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URBAN REVITALIZE OF SANTA BÁRBARA D'OESTE DOWN TOWN: HISTORICAL BUILDINGS AND NATURAL ENVIRONMENT, IN SEARCH OF GATHERING SPACES

Maria Cecília Munguia LINARDI, Dra. Arc,[1]
Grace Cristina Roel GUTIERREZ, Ms. Arc.[2]
Francielle OLIVATTO.[1]
Juliana Gomes MARTINS.[1]
Manuela Ribeiro LAJE.[1]
Raphael Suzigan DAGNONI.[1]

[1] School of Engineering, Architecture and Urban Design, Methodist University of Piracicaba (UNIMEP), Rod. Santa Barbara/Iracemápolis, km 01, Santa Bárbara d'Oeste, 13450-000, State of São Paulo, Brazil. mlinardi@unimep.br, franolivatto@hotmail.com, julica_blue@hotmail.com, manuelarl@yahoo.com.br, rdagnoni@hotmail.com
[2] School of Civil Engineering, Architecture and Urban Design, University of Campinas (UNICAMP), Av. Albert Einstein, 951, Campinas, 13083-852, State of São Paulo, Brazil. gcgutier@fec.unicamp.br

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Summary

This research has studied two urban areas of Santa Bárbara d'Oeste, a city of 170.078 inhabitants, in the metropolitan region of Campinas SP, Brazil. That city presented in the last three decades an intense urban growing, into suburban areas; with intensive deteriorate process of existing spaces. Searching for urban design possibilities with reference to local site considering its possibilities and limitations were selected two distinct and disarticulated areas: the ancient town and the Ribeirão dos Toledos area. The method was based in quality and quantity analyses of those spaces. Using graphics charts and aerial photographic, it has being develop topographic maps, drainage lines, laws and land use control, green areas and public spaces, high and morphological patterns, demographic, infrastructure accessibility, roads and traffic flow, and historical buildings heritage. Considering the relationship of that information, 25 points were selected for measures of micro-climate parameters, which were monitored during tree distinct days, each season, around one year, each 2 hours, and observed other sensorial perceptions. It has being also realized citizen interviews. Followed by analysis and diagnosis, it presents a sustainable urban design propose based in preservation rules of natural and built patrimony, regarding the environment and focus on spatial revitalize.

1. Introduction

The actually intense spatial transformation process in the most of our cities, as in metropolitan areas or even in smaller cities, many times meaning significant lost of spatial quality observed in different levels: urban comfort and degradation of natural environment, urban heritage and historical townscape preservation, witch represents high impact on our natural and built environment by consuming limited resources, wasting energy and endangering the urban life quality.

"Increasing urbanization and industrialization has caused the urban environment deteriorate. Deficiencies in development control have important consequences for the urban climate and the environmental efficiency of buildings. The size of housing plots has been reduced, thus increasing densities and the potential for traffic congestion. The increasing number of buildings has crowded out vegetation and trees." Santamouris et al (2001).

Any action of development of a city implicates an impact on natural environment or an ancient city, destroyed and built into a new one with distinct builds, uses and shapes. It is being frequent the adoption of spatial solutions those neglect the environmental impact of building in relation to climate, historical, cultural and social contexts.

In Brazil, due to its low latitudes, the most cities were located in predominantly hot and humid climates, however urban design and planning laws don't considerate the importance of local climate, and neither the impact of urbanization on natural and built environment.

Givoni (1997) and Brown & Gillespie (1995) remarks the importance of integrating microclimate information in design, the urban design effects on the urban climate, and the effects of microclimate on people and buildings in the landscape. Santamouris et al (2001) observes that when examine the climate of a small area (several kilometers in size like in this case) independent of it's configures (valley, forest, beach or town), is in this scale that human activities acquires greater influence on climate change, especially creating urban environment. Cities are source of heat and pollution which affects the surrounding atmosphere.

Each typology, shape, uses, building materials has an influence on climate. Its common finds temperature differences between density and high down town in relation to a public square garden or a suburban neighborhood. That indicates the necessity to considerate the microclimate, topography and vegetation on planning laws.

In the last decades, the aim of discussion cities is being the sustainability of our cities, countries, continents, extending to the whole planet. Sustainability has been expanded to urban design and planning while insuring comfort in outdoor urban spaces.

