

## PECULIARITIES OF THE FORMATION OF STREET PLANTINGS IN RURAL SETTLEMENTS (SUMY REGION)

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**Introduction.** Provision of urban green space in compact cities is a major problem. Priorities for land allocation in urban green areas are neglected or easily negotiated in countries in transition. Therefore, regardless of the size of cities, it is recommended to include an index of greening in urban planning, and to reserve space for green spaces in the plans.

Unfortunately, during the analysis of urban planning and sanitary-hygienic aspects of the territory planning of the regions of Ukraine, the planning aspects of green areas are not even mentioned. Studies of the ecological condition of small towns of the Sumy region have shown that the beautification of their territory has not been given any importance over the past 50 years, and the problems of greening are clearly outlined here. According to the master plans of small cities, currently too generalized solutions are offered regarding normative indicators and in many cases cannot be a tool for carrying out specific tasks. In modern socio-economic conditions, it is necessary to improve the regulatory and legal framework used to solve the problems of greening of urban areas, a differentiated approach to greening, the introduction of a moratorium on the elimination of green spaces in the central areas of cities, the establishment of norms for new areas where there is practically no greening.

At the current stage, the reform of the branches of the economy of Ukraine is not an exception to urban planning, nature management and territory management. Over the past few years, the legislative framework for the regulation of relations in the field of protection and preservation of green spaces has been updated. New state building regulations (DBN.B.2.2-12:2019), changes to individual legislative acts are increasingly bringing the national legal framework closer to the legislation of the European Union. A lot of work is still being done to improve the regulatory and legal framework for the functioning of the complex green zone of the city, draft Laws of Ukraine are being developed, and other by-laws are being prepared. But, despite such constructive activity of the legislative branch of government in Ukraine, the majority of legal norms regulating relations in the field of urban greening. are outdated and need improvement [2, 4].

In the current national legislation of Ukraine, the issue of green zones of settlements is included in the group of urban planning regulatory acts [6]. Practically none of the laws of the ecological block mentions the preservation, protection and restoration of green areas of cities. This is a significant underdevelopment, since in the countries of the European Community, the issue of green zones is highlighted in most environmental directives.

In Ukraine, special regulatory acts regarding green zones are currently under development, in particular, the draft Laws of Ukraine "On green areas of cities and

other settlements", "On the protection of green areas in cities and other settlements" [13, 25-29] etc.

Environmental protection regulations are relevant to the functioning of complex green zones of cities, only in the case of granting protected status to individual objects of the city's green economy. In environmental legislation, in particular in the Forest Code of Ukraine (Article 4), it is stated: "The forest fund of Ukraine does not include: green areas within the boundaries of settlements (parks, gardens, squares, boulevards, etc.) that are not assigned to forests in the established order » [7]. That is, all plantations located within settlements do not belong to the lands of the state forest fund. Thus, a significant part of the complex green zone of the city is legally outside the limits of environmental legislation. In another case, if we consider the functional aspect of the complex green zone of the city, the recreational value is legally located in the ecological plane, since the Land Code of Ukraine (Article 51) states: "Recreational lands include land plots of green zones and green spaces of cities and other settlements..." [12]. Therefore, based on the above-mentioned facts, we can state that the category "complex green zone of the city" from a functional and legal point of view is an ecological concept, and from a territorial and legal point of view - urban planning. Since the legislation of Ukraine, which regulates relations in the functioning of the complex green zone of the city, is more developed in the area of urban planning and improvement of settlements, we will consider the main legal acts that regulate these relations. The main document that defines and details the functioning of the inner part of the complex green zone of the city is the Order of the Ministry of Construction, Architecture and Housing and Communal Affairs of Ukraine No. 105 dated 04.10.2006 "On approval of the Rules for the maintenance of green spaces in populated areas of Ukraine" [4, 8, 12]. According to this document: "complex green zone of the city (KZZM) is a set of urban and suburban plantings, the boundaries of which are drawn on cartographic materials by architectural authorities (on general plans, schemes and district planning projects), forestry authorities (on plans of forest plantations), local self-government bodies" [27].

In accordance with the Rules for the maintenance of green spaces, the objects of improvement in the field of green management of settlements are: parks, parks-monuments of horticultural art, hydroparks, meadow parks, forest parks, buffer parks, district gardens; dendrological parks, national, memorial and others; parks; urban forests; recreation areas; green plantings in security and sanitary protection zones; coastal green spaces; green plantings of adjacent territories [21, 26].

