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Public equipment at Residencial Cachoeirinha in Botucatu SP

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SUMMARY

Regarding the existing housing deficit in Brazil, the public authorities have opted to build housing complexes on the outskirts of cities, where the supply of public equipment is already precarious for residents, to the detriment of installing housing in central areas with already consolidated infrastructure. This study will not seek to discover the cause or reasons for this choice, but rather, given this fact, how this situation could be better planned by the public authorities, causing less impact on the new inhabitants. Public facilities, such as schools, health centers, access to urban transport, are essential for improving the population's quality of life, regardless where they live. They guarantee a feeling of belonging to the city life, thus largely avoiding isolation from other residents. This study analyzes the construction of the Cachoeirinha Residential Complex in the Botucatu city in São Paulo State, relating it to the existing public equipment on site, before and after its installation, using, in addition to a bibliographical analysis on the subject, the coverage radius methodology of basic education, health and leisure services, seeking to identify whether or not they meet the criteria for locating these equipment. As a result, deficiencies were revealed in relation to some equipment, suggesting the need for more effective planning and a more appropriate resources allocation to remedy such weaknesses.

KEYWORDS: Public equipment, urban and regional planning, public policies

1. INTRODUCTION

Even after numerous housing programs conducted by governments, at all administrative spheres, Brazil's housing deficit remains high, estimated at more than 5.8 million units (FUNDAÇÃO JOÃO PINHEIRO, 2021), aggravated both by economic issues that have not yet been overcome and by the culture of home ownership, also influenced by the real estate market, which has a strong capitalist bias.

The large social housing complexes built, were generally installed on the outskirts of cities or even far from the occupied edge of the municipalities, where land is cheaper. By the laws of the market, land values increase after government intervention, and generate income for a small group and depriving the majority of the population of access to the benefits of a central location (MARICATO, 2002). In these provided deployments, the supply of public facilities and services is already precarious and the distance from the consolidated centers gets greater and greater. This research does not aim to investigate the underlying reasons for this preference, but, instead, focuses on how this situation can be better planned, with an emphasis on the appropriate installation of public facilities to improve the quality of life of the residents in these areas.

The Federal Constitution, through amendment no. 26 of 2000, recognizes housing as a social right (BRASIL, 2000). However, it is pertinent to broaden this approach and maintain that citizens not only hold the right to housing, but also the right to live in it, to experience the city and enjoy its spaces, with the purpose of achieving a healthy quality of life, regardless of the geolocation of their residence.

The implementation of residential clusters in peripheral regions of urban areas it is a consolidated phenomenon, significantly influenced by the power of the real estate market and the presence of limited-scope housing policies. However, to prevent these “new neighborhoods” from seeming isolated from the rest of the city, a comprehensive urban planning is essential (ROMANINI, 2010). This planning must include the public infrastructure

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provision capable of meeting the needs of the new resident population. As mentioned by Cunha et al. (2021, p. 8), “through these elements, it is feasible to promote higher quality urban environments and a satisfactory distribution of spaces”.

The speed with which public authorities effectively implement these infrastructures will play a fundamental role in improving the quality of life of the local population. It is through these initiatives that the families can develop a sense of belonging to the place and feel integrated into city life.

2 OBJECTIVE AND JUSTIFICATION

The purpose of this study is to analyze the implementation of Residencial Cachoeirinha complex I, II, III and IV in the city of Botucatu (São Paulo), focusing specifically on the relationship with the urban facilities located around it. The study comprises two distinct stages: i) firstly, the situation prior to the installation of the housing complex was examined, assessing the suitability of existing urban facilities for the local community and ii) later, a post implementation analysis was conducted, investigating whether these same facilities continued to meet the needs of the new resident population or whether deficiencies have arisen in meeting the region’s demands.

