Rio 2016: reframing the legacy
towards an inclusive city

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Lastly, thanks to my partner Bruno Paulo and my family, for their immeasurable support throughout many years, which lead the way to this thesis in many ways.

Thank you.

"It is good to have an end to journey toward, but it is the journey that matters in the end."

(Ursula K. Le Guin)

"[...] it is the responsibility of architects and urbanists to offer their knowledge and creativity so that the men and women who inhabit this troubled and contradictory world have their daily share of harmony and happiness."

(Segre, 2005)

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Preface

The process of globalization of the economy created the idea of a global urban hierarchy. Within this context, the Olympic Games and its legacy started to be seen as a tool for cities to attract large scale investment and be projected in this global economic perspective.

In the case of the 2016 Olympic Games held in Rio de Janeiro, massive dislocation of people and substantial public investments in exclusive areas left behind a legacy of empty venues, gentrification, and real estate speculation, further contributing to increasing the already existing social-spatial inequality within the city.

This project proposes building upon this legacy of the Olympics to create more inclusive planning for the city of Rio de Janeiro, reintegrating segregated areas into the city and designing strategies for better use of Olympic venues. It focuses on the possibilities of acting on the legacies left behind once the Games are over in order to revert the negative social and spatial impacts of hosting such a mega-event and put them in the agenda of future urban plans.

Born and raised in Brazil, a country where signs of inequality of opportunities and poverty are always present in the surroundings, I was constantly confronted with the reality of the consequences that lack of planning and governance have on the population.

The most vulnerable classes are not welcomed in the places conforming to the formal city, and policies and decisions were always made in favor of the most influential ones. This situation led to a way of governing that acts differently depending on whom it affects.

Therefore, my motivation to become an urbanist was always to try to find ways to create an equal society. Either by encouraging policy changes, giving strength to bottom-up approaches, or finding design solutions that could bridge the existing social gap in many communities.

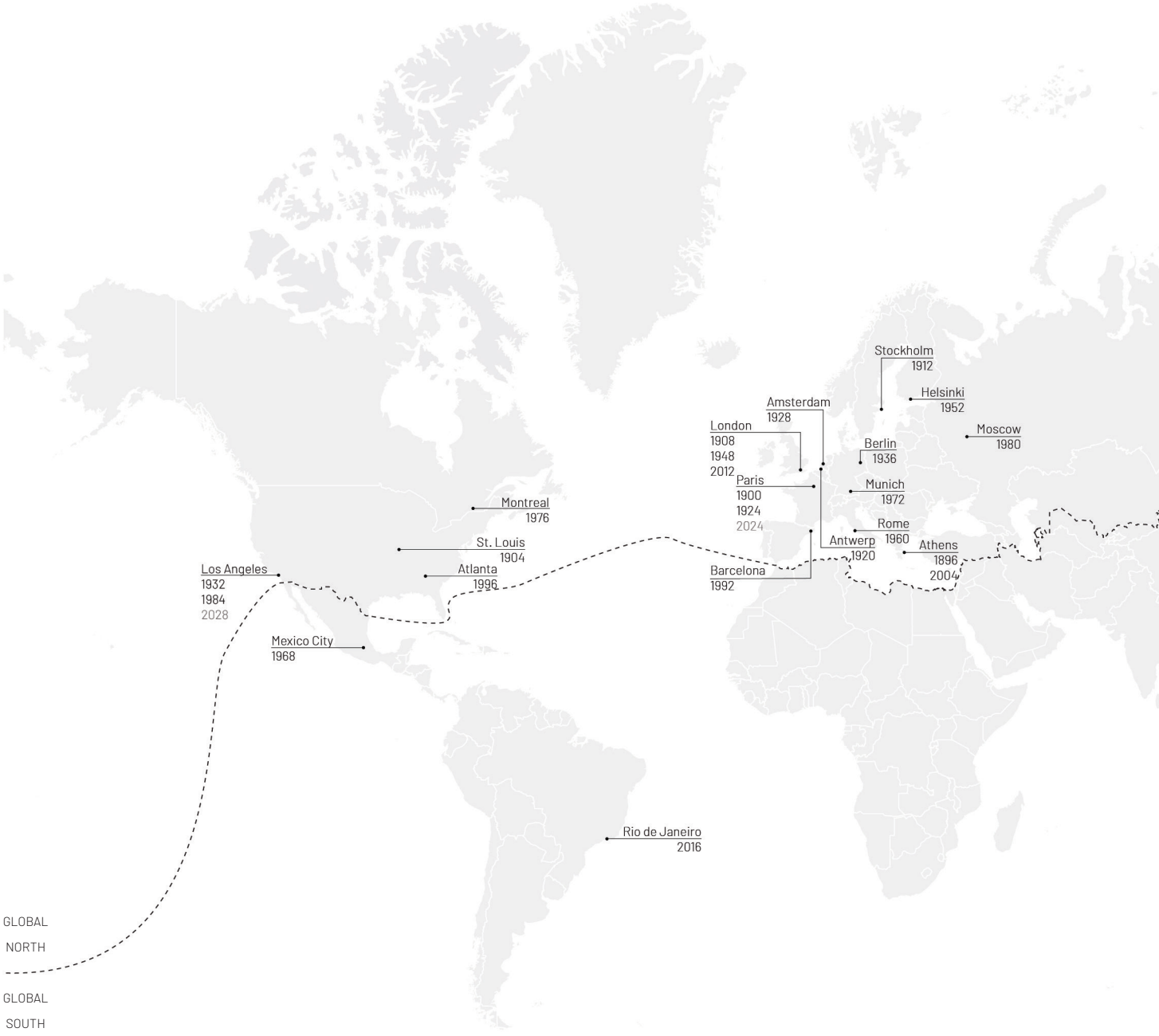
"While early pillars of social justice have been destroyed, many memories which constitute Brazil are being undone, burned down. By highlighting the risks, reactions ask us about possible paths for the collectivity. How can different ways of life coexist in cities? Where can we find repercussion for our words and actions not just as architects, but as people able to advance different ways of being in the world, as agents of our humanity?"

(Kozlowski, Meneguetti, & Altberg, 2019, p.3)

PART 1

Prologue

Global influences and local realities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Atlanta
1996
Barcelona
1992
Los Angeles
1932
1984
2028
Mexico City
1968
Rio de Janeiro
2016
GLOBAL
NORTH
GLOBAL
SOUTH

1 – The Olympic Games

1.1 – **Olympic legacy and global cities**

The ancient Olympic Games started in Greece about 3.000 years ago and happened every four years in the city of Olympia, hence the name and the four years gap between every edition. The modern Olympic Games are a project of Pierre de Coubertin, who in in 1894 founded the International Olympic Committee (IOC) in Paris to revive the ancient Olympic Games (IOC, 2013a; IOC 2013b). The first edition of the modern Olympic Games happened in 1896 and was the beginning of the history of the Games as we know today.

Throughout history, the modern Games have been through many changes and had different meanings under the political, economical and social aspects of the development of cities (Ovink & Rijksoverheid Government of the Netherlands., 2012). A closer look at the history of the Games show different cycles of paradigm changes in its meaning, from the association with Universal Expositions until the recent mega event structure (see "the Emergence of the Legacy Concept", p. 44-46).

The most recent cycle started from the 2000s onwards, when the focus of the Olympic Games has shifted from using sportive competition to celebrate peace among nations, to be a celebration of competition between global cities (Bottura, 2014). This shift is a direct effect of changes in the global economic context, where the drivers of the new system transferred from nations to cities (Khanna, 2010). Therefore, cities' leaders are often seeking for strategies to place their cities in a good position as a driver of economic development.

The Olympic Games are nowadays seen as one of these strategies due to the global attraction and international investments embedded in hosting such an event. The urban improvements triggered by the intention of creating a legacy are the means of accelerating the construction of all the infrastructure necessary for a city to become a global city (Preuss, 2015). And despite the fact that legacy is not fully defined neither by the Olympic committee nor literature, it is constantly used by bidding and hosting cities as a promoting mechanism.

Although mostly perceived as positive, research has already shown that the Olympic legacy can also be negative (see Gratton and Preuss, 2008). This entailed on cities adding post-event legacy plans on their bidding proposals as a leverage strategy as the Olympic Committee started to emphasize the importance of creating a positive legacy in order to diminish the growing anti-Olympic spirit. However, the specifications in bidding proposals are shallow and usually not followed through due to the lack of accountability after the event is over (Cashman, 2003). Thus, positive planned legacies run the risk of becoming unplanned incomplete legacies. This scenario is the current reality of the city of Rio de Janeiro, the last host city (Olympic Games of 2016). Rio's Olympic legacy plans were not followed through, and the city is currently facing uncertainty about the future of the facilities created for the Games.

FIG. 1.1 World map with editions of the Summer Olympic Games and Global South/North division
Source: author, based on World Borders Dataset, olympics.org

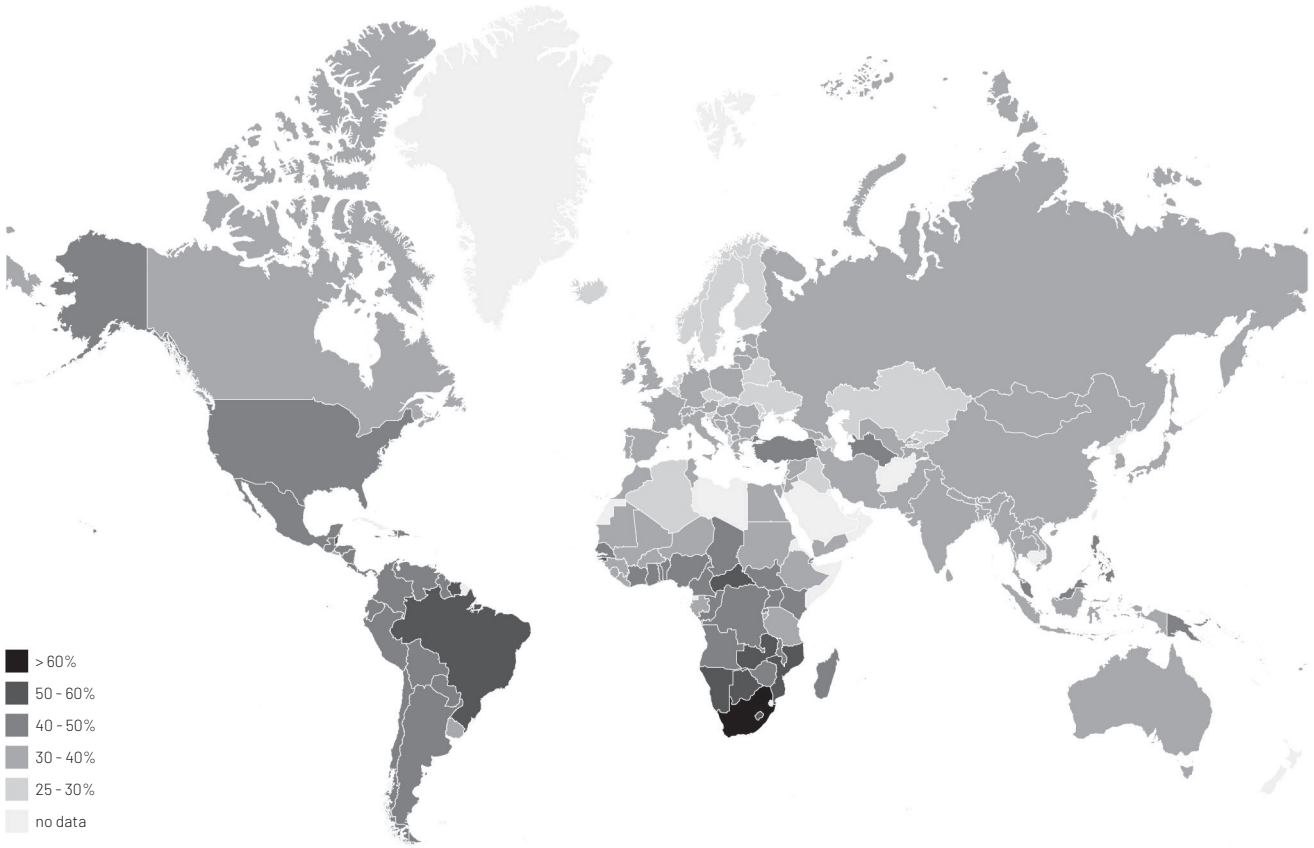


FIG. 1.2 World GINI index (economic inequality)
Source: author, based on The World Bank

FIG. 1.3 Location maps, from national to city scale
Source: author, based on DataRio, World Borders Dataset

2 – Rio de Janeiro

2.1 – **The city**

Rio de Janeiro is the capital city of the namesake State in the Southeast Region of Brazil. It was also the capital of the country from 1763 to 1960, when it got transferred to a recently built Brasília. Today, with an area of more than 1.200.000 km^2 and a population of more than 6 billion inhabitants (IBGE, 2017), it is part of the megaregion Rio-São Paulo, which makes it the second-largest metropolis of Brazil (after São Paulo).

Rio de Janeiro is one of the most important cities in Brazil and the leading leisure destination of the country (Ministério do Turismo, 2019), which makes it the most well-known Brazilian city abroad, becoming the "image of Brazil". However, most of the images that go around the world come from only a small fragment of the city (the city center and the South Zone), highlighting the existing center-periphery dichotomy.

FIG. 2.1 Diagrammatic map showing the center-periphery dichotomy in the city of Rio de Janeiro and the emergence of Barra da Tijuca as a second center
Source: author, based on DataRio

Rio's fame is marked by outstanding natural beauty, which had a significant influence on the urban development of the city. Located along the extensive coastline in the Southeast region of Brazil, the city has developed over narrow alluvial plains crammed between mountains and hills. It lies between three large massifs covered with Atlantic Forest: Pedra Branca, Tijuca, and Gericinó (partly). Due to this particular geomorphology, the development of the city mostly followed the Atlantic coast in an East-West direction.

Together with unequal urban policies, this direction in the urban evolution of the city results in its current socio-spatial configuration. While the high-income population settled down in the neighborhoods along the Atlantic coast close to the CBD (Central Business District - located in the cradle of the city: the city center), the lower-income population settled in the innermost portion of the city in and along the coasts of the hills in irregular settlements commonly known as favelas[1].

Although being one of the main metropolises of the world, approximately 22% of its population is currently living in subnormal agglomerations, such as the favelas (IBGE, 2010). These are mostly located in proximity to the city's most valued neighborhoods, evidencing the strong social inequality of the city and the country: according to the GINI index, Brazil is one of the most unequal countries in the world.

Despite having an epithet of Marvellous City, Rio de Janeiro is also a Segregated City. It was in this context that in 2016 the city of Rio de Janeiro hosted the Summer Olympic Games with a promise of creating a more equal city and positioning the city and the country in the global economic network.

[1] "Favelas are a special urban typology, not well translated by the English expressions slums or shantytowns, because they have emerged in a particular historical, economical and geographical setting. Favelas are spaces where inhabitants have built their own dwellings with cheap materials in a completely unplanned way, often on invaded public land, resulting in a cacophony of unfinished houses and interstitial spaces badly served or not served at all by infrastructure and urban services."
(Rocco, Royer, & Gonçalves, 2019, p. 426)

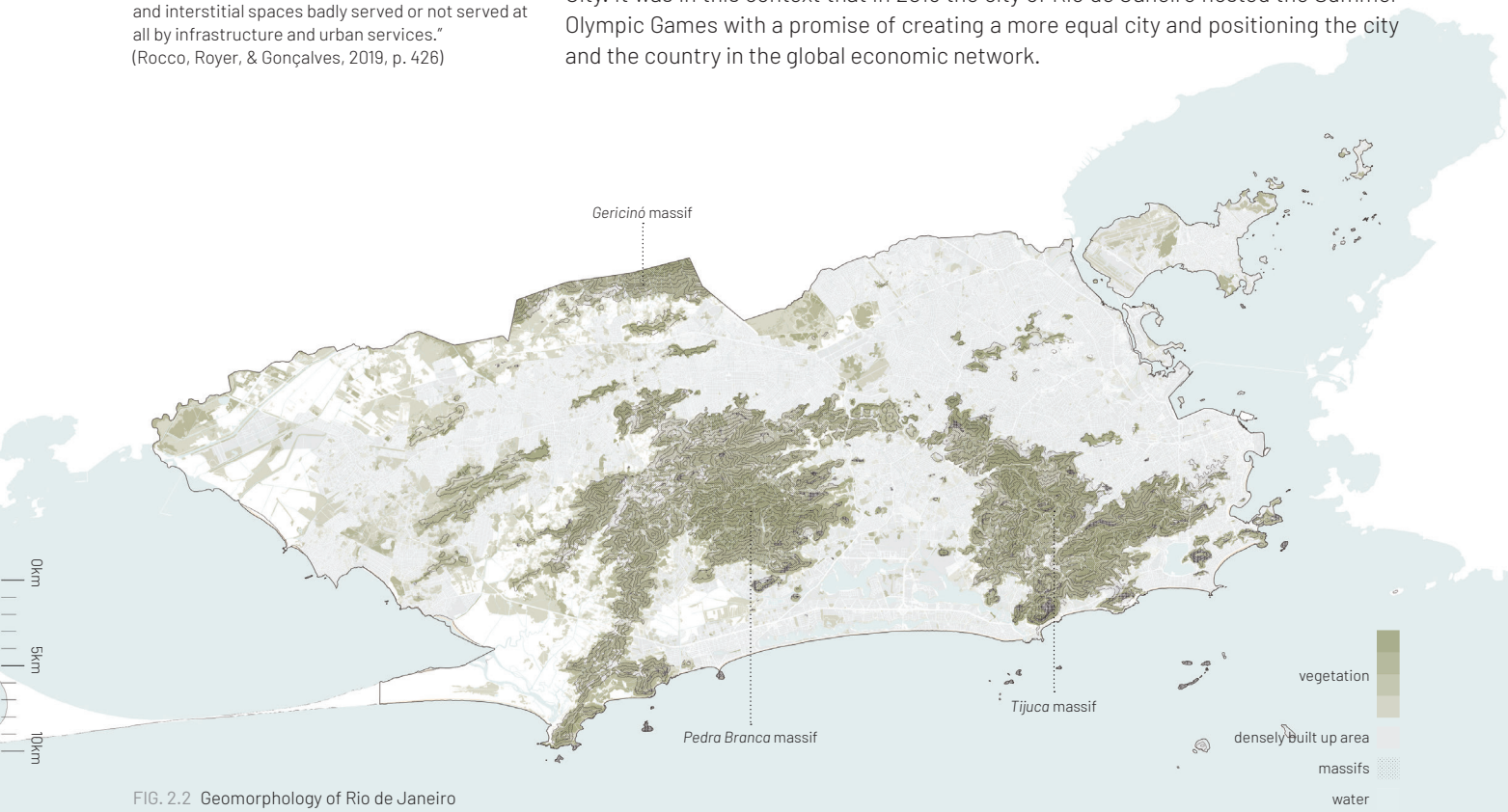


FIG. 2.2 Geomorphology of Rio de Janeiro
Source: author, based on DataRio, Geofabriek, INEA