The nomenclature of the structural elements of the complex green zone of the city, according to Appendix 8 of the Rules for the maintenance of green spaces, includes the built-up areas of the city, the areas outside the built-up areas within the city limits, the areas outside the city limits within the green zone and the so-called undefined areas. Each of these territories is formed by structural and constituent elements.

The structural elements of KZZM include: city-wide landscape and recreation areas, landscape and recreation areas of residential areas, streets, roads, industrial areas, sanitary and protective zones (SZZ), forests and urban forests, highways, green

areas of suburban settlements, recreation facilities, tourism and sports, field protection strips, gardens and vineyards, rural land and water bodies. Accordingly, the constituent elements of KZZM are: city gardens and parks, parks and gardens of residential areas, boulevards, squares, alleys, areas of green construction and management of various institutions and territories, forest parks, meadow parks, hydroparks, forest areas within the city, territories of gardens and vineyards, fields, gardens, hayfields, pastures, reservoirs [30]. Taking into account the functional affiliation of agricultural [12] and water lands [19] to the KZZM, especially in the summer season, is a well-founded and scientifically proven fact. Since such objects have not only ecological importance, but also recreational and climate-regulating ones. Agrolandscapes of the urban environment produce oxygen, moisturize and purify the air, increase the level of aesthetics of urban areas and ensure the preservation of agrobiocenoses [8].

According to their functional purpose, the green areas of the inner part of the complex green zone of the city are divided into three groups: general use, limited use and special purpose. Green spaces for public use include suburban forest parks, city parks of culture and recreation, district parks, other specialized parks, city gardens and gardens of residential areas, public squares, boulevards, alleys. Green areas of limited use are green areas of microdistricts, health care facilities, kindergartens, schools, higher educational institutions (HEIs), vocational and technical educational institutions, sports and health and cultural and educational institutions, sanatoriums, private enterprises, warehouse areas etc. Green plantings for special purposes include plantings on city streets and highways, territories of sanitary protection and water protection zones, anti-erosion and wind protection plantings, botanical and zoological gardens, plantings on the territories of nurseries, flower farms, orchards of suburban farms, cemeteries [15].

Rules for the maintenance of green areas regulate the use, maintenance and protection of green areas. Responsible for the maintenance of green spaces in the settlement is the balance keeper of the territory, i.e. the economic entity under whose authority the landscaped plot of land is located. Thus, the greening of the territory of private estates and adjacent territories is the responsibility of their owner, the local self-government bodies are responsible for ownerless territories, and green spaces on territories where construction is underway - the developer or the owner of the land plot.

The rules for the maintenance of green spaces clearly define: "The general plan for the development of settlements of Ukraine is developed and implemented taking into account the requirements for the protection of green spaces. Urban planning activities in settlements are carried out in compliance with the requirements for the protection of green spaces" [24]. The main document that regulates urban planning activities and defines the main standards for greening of settlements is the State Building Regulations (SRB).

State Building Regulations of Ukraine (DBN.B.2.2-12:2019) "Territory Planning and Development", developed by the State Enterprise Ukrainian State Research Institute of Urban Design "Dipromisto" named after Yu.M. Bilokonya, entered into force in 2020. The current document defines: "Greening of populated

areas and suburban areasterritory should be carried out on the basis of the development of a separate "Complex Green Zone" project [9]. However, it is worth noting that in the new document DBN.B.2.2-12:2019 "Planning and development of the territory", in contrast to the previous version of DBN 360-92\*\* "Planning and development of urban and rural settlements", the concept of a complex green zone of the city practically leveled and replaced by landscape and recreational areas and suburban areas, then in the new edition of DBN.B.2.2-12:2019, landscape and recreational areas include a network of landscaped and other open spaces of settlements, suburban and intercity zones [9, 11 , 13]. In the new version of the DBN, it is clarified that landscape and recreational areas, i.e., the complex green zone of the city, include: recreational areas, resorts and medical and recreational areas, objects of cultural heritage and tourist areas, territories of nature reserves and water funds, water protection , field protection, transport and distribution greened lanes and other objects of green economy [20].

