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URBAN DEVELOPMENT POSSIBILITIES FOR CHILD-FRIEDLY CITIES: THE CASE OF SCHOOL ENVIRONMENTS

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Abstract: *The urban environment of schools is everyday destination for children: place for arrival and departure, gathering, meetings, and even playing. In these transition zones the city meets a private institution, therefore not only citizens' but also the school community's needs have to be served. While child-friendly initiatives are important factors in urban developments, the public spaces around schools can be neglected. Besides the cultural differences, certain urban environments offer different development opportunities around schools. Research investigates the characteristics of the open spaces around schools in general and then on a local scale in Budapest, Hungary. By analysing individual school situations, a typology has been made to describe schools' public open space relations. The paper focuses on the entrance zone of schools, where challenges and expectations are concentrated. Research reviews the good examples to show guidance on how we can turn these places into child-friendly network hubs.*

Keywords: *school environments, entrance zone of schools, school streets, school zones, child-friendly city*

1. INTRODUCTION

Since compulsory education is common in most of the countries around the World, schools are fundamental institutions and important social hubs in cities. While the proper design of the schoolyards and school gardens get a lot of attention, the immediate urban surroundings are rarely guided. Child-friendly requirements are mostly set inside the school fences, neglecting the urban environment, however, it is the place for arrival and departure, meeting and gathering, playing and hanging out.

Although the importance for safe mobility of children is a widely discussed issue, the unsafe environment of schools is still one of the highest concern of parents, resulting even more car traffic around Hungarian schools [1], [2], [3].

The urban environment of schools are not only important traffic zones: these places can be considered as potential informal educational places [4]. The fact that informal educational environments can be just as influential for children as formal educational environments [5], makes these urban opens spaces around school even more valuable. Careful design of children environments should not be limited to schoolyards, playgrounds or other designated places for children. Instead: all public spaces should be multifunctional designed for all generations, including children. Integration instead of separation – this should be the rule to lead urban developments in order to create better cities not only for children. [6], [7], [8]

In the past decades several approaches appeared that were aiming to reorganise or develop the immediate surroundings of schools but no comparison or classification of these different approaches were carried out. This research aims to start this work and highlight the similarities and differences between the various approaches.

2. RESEARCH METHOD AND MATERIALS

The research methodology contained two main stages. At the first stage, author gathered information to build up a selection criterion for case study analysis. At the second stage, the case study analysis has been conducted. For building up a selection criterion, a literature review has been made along with an analysis on the spatial characteristics of the urban environment of schools.

As the topic of the urban environment of schools have limited literature, the authors first conducted a literature review focusing on the following relevant subjects: *child-friendly city, school streets, healthy streets, school environments, transition zones, and travelling to schools.* The aim of the literature review was to highlight the general components and development requirements for the urban environment of schools, focusing to the *entrance zone of schools* which is the most intense area around schools. Literature review resulted an understanding of the main characteristics of the urban environment of schools, including the spatial givens around school properties and the main development requirements to deal with these public urban spaces. Three main books gave the basics for the literature review: Christopher Alexander's *Pattern Language* from 1977, Milos Bobic's *Between the edges* from 2004, and Jan Gehl's *Cities for People* from 2010. To understand the development potentials, Stipo's *The city at eye level for kids* from 2018 was an important collection of recent projects and innovative global initiatives. On the local level Józsefváros Municipality's *Child-friendly City Concept*, the *School Zone Program* by the BKK Centre of Budapest Transport in cooperation with municipalities and the Moholy-Nagy University of Art and Design Budapest Innovation Center, and *The School Street Program* by the Clean Air Action Group provided the cornerstones of the research. The outcome of the literature review was to highlight eight important components of the development of the immediate surroundings of the school. The spatial analysis of the urban environment of schools culminated in a general typology of schools' public open space relations and a classification of urban locations where schools can appear.

