Patchwork of industrial neighborhoods around São Paulo core area: Case study

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ABSTRACT: This paper is part of a research on the urban fabric of traditional industrial neighborhoods in the city of Sao Paulo, today in a changing process for housing and services. It is observed that occurred in the history of its development the implementation of urbanized sectors characterized by blocks parceled into plots of large and medium size to industrial activities. This pattern usually is mixed with residential, commercial and services spots. As the groups of small lots not facilitating additions, they are not so attractive to the builders. Today is observed a scenario of low occupancy, side by side with a dense and vertical environment. The industries are in a process of transferring giving way to residential condominiums or large shopping centers. In these spots the use of soil appears as predominantly residential or mixed use. The study of these significant parts of the city to preserve them as open neighborhoods areas, where the quality of life may have a unique character, in contrast to the large gated communities, is a subject related to sustainability and whose study begins. The purpose is to investigate how to protect them from the point of view of mobility, identity, the use of public services and access to social facilities, encouraging the formation of a favorable environment for people. To the SBE2016 conference will be presented the initial part of the research, the procedures and an overview of the site in Mooca's District, São Paulo, Brazil.

Keywords *Sustainable urbanism, urban design, urban morphology, neighborhood development.*

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1. INTRODUCTION

Eleven million people live in São Paulo, Brazil, within a metropolitan area of twenty million. In spite of central county population achieve stability nowadays, increases the number of people all around. Enormous problems with transit, infrastructure, safety and air pollution are affecting people in the city.

Mooca (2589 acres, 85029 population) is an old industrial district, situated 2,3 miles from downtown São Paulo. A train system and highways make transporting easier goods to the Port of Santos, 41miles far away and a half mile altitude. This network was designed to attend the demands before 1980, being obsolete nowadays, in consequence of the automobile invasion and the lack of investments in urban infra-structure. The linkage between the central city, the emergent industrial area and seaside was designed in the Tamanduateí river flood area as a design concept from the nineties dawn. Unfortunately, it was a decision made at that moment looking for the easy access and economy, not to preserve nature. The consequence nowadays is a huge vehicular system, alongside, but too close the river. This being polluted, considered by a parcel of the population as a place to throw away unused things. This is not a nice scenario to the residential and office buildings growing nearby.

