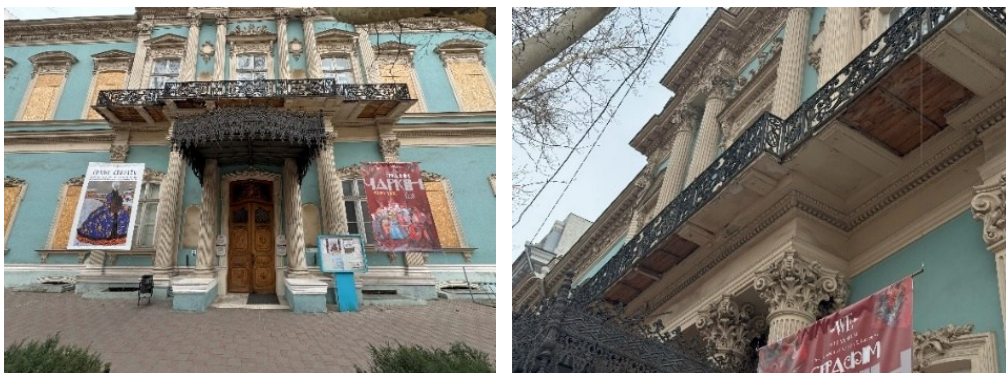


Fig. 5. Odesa. Museum of Western and Eastern Art (damaged as a result of rocket attacks on the city), 9 Italiiska Street, 2025

The problems of restoring these objects are reduced to the following:

- materials of a comprehensive survey and preparation of research and design documentation with an estimate of the volume of work;
- comprehensive repair and restoration works;
- partial repair and restoration works;
- restoration of facades;
- restoration of damaged and destroyed windows and doors;
- repair and replacement of enclosing structures;
- roof repair;
- ceiling repair;
- restoration of interiors with furniture.

In wartime, only priority conservation measures are carried out, as in the Spaso-Preobrazhenskiy Cathedral. In most damaged objects, priority measures were taken for partial conservation and prevention of further damage, including closing window openings with OSB boards, covering parts of the roof with tarpaulin films and protecting authentic floors, stairs and furniture.

Although it is recommended to preserve the historical background buildings, some of the severely damaged objects will be dismantled, such as the houses at 14 Kartamyshivska Street.

Conclusions

The uniqueness of the historical center of Odesa lies in the fact that it has preserved its authentic structure, which is based on an imitation of the ancient layout and most of the historical buildings are in good condition.

Based on the analysis of the nature of damage and destruction resulting from military operations, it was found that the most common cause of destruction is destruction from fragments of drones and missiles and the blast wave, as well as fires caused by this. The main consequences are displacement and destruction of structures, the appearance of numerous cracks, loss of masonry, destruction of parts of facades and interiors, damage to openings and loss of decor.

It can be predicted that the post-war reconstruction of the historical heritage of Odesa will concern the restoration of individual objects and during the post-war reconstruction of the historical center of Odesa with objects of different legal status, the following measures will be applied:

- restoration based on conservation (for unique objects with the appropriate status, in which authenticity must be maintained);
- revitalization, i.e., changing the original function of the object in case of its unprofitability to a new one, which will ensure the economic feasibility of the object while simultaneously preserving the character of the environment;
- revalorization, i.e., increasing the level or restoring the properties of the environment, both architectural and aesthetic and artistic, by combining restoration measures for relatively significant objects, if necessary, reproducing lost fragments of buildings or individual objects, removing unaesthetic additions etc.;
- regeneration, i.e., preservation with restoration and improvement of the planning structure of the historical center.

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