

## „ALBA IULIA - THE GREEN CITY” - A PREMISE OF A RESILIENT COMMUNITY

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**Abstract:** *The reduction of green space massively exacerbates the problems facing a community, from urban environmental risks to the health and quality of life of the population.*

*The green spaces within a locality are the main element in the quality of life of its inhabitants. In view of the approved regulations on climate change mitigation, a green infrastructure becomes all the more important as it is vegetation that mitigates the impact of climate change on inhabited areas. Of all the elements that make up a green space, trees in municipalities play an essential role, as they are the category of vegetation that offers the most benefits to humanity: ecological, landscape, social, cultural and economic benefits.*

*Given the massive climate change we have witnessed in recent years, it can be seen that the earth's surface in general and urban areas in particular need „more green spaces to build resilience to climate and health threats” - European Climate Pact.*

**Keywords:** *green city; green spaces; resilient community; green and blue infrastructure; Sustainable forest resource management*

### 1. Introduction

The development of cities and human settlements has experienced a spectacular growth in recent years due to the increase in urban population. As of January 1, 2024, according to data from the National Institute of Statistics, the urban population accounted for 55.6% of the total population, compared to 34% in 1960. As this statistical indicator is on the rise, cities need to adapt to this situation. In these circumstances, cities need to be open to all, safe, resilient and sustainable. At the same time, it should be borne in mind that rural communities should not be ignored, but citizens should be provided with the conditions for a dignified life, regardless of their chosen living environment.

The lack of maintenance, modernization or creation of new green spaces within localities has negatively affected communities, leading to a statistical indicator of green space/inhabitant below the EU minimum standard of 26 m<sup>2</sup>/inhabitant, whereas the World Health Organization recommends that this indicator should be at least 50 m<sup>2</sup>/inhabitant.

Green spaces are a basic component of the urban space, representing those areas of land whose dominant background is made up of vegetation to which are generally arranged those specific constructions that satisfy all the defining functions: hydrological, anti-erosion, climatic, sanitary-hygienic, recreational, aesthetic, scientific and educational.

Under these conditions, urban areas need green spaces and trees to absorb the noxes emitted by human activities, which also have the effect of reducing local temperatures.

### 2. Materials and methods

One of Romania's main development guidelines stipulated an obligatory increase in the area of green spaces, as they are the main component leading to the improvement of

climatic and environmental conditions. In this regard, in the framework of Romania's sustainable development goals, under objective 11 "Sustainable cities and communities", the target is mentioned as follows: "By 2030, ensure universal access to safe, inclusive and accessible green and public spaces, especially for women and children, older persons and persons with disabilities"

With the advent of Law no. 47/2012, which complements Law no. 24/2007 on the regulation and management of green spaces within the boundaries of municipalities, the local public administration is required to inventory all green spaces, including those on private property, on which occasion the green spaces register will be updated and a database will be created in which changes can be made whenever they occur.

The first administrative units that were obliged to carry out this green cadastre were the zero and one-tier municipalities, which by January 1, 2011 were obliged to carry out an audit of green spaces and to draw up strategies and action plans aimed at their conservation and continued development.

The realization of the green cadastre of the administrative territorial unit is a necessity derived from the European Union directives, based on which local public authorities are obliged to take measures to ensure a minimum of 26m<sup>2</sup> of green space per inhabitant in the urban area.

Currently, green spaces can be defined in two ways:

- at the scale of a locality: green spaces include all used spaces (urban parks, public gardens, squares) of a certain size, accessible on foot or by non-motorized means that do not present any danger to users;
- at the scale of a residence or condominium: green areas comprise all the plant and water areas belonging to the property concerned.

Green spaces comprise areas with different functions:

- play areas for children;
- spaces designed for exercise;
- meeting spaces;
- recreation areas;
- parks, etc.

Sport, relaxation and socializing are the three main key elements of a carefully designed public space, with green spaces playing an important role in reducing stress, encouraging a healthy lifestyle and increasing quality of life. In these conditions, local residents will be able to go for a walk or a sports session in a nearby park, meet friends for a story, and even relax on a blanket on summer evenings after a busy day at the office.

