Good access to urban greenery as a chance for a resilient, sustainable and inclusive city

Extended summary:

Current recommendations on shaping greenery in the city refer to the 3-30-300 principle. This means ensuring that residents of each residential building have a view of at least 3 large trees, immediate proximity to greenery in the place of residence (30% tree coverage) and pedestrian access to a high-quality public park or other area with an area of at least 0.5 ha (within 300 m). Many cities implement this principle as part of local greening programs. Providing good access to urban greenery allows for the creation of local conditions for the development of a resilient, sustainable and inclusive city.

The research concerns the structure of green areas in the city of Wolsztyn, in the context of the 3-30-300 principle. The aim of the research is to identify areas requiring increased access to greenery and, as a result, propose specific actions aimed at increasing the availability of greenery in the city.

For analytical and methodological purposes, six residential buildings in Wolsztyn were randomly selected, taking into account the type of development (multi-family and single-family) and diverse location (city center and outskirts). For each of these locations, an in-depth analysis was carried out of the visibility of trees, the degree of tree crown coverage in the immediate vicinity, the coverage of the area with biologically active surfaces and the availability of green areas within a radius of 300 m from the place of residence.

The research showed a diverse distribution of trees in the city. The distribution of free-standing trees is more significant in the city's eastern part. Still, access to more extensive forested areas is limited there, which emphasizes the need to increase the presence of greenery in this part of the city. The coverage of the city with tree crowns is 21.82%, which is below the assumed threshold of 30%, indicated in the 3-30-300 rule. This emphasizes the need to take action related to the intensification of the introduction of new plantings in Wolsztyn. The land cover analysis showed the dominance of built-up areas in the city landscape, reaching over half of its area. Biologically active areas occupy a significant part of the city, but their location requires optimization to ensure equal access to greenery for all residents. Studies have shown that not all residential areas have the same access to greenery. Especially on the city's outskirts, there is a lack of greenery larger than 0.5 ha, available within a radius of 300 m. This indicates the

need for an integrated approach to managing urban greenery, taking into account local conditions and residents' expectations.

Taking into account local conditions in terms of technical infrastructure and the functional and spatial structure of the city, it is recommended to take actions in the field of green acupuncture (including street greenery, city courtyards, pocket gardens, paving, green walls and roofs), urban agriculture (including the creation of community and school gardens, the development of allotment gardening, professional support for private home gardens). Another action should be high-quality design guidelines for greenery for development companies within the housing estate space in multi-family housing. It will also be helpful to use participatory processes to define the form of future green space, increasing the likelihood of residents' acceptance and use of these areas.

The formulated recommendations can contribute to improving the quality of life of Wolsztyn residents, improving the condition of the urban environment, and thus creating local conditions for developing a resilient, sustainable and inclusive city.