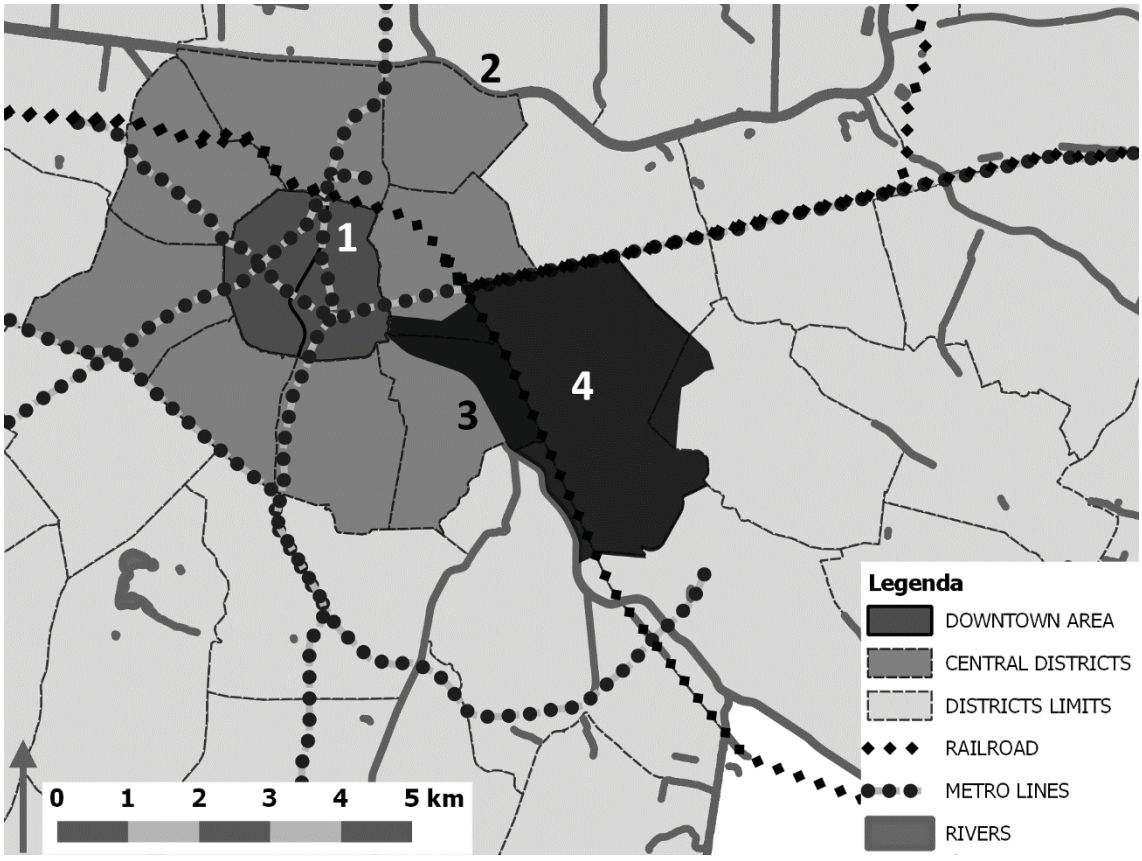

Figure 1. Mooca's District and the city core. Source – Author's diagram.

Mooca, attached to the city center of São Paulo, means the starting point to the development going East. This process of territorial occupation is fully explained by R. M. Prosperi and M. D. Grostein in the book "A Leste do Centro". Their diagrams brought about the idea to adapt

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the map from this region of São Paulo, in order to situate the Mooca's District in relation to the core area of the city, Figure 1. In this figure the numbers are representing, as follow: 1- Central Area, 2- Tietê River, 3- Tamanduateí River, 4- Mooca's District.

As a global city São Paulo has been converted to a business and services city moving away the large industries. The Mooca's district sited near downtown became one of pioneers on city transformations, being attractive for housing and services. The district became a typical area showing partly empty large industrial plants, historical buildings waiting to be updating, many small size buildings changing its occupation to mixed use and new large housing condos replacing industrial buildings. In this context what characterizes the actual portrait is the presence of large condominiums and multi-use complexes (Macedo, 2013).

Understand the transformations on the patterns of urban tissues helps everybody in some way, it is an important matter to study because permits a straight connection with the built environment. The RGCA, Research Group City Architecture, University São Judas Tadeu. has been studying the subject of urban form specially devoted to the transformations on the old industrial areas in São Paulo. By studying the changes in the framework of cities is possible develop a set of patterns to support urban design, motivate people to claim for better places to live in, and achieve a way to encourage the involvement of politician's class. The theoretical approach can help professionals and students in their assignments in the field of planning and urban design. Taking the city of Portland, Oregon, USA as an example of public and private initiatives, J. Barnett and L. Beasley out: "Another area of redundant industrial and warehouse adjacent to the Willamette River has recently been totally redeveloped into what is now knowing as South Waterfront Neighborhood. Since the early 2000s, this predominantly high-rise area has grown to accommodate more than 5,000 people" (Barnett and Beasley, 2015).

In São Paulo there is not any so unique environment like the Willamette River area, but through good mind inquiring will be possible explore an amount of different places with sufficient attributes leading to good urban design. Every neighborhood of a city has a couple of qualities to be explored in accordance to desires and people needs, not depending exclusively from population income, but, if everyone is moving forward together. A sample of the RGCA research on tissue transformations, so called patchwork of industrial neighborhoods around the São Paulo core area, will be presented by the occasion of the sustainable built environment seminar, SBE2016 Brazil& Portugal.