For a city that wants to develop sustainably, nature is indispensable. Urban green spaces are an increasingly elusive goal for the inhabitants of Europe's major cities. In this context, parks, urban forests, tree-lined streets and river banks support urban well-being by providing space for rest, relaxation and exercise, as well as keeping city temperatures cool. However, not everyone in a community can enjoy green spaces equally.

Many localities have already been hit by the effects of climate change:

- negative health impacts;
- damage to buildings;
- interruption of electricity supply;
- interruption of water supply;
- disruption to transportation;
- increased energy consumption for heating and cooling;
- increased energy bills.

Adapting to the climate change that is increasingly being felt is the way to make the city safer and healthier, but also more environmentally friendly and comfortable for all residents and tourists who visit it, so effective adaptation actions will help to reduce carbon emissions and save natural and human resources while at the same time increasing economic growth.



Fig. 1 Historic area redeveloped in the Vauban Fortress in Alba Iulia

In this context, the Alba County Development Strategy for the period 2021-2027 was adopted for Alba County, under its Strategic Objective 3 „Ensuring a clean, resilient and safe environment for the sustainable development of the county, maintaining the quality of the landscape and increasing its attractiveness for residents and tourists”, with development projects and programs related to:

- Protection and conservation of biodiversity and development of blue-green infrastructure;
- increasing the county's capacity to prevent and manage risks and adapt to climate change.

### **3. Results and discussions**

Currently, Alba Iulia municipality is facing a process of urban sprawl as a result of the demand for land needed to meet the housing requirements of the population of the municipality. With this expansion of the urban area, the need to maintain a balance between green and built-up areas has arisen. Thus, the local public authority has had to develop and adopt strategies that reflect actions to protect the environment and develop green spaces in close accordance with national and international policies. Through development strategies, it is possible to coordinate all the processes concerning the development of a territory, taking into account local characteristics, making it possible to take an innovative approach to the development processes of the territory under analysis.