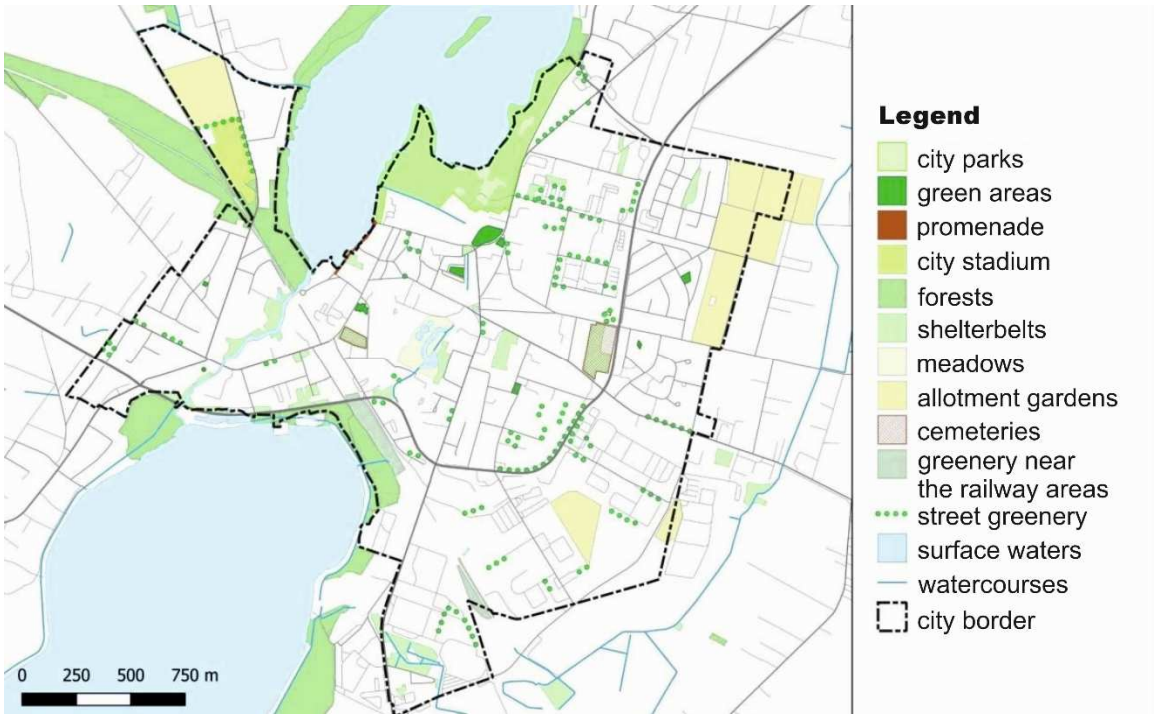

Figure. Arrangement areas of greenery in the Wolsztyn city.

Source: own study based on Bank Data Local Central Statistical Office (2024).

Figure. View from the staircase window, taking into account the building's floor and the view range: A - ground floor, B - floor 2/3, C - floor 4/5

Source: own study.

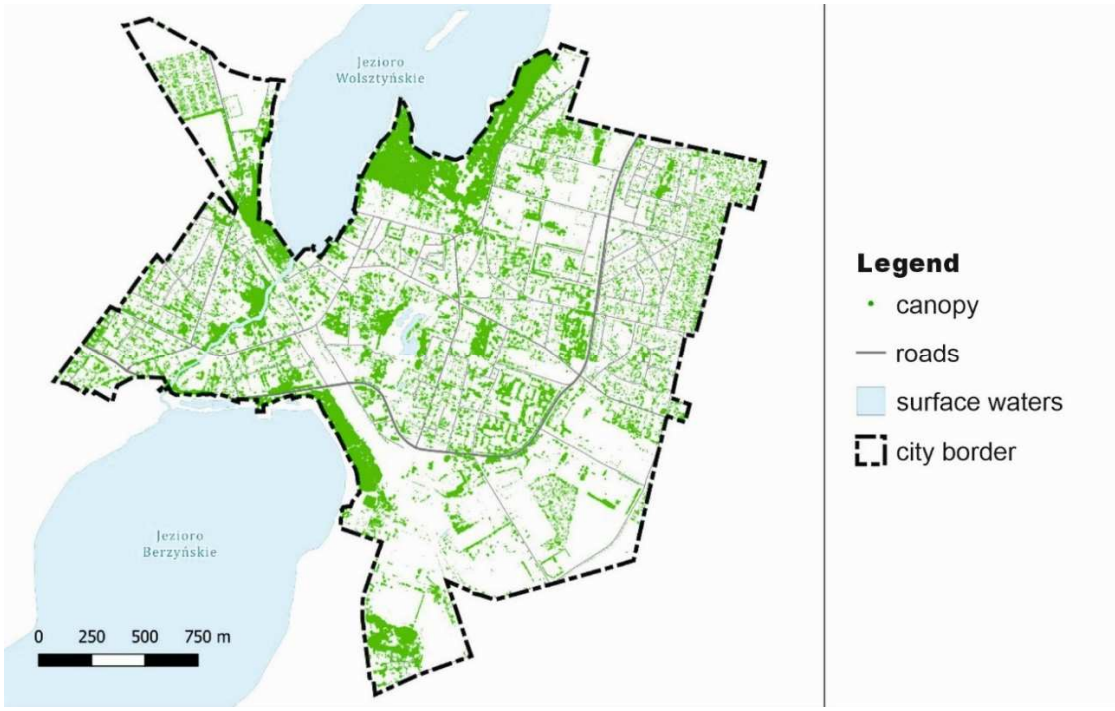

Figure. Coverage canopy trees in the Wolsztyn city.

