The importance of silhouette in the perception of the urban landscape. Saldus example

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Abstract. The silhouette of a city can be described as its image or as its face, which tends to change over time, and it is very important to incorporate it into urban planning to build a recognisable image of the city. The purpose of the study is to create development proposals and recommendations for building the silhouette of a city, while preserving and highlighting the valuable elements already present. In order to achieve this, the study examines the factors forming the silhouette of a city and their role in the human perception of urban spaces. A methodology was developed for analysing silhouettes, and was used in the towns of Tukums, Talsi, Kuldīga, and Saldus. The spatial and architectural structure of the towns, their history, factors forming their silhouette were studied, with general recommendations for the development of the silhouette from a specific kind of viewing location in the towns – their gates.

Keywords: silhouette, visibility analysis, city gates, landscape perception, urban identity

Introduction

The concept of a city silhouette is used in urban planning to describe urban landscape, closely related to the visual concept of a panorama (meaning 'allencompassing view' in Greek), and is viewed as a portrait of the city [14]. The silhouette is the most emotionally active part of perceptual information that can be clearly observed in the plastic development of historical settlements. Compared with today, it can be seen that the urban areas that arose in the relatively recent past do not create such an expressive building silhouette [4]. The silhouette of a city is a unique visual item that becomes a representation of the abstract image and identity of the city over time, in terms of its spatial, historical, social, cultural, and economic structures [12]. The main problem comes from the fact that as cities grow rapidly, their silhouette often changes, and because of this, the identity of the city, a very important part of urban planning, tends to become less visible or completely disappears over time.

A city's silhouette embodies its unique urban character, shaped by deliberate planning, topographic conditions, economic considerations, building design parameters, and environmental conditions. The term 'city panorama' refers to the appearance of its buildings that makes up the landscape of the city by day and its outline by night. It includes groups of buildings of different heights against the backdrop of the different shapes of the terrain, creating a view of the city [25], see Figure 1. Such a space can be described as a place where nature, and the spatial elements of the composition, create a landscape-specific rhythm, flow, and a variety of colours and shapes [31]. The panoramas of a city can also be viewed as reference points for the historical perception of the appearance of its space and can be mainly classified into three categories: historical panorama, complex panorama dominated by new structures, and mixed panorama, which is a combination of these two categories [3].

Archaeological excavations and various historical studies reveal that the architectural structures and geographical locations of Latvian cities began to form as early as the 9-12th centuries, during the feudal period. After the 12th century, there were 72 fortified settlements around castle mounds in Latvia [5]. The most important feature of Latvia's landscape is its intimacy, notable in the gentle lines formed by hills with large forests on the horizon, in winding roads surrounded by fields with separate groups of trees, behind which the outlines of houses can be seen. All these elements define the rural landscape of Latvia and their location forms a well-ordered, harmonious whole [26]. An analysis of the historical development of Kurzeme reveals that the first information about it comes from as early as the 9th century - the old towns of Kurzeme were first mentioned in writing in the Rimbert Chronicle. In the second half of the 9th century, it mentions a town located near the place where Grobina is today. Back in the day there was an ancient Curonian city called Zēburga. Later, in the 13th century, Dobele and Rakte were already mentioned, information about which is found in the Rhymed Chronicle. In late 16th century, Balthasar Rüssow, pastor of Reval, mentioned several cities and towns of Kurzeme, but the descriptions do not offer any hints to the nature of the buildings in the as

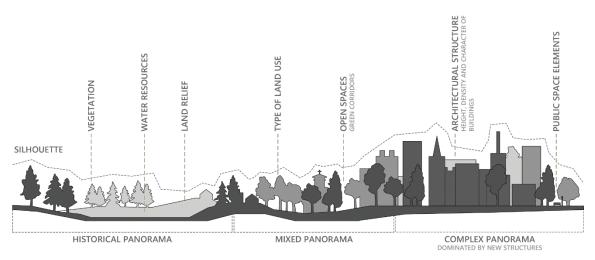


Fig. 1. Factors shaping a silhouette [created by author, 2022]



Fig. 2. Drawing by Johann Rudolf Storn: buildings in 17th-century Latvia [15]



Fig. 3. Dobele castle ruins, Kurzeme, 1792 [2]



Fig. 4. View of Kalnamuiža, Kurzeme, 1794 [2

cities. Consistent evidence of the way the cities were developed appeared only in later written sources, for example, the 1740 records from the archives of the Kurzeme Governorship building authority. One of the most important sources of information about the development of the cities and the features of their buildings is old engravings. Swiss artist Johann Rudolf Storn drew landscapes of the Latvian countryside in 1661, as well as such Kurzeme towns as Dobele and Grobina [13]. The drawings fairly accurately reflect the character of 17th-century buildings in Latvia, and it is easy to see the regional differences in them, see Figure 2. Looking at Storn's drawings reveals that the urban development in the Latvia of the 1660's was represented by an old style of planning with wooden buildings [15]. One of the

most important cultural legacies in this field was left by Johann Christoph Broce, who drew pictures showing buildings in small towns. His works mainly show the architecture of settlements in Vidzeme and the landscape around Riga; however, some of the engravings also have the cities of Kurzeme [13], see Figure 3 and Figure 4. J. C. Broce's engravings can be viewed as part of the heritage of the 18th century, during which he recorded various landscapes he saw in his travels around Latvia [29].