The Public facilities play a vital role in enriching urban life, contributing significantly to improving the quality of life of the inhabitants, especially those residing in economically disadvantaged areas (ROMANINI, 2010). These urban infrastructures play a crucial role in creating more pleasant and efficient urban environments (CUNHA et al., 2021). Therefore, it is essential that these facilities are distributed strategically throughout the city, with an emphasis on proximity to residential areas. Analyzing the quantity and location of these facilities is extremely important, as it makes it possible to assess whether they are adequately dimensioned and distributed to meet the needs of the population, identifying possible deficiencies and subsequent improvements to its offer.

3 MATERIALS AND METHODS

The methodology of this work can be divided into three axes: i) bibliographic review, ii) analysis of the radius of coverage in the surroundings and iii) analysis of results.

The bibliographic review plays an essential role in academic research providing a solid basis for the comprehension of a topic of study and for identifying gaps in existing knowledge, involving a careful selection of relevant bibliographic sources and their critical analysis.

This article analyzed the topics of the right to housing (MARICATO, 2002; PASQUOTTO; SALCEDO, 2023), urban planning and density (SANTOS, 1988; ACIOLY; DAVIDSON, 2011) and urban facilities (CAMPOS FILHO, 2012; CUNHA, 2020), coverage radius (SUTTI, 2022; CASTELLO, 2013; PRINZ, 1986; PITTS, 2004).

For the evaluation of the proposed location for the development called Residencial Cachoeirinha, a radius of coverage analysis was used, focusing on assessing the geographical extent that the project can influence in terms of access to services and urban mobility. It involves

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considering the distance and he potential reach from the project site to areas of relevance, such as schools, hospitals, leisure areas, public transport and other urban facilities. Such analysis is crucial to determine the suitability and residents' accessibility to essential infrastructure and services.

Not only the existence of urban facilities is important, but also their distribution near the housing complexes. For an adequate distribution, the radius of coverage of each facility are taken into account.

> The radius of coverage is the area in which an urban facility must serve the population, community recreational facilities, leisure, sports, education, culture and health play a very important role for the community and the urban fabric by providing suitable locations, in relation to each theme (CUNHA *et al*., 2021).

The coverage radii are defined by the frequency of use of the facilities, and can be classified as daily use, lower demand or sporadic use (CAMPOS FILHO, 2012). For the residents, every day or frequently used facilities must be easily accessible.

Without a current Brazilian standard on the subject, the NBR 9284/1986, was cancelled and no other rule took its place, an attempt was made to define an appropriate distance for each type of facility. Other authors were consulted who established radii of coverage for each type of public facility. Campos Filho (2012) mentions a 500m walk to a bus stop and 800m as comfortable for other facilities. Table 1, the distances recommended by Castello (2013), Prinz (1986) e Pitts (2004) are shown. Due to the variation in distance values indicated by the authors, it was decided to calculate an average of the values presented, adopted as a reference in this study.

Table 1 – *Coverage radii of public urban facilities.*

	CASTELLO (2013)	PRINZ (1986)	PITTS (2004)	ADOPTED VALUE (average)
Nursery	400m	600m	300m	**440m**
Kindergarten/Elementary School	400m	600m	500m	**500m**
High School	800m	1000m	-	**900m**
Technical Schools	1600m		-	**1600m**
Health Center	800m	600m	1000m	**800m**
Hospital	1600m			**1600m**
Green Areas/Squares	800m	400m	600m	**600m**
Cultural Facilities	-	1000m	2500m	**1750m**
Bus Stops	-	600m	500m	**550m**

Source: Prepared by the authors (2023)

Thus, the radiuses were applied to a cartographic base (Google Earth Pro satellite images) in order to verify whether the housing complex is served by the following facilities or if there is a need to implement other buildings to tackle the deficiency. The list of public facilities in the region was obtained after consulting the official pages of the municipal departments of Education, Culture, Green Areas and Health of the City Hall of Botucatu. After designing the maps that incorporated the public facilities and delimited the areas of geographical scope, a

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time evaluation was carried out to examine the effectiveness of these facilities both before and after the housing complex was implemented.

It should be noted that the values shown in the radii of coverage are acceptable distances for locating public facilities. For Sutti (2022) the presence of these facilities is an extremely important factor in the location of housing. When the distances exceed the values shown in the table, it becomes evident that there is a deficiency in service provision and community support.