Source: own study based on data measuring LiDAR (geoportal.gov.pl).

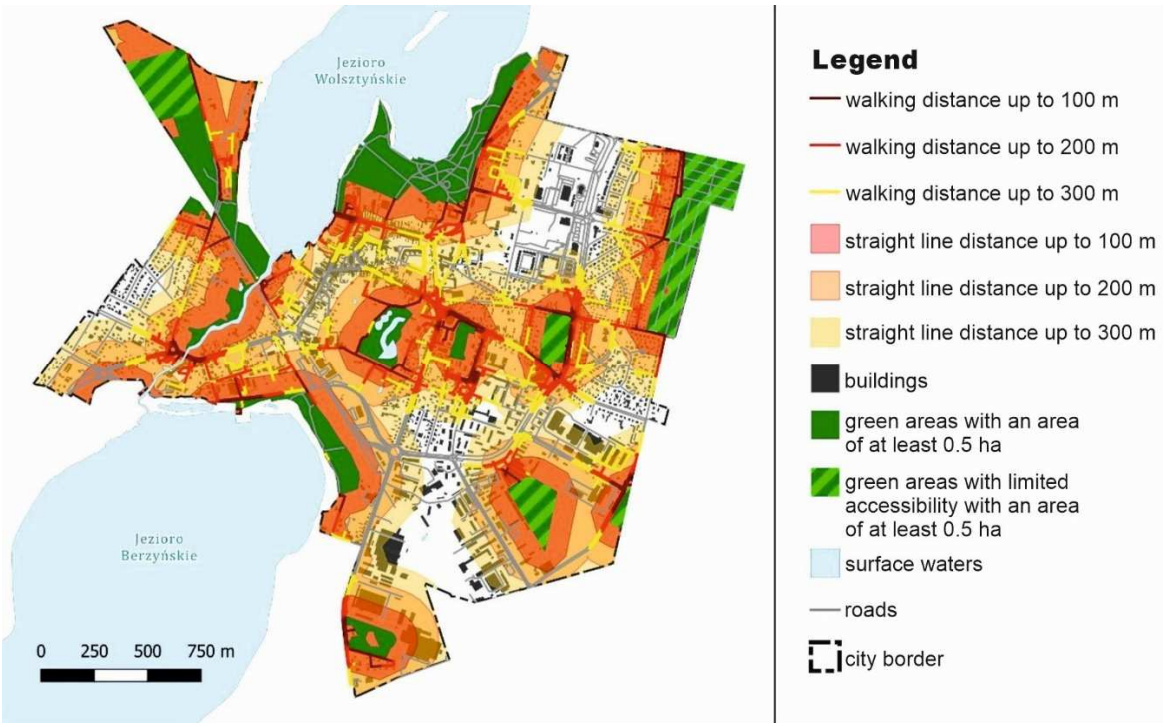

Figure. Green availability of areas with a surface of at least 0.5 ha in Wolsztyn city.

Source: own study.