Natural factors play a major role in both the historical and modern development of Kurzeme's cities – rivers, lakes, landscape, and vegetation, which combined with buildings, form the urban space. These factors were clearly visible in the historical panorama of cities in Kurzeme.

The concept of a city silhouette is closely related to the identity of the location. In a concise way, the identity of a place can be defined as the interaction between the individual and the surrounding environment that the individual creates [20]. Landmarks are one of the most important city elements that reflects the city's identity and can be seen in the city's silhouette. The term 'identity of a city' is commonly used to refer to well-known or visually outstanding monuments and buildings [6]. Landmarks can, therefore, also be considered as the physical vessels for identity that we can find and recognise in a modern city [7]. In the silhouette of the city, they create an excellent visual effect and dominate the composition of the landscape, standing out with their characteristic shape, colour, and height. Thus, in a landscape, highly architecturally impressive objects can attract the viewer's attention even from a very long distance [23]. Depending on their visibility, landmarks can be divided into global and local landmarks. Global landmarks are objects that can be seen from a greater distance (for example, tall towers or mountains), but local landmarks can only be seen when you are close

to them. Local landmarks can also be very small items, such as trees, outdoor objects, and various signs [11]. In the silhouette of the city, you can primarily see global landmarks.

When looking at a city's silhouette and its perception, one should also take into account the factor of imageability, which is the ability of a landscape or a landscape object to cause a strong impression on or create a strong visual image in any observer [19]. The visual experience provides a persistent image, which accordingly creates a sense of the place or its character [28]. And today, visibility analysis is used for comprehensive research, which makes it possible to determine the existing silhouette of a city, and to create variations for new offers [25]. Visibility analysis encompasses two aspects: a digital terrain model and a land feature model (with vegetation, buildings, etc.). This analysis can also be used to objectively describe the visual characteristics of an urban space. In order to analyse the spatial characteristics of a visible urban environment, one sets a set of points visible from a specific location in space (observer) [21]. In the ArcGIS software, it is possible to work with digital elevation models (DEM), digital terrain models (DTM), digital surface models (DSM), etc. The models are based on LiDAR data, generated by flying an aircraft over Earth's surface and using a signal acquisition technique to obtain the data, referred to as the 'point cloud' [8].

In Latvia today, little attention is paid to the study of the silhouettes of cities. The Law on Preservation and Protection of the Historic Centre of Riga was adopted in 2003, which specifically highlights the panorama, the silhouette and the sight lines of Riga as unique and protected as being of authentic cultural and historic value. Research has individual been done on cities and the transformation of their silhouettes [30]. The purpose of this study is to offer general recommendations for the development of a city silhouette from a specific kind of location in the city – its gates.

Methodology

The study involved an in-depth analysis of the town of Saldus, but in order to make it possible to objectively provide recommendations for the development of a silhouette that can also be used in the development documents of other cities, an overall analysis was additionally carried out for 3 more towns in the Kurzeme region: Tukums, Talsi, and Kuldīga. The Latvian National Development Plan of 2021–2027 defines these towns as regional development centres, which means that they are the driving force for the region's growth, and their targeted development is important for a more balanced development of the country [17].

The study is based on cartographic materials, images, historical data, and field research. The field research was done in the summer of 2022. There is an analysis of the spatial and architectural planning structure of the towns and the history of their construction development, with an identification of the landmarks of the towns, dividing them into 5 cultural heritage sites. religious categories: buildings, sightseeing/tourist sites, public buildings, and natural sites. Junctures as well as functional and visual connections have also been identified for Saldus. In terms of how panoramas and silhouettes are perceived, it is necessary to anticipate and take into account the places from which these panoramas can be viewed and assessed [27]. Therefore, the most important gates of the town were examined, determining what the structure of the silhouette of the town is from these locations. The 'gates' of a city are defined as the locations where the city boundary intersects with key roads entering the city, and the size of the gate is closely related to the visibility of the silhouette. That is, in places where you can see broader views of the city's buildings, the size of the gate is larger than in places where the views are limited due to development.

The study of the gates of the city produced data, which were collated using comparative assessment matrices, see Table 1. The assessment matrix criteria are based on objective and subjective perception principles for urban space. The points system was used to refer to each possible factor: when filling in the table, the points noted the factors present in a given area. The assessment matrix point system was made so that it can be adjusted as necessary. The architectural and spatial structure of the town (which includes its buildings, roads, types of use, and the interaction between nature and buildings), its aesthetic structure (with such aspects as spatial composition, and the density and height of buildings), and ecology (which examines vegetation, elements of water, terrain, and other landscape elements) were examined as part of the objective dimension. The subjective dimension, meanwhile, is associated with the peculiarities of human perception, such as imageability (whereby the main aspects considered are the rarity and the emotions related with the landscape), accessibility (whereby it is evaluated whether improved areas are available at the specific gate of the town, enabling the observer to stop and watch the silhouette), continuity of the landscape (for which space and naturalness are assessed), and comfort (where the greatest emphasis is placed on external conditions: safety, noise, and smell).