The second stage of the research was to analyse case studies to get a deeper understanding on the local opportunities and limitations. Based on the eight introduced components and the spatial typology, six sites have been selected in Budapest, Hungary. While all of them can be considered as successful development projects from the past twelve years – based on fulfilling most of the suggested components –, they have very different spatial characteristics according to their urban location. Diversity in urban character was important in order to explore what difference the spatial givens make in the development processes. The presented six example projects were analysed by field observation, reviewing plans, project proposals, and all available publications. In addition, short personal reports have been carried out with the landscape architects or project managers of each project to reveal the important design and management aspects of the projects. Conversations covered the following topics: conditions before the transformation; project brief and strategy; project funding; phases of the process; public participation; special methods and approaches; final result versus the plans; challenges of the process; feedbacks since. Personal reports have been conducted in 2024 between April and May.

3. RESULTS

3.1. *Main components of the urban environment of schools*

From the urban perspective, the immediate surroundings of the school should be considered as edges or boundaries of the school, being the transition zone between the inside and outside or private and public domains in cities. Edges are crucial parts of the space, offering usually the best opportunities for stay. As boundaries, school surrounding should be active, interesting, and transparent – so-called soft edges. Transition zones are the focal points for conflicts of different interests and claims, but at the same time these are the cornerstones to 'get to know each other and homogenise as an urban community'. Private properties are dependent on public infrastructure and therefore creating vibrant and characteristic interfaces can lead to rich and complex townscapes [9], [10], [11].

The urban environment of schools are public open spaces and therefore usually belong to the local government. This means that the development and management of these urban open spaces are the responsibility of the municipality, and not the school. However, shaping these spaces strongly depend on the local authority, schools are highly affected by the form of these public open spaces not only in aesthetics but also in function and management. While it is important that the urban environment of schools is handled within the public open space system to blend into the townscape, there is also a need to create significant identity for these open spaces to reflect on the institution located here.

From the users' perspective, we have to highlight that in the urban environment of schools, children are significant user group as these public open spaces are their everyday destination. *School street* is a model tested internationally and proved to be successful in many cases. We can distinguish permanent and temporary examples. Some examples are more focused on traffic organization, while others contain a complex renewal of the school entrance zone. Beside reviewing the different school street models, it is also important to take a look at the child-

friendly city requirements in general. If we look at the local programs slight differences can be found, but there are some cornerstones that is agreed to be as the focal points in any child-friendly city initiative: safe, healthy, accessible, inclusive, pedestrian-friendly, playful, lively and sustainable environments where children's voice is heard [8], [12]. There are initiatives stating that schools should be located in green corridors [6]. In Hungary, a civil organization recently has been formed called the *Child-friendly Budapest* which promotes school streets among their 12 goals [13] – at the same time the *School zone program* of the Budapest Transport Center is also started to spread focusing on safe mobility of children around schools [14].

While the urban open spaces around schools have to be viewed as potential hubs of the child-friendly urban network, we cannot forget about the parents, teachers, school workers, and average urban dwellers. It is clear that the usage of these public open spaces needs to be flexible and multifunctional to fit the rush hour or arrival and departure and also serve the local community of the neighbourhood. To set the right development goals for the urban environment of schools we have to understand the different needs and possible functions that are overlapping each other in these – usually limited – open spaces. Some aspects result conflicting demands that need to be balanced with careful design and place management.

To conclude the findings of the literature review, authors identified eight components that are key aspects for the urban environment of schools, paying special attention to the school entrance zones:

1. **Open gathering zone** – undefines, transformable, multifunctional space where mixture of uses can appear
2. Limited car traffic and **improvements for pedestrian and bicycle traffic** – accessibility and safe crossings
3. No sharp division between elements of the built environment – reinforcement of **demarcation zones by greenery, hedges or benches**
4. **Healthy environment** – promoting green solutions
5. **Clear and flexible regulations**
6. Creating **identity with landmarks** for all ages – landmarks to become playful objects
7. **Public participation** to communicate the real needs and desires – special attention to children engagement
8. Opportunity for education and **attitude formation** – presenting innovative ideas.

