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## Planning the City against Barriers. Enhancing the Role of Public Spaces

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### Abstract

Contemporary cities are being fragmented by growing number of technical barriers like roads, railways, infrastructural objects, that generate variety of problems of different nature. The aim of the research is to present the issues connected with such barriers in the city and the ways of solving them. Main problems are e.g.: the destruction of the complexity of urban fabric, functional disadvantages, environmental and landscape threats. In order to avoid such negative effects, city should be designed as a coherent organism in terms of spatial, environmental, infrastructural, social and visual aspects. Thus, public spaces should connect an urban tissue. A technical approach should be complemented with humanistic design aspects. This can be obtained thanks to well designed and functioning public spaces that is the essence of a city. However, a good public space should meet a number of conditions. When creating public spaces, it is important not to limit it only to its physical attributes but it should lead to strengthening the relationships. The public space has to fulfil certain functions, be safe, accessible, and attractive. Only such public space can effectively connect urban fabric not only in a spatial way but also by improving the urban life. The main issue discussed in the article is crossing the borders, like roads, between green spaces and city structures. The theoretical background is followed by the assessment of two case studies: Charles River Esplanade in Boston, USA and Reagan's Park in Gdansk, Poland.

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## 1. Introduction

There are many conflicts in the city, caused by different kind of barriers, like roads or railways. They may be divided into few groups: spatial and functional (disconnections, reduction of city compactness, urban tissue fragmentation); environmental (interruption of natural links; destruction of natural values; soil, water, air and light pollution; noise and vibrations); visual and compositional (disconnection of compositional links, transformation of an urban landscape into technical); and social (human health risk, lack of continuity of public spaces, negative health impacts). All these factors are affecting in negative way the city structure, functioning and image and the city integrity. But the construction of roads is necessary to ensure proper functioning of a city. That is why the different ways of overcoming the barriers in the city should be investigated, like green infrastructure, Environmental Impact Assessment (EIA), Strategic Environmental Assessment (SEA), landscape architecture and others [1,2,3,4,5]. One of the ways to solve such problems is enhancing the role of public spaces discussed on the presented case studies of Gdansk, Poland and Boston, USA.

## 2. Public spaces as a way to connect cities

In contemporary towns the role of public green areas is growing regarding ecological, social, health and therapeutic aspects, enabling the public access to the areas of recreation and sport.

Public spaces are the specific spine of a city and they determine its quality, when it comes to subjective, elusive values but also important [6]. Moreover, public open space should create recreational opportunities, venues for special events, and the opportunity for city to breathe. At the larger scale, areas of public open space should link into a network giving opportunities for the movement of people and wildlife between them [7]. The role of public space is particularly important in high density areas. Unfortunately, the pressure of individual cars often dominates contemporary urban design. Instead of creating public spaces for people, the majority of cities are designed for car users instead of people. There should be an overall need to create pedestrian-dominant urban environment as a sustainable urban structure [7,8].

Artistic strategies in public space may help to solve the problems of dividing the cities by technical infrastructure. Art activities can be used as effective tools for the revitalization of public spaces, also these accompanying the new roads. Numerous good and long lasting revitalization projects based on art together with public participation are good examples all over the world. It is worth mentioning the projects in American and European cities such as: New York (High Line project), Boston (Public Art on the Greenway), Copenhagen (Superkilen project), Bilbao and others.

Artistic strategies in public space give new perspective (not only aesthetic) connected with stimulating community involvement and influencing the vitality of space. According to Ann Markusen creative place making partners from public, private, non-profit, and community sectors strategically shape the physical and social character of a neighbourhoods, town, city, or region around arts and cultural activities [9]. Thus creative place making can be a remedy for shaping public spaces as well as artistic strategies can support the sustainable road planning. Therefore, Jan Gehl's postulate „cities for people”, "full of life, safe, sustainable and healthy" is still valid. When designing roads in the city, the priority should be given to creating pedestrian friendly space.

## 3. Two case studies

### 3.1. Reagan's Park, Gdansk, Poland

Reagan's Park is the part of sea-side belt of Gdansk, the town of a thousand-year history and 455 thousand inhabitants. About 15 km long sea-side belt, mostly not built up, between the Tri-City agglomeration (Gdansk, Sopot, Gdynia) and Gdansk Bay has different environmental, historical and landscape values.

This unique in Europe waterfront connects the town with the sandy beaches and the sea. Until now any barriers has divided the city from the coastal strip. The values of this area distinguish Gdansk from other seaside cities in the world, where road infrastructure is located just at the waterfront. Some fragments of sea side area consist only from sandy dam and beach of about 50-100 meter wide. The wider strip between the urban tissue and water, where Reagan's Park is located, is about 800 m wide.