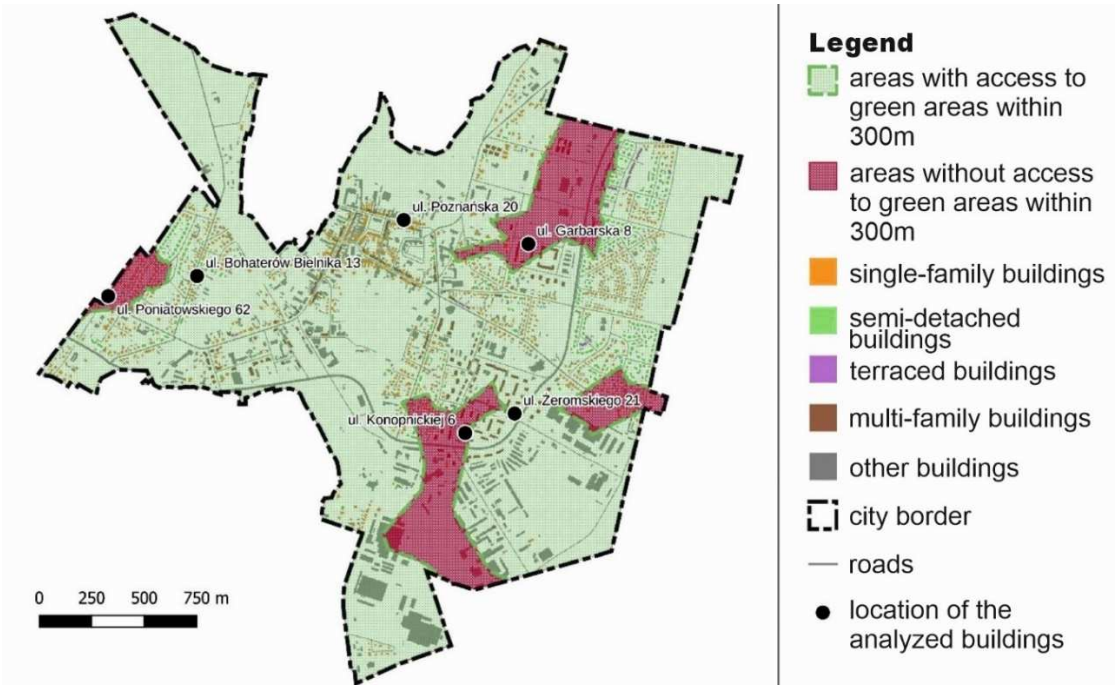

Figure. Accessibility of residential buildings to greenery areas about the surface at least 0.5 ha in Wolsztyn city.

Source: own study.

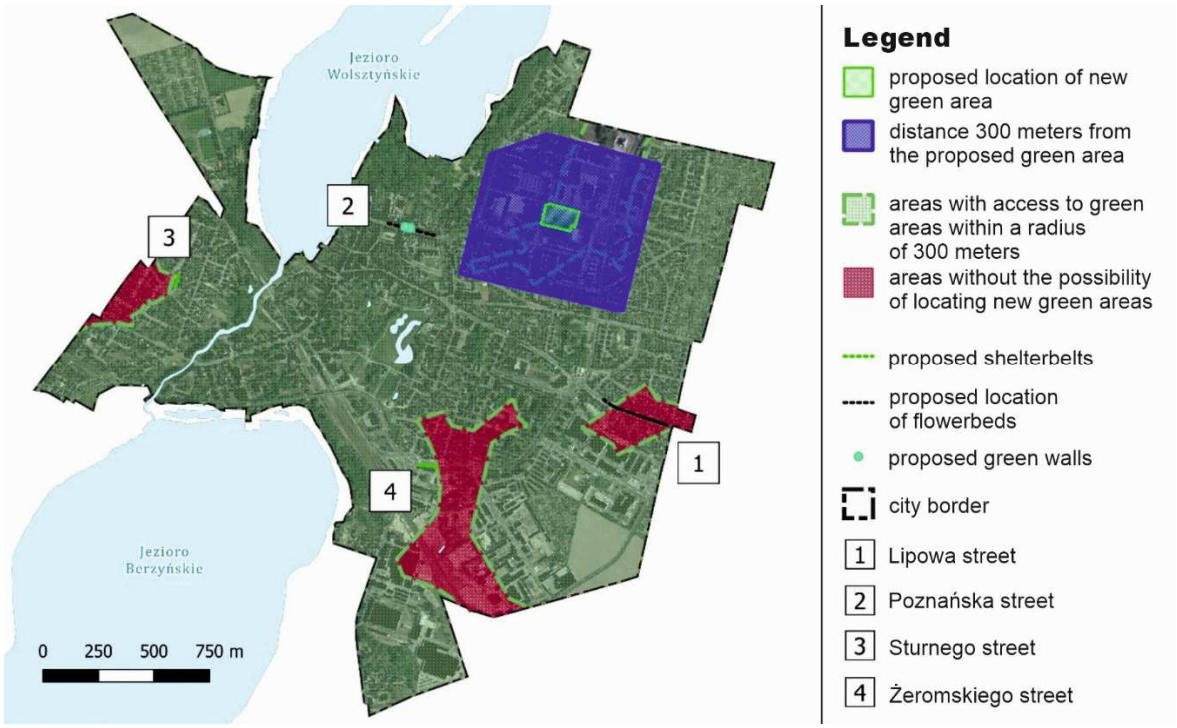

Figure. Proposed locations for introducing new forms of greenery in Wolsztyn city.