It is worth remembering that only the criterion of the coverage radius of the public facilities was used, not taking into account the population density of the region. Although this ratio is an important support tool for urban planners when making decisions about urban facilities (ACIOLY; DAVIDSON, 2011), it was not addressed in this study.

4 RIGHT TO THE CITY: HOUSING AND PUBLIC FACILITIES

4.1 Right to the city and housing

Recognizing the right to housing is vital importance to safeguard the intrinsic dignity of the human person. Notwithstanding its nature as an independent and autonomous right, its substantial lack prevents the full exercise of other fundamental rights, such as the right to health, education, employment and leisure. (PASQUOTTO; SALCEDO, 2023).

For decades, governments at all administrative levels have implemented social programs aimed at social housing in an attempt to reduce the housing deficit which, after all this work and time passed, still remains in the thousands of units.

It was only in Constitutional Amendment no. 26 of 2000 that housing appeared as a social right, as well as in the Constitutional Amendments of 2010, 2015 and 2021 (PASQUOTTO; SALCEDO, 2023).

The right to housing also implies the “right to the city”, an expression initially conceived by Henri Lefebvre in the late 1960s (TRINDADE, 2012), in other words, to be able to use all the municipality's spaces, regardless of their social class, their income, or where they live. This right can only be achieved through social struggles, since the city follows a “capitalist logic” where the real estate market appropriates the city, turning it into a commodity to generate wealth for a small group of people. The logic is based not on the use of the city as a benefit for a better life for the population, but as an object of exchange and income generation. This market logic means that, after the implementation of housing units, the adjacent areas gain more value because of the infrastructure that the public authorities are required to implement to accommodate the new residents.

The most rational option would be the occupation of vacant properties in central areas of large and medium-sized cities, but for that, it would require funding lines and more restrictive legislation regarding the ownership of these buildings (MARICATO, 2002), but it's not always the public authorities' priority. Maricato (2002) argues that the working classes have the right to occupy, but this does not necessarily imply the right to the city. The majority of Brazil's population lives in cities and 70% of this urbanized population is very poor (SANTOS, 1988). This

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most disadvantaged class occupies the most degraded areas, peripheral spaces of the city, far from public leisure facilities, culture “the services and opportunities offered by the good locations in the urban system” (TRINDADE, 2012, p. 249). The installation of new housing units in more distant areas, lacking the minimum services and facilities needed, leads to significant difficulties for future residents, causing greater wear and tear in the process of adapting to the new location. This problem take place from the development model implemented in the country since 1930, 'central-developmentalist' (BONDUKI, 2000). From this period onwards, the rural population migrated to the cities, aggravating not only the housing issue, but almost all social issues. For Bonduki (2000), the problems have still not been resolved, mostly due to the unpreparedness of the governing authorities, who are heavily influenced by economic power, prioritizing financing for higher-income individuals to the detriment of those with lower incomes. Public policies aimed at social housing lack attention to the quality of the architectural project of the residences. They often neglect the relationship between the housing complex and its surroundings, resulting in the establishment of developments in urban peripheries. In addition, the environmental dimension is rarely taken into account, and decisions are often made without proper popular participation, as pointed out by Bonduki (2000).

The case study presented in this article was developed within the Minha Casa Minha Vida program. This is a housing program conceived by the federal government, created in 2009, which offers subsidies and interest rates below market value to facilitate the acquisition of affordable housing in urban or rural areas, for people selected on the basis of social and income criteria. The program is divided into bands based on the income of the beneficiaries (up to R$ 7,000.00 per month for urban areas). For properties in the urban area in Band 1, as in the present study, it benefited individuals with a gross monthly household income of up to R$ 1,800.00. (DIREITO BRASIL, 2018).

4.2 Urban Facilities

An aggravating factor regarding the location of new housing units on the outskirts of cities is the scarcity of installed public services and facilities. The outskirts of most cities already suffer from this problem: lack of nearby schools and nurseries, distant health centers, unpaved streets, precarious constructions, a lack of cultural and entertainment facilities, long distances to consolidated centers, among others. But it is not possible to ensure that each and every installed housing unit in peripheral areas is relegated to isolation. More immediate and agile action by the public authorities could minimize the problem.