3.2. *Spatial characteristics of the entrance zones of schools*

Schools are naturally located in urban hubs – no matter what urban use can found around –, often due to their central location, proximity to other important amenities, or simply because they are situated at key traffic intersections. Schools are always connected to significant residential areas, with lower or higher built-up density. Based these two aspects – functions around and built-up density – four urban zones can be identified in which schools can be detected:

	Lower density	*Higher density*
Mixed functions	**Urban sub-centres**	**Urban core zones**
Only residential	**Suburban residential zones**	**Block housing estates**

Table 1 The classification of the four typical urban environments in which schools appear

While the naming of these zones might be diverse in different cultures, the above-mentioned urban characters appear in most cities around the World. Study aims to review the different spatial givens around schools within these four zones. Going beyond the idea of differentiating the school by their entrance zone – whether they open to a street or a square [3] – *Figure 1* illustrates a general typology for the schools' public open space relations highlighting the entrance zone of schools. Below the description of each urban zone, and in each description the connection with the typology is created.

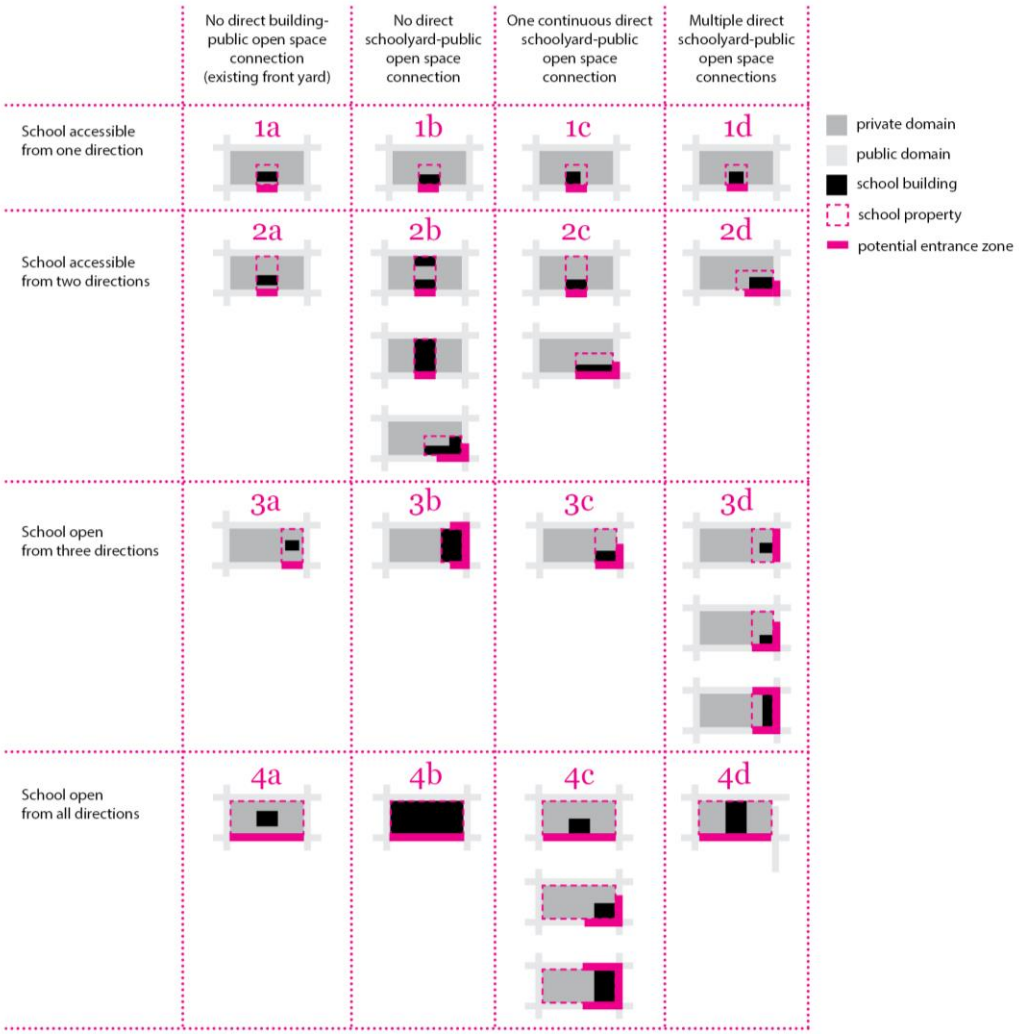

Figure 1 General typology of school's public open space relations

Urban core zone is defined as a dense urban area with more than two-storey, predominantly attached buildings. These areas are usually the downtown areas in metropolitan cities, sometimes even in historical parts. Schools in this urban environment are accessible from 1 or 2 directions, almost always having a direct building-open space connection (*1a-b-c-d, 2a-b-c-d, 3b, 4b* from *Figure 1*). There are some general characteristics for *urban core zones* that affects also the urban environment of schools. Since these environments are usually found in the heart of the city, schools here mostly have quite good connections to public and alternative transportation lines. Streets have significant pedestrian traffic, however, pedestrian walkways are usually narrow, while car lines and parking are relatively wide and dominating the streets. Therefore, the main challenge in these urban environments for schools is to maintain the limited space and offer still the main entrance zone functions like gathering, meeting, waiting, celebrating.

Urban sub-centres are mixed-use, medium-density neighbourhood centre (town or district). Schools in this urban context are accessible from 2 or 3 directions, usually having direct building-open space connection (*2a-b-c-d, 3b-c-d* from *Figure 1*). It is an important feature of these schools that they are always lay in a central position adjacent to many other community amenities. This provides usually a good pedestrian connection around schools. It is also typical that there are greater public open spaces close to the school like playgrounds, market place, parks, etc. Because of the many amenities and the dense service area, car traffic can be significant while parking might be limited which can create major issues especially during school start and end.