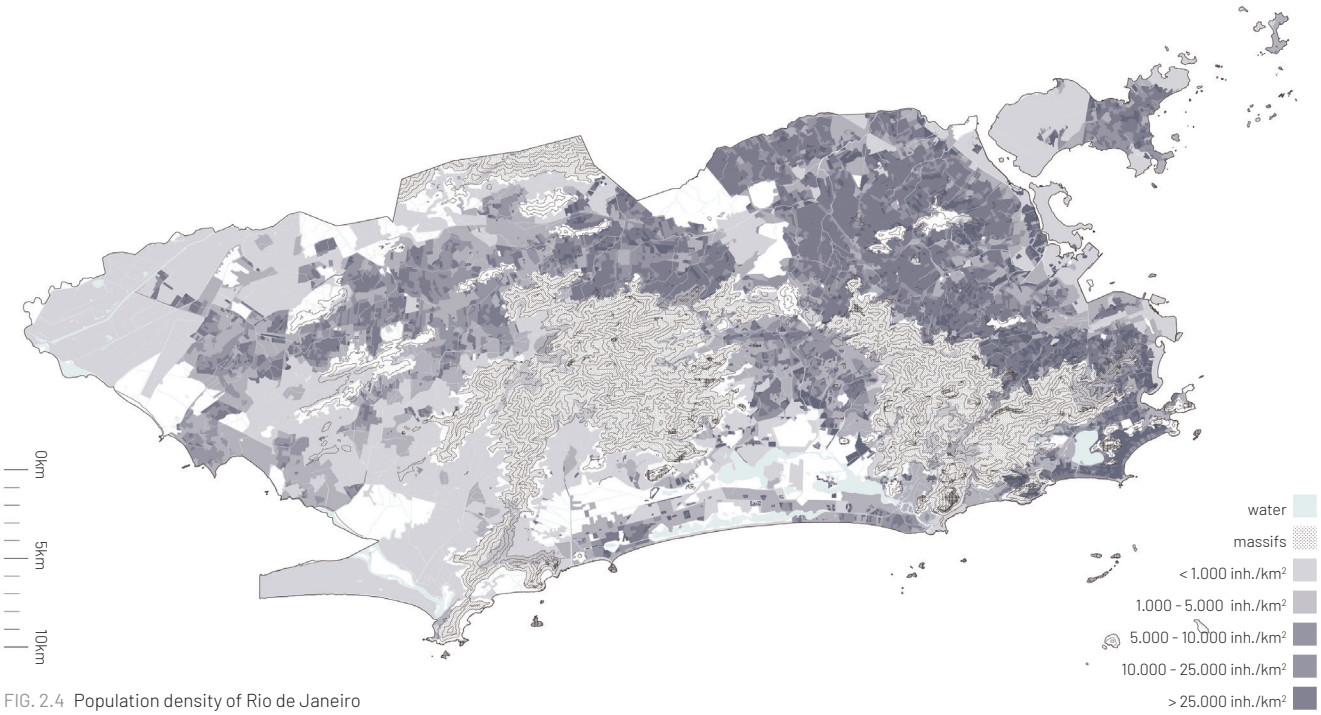


FIG. 2.4 Population density of Rio de Janeiro

Source: author, based on DataRio, Geofabriek, IBGE, INEA

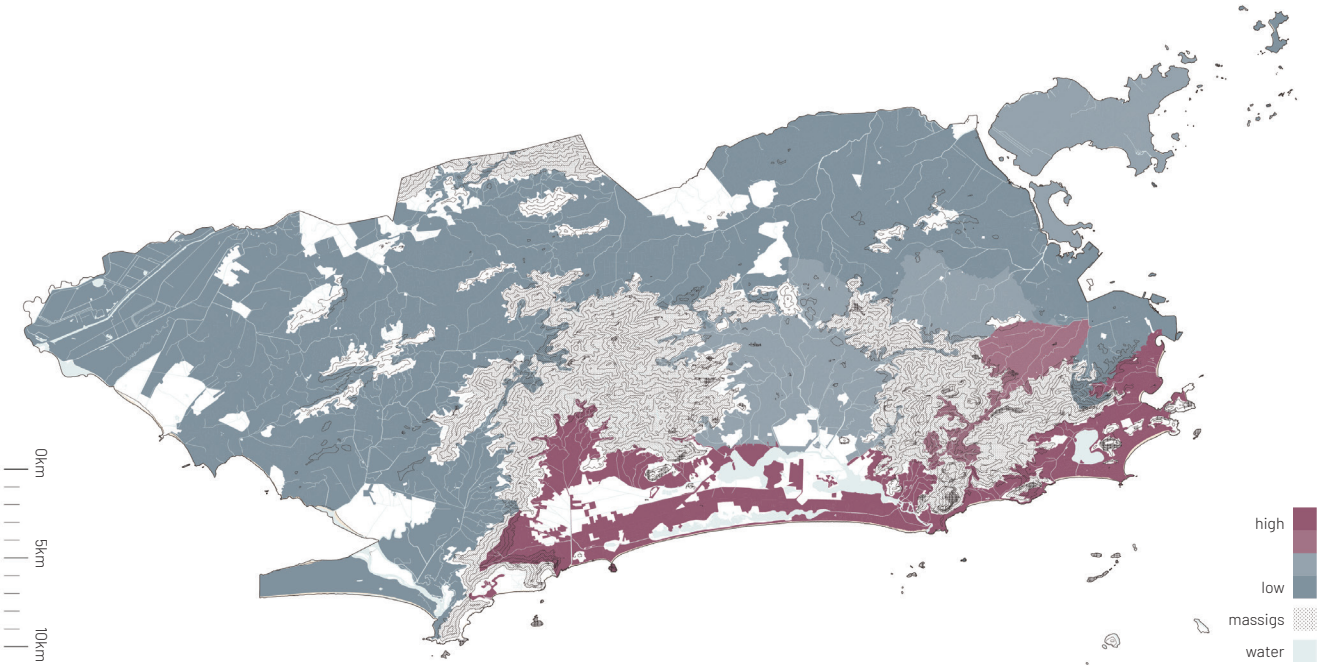


FIG. 2.3 Purchasing power of the inhabitants of Rio de Janeiro by planning region, showing the distribution of the high-income population along the coast and the low-income population in the innermost portion of the city

Source: author, based on DataRio, Geofabriek, IBGE, INEA

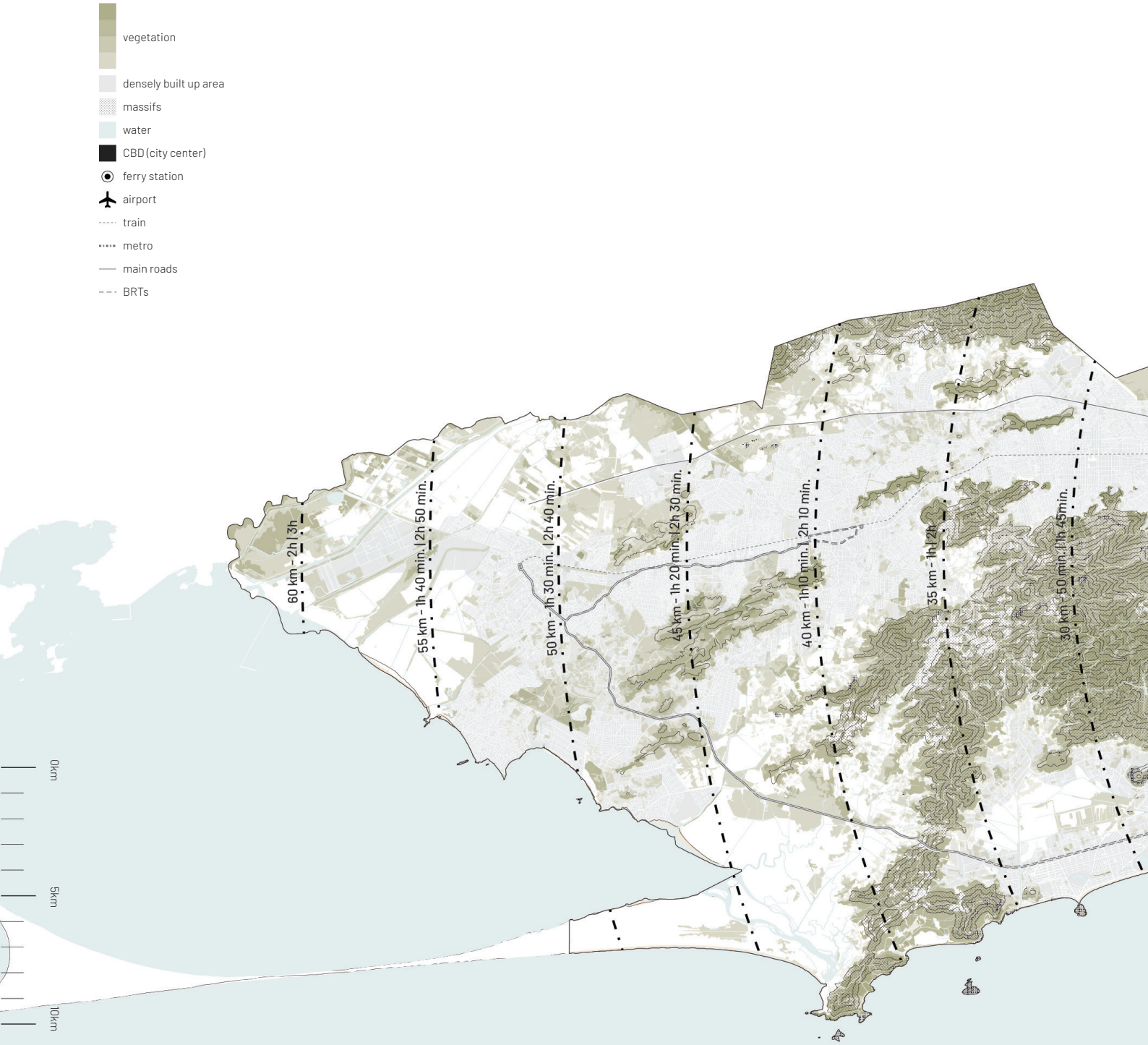
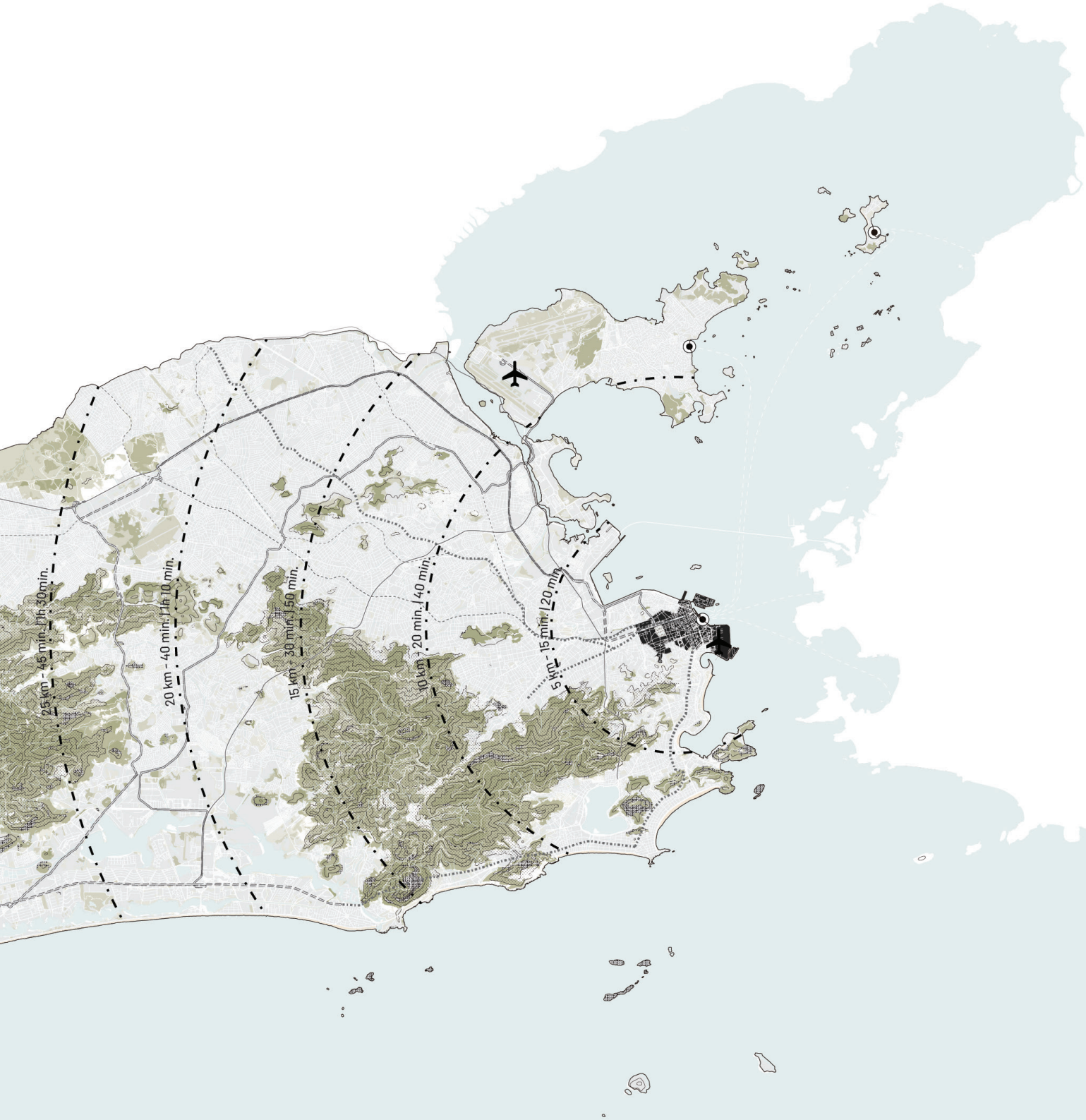


FIG. 2.5 Travel distances and time (first by car and then by public transportation) from the CBD (city center) to the rest of the city.
Source: author, based on DataRio, Geofabriek, INEA


25 km - 45 min. | 1h 30min.
20 km - 40 min. | 1h 10 min.
15 km - 30 min. | 50 min.
10 km - 20 min. | 40 min.
5 km - 15 min. | 20 min.

“Marvelous city / Full of a thousand charms
Marvelous city / Heart of my Brazil”[1]

(Cidade Maravilhosa - André Filho)

[1] "Cidade maravilhosa / Cheia de encantos mil
Cidade maravilhosa / Coração do meu Brasil"

[2] This term refers to the milestone known as the Discovery of Brazil, which, in Luso-Brazilian historiography, represents the arrival of the Portuguese fleet to the lands that today belong to Brazil, which took place on April 22, 1500.

2.2 – **The Marvelous City**

The site was "discovered"[2] by a Portuguese mission of recognition of the Brazilian coast in January of 1502, hence the name Rio de Janeiro (River of January) (Pinheiro, n.d.). The first impression of the city for the sailors who arrived through the Guanabara Bay was of being in an ecstatic paradise, as later stated by the French botanist Auguste de Saint-Hilaire (BNDigital, n.d):

> **"Who would be able to describe the beauties of the bay of Rio de Janeiro, this port that, in the opinion of one of our most educated admirals, could contain all the ships in Europe?Who could portray the islands so diverse from each other, of which the bay is crowded, this multitude of coves that draw its contours, these majestic mountains that moor and also the vegetation so rich and varied that adorns its coast?"**

The city first served as a stop for the Portuguese route from and to India and later as an outlet port for gold from Minas Gerais to Portugal (Cuissot, 2016). It was also the colony's capital during the eighteenth century and later the republic's until the 1960s when the capital was transferred to the recently built Brasília. At the beginning of the nineteenth century, the city was chosen by the Royal Portuguese Family as their escape destination from Napoleon, which entailed in the start of urban interventions in the city.

