HOSPITAL NEIGHBORHOOD IN LAGARTO-SE

NEW CENTRALITY

URBAN PROJECT

NORTHEAST COMPLEX OF HOSPITAL DE AMOR

JEFFERSON TAVARES (ORGANIZER)
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NEW CENTRALITY

URBAN PROJECT

NORTHEAST COMPLEX OF HOSPITAL DE AMOR

JEFFERSON TAVARES (ORGANIZER)
The urban project of New Centrality in the city of Lagarto, Sergipe (SE) was the result of interdisciplinary work between the PExURB Group of the Institute of Architecture and Urbanism (IAU-USP), the Pio XII Foundation and the Municipal City Hall of Lagarto-SE for the implementation of the hospital neighborhood of the Northeast Complex of the Hospital de Amor.

Agreement 45996 signed between the Pio XII Foundation and IAU-USP enabled the development of the project, which involved professors, researchers, undergraduate and graduate students, public managers, and specialists in health and oncology care from February/2020 to August/2021.

The project was elaborated with the collaboration of about 40 specialists from the fields of architecture and urbanism, social sciences, health, civil engineering, environment, law, social assistance, and public management. The process took into account the complexity of the hospital logic and also the interaction involving nature, economic factors, the city, the region and its population.
INTRODUCTION
ORIGIN

The Pio XII Foundation, responsible for the units of the Hospital de Amor that treat patients with cancer for free, has promoted the decentralization of oncologic treatment by building new units in Brazilian states. The main objective of this strategy is to bring treatment closer to patients, thus avoiding long trips to its head unit, located in the city of Barretos, state of São Paulo (SP).

The Hospital de Amor in Lagarto-SE aims at being the regional unit in the Northeast with oncologic treatment, preventive centers, and treatment for children, among other specialties. Anticipating the important economic and social impact on the city and region of the expansion of these activities, the Pio XII Foundation consolidated a partnership with the PExURB Group for the implementation plan.

The result is an urbanistic project derived from the experience developed around the Barretos-SP unit, carried out by PExURB in 2019. It also advanced the study method on the main characteristics of the municipality, region and immediate and future needs arising from the new hospital units.

The final solution was consolidated in a hospital neighborhood proposal with urban-regional function and capacity to constitute a new centrality for the municipality.
The urban project for the New Centrality in Lagarto-SE is a neighborhood with an area of 510,612.63 m² destined for approximately 10 thousand people (as residents and users), with a density of 196 inhab/ha. The proposal considered the particularities of the historical formation of the municipality, the socioeconomic and cultural aspects, the environmental characteristics and the purpose of combating urban dispersion.

The New Centrality forms a neighborhood based on the hospital activity and therefore brings together diversified activities that meet the scale of the region, city and neighborhood.

The program is composed of: accesses to the SE-170 highway next to the land subdivision area, implementation of an airfield for an air ICU, implementation of 60,000 m² of hospital buildings with duplication in the expansion area, public areas and equipment, environmental sanitation and mobility infrastructure. The program meets the housing demand, especially for low income and vulnerable people, commerce, services, social equipment, strategies for income generation and integrated solutions for the environment.
Lagarto-SE is the third largest municipality in Sergipe with about 105,000 inhabitants, 50% of them living in the more than one hundred villages in the rural zone.

Such villages are small neighborhoods or clusters of houses that produce food for the city and the region. They are nucleated by a church or a center of public services and/or commerce and are also characterized the regional formation of municipalities in the Northeast.

The urban area has a gross density of approximately 10 hab/ha and shows strong tendencies of dispersion of the urban fabric by public and private lots and developments. The urban population rate of 50% is below the both regional (73.13% in the Northeast) and national average (84.36% in Brazil).

The municipality is located in an important road junction of the interior of the Northeast (Highways SE-104, SE-170 and SE-270) 80 km from the capital Aracaju-SE. It has a hot and humid climate, dominant southeast and east winds, is located in the hydrographic basin of the Piauí River and the Vaza Barris River, within the geographic domain of the agreste.