According to Braga (2004) the right to the city is much more than the right to housing, it is the right to a dignified life with all that a city can offer. Living in the city means having access to a whole network of services that provide well-being for the individual. Beyond the basics (water supply, sewage and waste collection, and electricity), it's having easy access to a health center, a nursery school, a quality school, squares, green areas and public transport nearby. Even if they go unnoticed, such activities "are as determinant in the structure of cities as the road system or land use” (SANTOS, 1988, p. 135). These facilities are the responsibility of the public authorities, are defined as “all public and private assets, of public utility, intended for the

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provision of services necessary for the functioning of the city, implanted with the authorization of the public authorities, in public and private spaces" (ABNT, 1986, p. 1). Housing is not suitable if it is isolated from job opportunities, health services, schools, nurseries, and other social facilities or is located in polluted or dangerous areas (UNESCO, 2013).

If housing is the individual's refuge, a place of protection and privacy, socialization occurs within public facilities. In these places you can get assistance with your medical needs, where you can have contact with other individuals, exchange experiences and gain knowledge. It is in these spaces that the most disadvantaged population, principally, can develop their quality of life. It can be said that "what defines a city is not the number of people who live there, but what they do and how they do it." (CUNHA *et al.,* 2021, p. 2).

The public authorities are primarily responsible for the installation of these facilities, either directly or as a safeguard against the approval of new subdivisions by the private sector. In fact, this service is included in the Master Plans of many cities:

> Article 5: Urban property shall meet its social function and fulfill the fundamental requirements of the municipality, ensuring that citizens' needs are met in terms of quality of life, social justice, the qualification of the urban space and the development of economic activities, through the following requirements:
>
> I - Compatibility of the use of the property with the infrastructure, transport, public facilities and services available;
>
> Article 9: The structuring of the municipal territory involves setting objectives and differentiated strategies for each region of the Municipality, according to its physical characteristics, environmental conditions and installed infrastructure, and aims to:
>
> [...]
>
> VII - Control the horizontal expansion of the urban area, only allowing the opening of new allotments provided that all the needs for the expansion of urban infrastructure and public facilities are diagnosed and addressed, taking into account environmental and economic aspects;
>
> Article 22°: The municipal zoning and urban structuring policy aims to:
>
> [...]
>
> II - Encourage better spatial distribution of the population and economic activities in a way that is compatible with the environment, the urban services, infrastructure and facilities (BOTUCATU, 2017, *online*).

As you can see, public facilities are guaranteed by law, but they are not always applied satisfactorily. But you can't just quantify them in a matter of numbers. The quantity of these services must be proportional to the size of the region's population. In other words, "The growth of urban facilities must be proportional to the population growth, so that they allow for dignified and equal living conditions" (CUNHA *et al.,* 2021, p. 4). When the quantity of public facilities is poorly distributed, greater inequality is observed in the various regions of a municipality:

> When evaluating the disproportion of facilities designated for public services in different areas of the municipality and stating that improving their efficiency

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for the population (in the areas of education, for example, moving children and teenagers to nearby schools shows that the risks of accidents are lower, the income of these people increases; in health, for an elderly person accessing a nearby health center makes it more feasible, as the slope of the roads can be a challenge, because the slope of the road will affect, in some cities the sidewalks are uneven; another point is the squares, there are studies that show that they reduce crime) is feasible in order to provide a better quality of life (MELO, 2019).

Two categories of public facilities can be distinguished: those aimed at the neighborhood (which would not require long commutes, with easy access, and focus on the local area – that includes, multiple facilities of the same type spread throughout the city) and those covering the whole city (unique, large-scale structures, and located independently of residential areas) (SANTOS, 1988).

