



A Frente Ribeirinha de Lisboa - Pensar a Acessibilidade Pedonal ao Rio

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- EXTENDED ABSTRACT -

Dissertação para a obtenção do Grau de Mestre em

Arquitectura

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Outubro 2014

ABSTRACT

One of the problems that still remain in the relationship between the city of Lisbon and its River is the scarce and difficult access that exists between the population and the several Public Spaces along the riverfront. Being this the subject of this study.

Since it is a subject of a very broad analysis, it is first necessary to systematize what is does Public Space means and what approaches should be followed in seeking this goal of qualifying the public space of cities and therefore providing a better quality of life for its people, having in this particular case focus on the theme of the waterfront and the accessibility to it.

Once this is a problem whose origin dates back to the time of industrialization, it is necessary to understand the origin of the problem, through a historical approach. Since Lisbon it's not a unique case, were sought examples where it was possible, through projects of conversion of old industrial port areas, create quality public spaces for enjoyment of the population. The cases of Barcelona and San Francisco were presented then.

Through the survey and characterization of the existing pedestrian connections and together with the identification of a set of case studies, are presented, for certain sites, a set of proposals that meet the initially identified problem, in other words, what can be done to increase and enhance the access between the population of Lisbon and its river, which since the formation of the city played a key role in the development of the city.

KEY WORDS: RIVERFRONT, PUBLIC SPACE, PEDESTRIAN CROSSINGS, ACCESSIBILITY

INTRODUCTION

In the context of the Lisbon Riverfront and the scarce links between the urban structure of the city and its river - Tagus, regarding the pedestrian access, the main goal of this study is to promote a useful working tool to the city of Lisbon, mainly concerning the enhancement of contacts between the town and the series of public spaces of its riverfront. An area that stretches over 19 kilometers and has a large diversity of uses and functions, a consequence of the industrial period and the creation of several port areas on its riverfront.

It is a geographically delimited area by two major interventions, which in different periods, were intended to promote the city and the country, renewing at the same time those areas of the city: to the west in the district of *Belém*, where, in the 40s, of the 20th century happened the "Exhibition of the Portuguese World ", and to the east, the "*Expo 98*", in the late years of the 20th century, currently named *Parque das Nações*.

Concerning the issue of public space, the study begins with a presentation on this topic, focusing on the evolution of its concept and how it is treated nowadays.

Once the process of industrialization and deindustrialization of river and waterfronts, it is not a single problem of the city Lisbon, but which occurred in several European and North American cities, two cases, of Barcelona and San Francisco, are first introduced in order to provide a better understanding of the theme of the renewal of river or waterfronts, presenting some solutions of what was achieved in these cities.

Next is presented the case Lisbon and the problem of pedestrian access to its riverfront. Two analyses, at two distinct scales were developed.

First, a wider one, with the aim of analyzing the current state of the Lisbon riverfront, primary by a historical contextualization of the evolution of this area of the city. Focusing on the importance that the Tagus had in the geographical setting of the city and its development, pointing out the various stages of evolution and the interventions of greater importance to the city, which occurred in this area, understanding what were the consequences to the public space and to the way as the Lisbon people lives its city and river.

The second stage of analysis, at a more detailed scale, intends firstly to present a survey of the state of existing walkways, as well as a set of references that may give clues to better solve the problem of pedestrian access to the river area public spaces. After some proposals through adaptive and forward looking solutions are presented, aiming to meet what it perceives to be the current needs of society. They seek to fit within the existing economic parameters, whilst meeting the future needs of both the people of Lisbon as well as the growing number of tourists visiting the city. Given the scope of this thesis and its context, the proposals will be directed to a valorization of the links between the city and the river, by choosing certain key points, attempts to realize how can be improved the connection between the consolidated urban structure and the river, since the railway and road barrier presents itself as a powerful obstacle to overcome, which contributes to the separation between the city and people of the riverfront.

