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## Introduction - Renewal of a historic urban open space network

The structure of space and use of urban open spaces in Budapest's city centre have been significantly transformed during the last decade. In the years of the millenary, vehicles dominated the historical streets and squares, but today it is possible and even desirable to walk along the central section of downtown. The area is liveable for the city users again. The inner parts of the capital have been renewed as part of the 'Heart of Budapest Programme', which aimed to strengthen the administrative, commercial and cultural role of the city centre. The Programme focused on the reduction of the transit traffic, while established the pedestrian-friend urban centre within the border of the Small Boulevard (Kiskörút), the József Attilla street and the Danube Boulevard (Duna korzó). (Podmaniczky Programme, 2005).

The Heart of Budapest Programme consists of three interrelated projects[7], one of which is the New Main Street in Budapest City Centre. The article highlights the impacts of public place renewal projects on the open space use, and simultaneously analyses the relations and correspondence between the green areas and the open space use in the densely populated historic urban centre. Our research focuses on the section of the Main street between the Kálvin Square and József Attila street (Erzsébet Square), with particular regard to the analysis of the Kálvin Square, Egyetem Square, Erzsébet Square and Károlyi Mihály utca. (Figure 1.)

## Background/Literature Review

Although the idea of a new north-south axis in the downtown – parallel with the Danube – appeared almost one and a half century ago, the first real steps towards to the implementation were taken only after the millenary. (Balogh, 2008). In 2005 the Budapest's Medium-Term Strategy for Urban Development (also known as Podmaniczky Programme) approved the functional and traffic

[7] The subprojects of the Heart of Budapest Programme: 1:The bridgehead's squares and the new promenade of Pest. 2:Representative gate area. 3:The New Main Street of Budapest CityCentre.

renewal of the city centre, and in 2006 a design competition was announced to determine the new roles of the area. The competition was followed by almost ten years planning and construction period, and by today the major part of the renewal programme in the city centre – parallel with the Main Street – has been completed. The question is obvious: why is it so important to analyse how public spaces work and fit into the contemporary life of the city centre after the renovations? Because the quality of urban open space and design according to the human dimension are closely linked to the use of urban space (Dúll, 2014). "City life depends on the quality of the city." (Gehl, 2014). Good street design not only has public value, but facilitates higher market prices and reduce retail diversity. (CABE, 2007)

The dimensions and proportions of the historical city centre of Budapest has been formed over centuries, long before the motorization, when public spaces served directly the community life of urban residents (K. Tóth, Keszei, Dúll, 2014). But during the 20th century people excluded more and more from the city's streets and squares, because the use of open spaces became increasingly determined by the growing transport. After the millenary a new era was begun in the city centre's life by recognizing the necessity of the downtown renewal. According to the 2006 design competition winner team the key components of the liveable city centre are the traffic reduction of the inner areas, the gradual expansion of the pedestrian priority areas (Figure 2.) and the growing and developing quality and quantity of the public open spaces (Koszorú, 2006).

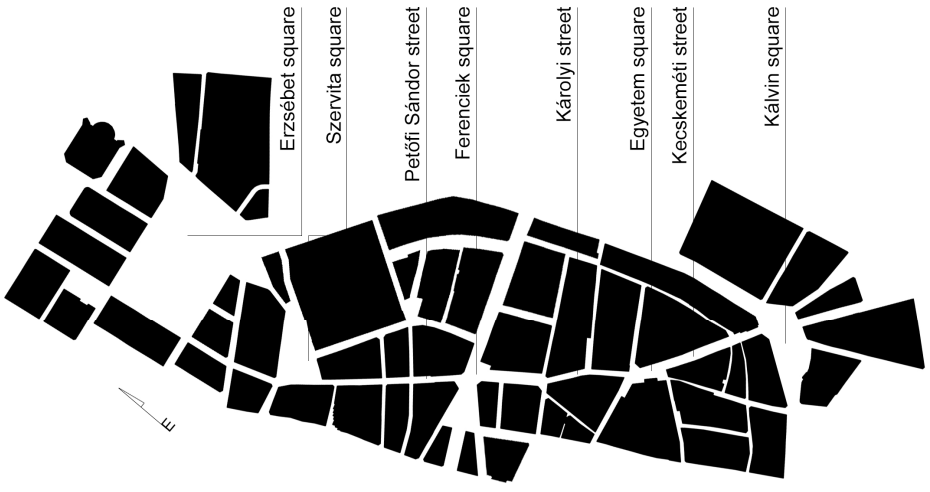


**Figure 1. Sections of the New Main Street of Budapest (research area)**

## Goals and objectives

In this paper we set out to answer two main questions. On the one hand we investigate the results of the renewal according to the increase in quality of urban life (henceforward: recreational value). On the other hand – considering the crucial role of green areas in a densely built-in, complex and intensively used area – we analyse the open space use and the differences in the functions owing to the various intensity of green areas.