Assessment dimension	Landscape aspects	Assessment criteria	Point system
Objective dimension	Architectural aspect of the spatial structure	Development structure	Cultural and historical development
			Industrial development
			Remaining Soviet development
			Recreational development
			Residential development
		Road	National road
			Paved road
			Gravel road
			Dirt road
		Type of activity	Land use according to spatial planning
	Aesthetic aspect	Interaction of nature and development	Architectural elements are harmoniously
			integrated into the natural environment
			Architectural elements form a new structure
			Historical development as the basis
		Spatial composition	Symmetry, asymmetry
			Harmony, disharmony
			Rhythm
			Visibility
			Accessibility
		Development	Height
			Density
	Ecological aspect	Greenery	
		Water elements	
		Terrain	
		Landscape structure	Form
			Colour
			Texture
Subjective dimension	Imageability	Rarity	Usual landscape, typical landscape, peculiar
			landscape, rare landscape, unique landscape
		Emotions	Negative, positive emotions; no emotions
	Accessibility	Well-equipped	
		recreation areas and	
		observation spaces	
	Continuity of landscape	Space	Enclosed, partially open, open
		Naturalness	Almost untouched landscape, partially used
			landscape, actively used landscape
	Comfort	Safety	Low-hazard, high-hazard
		Sound	Silent, quiet, lively, raucous
		Smell	Unpleasant smell, no distinct smell, pleasant
			smell

Comparative landscape aesthetic aspect assessment matrix [created by author]

TABLE 1

The study includes also geospatial data – nature factors can be considered as a background of the urban environment. Overall, there are number of scenic sites in the Kurzeme region which represent the cultural landscape characteristic of Latvia, however, there are also natural factors specific to Kurzeme, which includes densely covered areas with water bodies and river valleys and hillside areas. The study also includes a visibility analysis for the gates of Saldus, described in more detail in the results section.

Results

Talsi. Talsi was first mentioned in 1231. Historically, the town began to form between Lakes Talsi and Vilkmuiža (where the historic centre of the town is today), where a German military order built its stone castle in late 13th century. Two centuries later, various German artisans and merchants began to settle the Talsi area. The biggest obstacles in the development of the town were wars which damaged the development of the town, and the plague epidemics of 1657 and 1710. Despite this, Talsi kept growing in the 19th and 20th centuries, with multiple factories and artisan workshops. Engravings by the artist W. Stavenhagen present the construction of Talsi [18].

A total of 41 important landmarks were determined in the current situation of the town (Fig. 6).

An overview and analysis of the current situation of the town of Talsi shows that the landmarks of the town mainly are in its central part. The spatial structure in the boundary areas can be evaluated as moderately high, since no landmarks are visible from the city gates, but the city structure can be partially seen, and the atmosphere of a small town can be felt in some places through the interaction of low-rise buildings and nature.

Tukums. Tukums was formed on an old road between Riga and Prussia, at the bank of the River Slocene. Old Tukums came about in the 11-12th centuries as a military stronghold and was located about a kilometre to the west of its current centre. The name of Tukums was mentioned for the first time in 1253, indicating that it was the regional centre during the Livonian Order period. However, more rapid development of Tukums began after 1422. In the 15th century, it was one of the localities of the Livonian Order state, and it already had more than twenty buildings, a castle, and a church. In the 16-18th centuries, due to various wars, the development of Tukums was very uneven, with periods of rapid expansion and multiple destructions. In the 18th century, larger urban construction began, the current image of the old town already taking shape, and in 1795, the place was granted town status. Information about what the urban space of Tukums was like in the 18th century can only be found in J. C. Broce's engravings [22].

A total of 38 important landmarks were determined in the current situation of the town (Fig. 7).

An analysis of the current situation of the town of Tukums shows that most of its landmarks are located in the central part, with some exceptions, of which one can highlight natural sites, as well as a couple of public buildings and cultural sites. The spatial structure in the boundary areas can be evaluated as insufficiently high, since the town structure cannot be read from the silhouette visible at the gates of the town.