PUBLIC SPACE

The concept of public space and how, today, we interpret and define it, is the result of an evolution over centuries. Thus, there are several moments throughout history that will define the progression of the notion of what public space is and what types of use and functions had. From the Greek Agora, the Romans Forums, the medieval squares to the first urbanization processes in the Renaissance period, the large transformation plans for renewal of the European cities in the nineteenth century and the twentieth century ideals promoted by the modern movement.

At the present time the way how public space is treated is proportionally related to the level of quality of life in cities, ie, the better the public space of a city the better will be the quality of life of this city. In this regard it should be noted the concepts presented by Jan Gehl where is concluded that only through planned with a focus on human scale spaces, ie inviting, open, and integrated into a network of proximity spaces, you can improve the quality of life in cities, making them better places to live, with more dynamic, safer, more sustainable and healthier.

Jan Gehl, introduced in his book "Cities for People" (2010) four objectives in order to highlight the importance of the human dimension in city planning and good urban design: a lively city, a safe city, a sustainable city and a healthy city.

Regarding the implementation of these ideas, Jan Gehl describes five planning principles that meet the human dimension:

1. "*To assemble vs to disperse*" – criterion to choose the location of the main functions of the city, to ensure smaller distances between them as well as promote greater dynamism both in terms of people movements as the development of events.
2. "*To integrate vs to segregate*" – integrate several functions in the cities in order to promote greater versatility, greater wealth of experience, greater social cohesion and a greater sense of security.
3. "*To invite vs to repel*" – concern with the quality of space for pedestrians and cyclist, so that the use of these areas is safe and inviting.
4. "*To open up vs to close in*" – work for an interconnection between the life inside buildings and street life, at ground floors. Promoting the existence of active spaces with different functions at this level.
5. "*To increase vs to reduce*" – create conditions for that the time spent in the public space is larger.

An issue directly related to the quality of public spaces is the way how they are integrated into a complete structural network where is possible a good mobility and accessibility, since without these two conditions, any space, even with the best intrinsic qualities, is doomed to failure.

Being very important, in the field of public spaces, the way how you can access them on a proximity scale, ie, its accessibility, it is still relevant the way how it this accessibility net integrates in the structural network of mobility, since this is a necessary condition for free access to these areas and as a way to democratize these areas, making them available to all citizens. So the public space must not be restrict, but rather distributes equally throughout the city, providing them with conditions to become areas of meeting and stay, but also leisure and recreational to people of all ages and all social and physical conditions.

In the field of accessibility, and specifically in the present case, it is necessary to understand the types of connections which can be made in order to improve access to the public spaces of Lisbon's riverfront public spaces, which as mentioned above, suffers from the existence of the barrier caused by the railway and roadway that exists and whose current solutions are not sufficient nor the most suitable to overcome the problem.

Taking into account the possible options to improve these network accessibility two options emerge on one hand, pedestrians' bridges, and on the other, pedestrians' tunnels. Not being ideal solutions, can only be seen as solutions to particular situations, as pointed out by Jan Gehl, "... underpasses and bridges can only be solutions Those in special cases where major highways must be crossed" [Gehl, 2012. p. 132], which are by definition, and as described in the *Plano de Acessibilidade Pedonal de Lisboa*, from December 2013, the only form of pedestrian crossing for train lines and major roads, as there cannot exist pedestrian crossings at the same level as the train lines. [CML, 2013. pp, 159]

BARCELONA AND SAN FRANCISCO

To support and better understanding on the topic of waterfronts transformations in the adaptation processes of industrial zones to leisure and pleasure areas, the cases of the cities of Barcelona and San Francisco are introduced.

The choice of these two examples lies in the similarity of the situation between these two cities and Lisbon, in their transformation processes of port areas, being two situations where there is already a maturity and consolidation of the projects developed, since the San Francisco process started in the 50s, an Barcelona in the 80s [Garcia, 2009].

In the case of Barcelona, the way how it was possible to compatibilized the existence of a major road along its waterfront (*Ronda Litoral*) with pedestrian accessibility and the quality of its public spaces, through lowering the roadway and introduction multiple passages, and without the introduction of stairs, which allows a high permeability between the consolidated city and its maritime front.