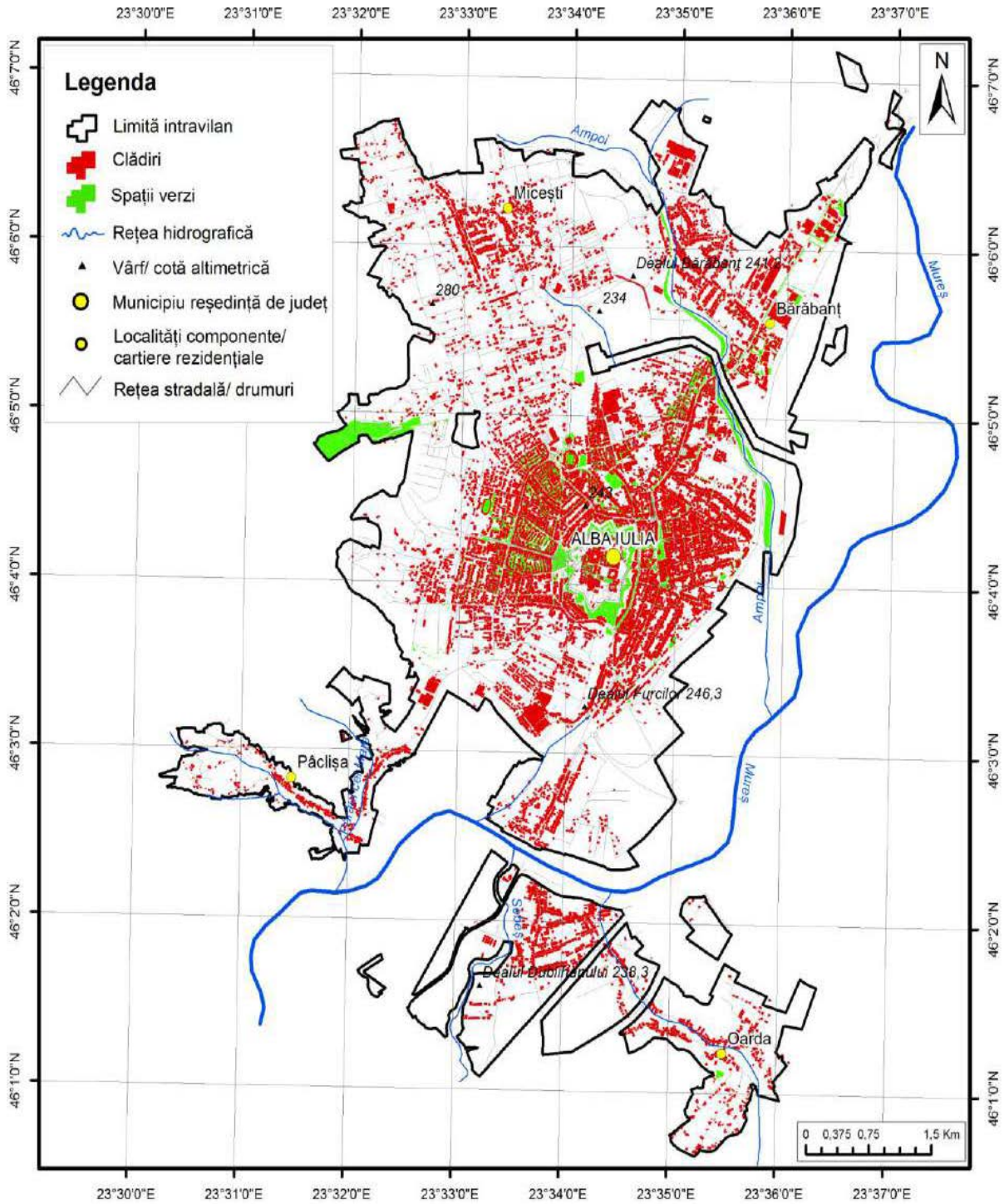


Fig. 2 The distribution of urban green spaces in relation to the built space (Alba Iulia City Hall - Integrated Urban Development Strategy of Alba Iulia Municipality 2021-2030)

The main challenges that needed to be addressed by the authorities include:

- Adapting to climate change;
- mitigation and anticipation of negative effects by implementing the most appropriate technological and ecosystem measures.

In this situation, the need for investment in green and blue infrastructure has been identified in order to increase the surface area of green spaces, reuse and repurpose degraded areas within cities, including the recovery of the urban fabric.

The need for an individualized approach to each „green entity” leads to a more precise knowledge of the entire green fund of a territorial administrative unit, while ensuring the most rational maintenance and management measures.