This work searches for urban design possibilities with reference to local site, considering its possibilities and limitations, and seeks preservation considered not as a nostalgic return to the past, but instead of it, aiming the future, taking for granted the heritage for the next generation.

2. The city of Santa Barbara d'Oeste

Santa Barbara d'Oeste is a medium scale city with 170.078 inhabitants[1], inhabitants, in metropolitan region of Campinas, state of São Paulo, Brazil. Locate at 22^0 45' 10" S latitude, 47^0 20' 55" W longitude, 545 m altitude, and characterized by a tropical climate, with hot and humid summer and mild, but dry, winter.

Its origin refers the beginning of XIX century, officially 1818. With about more than one century of existence, this city presented in the last three decades an intense urban growing, into suburban areas, with intensive deteriorate process of existing spaces, being visible the transformation towards quality space degradation.

In 70's, industrialization and deficiencies in development control have caused a fast growing to east sector, closer to the neighbor city, and left behind unoccupied land between the suburban and town. The city crosses the barriers of Ribeirão dos Toledos stream and railway, becoming fragmented and its streets disarticulated. Linardi (2001).

This proposal empathize the Santa Bárbara D'Oeste's down town, a fragment that was consolidated until 1960s, forming 440 hectares of area. It has been studied two central urban areas of this town. The selected areas were distinct and disarticulated: the ancient town and the Ribeirão dos Toledos stream area (figure 01).

Like the most cities, Santa Barbara d'Oeste had growing based principally on vehicle circulation, predominantly individual automobiles. Pedestrian, bikes and others have no space; green areas were restricted to alamedas or 'square gardens' without life, just a place with streets around it. Some important streets or roads configure a barrier to urban growing, creating isolated suburban areas and vacant urban spaces. Vegetation becomes rare, with only 1,55 m^2 of green spaces per capita.

Nowadays it is evident the degradation of that down town area, presenting the succession of problems by the time in different levels: the historical, cultural and natural patrimony; landscape, square and public spaces, circulation of pedestrian and vehicle; visual and sonorous pollution; architectural bars; precarious infra structure; disarticulation of road system and public transportation, public equipments, leisure spaces and commercial areas; excessive use of the ground without minimum areas to permeability; increase and height variety of temperature caused by heat concentrate; little ventilation and air humidity, among others.

That lack of equilibrium is caused by the different, new and crowd functions and activities in an urban structure and streets of the last century. Besides that, the crowd of commercial activities in fills blocks surrounding the central squares, and the excessive of individual transportation and less attention to the area of pedestrian and cyclist circulation.

Notice that the urban extension of that city, mainly in down town area, there was not any care about the quality of the construction and natural space, even the vision of sustainable design, not existing laws of control. The spatial transformation get separated and disconnected, causing a lost of historical patrimony.

2.1 Study area: urban fragments

2.1.1 Santa Barbara d'Oeste's ancient down town.

The ancient town is characterized by the concentration of commercial activities, high dense residential areas and with some buildings of high historical and cultural value. This area has a high density morphological pattern, with some tall buildings. Its streets do not support the traffic flows and parking, been limited and obsolete circulation system.

Vegetation and outdoor spaces are rarely, except some significant public square gardens like the central one (figure 2). In this square it is located the Santa Barbara d'Oeste main Church, and characterizes an urban marc which is surrounded by the mainly streets and commercial activities. There are here some significant historical buildings: the municipal library and the north-american immigration museum (antique jail and public hall, by Victor Dubugras architectural design).

[1] Data from "Censo 2000": available in < www.ibge.com.br> (access: 10/09,9h30).