As a third typical urban environment *panel housing estates* can be mentioned: a medium or high-rise, multi-family dwellings, residential condominiums that has been usually established in the 1960ies or 1970ies as affordable housing complexes. It is very typical that these urban environments are rich in green areas and have high public open space ratio around the high-rise residential buildings, and amenities on the main floor level. Institutes like schools are usually located in the core areas of these estates which itself created a safer, pedestrian-friendly

environment. These schools are mostly accessible from all directions (*3a-b-c-d, 4a-b-c-d* from *Figure 1*). Having or not having a direct building-public space connection can be both seen in these urban environments. While from the four environments this urban zone is usually the most pedestrian-friendly, parking is still a big issue because the high apartment number demands large surfaces for parking.

The other typical residential zone is the so-called *sub-urban residential zone* with low-density, low-rise, singly family housing. Schools in this urban context are accessible from 2 or 3 directions, usually having no direct building-open space connection but a front yard (*2a-b-c-d, 3a-b-c-d, 4a-c-d* from *Figure 1*). As all analysed schools have a front yard it made clear that it is huge advantage because the entrance zone functions can be provided within the school boundaries. This results the fact that the urban environment of these schools is 'simpler' and look like average streets. However, it has to be mentioned that car traffic in rush hours around school is still an issue in most cases that needs to be handled.

As part of the research and a result as well, a typology has been created by the authors that examines and presents the possible public open space relations of the school property. The matrix of *Figure 1* explains the spatial possibilities based on two key aspects: (1) location within the school block explains how much of the school boundary is exposed to public spaces, (2) the location of the building within the school lot explains the quality of the public-private space interface. The matrix highlights that there are many types of spatial settings for school entrance zones based on whether the school is accessible from one, two, or all directions or whether the school building is a stand-alone or standing in property line, perhaps offering no schoolyard-public open space connection.

3.3. *Case study analysis for school entrance zone renewal projects in Budapest, Hungary*

After determining four typical urban environments, authors have reviewed many projects from the past twelve years that targeted to transform the immediate urban open spaces of schools. Finally, six projects have been selected for further analysis that has fulfilled the eight development criteria. The six projects are coming from three different urban zones – two projects from each. From suburban residential zone was excluded from further analysis as no relevant complex transformation of school entrance zone has been found there in the area of Budapest.