It is in the transition between the coast and the Brazilian outback, and hosts important regional fairs: Feira da Troca and Feira Livre. The regional folklore is highly valued and the vaquejada activity remains as a symbol of the city and a strong attraction for business tourism.

In the last two decades the city became an educational pole with the installation of six private colleges, nine public colleges, the campuses of the Federal University of Sergipe and the Federal Institute of Sergipe. And the implementation of the Monsenhor Batista de Carvalho Daltro University Hospital of Lagarto (EBSERH Network - Federal University of Sergipe) has attracted activities and medical specialties to the city.
Municipal growth in this period is characterized by the expansion of its urban fabric, i.e., the expansion of the urbanized area (streets, lots, blocks, installation of public or private facilities, etc.) beyond the traditionally consolidated limits. This implies higher costs for the maintenance and expansion of public infrastructure, dependence on individual transport as the main means of transportation, and an impact on the environment.

Such extensions of the urban fabric, generally of low population density, continue to depend on the single municipal center that offers the main services, commerce and administrative institutions. And the villages, important rural centers, are also distant and dependent on the center.

The installation of the Hospital de Amor is capable of attracting a regional contingent of patients and companions to the city of Lagarto-SE. Although this contingent will move the local economy, it will also generate demand for public services, diseconomies of agglomeration, housing deficit, labor supply and informal work.

Based on these particularities, the urbanistic project proposes to change the monocentric logic prevailing in the municipality and constitute a centrality that is expected to absorb and organize future demands. The New Centrality aims to host complementary activities to the center of the municipality and to be close and integrated to the villages and the expansion axes of the urban fabric.
URBAN DESIGN APPROACH

The polynuclear regional formation by villages and the geographic understanding of the municipality as a place of interconnection between the coast and the Brazilian outback motivated the urban design.

Thus, the New Centrality was conceived as an alternative to the monocentric and disperse model of Brazilian cities. Its urban fabric was proposed as a connection between the city and the region, and its design was influenced by environmental factors of the site, following the dominant winds and the natural path of the waters.

The urban design is structured by three multifunctional strips divided by scale (region, city and neighborhood) and integrated by transversal infrastructure axes (drainage, air circulation, vegetation and pedestrian mobility).

PRINCIPLES AND OBJECTIVES OF THE PLAN AND PROJECT

The New Centrality privileges pedestrians, social inclusion, and the safety of its users. It integrates social, economic and environmental factors and corresponds to the idea that the city can also function as a health infrastructure. It foresees the constitution of agglomeration economies and, for this purpose, advocates territorial planning at the neighborhood level that responds to the perspectives of transformation with quality in the city.
MULTIFUNCTIONAL LANES

REGIONAL SCALE
- neighborhood accessibility, modal terminals, health infrastructure

NEIGHBORHOOD SCALE
- leisure activities, commerce, housing, services, mobility, administrative, cultural, health and environment

CITY SCALE
- public and private housing, security, education and health facilities
TRANSVERSAL AXES OF INFRASTRUCTURE

Wind way

Main pedestrian circulation
Discipline of rainwater according to topography

Vegetation for shaded areas and as a natural air filter
THE PROJECT
LAND SUBDIVISION

The land subdivision follows the topography and suggests continuity in the bordering plots to avoid fragmentation and discontinuity of the urban fabric. It took into consideration the restrictions defined by the airfield, the access to the highway, the interface with other villages, and the possible distances to be covered by pedestrians.

The blocks have diversified sizes, uses and shapes. Those destined to the buildings of the Hospital de Amor followed a standard design given the complexity of the infrastructure facilities, logistical support, maintenance, etc.

The others were oriented by dimensions that were compatible with pedestrian paths, reinforcing the importance of public space and enabling a diversity of lot sizes, which was integrated with the mobility system and the green areas system.

The related design of blocks and streets favored the creation of air circulation corridors to the core of the lots, and the diversity in the height of the buildings.
made it possible to guarantee insolation, but with periods of shading due to the increase in temperature with climate change. The public, green, free and equipment-destined spaces are diluted throughout the neighborhood.