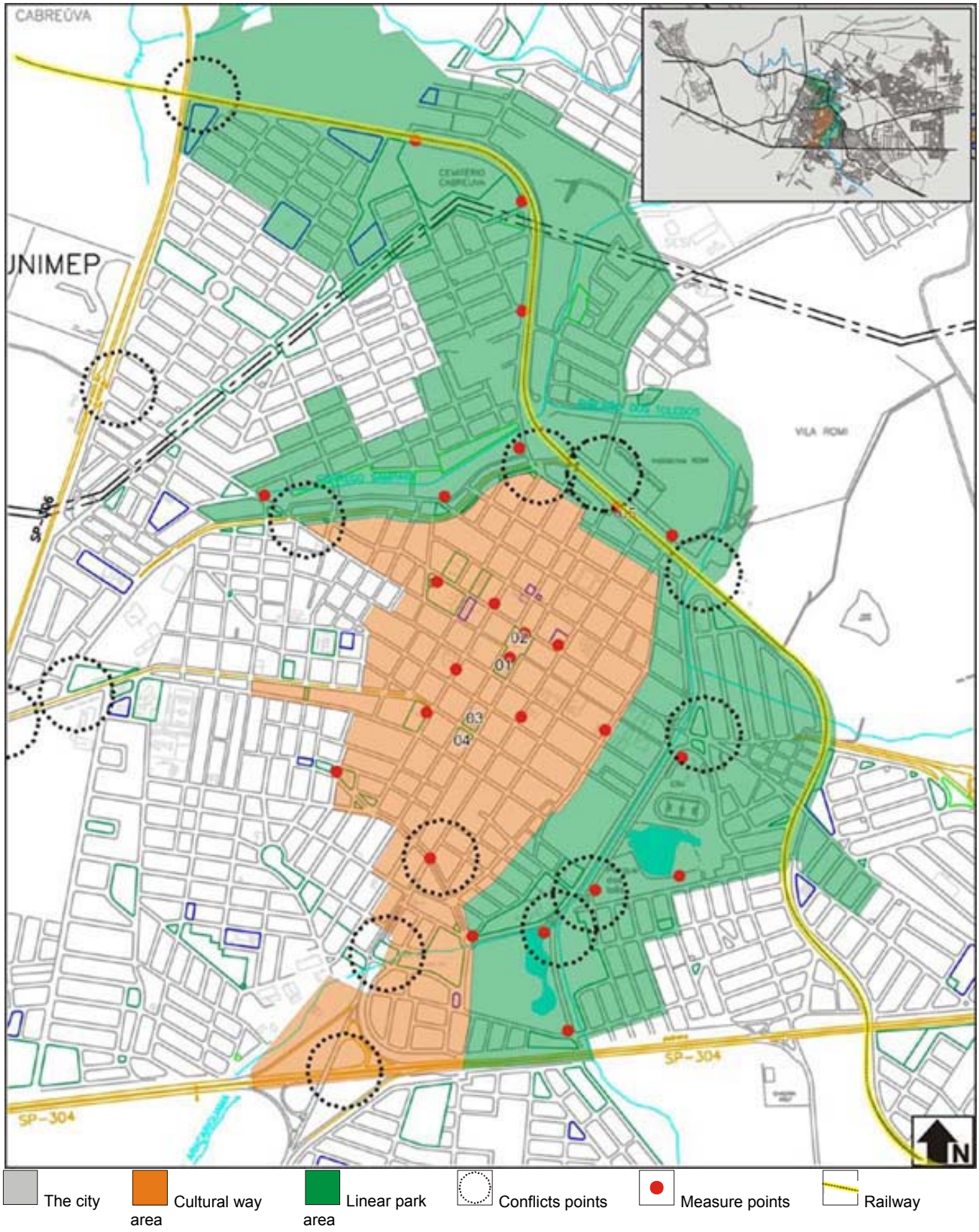


Figure 1 Santa Bárbara d'Oeste's city map with the two detached study areas.


Santa Barbara main Church (01)


Central square garden (02)

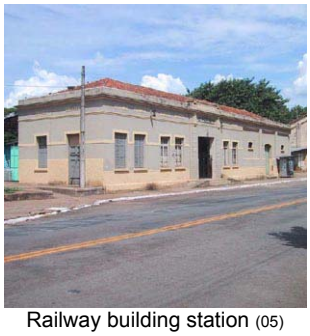

Library building (03)


Museum building (04)

Figure 2 Buildings and places of Santa Barbara d'Oeste down town.

2.1.2 Ribeirão dos Toledos area

The Ribeirão dos Toledos area is a degraded stream regarding to the water quality and border integrity, with a diffuse and low dense neighborhood with predominantly residential low buildings, three lined streets and significant vegetation areas. That area was occupied at 30's, been defined by the railway station building surrounds and Ribeirão dos Toledos valley (figure 3). Those elements plus railway line and Flowers valleys, represents important barriers to urban growing.