This unique scenario gave the city the epithet of the Marvelous City since the beginning of the 20th century, a nickname coined by the writer Coelho Neto as a tribute to the city's natural beauty and later popularized by the namesake song sang by the internationally famous singer Carmen Miranda. Recently its landscape also granted the title of UNESCO World Heritage as Cultural Landscape, becoming the first city in the world to receive this title (UNESCO, 2012).

FIG. 2.6 View of the South Zone of Rio de Janeiro by Fábio Roque. Retrieved from: https://unsplash.com/photos/q6Ha0Q37mHM

FIG. 2.7 View of two Rio's postcards: Sugar Loaf and Christ the Redeemer, both located in the South Zone

Retrieved from: https://www.thetimes.co.uk/travel/experttraveller/tours/south-america-luxury-cruise-buenos-aires-rio

“Beauty lives side by side with a miserable day to day”[1]

(zerovinteum - Planet Hemp)

[1] "Beleza convive lado a lado com um dia-dia miserável"

2.3 – **The Segregated City**

Despite its breathtaking natural beauty, the city of Rio de Janeiro has an extreme downside: a high degree of socio-spatial segregation in different scales. Although very strong, the existing core-periphery dichotomy is not the only segregation existing in the city. Intra-urban segregation is also evident with the presence of slums and other irregular settlements scattered throughout the city in consonant existence with the formal city, a phenomenon resulting from the economic inequality in the country.

Furthermore, according to Abreu, "the high degree of social stratification of Rio de Janeiro's metropolitan space today is just the complete expression of a process of segregation of the popular classes that has been developing in Rio for a long time" (2013, p. 11). This process is directly related to major public works and the removals coupled with them through time, where we can place the mega-events as the latest event in the timeline. Therefore, it is necessary to look into its urban evolution through time and the relations between significant infrastructure works and displacements of people, in order to understand the current configuration of the city.

Although the foundation of the city dates back to 1565, it was only in the 19th century that the urban environment started to develop. In 1808, with the arrival of the royal family running away from Napoleon's dominance, the urban configuration of the city started to go through changes to accommodate the number of people coming from Portugal. Based on archaic, slave-based production systems, the presence of the royal family brought an almost non-existent social class to the city, also provoking changes in its social configuration (Abreu, 2013).

In 1870, with the introduction of two distinct modes of transportation (the donkey tram and the steam train), the growth of the city was promoted. The social segregation started to become more spatial after 1870, as the wealthiest class started to move to

FIG. 2.8 Favelas in Rio de Janeiro

by Robert Wilson - Getty Images. Retrieved from: https://www.architecturaldigest.com/story/google-beyond-the-map-rio-favelas

FIG. 2.9 Contrast between the formal and informal (favelas) in Copacabana

by Sergio Moraes. Retrieved from: https://veja.abril.com.br/economia/desigualdade-social-no-pais-aumenta-pelo-17-trimestre-seguido-diz-fgv/

19TH CENTURY

SOCIO-SPATIAL SEGREGATION
up to 1870: wealthiest population move to the South Zone, away from the unhealthy core of the city

after 1870: transportation infrastructure
North Zone: less privileged population
South Zone: wealthiest population

REMOVALS
people from 10.000 houses were removed due to royal family moving to Rio de Janeiro

20TH CENTURY
Pereira Passos (1902-1906)

SOCIO-SPATIAL SEGREGATION
North Zone: runaway urban growth
Center and South Zone: growth supported by the government (appearance of the first informal settlements)

REMOVALS:
20.000 people

20TH CENTURY
Carlos Lacerda (1961-1965)

SOCIO-SPATIAL SEGREGATION
return of vulnerable population to the center: intensification of informal settlements (socio-spatial segregation in a intra-urban scale)

REMOVALS:
31.000 people

the South Zone (served by the donkey tram) while less privileged social classes were driven to the suburbs (served by the steam train) (Abreu, 2013).

The next major milestone of changes in the socio and spatial configurations of the city happened between 1902 and 1906 in a period known as Pereira Passos' Reforms. This period is marked by significant urban transformations triggered by the country's ever-growing internationalization as a consequence of the coffee industry. This new scenario required a new organization of the urban space, which would create a new image of the city as a modern capital of Brazil. The unhygienic image had to be replaced. Works for beautification and sanitation took place, mostly in the still colonial city center and the upscale South Zone. These works led to the removal of a considerable amount of the vulnerable population living in the city center, which forced them to move either to the suburban area or the hills, giving rise to the favelas (Abreu, 2013).

The period from 1906 to 1930 was marked by the urban growth of the city in two distinct vectors: while the intensification of the middle and upper classes in the South Zone was ruled by the State, the suburban area kept growing as the residence of the proletariat without any support from the State (Abreu, 2013). While the city expanded its urban form to accommodate the population growth, job opportunities did not follow the same pattern, being most concentrated in the city center and its vicinities. This trend, together with a lack of mobility systems improvements, led to the creation and intensification of informal settlements scattered across the city. The illegal occupation of empty sites was not new in the history of the city. However, up until this point, it was restricted to the city center, where most of the job opportunities were concentrated. When industries also started to settle in the South Zone, the sources of job creation expanded geographically. Therefore, from 1930 to 1964, the favelas started to appear in other parts of the city as well (Abreu, 2013).

It was also during this period, under the government of Carlos Lacerda, that many road works took place as a way to solve the existing mobility problems of the city and its integration to the metropolitan area. Although effective in solving the traffic problem in the short term, these works resembled the works from Pereira Passos, as they also caused massive removals of people (Abreu, 2013).

In 1964, Brazil suffered a military coup that led to the establishment of a military dictatorship until 1985. During this period, the government's authoritarianism was demonstrated in the urban space of Rio de Janeiro city by the apparent privilege of investments in the wealthier areas of the city (South Zone and Center) over the others. The policy of removals was brutally intensified to give place to luxury dwellings in the most valued areas of the city (mostly in the South Zone). This process led to market speculation, which entailed in the horizontal expansion of the wealthiest areas of the city towards Barra da Tijuca, a neighborhood planned for its high-profit return as it would accommodate the upper class of Rio de Janeiro. Thus, while public investment was allocated to integrate this new area into the city, the suburban areas, where the most vulnerable population was placed, remained absent of investments (Abreu, 2013).

During the 1990s, as a reflection of the enactment of the Brazilian Constitution in 1988, which "made it possible for urban social movements to find a voice and to

20TH CENTURY
Dictatorship (1964 - 1985)

SOCIO-SPATIAL SEGREGATION
low income communities ressetled to the periphery

planned expansion of the city focused on the wealthiest population (Barra da Tijuca)

REMOVALS:
175.000 people

20TH CENTURY
Favela upgrading (1990s)

SOCIO-SPATIAL SEGREGATION
urban regeneration of suburban centralities and inner-city favelas

REMOVALS?
unknown

21ST CENTURY
Eduardo Paes (2009-2013)

SOCIO-SPATIAL SEGREGATION
cleanup of Olympic clusters and high valued land areas

REMOVALS:
67.000 people

participate in urban reform and municipal administration" (Rocco, Royer, & Gonçalves, 2019, p. 427), spatial improvements were conducted. Urban regeneration programs and favela upgradings such as Rio Cidade and Favela Bairro were implemented as a way to integrate informal areas into the formal city and reduce the gap between social classes. Although of extreme importance, these initiatives were still not enough to change the historical socio-spatial segregation present in the city (Ledo, 2013).

In recent years, the most relevant projects regarding the city's urban evolution were the mega-events. Starting in 2007 with the Pan American Games and lasting until 2016 with the Olympic Games, this period produced a significant impact in the socio-spatial configuration of the city, especially the latest one. The urban interventions that took place during the last decade are marked by investments in infrastructure in partnership with private capital and the return to the slum removal policy, reversing the scenario of advances of social rights from the 1990s.

The urban interventions that took place during the last decade stem from the realization of mega-events in the city, where the 2016 Olympic Games were the last and also the ones that generated the most significant impact. Marked by infrastructure investments in partnership with private capital and the return to the slum removal policy, which reversed the scenario of advances of social rights from the 1990s, the last interventions deepened the socio-spatial inequalities helping in the construction of an increasingly segregated and unequal city (Côrrea, 2019).

"Rio's model tends to be that of a hypertrophied core metropolis, concentrating most of the available urbanistic income and resources, surrounded by increasingly deprived urban strata of services and infrastructure as they move away from the core, and serving as the dwelling place and place of exercise of other activities for the large masses of the low-income population."

(Abreu, 2013, p. 11)

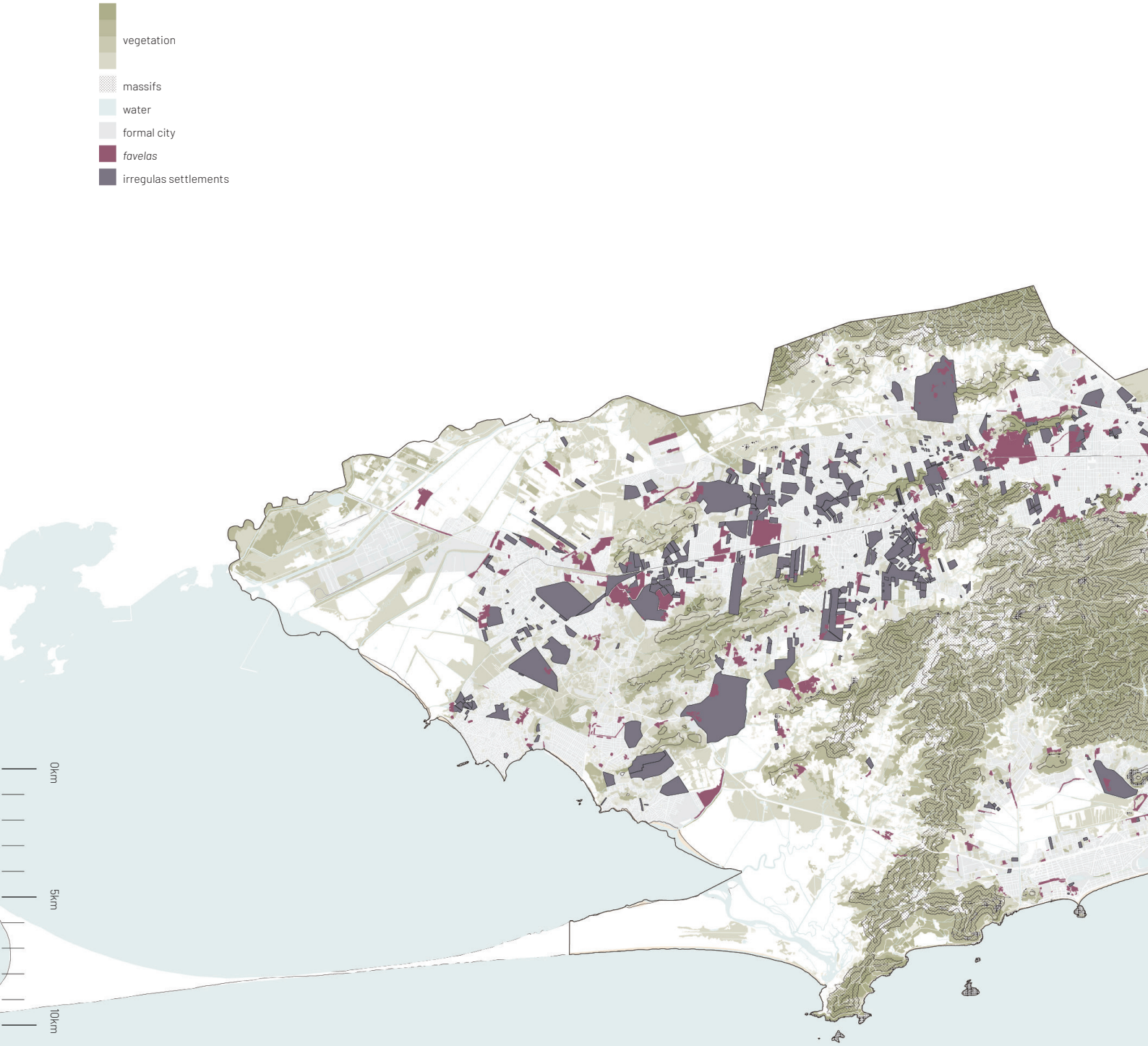
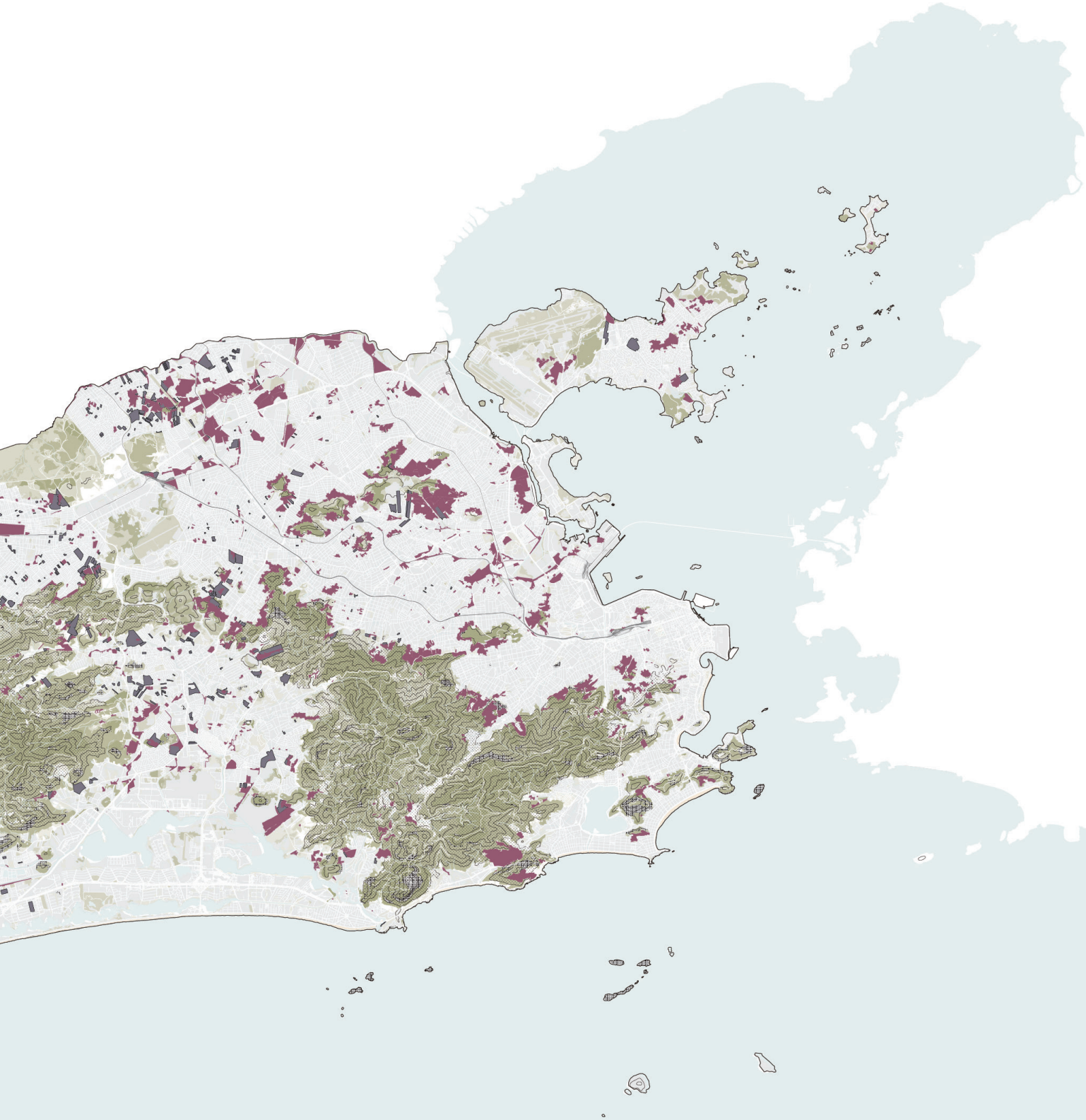


FIG. 2.10 Presence of favelas and other informal settlements scattered througout the city, highlighting an intra-urban segregation.
Source: author, based on DataRio, Geofabriek, IPP, INEA