Kuldīga. The beginnings of Kuldiga can be traced back to 1242-1244, when a military order castle was build in the Bandava region, near the ancient Curonian fortified settlement of Kuldīga. A village began to rapidly form next to the castle, and was called a town already in 1355. The historic centre of the town can be found in the area of today's Kalna and Auninu Streets, and its building development boundary is marked by the River Aleksupīte. Initially, Kuldiga was called Kalnamiesta, and its urban planning structure was linear. After the creation of the Duchy of Courland,

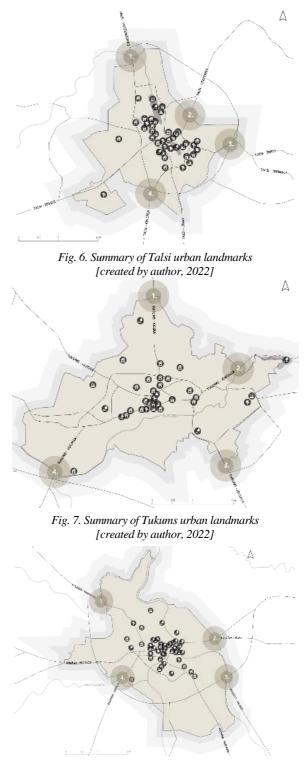


Fig. 8. Summary of Kuldīga urban landmarks [created by author, 2022]

Kuldīga became its capital, and later, during the reign of Duke Jacob, experienced a boom thanks to the rapid development of its manufacturing plants. During the Russian Empire, the character of construction in the city was marked by half-hipped roofs, vertical boards in the gable ends, and low, massive building floors, which created a look of rustic severity in contrast to other Latvian cities whose urban construction had more refined features. Kuldīga's streets and courtyards were paved during this period [32]. In the early 19th century, the visual image of the city began to shift from small wooden buildings to larger masonry buildings with two and three floors, resulting in denser development [16]. The 19th-century cityscape of Kuldīga can be seen in the drawings of the artist W. Stavenhagen.

Kuldīga is the only town in Latvia that has taken great care to preserve its historical identity, keeping its historic centre almost intact, preventing the rash introduction of modern buildings in its urban structure. As a result, it has preserved the feeling of an urban space of the 18th and 19th centuries [32].

A total of 46 important landmarks were determined in the current situation of the town (Fig. 8).

The most prominent silhouette in Kuldīga is visible from Riga Gate, while Saldus Gate does not present the town's silhouette to the viewer at all. Although the greatest cultural, historical, and architectural features in Kuldīga are concentrated around its historic centre, and none of the town's landmarks can be seen from the locations analysed, the distribution of functional zones at the gates of the town enables diverse construction development and use of land, meaning many more opportunities to improve the silhouette that are more diverse than in the rest of the towns studied. Based on this, and the review and analysis of the current situation in Kuldīga, one can conclude that the spatial structure in its boundary areas can be viewed as high.

Saldus. According to archaeological findings, people lived and built settlements in the place where Saldus is now located as early as the second millennium BCE, and it can be assumed that the area of these settlements was between the castle mound and St John's Church. Saldus was mentioned for the first time in various articles in 1253, in a treaty with Curonians, when they were ruled by the Livonian Order. Between 1562 and 1795, Saldus, like the rest of Kurzeme, was part of the Duchy of Courland and Semigallia. During Duke Jacob's rule, crafts and industry grew rapidly in the town, with several factories established in the area. However, the place was destroyed during the Great Northern War, and in the 18th and the first half of the 19th century, there was only Saldus Manor and a parish. The rebuilding of Saldus began only in 1856, together with the Latvian national awakening. This is when the historical construction development of the city began to take shape [1].

The most striking features of the town are its distinctive terrain, which creates the impression that Saldus is located in a depression, as well as its natural areas – Saldus can be described as one of Kurzeme's cities that has kept its small-town feel, with modern features.

Looking at the graphic part of the town's spatial plan, it can be concluded that the spatial structure in the boundary areas consists mainly of natural and green areas with low-rise residential development and public buildings. In the north of the city, there are large zones with technical and industrial development, which are interspersed with small quantities of natural and green zones [24]. The data obtained and analysed during the study of the architectural and spatial composition of the town, as well as its most distinctive features, are shown in Figure 9.

A review of the current situation in the city made it possible to identify 10 gates in Saldus, 4 of which could be classified as more important, as they are connected to national roads and provide access from cities of national and regional significance.

The comparative assessment matrix data obtained during the study of the town's gates revealed that all of the 4 analysed gates of the town are very different in terms of objective and subjective indicators. The subjective perception indicator for the gate one enters when travelling from Kuldīga is that the silhouette is not sufficiently distinctive, that the landscape is ordinary and does not create special feelings in the observer, which could be due to the fact that based on objective perception indicators, the main component of the development there is industrial and there is no good visibility, and the fact that the landscape consists of flat terrain and these building types, and that there is no visible interaction between nature and the buildings. The results of the survey matrix show that the role of the gate one enters when coming from Riga, is very important in the development of the silhouette, because, according to both the objective and subjective perception indicators, it includes important criteria, such as the fact that there is a clear view over the city, the cultural and historical buildings are visible from that point, and the architectural elements of the panorama are harmoniously integrated into the natural environment. Also visible are the features of the landscape, such as the fact that the landscape is unusual and unique, which elicits positive feelings in the observer and delivers a strong visual image that makes it possible for the town to be recognised and seen by its silhouette. Similar to Riga Gate of the town, the gate one enters when travelling from Liepāja is characterised by an unusual landscape that creates positive feelings. However, its structure has visible obstructing factors, such as the lack of developed recreation areas and the fact that the area is only accessible by car, which prevents the observer from fully appreciating the city's silhouette (it can only be viewed while in motion). Both of these gates of the town provide a look at the special features of the terrain. Mažeikiai (Lithuania) "Gate" currently the least developed one, and is the silhouette of the building is difficult to read from