**LAND OCCUPANCY**

The template, performance coefficient (PC) and occupancy rate (OR) are defined by use and in accordance with the airfield restrictions. For these areas, an average net density is expected in order to ensure control over the sprawl of occupations.

**PREDOMINANT USE**

<table>
<thead>
<tr>
<th>PREDOMINANT USE</th>
<th>MAXIMUM FLOOR AREA/ HEIGHT</th>
<th>PC</th>
<th>OR</th>
<th>MANDATORY DISTANT BACKGROUNDS (for habitable covered areas with more than one floor)</th>
<th>URBAN DENSITY (blocks/lots only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial</td>
<td>2/7 meters</td>
<td>1.6</td>
<td>80%</td>
<td>4 meters</td>
<td>residents: 1,105.9 inhab/ha</td>
</tr>
<tr>
<td>Housing and mixed</td>
<td>4 / 14 meters</td>
<td>3.2</td>
<td>80%</td>
<td>4 meters</td>
<td>employees: 573 inhab/ha</td>
</tr>
<tr>
<td>Equipment</td>
<td>2 / 7 meters</td>
<td>1.5</td>
<td>80%</td>
<td>4 meters</td>
<td>external users: 383.7 inhab/ha</td>
</tr>
</tbody>
</table>

Gross average user density (of the entire area): 189 in/ha
Net average user density (excluding green/leisure areas, airfield and roads): 653.54 inhabitants/ha
Gross average resident density (for the whole area): 101.70 inhab/ha
Net average resident density (excluding green/leisure areas, airfield and roads): 350 inhab/ha

**URBAN PLANNING PARAMETERS**

Gross average user density (of the entire area): 189 in/ha
Net average user density (excluding green/leisure areas, airfield and roads): 653.54 inhabitants/ha
Gross average resident density (for the whole area): 101.70 inhab/ha
Net average resident density (excluding green/leisure areas, airfield and roads): 350 inhab/ha
LAND USE

The distribution of uses avoided the monofunctional pattern, but privileged the scalar relationship. In other words, it defined portions with different uses, but corresponding to a certain predominant scale (regional, city, or neighborhood).

Driver housing, for example, is incorporated into the hospital complex; patient housing is in the center of blocks near mixed uses and neighborhood leisure areas.

Urban facilities (bus terminal, bus stops, city hall administrative sub-office, day care center, schools, colleges, basic health unit, police station, community restaurant, hostel for drivers, college and traditional fair center with sports area) are at the boundaries of the neighborhood, as connecting elements to other residential areas.

Residential, mixed or commercial areas have predominant, but not exclusive uses. The corner lots have priority for commercial and services with higher traffic to ensure the safety of sidewalks and pe-
The commercial and service uses that should be encouraged are: banks, bakeries, pharmacies, hotels, doctor’s offices, gas stations, supermarkets, stationery stores, churches, movie theaters, hotels, libraries, stores, clinics, laboratories, restaurants, bars, lottery stores, post offices, etc.

The hospital uses are in areas of easy access for the external public and in the main circulation axis where the predominantly residential and mixed areas are concentrated. The day care center, which directly services the Hospital de Amor’s employees, is integrated to its building complex.

The public green and free areas were arranged as urban landmarks that demarcate the main topographic elements, organize pedestrian mobility and form an integrated system of infrastructures.