Figure 2 - Panoramic view: the mix of building forms and sizes. Source - Author's image, 07.06.2016

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2 RESEARCH PROCEDURES

Figure 2 is a testimony of urban tissue transformation to higher density. In a glance on the Mooca's aerial image is easy identifying the general aspects of the urban tissue: large industrial blocks contrasting with other in regular size for housing and the lack of public green spaces. The studies of this tissue has been started by the empirical knowledge from walking through the area, in a sense that researchers must have familiarity with the spaces. Statement coming from to realize that urban design concepts and the study of the city architecture enhances with the sense of the territory (Costa & Netto, 2015).

There are nine steps to do so.

Step 1 - Adjusting the neighborhood boundaries

First step is how to consider the boundaries of Mooca's district The City has its limits to administrative objectives, another subdivision related to the city facilities, there are the subdivision to Census and the one adopted by the Urban Planning Department. The criteria adopted for this study are related to the evolution of the land occupation since the middle of last century, considering the official data, but slightly adjusted to boundaries as considered by the ordinary citizens. The parceling resulted in eight enclaves: 1- Ana Neri; 2- Hipódromo; 3- Cassandoca; 4- Alberto Lyon; 5- Mooca ; 6- Alto da Mooca;7- Henry Ford; 8- Parque da Mooca. Figure 3A

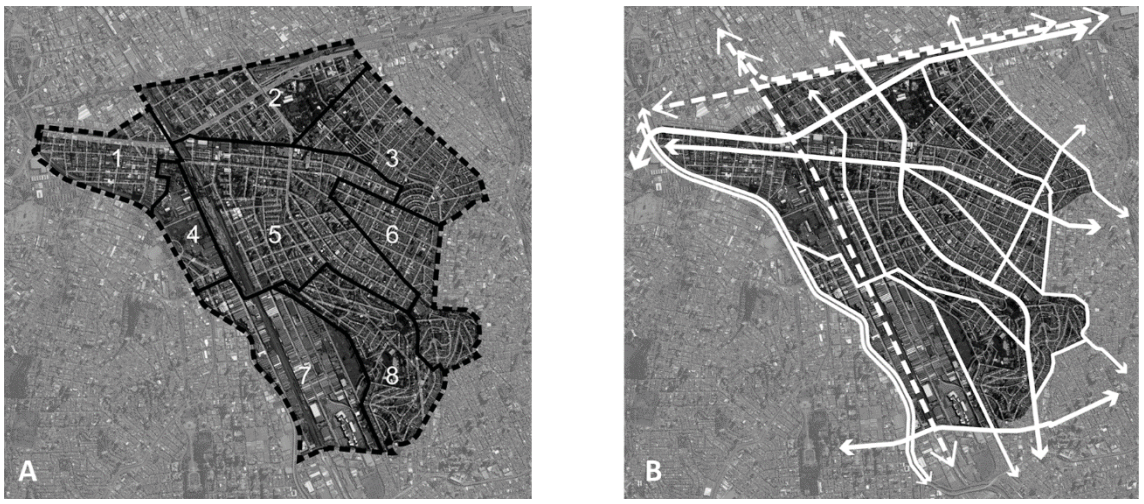

Figure 3. Mooca: Eight enclaves and the main street system. Source - Author's diagram. Google Earth 25.05.2016

Step 2 - Identifying the roads going through and the roads of distribution

To the matter of classifying the street network is adopted a system that is current to urban design in North America, also recommended by N. Cherry and K. Nagle (Cherry e Nagle, 2009). To support the design diagrams, the vehicular circulation is classified as:

- Road going through (primary right-of-way);
- Road of distribution (secondary right-of-way);
- Local road (local right-of-way);
- Railroad / metro - train (right-of-way)

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To facilitate the analysis, these concepts are applied as a diagram, showed in figure 3B. The solid lines represent the roads going through, the dotted lines, railroads or subway