As in the Rules for the Maintenance of Green Spaces, as well as in the previous and current editions of the DBN, in the structure of green areas of the city, areas of general use, limited use and special purpose are distinguished. Instead, there are certain discrepancies in the nomenclature of structural elements of the complex green zone of the city. In particular, in DBN.B.2.2-12:2019 "Planning and development of the territory", in addition to the built-up areas of the city, areas outside the limits of development within the city limits, areas outside the city limits within the green zone and undefined areas, extra-urban landscape areas and nature reserve areas. Non-urban landscape areas include landscaped, recreational and health resort areas for public use. Protected natural territories include protected natural territories (national natural parks, regional landscape parks, botanical, dendrological, zoological parks and parks of monuments of horticultural art) and specially protected natural territories (customers, natural monuments, etc.).

Thus, the main provisions of the functioning of the integrated green zone of populated areas are presented in the following normative legal acts: Rules for the maintenance of green spaces in populated areas of Ukraine, Laws of Ukraine "On the improvement of populated areas", "On the regulation of urban planning activities" and State building regulations. The current legislation of Ukraine covers the functioning of only the inner part of the complex green zone of the city. Failure to take into account the role of the suburban green zone of the city and assigning the issues of preservation of green areas to urban planning legislation practically eliminates the ecological component of this problem.

**Materials and methods of research.** The village of Kosivshchyna is the administrative center of the village council, which includes such villages as Zakumske, Kononenkove, Mali Vilmy, Nadtochieve, Solidarne, Chernetske. It is located three kilometers from the district and regional center, the city of Sumy, on the right bank of the Sumka River (Figure 1).

The first mentions of the village of Kosivshchyna are found in archival documents from the second half of the 18th century. In 1768, the Kosivshchyna farm, with an area of 444 acres of land, belonged to lieutenant Mykola Kosovtsov. There is

also another name for the farm - Sukhonosivka. The village was divided into large Kosivshchyna (about 50 yards) and small Kosivshchyna (12 yards, where modern Lesya Ukrainka Street is located).

On the territory of the village of Kosivshchyna, archaeological monuments of the Chernyakhov culture were found, dating back to approximately the 4th century AD. Archaeological excavations were carried out by a group of students of the SDPI named after Makarenko under the leadership of O.I. Zhurk.

According to historical essays that can be found in archival materials, it is mentioned that in the valley of the Vilma River, on lands mostly unsuitable for farming, peasant families of different financial status settled. Their gardens were located above residential buildings. During droughts and crop failures, richer peasants were forced to migrate to the cities of Sumy and the village of Kosivshchyna, while the less well-off moved to the villages of Nadtochieve and Chernetske.



*Figure 1. The village of Kosivshchyna on the map of 1770 (archive photo).*

At the beginning of the 20th century, these settlements were part of Sumy, Tereshkiv and Stepaniv volosts of Sumy County. According to the information of the newspaper "Sumy Visnyk" dated October 25, 1917, the peasants of the villages of Kosivshchyna and Sukhonosivka arbitrarily plowed 60 acres of land, which was intended for sowing ravines in 1918. They also said that they will distribute other plots of land. Soviet power was established in Kosiv region in January 1918, and in December 1919, rural committees were established in the villages.

In the 1920s, two village councils were formed: Kosivshchynsk and Chernetsko-Vilmivsk. In December 1922, on the territory of the village of Mali Vilma, the land artel "Bzhola" was founded, which united 11 peasant households (48 people), as well as the artel "Selyanin" in the Kononenkove farm with 52 dehiscent of land. The state

allocated loans to these artillerymen for the purchase of planters and livestock, guaranteeing the supply of the harvest in 1924. However, the drought and the invasion of the winter weevil prevented small collectives from settling their loans [23].

In 1941, the Second World War began on the territory of Ukraine, and in October of that year the Sumy region came under occupation. The peasants were forced to follow the orders and orders of the occupying rulers. In September 1943, the fascists left the village.