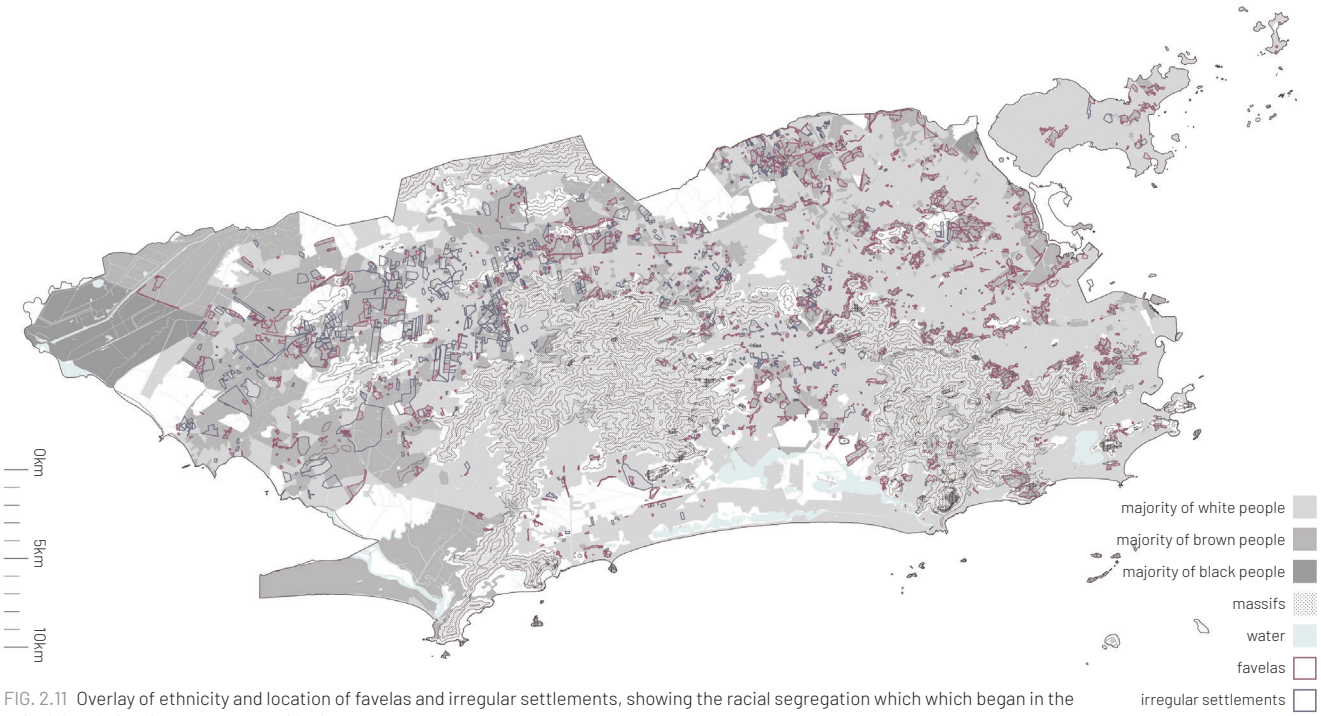


FIG. 2.11 Overlay of ethnicity and location of favelas and irregular settlements, showing the racial segregation which which began in the colonial period and perpetuates to this day

Source: author, based on DataRio, Geofabriek, IPP, INEA

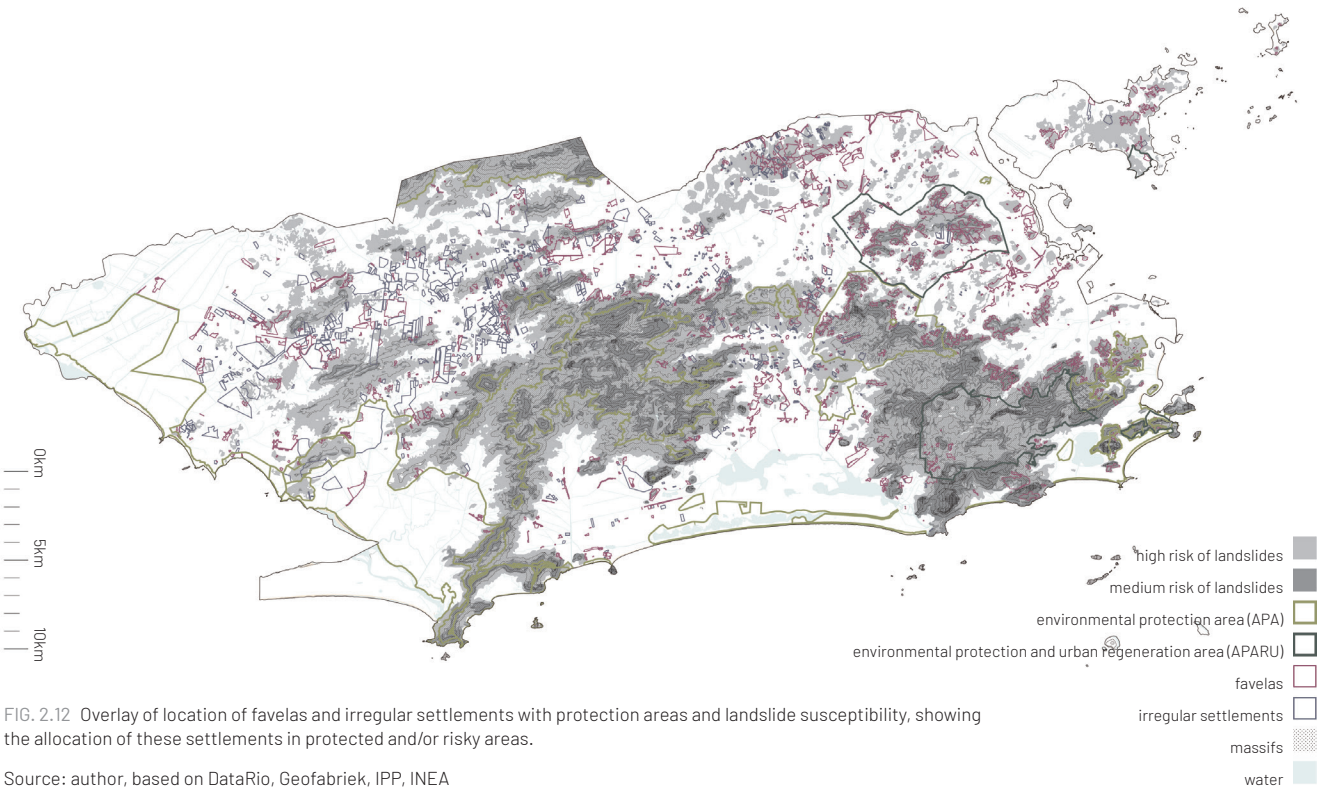


FIG. 2.12 Overlay of location of favelas and irregular settlements with protection areas and landslide susceptibility, showing the allocation of these settlements in protected and/or risky areas.

Source: author, based on DataRio, Geofabriek, IPP, INEA

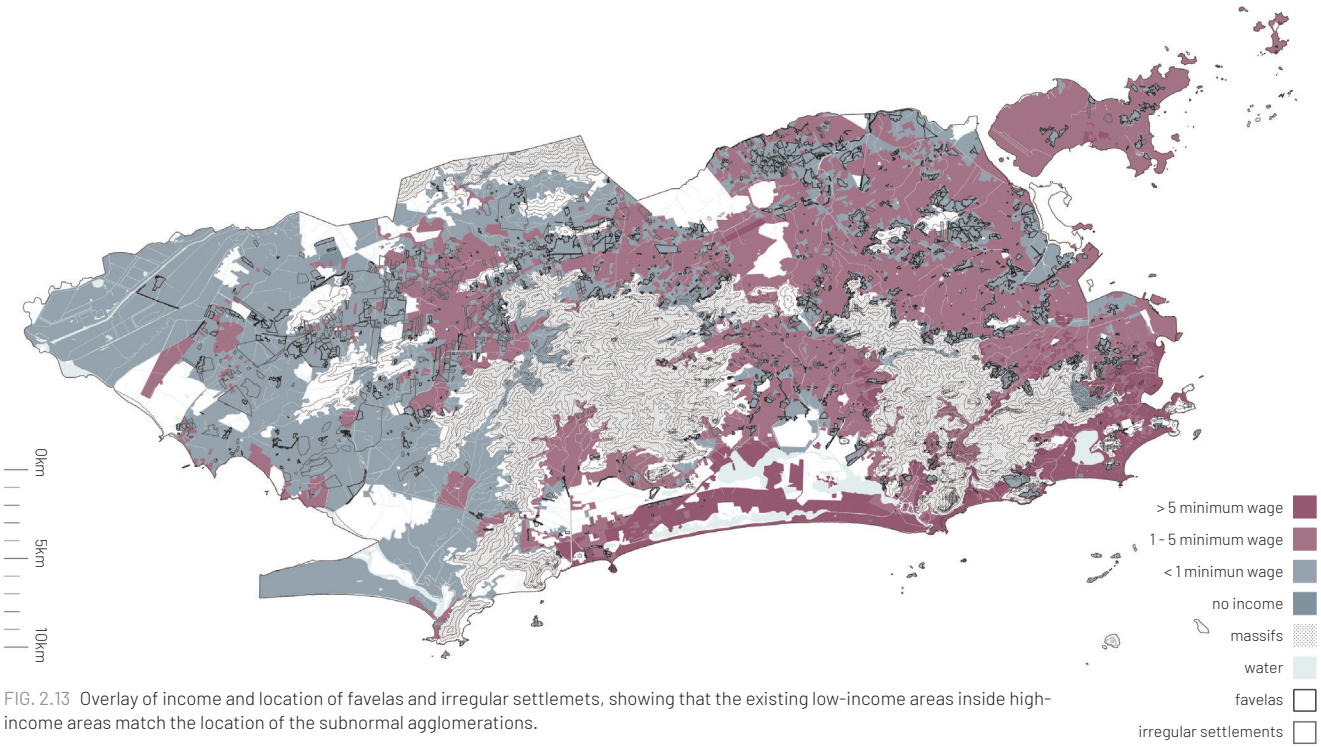


FIG. 2.13 Overlay of income and location of favelas and irregular settlemets, showing that the existing low-income areas inside high-income areas match the location of the subnormal agglomerations.

Source: author, based on DataRio, Geofabriek, IPP, INEA, IBGE

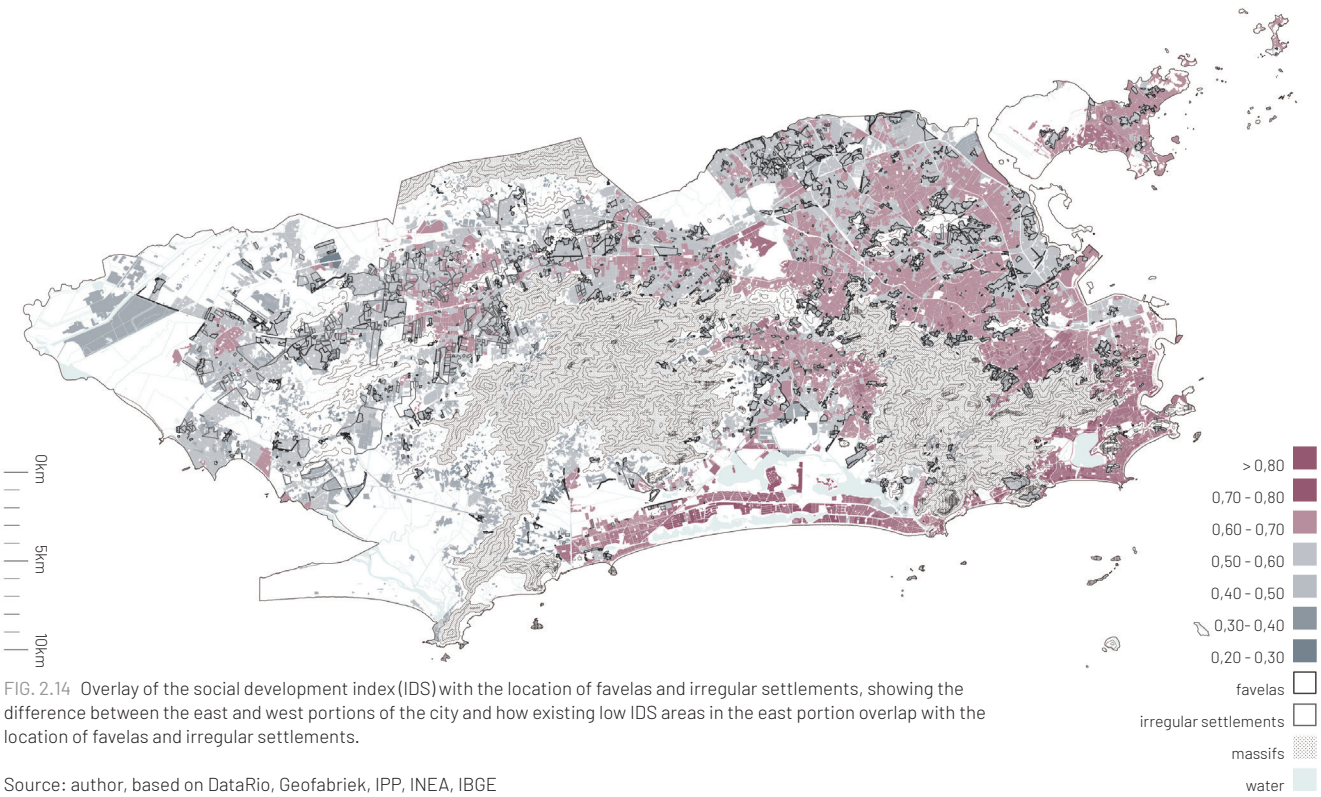


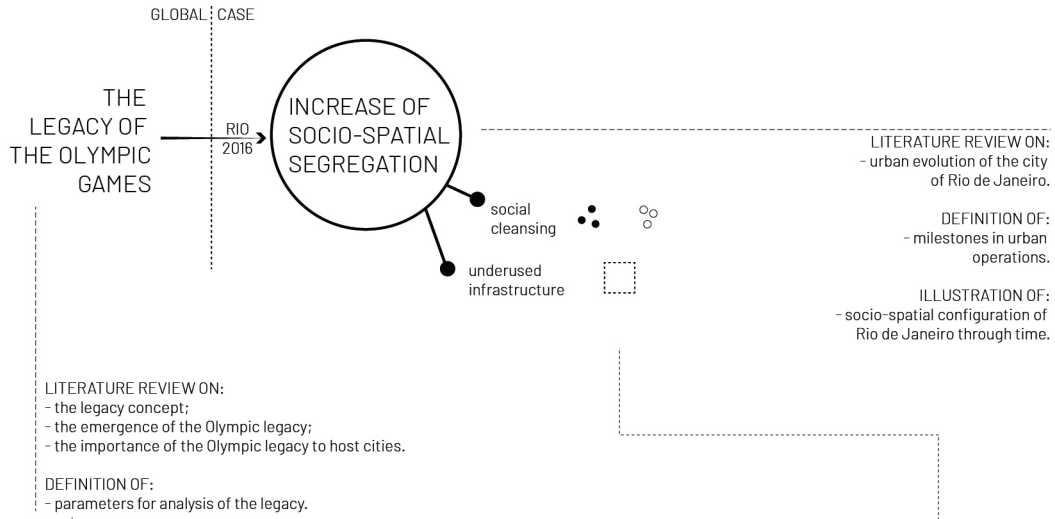
FIG. 2.14 Overlay of the social development index (IDS) with the location of favelas and irregular settlements, showing the difference between the east and west portions of the city and how existing low IDS areas in the east portion overlap with the location of favelas and irregular settlements.

Source: author, based on DataRio, Geofabriek, IPP, INEA, IBGE

PART 2

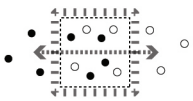
The Research

THE PROBLEM

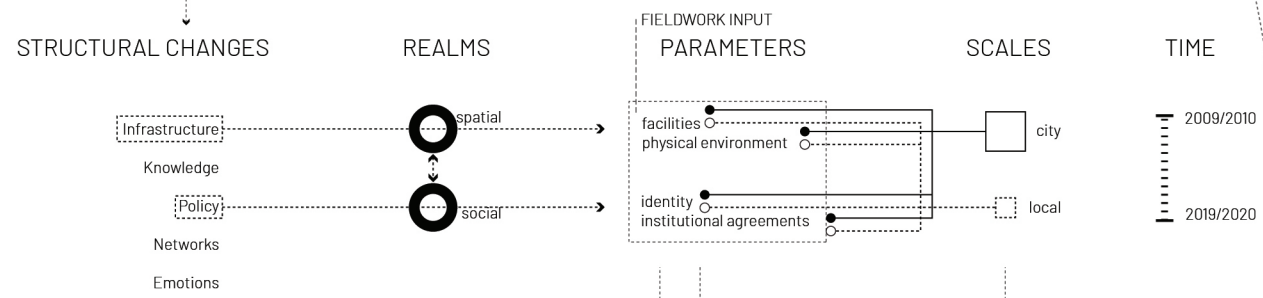


HYPOTHESIS

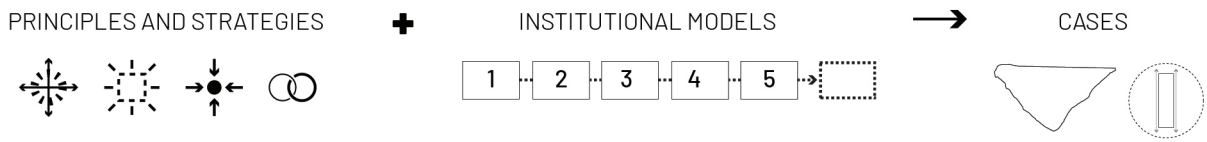
What measures could be adopted to reframe the legacy of the Olympic Games in the city of Rio de Janeiro to mitigate the socio-spatial segregation within the city and inform future events?



ANALYSIS



REFRAMING THE LEGACY



REFLECTION

3 – Research Framework

3.1 – **Introduction**

The concept of legacy embedded in the Olympic Games is the broader theme of this research. It focuses on the possibilities of acting on the legacies left behind once the Games are over in order to revert the negative social and spatial impacts of hosting such a mega-event while putting them in the agenda of future urban plans. For this purpose, this research analyzes the case of Rio de Janeiro, the last host city of the Olympic Games.

This chapter elaborates on the methodology steps adopted to guide on the further exploration and understanding of the problem posed. It contains the conceptual framework and the overall research framework, which exposes the relations between relevant concepts for the research and the methods chosen to explore/answer the questions raised.