Step 3 - Urban space by its parts

The roads going through and the railroads are highlighted and appointed as the main circulation network. Working at this small scale of mapping, the distributing roads were not considered, as far as for the present purposes the schematic approach is enough. At this point, the overlapping of the roads map upon the enclaves' sheet is to be done. It is the moment to check one to another, as a way to find if boundaries are coincident with a road going through or not. In case of no coincidence, is time to find if there is a distributing road playing the role of the boundary. To achieve a good portrait of enclaves its boundaries lines must be established by a road going through, a railroad or a road of distribution. There is interest to the analysis the overlapping of the enclave's map upon the roads one.

Step 4 - The boundary of an enclave is more than a single road

The road going through (primary right-of-way) or the road of distribution (secondary right-of-way) in the urban landscape are intermediate spaces where people and vehicles can move by them. As such, they attract a diversity of people activities through the pedestrian paths or sheltered in the roll of buildings alongside the streets. Together, the streets, lots, border blocks and buildings constitute what is named by corridor. The traditional city has its urban design based on a network of corridors, almost all of mixed use.

Step 5 – Corridors and the space between them

In traditional cities corridors can intercept one to another creating an intermediate space like cells. Its shape may be like a polygon, such as a rectangle, trapezoid or sector of circle, depending on the land configuration. This space is called subarea, it is large if considered the city ring corridor as the limit and it is small when embraces a residential neighborhood.

The previous five steps result from procedures developed by RGCA, for urban tissues studies when they are segments of a large sector inside a city, like São Paulo. They are concerned with a sort of analysis about urban tissues, whose basis were found in the paper "O espaço urbano por partes" (Macedo,2002).

Step 6 – The corridors and subareas as the subject of analysis

In a chosen sector, corridors and subareas that characterize this space, are issues already stablished, giving the basis for further analysis. In a chosen sector, corridors and subareas that characterize this space, are issues already stablished, giving the basis for further analysis. Figure 3B is necessary to add the track of lots that confront the existing roads and buildings, to complete the corridor. Surely, this will be studied into a scale useful for the analysis, but diagrams showing the plots along the corridor and a figure ground map emphasizes the study general concept. A sample is presented considering a part of District already detailed by GPAC. Figure 4.

At this point based on the study of the eight enclaves the researcher has enough knowledge about the evolution of the urban structure of each enclave. It is supposed that knowledge enhances during the contact with the local reality, understood by social-economic, cultural and environmental issues. Process accompanied by local visits, bibliography and analysis of the city master plan. The result from to study the enclaves must be crossed with the

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experience in each corridor and in the subarea, specially concerning the smaller portions. In the little subareas, roads of distribution play an important role to delineate neighborhoods of small size.