5. SCOPE OF THE STUDY

This study is based on the Residencial Cachoeirinha I, II, III and IV, built in the city of Botucatu between 2018 and 2021. The housing complex is part of the Minha Casa Minha Vida program, as part of Track 1 financing, and consists of apartment blocks with two or three floors, each unit measuring 55m². Residencial Cachoeirinha I has 248 units; Residencial Cachoeirinha II, 254 units; Residencial Cachoeirinha III, 252 units; and Residencial Cachoeirinha IV, 238 units; totaling 992 units. It is located on the eastern outskirts of the city, on land provided by the City Council, within the Mixed Zone established by the city's zoning regulations (BOTUCATU, 2022), a zone which allows not only residences, but also commerce and services. On one side, it's next to housing units that have been established for at least twenty years (Jardim Ciranda, Cohab II, Jardim Brasil, Residencial Arlindo Durante), and on the other, it's next to a protected area on the edge of the Cuesta[1]. To the rear, it borders private farms and the research area of Unesp's School of Agronomic Sciences – Fazenda Lageado.

At the time of its establishment, the connection between the Residential Complex and the consolidated city center was made through only a two-way avenue - 3.00 km away from the city center (Emílio Peduti Square). The public services available served the population of the existing centers.

6. ANALYSIS OF PUBLIC FACILITIES AROUND THE HOUSING COMPLEX

Initially, the existence of public facilities installed before the construction of the housing complex, which already served the population of the region, will be discussed (Figure 1):

[1] Geological formation with distinct slopes: smooth on one side and an abrupt drop on the other, with height differences of up to 600 meters.

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Figure 1- Location of the facilities before the implementation of the housing complex.

Area of the future housing complex
1- Jardim Cristina Polyclinic
2- Soccer field
3- Soccer field
4- EMEF Paulo Guimarães
5- USF Jardim Peabiru
6- Berçário Criança Feliz Nursery
7- Skate Park
8- EE Armando Sales de Oliveira
9- CEI Arlete Villas Boas Armelin
10- Jardim Paraíso Municipal Park
11- Botumirim Square
12- Marina Passos Square
13- CEI Aida Heloísa Ávila

A- access to Fazenda Lageado (2,5km) – Vitoriana (11km)
B- access to the downtown (3,1km)
C- access to the Municipal Gymnasium (2,1km)

Railway line
Ribeirão Lavapés and tributaries
Bus stops nearby

Source: Prepared by the authors (2023). Base map: *Google Earth* (2017).

When the radii of coverage are applied to existing facilities, it can be seen that:

1- there is a reasonable coverage of nursery/kindergarten schools in the region (Figure 2), even though the radius of coverage does not reach all the neighborhood boundaries. As for elementary schools (Figure 3), only one facility is installed in the region. For high schools (Figure 4), only one facility is identified, serving a large territorial area near the Residencial Cachoeirinha complex.

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Figure 2 - Coverage: nursery/kindergarten education

Figure 3 - Coverage: elementary education

Figure 4 - Coverage: high schools.

Source: Prepared by the authors (2023). Base map: *Google Earth* (2017).

2 - Figure 5 shows a polyclinic and a Unidade de Saúde da Família in the region. The polyclinic serves a large area, and its coverage would cover the region of the future housing complex. Regarding green and leisure areas (Figure 6), there are two small squares and a skate park that serve the local population. There is also a municipal park, further away, but with no direct access due to the Ribeirão Lavapés valley. In addition, there are two soccer fields, one smaller, next to the housing complex, and another, of official size, further away. With regard to urban bus stops (Figure 7), the region is well served by this system.

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Figure 5 - Coverage: health center

Figure 6- Coverage: parks and green areas

Figure 7 - Coverage: bus stops

Source: Prepared by the authors (2023). Base map: *Google Earth* (2017).

Following the proposal of the work, the next section analyzes the existing public facilities or those that were installed shortly after the establishment of Residencial Cachoeirinha complex in 2019 (Figure 8):

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Figure 8- location of the facilities after the establishment of the Residencial Cachoeirinha Complex.