Regarding San Francisco, the focus is on how it was possible through the reuse of the old piers, creating a network of inviting and integrated spaces for the use of the population, all connected by the existence of a promenade "*Embarcadero*" that allows connection at all levels between the city and its waterfront, through the existence of various spaces to stay, socialize and walking, but also with equipments like covered markets, restaurants, cafes and terraces.

LISBON RIVERFRONT

The strategic geographical location of Lisbon along with the great Tagus estuary, with calm water, provided a great fruition to the city, first as a means of livelihood and protection, after as a means of projecting the world and center of great commercial activity, Was from that point that in the fifteenth century, the Portuguese caravels departed in search of new worlds. The river has always presents as a safe haven, to sustain the growth of the city since its inception, presenting itself as a determining factor in their development.

The 1755 earthquake completely destroys the town. Making necessary to think and plan the reconstruction of Lisbon. This process led by the *Marques de Pombal*, started right after the disaster.. This process created a new atmosphere to the city, revitalizing it and giving it more hygienic quality.

During the industrialization process of the city, Lisbon will be the subject of great and profound changes in the riverfront zone, which will create a new relationship between Lisbon inhabitants and the river.

Key elements for this transformation was the creation of the railway line installed in virtually all waterfront, with exception between *Cais do Sodré* and *Santa Apolonia*, and the renovation of the Lisbon's Port, with the need to provide good conditions for berthing the new steamships, will redesign a whole new waterfront in the central and western part of the city with the creation of several landfills. As for the eastern waterfront, which at the time was considered a peripheral zone and more isolated, where there were the suburban clusters of *Xabregas*, *Beato*, *Marvila*, *Braço de Prata*, *Matinha*, *Olivais* and *Sacavém*, which had a distinct occupation through a more spontaneous deployment process, of industrial units, taking into account the conditions existing there, ie, greater availability of unoccupied land, along with a longitudinal preexisting road axis and the new railway infrastructure along the River [Costa, 2006].

From this period the relationship with the river will be completely different, with a strong impact on public space level, starting thus a period where the city turns back to the Tagus, since access to it is hampered by the very existence of these barriers and the creation of a new and not inviting atmosphere and landscape. Beginning in the end of the 19th century, through a more progressive spirit and according to the plan of *Frederico Ressano Garcia*, the city will grow to the north, following the axis of the current *Avenida da Liberdade* (opened in 1886) and *Avenida Almirante Reis*. With the growth the city is no longer predominantly structured along the riverside arch. [Abel; Consiglieri, 2005]

The issue of the rail and road way barrier in the access to the river was thus initiated in the 19th century with the industrialization of the riverfront. The first process of redevelopment of the riverfront happens with the Portuguese World Exhibition in 1940, but nevertheless this intervention focuses only on the monumental area of *Belém*, however, is only in the 80s that begins a process of awareness of the need to intervene in this area of the city, focusing on the great potential that the redevelopment and revitalization of these spaces will bring to the city.

Thus, in the Municipal Master Plan of 1994, the riverside arch is already identified, focusing on improving the connection of the city with the river.

The process of stimulating this area begins in the late 80s and early 90s with the construction of several equipments, such as the *Centro Cultural de Belém*, adaptation of the old "*Central Tejo*" for the Museum of Electricity, the "Docks", however none of them presented solutions on how to overcome the barrier caused by the railway line and roads. The *Expo 98*, a larger intervention, is the epitome of interventions in the river arc, which will completely renew and build a new neighborhood on the east side of the city. This action triggers the concern with pedestrian accessibility, using solutions as lowering or raising the railway barrier, in order to not break the paths of pedestrian access between the city and the river.

At the end of the first decade of this century, and through the creation of the *Sociedade Frente Tejo* some processes of redevelopment of the historic riverfront between the *Cais do Sodré* and *Santa Apolónia* (which does not suffer from the railway obstacle) and in the *Belém-Ajuda* zone were initiated. As the redevelopment

of the *Terreiro do Paço* and *Ribeira das Naus* or the construction of the new Coach Museum or the new cruise terminal in (under construction).