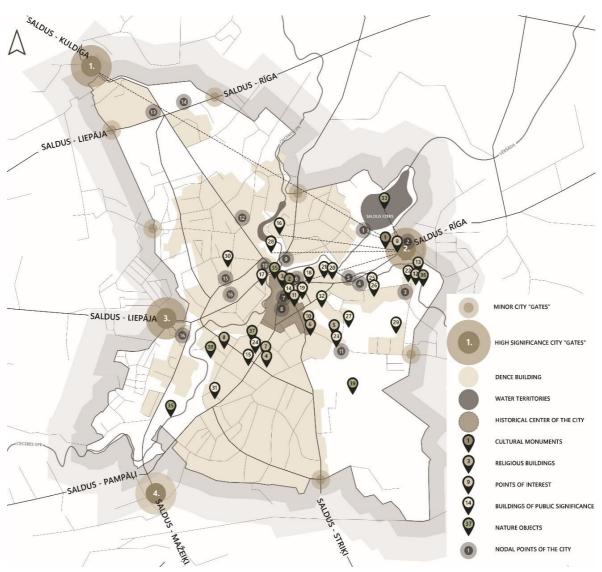


Fig. 9. Spatial architectural structure and distinctive elements of Saldus [created by author, 2022]

this point of view. This gate can be described as a landscape typical for when entering a town; it does not have any distinct features of high aesthetic quality, and it does not contribute to the image of a recognisable city.

As part of the study, in order to determine the lines of sight from the gates of the town and to understand the valuable features that can be seen in the silhouette, a visibility analysis was also performed using the ArcGIS software. For visibility analysis, the visibility (3D Analyst) tool was used in ArcGIS, which determines the surface areas that are visible to a specific observer or set of observers [10]. The analysis of the study used publicly available digital elevation model (DEM) core data (LiDAR point cloud) collected in 2016. These data are a set of aerial laser scanning points, with coordinates and elevation above sea level which are determined for each point. These data include ground surface level, short and tall vegetation, as well as buildings and structures [9]. Points were marked at the gates of the town, defining them as those of an observer (assumed height: 1.70 metres), and the visibility tool in ArcGIS was used to determine the areas visible from these points. It was concluded that the highest visibility was at Riga Gate of the town, and the lowest, at Kuldīga Gate. The visibility at Liepāja and Mažeikiai (Lithuania) Gates can be described as similar, because both offer a broader-angle view on the sides, while Liepāja Gate also provides a central view forward. Combining the visibility analysis with the existing planning in the area and the characteristic elements of the town makes it possible to find out the areas that need be revealed in order to show the town structure more successfully in the silhouette of the town. The results of the analysis are shown in Figure 10.

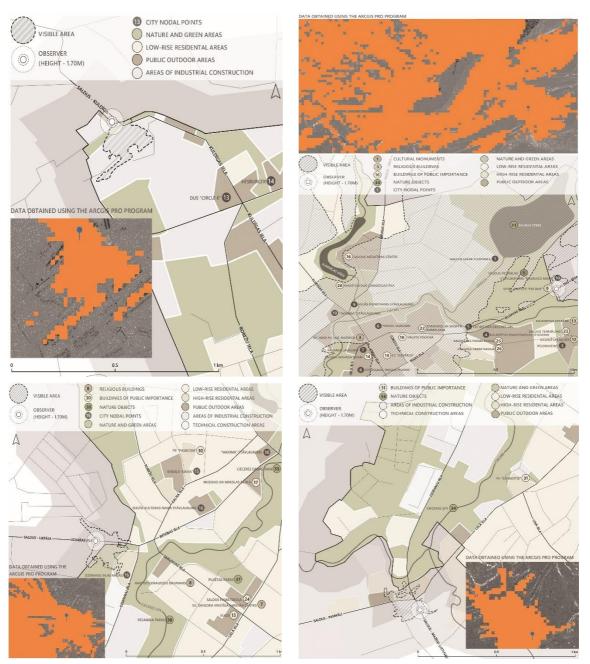


Fig. 10. Visibility analysis data at the gates of Saldus [created by author, 2022]