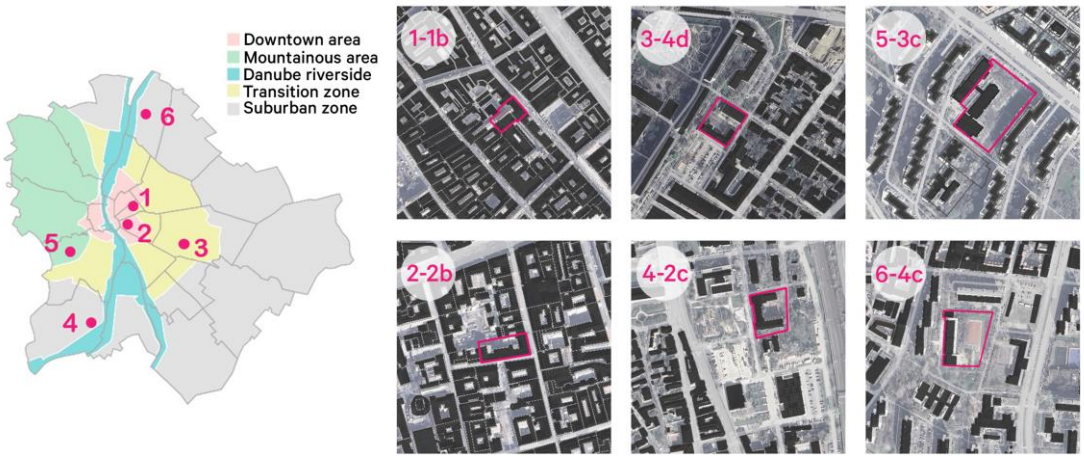

Figure 2 Location and urban environment of the six selected sites

Figure 2 shows the location of the six sites within the city of Budapest, Hungary. With five colours, the map is showing the different developmental zones of the city given by the Budapest Capital City Urban Structure Plan[15]. Beside the map, solid-void maps are showing the urban structure of the six schools – school lots are highlighted in pink. Number 1 and 2 is located in the urban core zone, 3 and 4 in the urban sub-centres, 5 and 6 in the panel housing estates. For each example, the type of the school's public open space relations from *Figure 1* is given. There is one project (No 6) that is still not implemented, but because of its unique background and spatial givens, the authors decided to still analyse it based on the plans.

Figure 3 Before and after pictures of the entrance zone transformation of the Erzsébetváros Hungarian-English Bilingual Primary and Art Vocational High School (No1) (Pictures: Googlemaps, https://epiteszforum.hu/mintaprojekt-a-kertesz-utcaban)

Figure 4 Before and after picture of the street transformation in front of the ELTE Trefort Ágoston Teacher Training High School (No2) (Picture: Googlemaps, https://www.facebook.com/photo/?fbid=1231052512381973&set=pcb.1231052615715296)

Figure 5 Before and after pictures of the square in front of the Trefort Ágoston Bilingual Technical High School (No3), school located on the left side. (Pictures: https://landezine.com/kossuth-square-kispest-by-leptek-terv/)

Figure 6 Before picture and after visualisation of the street transformation in front of the Nádasdy Kálmán Elementary School (No4) (Picture: Googlemaps, Visualisation: https://budafokteteny.hu/hir/zoldfolyoso-letrehozasara-nyujtott-be-palyazatot-az-onkormanyzat)

Figure 7 Before and after pictures of the square in front of the Gazdagréti-Csíkihegyek Elementary School (No5) (Pictures: Sándor Mohácsi)

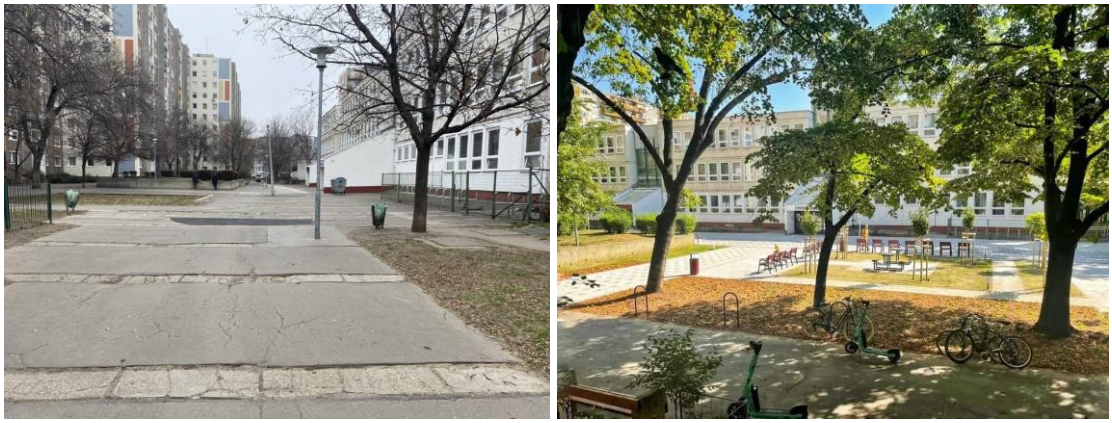

Figure 8 Before and after pictures of the square in front of the Bene Ferenc Elementary School (No6) (Pictures: Réka Pákozdi)