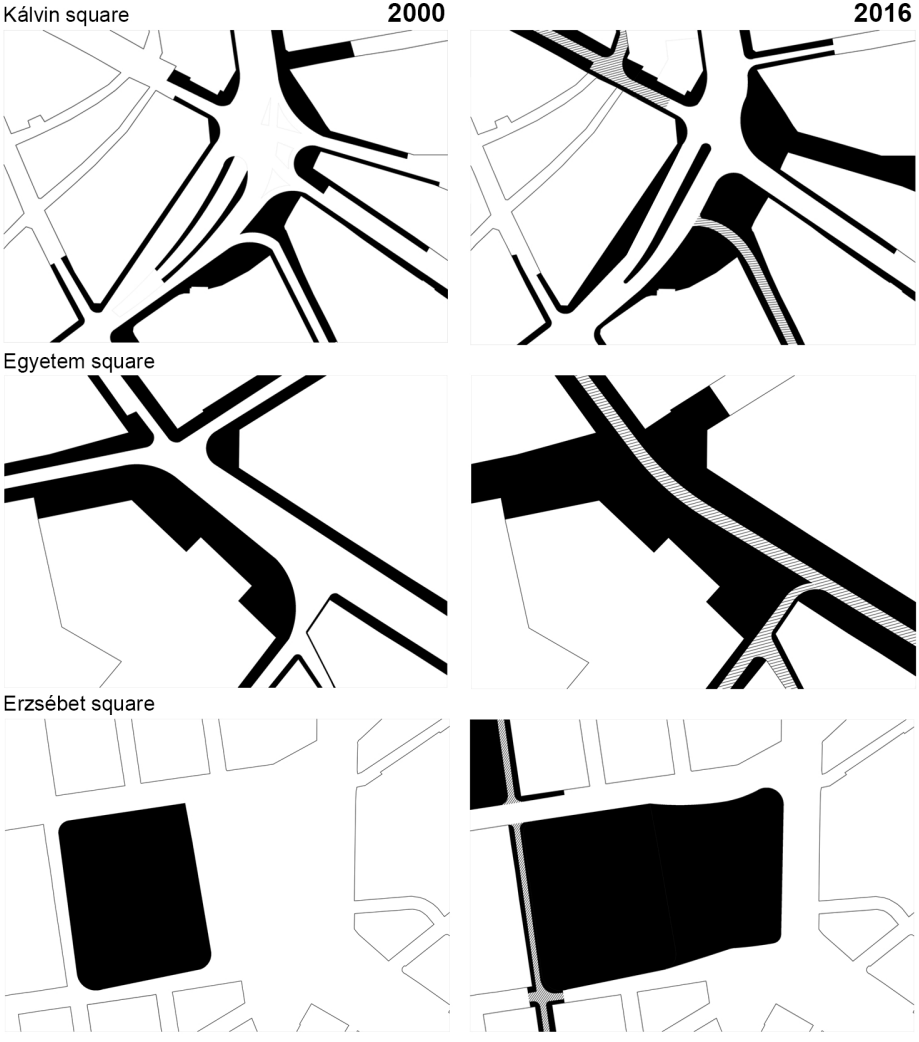


**Figure 2. The change of pedestrian priority areas as a result of the New Main Street project**

## Methods

In order to define the recreation value a multidimensional evaluation method of four criteria was developed. (Table 1.) The evaluation method is based on „The place diagram" created by the 'Project for Public Spaces' (PPS), although it is specified and simplified according to the attributes of the research area. The experience of space (first criteria) means how physical attributes support the use. The ambitious open space design of the renewed historical centre and the whole humanized environment (second criteria) has a strong impact on the pedestrian open space use. The functions on the squares and streets (third criteria) and their distribution and quality represent an outstanding attraction. The intensity and functional distribution of uses show an immediate feedback about the success and effectiveness of a place (fourth criteria). Each criteria consists of three sub criteria, which graded in a 10-point grading scale. The grades are based on an on-site, observation survey. The recreational value was counted as an average of the four main criteria. (Figure 3.) In the rating the highest average value (10) represents an open space with rich functional set and a pleasant atmosphere offering all-day recreation possibilities. The lowest value (0) refers to a place used by predominantly road traffic, with poor functions and lack of green surfaces.