IDENTIFICATION OF THE CURRENT PEDESTRIAN CROSSINGS

There are currently 10 pedestrian crossings, by tunnel or bridge, to overcome the road and railway barrier that extends throughout the riverfront, interrupted only between the *Cais do Sodré* and the *Santa Apolónia* Station and the *Parque das Nações* area. Three passages are in the tunnel while the remaining seven passes are made through bridges. The majority of these passages are located in the area between *Belém* and *Alcântara* (Figure 1).



Figure 1 | Location of existing walkways (Source: Bing maps, adapted by the author)

The 10 pedestrian crossings, by a west-east orientation, are the follow: *Bom Sucesso* Pedestrian Bridge; *Belém* Pedestrian Tunnel; Pedestrian Bridge between *Afonso de Albuquerque* square and *Belém* River Station; Pedestrian Bridge between *Egas Moniz* hospital and the riverfront; *Ponte* Pedestrian Bridge between the *Lisbon Congress Centre* and the riverfront; *Alcântara* Pedestrian Tunnel; Footbridge of the viadut over the *24 de Julho* Avenue; *Santos* Pedestrian Bridge; Connection through the tunnel of *Santa Apolónia* metro station; Overpass of the *Mouzinho de Albuquerque* and *Infante Dom Henrique* Avenues.

It is possible to identify some transversal problems along the ten connections, like the poor accessibility, namely by the inexistence of ramps or elevators; the poor integration into the urban structure; problems of implementation of stairs, leaving little free passage of pedestrians on sidewalks, at the ground level; lack of identity, due to the use of standardized solutions; perception of insecurity and low hygiene (in the case of tunnels) and obstruction of the landscape (in the case of bridges).

However some advantages must be pointed out as the possibility of approximate the city of its river; as support for Urban Art interventions through participatory processes; there are no situations of abandonment; the insertion in some passages of "rails" to facilitate the passage of bicycles or the ability that some bridges have of becoming "belvederes" over the river.



Figure 2 | Illustrative images of the passages. (Source: photos of the author)

CASE STUDIES

As a way to enrich the quality of the proposals and to present some examples of how similar problems were solved within other contexts, are introduced some projects. Was made a division into two areas, first, projects that were thought to the Lisbon riverfront, but which construction has not yet been realized or has not been realized. This way are present some projects and ideas that are thought to be useful to the particular case.

a) “*Plataforma Tejo – O Regresso ao Rio*” (2009) by the Architect *Pedro Ressano Garcia*, that through its research on the renewal of port industrial zones, will propose a sustained reconfiguration in Lisbon, between *Alcântara* and *Santos*, through the construction of an air passage added to the city.

b) “*Ponte pedonal da Pala de Alcântara*”. (2000/02) by TETRACTYS Architects, and was part of the project of the Pala Alcântara, however, its construction was not performed. Providing the connection between the car park and the “Docas” area, on the south side of the road and railway barrier, with the area of the Lisbon Metropolitan Orchestra and further west the Lisbon Congress Centre, on the north side of the barrier.

c) “*Ponte pedonal do Novo Museu dos Coches*” (2009) by *Paulo Mendes da Rocha*, *Ricardo Bak Gordon* and MMBB Architects. This project provides a pedestrian bridge connecting the museum to the riverfront green spaces and also to the *Belém* station, the Electricity Museum or to the Naval Association of Lisbon area.

d) “*Ponte pedonal do Centro de Arte e Tecnologia da Fundação EDP*” (2013) by the Architect *Amanda Levet*. The project for the EDP Foundation Center for Art and Technology building, provides a pedestrian connection that facilitates overtaking the road and railway barrier, facilitating the access between the two sides.