Railway building station (05)


Ribeirão dos Toledos area view

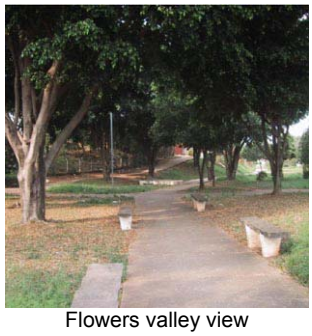

Flowers valley view

Figure 3 Buildings and places of Ribeirão dos Toledos area.

3. Materials and Methods

The method was based in quality and quantity analyses of those spaces. To understand the study object, conditions and urbanization process, were utilized maps, taken photographic, measured microclimate parameters and citizen interviews.

3.1 Maps and photographic information

Using graphics charts and aerial photographic, it has being developed topographic maps, drainage lines, laws and land use control, green areas and public spaces, high and morphological patterns (figure 4), demographic, infrastructure accessibility, roads and traffic flow, and historical buildings heritage.


Aerial view of linear park area, low density morphology


Aerial view of down town area, high density morphology


Sky obstruction of a typical down town area


Sky obstruction of a typical linear park area

Figure 4 Typical morphology and sky obstruction of each area.

3.2 Measures

To realize the measures, the team was divided into two groups responsible for each area: one at ancient down town and the other at Ribeirão dos Toledos, and demarked a way to reach the local points by car. Those decisions made easier monitoring the points that were investigated, reducing time and measures intervals.

3.2.1 Selected points

Based on information of the maps, graphics, aerial photos and area recognizing, were selected 25 points for microclimate measures parameters: 10 points at central area and 15 at Ribeirão dos Toledos surrounds (figure 1).

3.2.2 Micro-climate parameters:

The micro-climate parameters measured were air temperature, humidity, wind velocity, radiation and natural lighting level.

The data colleted on these local measures is also compared to meteorological data of region, specifically Nova Odessa city meteorological station, using historical indices of environmental parameters. This care is necessary to guarantee an impartial analyze of differences on registered data from a historical to a daily climatic variation.

3.2.3 Equipments:

The portable equipments used were:

- thermo-hygrometer;
- anemometer;
- light meter level;
- fish eye lens and camera Nikon.

3.2.4 Measuring periods:

The 25 points were monitored during tree distinct days, each season, around one year (dates near solstice and equinox), between 6:00 to 18:00 each 2 hours, and observed other sensorial perceptions.

- near winter solstice: 25/06, 01/07 and 07/07/2004;
- near spring equinox: 17/09, 24/09 and 08/10/2004;
- near summer solstice: 17/12, 20/12 and 22/12/2004.

The fish eye photos of all points were taken in one typical conditions day. It shows the sky obstruction and is analyzed with the solar graphs of Santa Barbara latitudes (figure 4).

3.3 Citizens interviews

To identify the Santa Barbara population necessities, some interviews were realized with citizens with different ages, works, sex, and social class. Those interviews show the advantage and disadvantage, related to the citizen that may influence on life quality.

4. Results

Followed by analysis and diagnosis, presents a sustainable urban design proposes based in preservation rules of natural and built patrimony, regarding the environment and focusing on the spatial revitalize. This project intends to rescue the sociability space, linking the buildings to public areas, searching the collective use privileging the pedestrian mall, and using alternative solutions to reduce the impact of urbanization.

Urban design proposal:

Facing the diagnostic and analyses development about the fragilities and potentiality of the study object, this resolution involves two areas with specific characteristics, but linked between them. The first called cultural sector where concentrates focuses of project detached by revitalization and restore of built spaces that were depredated or not useful. So it was planed the recuperation of those built spaces, even it is necessary to give them different uses, getting the resources as preservation, conservation, revitalization restore, and so one and so forth. The other named Linear Park is about the surrounding area of Ribeirão dos Toledos and Córrego do Sampaio, establishing, according to the federal legislation, preservation, recuperation and protected areas. (Figure 5)