**Table 1. The recreation value analysis of the New Main Street according to the four criteria**

| | **Space experience** (Criteria 1) | | | **Environment** (Criteria 2) | | | **Functions** (Criteria 3) | | | **Use** (Criteria 4) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Continuity | Walkability | Scale | Quality | Green surfaces | Image | Diversity | Proportion | Attractions | Intensity | Distribution | Efficiency |
| **Kálvin sq.** | 10 | 5 | 4 | 10 | 1 | 2 | 4 | 0 | 0 | 8 | 5 | 5 |
| **Kecskeméti st.** | 10 | 5 | 6 | 7 | 6 | 8 | 7 | 8 | 4 | 6 | 6 | 8 |
| **Egyetem sq.** | 10 | 10 | 5 | 10 | 2 | 10 | 4 | 8 | 0 | 6 | 5 | 10 |
| **Károlyi st.** | 10 | 5 | 2 | 7 | 2 | 6 | 5 | 8 | 0 | 6 | 2 | 7 |
| **Ferenciek sq.** | 6 | 8 | 2 | 10 | 0 | 5 | 1 | 0 | 3 | 10 | 5 | 5 |
| **Petőfi st.** | 10 | 5 | 2 | 7 | 2 | 6 | 5 | 4 | 2 | 8 | 4 | 4 |
| **Szervita sq.** | 10 | 5 | 4 | 4 | 4 | 8 | 3 | 3 | 7 | 5 | 4 | 6 |
| **Erzsébet sq.** | 8 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 8 | 10 | 7 | 10 |

## Results and discussion

The physical attributes like measures and scales must also be examined to explain the relation between green areas and the use of open spaces. The Main Street is a north-south running linear element sectioned by streets, street-extensions and squares and crossed by the Kossuth Lajos Street8. (Figure 1.) The height of the surrounding buildings and the width of the streets located south from this busy cross-street are varying. While the average width of Kecskeméti Street is 18-19 meters, the Károlyi Street is only 10-12 meters wide with 9-22 meters high space walls along the street. The Ferenciek square and the Egyetem square are wide street-extensions linked on the southern part of the street. The northern part of the Main Street is narrower; approximately 10-12 meters wide but the height of the buildings are about 20-22 meters. Szervita square and Kristóf square are linked to this part of the street. The southern part is more homogeneous than the northern part.

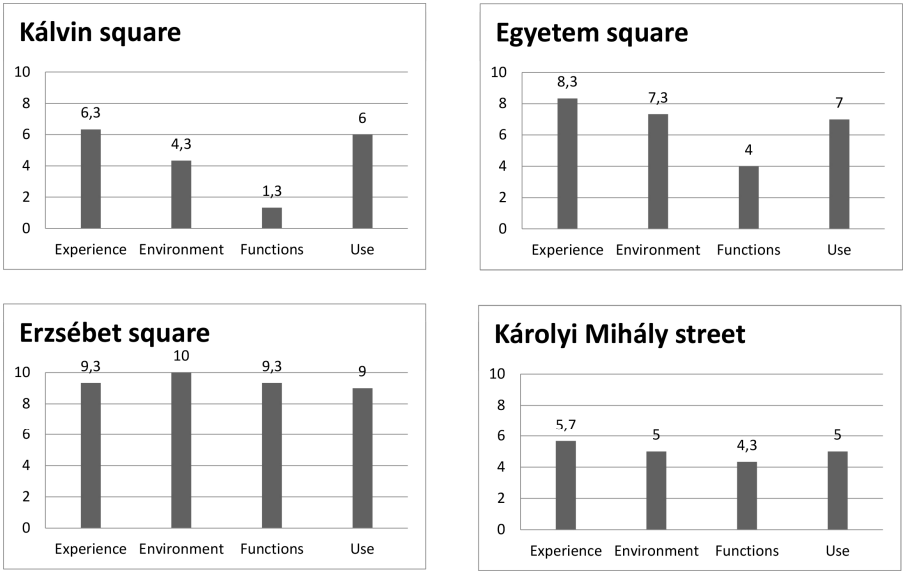


**Figure 3. The average recreation values of the squares and street**

According to the analysis four clearly separate cases can be defined. Squares operated as hard traffic interchanges (case 1.) have really low recreational