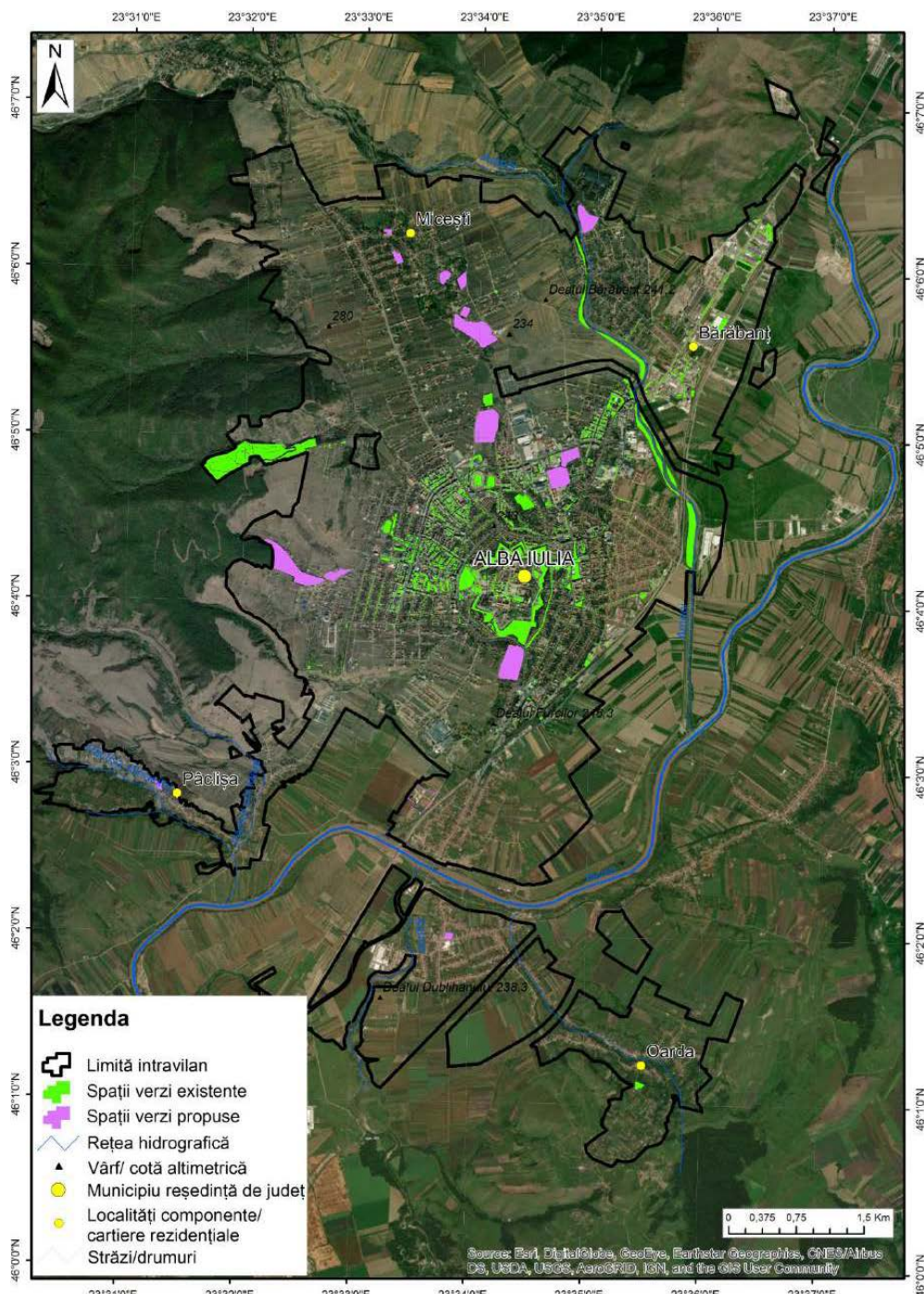


Fig. 3 Urban green space - existing and proposed situation - variant (Alba Iulia City Hall - Integrated Urban Development Strategy of Alba Iulia Municipality 2021-2030)

Thus, by means of these approaches, active monitoring of green spaces can be carried out so that various civic actions that would have negative effects on the healthy development of the living environment within urbanized areas can be prevented and even stopped.



Fig. 4 Recreational activities in green spaces



Fig. 5 Public recreational space

#### **a. Integrated urban development strategy of Alba Iulia Municipality**

For the period 2021-2030, Alba Iulia Municipality has developed an integrated development strategy, whose action directions are the starting point for the realization of the development strategy for green spaces in the municipality. The medium and long-term development strategy for green spaces aims to determine the main directions, priorities and steps to be taken to implement projects to revitalize green areas.

The strategy has taken into account the wider context of the peri-urban area giving due importance to climate change in order to promote a „green” city.

In order to develop green and recreational areas in the administrative territory of Alba Iulia, the following measures will be considered:

- maintaining, protecting and revitalizing existing green areas;
- increasing green areas in the municipality;
- cadastral regulation of the ownership of green areas;
- the purchase and distribution of dendrological material to be planted at the optimal times for these activities;
- sensitization of the community on the formation of environmental awareness through appropriate means of communication;
- running environmental education programs and partnerships to sensitize children and young people to „green issues”;
- restoring green spaces damaged by building works.

To this aim, the Municipality of Alba Iulia has given special attention to territorial planning, investing in green spaces and recreational areas.