Housing complex area
1- Jardim Cristina Polyclinic
2- Soccer field
3- Soccer field
4- EMEF Paulo Guimarães
5- USF Jardim Peabiru
6- Berçário Criança Feliz Nursery
7- Skate Park
8- EE Armando Sales de Oliveira
9- CEI Arlete Villas Boas Armelin
10- Jardim Paraíso Municipal Park
11- Botumirim Square
12- Marina Passos Square
13- CEI Aida Heloísa Ávila
14- New MRV Housing Complex
15- Future gas station (under construction)
16- Future health center (under construction)
17- Pastor Walter Benedito Calixto Square
18- EMEFI Prof. Mozart Morais

A- access to Fazenda Lageado (2.5km) - Vitoriana (11km)
B- access to the downtown (3,1km)
C- access to the Municipal Gymnasium (2,1km)
D- access to Vila dos Lavradores (1.5km) - UNESP Rubião Jr. (8km)

Railway line
Ribeirão Lavapés and tributaries
Bus stops nearby
Josey de Lara Carvalho Viaduct
Conde de Serra Negra Avenue - duplicated
Braz de Assis Nogueira Avenue

Source: Prepared by the authors (2023). Base map: *Google Earth* (2023).

Once again, by applying the radii of coverage, the location of new and planned public facilities in the region will be verified:

1- There was no change in the number of nursery/kindergarten schools installed (Figure 9), but a new elementary school was inaugurated (in February 2022) next to the housing complex (Figure 10). There was also no change with regard to high schools (Figure 11).

Figure 9- Coverage: nursery/kindergarten education

Figure 10- Coverage: elementary education

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Figura 11- Coverage: high schools.

Source: Prepared by the authors (2023). Base map: *Google Earth* (2022)

2 - In Figure 12, a new health center has been added (under construction at the time of this study). Regarding green and leisure areas (Figure 13), there are now three small squares (the most recent one established at the end of 2022), in addition to the renovated skate park (in 2023). The access to the municipal park has been facilitated by the construction of a new viaduct and avenue (in August 2019). In addition, there are two renovated soccer fields with an outdoor gym. In relation to urban bus stops (Figure 14), a new stop has been installed in front of the residential complex.

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Figure 12 - Coverage: health center

Figure 13: Coverage: parks and green areas

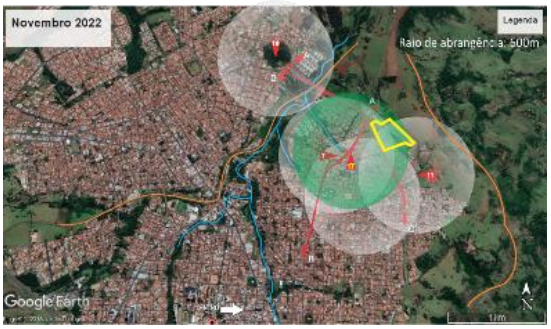

Figure 14: Coverage: bus stops

Source: Prepared by the authors (2023). Base map: *Google Earth* (2022).

Complementing the information on public facilities after or concurrently with the installation of Residencial Cachoeirinha complex, a new viaduct was built to provide access to Jardim Paraíso/Vila dos Lavradores and Municipal Park, as well as the connecting avenue. Additionally, the Conde de Serra Negra Avenue (beginning of 2023), providing access to the city center, has also been duplicated. An open-air market is now open once a week in front of the complex.

With regard to general-use facilities in the city, we've listed their distances from Residencial Cachoeirinha complex:

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Table 2 – Distance between public facilities for common use.

DISTANCE BETWEEN PUBLIC FACILITIES FOR COMMON USE IN RELATION TO THE CITY CENTER AND THE RESIDENCIAL CACHOEIRINHA			
	Distance from the center	**Distance from the Residencial Cachoeirinha Complex**	**Ideal**
Escola Industrial	0m	2,8km	1600m
FATEC	6,5km	9,2km	1600m
UNESP – Rubião Júnior	6,5km	9,5km	1600m
UNESP – Lageado	6,2km	2,5km	1600m
Hospital do Bairro [1]	2,0km	3,0km	1600m
Hospital das Clínicas/Medical School of Botucatu	6,5km	9,5km	1600m
Adult Emergency Room	2,4km	5,2km	*
Children's emergency room [2]	6,5km	9,5km	*
Historic Center	0m	3,1km	1750m
Pinacoteca	0m	3,1km	1750m
Municipal Theater	0m	3,1km	1750m
Cinema (Botucatu Shopping Mall)	4,0km	7,2km	*
Rua Amando de Barros (Centro) [3]	0m	3,1km	*
Rua Major Matheus (Vila dos Lavradores) [3]	2,0km	3,3km	*

* facilities not mentioned by the authors.