### Chart of Estimated Population

<table>
<thead>
<tr>
<th>POPULATION</th>
<th>RESIDENTIAL/MIXED</th>
<th>COMERCIAL</th>
<th>HOSPITAL</th>
<th>EQUIPMENT</th>
<th>SUBTOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESIDENTS</td>
<td>4,848</td>
<td>24</td>
<td>---</td>
<td>15 (drivers)</td>
<td>5,187 residents</td>
</tr>
<tr>
<td>EMPLOYEES</td>
<td>404</td>
<td>135</td>
<td>2,000 (employees)</td>
<td>150 (employees)</td>
<td>2,689 employees</td>
</tr>
<tr>
<td>ITINERANT EXTERNAL USERS</td>
<td>---</td>
<td>---</td>
<td>1,000/day (patients and companions)</td>
<td>300/day (students) 500/day (commerce and service users)</td>
<td>1,800 external users</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9,676 daily users</td>
</tr>
</tbody>
</table>
The Highway SE-170 and the airfield fulfill the infrastructural function of integrating regional demands to the New Centrality. The hangar and the bus terminal, each one implanted in one end of the centrality, define the main modals of accessibility and receive the demands from other municipalities and states.

The use given to the access avenue is of intermedation between the regional and the neighborhood scale, so the urbanistic solutions explore health aspects: exercise equipment, walking track, bicycle path, etc., besides bus stops for the required connections.
Squares

The squares are urban landmarks and are important because they are aligned with the blue-green axes, located on the access avenue, and gather around them the main commercial and mobility activities, such as bus stops.

They are located at the highest point of the block, and welcome visitors and users, serving as a reference to pedestrians as they are connected to the green-blue axes.

Small local businesses are at the squares, and marqueses are installed to provide protection from the sun and rain, as well as free areas for various activities.
The blue-green axis is the urban unit adopted whose design simultaneously took into account the direction of prevailing winds, the predominance of storm drainage according to the contour lines, and the shortest pedestrian paths.

The three green-blue axes are at a distance of approximately 500 meters each, are natural channels of water discipline, with trees, and create wind corridors to the interior of the neighborhood. Thus, they collaborate to mitigate the high temperatures and climate that characterize the harsh northeastern region of Brazil.

For the central bed of these axes it was planned to remove earth from its axis to accentuate the functional drainage features. Given the geological nature of the project and the existence of a rock approximately 1.5 meters above the ground along the entire length of the neighborhood, the axes will serve as natural reservoirs during rainy periods, forming small mirrors of water spread over all the blocks in the New Centrality.
The sidewalks, pedestrian zone and promenade were designed to group different functions in addition to pedestrian circulation. They define places for: being near the entrance of buildings, free and safe lanes for pedestrians to circulate (on foot and by bicycle), lane for furniture of different age groups (benches, tables, bicycle racks, fitness equipment, toys children, etc.) and infrastructure (green and gray).

The pedestrian zone is located in the portion of concentration of residences and inns, with the highest population density in the neighborhood. It was envisaged as an extension of the dwellings themselves and as a linear square for diversified and permanent uses. It has a shared road for possible car access.

The promenade is located on the access avenue, along the length of the airfield. The impossibility of construction due to the proximity to the airstrip and the low slope facilitated the implementation of a walking track and fitness equipment. The promenade is integrated with the squares and the main commerce of the centrality by elevated pedestrian crossing lanes.
PEDESTRIAN ZONE
STANDARD SIDEWALK
GREEN AXIS SIDEWALKS
On sidewalks and the pedestrian zone, green infrastructure, benches and tables, exercise equipment, children’s toys, and bicycle racks are planned. In squares, bus stops, water fountains, public restrooms, commercial areas are to be provided.

At the viewing point, intended for leisure and fairgrounds, free and wooded areas for protection from sun and rain, and with the purpose of enabling intermittent activities, such as fairs are to be made.
BUILDINGS AND URBAN COMFORT

The hospital buildings follow the standards of the Pio XII Foundation. For the others, the project indicates a study of volumes and accesses that observe the technical and safety restrictions of the airstrip, are oriented by the general layout of the urban design and provide diversity and comfort for the users of the public spaces.

The occupation plan includes buildings aligned to the frontal limit that occupy this entire face, preferably with commercial and service uses. From the second floor on, an expansion of 2 meters of the building over the sidewalk is possible, as long as the projection of the expansion is for free and public use. For all buildings without expansion it is mandatory to install a two-meter overhang marquee over the sidewalk, with a minimum height of 2.70 m.