Table 2 explains the design principles that are in line with the eight components used for the selection criterion. Design details were found on the plans, final design, or were told through the personal reports taken with project managers or landscape designers. Cells coloured in green when the component is fulfilled, orange colour means when the component was not considered seriously in the project.

	No.1	**No.2**	**No.3**	**No.4**	**No.5**	**No.6**
Expanding open gathering zone	Eliminating 2 parking stalls to extend pedestrian entrance zone	Closing down the street (permanent school street concept)	Organising the chaotic traffic and parking area to extend pedestrian area	Reducing the width of car lane and elevate to the same level as pedestrian areas (shared street concept)	No extension just quality-lifting	Paved areas decreased to have more greenery
Improvements for pedestrian and bicycle traffic	Colourful new street benches, garbage bins	New benches, bike racks, play equipment, shared space for bikers	New functions for stay – especially for teenagers (sport field, skating, gathering)	New seating elements, improving walking and cycling	New bike racks, play structure, drinking fountain	Chalk wall, chess tables, more benches and bike racks
Demarcation zones by greenery & furniture	Improving safety by road painting and proper separation	Street closure with pollards on the ends	Diverse but clear separation of functions with soft elements	Soft elements (green, pavement) for separation	Not needed, just quality-lifting	Not needed, just quality-lifting
Healthy	Perennials	Greening in	Increasing	New green	Maintaining	Increased

environment	and shrubs in new planters	planters	greenery (+15%), new trees, ecological drainage	elements (trees and flowerbeds), ecological drainage	existing and adding new trees and flowerbeds	green areas, new trees and flower beds
Clear & flexible regulation	Clear delimitation of entrance area	Flexible usage in the pedestrian zone	Flexible use: basketball field versus extra parking	Shared street concept allows flexible mobility and usage	Flexible usage, universal design, inviting for all	Flexible usage, universal design, inviting for all
New landmarks	Road painting and modular furniture	Road painting by the students, mobile furniture	"Sitting Terrace": sculptural piece for seating and skating for teenagers	Wave in the pavement goes along the whole street (local pedestrian main street concept)	Blue snake (play and seating)	Unique pavement, chess tables
Public participation	Co-creational data collection and design with the school community, engagement in the monitoring	Diverse and deep community engagement with the school community and local residents	Collective data collection and mapping with the students, informing during the design, co-management in the operation	Project aim: wide consultation, cooperation with the on-site stakeholders (still ongoing)	Informing, no feedback options	Informing with feedback options
Attitude formation & innovation	Educating the school community	First school street concept in Budapest	Engaging the school in the operation of the new elevated sport field, out-of-the-box design solutions	Nature-based solutions (raingarden, tree alleys), inclusive shared street concept	Focusing on children's needs (play area and drinking fountain)	Extensive grass, and universal design

Table 2 Compliance with selection criteria for the six projects [7], [16], [17], [18], [19], [20], [21], [22], [23], [24], [25], [26], [27]

It can be seen that school entrance zones located in panel housing estates were more likely to have only a quality-lifting type of intervention, and therefore major transformation of the space did not take place. The reason behind is that these urban environments were already quite pedestrian-friendly having a larger proportion of gathering area and greenery. What is outstanding is that public engagement in the transformation process was not necessarily significant: while in project 1, 2, and 3 public participation was an important core principle, project 4, 5, and 6 did not took too much effort to do deep engagement throughout the design process.

After introducing the design side of the selected sites, we would like to explore the project management side in the following table. Table 3 presents a summary of the six projects outlining the main aspects of the management and implementation. Details were taken from available public documentation and from the short personal reports.