The history of parks in Gdansk started in the first half of XIX century. The park of 51 hectares located in picturesque hills surrounding Jaskowa Dolina Valley was created as one of the first parks in Europe between 1832 and 1837 [10]. More than one and a half century later, in 2002-2006 the other famous park – Reagan’s Park of 40 ha, was created in sea-side belt on the area previously occupied by allotments. Creation of this park was an effect of early XX-century conception of great public sea-side park along Gdansk coast. Land use change resulted in public protests, although social interest indicated to transform chaotic and polluted allotments into the public use as a park open for everybody, not only to the small group of users. Transformation of chaotic and polluted greenery into the public use demanded the rehabilitation and new development, what has been achieved successfully.

Reagan’s Park - well communicated with the city and well maintained public space - is one of the most popular recreational area in Gdansk, with reach functional program, ecological information system, sports infrastructure.

Its main value is magnitude and location between the housing estates (Photo 1) and sandy beach and the sea – main touristic attraction of Tri-city (Photo 2, Fig. 1).



Photo 1. The inhabitants of the great housing estates of Gdansk have now a direct access to Reagan’s Park, sea-side and a sandy beach.



Photo 2. Sandy beach – the most picturesque landscape phenomena of Gdansk sea-side belt, the place of great events e.g. Triathlon 2015. The city is not visible from the beach.



Photo 3. View on existing local street Czarny Dwor neighboring Reagan’s Park, which has to be transformed into transit road, during popular in Gdansk Triathlon, 2015.

Fig. 1. The city, sandy beach and the local road Czarny Dwor not dividing them.



Photo 4. Reagan’s Park - the most popular in Gdansk sea-side recreational area; in the back the sculpture of Pope Jan Pawel II and President Ronald Reagan.



Photo 5. One of the children’s playground in Reagan’s Park; in the back - great housing estate of Gdansk, neighboring the park.



Photo 6. The art in the open space of Reagan’s Park, which may be divided from the city by the planned transit road.

Fig. 2. The attractions of Reagan’s Park.

The greatest threat to the park is planned road *Droga Zielona*, the element of “the Large Transportation Frame of Gdansk”. The road system has been planned for many years, but still the problems have not been solved in a complex and satisfactory way. The local one-lane street *Czarny Dwor* with reasonably low traffic, surrounded by greenery (Photo 3), intends to be transformed into *Droga Zielona* of technical parameters enabling transit traffic. On a few kilometer long fragment it passes between sea-side belt and big housing estates in Gdansk: *Zaspa*, *Przymorze*, *Żabianka*, and *Wrzeszcz* district, approximately about 115 thousand inhabitants (Fig. 2).

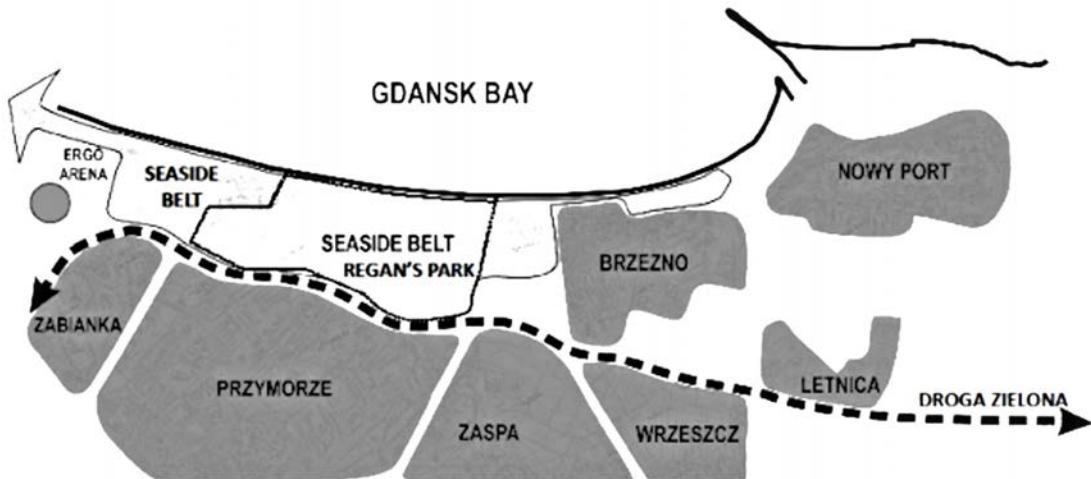


Fig. 3. Droga Zielona - the fragment of “the Large Transportation Frame of Gdansk” neighboring Sea Side Belt and great housing estates.  
Drawing by A.Sas-Bojarska, M.Rembeza, A.Durejko