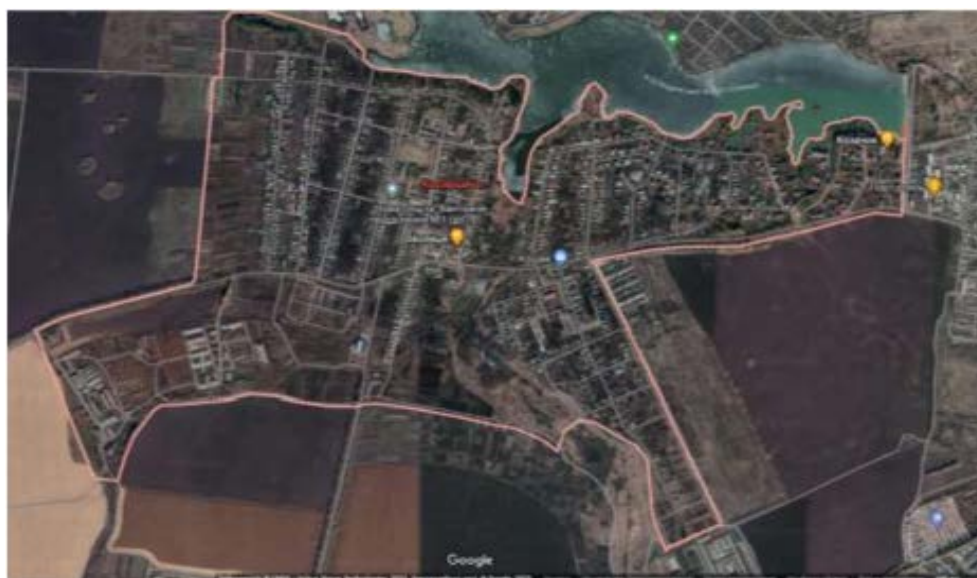
In 1965, the Sumikhimprom plant decided to build a reservoir. In the spring, water began to flood the village and surrounding areas in the city of Sumy. Residents appealed to higher authorities to stop the work, but to no avail. In addition, the project itself turned out to be unsuccessful. In 1966, there was a spring flood, the water level was so high that there was a threat of flooding the village of Kosivshchyna, and therefore the dam was blown up. In 1971, another spring flood occurred, the water breached the dam, and the planned water level was not restored.

In 1966, 800 people lived in the newly built village. New streets of Shkilna, named after Lenina, Pershotravneva, Zhovtneva. In 1967, a new 8-year-old school, a nursery for 40 places, a club for 360 places, a library, and in 1965 a paramedic-midwifery station were built. In the center of the village - a stadium, three shops.

Initially, the collective farm named after Lenina, and in the early 1970s the state farm "Hannivskiy", even later the state farm "Kosivshchynskiy", since November 1999 - the limited liability company "Agrofirma "Kosivshchynska" for a long time specialized in the cultivation of vegetables and dairy production. In the 1960s, sheep were raised. There were several gardens, a berry orchard.

From the beginning of the 1980s to the year 2000, a greenhouse farm with an area of 2 hectares operated. Cucumbers, tomatoes, cabbage, onions, beets, carrots, peppers, eggplants were grown.

As of January 1, 2022, 2516 people live in the village of Kosivshchyna, Sumy district. The scheme of the organization of the village territory is shown in figure 2.



*Figure 2. Orthophoto map of the research area.*

At the time of the research, the territory of the settlement is adjacent to the red line of the regional center, however, the lands that are used by the Kosiv region settlement council are assigned to the Sumy district.

Therefore, the territory of the village of Kosivshchyna is the land of the settlement community, which territorially borders the regional center, the city of Sumy. The center of the village is located 5 km from the center of Sumy. Transport connection with the largest city of Sumy region is regular and is carried out at the expense of public transport.

Since 2015, the process of deurbanization has significantly intensified due to the outflow of residents of the city of Sumy to nearby villages, in particular Kosivshchyna, to live. During this period, part of the land was taken out of use and given over to the development of low-rise cottage-type houses. Currently, this is the territory of the Tytul housing cooperative. A more in-depth analysis of the planning structure of the research area is provided in Chapter 3 of the qualification work.

The theoretical and methodological principles of research and standardization of the state of green areas of populated areas are highlighted in publications of urban-ecological, economic, legal, geo-ecological, constructive-geographical, architectural-construction and engineering-ecological direction. Within the framework of studies of city ecology, a significant contribution to the development of scientific approaches to the study of the complex green zone of cities was made by V.P. Kucheryavy, F.V. Stolberg, V.V. Vladimirov, V.O. Fesyuk, V.A. Gorokhov, and L. Lunts .B. and other.