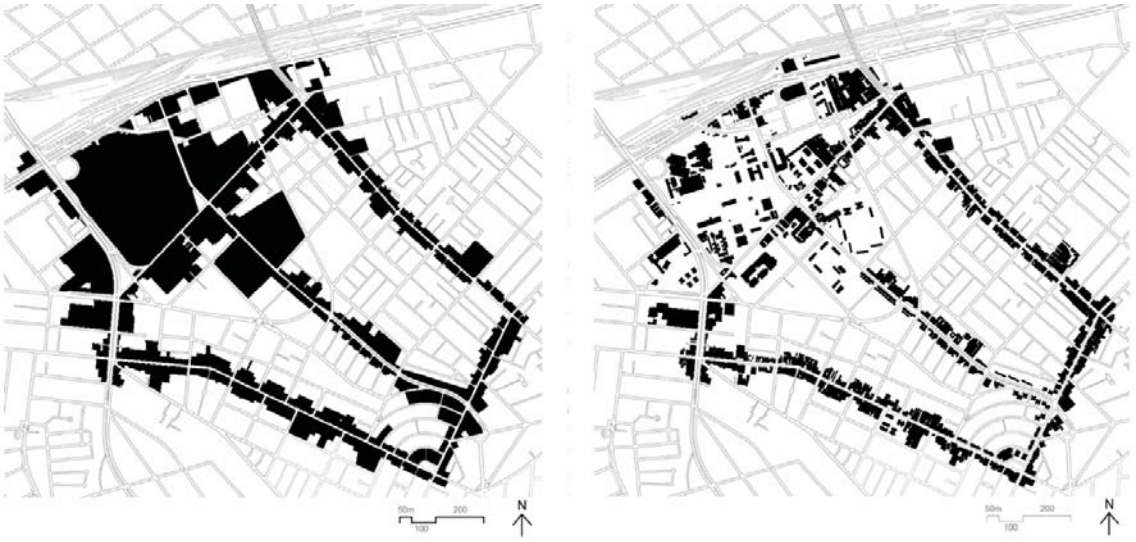

Figure 4. Corridors highlighting the plots and figure ground. Source – Author's diagrams

Step 7- Patterns of urban tissue at first glance

Based on step 6 experience, researcher have acquired a sense to identify different patterns of urban tissue. The first glance means classify these patterns given to its insertion in the city grid, block, plot and building type. This means the beginning of a systematic task on pattern classification. To illustrate are given some samples, as follows.

Sample 1 (figure 5): an institutional block having parcels to different public equipment. It is a 5 acres' area with five plots separated for public walkways. There is a generous green embracing the built area. The history indicates the place was a horse race precinct. Back figure 3, enclave 2.

Figure 5 – Partial view, enclave 2. Source – Author's images and Google Earth 04.06.2016

Sample 2 (figure 6): an urban tissue designed for housing, giving the feeling of a quiet neighborhood. In Mooca is easy finding interesting places like this. Back figure 3, enclave 5.

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Sample 3 (figure 7): a common situation, like a mix of small and medium low-rise buildings with high-rise large ones, all of them in the same block. A strong influence of garden cities concepts related to urban design. Back figure 3, enclave 5.

Figure 6 – insertion of a cul-de-sac in a regular block. Source – Author's image and Google Earth.02.06.2016.

Figure 7- From the smaller to the big one. Source – Author's Image and Google Earth. 08.06.2016

Sample 4 (figure 8): The traditional locations to heavy industries, occupying large tracks of space occurs in the enclaves 4 and 7, as shown in figure 3. They are mainly industrial plots, not many places to commerce and services, and just few locations to shelter people in charge with the security. The landscape shows sheds that are often repeated, their roofs constitute heat islands. The cargo trucks can only access this area at night. There are problems of mobility and pollution because the neighborhoods around are mainly mixed use nowadays. Interestingly, on the ground of the industrial facilities are out of this area, where there are many industrial buildings listed by heritage, the enclaves (4 and 7) show the potential to become an important interest point of the district of Mooca: mixing industries that can stay with culture and recreation areas. Back figure 3, enclaves 4 and 7.

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Figure 8 – Large industries in Mooca. Source – Author's image (2009) and Google Earth. 03.06.2016

Sample 5 (figure 9): thirty-seven and half acres' block spilt between a plot to subsidized housing (1948) and a plot to a medium-class condominium (2004). Back figure 3, enclave 3.

Figure 9 – From the traditional to the modern pattern. Source: Author's image and Google Earth, 06.06.2016

Step 8 - Criteria to select significant samples to organize a table of patterns

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As a result of exploring the different arrangements of the built environment it is necessary to select the patterns which are representative of the urban tissue. As C. Alexander says: "In short, no pattern is an isolated entity. Each pattern can exist in the world, only to the extent that is supported by other patterns: the larger patterns in which it is embedded, the patterns of the same size that surround it, and the smaller patterns which are embedded in it." (Alexander, 1977).

Figure 10, illustrates how the preservation of an old factory may represent a pattern on the importance of heritage as an expression of the cultural level of a community. But, the majority of patterns are from physical nature such as, how the entrance of a building is related to the street, and so on.