The study shows that the silhouette of the town is presented at high visual quality at Riga and Liepāja Gates at the gates of the city. At Kuldīga Gate, the visual quality of the silhouette is strongly influenced by industrial development with production and technical facilities, while the silhouette at Mažeikiai (Lithuania) Gate has natural elements that make it impossible to read the spatial architectural structure of the town. As a result, it can be concluded that for the gates one enters when coming from Riga and from Liepāja, it is essential to evaluate and improve the existing visual features and preserve the elements of the silhouette, but for Kuldīga and Mažeikiai Gates, to develop the view lines, creating new visual features and a harmonious and functional environment, with more pronounced elements of the

silhouette. The silhouette at each gate is different by both objective and subjective indicators. It was concluded that two gates offer notably high visual quality of the silhouette – both of them provide an open panoramic view of the city, also complemented by distinctive natural factors, with terrain and water areas. The other two gates are strongly influenced by industrial buildings and insufficient development of the structure of the urban spaces. A review of this information demonstrates that for the first two gates of the town, it is important to evaluate and improve the already existing visual features of the silhouette, and for the other two, to create a harmonious and functional structure that would create new valuable elements of the silhouette.

Conclusions and Recommendations

The factors forming the structure of the silhouette are closely associated with the spatial and architectural structure of the urban space, and changes in it are subject to various factors: geographical, social, historical, visually aesthetic, and ecological. How people perceive urban space through the features of the silhouette has both objective and subjective aspects. In a silhouette, the character of the city and its landmarks leave the biggest overall impact – the observer looks at them through the prism of personal and collective experiences. Sense of place is associated with how a person perceives a particular place.

In all the towns studied, the historical structure of the urban space can be found in their central parts, but this structure does not stand out in the silhouettes at the gates of the towns. In Tukums, Talsi, and Kuldīga, no landmarks are found in any of the gates of these towns. The most pronounced influence of natural factors can be felt in the silhouette of Saldus, but it is also visible in a couple of places in Kuldīga and Talsi. The least visible interaction of nature and buildings in the silhouette is found in Tukums. In Tukums, the silhouette structure is described as not high enough. In Talsi, the silhouette structure can be described as medium high, because it has a small-town mood, but the study of the spatial structure in all the towns showed that the greatest potential for the development of the silhouette is in Kuldīga, because the city's current functional zoning offers diverse low-rise uses and opportunities for development that will improve the town's silhouette.

Based on the theoretical research, as well as the analysis of the existing situation in Tukums, Talsi, Kuldīga, and Saldus, general recommendations to preserve and improve city silhouettes suitable for the development of any city in Kurzeme were prepared. Proposals for sustainable solutions that can be used in the development of silhouettes:

On a national level:

- Introduce the matters of silhouette development in sectoral policies.
- Emphasise the importance of the topics of environmental protection for silhouette development in Latvian legislation and land development planning.
 On a regional level:
- In the development documents, provide for the protection of the characteristic landscape of each city.
- In the sustainable growth strategy, define the spatial and visual development of the edges of the city, i.e. improvements near the city boundaries, as one of the principles.

At the level of individual municipalities:

General recommendations

- Carry out in-depth historical studies of cities, to find items of historical value and identity, thus determining the locations where traditional ways of developing land must be used to ensure the preservation of historical traditions, where it is necessary to preserve historical features through various symbols, and where the creation of a new identity is needed (if the development of the urban structure is not as closely associated with historical factors).
- Define unique cityscapes in city planning documents, with locations from which the silhouette of the city can be observed, ensuring their management and supervision. Ensure the protection of these areas and their accessibility to the public.
- Improve the quality of the silhouette, with more supervision over the height of buildings and design parameters.
- Involve the public in making important decisions pertaining to cultural landscape and nature and in urban management.
- Ensure the harmonious coexistence of buildings and elements of nature.
- Provide visual access to town landmarks via viewing points – develop views over the most important landmarks of the city.

Recommendations for integrating new construction in the urban landscape.

- Determine the roof 'ridge line' of the silhouette define the heights of buildings in specific areas of the city, which are not recommended to be exceeded in the construction of new building development, in the land planning documents.
- When planning a new building, take into account the already existing functional zoning of the area

 it is necessary to develop places that are currently degraded, overgrown with bushes, or not developed. Set up new urban landmarks or vertical accents in these areas, if possible.
- When expanding city boundaries, where possible, public areas, low-rise development areas, and natural and green areas must be developed in the gate areas of the city. Industrial and technical development zones should be moved as far as possible not only from the city centre, but also from the gates of the city, which can be referred to as the representative zones of the city.
- In the city development regulations, include instructions on fostering a uniform visual style (when introducing new building development in the city, requiring buildings of certain heights and styles to be constructed in the places most suitable for them, in order to preserve the visual coherence of the city).
- When creating new development, respect the natural features of the current location, and assess

valuable sight lines and objects, making sure they are not obstructed.