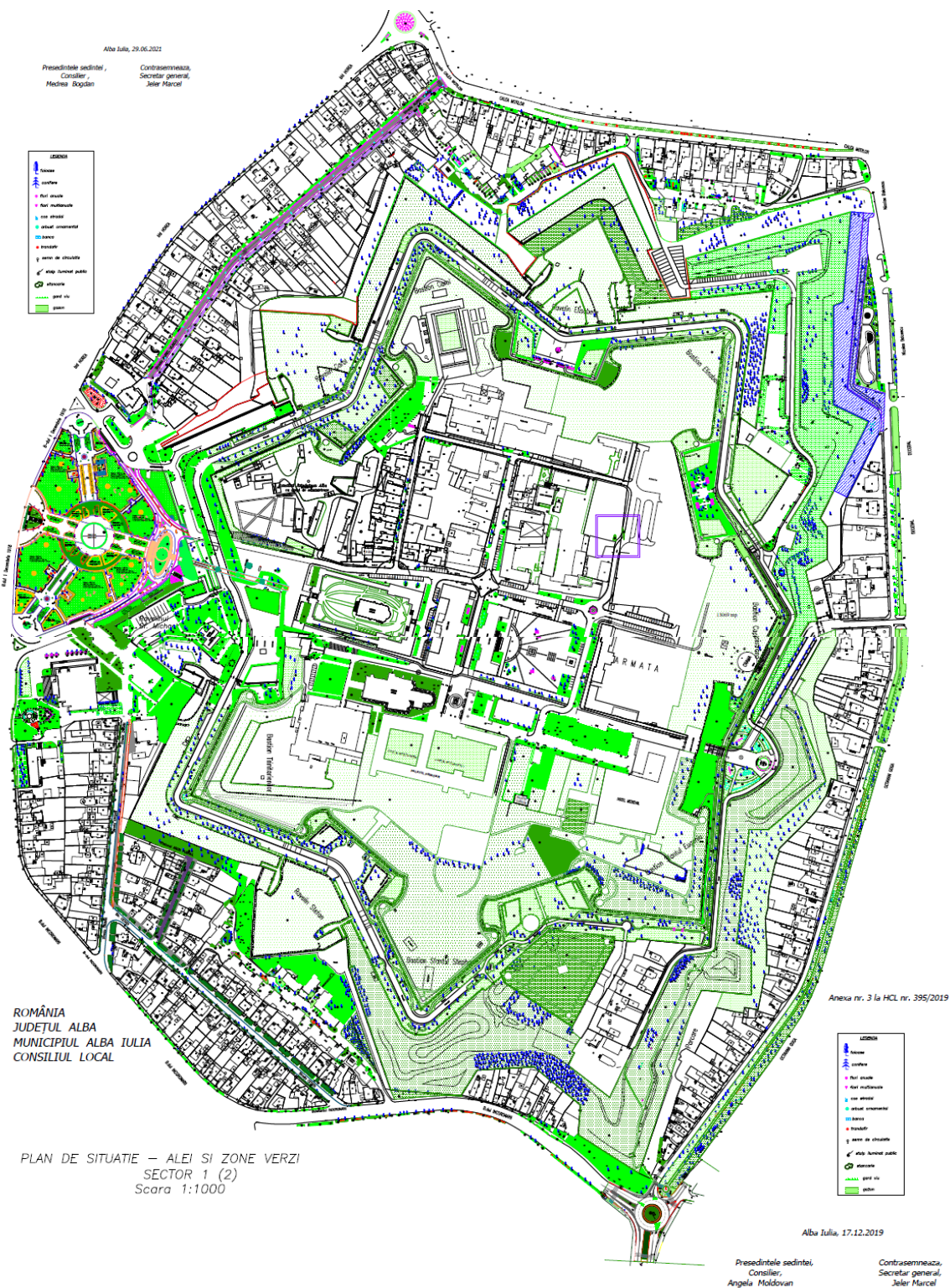


Fig. 6 Situation plan - green areas, Sector 1, Alba Carolina Citadel

### b. Infrastructure investment projects

Within the framework of investment projects that focused in particular on transport infrastructure (rehabilitation and modernization of roads, pedestrian access, parking lots) with

the main aim of increasing accessibility and mobility of the population, works were also carried out for green spaces or recreational areas, the most important being:

- landscaping of a green space (32122,38 m<sup>2</sup>) and children's playground in the „Platoul Romanilor” area;
- landscaping green area (9042,8 m<sup>2</sup>), fountain and street furniture in the area of „Piața Iuliu Maniu” and Civic Center Park;
- landscaping of a recreational area with bicycle path (1060 m<sup>2</sup>), pedestrian access, artesian fountain and green areas (8680 m<sup>2</sup>) in the area of Bulevardul Transilvaniei;
- development of green areas (7000 m<sup>2</sup>) in „Cloșca IV” neighborhood;
- development of playgrounds for Roma children in „Lumea Nouă” neighborhood.