Figure 10 - Iconic historical building. Source – Author`s image.

Step 9 – Designing with selected patterns

Is not so difficult identify patterns by random, they are visually recognizable. The question is how to adjust each pattern, from the point of view of the physical form of the neighborhood, in accordance to community needs, desires and the potentials to find the urban design guidelines. Again, by walking through the neighborhood – in a broad sense - will be possible to get this response. Events such as *charrettes* can be performed at each stage of the project, to gauge which technical and community people have to say. These meetings to be efficient looking forward clear goals, are to be organized in professional basis as A. Lutzenhiser and W. Lennertz advises. (Lennertz/Lutzenhiser, 2006)

Figure 11. Scenes of urban life. Source – Author's images.

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Besides the necessary inputs arising from urban planning, in particular the technical data, there are a set of attributes coming from the cultural context, enhancing the urban design program. If indeed they are embedded into the program, certainly the benefits should reach people. These inputs come from the concept that the urban designer must observe everything looking for element to add into the program to design inspired by the local spirit: *genius loci*. The analysis and interpretation of urban structure, even the initial project proposals could be complemented by an entry not strictly physical or quantitative. Aspects of social life and the local community customs are to be considered (Norberg-Schultz,1980).

3 FINAL COMMENTS

The ten steps explained in this paper are partial results of a working in progress, looking for to systematize the analysis process of an urban tissue. Today there is a huge set of variables to be considered in urban planning and urban design. The start point is the usual research to survey the basic data listing: needs, desires, the natural landscape and human transformations. In the contemporary planning in which the discussions with stakeholders on a given project are important and there are proceedings to make them useful for the urban design, is possible to introduce the thematic of taking qualitative notations on people behavior and culture related to spatial patterns.

The steps 1 to 3, explained in this paper, are done in order to define enclaves in the city understood by geographical, cultural and social indicators, besides official information and urban planning guidelines. Steps 4 to 6, are to explain the concepts of corridors and subareas, introduced as new morphological elements that overlap the street, block, lot and building, whose studies are in the field of urban morphology. The steps 7 to 9, point to a way of urban designer have the sense to realize physical organizations and using ways of spaces empirically and then slowly consolidating them as patterns (step 9). The nine steps are placed to help further research and offer an organized basis for the development of new projects. Going forward, it is thought that the 9 steps can help in the process of teaching urban design.

REFERENCES

Alexander, C; Ishikawa, S; Silverstein, M, 1977. *A pattern language***.** NY: Oxford University Press.
Barnett, J; Beasley, L. 2015. *Ecodesign for cities and suburbs.* Washington: Island Press.
Cherry, N.; Nagle, K. 2009. *Grid, street, place, essential elements of sustainable urban districts.* Chicago: Planners Press.
Costa, Stael. P; Netto, M. M.G. COSTA, Stael. P; NETTO, Maria Manoela.G. Fundamentos de morfologia urbana. Belo Horizonte, C/Arte. 2015. *Fundamentos de morfologia urbana*. B. Horizonte, C/Arte. 2015
Faar, Douglas. 2008. *Sustainable Urbanism. Urban design with nature*. New Jersey. John Wiley & Sons.
Grostein, M; Meyer, R, 2010. *A leste do centro*. São Paulo: Imprensa Oficial.
Lennertz, B; Lutzenhiser, A. 2006, *The charrette handbook*. New York: APA Planners Press.
Macedo, A.C. 2002. O espaço urbano por partes. *Revista Sinopses* 38, São Paulo: 11-16.
---------- 2013. Understanding urban design issues from changes in urban tissues: case study Mooca, Brazil. *In Journal of the Indian Institute of Architects* 78/12 December: 26-29. Munbai.
Norberg-Schultz, C. 1980. *Genius loci: Towards a phenomenology of architecture.* Academy Editions, London.