The mass plan foresees lower templates in predominantly commercial areas and in areas destined for public equipment, and higher templates in mixed and predominantly residential areas. This variability within the same block allows exposure to direct sunlight, but also areas of shading from the streets.

These volumetric characteristics avoid heat islands and contribute to alleviate the climate in the face of evidence of rising temperatures.
The urban project has a specificity: the main housing demand is for patients and their companions from other cities who will remain in treatment for months in Lagarto-SE. Inns, hotels, support houses maintained by philanthropic institutions or city halls are some of the recurring forms of this housing production, collective or individual.

The predominantly housing lots were planned to be in articulation with hospital units, close to equipment, services and commerce, but mainly integrated with leisure areas. This integration is essential because it represents an entertainment opportunity for residents who, for the most part, do not have direct ties to the city.

Architectural studies of three typologies with exclusively residential or mixed uses are proposed. Typologies privilege the dynamics of the patient and companions with a variation of double rooms or for family members. They provide collective areas on the roof and next to the facade. On the facade, there are also mixed uses, such as commerce or services.

The volumetry privileges the good circulation of air inside the lots to minimize the impact of the accumulation of heat in the built masses and the retention of heat by the reflection of radiation.
SUGGESTION OF IMPLANTATION
SUGGESTION OF IMPLANTATION
BUILDING TYPOLOGY 3

GROUND FLOOR

FIRST FLOOR

SECOND FLOOR

ACCESS

0 5 10 m

GALLERY

0 5 10 m
SUGGESTION OF IMPLANTATION
HOUSE TYPOLOGY
SUGGESTION OF IMPLANTATION
In the transition strip between New Centrality and the other villages are the public and private facilities and the viewing point. It is a large grassed leisure area that can accommodate games, fairs, exhibitions, etc.

The implementation of these activities enables the connection between the hospital neighborhood and other villages by diversified services, from which it was intended to join public housing activities, public and private education activities, public security, advanced municipal administrative post, health, leisure, sports, among others.
Green areas are diluted throughout the centrality by means of green infrastructure (drainage beds, bio-valets, and reservoir microbasins), squares, natural drainage channels, leisure and free areas. They also follow a scalar hierarchy and have diversified uses attached to them.

These public spaces are not concentrated in a single portion because it is understood that the quality of centrality is to have these spaces in a balanced way and with easy access tied to other uses that provide them with security and maintenance.

The natural vegetation species are:

Access avenue (central bed): gravel and shrub species (Ouricuri - Syagrus coronata (Mart.) B.; Pitaya - Hylocereus undatus Haw; Palmeira Carnauba - Copernicia prunifera; Licuri - Syagrus coronata; Licuriroba - Syagrus schizophylla; Bromélia macambira - Bromelia laciniosa; Yuca palm - Yucca aloifolia L.; Prickly pear or palm - Opuntia ficus-indica; Xique xique - Pilosocereus polygonus; Mandacaru - Cereus jamacaru; Friar's crown - Melocactus Zehntneri; Agave - Agave angustifolia; Chandelier Cactus - Euphorbia ingens E.Mey. ex Boiss; Aloés - Aloe succotrina Lam.; Sea urchin - Echinopsis calochlora K.Schum.; Cumbeba - Cereus hildmannianus K.Schum; Aloe Vera ou Babosa - Aloe vera (L.) Burm.f.)

Squares: grass and medium-sized tree species with flowering demarcated by seasons (Aroeira - Schinus terebinthifolia Raddi; Angelim - Andira fraxinifolia Bent.; Craibeira - Tabebuia aurea (S.M) B.; João Mole - Guapira graciliflora (M. ex S.) L.; Sucupira - Bowdichia virgilioides Bent.; Big-bellied - Cavanillesia umbellata)

Green-blue axes (central bed): gravel and medium and tall fruit species (Araçá - Psidium cattleyanum Sabine; Biriba - Eschweilera ovata (C.) M. ex Miers; Cajazeira - Spondias mombin L.; Maçaranduba - Manilkara salzmannii (A) .DC.; Pitangueira - Eugenia uniflora L.; Pitomba - Talisia esculenta (C.) R.)