Source: own study.

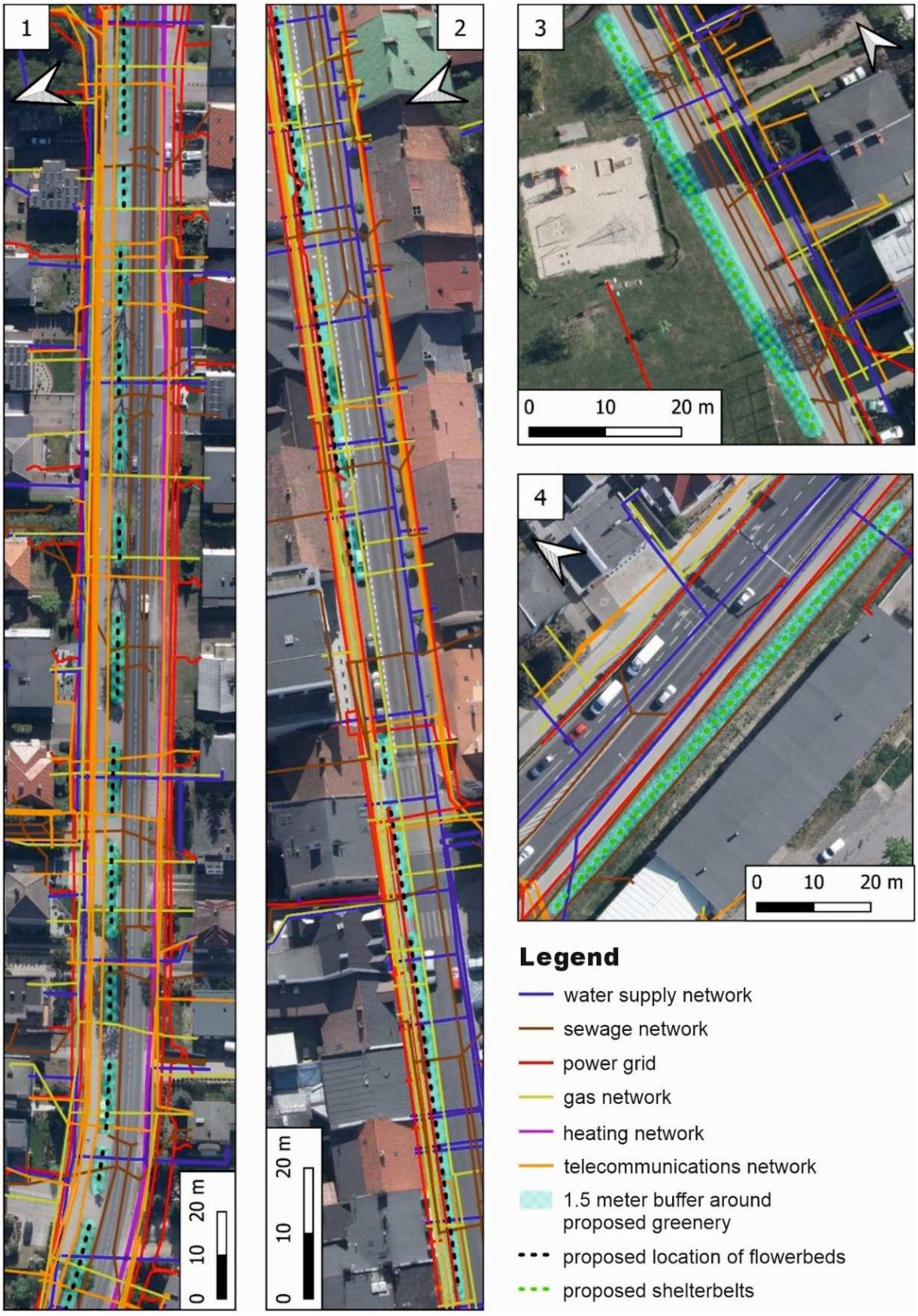

Figure. The concept of greenery development in selected areas considers the technical infrastructure network.

Source: own study.