*Droga Zielona* may create serious environmental, landscape and social problems. It will become new technical barrier in the city, full of movement, lights and noise, separating recreational areas from the city (Photo 7). The other threat is the contamination of drinking water to the Gdansk’s inhabitants, because *Droga Zielona* will run through the zones of water protection (Photo 8). Another threat is possible farther development, like already built in the most attractive areas of sea-side belt gated communities. They create barriers in public space which should be open and accessible for everybody. They are precedence enabling future development in this unique area, like hotels and access roads (Photo 9). The area of silence, as the coastal belt is assessed nowadays, will be threaten by traffic noise. Technical barrier will make more complicated public access to the park and will cause negative environmental and landscape impacts. The planned road system will threaten unique in Poland recreational sea-side areas, intensively used by Gdansk inhabitants and thousands of tourists.



Photo 7. The fragment of already new built Droga Zielona. The continuation is to be built between Reagan’s Park and the city.



Photo 8. The endangered by new transit road Droga Zielona water intake of Czarny Dwor.



Photo 9. New gated communities, located in the open sea-side area. New activities like hotels and roads are being planned in this area.

Fig. 4. The potential environmental and landscape threats

Some mitigation measures are still possible to define. Elimination transit traffic from *Droga Zielona* and using for this purpose the existing and planned bypasses is technically possible, simple and environmentally friendly solution. Existing recreational areas of sea-side belt would be still connected with the city.

### 3.2. Charles River Esplanade in Boston, USA

The Esplanade is a linear park extending along the Charles River in Boston. The term “Esplanade” is an

informal name for the state-owned parkland also known as Charlesbank and Storrow Memorial Embankment. It is a three-mile leafy path along the Boston side of the Charles River, which separates the city from Cambridge. It was landscaped in the early 1930s and now attracts joggers, in-line skaters, cyclists, picnickers and sailing enthusiasts. The Esplanade parkland runs north of several Boston neighbourhoods: the West End, the Beacon Hill and Back Bay neighbourhoods, the Kenmore Square neighbourhood. The Esplanade is part of the Charles River Reservation, a linear park system that stretches along the Charles River for 17 miles that has an identity of its own (Fig. 3).



Fig.5. Charles River Esplanade. Skyline of Boston

The history of Esplanade is very much connected with the urban development of an inner city of Boston. It was dedicated as the Boston Embankment in 1910 and was created as a part of the construction of the 1910 Charles River Dam. The Esplanade went through a major expansion from 1928 to 1936, widening and lengthening the park land. The Storrow Memorial Embankment added the first lagoon, boat landings, plazas, playgrounds, and the Music Oval. Sailing on the Charles began in the 1930s, and the boathouse on the Esplanade was built in 1941. Organized in 1946, Community Boating was the country's first public boating program.

The next major change to the Esplanade began in 1949, with the construction of the Storrow Drive (legally known as James Jackson Storrow Memorial Drive). To make up for park land lost to the new road, additional islands including multiple paths were built along the Esplanade, also designed by Arthur Shurcliff and his son Sydney. In the 1960s, the Esplanade was linked to Herter Park in Brighton, and other upstream parks, with the construction of the Dr. Paul Dudley White Bike Path. This 18-mile (29 km) loop travels along the entire basin on both the North and South sides of the river [11,12].

The undeniable potential of Charles River Esplanade is its location in the heart of the city, its zoning and various functions within the linear park and different users. This space is for the walking areas but also for concerts. According to „Charles River Esplanade - study report” [13] and “2002 Charles River Basin Study Report” there are character’s defining features and principles for further planning of the Esplanade: interconnectivity, integration of structures within the landscape, recognition of diversity. Interconnectivity of the park is understood as a link, connecting open spaces in Boston to each other and to the River Basin. It is also seen as a connection for urban dwellers to a natural environment linking the river to the city and the city to the surrounding region. The second aspect emphasized the importance of a landscape’s scenic qualities. Charles Eliot, the landscape architect, underlined the importance of placing the most attractive structures upon the shores of Charles River. The last principle for further planning is a recognition of diversity within the Esplanade as a place for many different uses and activities. Potential threats for the Esplanade might be the results of neglecting recommendations implemented in the master plan and also the noise and light pollution created by the road. One of the ways to avoid it is a good designed public space connecting the Esplanade with a city and noise barriers. Moreover, the Storrow Drive, in order to decrease “the barrier effect”, is being restricted to cars and trucks and buses are not permitted on it.