[8] The Kossuth Lajos Street is an avenue constructed in the end of the 19th century. It cut through some previously existing blocks to connect the middle of the city centre with the Rákóczi Street. It is one of the most important radial avenues of Budapest bisecting the V. district and carrying high traffic.

value – e.g. Kálvin square or Ferenciek square – because the functions retaining the pedestrian traffic, like shops, bars and restaurants are forced to the narrow edge of the square. Street sections without functions making the people stay (case 2.) can represent low recreational value and look unused because these are handling only the pedestrian traffic – e.g. Károlyi Street – even if they were recently renovated. If these streets could have more green areas and furnishing zone they would attract commercial functions to settle like it happened in the Kecskeméti street. Restricted or mixed use streets and squares where mostly commercial functions can be found (case 3.) are used for short time stay or stop points. The situation of the Egyetem square or Szervita square are very similar, where the hospitality are able to benefit from pedestrians around, though only a periodic use of the open space can be detected. The fourth case – represented by Erzsébet square - has an outstanding recreational value. Its functions and usage show a great variety, hence the recreational value of the square is the best by far from the examined places. The square has a very frequented location right in the main traffic interchange point of Budapest's historic urban centre (M. Szilágyi, Demjén, 2007). The position in the urban fabric is only one among many reasons of the high recreational value. It offers a wide range of functions both for young and elderly people. Another unique feature is the square's high proportion of green surfaces. Out of the examined places only the Erzsébet square can represent multilevel vegetation that strongly determines the local atmosphere. As a conclusion the high recreational value requires open spaces with wide range of various functions or the few presented must be dominant, but both cases needs public spaces submitted to pedestrian use. In addition, places used for long-term stay can well represent a delectable atmosphere and attractive elements which are able to attract people.

The investigation of relation between green areas and open space use is really essential, because most people are ready to consider the greenery very important in urban areas both from aesthetical and psychological point of view (Kaplan & Kaplan, 1989). When evaluating the vegetation in the centre of Budapest, first of all we need to accept the fact that this area has a low greening-potential due to its downtown urban characteristics. The recently finished rehabilitation projects could more or less improve these conditions but the area still needs to be evaluated in special aspects because of the narrow wall-to-wall spaces, underground infrastructural facilities and inadequate environmental conditions. The first aspect examines the open spaces by the proportion of green and covered surfaces and separates places with remarkable amount of green surfaces, places partially covered with green surfaces and places with mostly biologically inactive surfaces. The second aspect examines the proportion of three-dimensional vegetation and categorizes places with

closed tree-stratum zone and multilevel vegetation, places with closed tree-stratum zone but no low level vegetation, places with minor tree-stratum zone but rich mid-level vegetation and places with no three-dimensional vegetation. In the case of Main Street's street sections 3D vegetation can only be related to Kecskeméti street. The wider cross-section of the street (19,6 meters at the Kálvin square gate) has previously enabled a double alley to be planted. In a streetscape like this, creating dominant green masses cannot be a realistic goal, but a closed tree-stratum of an old alley can significantly improve the atmosphere of the street. Károlyi street can be mentioned as a counterexample despite of its narrow cross-section (10-14 meters). From among the Main Street's open spaces the Erzsébet square has the highest recreational potential partially contributing by its outstanding greenery. The western part of the square is rife with large lawn areas and grown trees that make it a comfortable shaded place even on hot summer days. Separating hedges and colourful flowerbeds can be found here as well. The eastern part is more open, greenery here contains the large lawn and the trees and hedges separating the square from the surrounding streets, making the place comfortable with a concave shape prevailing. The most welcoming element of this part is the large lawn surface proved by mostly the summertime use. Although the two parts are slightly different in the aspect of vegetation, they can be handled together such as in value and availability as well.

## Conclusion

According to the research it can be concluded that pedestrian or mixed used areas with wide range of functions and high quality environment can represent a real recreational value. Concerning to green areas the examination cleared that public spaces are not able to retain pedestrian traffic without a reasonable amount of vegetation. The more a place can represents good quality, multilevel green areas and various functions, the more time people stay there enjoying what a public space can offer.

The historical city centre of Budapest is the most important, multifarious and prestigious area where urban values can be examined in numerous different contexts. In order to define the recreational values of the investigated area we focused on the recently renewed, primarily pedestrian-used urban axis, the New Main Street of Budapest. Thanks to the urban rehabilitation program's traffic-reducing interventions along the Main Street and in the vicinity worked very effectively and therefore these open spaces turned to become real, well-useable pedestrian areas. Beneath the streetscape the hierarchy of the rowed open spaces is perceptible, they are detached to obvious roles.

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