3.2 – **Problem Field**

Since the 1970s, with the rise of neoliberalism and the strengthening of globalization, a re-scaling of the "strategic territories" that articulate the new economic system took place, which entailed the emergence of the global city concept (Sassen, 2005). This re-scaling led cities all over the globe to start looking for strategies to be inserted in the core of this network that steers the global economy.

As much as changing the economic system's articulation, this paradigm shift also led to a re-significance of the Olympic Games. The creation of the legacy concept is a consequence of this shift, and it arose around the 1990s when the costs and benefits of hosting the event started being questioned (Chappelet, 2012). The legacy concept, with its embedded transformations of the urban space, placed the Olympic Games in the perspective of authorities as an opportunity to transform their cities into an attractive place for international investment, therefore taking part in the upper mentioned, global economic context (Bottura, 2014; Hiller, 2006; Kassens-Noor et al., 2015).

Although usually referred mostly as positive, the legacy of the Olympic Games also triggers adverse effects, especially on the social and spatial configurations of cities. During the preparation for the event, spatial interventions are necessary. Due to the short time of the Olympic agenda, lack of social participation and dislocations of people are common practice. These interventions are often driven by market speculation and increase land prices, creating gentrification, spatial fragmentation, and social segregation. Furthermore, once the Games are over, underused venues (the so-called "white elephants") are a typical urban element to hosting cities.

FIG. 2.15 Research steps diagram

3.3 – **Problem Statement**

The legacy of the 2016 Olympic Games in the city of Rio de Janeiro is not so different than in any other host city. Dislocation of people by forced removals and public investments happened in the so-called 'Olympic clusters', causing gentrification and real estate speculation, further contributing to increasing the already existing social-spatial inequality within the city. Furthermore, today, only three years after the games, the Olympic venues are mostly in a state of abandon, bringing little or no benefit to the population.

The urban policies and interventions that took place to host the Olympic Games deepen the existing problems of the city, rather than helping to overcome them (Botelho, 2017). The legacy plans were not followed through, leaving more burdens than benefits for the population, especially for the most vulnerable one. Hence, the need for a re-evaluation of the legacy and the development of a new planning strategy. One that takes into consideration the actual legacy left behind by the Games for the city of Rio de Janeiro and uses it as a catalyst for social and spatial inclusiveness.

Furthermore, although many academics have highlighted the importance of pre-planning to avoid negative legacies (Chen, 2012; Yawei Chen, 2015; Dickson et al., 2011; Gratton & Preuss, 2008; Hiller, 2006), these seem to be inevitable. Thus, the creation of a framework to deal with the unplanned negative legacies in the post-event period should also be considered of paramount importance. By combining both strategies, it is possible to create more sustainable Olympic Games, which can promote the city in the global economic context while bringing benefits to the population of the host city.

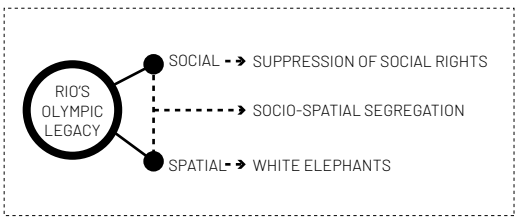


FIG. 3.1 Diagram with main concepts of the problem statements

3.4 – **Research Aim**

The research aims to use the case of Rio de Janeiro to explore how can a post-event framework help reverting the unplanned negative legacies of the Olympic Games and inform future events.

It focuses on building upon the social and spatial legacy of the Games cemented in the existing urban fabric of the city of Rio de Janeiro and reframing it towards the creation of a more inclusive city and region. It looks into bringing social participation, local engagement, and empowerment into planning strategies to find common ground between the private and public sectors and civil society. It also searches for ways to reshape the role of the "white elephants" left behind by the Olympic Games to generate value to the community and create links between the event and the current needs of the population.

3.5 – **Research Approach**

As this research analyzes the problem in a particular case while recognizing the issue in a global context, the research approach is divided into deductive and inductive. While the latter is applied when deepening the study on the legacy of the Olympic Games in the city of Rio de Janeiro, the former is adopted when studying the negative legacies in the global context. Thus, one informs the other.

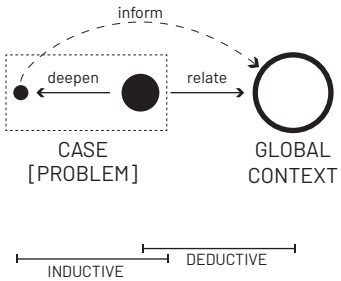


FIG. 3.2 Diagram of adopted research approach

Quantitative and qualitative methods are going to be adopted throughout the research in order to gather and analyze data. While the quantifiable data can provide a general overview of a phenomenon, it does not uncover the reasons behind it. Therefore, to have a deeper understanding of the problem, qualitative research will also be applied.

3.6 – **Research Questions**

The questions are the base of the research and are formulated as the guiding tools for further advancing the study and to help define the methodological approach. Therefore, the main research question has four concepts embedded in it that guide the formulation of the sub-questions. These are also divided into two categories according to the research approach, relating to either the global context or the local (the case). Each of the sub-research question aim at understanding a certain aspect of the research and help moving forward.

Main research question:

What measures could be adopted to reframe the **legacy [L]** of the **Olympic Games [OG]** in the city of **Rio de Janeiro [RJ]** to mitigate the **socio-spatial segregation [SSS]** within the city and inform future events?

Sub-questions (Global):
Understanding the role of the Olympics in a globalized world:
– What is the significance of the Olympic Games for host cities in the global context? **[OG]**

Understanding the concept of the Olympic legacy:
– What is the Olympic legacy? **[L][OG]**
– How to identify the Olympic legacy in a host city? **[L][OG]**

Sub-questions (Case):
Understanding the current context of Rio de Janeiro:
– How did the urban transformations triggered by mega projects in the city of Rio de Janeiro contribute to socio-spatial segregation? **[RJ][SSS]**

Understanding the impact of the Olympic Games to Rio de Janeiro:
– What is the legacy of the Olympic Games to the city of Rio de Janeiro? **[OG][RJ][L]**

Understanding the relation between design and the socio-spatial configuration of Rio de Janeiro:
– To what extent does the redesign of the spatial legacy can be used to mitigate the social segregation and spatial fragmentation reinforced by the Olympics? **[L][SSS][OG][RJ]**

3.7 – **Methods**

The methods chosen for this research are in direct relation to exploring/answering the posed questions. Specific methods were chosen to address each one of the research questions.

Socio economic analysis: The Brazillian government and institutions have a great amount of data on population samples and spatial configuration of the city of Rio de Janeiro. This data will provide quantitative measurements that will be collected and analyzed to help understand the current reality of the city. Some of the data sources are:

– IBGE - Instituto Brasileiro de Geografia e Estatística (Brazilian Institute of Geography and Statistics), Brazil's leading provider of geographic and statistical information;
– IPP - Instituto Pereira Passos (Pereira Passos Institute), an autarchy of the city hall of Rio de Janeiro responsible for the urban planning of the city;
– INEA - Instituto Estadual do Ambiente (the State Institute of Environment), an organ of the State Government of Rio de Janeiro linked to the State Secretariat of Environment with the mission of protecting, conserving and restoring the environment to promote sustainable development.

Mapping: It is an essential method which allows to combine different data collected and analyse their relations. In this thesis it will be used to spatially translate gathered quantitative and qualitative data by using GIS system in order to be able to establish relationships between the selected data. Besides GIS, satellite images are also going to be used as a complementary tool to give better insight of the state of the selected areas. Mapping is also used when analysing the historical evolution of the city of Rio de Janeiro to understand the development of its spatial configuration.

Historical analysis: The evolution of both the city of Rio de Janeiro and the Olympic Games will be thoroughly studied by the study of historical documents. This is an important step in the research as it contributes to the understanding of the development of both through time. This historical overview gives a ground base to explain the current scenario and when proposing new solutions for the future.

Literature review: The four main topics raised by the main question derived from the review of articles and books which study the overall theme of the Olympic Games and the case of Rio de Janeiro. Further review of books, academic articles, and news related to the main concepts will help in developing the theoretical framework of this thesis and understanding some of the processes raised by the research questions.

Policy and documents review: Official documents such as the Olympic agenda, Rio's candidature books, the legacy plans and the current strategic planning of the city of Rio de Janeiro are going to be reviewed and evaluated. The study of the Olympic agenda will provide a better understanding of the recommendations of the Olympic committee for host cities and the structure behind the Olympic committee. The study of the official documents of Rio de Janeiro will help understanding the reasons behind hosting the Games, identifying the differences between the planned and realized legacies; and show how the current government is tackling the negative legacies in the post-event period.

Fieldwork: This empirical method is of paramount importance as it will provide a better criteria for the selection of areas for further research while providing a more precise understanding of the current state and use of the selected areas. Specific methods will be conducted in the field in order to contribute to a better understanding of quantitative and qualitative aspects, such as:

- observations, which will help on the spatial recognition of the selected areas;
- unstructured interviews with local inhabitants in order to understand the use patterns of spaces;
- semi-structured interviews with local actors, which will provide input of local knowledge on spatial design and governance.

Stakeholder analysis: The main reason for applying this method is to identify the key actors involved in the decision making processes related to the research. Particularly, it aims at understanding the structure and role of the different stakeholders involved in the planning and implementation of the Olympic legacy and in the Brazilian planning system. Thus, it will help to reveal possible opportunities for the inclusion of new relevant actors and the revaluation of the power of each.

3.8 – **Conceptual Framework**

The conceptual framework derives from the identification of the legacy as a central concept to understand and analyze the problem posed. It also identifies other relevant concepts revealed by the problem field and statement, as well as their relations to each other and the legacy concept. Therefore, the conceptual framework is divided into three spheres which are related to 1) the influence of the global context in the creation of the legacy concept; 2) how the legacy acts as a catalyst for urban transformations and its consequences in the socio and spatial configuration of cities and 3) a hypothesis on how to reframe the legacy to act on the spatial component and inform the global context.

The first sphere (global context) identifies the variables and their interrelations in the current global scenario. It shows how the processes of globalization and the emergence of a stronger neoliberalism mentality, while having an impact on cities, also triggered the re-significance of the Olympic Games, reshaping its importance to cities.

The second sphere (negative legacy: socio-spatial segregation) identifies the processes that cities go through when urban transformations are triggered by the Olympic legacy and its relations. It identifies a cause-effect relation between the spatial and social configurations focusing on the negative implications (discussed in the theoretical framework under the legacy concept) of the interventions and how they lead to socio-spatial segregation.

The third sphere (reframed legacy) raises a hypothesis on how to deal with the negative legacy left behind. It identifies the lack of inclusiveness in the whole process to discover variables that could be integrated into the process in order to inform how to act on the spatial configuration of the venues and inform the global context on future events.

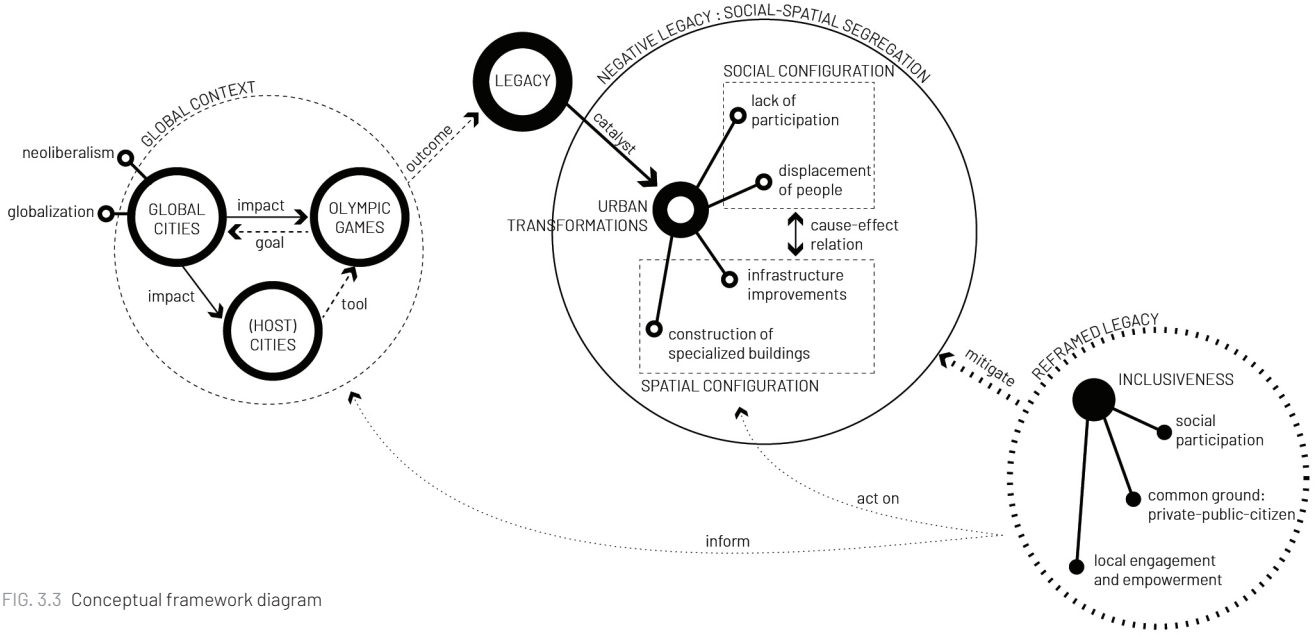


FIG. 3.3 Conceptual framework diagram

3.9 – **Research Outputs**

The expected outputs are divided into global and local but are intertwined. The results of the exploration of the case are going to serve to inform the global context. While the local focus across three different scales (metropolis, city, and Olympic vicinities) to find feasible solutions for the specific problem posed, the global focus on the generic aspects that can be transferred to other contexts. Therefore, the global context's intended output is the creation of a framework for the reframing of the negative legacies in the post-event period and is based on the outputs of the case of Rio de Janeiro.

Regarding the case, it intends to 1) create an awareness of the metropolitan scale to inform future plans; 2) develop strategies to integrate socially segregated and spatially fragmented areas into the city and; 3) design solutions for underused Olympic venues and its vicinity aiming at creating value for the community. Although all the scales are going to be considered, the main focus of this research lies in the city scale.

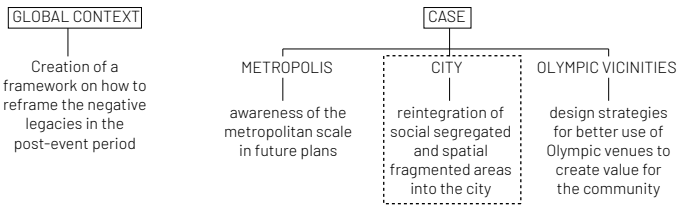
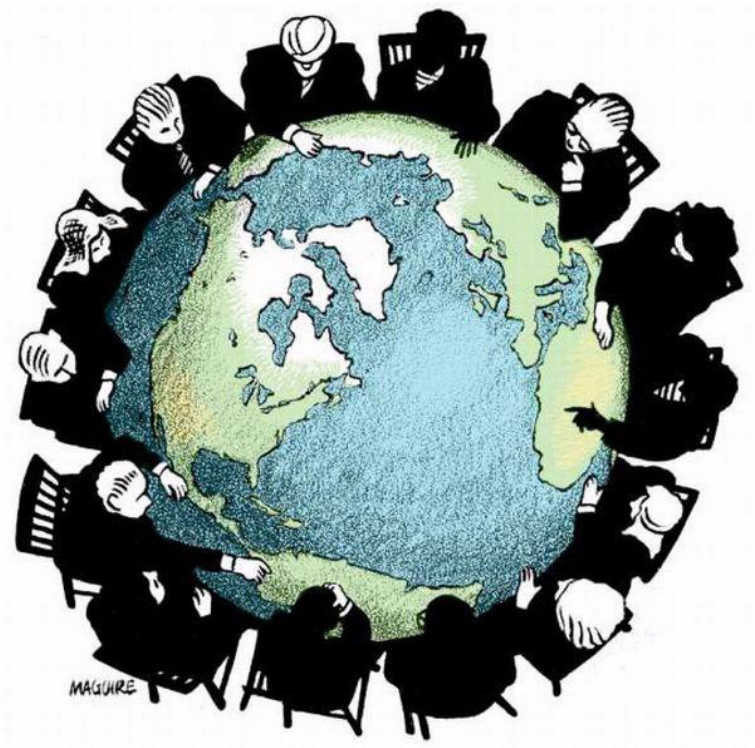


FIG. 3.4 Diagram of expected outcomes according to the different scales

Despite the fact of taking the perspective of the most vulnerable population to analyze the legacy of the case, the outputs would be directed to all three sectors (public, private, and civil society) as it aims at re-establishing the trust between them by looking for a common ground for their interests.


MAGUIRE

4 – Theoretical Framework

4.1 – **Global context**

According to Sassen (2005), changes in the world economy in recent decades, such as the strengthening of globalization and the rise of the neoliberalism mentality, led to a "re-scaling of what are the strategic territories that articulate the new system" (p. 27). The growth of international markets and investments allied to the reduced role of governments in the international economy culminated in the creation of a network of cities (Sassen, 2005). The term "global city" arises then from the need to name this territorial re-scaling in light of this new economic context (Bottura, 2014).

Being a global city means being inserted in the core of this network that steers the global economy. This concept has consequences on how cities articulate themselves and how their future depends on their insertion in such a network (Bottura, 2014). A hierarchy of cities arises in this context, and it is of major importance for cities to be rated high in this ranking as it states the value of a city in providing resources and attracting investments (Hiller, 2006). Moreover, the aspiration of becoming a global city also influences the urban configuration and planning of cities, as structural changes are made necessary to accommodate the needs of this global market.