Fig. 6. Charles River Esplanade: Amphitheatre (photo left), Museum of Science, Boston (photo right)

#### 4. Comparison of two cases

The case study of Charles River Esplanade in Boston shows that, despite the technical barrier and traffic artery such as Storrow Drive Memorial, the Charles River was not cut from the city. The “effect of barrier” is being minimized by relevant shaping of connecting public spaces. It is due to the numerous connections like bridges (with tracts for walking and cycling), footbridges, walkways, linking the river-park with urban structures. Boston is the perfect example, where public space system effectively links the city with Charles River Esplanade.

The case study of Gdansk is completely different because the city is not yet cut from the park by wide, transportation barrier. Moreover, there is still alternative to redirect transit traffic to Tri-City bypass. The worst solution is creating new technical barrier, and then minimizing negative effects, by building costly acoustic screens and new footbridges between park and the city. Boston’s experiences should be used in order to avoid expensive and difficult linking constructions such as tunnels and pathways. One should remember that even the best links do not solve all problems. It is not always possible to fully minimize the negative impacts as noise, air pollution or flashing lights created by transportation routes. While in Gdansk, Regan Park may be cut off from the rest of the city in future, Boston cares about good connection of Esplanade with the rest of a city, given its indisputable recreational and landscape potential (an important element of the city’s silhouettes from the river). Simultaneously, in the case of Gdansk, where the wide, infrastructural barrier has not been constructed, the Boston’s experiences, eliminating transit traffic can be still used.

#### 5. Conclusions

The problem of unnecessary city’s fragmentation grows and brings various negative effects in an urban tissue. That’s why all possibilities of connecting the city should be used while one of them should be a proper design of public space. Thus the conclusion is that in case where the public green areas have not yet been cut off from the city, everything should be done to sustain existing state. It has a particular meaning in cases of cutting the city from greenery areas of public recreational character. In contemporary cities there is a growing need for good public access to leisure and recreational areas fulfilling also a health and therapeutic role. Presented examples show the threats for such parks as well as the opportunities to use their potential. The public spaces, especially the most attractive ones such as waterfronts, should be combined with the urban fabric – if not continuously, so at least with special links enabling safe access for users. Every city requires an individual approach and maximum use of the current conditions for the creation of a coherent public spaces system. Enhancing the role of public spaces, even especially attractive, will not be successful until they are not connected effectively to urban areas. Inhabitants should have unlimited, save and attractive access to all parks in the city.

## References

- [1] Benedict M. A. & McMahon, E. T., *Green Infrastructure. Linking Landscapes and Communities*. Washington, DC 20009: ISLAND PRESS.
- [2] Bélanger, P., *Landscape as Infrastructure*. *Landscape Journal*, Issue 28, 2009, p. 1–09.
- [3] Farr D., *Sustainable Urbanism. Urban Design with Nature*. New Jersey: John Wiley & Sons, Inc, 2008.
- [4] Dramstad W. E., Olson, J. D. & Forman, R. T., *Landscape Ecology Principles in Landscape Architecture a Land-Use Planning*. Washington DC: Harvard University Graduate School of Design, 1996.
- [5] McMahon, E. T., *Green Infrastructure*. *Planning Commissioners Journal*, Issue 37, 2000.
- [6] Kochanowski M., *Niepokoje i pytania*, w: *Przestrzeń publiczna miasta postindustrialnego*, praca zbiorowa pod redakcją M. Kochanowskiego, wyd. II, Urbanista, Warszawa. (Kochanowski M., 2005. *Concerns and questions in: Public space of post-industrial city*, collective work edited by M. Kochanowski, Urbanista, Warsaw), 2005.
- [7] Carmona M., Heath T., Oc T., Tiesdell S., *Public Spaces – Urban Spaces. The Dimentions of Urban Design*, Architectural Press, Oxford, 2003, p. 188-19.
- [8] MacKenzie A.: *Reimagining Our Streets as Places: From Transit Routes to Community Roots*, Project for Public Spaces, <http://www.pps.org/reference/reimagining-our-streets-as-places-from-transit-routes-to-community-roots/>
- [9] Markusen, A., Gadwa A., *Creative Placemaking*. National Endowment for the Arts. Washington, D.C., 2010.
- [10] K. Rozmarynowska, *Ogrody odchodzące...? (Missing Gardens)* Wydawnictwo słowo/obraz/terytoria sp. z o.o., Gdańsk, 2011.
- [11] *Mapping Boston*, edited by Krieger A., Cobb D., MIT Press, 2001, USA.
- [12] Zaitzevsky C., *Fredericj Law Olmsted and the Boston Park System*, Cambridge, 1982, p.95-99.
- [13] *Charles River Esplanade - Study Report*, Boston Landmark Commission Environment Department, City of Boston, 2009.