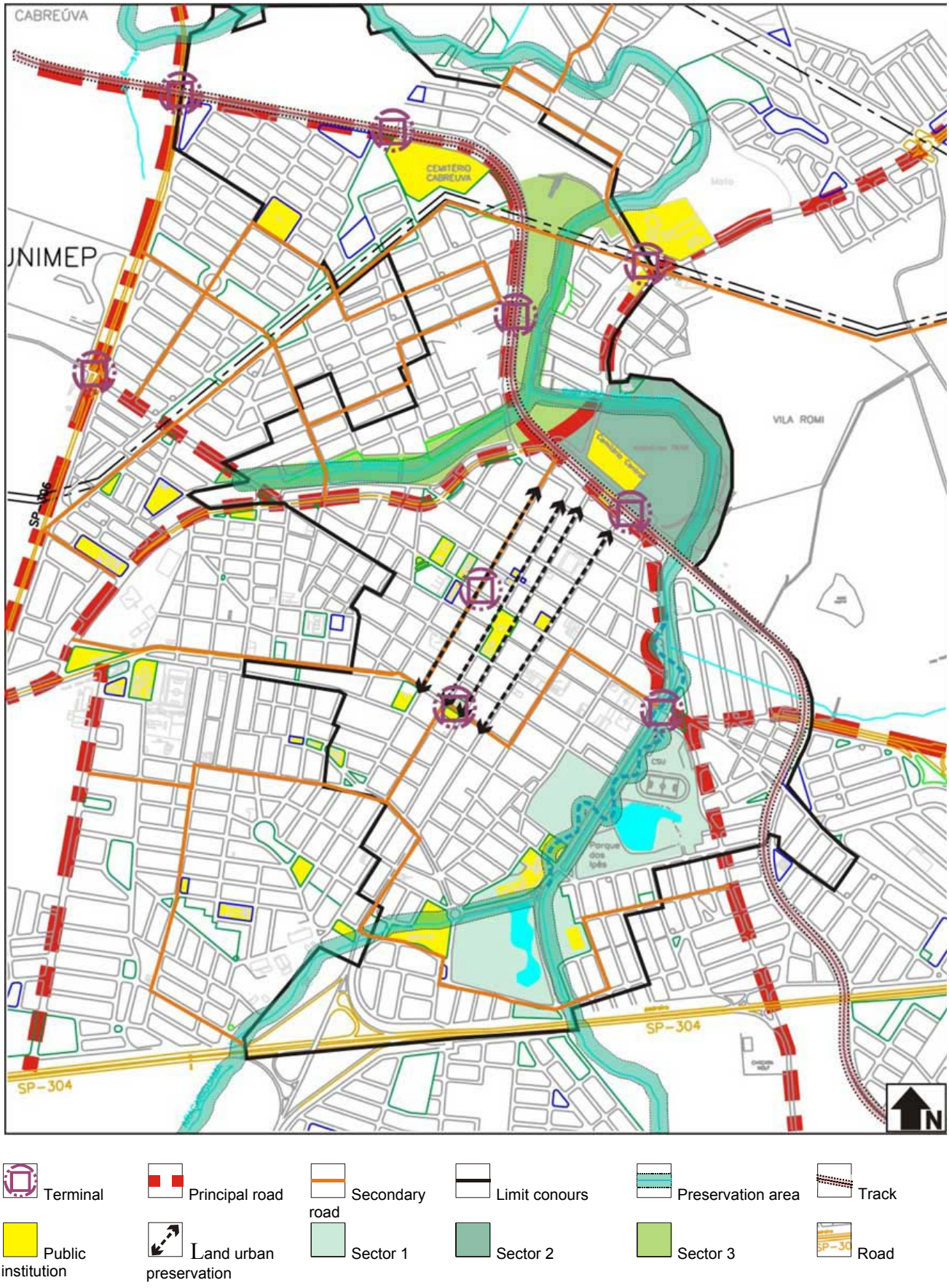


Figure 5 Santa Bárbara d'Oeste's city map with urban design proposal.

Cultural sector

Among the most significant edification of the area, some spaces should be empathized: the architectonic group formed by the museum of immigration and municipal library; train station; warehouse and railway workman house; Coronel Luiz Alves square and surrounding areas; industrial shed; urban terminal; gymnasium and municipal theater, urban landscape; and parts of XV de Novembro, Dona Margarida and Santa Bárbara's streets. It is proposed to wide an articulation among those buildings and their surrounding area, and even defining ways of communication between them.

It is still proposed the extension of the commercial activities, which are confined in just some blocks, along preferential ways. That extension, however, does not exclude the use for habitation, but empathizes the importance of mixing different uses, such as commercial, public institution, residential in the cultural sector area.