The evaluation of the level of spatial organization and the landscape-functional structure of the green zone of the capital city was carried out by O. V. Savytska based on a comparative analysis of the green zones of Kyiv and Berlin. - the functional structure of the urban green zone. In the study of green zones of small and medium-sized cities of the Lviv region, M. Nazaruk and Yu. Zhuk prove that the system of green spaces should correspond to the planning structure of the city. Certain groups of green spaces correspond to each planning unit: microdistrict - microdistrict garden; residential area - residential area garden, boulevard, square; planning district - district park; city - city parks, forests, gardens, specialized parks, hydroparks, forest parks, meadow parks, boulevards, squares, embankments. The structure of the green space system depends on the size of the city [9].

For a small city - the simplest structure, for a medium one - somewhat wider and for a large city - an expanded structure of green spaces. Thus, after summarizing the above, it can be stated that the KZZM is hierarchically divided into macro-level, meso-level and micro-level; the forest park and forestry parts of the KZZM are distinguished by territorial characteristics; according to the functional purpose - green spaces for general use, limited use and special purpose. In the normative legal acts, separately in the structure of the KZZM: built-up areas of the city, areas outside the limits of the built-up area within the city limits, areas outside the city limits within the green zone and undesignated areas are distinguished. Each of these structural units includes specific groups of green spaces or individual landscaped objects that form a complex green area of the city.

**Results.** In general, the territory of the village of Kosivshchyna can be divided into three zones according to the periods of formation. The first zone (a) is the old village where the central manor of the village council, schools, stadium, and kindergarten are located. In this zone, one-story private estates of 50-60 years of construction of the rural type prevail. The second zone (b) is the zone of the new period, which was formed during the time of independent Ukraine (1992–2000). Private construction of two-story houses prevails in this part. During construction during this period, there were restrictions on the size of plots and the area of houses. It is distinguished by the construction of the post-Soviet type of architecture with a predominance of brick houses made of silicate bricks. The third zone (c) is a modern building. It is also characterized by multi-storey buildings from two to four floors, complex European-style architecture. Visualization of individual sections of different zones is presented in the photo of figure 3.



*Figure 3. Zoning of the territory of the village Kosivshchyna depending on the stages of development: red line - old village, blue - buildings of the 90s, green – modern building (2000 years).*

The zoning of the territory is shown in the diagram (Figure 4).

The landscape arrangement of rural settlements in the North-Eastern part of the Forest-Steppe of Ukraine has pronounced features of the Ukrainian mentality, which are quite clearly manifested even in modern elite settlements. The most characteristic feature of landscaping is a fence, which reliably separates private property and indicates the owner's wealth (mastery) and secures existing boundaries. Quite often, high fences close from prying eyes not only the private space of the inner courtyard, but also the architectural decoration of the house.

Examples of fences that were discovered during the survey of the streets of the village of Kosivshchyna are presented in figure 5. As you can see from the photo, most fences are about 2 meters high, made of dense materials, mainly bricks of different colors, flat slate and metal profile. The transparency of the fence is 0%.



Green plantations of rural estates consist mainly of fruit plants: apple trees, pears, apricots, plums, walnuts, cherries, hawthorn. Of the bushes, you can most often find lilac, cypress, forsythia, black elder, currant.

Field plantings are functional, in addition to comfort, they provide the owner of the estate with fruits and berries. Recently, it can be observed that the street plantations of fruit species are not used for food purposes and the fruits that fall after ripening pollute the footpaths and the carriageway of the streets. Visualization of street plantings is presented in figure 6.



Figure 4. Examples of residential construction in different zones.

It has been noted that if until now the greening of the village yard, and not infrequently the streets, was dominated by fruit plants that had a utilitarian purpose and individual decorative bushes, then recently signs of a complex approach to landscape arrangement began to appear. Instead of utilitarian plants, decorative plants are being planted, among which preference is given to conifers, evergreens, and decorative deciduous ones.



*Figure 5. Visualization of fence materials and structures of private estates of Kosivshchyna.*

You can find regular plantings in the form of living walls and borders, mixed borders, lawns, rose gardens, alpine slides and rocky flower beds. Species of flora not typical for the area begin to predominate in the assortment: western thuja, Canadian spruce, species of juniper, spirea, etc. (Figure 7).



*Figure 6. Examples of street landscaping.*



*Figure 7. Examples of decorative design of the entrance area from the side of the street.*

In some areas, you can find colorful landscape compositions of national color with the use of clay, wheels, pots, decorative sculptures in the form of a stork, a mill, etc. Examples of such compositions are presented in figure 8.