	No.1	No.2	No.3	No.4	No.5	No.6
Name and type of the school	Erzsébetváros Hungarian-English Bilingual Primary and Art Vocational High School	ELTE Trefort Ágoston Teacher Training High School	Trefort Ágoston Bilingual Technical High School	Nádasdy Kálmán Elementary School	Gazdagréti-Csíkihegyek Elementary School	Bene Ferenc Elementary School
Year of the implementation	2023	2025	2017	2026 (planned)	2014	2023
Design area	100 sq m	600 sq m	7700 sq m	10 435 sq m	1862 sq m	1600 sq m
Project financing	100% university budget	100% local municipality budget	20% local municipality + 80% Budapest municipality budget	Local municipality budget + state funding	100% local municipality budget	100% local municipality budget
Budget[1]	55 € / sq m	63 € / sq m	200 € / sq m	430 € / sq m (planned)	140 € / sq m	120 € / sq m
Before and after size of the entrance zone	75 sq m / 100 sq m	115 sq m / 530 sq m	150 sq m / 1200 sq m	150 sq m / 800 sq m	1300 sq m / 1300 sq m	1600 sq m / 1600 sq m
Project leader	Moholy-Nagy University of Art and Design Budapest + Centre for Budapest Transport	Józsefváros Municipality	Municipality of Kispest	Municipality of Budafok-Tétény	Municipality of Újbuda	Municipality of Újpest
Project background / wider strategy	Safe Urban Mobility for Kids (university research)	Child-friendly District Program	Budapest TÉR_KÖZ Program	Hungarian National Healthy Streets Program	Renewal of the Kaptató Promenade of Gazdagrét	No information
Special approach, project methodology	Co-creation, social design, prototyping, urban placemaking	Temporary design at first (prototyping), school street concept	Rejuvenating the public space, community-centred design	Mitigating extreme climate impacts, green corridor, ecological drainage, improving microclimate	No information	No information
Biggest challenges in the process	Engaging the citizens, educating the school leaders	Engaging all, convincing the immediate neighbours, administrational issues	Co-management of the square, flexible usage to serve all, existing public utilities	No information	Low budget, public utilities, tree protection	Low budget, public utilities

Table 3 Comparison of the case studies [7], [16], [17], [18], [19], [20], [21], [22], [23], [24], [25], [26], [27]

*Budget per square metre values are corrected for inflation. For example, project No. 5 was implemented in 2014 with a total budget of 60 million HUF. This today would be equal to 104 million HUF (used online calculation: https://statmonitor.hu/inflacio-kalkulator, on the 15th of July in 2025). This amount is divided by the total area and converted into EUR. All amounts are gross values

In the *urban core zone* of Budapest, two high school environments are presented as good examples. Both of the

[1] Budget per square metre values are corrected for inflation. For example, project No. 5 was implemented in 2014 with a total budget of 60 million HUF. This today would be equal to 104 million HUF (used online calculation: https://statmonitor.hu/inflacio-kalkulator, on the 15th of July in 2025). This amount is divided by the total area and converted into EUR. All amounts are gross values.

transformations happened within pilot projects, but the scale of the interventions is different: while one – being a research project with limited budget – did only a minimal intervention by scarifying a couple parking stalls to turn them into useful space, the second project aims to have permanent closure on the street in front of the school, excluding cars completely, to create the first s*chool street* in Budapest. Because of their pilot nature, both projects have a strong professional strategy in the background: the *Safe Urban Mobility for Kids Program* and the *Child-friendly Program* of the district. Public participation was highly important for both projects; however, the capacity (time and budget) was much more limited for the research project. Both the project leaders reported major challenges related to the engagement process – especially with stakeholder groups outside of the school community. Budget was the lowest in these projects from out of the six cases..