Outside the Lisbon contexts were selected the follow case studies.

a) *Passeio Atlântico, Porto*, by the Architect *Manuel de Solà-Morales*. The project to renovation of the waterfront between *Porto* and *Matosinhos*, is a good example of how to articulate the car and pedestrian circulation, without impose one to the other.

b) *Passeig de Colom e Moll de Bosch i Alsina* (1981-1986) by the Architect *Manuel de Solà-Morales* and *Vila Olímpica* (1992) by MBM Architects, Barcelona. These two projects, developed in Barcelona are also two good examples of how to articulate the car and pedestrian circulation, without impose one to the other, providing at the same time good public space to the enjoyment of the population.

c) Pedestrians bridges in Lisbon, but outsider the river context. These examples show how these structures can provide an improvement on the accessibility and mobility throughout the city, both at walking as in cycling habits, connecting the city: Pedestrian brigde over the “2ª Circular” (2009-2014) and Pedestrian brigde over *Marquês da Fronteira* street and over *Calouste Gulbenkian* avenue.

d) *Millennium Park – BP Pedestrian Bridge* (Chicago, 2004) by Architect Franck Gehry, this project is a good example of integration with the site, providing a singular pathway over a highway, connecting two side of the *Grant Park* in Chicago.

e) *Parc de la Estació del Nord* (Barcelona, 1991) by the Architects *Andreu Arriola e Carme Fiol*, This park is a good example of how through good design is possible to can integrate a park within the urban structure, allowing the park to overcame the streets by going under them.

f) *Moodwall*, by the Urban Alliance is a project related with the qualification of tunnels. Through the installation of LED lamps, it is possible to create an attractiveness and dynamism to the passage.

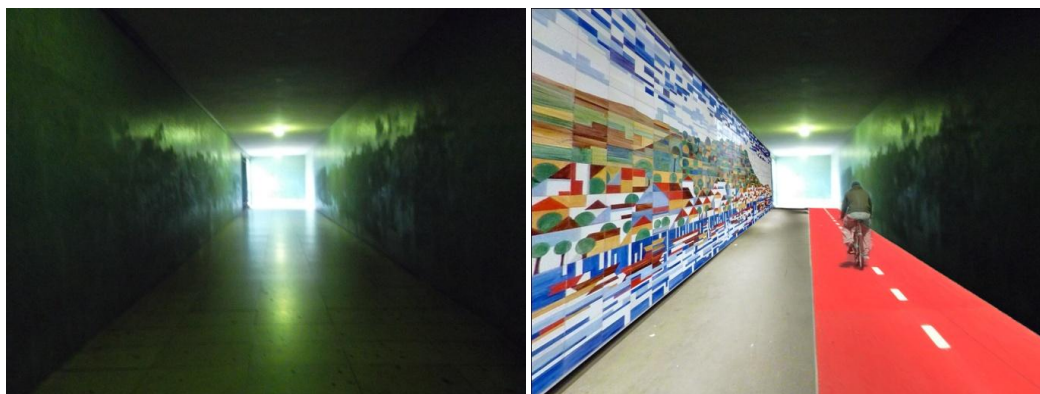
PROPOSALS

Not considering the possibility of lowering the railway line due to its high cost, expected, for example in the *Plano Geral de Intervenções para a Frente Ribeirinha*, the following proposals are presented, taking into account that the issue of pedestrian accessibility to the river cannot only be focused on the existence of a physical object (bridge or tunnel), which connect the city and the river, but must be seen in a broader perspective of articulation of these elements with the public space. To achieve this objective it is necessary to look for integrated solutions, since only through good integration will be possible to transmit a greater naturalness of paths, accessible to all, knowing that the quality of these passes depend on the naturalness that one have when choose to cross on a specific site.

The proposals were divided into two types. Suggestions for the requalification of existing passages and proposals for the development of new crossings.

Regarding the requalification proposals for, they seek to find the most practical solutions for improving crossings, using solutions like the introduction of Public Art, changing the floor, bike lanes pathways of integrated on the cities bike lanes net.

Seeking this objective is suggested the improvement of two existing passages. The *Belém* Pedestrian Tunnel and the overpass of the *Mouzinho de Albuquerque* and *Infante Dom Henrique* Aveneus.



Figures 3 e 4 | Current photo and suggested intervention (Source: photos of the author)

Current pedestrian pathway and bike lane scheme



Figure 5 | Current pedestrian pathway and bike lane scheme (Source: Bing maps, adapted by the author)

Suggested pedestrian pathway and bike lane scheme



Figure 6 | Suggested pedestrian pathway and bike lane scheme (Source: Bing maps, adapted by the author)

For the new proposals, it is intended that these become integrated in the landscape and promote new spaces, with more than one quality, becoming more than just crossings.