- Create and pursue a continuous and functional network of landmarks across the city.
- Plan new landmarks at higher points (on hills) in the area.
- Whenever possible, when creating connections between landmarks in the spatial structure of the city, set up vertical accents (buildings or outdoor objects of distinctive visually aesthetic value) at important junctures.
- Ensure the preservation of the valuable features of the natural landscape – with new building development, create compositional techniques that take into account the local geographical and natural conditions of specific places.
- The placement and layout of new buildings in the area must be in harmony with their environment and surrounding buildings, so as not to visually create a sense of disorganisation and chaos. New buildings and objects must be harmoniously integrated into the existing urban space.
- In places with visible distinctive terrain features, enhance and accentuate the natural structure with new building forms.

Suggestions for improving sight lines.

- Identify the landscape elements that degrade the existing silhouette; create solutions to improve or cover such sight lines.
- Create visually uniform styles of the city's gates (with details that represent the main values, associated emotions, or symbols of the city).

- When working on the spatial planning, assess the locations of landmarks, their connections, as well as the overall spatial structure of the city.
- Determine practical sight lines from which one can see the city's landmarks, and, as far as possible, open sight lines to nearby or distant city landmarks that are obstructed.
- In places where it is possible, create visual links between viewing locations and landmarks – if the landmark is not visible from the viewing location, create visual links through various composition techniques, emphasising at least the direction to the location of the nearest landmark.
- Develop new junctures wherever possible.
- With the help of greenery, create a spatial composition that would help direct a person's attention to the parts of the silhouette that need to be emphasised.
- Create accents along the main sight lines with seasonal plants, rows of trees, as well as elements of lighting and municipal improvements.

The methods and recommendations developed can be adapted to the development of the silhouette not only in Saldus, Tukums, Talsi, or Kuldīga, but also to the silhouettes of other cities in Kurzeme. The methodology of the study can serve as a tool to be used in the development documents of other regions; however, when preparing recommendations for the development of the silhouette of cities in other regions, an in-depth analysis should be carried out, and the specific features of these regions should be taken into account.

References

- 1. Ancītis V. (1996) SALDUS. Kurzemes mazpilsēta gadu ritumā. Riga: A/S Preses nams, 1996, p. 136
- 2. Auns M. Johans Kristofs Broce. Zīmējumi un apraksti. 4. sējums Latvijas mazās pilsētas un lauki. LU: Latvijas vēstures institūta apgāds, 2007, 483 p.
- 3. Bostanci S. H., Oral M. Experimental Approach on the Cognitive Perception of Historical Urban Skyline. *Iconarp International Journal Architecture and Planning*, 2017, No. 5, p. 45–59.
- Briņķis J., Buka O. Pilsētu un lauku apdzīvoto vietu kompleksu arhitektoniski telpiskā plānošana. Riga: RTU, 2006. p. 236
 Buka O., Volrāts U. Pilsētbūvniecība. Riga: "Zvaigzne", 1987, p. 247
- 6. Chan E., Baumann O., Bellgrove M. A., Matingley J. B. From objects to landmarks: the function of visual location information in spatial navigation. *Frontiers in Psychology*, 2012, No. 304, p. 1–11.
- 7. Chizzoniti D. The nature of cities. In: Cities' Identity through Architecture and Arts. London: Routledge, 2018, p. 297–308.
- 8. *DEM*, *DSM*, *DTM Differences* A Look at Elevation Models in GIS [online 21.09.2022]. https://gisgeography.com/dem-dsm-dtm-differences/
- 9. Digitālā augstuma modeļa pamatdati: Latvijas Ģeotelpiskās informācijas aģentūra. [online 20.09.2022]. https://lgia.gov.lv/lv/Digitālais%20virsmas%20modelis
- 10. Esri. ArcGis Pro. Visibility (3D Analyst). [online 20.09.2022]. https://pro.arcgis.com/en/pro-pp/latest/tool-reference/3d-analust/visibility.htm
- 11. Yesiltepe D., Dalton R. C., Torun A. O. Landmarks in wayfinding: a review of existing literature. Springer, 2021, p. 42.
- Yusoff N. A. H., Noor A. M., Ghazali R. City Skyline Conservation: Sustaining the Premier Image of Kuala Lumpur. Procedia Environmental Sciences, 2014, No. 20, p. 583–592.
- 13. Jansons G. Kurzemes pilsētu senās koka ēkas. Rīga: "ZINĀTNE", 1982, 183 p.
- 14. Karlštrēma I. Pilsētas siluets arhitektūrā. [online 21.08.2022]. https://enciklopedija.lv/skirklis/55902
- 15. Kipere Z. Dabas un vēstures kalendārs 2003. Riga: Izdevniecība "Zinātne", 2002, p. 253.
- 16. Kuldīgas novada vēsture. [online 05.10.2022] https://www.kuldigasmuzejs.lv/kuldigas-vesture
- 17. Kurzemes plānošanas reģiona pašreizējās situācijas raksturojums (2016): Kurzemes plānošanas reģiona Ilgtspējīgas attīstības stratēģija 2015.–2030. gadam un Attīstības programma 2015.–2030. gadam 5. pielikums. [online 25.09.2022] http://kurzemesregions.lv/wp-content/uploads/2018/11/Pašreizējās-situācijas-raksturojums.pdf
- 18. Liepiņa S., Vempere I. Talsi. Riga: Apgāds "Jumava", 2005, p. 47