Sidewalks and pedestrian zone: grass and small and medium-sized tree species (Burra Leiteira - Himatanthus bracteatus (A.DC.) W; Cássia do Nordeste - Sena spectabilis (DC.) H.S.I.& B.; Sombrero - Clitoria fairchildiana R.A.Howard; Chuva -de-Golden - Cassia leptophylla Vogel)

Viewing point: grass and large tree species (Cedar - Cedrela fissilis Bent.; Pau-Ferro - Libidibia ferrea (Mart. ex Tul.) L.P.queiroz; Sucupira - Bowdichia virgilioides Bent.; Big-bellied - Cavanillesia umbellata)
Green infrastructure

Green-blue axes

Permeable area
More than 50% of the roadway is exclusively for pedestrians and is integrated with green areas. Micro-accessibility was privileged, valuing different modes of transportation and the distribution of public spaces and equipments according to walking time and integration with different scales of transportation (air, road, municipal, local).

The size of the blocks and the location of public spaces and equipment are designed for healthy, comfortable and safe pedestrian walking.

The marquees of buildings and the shaded areas of trees provide protection for walking. At both ends of the centrality there are modal transportation terminals (land to the west and air to the northeast). Bus stops are located on the access avenue, in the squares, and on the sidewalks next to the facilities, i.e., at the nodal points of the project. And along all sidewalks and the pedestrian zone it was planned to place bicycle racks.

Intercity buses and vans for transporting patients have a specific stopping place, can use the terminal and access all the hospital and housing units.
Pedestrian
Bicycle
Transportation modals
Car
Mobility system
Gender and minority safety guided the layout of the main public spaces. Shops and the day/night busiest establishments were planned in strategic points (at the main corners and limits of the area) to ensure safety for all age and gender groups.

The definition of the openings at buildings, (doors and windows) in the architectural typologies have variations of uses in the faces pointing to the street on each lot. This solution provides a permanent view of the street at different times of the day and night.

The entire mobility system was conceived to guarantee diversified uses on sidewalks, pedestrian zone, and promenade in order to provide permanent movement and safety.

The permeability of the lots through diversified accesses and the absence of building’s distant backgrounds from the sidewalk alignment also create opportunities for safety and easy contact with the residents.
Safety rays of public facilities

Hospital buildings

Areas with greater pedestrian circulation

Sights provided by dwellings

Security system
CORTE AA - TRECHO PERFIL CALÇADÃO
ESCALA 1/200

PLANTA CHAVE PERFIS DAS VIAS
ESCALA 1/200

PERFIS DAS VIAS
ESCALA 1/200
**SUGESTÃO DE TIPOLOGIA ARBÓREA/VEGETAÇÃO**

- **NOS EIXOS VERDES:**
  - Árvores especialmente próximas, com copas altas e densas para sombreamento.

- **NOS CANTEROS DA AV. PRINCIPAL:**
  - Vegetação de clima quente e árido, como cactos e algumas palmeiras.

- **NA INFRAESTRUTURA VERDE DAS CALÇADAS:**
  - Árvores de pequeno e médio porte.

**SUGESTÃO DE FORRAGEM**

- **NA INFRAESTRUTURA VERDE DAS CALÇADAS E NA Praça:**
  - Grama

- **NOS CANTEROS DA AV. PRINCIPAL E NOS EIXOS VERDES:**
  - Piso resistente
DESIGN PROCESS
POST-COVID-19 CITY AND THE NEW PLANNING AGENDA

The project started in February/2020, before the first case of COVID-19 was reported in Brazil, but developed throughout the peak of the Brazilian pandemic crisis. This factor was paramount for the project definitions.

The pandemic highlighted serious problems of inequality such as the lack of sanitation, public transportation problems, lack of water, the collapse of the health service (public and private), and especially the innocuous structure of urban development based on the absence of public spaces, car dependency, opposition to environmental development, and social segregation.