1- under renovation at the time of the study;

2- provisionally transferred to Rubião Júnior. It operates next to the Hospital do Bairro, which is under renovation;

3- consolidated commercial streets.

Source: Prepared by the authors (2023).

7 RESULTS

Before the establishment of the Residencial Cachoeirinha complex, it is evident that the region was well-served in terms of public health facilities and public transportation. There was reasonable coverage in the distribution of nursery and high schools, but a deficiency in elementary schools. The squares served the population of the region within their coverage radius. Access to the city center was via a single-lane avenue.

After the implementation of the housing complex, there will be an improvement in medical services with the completion of the construction of the new health center. Regarding public transportation, a new stop was established in front of the housing complex, along with new shelters at the bus stops on Conde de Serra Negra Avenue. In the area of education, the provision of nursery services became deficient, but elementary education improved with the establishment of a new school. In high school, with the increase in the region's population, the only existing school could become overloaded. In the leisure area, the area became better served due to the new access to the Municipal Park via an overpass. A new park was established along Conde de Serra Negra Avenue, which was recently doubled in size (2023), providing more comfortable access to the city center. The nearby soccer fields and skate park have been refurbished, the installation of outdoor gyms, and the operation of a weekly open-air market.

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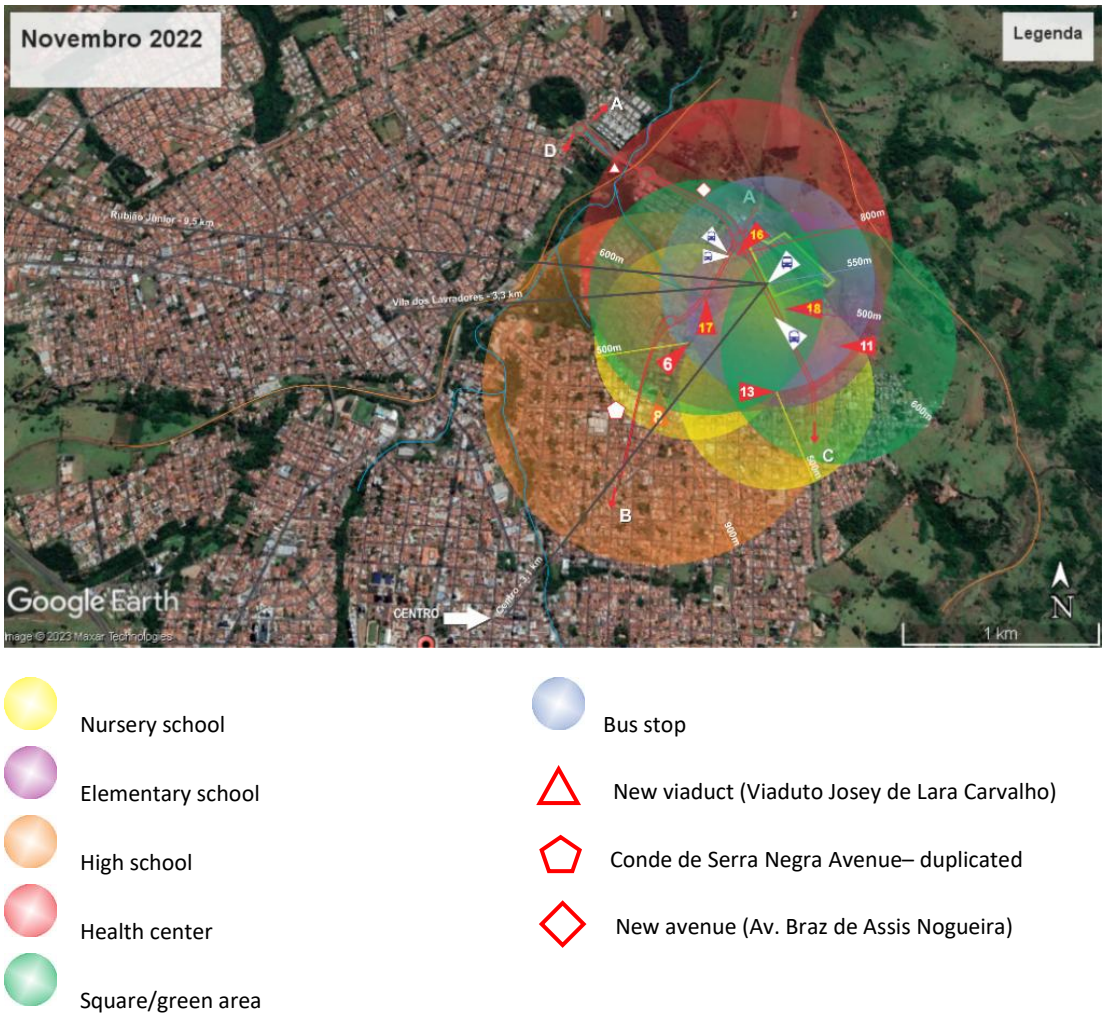
With regard to public facilities in common use in the city, an increase in distances in relation to the Residencial Cachoeirinha complex is observed. Even so, easy access to public transport can minimize this issue. The road to the Hospital do Bairro (Vila dos Lavradores, Hospital das Clínicas (Rubião Júnior) has been made easier by the construction of the viaduct and avenue. The biggest deficiency is in cultural facilities, which are basically concentrated in the city center (Figure 15).