Under the globalization of the economy, Hiller (2006) highlights the importance of the emergence of the concept of the 'entrepreneurial city', where the urban elites try to make their cities more competitive by changing the image of their city by developing their built environment and attracting investments. However, Smith (2002) points out that this competitiveness is not related only to economic matters, but also in the exploitation of the image of a city as a good place to live and visit.

Given this background, mega-events have increasingly been used as a strategy for cities to achieve the status of a global city (Thomson, Schlenker, & Schulenkorf, 2013). Due to its world-scale visibility and embedded transformations of the urban space, mega-events such as the Olympic Games are seen by the authorities as an opportunity to transform their cities into an attractive place for international investment (Bottura, 2014; Hiller, 2006; Kassens-Noor, Wilson, Müller, Maharaj, & Huntoon, 2015). This vision places the legacy promise both as a central argument in the decision-making of hosting such an event and as the justification for the enormous amount of capital invested in them (Thomson et al., 2013).

As most of the beforehand mentioned agglomeration of corporate headquarters are disproportionately concentrated in cities of developed countries in the Global North (Sassen, 2005), the use of the Olympic Games as a strategy for placing cities in the global economic competition is stronger within cities of the so-called Global South. This statement becomes evident when looking to the hosting and bidding cities of the Games, where it is possible to see an increasing interest from cities within the Global South. At the same time, cities from the Global North are mostly dropping their candidatures (see p. 50-51).

FIG. 3.5 Globalization and world leaders by Maguire. Retrieved from: https://medium.com/@tomaszpacholak/is-globalization-ending-bae23f5b8ccd

4.2 – **The emergence of the Legacy Concept**

Although the Modern Olympic Games have been hosted since 1886 and it is possible to trace back signs of legacy, it is until only recently that the term has been explored. The concept of legacy arose in the Olympic context around the 1990s when the costs and benefits of hosting the event started being questioned (J.-L. Chappelet, 2012). In order to understand the variables that lead to the creation of the Olympic legacy, it is necessary to look back at the history of the modern Olympic Games related to urban interventions and the global context. For that purpose, this section is based mainly on the work of Ovink and Rijksoverheid Government of the Netherlands (2012), and Lopes (2018).

From Expos to a mechanism for propaganda

The first modern Games were held in 1886 in Athens, and albeit considered a success, it was not enough to find financial support to be an independent international event. Therefore, the following two editions were organized as part of Universal Expositions, respectively, taking place in Paris in 1900 and St. Louis in 1904. Although these cities went through changes in their urban environment, these were not directly related to the Olympics Games, but rather to the Expos. The following Games, held in London in 1908, were the first ones to cause some spatial intervention in the host city by the building of the White City Stadium as part of the urban expansion in Shepherd's Bush. The first official Olympic stadium was built only in 1912 for the Games held in Stockholm, which started the tradition of the construction of specialized venues and spatial interventions associated with the Olympic Games. The Olympic Games of 1916 were canceled because of World War I, and the edition of 1920 took place in the war-battered Antwerp. Only in 1924, during the games in Paris, the interventions returned, and, for the first time, housing for the athletes was built. For the following edition in Amsterdam, a new Olympic stadium was constructed.

In the middle of the Great Depression, the Olympic Games of 1932 in Los Angeles led to the construction of the first Olympic village as a strategy for jobs' creation. Although demolished after the Games, the village was the first significant spatial component associated with the Olympics. This association was ascertained with the Olympics of 1936 in Berlin, which was the capital of Nazi-Germany during that time. Being the first broadcasted television Games, Germany took advantage of it by building impressive venues as a propaganda vehicle of the supremacy of Hitler's regime. The investments in the Olympics grew twenty times compared to previous editions, and the construction of venues in a specific area of the city led to the creation of the Olympic Park.

Reconstruction after the War

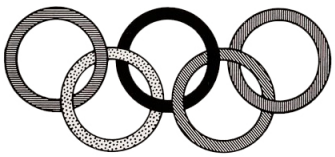
The Games of 1940 and 1944 were canceled due to World War II. In the edition of 1948 in London, with venues being scattered throughout the city, mobility issues appeared. This issue led to the creation of the current Olympic spatial model, where the Olympic Village has to be located close to the Olympic Park. The Olympic Games of 1952 were held in Helsinki and followed an extensive housing plan based on modernist ideals. In 1956, it was the first time that the Olympics were held in two countries (Australia and Sweden), and conflicts and boycotts happened due to the emergence of the Cold War.

In the Games of 1960 in Rome, it was the first time that the Olympic spatial component took part in a regional plan. In the Games of Tokyo (1964), the Olympics were also associated with city development through improvements in transportation infrastructure. Both editions were closed related to reconstruction plans after the war.

From disaster to model

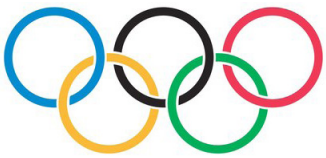
The following two games created a harmful image of the Games. The edition of 1972 in Munich was marked by a terrorist attack, and the edition of 1976 in Montreal left the city in considerable debt. It decreased the number of bidding cities for hosting the Games of 1984, which had only Los Angeles and Tehran as cities interested. The latter dropped its candidature before the elections, leaving no option for the Olympic Committee, which had to meet Los Angeles' government requirements of removing the financial responsibility of the public sector.

Despite the reduced budget, the 1984 Olympic Games in Los Angeles generated a substantial profit, which transformed the Games into a highly profitable business and affected the bids for the next editions. The government of Seoul, the following host city in 1988, entered into a partnership with the private sector, and for the first time, the regeneration of an urban area was linked to the event. After that, Barcelona held the Games of 1992 and became the internationally recognized model of the Olympic Games by using it as an urban recovery operation and creating a new image of the city. Therefore, the high costs of hosting the Olympic Games started to be justified by the embedded power of transformation, and the concept of legacy began to take shape.



Bringing public capital back

In 1996, the modern Olympic Games were celebrating 100 years of existence, and Athens was one of the candidate cities. The idea of hosting the centenary of the Games in its birth city did not come to reality. The city that won the bid was Atlanta, home of Coca-Cola, which was a major sponsor of the Games. This decision revealed the supremacy of the influence of private capital over the values of the Olympics. Much like Los Angeles 1984, the city of Atlanta also invested in private financing and low budget. However, the excessive commercialization of the Games and the lack of investments left no significant legacy for the city. Furthermore, Atlanta suffered from a bomb attack, leading to the definition of the Olympic Games as a huge failure.



After Atlanta's edition, the Olympic Committee started to require host cities to take part in the fiscal responsibility for the realization of the event. Thus, in the following edition of 2000 in the city of Sidney, the public sector was brought back to the financial support of the event and created a plan strongly oriented to the legacy as a way to revert the image produced by the Olympic Games of Atlanta. The critical element of the plan was the environmental impact, which entailed in the association of the Olympic Games with sustainable urban development.

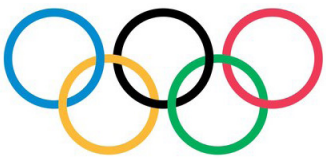


FIG. 4.1 Evolution of the Olympic Rings

Retrieved from: https://www.olympic.org/olympic-rings

The rise of the megaevent

The following editions of the Olympic Games in Athens in 2004 and Beijing 2008 transformed the Games into a more explicit megaevent. Both cities invested in

ambitious projects of urban renovation and construction of iconic buildings, which culminated in overcoats and the creation of a legacy of "white elephants", underused venues after the Olympics. Furthermore, the displacement of people related to the Games in Beijing in 2008 generated a robust anti-Olympic spirit around the world, putting pressure in the next host city to produce a positive legacy.

The Olympic plan for the city of London in 2012 was inspired by the Barcelona model and aimed at regenerating a peripheral area of the city. It was also officially the first city to use the legacy concept as a strategy for its candidature (Preuss, 2015). As most of the location was occupied by empty factories and sheds, dislocations of people were kept to a minimum, and the area received improvements in infrastructure and mobility. Most of the venues were built with temporary structures (to meet the requirements of the Olympic Committee) and later dismantled following the demand of the city, avoiding the construction of "white elephants". Although mostly positive, it is essential to note that the Olympic legacy of London also includes gentrification.

The Olympic Games of 2016 held in Rio de Janeiro have more similarities to the Games of 2008 in Beijing. The legacy left behind consists of monumental buildings with an uncertain future and social disruption provoked by the massive removals, primarily due to infrastructure works (Mascarenhas, 2013). Through the latest four editions of the Games, the anti-Olympic spirit grew exponentially, causing a decrease in the number of cities interest in hosting the megaevent. After three cities dropping their candidatures for hosting the Olympic Games of 2024 (Hamburg, Rome, and Budapest), the Olympic Committee, afraid of going through the episode of Los Angeles in 1984, awarded Paris and Los Angeles as host cities for the Games of 2024 and 2028 respectively.

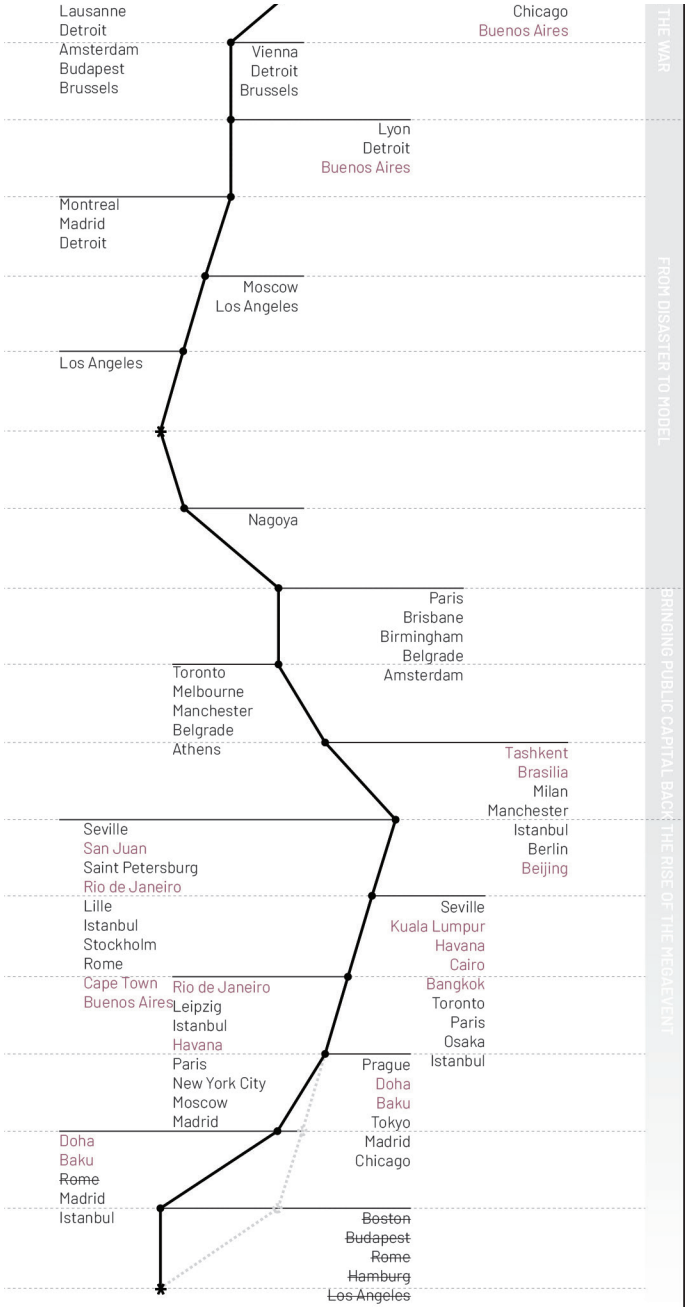
Through the historical overview of the Olympic Games, it is evident that the legacy concept was not present since its beginning. It was a concept unknowingly developed through time with the ever-growing complexity of hosting the Games. The global context always had extreme importance on the relevance and significance of the Olympic Games, leading to the reframing of the Games' objectives throughout time in order to maintain its attractiveness. The recent conscious exploration of the legacy concept by bidding cities and the Olympic Committee is just the reflection of another adjusting phase of the Olympic Games, this time to counteract the growing anti-Olympic spirit. The promise that the legacy-argument gives to hosting communities is that the high costs usually involved in the Games are also related to the potential benefits that the event can bring to the future of a city and its inhabitants (Dickson, Benson, & Blackman, 2011).

FIG. 4.2 Emblements of the Summer Olympic Games from 1886 to 2016

Retrieved from: https://alchetron.com/Summer-Olympic-Games

FIG. 4.3 Timeline of the Summer Olympic Games

Source: author, based on olympics.org



TOKYO 1964	Association of Olympic Games with urban development through the improvements in transportation infrastructure
MEXICO CITY 1968	
MUNICH 1972	Marked by a terrorist attack
MONTREAL 1976	Market by huge debt
MOSCOW 1980	Last Olympic Games held exclusively with public investments
LOS ANGELES 1984	Olympic Games held with private investment
SEOUL 1988	First time the Olympic Games were used as a strategy to regenerate an area
BARCELONA 1992	First Olympic Games used to finance urban planning Beginning of tthe creation of he legacy concept
ATLANTA 1996	Excessive commericalization of the Games left no significant legacy to the city
SYDNEY 2000	Return of the public sector to finance the Olympic Games Incorporation of environmental sustainability in the legacy
ATHENS 2004	
BEIJING 2008	
LONDON 2012	First city to use the legacy concept as a strategy for its candidature
RIO DE JANEIRO 2016	
TOKYO 2020	
PARIS 2024	
LOS ANGELES 2028	

4.3 – **The concept of legacy**

The first appearance of the legacy concept in scholarly work dates back to 1991 (Thomson et al., 2013). Since then, the term has been a theme of research for many academics from different fields, seeking a clear definition and an evaluation framework. So far, there is no clear definition of the concept of legacy in literature as the discussion is still quite recent and many authors categorize it in different ways (Agha, Fairley, & Gibson, 2012; Dickson et al., 2011; Gratton & Preuss, 2008; Thomson et al., 2013). What is commonly accepted, though, is the fact that the legacy of the Olympic Games goes beyond its spatial transformations. Gratton and Preuss (2008) presented an overview of the "various characteristics of 'legacy' mentioned in the literature" (p. 23):

> *"Examples range from commonly recognized aspects (urban planning, sport infrastructure) to less recognized intangible legacies, such as urban revival, enhanced international reputation, increased tourism, improved public welfare, additional employment, more local business opportunities, better corporate relocations, chances for city marketing, renewed community spirit, better interregional cooperation, production of ideas, production of cultural values, popular memory, educations, experience and additional know-how. These positive legacies stand in contrast to negative legacies such as debts from construction, high opportunity costs, infrastructure that is not needed after the event, temporary crowding out, loss of tourists that would have visited the host city if the event were not taking place. Property rental increases, and socially unjust displacement and redistributions."*

As seen here, despite having many facets, legacies can also be positive and/or negative. However, when used by the Olympic Games' organizers, it is mainly addressed only as positive (Cashman, 2006). The reasons for the Olympic Committee to always regard Olympic legacy as positive are related to the image of the Olympics as a provider of improvements, which has an impact on the number of future bids, and the justification of its high costs (Gratton & Preuss, 2008). Although, recently, the Olympic Committee has been acknowledging the existence of negative legacies by incorporating Preuss's (2007, p. 211) definition of legacy into their guidelines:

> *"Irrespective of the time of production and space, legacy is all planned and unplanned, positive and negative, tangible and intangible structures created for and by a sport event that remain longer than the event itself."*

Preuss's (2007) definition of legacies builds upon the work of Cashman (2006) and Chappelet (2006). While the former defines six categories of legacy (sport; economics; infrastructure; information and education; public life, politics and culture; and symbols, memory, and history), the latter creates a similar classification but divided into only five categories (sports; economics; infrastructure; urban; and social). Preuss (2007) states that those categories need a broader perspective and suggest five dimensions of legacy: planned/unplanned, positive/negative, tangible/intangible, duration and time, and space. Therefore, with these new dimensions, Preuss (2007) acknowledges the existence of not only positive legacies but also negative ones.

In further research, Preuss (2015) expands his definition of legacy, arguing that it develops from the structural changes that the host city goes through. Five categories

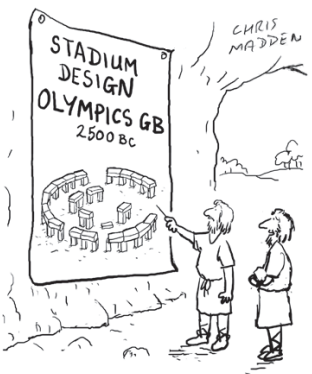
of structural changes are proposed, which can be related to the previous definitions given by Cashman (2006) and Chappelet (2006): infrastructure, knowledge, policy, networks, and emotions (see table 01).

EVENT STRUCTURE	EXAMPLES
Infrastructure	Roads, airports, public transport, venues, parks, power supply, sewage plants, recycling factories, harbours, housing, beaches, fairgrounds
Knowledge	Volunteering, bidding processes, employee up-skilling, school education programmes, event organisation, research, service skills
Policy	Education (school curricula), security, sport, environment, social, public policies (city, state and nation), laws
Networks	Politicians, sport officials, environmental activists, security persons
Emotions	Image, celebration, camaraderie, memories, stories 'to talk about', a sense of belonging, activism

TABLE 4.1 Examples of event structures. By Preuss (2015).