It is also detached the recuperation of the preservation space, saving the meeting spaces and citizenship. It is important to give preferential street extent to the pedestrian passage, without impeding the vehicles circulation: high speed attenuating; places to a fast stop of the vehicles; street narrowing; widening of the sidewalks; the use of outdoor areas in the blocks as spaces to pedestrian to stay and pass; amplification of the squares along the sidewalks; space for cyclist, among others, seem to contribute in that way, remembering the special care considering the diversity of the users: handicapped, elderly, children, night activities, visitors and local population.

The excessive visual communication caused by the advertisement outdoors, that is in most of the commercial buildings, will be decreased due to offer liberation valorization of those fronts, offering mayor meaning to the memory and local identity.

Linear Park

Considering the differences of the local in relation to the vegetation, built spaces, degradation degrees and microclimate, it was defined three sectors to conduct the project. The first, sector one, evolves the Parque dos Ipês, Araçariguama and Centro Social Urbano. In that sector the existence of large public areas suggest the building of a great urban park. In sector two, characterized by area in occupation process, it seems possible to define the flow and headwater protection areas, even in some points increase those minimum quotas, besides the minimum defined by the federal legislation. And sector three, also a recent occupation area, it is indicated the remove of people from the unacceptable area of Ribeirão dos Toledos' board, since it is an area at risk, and still the remove of the canalization of Córrego Sampaio's flow, where the natural drainage was not considered.

In general, the Linear Park talked about has the capacity of increase the green area, developing a local that could attracts the population, substituting the actual situation, which is marked by the degradation and physical bars. It is necessary to have a special attention to the recompose areas of ciliary wood, tilled plain and tree groups, so, preservation and recuperation areas and also environment protection, where the access and the utilization of the natural resources will only be possible since we do not damage the environment. So that it is indicated to help the natural drainage lines, increasing the ground permeability, and the recompose of the water table and besides that decrease the negative effects in relation to the microclimate level.

Articulating the Cultural Sector and the Linear Park

Among several resources used in this project, it is detached the landscape linked to the urban design, causing a better life quality, respecting the minimum pattern of environment comfort, making people to enjoy the local identity.

It is necessary to remind the articulation related to land uses, mass transport and road system. Searching to decrease the actual crowd in the down town area, we present a road hierarchy proposal, subtracting the pass traffic in that area. The possibility of creating principal road, that surround the ancient sector, forming outline rings to decrease the existent conflict as: damage caused by heavy vehicles, air pollution and high noisy, among others, in order to empathize the down town area as a main local of way. Than, it is proposed that the pass traffic among extremes of the city, happens through principal road. In those principal and secondary roads it is mainly the terminals of mass transport, linking the actual mass transport. The cyclist way and the train transports through the recovering of the track.

In that case, it is important to revise the actual law of urban zones, harmonizing the pattern of land use with mass transport system and road system, so the possibility of bigger thickened areas should be confined in some mainly ways, as principal and secondary road.

Understanding those two areas, the Cultural Sector and Linear Park, it is possible to understand that they mean two vectors forming that central fragment: they permit the integration of the urban pattern turning possible the central area expanding in direction to the east zone, in order to occupy the vacant central urban, braking the actual insulation between the central area and other sectors of the city. The Cultural Sector permits the incorporation of new uses and functions, being able to increase the density in that down town area, aiming a better environmental quality. The Linear Park can increase the green area to local population, breaking the bar that exists nowadays.

It is still considered very important the rational use of outdoor urban spaces, since it is an significant contribution for those sites in the forming of architectural and urban design: it assures better conditions in ventilation, daylight, and urban thermal comfort; allows functional system of rainwater drainage, helps the ground protection against erosion and takes care of the flow; permitting the existence of leisure spaces.

The informations about comfort of that area helps the identification of conflict points that the project solution searches to decrease. These are incorporated in several levels in this project, such preventing critical situation than creating urban scene. The identification of noise will make possible the use of sonorous effect as an element in the space organization. Giving the value to the use of light and shadow, it will be possible to build different and uncommon spaces.

This project empathize the possibilities of conservation with actions of rational use of the resources, guaranteeing the self-sufficiency of the area. And to close, aims to have better conception of the architectural and outdoor spaces, in order to be formed together, getting in a better quality and pleasing spaces, saving energy.

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