Thus, the project was guided by solutions to these problems historically recognized and aggravated by the pandemic. It sought dialogue with the UN Sustainable Development Goals (SDG 2030) and the guidelines of the World Health Organization (WHO-UN).

The result was the constitution of a self-sufficient neighborhood, designed for pedestrians, with ample public spaces, valuing health aspects and with a diversity of uses. Enclaves, private condominium spaces, and monofunctionality were avoided.

This is a proposal that, through urban design, avoids health risks and offers opportunities for a healthy life by reducing pollution, promoting adequate living conditions and social and environmental integration.
The project appropriated the methodology of the PExURB Group, which guides urbanistic solutions from three approaches: from the place in which cultural and historical questions and the urban fabric are recognized; from the region, by understanding the different appropriations of infrastructure in the transformation of the site, the environment and the existing networks and systems; and from the social aspect, by valuing work relations through inclusion, politics and economic development.

Since it is the second project with the Pio XII Foundation, this experience used the critical formulations and research originated as it was first conducted in the city of Barretos-SP, especially at the scientific initiation level concerning specificities of different categories of hospital concentrations. And it was inserted from research on metropolization and urban dispersion in Brazil, developed with São Paulo State Research Support Foundation (FAPESP).

After the presentation of the first proposal, and facing the numerous changes required due to land tenure conflicts, the hospital program, and geological-geotechnical constraints, the team opted for the simultaneous development of two projects: one for the construction site (Implementation Project, presented above), whose innovations should be feasible even in the face of resource constraints; and the other for academic exploration (Scientific Project, below), whose solutions sought to push the conventional limits of urbanism. Both were elaborated simultaneously and complementarily, so that the solutions resulted in reciprocal influences.
SCIENTIFIC PROJECT

Urban fabric designed by the valorization of equipments and public areas
Small nuclei of five blocks with articulation of uses
Formation of mixed use corridors.
Implementation of public equipment: typological variations, integrated in the urban design and references in the landscape and mobility
Structure defined by three facilities of regional scope connectors of demands and opportunities
Integration with environmental factors: prevailing winds, natural rainwater path
Scales of green areas: green infrastructure, food production strips and permanent preservation area
INSTITUTIONS

The Hospital de Amor was created in the 1960s by the couple of doctors Paulo Prata and Scylla Duarte Prata, originally called Hospital São Judas. Currently, it has prevention units in the states of São Paulo (cities of Barretos, Campinas and Nova Andradina); Mato Grosso do Sul (Campo Grande); Bahia (Juazeiro); Sergipe (Lagarto); Roraima (Ji-Paraná); and Amapá (Macapá). There are also treatment units in the states of São Paulo (Barretos and Ja- les); and Roraima (Porto Velho).

The Research, Teaching and Extension Practices in Urbanism Group (PExURB) aims to build actions to transform the territory through interdisciplinary and multi-scale university practice guided by the architecture and urbanism knowledge area. The PExURB is based at the Instituto de Arquitetura e Urbanismo (IAU-USP), in the city of São Carlos, state of São Paulo and is networked with other public universities in the five macro-regions of the country through the Laboratory of Urbanistic Experiences (LEU). It is directly linked to the undergraduate and graduate courses in Architecture and Urbanism at the IAU-USP. Facing the need to create new paradigms for urban planning and projects within the context of productive restructuring, the group adopts the urban space as a territory for experimentation and the public university as the center of these formulations.