For this purpose, are suggested two new passages, under the barrier, integrated in the riverfront public spaces.

The first one is located near the Lisbon Congress Center and the *Egas Moniz* hospital, connecting this area with the riverfront, with the introduction of a new square.

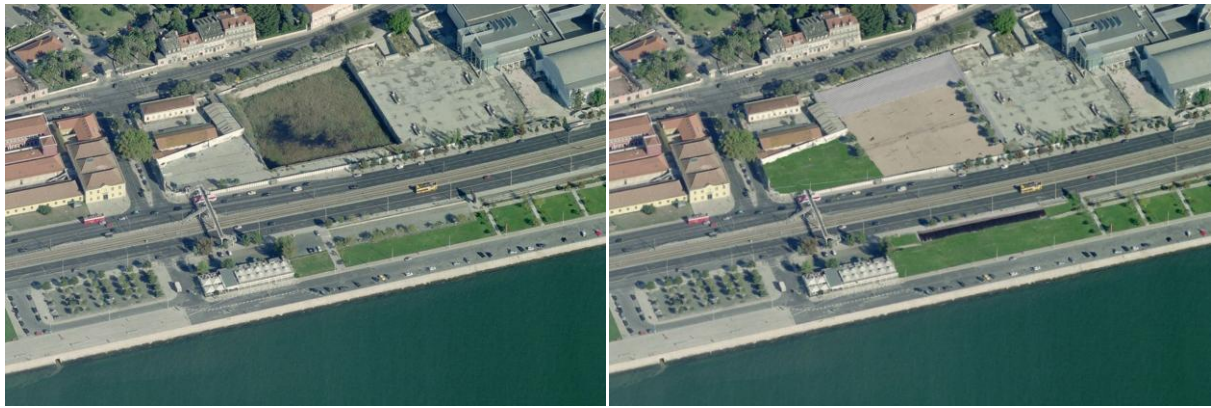


Figure 7 | Actual aerial picture and photomontage (Source: Bing maps, adapted by the author)

The second proposal is located between in the *Santos* area and the riverfront, rehabilitating these areas, which are presently used as car parks.



Figure 8 | Actual aerial picture and photomontage (Source: Bing maps, adapted by the author)

CONCLUSION

This study had as main objective to develop a strategic thinking about how pedestrian accessibility is held to the public spaces present in riverfront of Lisbon. The main problem identified in pedestrian access to the river was the existence of the rail and road ways barrier that extends almost to the entire riverfront of Lisbon, and that leads to the necessity of building elements such as bridges and tunnels to overcome.

Is concluded that number of existing pedestrian crossings (10) of the rail and road ways barrier is not enough and that its features are not the best, since it does not have the best conditions for access or connection with the consolidated city. It is suggested, therefore, two methods of operation, first of redefinition of certain passages and secondly the development of new crossings.

For the rehabilitating process, it must focus on the improvement of the accessibility, since in most cases only offers staircases. Knowing that the introduction of ramps is a solution that needs space, it is essential to seek solutions, such as those introduced in projects of the Coach Museum or *Pala Alcântara*, which through creative solutions would minimize the impact of these elements. The introduction of mechanical means is also suggested, such as elevators and escalators, however, these require a constant maintenance, as can be seen in the Alcântara tunnel, where escalators present there, due to lack of maintenance are not active.

As for the new crossings, these solutions should seek to be integrated and engaging in not only unique solutions of new crossings. Regarding the locations these new links should be placed in sites that follow

major routes of access to river or serving various equipments. Only in this way will be possible to create dynamic, aggregators and establish links between the two sides of the barrier.

Given the current number of crossings, along with the planned but not built and the new projects proposed in this thesis, it would be possible to increase the number of connections to 15, allowing a greater dispersion of crossings along the riverfront, promoting a greater naturalness of paths, since this is a prerequisite for successful connections.

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