*Figure 8. Finishing the fence in ethnic style.*

Analyzing the material we have collected, we can say that the inhabitants of the villages still have a certain mentality of isolation from the common space. There is no comprehensive approach in the design of the general public space, its colors, beautification and landscaping. These processes are rather spontaneous.

Quite often, behind the beautiful, solid and rich fence of private ownership, public areas are nobody's land and are overgrown with weeds and self-sowing trees and shrubs or are used for storage of building materials, firewood, etc. (Figure 9).

The photos presented in Figure 9 were taken on only one street, on which the construction of new courtyards has long been completed, but construction materials are still stored near the estates, distorting the appearance of the street and making it difficult for pedestrians to move along it.

Complex landscaping and planned greening of streets and public places is episodic and clearly insufficient.

During the Soviet period in Ukraine, the landscape design of villages, in particular public and memorial facilities, was standardized. This was aimed at preserving and enshrining in the landscape the symbols of the new ideals, while destroying and painting sacred places. The development of the so-called model villages, the standardization of the range of decorative plants used for landscaping created equal opportunities for landscaping the yard of most peasants.

Rural parks, squares, landscaping of streets and school grounds in hospitals and preschools did not strive for sophistication and uniqueness, but were implemented according to simplified schemes using available plant material. Thus, the unification of landscape design has become a characteristic feature of most rural settlements. However, thanks to enthusiastic enthusiasts, in some places it was possible to create unique objects of improvement, such as village centers, memorial sites and unusual village parks.



*Figure 9. Clogging of public space with construction waste and economic activities of residents.*

The use of the principles and experience of landscape architecture of Western countries in Ukraine revealed that blindly following even the best practices of landscape arrangement of territories does not lead to the desired results, if the national characteristics and mentality of our people are not taken into account. The problem lies not only in taking into account the soil and climatic conditions of individual regions of our country, which is especially important for the selection and use of imported plants. Often the key is the mentality of the customer, for whom their own preferences and personal perception of the landscape have more influence than the advice and recommendations of the landscape architect.

Studying the global experience of landscape design of rural settlements and taking into account national traditions and features, in particular mental ones, appears as an urgent task for rational landscape planning.

This involves the use of a functional approach, the involvement of specialists in solving these tasks, the consolidation of the legal status of public areas in the village and the provision of appropriate sources of funding for their maintenance. In particular, systematic work is needed to popularize the best practices at both the global and

national level in matters of landscape arrangement of rural areas and private homesteads.

The main differences between ethnic Ukrainian landscapes and Western European landscapes are shown in Table 1.

Table 1. The main distinguishing features of the ethnic landscapes of Ukrainians and Western Europeans (according to D.M. Grodzinsky, 2005).

<b>Ukrainian landscape</b>	<b>Western European landscape</b>
One's own yard is arranged as a microcosm, as a model of the world with all the places that provide or symbolize the fullness of being	The composition of places and their configuration within their own estates are minimalist
Fences are a symbol of order, there are many of them in the landscape	Fences are a symbol of the limitations of the individual, there are few of them in the landscape
Public places are seen as nobody's property, they are often unkempt and play a background role in the landscape	Public places are considered as their own, they are neat and make up the central places of the ethnic landscape
The landscape has many unfinished places, places where work is being done; often the landscape resembles a construction site	The landscape has a finished look, with few areas that are being worked on
Multicolored	Monochrome
The complexity and romance of the configuration	The regularity of the configuration, its functionality and pragmatism

**Conclusions.** The influence of the mental characteristics of Ukrainians is manifested in the characteristic features of the landscape arrangement of rural settlements. The following aspects stand out among the characteristic features of the Ukrainian rural landscape:

- 1) the use of fences around homesteads, and often within the boundaries of the village yard itself;
- 2) the preference of fruit plants in the landscaping system, which not only perform utilitarian functions, but also have a decorative purpose;
- 3) multifunctional and irrational use of homestead territories of public purpose;
- 4) incompleteness of landscape compositions and constant development and improvement;
- 5) low level of aesthetics and sometimes neglect of street and public areas, which are considered by residents as undefined;
- 6) multicolor, complexity and romanticism of landscape compositions, which mainly have an individual character and are far from ideal.

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