It is noticeable that, although still immature, the discussion revolving around the legacy concept has been developing in the last years. A complete definition of legacy is being explored by many authors, as it is a research of great importance for the future of the Olympic Games and the planning of host cities. It already showed the potential to change the current state-of-art by triggering a change in the shallow perception of the concept adopted by the Olympic committee. It can be argued that it will soon also help with the creation of better planning of event legacies in the future.

Following the field of this research, the analysis of the case will focus on the two event structures that have a direct influence on the configuration of cities: infrastructure and policy. These two categories are also closely related to what Vainer (2016) calls 'city of exception'. The creation or changes of urban policies during the Olympic Games, which often occur due to the tight agenda of the event, form the legal support for the infrastructure works to take place.



"It's a fantastic design, but I'm worried that after the games it'll just end up as a useless load of stone with no legacy potential."

FIG. 4.4 Cartoon mocking the construction of Olympic venues which usually end up without use

by Chris Madden

4.4 – **City of Exception**

According to Vainer (2011), by hosting the Olympic Games of 2016, the city of Rio de Janeiro created a new understanding of the city and urban planning. The creation of a new coalition of local power, which was strongly related to capital, led to the establishment of the "city of exception". In this situation, the "law becomes liable for legal disrespect, and increasing portions of state public functions are transferred to agencies free of bureaucracy and political control." (Vainer, 2011, p. 29). This concept reveals the negative changes that take place in urban planning when a city hosts the Olympic Games in order to use it to attract investment. It distorts the law and manipulates planning tools at the service of the private interest of influential groups.

Vainer's 'city of exception' concept derives from Agamben's (2005) idea of the 'state of exception', which describes how laws are suspended in periods of crisis as a way to help tackling unexpected events (Sánchez & Broudehoux, 2013). As the action of hosting mega-events, with their embedded tight agenda and deadlines, clashes with the long-term and slow pace of planning development of cities, they can be considered an unexpected event. Under this new perspective that falls on the host city, combined with the already existing pressure of the globalized world, the implementation of neoliberal urban policies which consent the relaxation of rules and obligations, are facilitated (Sánchez & Broudehoux, 2013). The adoption of a strategic plan rather than a master plan can be seen as a tool for this process.

The strategic plan is intended to be flexible and market-friendly, which, according to Castells and Borja (1996), requires breaking the separation between the private and public sectors. Under Vainer's concept of exception, this is seen as the distribution of public goods to the private capital, transforming the city into a commodity-city, radically denying the city as a political space by setting aside their laws and favoring the desires of private sectors (Sánchez & Broudehoux, 2013; Carvalho & Rodrigues, 2016).

By the logic of Olympic urban planning, which requires the creation of certain clusters in the city in order to minimize commuting, the strategic planning created under the perspective of hosting such an event, is not evenly distributed throughout the city. Rather, it creates "self-governing extraterritorial enclaves, constituted as special autonomous zones - a kind of a state within the state - where political and ethical responsibilities are blurred and sovereign law is suspended." (Sánchez & Broudehoux, 2013, p. 136). Furthermore, in these "extraterritorial enclaves", removals of the most vulnerable people are a common practice, which indicates that this city is not being made for them. Urban planning becomes, thus, a tool for the commodification of the city instead of the realization of social justice and the right to the city (Carvalho & Rodrigues, 2016). The Olympic Games, therefore, fully and intensely realize Vainer's concept.

4.5 – **Right to the city**

Lefebvre's concept starts from one fundamental principle of Marx's theory: the man as the subject of his history. From there, he formulates the claim to the right to the city as a necessity to counter the process of cities' submission to the capitalist development that was underway. Then, he argues that the path by which man would reach the city as an organic totality socially produced by each individual who inhabits that space would be through the struggle for the right to the city. Therefore, this can only happen when citizens take ownership of space and transform it to satisfy and expand the needs and possibilities of the community (Rodrigues & Santiago, 2016).

Harvey (2012) argues that the revival of the right to the city concept coined by Lefebvre in 1967 is a consequence of the urban social movements happening in the last decades all over the world, which are trying to fight back the current processes of urbanization and reurbanization, merely forms of reproduction of domination. In other words, these movements are claiming the right to the city, as described by Harvey, (2012, p.4):

> **"The right to the city is, therefore, far more than a right of individual or group access to the resources that the city embodies: it is a right to change and reinvent the city more after our hearts' desire. It is, moreover, a collective rather than an individual right, since reinventing the city inevitably depends upon the exercise of a collective power over the processes of urbanization."**

However, Harvey (2012) still states that the current existing right to the city is confined to a minority, constituted by a political and economic elite who shape the city to their interests. This scenario is clearly illustrated in the realization of the Olympics in the city of Rio de Janeiro, as shown in the previous section. The demonstrations that occurred in the meantime are a representation of an opposition that started to take shape against this way of domination shrouded in the urban reforms for the Olympics. And it is in this scenario that Lefebvre's theory gains strength and should be enhanced, as it is in the spontaneous manifestations that occur in moments of disruption where the possibility of changes through collective action arises. Furthermore, Harvey (2012, p.125) still assumes that the "oppressive power of the state" can be weakened as "opposition movements of various sorts [...] gather momentum within civil society". Therefore, the city of Rio de Janeiro needs to take advantage of this impulse generated by the disturbances caused by the Olympic Games for its benefit, to reconstruct a different city, a more inclusive one.

4.6 – **Inclusive city**

As previously mentioned, the Olympic Games in Rio created the 'city of exception' and ignored the 'right to the city', as citizen participation in the creation of the so-called Olympic city was left out, especially the most vulnerable classes. This process increased socio-spatial segregation within the city but, at the same time, sparked a movement within civil society, which created an awareness of the socio-spatial impacts of the neoliberal planning strategies being adopted. This movement can be exemplified by the conflicts that emerged all over the city, mostly on places under the threat of removals and dislocations. The example of 'Vila Autódromo', a community in the vicinity of the Olympic Park which was threatened to be removed and that, through many struggles, was able to stay in their territory partially, shows an apparent demand for more inclusive planning strategies, as the community itself created a counteraction plan adapting the needs of the community to the needs of the Olympic city. A clear cry for inclusion.

An inclusive city should "value all people and their needs equally" (Schreiber, 2016, p.322). It should "foster the development of a harmonious society in which all groups have a sense of belonging, participation, inclusion, recognition and legitimacy" (Boucher and Samad in Schreiber, 2016, p.322). The inclusive city should provide opportunities for all, spatially, socially, and economically.

Social cohesion is a crucial element in achieving these goals. The creation of possibilities for social interaction between different groups create tights between them and helps to build a sense of belonging. However, social cohesion can not be achieved by changes only in the physical environment. It is necessary to combine them with social measures that foster new economic opportunities and interactions (Schreiber, 2016). Moreover, to foster truly inclusive cities, it is necessary to be able to read and understand the local reality in order to find the right elements to counteract existing inequalities. Therefore, social participation is key to grasping the needs and struggles of a specific society in order to guarantee their social rights.

Social participation is a legal right in Brazil conquered by the 1988 Constitution, which introduced different forms of social participation aimed at guaranteeing established social rights in various fields. However, in the case of Rio de Janeiro, social participation initiatives promoted by the municipality are just ways to legitimize plans and policies already in development (Faria and Tanscheit, 2016). According to Arnstein's ladder of citizen participation, this approach is closely related to the third step: informing. Arnstein (1969, p. 219) says that this is an "important first step toward legitimate citizen participation", but adds that "too frequently the emphasis is placed on a one-way flow of information - from officials to citizens - with no channel provided for feedback and no power for negotiation.".

However, the plans for the city of Rio de Janeiro to host the Olympic Games do not fall into the same category of Arnstein's ladder of citizen participation. This process was driven by interests of coalitions of power of the city, and civil society was not incorporated into the planning, making it closely related to the first step: manipulation, which distorts "participation into a public relations vehicle by powerholders.". This weakened trust of civil society in the public sector and created a city even more segregated, with the superimposing of a distorted city image into the local reality.

4.7 – **Final Considerations**

The emergence of unplanned negative legacies in the post-event period seems to be a common reality to most of the host cities, no matter how much the Olympic Committee tries to avoid them by reinventing the Games every few decades. Even with the increasing emphasis on strategic planning for legacy (Thomson et al., 2013), negative legacies are still not totally avoided. The short time agenda of the Olympics, contrasted with the long inclusive planning in which civil society can participate, allied to lack of accountability in the post-event phase, and the influence of market-led interests and externalities leads to the appearance of such unplanned negative legacies in many hosting cities. This is even more evident in hosting cities from developing countries with "flawed democracies" (Müller & Gaffney, 2018, p. 250).

Olympic Games are a powerful mechanism to accelerate improvements and generate positive legacies; however, the dichotomy between the short-term period of the event and the long-term needs of cities also produce negative legacies that sometimes overshadow the positive ones. As much as research has shown the importance of legacy definition and better planning, it does not seem sufficient to deal with the negative outcomes. It is necessary to acknowledge that negative legacies are inherent to the Games and to search for solutions when the legacy plan is not followed through in the post-event period. While the legacy planning can be seen as a contingency plan, where it attempts to foresee and mitigate the negative outcomes, a framework for dealing with the post-event failures can be seen as damage control, where a set of measures can be taken in order to revert the unplanned negative outcomes of the event. Integrating both strategies can be a more robust and efficient tactic to leverage the positive outcomes and mitigate the negative ones.

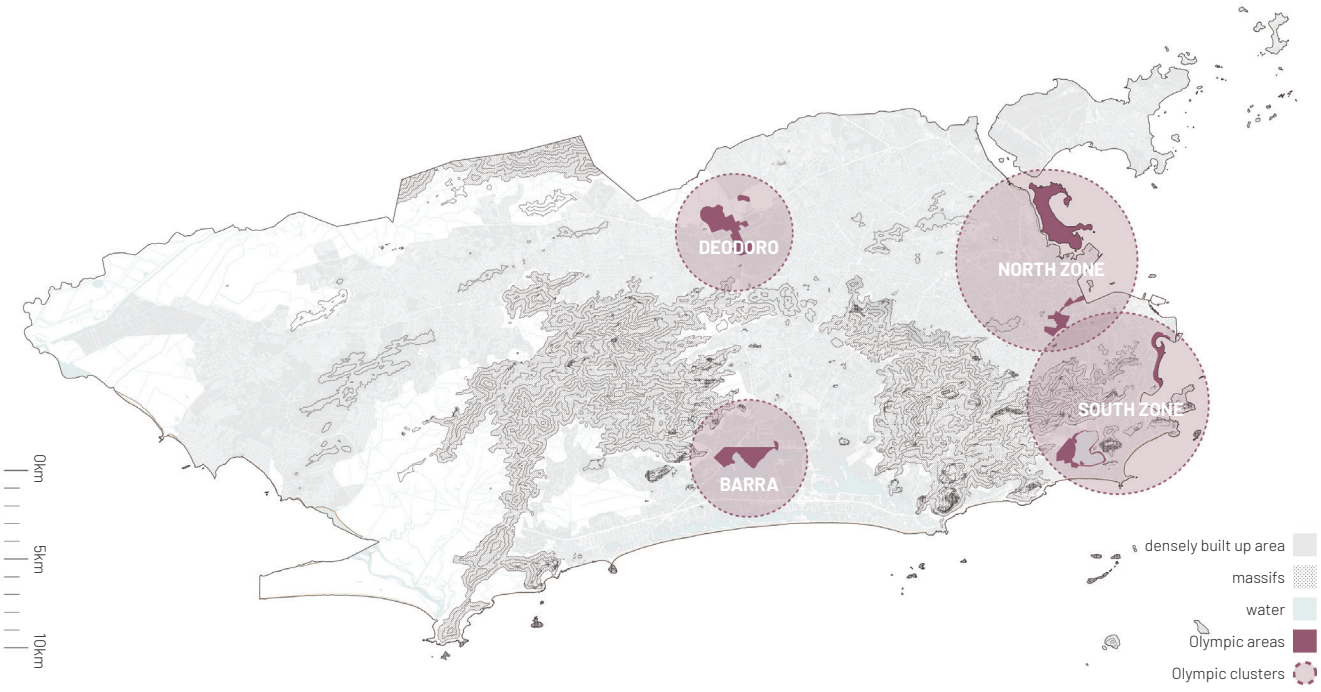
If such a strategy is applied to the case of Rio, it opens up space for the most vulnerable population to also thrive with the benefits brought by the Olympic Games. As the trust of civil society on the government was lost, it is essential to restore this connection. By transforming Olympic venues to generate value to the community and creating links between the event and the current needs of the population, fundamental rights can be restored, and post-game positive legacies can be recreated (Cashman, 2003; Santos Neto et al., 2018).

As much as planning for legacy is increasingly becoming important to avoid the negative outcomes of the Olympic Games, the creation of a framework to deal with the unplanned negative legacy in the post-event period should also be considered of paramount importance. Legacy is still a recent concept which emerged in the Olympic context through time as a response to structural changes happening in the world. Moreover, although much has been done in trying to define and evaluate it, there are still essential gaps to be addressed, especially regarding the negative aspects of it. By developing new strategies to tackle these gaps, it is possible to create more sustainable Olympic Games, which can promote the city in the global economic context while bringing benefits to the population of the host city.

PART 3

Rio 2016

"A new world"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NORTH ZONE
SOUTH ZONE
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0km
5km
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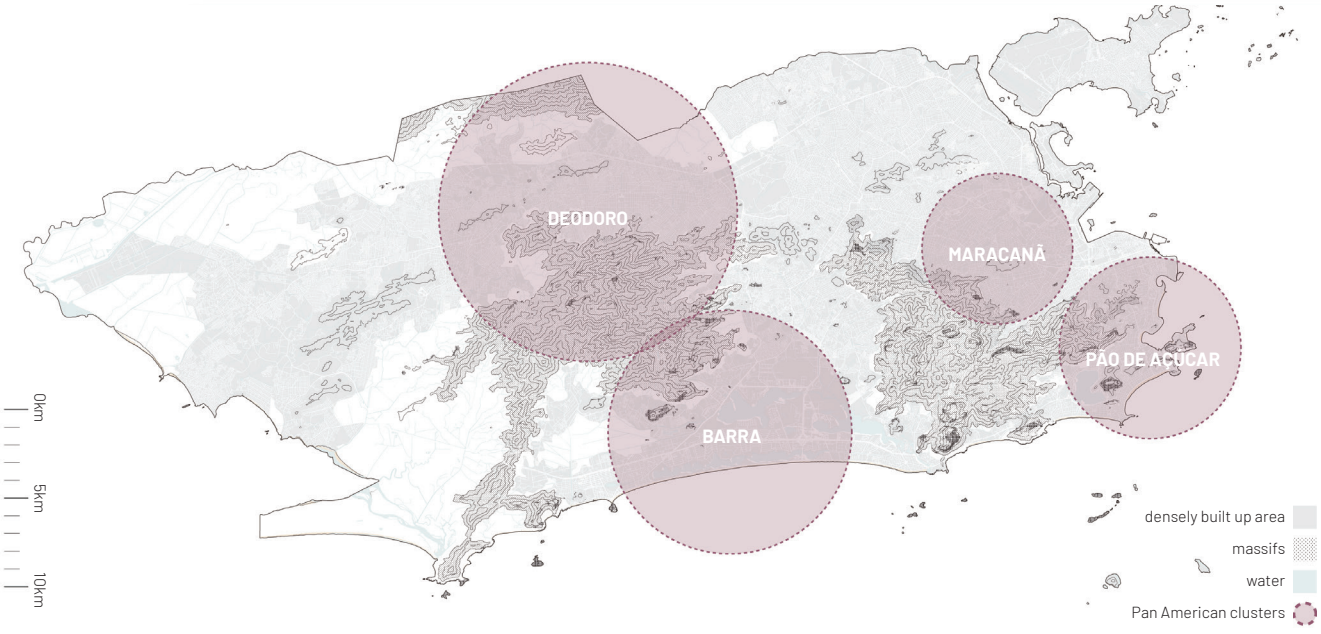
densely built up area
massifs
water
Olympic areas
Olympic clusters


DEODORO
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PÃO DE AÇUCAR
BARRA
0km
5km
10km
densely built up area
massifs
water
Pan American clusters

5 – Olympics in Rio

5.1 – **The Candidate City**

The intention of the government of the city of Rio de Janeiro to host the Olympic Games dates back to the mid-1990s, following the successful case of Barcelona in 1992. The Barcelona Olympic Games changed the image of the city and attracted the attention of Rio's politics as they were looking for a strategy on how to project a new image of the city, which has been marked by high levels of crime and urban violence. Therefore, still in 1992, Catalan specialists were hired to assist in the creation of the first strategic planning of the city of Rio de Janeiro, with the aim to bid for the Games of 2004 (Silvestre, 2017).

The first plan identified possible intervention sites for locating the equipment that had to be built for the Olympics. Four main locations were considered as 'undisputed', due to their history, location, or structure: the Maracanã sports complex, the military village in Deodoro, the Marina da Glória, and the Rodrigo de Freitas Lagoon rowing stadium. Other regions were sought as potential areas that could go through urban interventions and promote improvements in its surroundings while maintaining the compactness required by the Olympics. Two main zones of the city appeared from this analysis: the North Zone and Barra da Tijuca. The former was picked to concentrate most of the Olympic venues to be built, while the latter was incorporated in the plan by reusing existing infrastructure. Thus, the interventions to happen in the city would be balanced throughout the geographical composition of the city (Silvestre, 2017).