Fig. 7 Bulevardul Transilvaniei - landscaping of a recreational area

### c. Urban Garden of Alba Iulia

The project involved the creation of new urban spaces for recreational activities through the development of a park located in the perimeter moat of the North Side of the Alba Carolina Citadel on an area totaling over two hectares, thus contributing to increasing the attractiveness of the Citadel while beautifying and regenerating the urban environment.

The following objectives have been defined:

- creating green areas on the northern perimeter of the Alba Carolina Citadel, covering an area of 26,476m<sup>2</sup>;
- creation of recreational facilities on the landscaped areas: furnished visitor trails, bicycle paths, rest modules in a new open space created in the northern perimeter area of the Alba Carolina Citadel, covering an area of 29,000m<sup>2</sup>.

### d. Proposed projects - North Park in Alba Iulia

The area proposed for the establishment of the new park is located close to one of the new neighborhoods of Alba Iulia – „Orizont” neighborhood and will connect this area with the area close to the Olympic Pool. The land proposed to be part of the new landscape amenjarae includes undeveloped private and public land.



A park is to be developed on the study site to capitalize on the existing green and blue infrastructure in the area. The development will include planting, pathways, outdoor play and sports facilities and wetlands to capitalize on the biotope specific to the area.

The main measures that will be implemented through the greening of the area include:

- valorization of the wetland biotope by adopting natural landscaping solutions;
- remediation of the affected areas with construction waste for inclusion in the green circuit;
- improving the environmental conditions of the adjacent residents.



Fig. 8 Proposal on the establishment of the North Park in Alba Iulia - Detailed Urban Development Plan

### e. Alba Iulia Vision 2030

Looking ahead to 2030, the strategy positions the municipality as a city for the people, whose sustainable investments use environmentally friendly technologies to provide quality conditions for its inhabitants. Alba Iulia in 2030 is an attractive community based on partnerships with neighboring communities with which the municipality could develop functional relations and with which it could carry out investments and projects of common interest.

The local development policies that are foreseen in the strategy aim at urban planning and climate change adaptation policies in order to achieve climate neutrality by 2030 in sectors that currently affect the environment.

In recent times, the thinking adopted by urban planners has been oriented towards the environmental consequences on the development of localities, thus improving the quality of life is the basic credo in the development of urban spaces.

Green solutions are those that contribute to regulating and ameliorating problems arising from climate change, water management and air quality:

- urban green surfaces;
- degraded lands that are transformed into green spaces;
- urban forests;
- aquatic surfaces.

These solutions, available to any community, can help to alleviate and remedy environmental problems such as the heat island effect, extreme temperatures, flooding, water and air pollution.

Regardless of the type of green solutions adopted, they contribute to improving the quality of life and urban regeneration, thus urban parks can lead to the reduction of urban sprawl while the development of urban gardens or the conversion of abandoned land into green spaces encourages the community to participate in decision making and even to propose different solutions: **Alba Iulia 2030... a green and resilient city.**

#### 4. Conclusions

Currently, more than half of Romania's population lives in urban areas, and this trend is growing. Thus, Romania's cities are facing a large influx of population, which is leading to a decrease in the quality of life while increasing pollution and urban congestion.

Under these circumstances, it is necessary to transform cities into sustainable cities so that the quality of life of their inhabitants can constantly increase without harming the environment.

To achieve this, we need to emphasize that cities are people and that it is from people that we can build an environment that is a pleasure to live in. In another vein, we must stop the aggression on green spaces by promoting the idea that living in the community is not about the car, but about airy, safe and green pedestrian spaces. Green spaces continuously improve air quality, reducing noise and increasing biodiversity. Green spaces are also credited with moderating summer heatwave temperatures and cool, shaded areas within urban agglomerations.

Green spaces are the place where the human pattern connects with the natural or artificial one, which stimulates strong social, intellectual, affective or emotional sensations, in this sense, parks and recreational areas are important for the development of multiple activities to disconnect from the daily routine.

The identification of strategic directions and viable solutions for sustainable and resilient urban development in Alba Iulia is a continuous and sustained process on the part of local authorities, involved in the implementation of projects that have as main result the development of the most appropriate and feasible policies.

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