In the *urban sub-centres,* one elementary and one high school was selected. The size and the scale of the interventions were significantly different from the previous two projects. These transformations were part of a bigger scope, not only focused on the school surroundings – this can be seen on the size of the design areas. In project No.3, the public open space in front of the school is directly connected to the local market which makes the intervention a more complex public space renewal. In the case of project No.4, on the opposite side of the school there is an existing park that has been renewed recently in 2019 and the street transformation is basically the second phase of this intervention. While the 3rd project was already implemented in 2017, project No.4 is still in preliminary design phase, waiting for the funding application to be confirmed. Due to the design sites' complexity and local importance, external funds were channelled for both projects. It is an important finding that project sites located in urban sub-centres are often have the advantage of being able to call for extra budget sources above the local municipality budget if connecting to capital or state tenders or programs. This helps to elevate the quality of not only the design but the process with high level of participation for example. In terms of the design principles, reorganization of the traffic and providing better pedestrian connection with the surroundings is a fundamental aspect for both projects resulting drastic grow in the size of the school entrance zones. The fact that the age of the children is different for the two schools results significant differences in the functional layout and the object design as well. While in the first project is focusing on sport facilities and flexible functions for the teenagers, for the elementary school entrance playful gathering tools will be used.

Two elementary schools, located in *panel housing estates* have been selected for further analysis. The size and the budget were similar for the two projects. It is important to mention that the public open space system of the panel housing estates built between 1970-90 in Hungary is typically now going under renovations because most of them still conserve the original design that is outdated. Because there is no nation-wide support or a financial fund to assist this renewal process, it puts a high pressure on the local governance to perform resulting mostly low-budget, quality improvement interventions. On the other hand, we cannot forget that these zones already have a quite high ratio of green coverage and pedestrianised public open space system. Therefore, in most cases, the educational institutions are already located in a safer, greener environment, having a significant pedestrian-friendly entrance zone. The analysed projects for the same reasons excluded bigger structural or functional changes in the space and focused on quality elevation resulting no change in the size of the school entrance zones before and after. It stands out that the public participation level was low for both – mostly only informing. Significant difference was that while the first project was part of a bigger public space renewal plan (the Kaptató promenade is the main pedestrian axis of the estate), the second project was initiated by the school (because of some outstanding functional problems) and was only a local intervention not connected to bigger strategy or plans. It is important to highlight that greening, playfulness, and identity were stronger design principles in both two projects than in projects in other urban environments.

4. CONSLUSIONS

After reviewing and comparing the six selected projects, it is visible that there is no 'one-fit-for-all' solution to develop school entrance zones. However, it is clear that the idea of 'breaking up with the traditions and go beyond the logic of designated playgrounds' and to create multifunctional public spaces for all generations is an intention of all presented case studies. It be stated that the development of a school's surrounding is highly dependent on the urban context. Different neighbourhoods have different advantages and disadvantages, offering potential synergies or determining limits for the development process of making the school environment become a child-friendly zone. While denser urban environments often offer collaborations with several different stakeholders that can enrich the final design, it also is a challenge of managing a good process with all of these participants. Central position offers the possibility for rethinking bigger areas – merging and opening up, reorganizing traffic – to make a bigger step

towards more liveable and loveable cities. Existing car traffic – especially parking – and utilities are such obstacles that can only be modified in smaller steps along with massive education.

The urban open spaces around schools in Hungary usually belong to the local government which fundamentally affects the limits and possibilities for development. However, low-financing is usually specific to these developments, budget is not necessarily the biggest concern. Public participation and especially children and youth engagement are still not integrated well into these projects. It would be essential to have a closer collaboration between the school and the local government not only in the design process but also in the management phase to reach better functioning and divided responsibility.

Today in Hungary, there is no national program or fund supporting specifically the development or renewal the urban open spaces around schools. To reach more financial support, most of the presented projects therefore have joined under the umbrella of other thematic national or territorial programs to create healthy streets, green corridors, or community places as the goals of these initiatives overlap with the development approaches around schools. The benefit was that additional funds were available and a more complex renewal could take place. However, the disadvantage is that these programs are not prioritising the needs of the children. On the other hand, both the projects selected in the urban core zone were specifically focusing on children and youth, implementing the local child-friendly city initiative or creating a pilot project for safer urban mobility of children. It is a topic of discussion and further research whether these school environments are really the most unsafe and least child-friendly ones, or what other reasons foster child-oriented renewals of the urban environment of schools rather in urban core zones than elsewhere.

The fact that schools located in the suburban residential zone were excluded from this research means that more attention needs to be put on them to reveal the reasons behind and to explore other development possibilities, suspecting larger-scale urban development options. Further research also can be conducted to analyse further the design objects and details and to monitor the usage patterns after the transformation to see how these open spaces are connected to the wider child-friendly network of the city.

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