Figure 15- nearest facilities



Source: Prepared by the authors (2023). Base map: *Google Earth* (2022).

There is evidence of a certain level of planning for the installation of the Residencial Cachoeirinha complex in this part of the city, not only due to the improvements made, but also because of the viaduct that was built before the complex. For Romanini (2010), urban planning should be regarded as indispensable. But it is also clear that this planning must always be reviewed so that deficiencies can be resolved as quickly as possible so that the population is not harmed. In this sense, it is also worth the support of the public authorities to facilitate the

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establishment of new services and businesses by the private sector, facilitating the population's access to neighborhood services.

8 FINAL CONSIDERATIONS

This study focused on the analysis of essential public facilities during the implementation of housing complexes in the outskirts of urban areas. It is noteworthy that the creation of new residential centers on the outskirts of cities entails a series of complex issues. The initial difficulties are significant, both for the residents, who face adaptation challenges, and for the municipal authorities, who need to allocate substantial resources to supply these new communities with the necessary infrastructure. It is imperative to establish a minimum standard of urban quality for these new developments (CAMPOS FILHO, 2012), in order to promote the full integration of the entire population into city life.

Firstly, the public authorities should create conditions for new housing to be established in areas with already consolidated infrastructure, with strict legislation and incentives for private sector involvement. Once these options are exhausted, the construction of housing complexes on the outskirts should result from comprehensive planning, aligned with the city's growth strategy, analyzing the current situation of the chosen location, its deficiencies and needs, the costs to address these issues, and the characteristics of the new population. Not only should areas be reserved for the construction of new public facilities, but financial resources must also be secured to ensure the simultaneous implementation of housing and these facilities, guaranteeing that essential services are available from the start. At a later stage, it would be interesting to carry out a post-occupation survey, guaranteeing subsidies for the installation of new developments as well as identifying new demands arising from situations outside the initial planning.

In this context, it is relevant to recall Santos' (1988) assertion that no human activity, whether of a historical or mythical nature, is unrelated to a real or imaginary space that serves as its setting. This perception emphasizes the fundamental importance of urban spaces in the lives of communities and the need for careful planning and attention to ensure that these spaces meet the needs and aspirations of the population.

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