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Board of IAU-USP
Technicians and employees of IAU-USP

RESOURCES

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Person in charge: Architect and urban planner Jeferson C. Tavares
Leaders: Anna Laura Pereira Rossi e Ana Victoria Silva Gonçalves
Team:
2020-2021: Ana Elisa Pereira Chaves, Ana Victoria Silva Gonçalves, Anna Laura Pereira Rossi, Beatrice Volpato Teixeira,
Bárbara Vizioli Matos de Andrade, Beatriz Kopperschmidt de Oliveira, Caroline B. Scapol, Cynthia Daiane Diniz, Gabrielle Gomes Coelho, Giovanna de Vitro Chiachio, Izabella Carvalho Franco de Salles, Júlia C. S. V. C. Rosas, Luiza Paes de Barros Camara de Lucia Beltraminí, Marcelo Fenâncdez B. dos Santos, Maria B. S. Custodio, Maria Beatriz Gallucci Menossi, Mariana Bianco Gonzalez, Mariana Fernandes Minaré, Marília Gaspar de Souza Lima, Marina Bonesso Sabadini, Millena Cristny de Morais, Naiara Nunes Ribeiro, Natália Jacomino, Pedro Manfrinato Pavani Andrade; 2020: Andrea Michelle Cruz Mejia, Renan S. Gomez, Natália Mayumi Bernardino Tamanaka, Thiago Pizzo Scatena
Collaborators: Staff of Hospital de Amor, Public managers of Lagarto City Hall Lagarto-SE

Years of execution and conclusion:
2020-2021

REFERENCES

The New Centrality has a total area of 510,612.63 m². However, 48% of this area is destined for the airfield and the hospital complex. The percentage of roads, free/green/public areas and lots according to the total area (gross percentage) and the area excluding the airfield and the hospital complex (urban percentage), referring to the land use plan is presented below.

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>AREA</th>
<th>GROSS PERCENTAGE</th>
<th>URBAN PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital Complex</td>
<td>80,217.79 m²</td>
<td>15.7%</td>
<td>--</td>
</tr>
<tr>
<td>Aerodrome</td>
<td>166,722.08 m²</td>
<td>32.7%</td>
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</tr>
<tr>
<td>Green/Free Areas</td>
<td>34,677.90 m²</td>
<td>6.8%</td>
<td>14.65%</td>
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<tr>
<td>Institutional area</td>
<td>21,011.11 m²</td>
<td>4.1%</td>
<td>7.96%</td>
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<tr>
<td>Lots</td>
<td>46,928.97 m²</td>
<td>9.2%</td>
<td>17.80%</td>
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<tr>
<td>Roads</td>
<td>161,054.78 m²</td>
<td>31.5%</td>
<td>61.08%</td>
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<tr>
<td>TOTAL</td>
<td>510,612.63 m²</td>
<td>100%</td>
<td>--</td>
</tr>
</tbody>
</table>

### DATA SHEET

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>UNITY</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urbanization</td>
<td>m²</td>
<td>510,612.63</td>
</tr>
<tr>
<td>Planning (urban and expansion areas)</td>
<td>m²</td>
<td>53,908,507.64</td>
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<tr>
<td>Permeable area</td>
<td>m²</td>
<td>73,464.49</td>
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<td>Green infrastructure</td>
<td>m²</td>
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<td>Squares</td>
<td>m²</td>
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<td>Institutional set</td>
<td>m²</td>
<td>101,228.90</td>
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<td>Public services</td>
<td>m²</td>
<td>21,011.11</td>
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<td>Car lanes</td>
<td>m²</td>
<td>80,522.03</td>
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<td>Pedestrian paths</td>
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<td>Pedestrian zone</td>
<td>linear meter</td>
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<td>Sanitation infrastructure (water, sewage, drainage)</td>
<td>linear meter</td>
<td>9,413.74</td>
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<tr>
<td>Power and electrical infrastructure</td>
<td>linear meter</td>
<td>9,413.74</td>
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<tr>
<td>Road paving</td>
<td>m²</td>
<td>161,054.78</td>
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<tr>
<td>Commerce</td>
<td>m²</td>
<td>46,928.98</td>
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<tr>
<td>Housing</td>
<td>residents</td>
<td>5,187</td>
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<tr>
<td>Direct Beneficiaries</td>
<td>users</td>
<td>9,676</td>
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<tr>
<td>Indirectly Beneficiaries</td>
<td>Residents of the surroundings</td>
<td>20,000</td>
</tr>
</tbody>
</table>