- 19. Markova M. (2014) Latgales dievnamu ainava. [online 10.10.2022]. https://llufb.llu.lv/disertacijas/landscapearchitecture/Madara_Markova_promocijas_darbs_2014_LLU.pdf
- 20. Nachar E. E., Abdel–Hadi A. Place identity/place making in the built environment towards a methodological perspective. In: Cities' Identity through Architecture and Arts. London: Routledge, 2018, p. 73–82.
- Otahel J., Ira V., Hlavata Z., Pazur R. Visibility and perception analysis of city monuments: The case of Bratislava city centre (Slovakia). *Moravian geographical reports*. Institute of Geonics: The Czech Academy of Sciences, 2018, No. 26(1), p. 55–68.
- 22. Ozola A. Tukums: vecpilsēta; ielas un nami, to iedzīvotāji. Tukums: Tukuma muzejs, 2007, p. 559
- Prus B., Wilkosz Mamcarczyk M., Salata T. Landmarks as Cultural Heritage Assets Affecting the Distribution of Settlements in Rural Areas – An Analysis Based on LIDAR DTM, Digital Photographs and Historical Maps. *Basel*, Switzerland: Remote sensing, 2020, No. 12(11), p. 1778.
- 24. Saldus novada teritorijas plānojums 2013.–2025. gadam (2013): Saldus pilsētas teritorijas pašreizējā izmantošana. [online 05.10.2022]. https://saldus.lv/wp-content/uploads/2018/11/Saldus_pilseta_pasreizeja.pdf
- Shuk-Han Mak A., Kin-Man Yip E., Lai P. C. Developing a City Skyline for Hong Kong Using GIS and Urban Design Guidelines. URISA Journal, 2005, No. 17(1), p. 33–42.
- 26. Strautmanis I. Latviskā telpa. Riga: RTU izdevniecība, 2011, p. 157
- 27. Šusts V. Telpas uztvere un kompozīcija. Riga: "Zvaigzne", 1979, p. 126
- 28. Thirumaran K., Kirythiga K. Conservation strategies to revive the imageability of the Kumbakonam historic town. In: Cities' Identity through Architecture and Arts. London: Routledge, 2018, p. 27–36.
- 29. Zeids T., Brambe R., Straube G. Johans Kristofs Broce. Zīmējumi un apraksti. 3. sējums Latvijas mazās pilsētas un lauki. Riga: Izdevniecība "Zinātne", 2002, p. 480
- 30. Ziemeļniece A. Transformation of the silhouette of the urban space. Jelgava example. [online 26.10.2022]. https://web.archive.org/web/20180602052840id_/http:/llufb.llu.lv/Raksti/Landscape_Architecture_Art/2017/Latvia-Univ-Agricult_Landscape_Architect_Art_VOL_10_2017-59-65.pdf
- 31. Ziemeļniece A., Īle U., Stokmane I. Spatial identity of Latvian cultural landscape within regional context. *Scientific Journal of Latvia University of Life Sciences and Technologies Landscape Architecture and Art*, 2021, No. 19, p. 7–17.
- 32. Zilgalvis J. Viduslaiku arhitektūras formu izpausmes Kuldīgas 19. gs. otrās puses apbūvē. In: Pilsēta, laikmets, vide: Latvijas Mākslas akadēmijas Mākslas institūta publikāciju sērija. Riga: Neptuns, 2007, p. 125–136.

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Kopsavilkums. Pilsētu attīstības rezultātā, izmainās to tēls jeb "seja", tādēļ pilsētplānošanā ir ļoti svarīgi izprast un ņemt vērā pilsētas silueta iezīmes kopējā struktūrā. Pētījuma mērķis ir izstrādāt attīstības priekšlikumus un ieteikumus silueta attīstībai no konkrētiem punktiem – pilsētas "vārtiem", kas izceltu un saglabātu esošās vērtības un ļautu cilvēkiem (gan iedzīvotājiem, gan iebraucējiem) uztvert un nolasīt pilsētas identitāti. Mērķa sasniegšanai izmantota teorētisko materiālu izpēte, lauka pētījumi, fotofiksāciju uzņemšana un skiču veidošana, iegūto materiālu apkopošana un grafiska attēlošana. Pētījumā analizēta Kurzemes pilsētu vēsturiskā attīstība, vēsturiskais mantojums un vispārīgā telpiskā un arhitektoniskā struktūra. Saldus pilsētai izstrādātas arī vērtēšanas matricas un veikta redzamības analīze, ko iespējams pielietot arī citu pilsētu silueta attīstībai. Darbā izveidoti ieteikumi, kas palīdzētu veicināt un attīstīt pilsētas siluetu, kā arī nodefinēt katras pilsētas individuālās silueta iezīmes, caur kurām attīstīt unikālu atpazīstamas pilsētas tēlu.