FIG. 5.1 Rio's 2004 Olympic Games Plan

Source: author, based on DataRio, Geofabriek, INEA, the Official Plan, retrieved from: https://m.vitruvius.com.br/revistas/read/arquitextos/17.200/6390

Silvestre (2017) also points out the disagreements between the Catalan specialists and the government of Rio de Janeiro regarding the preference of the North Zone over Barra da Tijuca. The arguments of the Catalan side for prioritizing the North Zone were related to avoiding market speculation and to promote the construction of sports venues in the area of the city that was the least endowed with sports facilities. Although not implemented in the urban plan sent for the candidature of the 2004 Olympic Games, this preference of the public power was resumed and fulfilled in future mega-event candidacies of the city, for instance in the plan for the Pan American Games of 2007.

The locations of the 2007 Pan American Games (Barra da Tijuca, South Zone, Maracanã, and the military village in Deodoro) remained in the Olympic plans of the city of Rio de Janeiro despite the defeats in previous applications and the time interval between them. It indicates that the urban dynamics and interests were maintained in these areas, and what changed from one candidature to another was the legacy discourse. While the first plan developed by the Catalans featured a discourse of urban restructuring and social impact, the bid for 2012 was based on the experience that would be gained with the Pan American 2007. For the bid for 2016, the discourse was based on the unique opportunity for the city to transform its deficient urban infrastructure and change its reality through the experience of the Games (Côrrea, 2019).

FIG. 5.2 Rio's 2007 Pan American Games Plan

Source: author, based on DataRio, Geofabriek, INEA, the Official Plan, retrieved from: http://www.marcillio.com/rio/enpanloc.html

5.2 – **The Olympic City**

The winning bid proposal of 2016 had the same locations from the proposal for 2012 and for the 2007 Pan American Games (Barra da Tijuca, South Zone, Maracanã, and the military village in Deodoro) with the addition of the city's port area. The latter was not included in the original Olympic bid, but once the city was chosen to be the host of the Games, local authorities persuaded the Olympic Committee to transfer some non-sport related functions to the area (Côrrea, 2019; Sánchez & Broudehoux, 2013). Therefore, renovation of the port area, a project planned for many years, is resumed and comprises of structural improvements and the creation of facilities linked to entertainment and tourism, transforming the area into a lively residential neighborhood reconnected to the city (Comitê Rio 2016, 2009a).

According to the first volume of the candidature dossier (Comitê Rio 2016, 2009a), the Olympic Games of 2016 would serve as a catalyst and as an accelerator of transformations, guaranteeing a sustainable legacy for the city. The preoccupation with the city's image is emphasized by multiple mentions (both in the original Olympic bid and in the latter legacy plan document) to its natural landscape as an attractor for investments and for the association with the Olympic brand, which makes evident the aspiration of the city to become a global city.

"The Rio 2016 Games, held for the first time in a new continent and a city that has an unrivaled international image, will open new horizons and create a growing interest and enthusiasm during the four years of the Olympics. Media and sponsors will not miss the opportunity to identify with this new destination, and additional value will be added to the Olympic and Paralympic brands."

(Comitê Rio 2016, 2009a, p. 18)

"The Rio 2016 Games will also make it possible to achieve global aspirations for the future of the city, region, and country, with a long-term vision. It will be the opportunity to accelerate the transformation of Rio de Janeiro into a truly international city."

(Comitê Rio 2016, 2009a, p. 18)

The master plan of the Olympic Games of Rio 2016 would bring about infrastructure improvements, renovation of the city's port area, and improvements in security and mobility besides accelerating the implementation of sustainable development projects linked to ecologically sensitive areas (Comitê Rio 2016, 2009a). Regarding urban interventions, mobility is the key element that causes most transformations. Its main legacy is the construction of a "[...] High Capacity Transport Ring, which will comprise a fully renovated train system, a refurbished subway system, and three new Bus Rapid Transit (BRT) systems." (Comitê Rio 2016, 2009c, p. 96).

The sports legacy is also a key factor for urban intervention, and "Rio 2016's most significant legacy project is the Barra[1]-based Olympic Training Center (OCT), next to the Olympic and Paralympic Village" (Comitê Rio 2016, 2009b, p. 12). Furthermore, according to the public policy booklet entitled "Rio 2016 - Jogos Olímpicos e Legado" (Rio Prefeitura, n.d.), the handball arena located within the Olympic Park is a nomad

[1] This refers to the Barra da Tijuca neighbourhood.

architecture and will be dismantled after the Games and transformed into four public municipal schools (three in Barra da Tijuca and Jacarépaguá and one in São Cristóvão). Another essential sports legacy is the construction of the Radical Park in Deodoro, which would be transformed into a sport's park for the community after the Games are over (Comitê Rio 2016, 2009b).

According to the Dossiê de Candidatura - Volume 1 (Comitê Rio 2016, 2009a), the Olympic Games would act as a catalyst for the recovery of water bodies in the city, especially the Guanabara Bay, stage for many water sports. Furthermore, reforestation also appears as one of the key projects with a promise of planting 24 million seedlings to offset the environmental impact of the Games. The Olympic Village is also portrayed as a sustainable project, which will be transformed into an upscaled residential development, "providing housing in a region in high demand." (Comitê Rio 2016, 2009b, p. 196).

A few changes occured between the original bid and the legacy plan, some due to interests of coalitions of power of the city (the inclusion of the port zone, the replacement of part of a BRT line to the extension of the new metro line, the extension of one of the BRT lines and creation of another) and other due to the requirement of the Olympic Committee (the addition of a golf course).

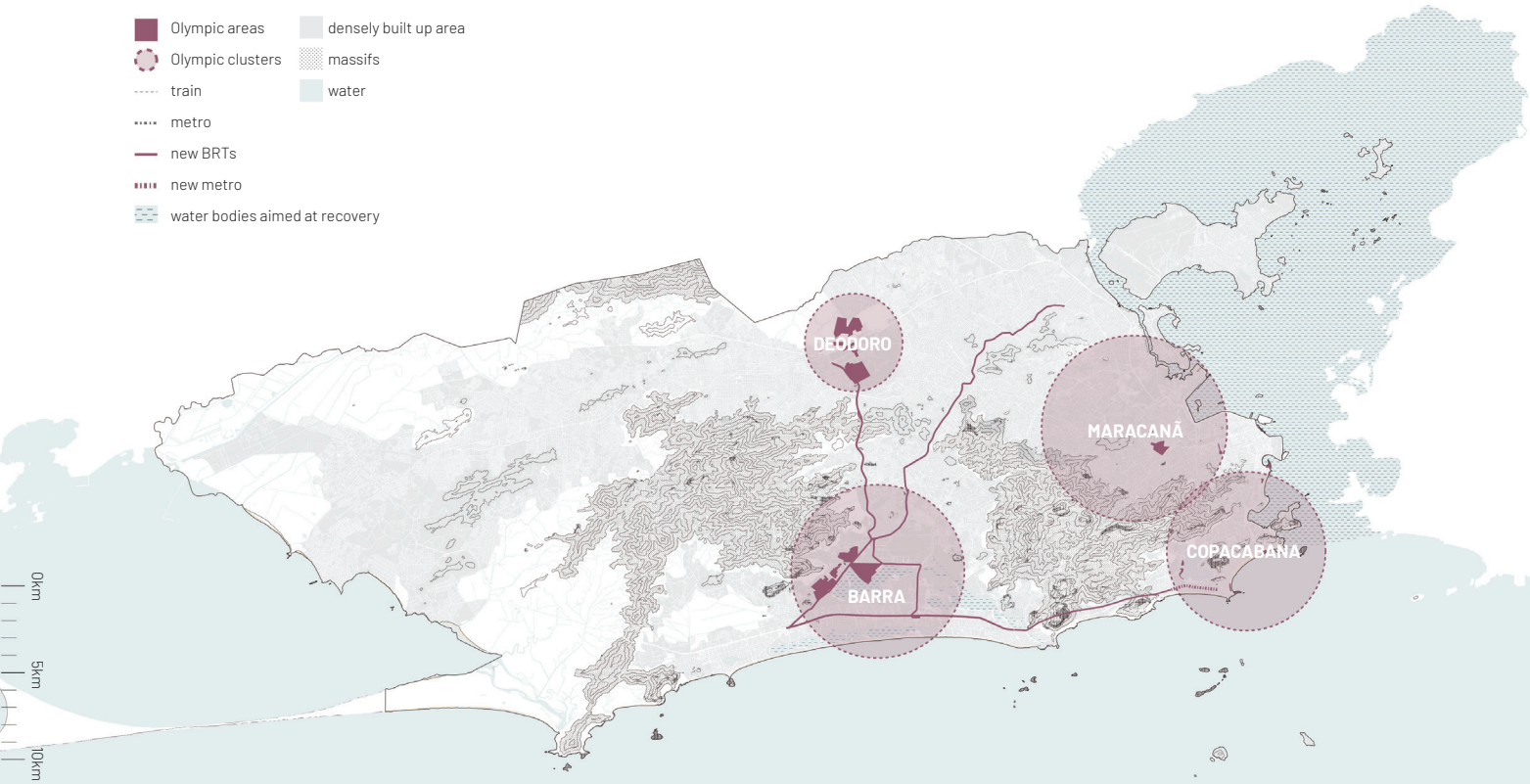


FIG. 5.3 Rio's 2016 Olympic Games Plan

Source: author, based on DataRio, Geofabriek, INEA, the Official Olympic Application Dossier (Dossiê de Candidatura)

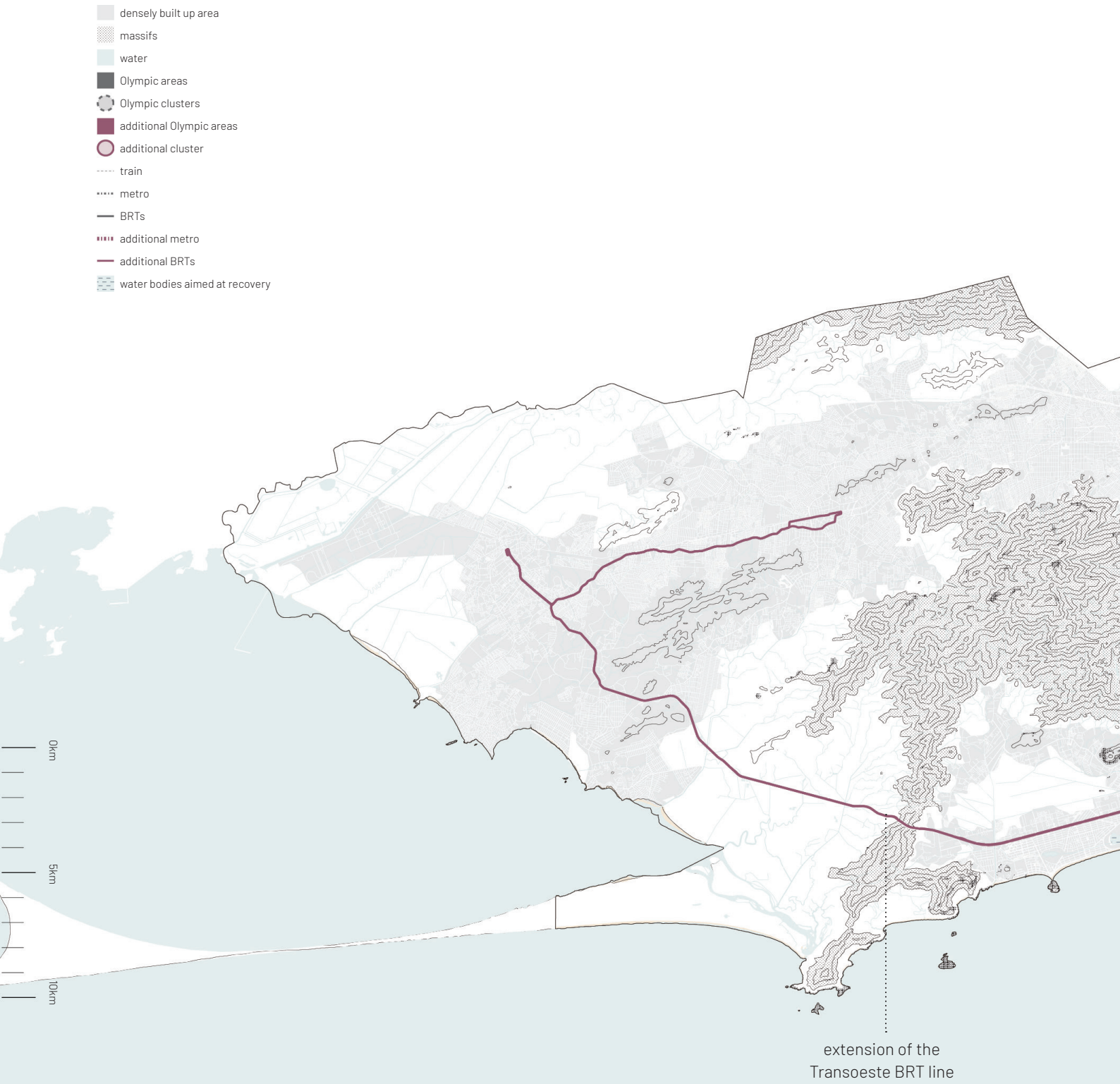


FIG. 5.4 Changes in the plans from the bidding proposal.
Source: author, based on DataRio, Geofabriek, INEA

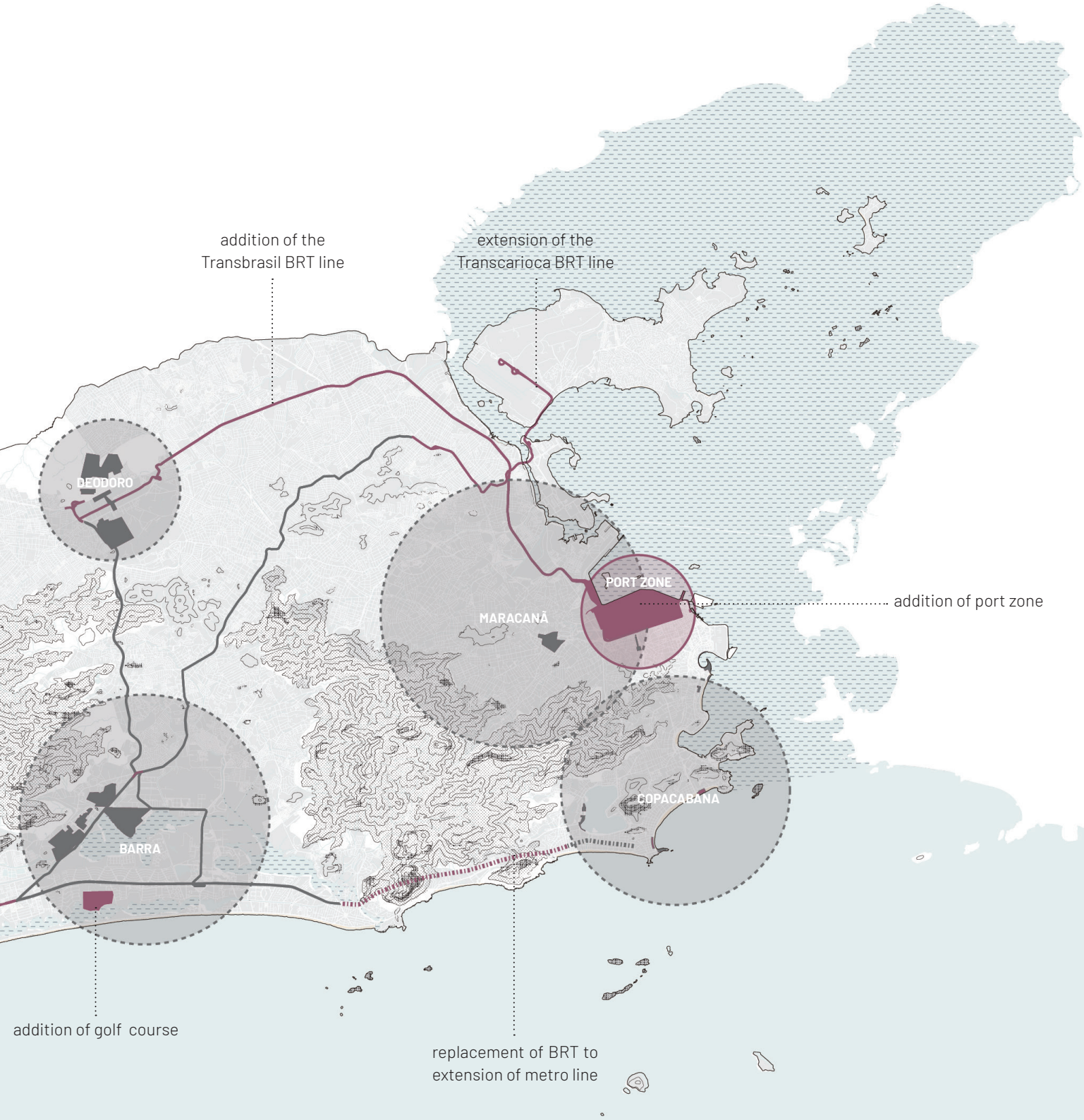

addition of the
Transbrasil BRT line
extension of the
Transcarioca BRT line
DEODORO
PORT ZONE
addition of port zone
MARACANÃ
COPACABANA
BARRA
addition of golf course
replacement of BRT to
extension of metro line

FIG. 5.5 Closing cerimony of the 2016 Olympic Games in Maracanã stadium

by Patric Smith. Retrieved from https://www.olympic.org/news/brazil-can-prove-the-skeptics-wrong-again

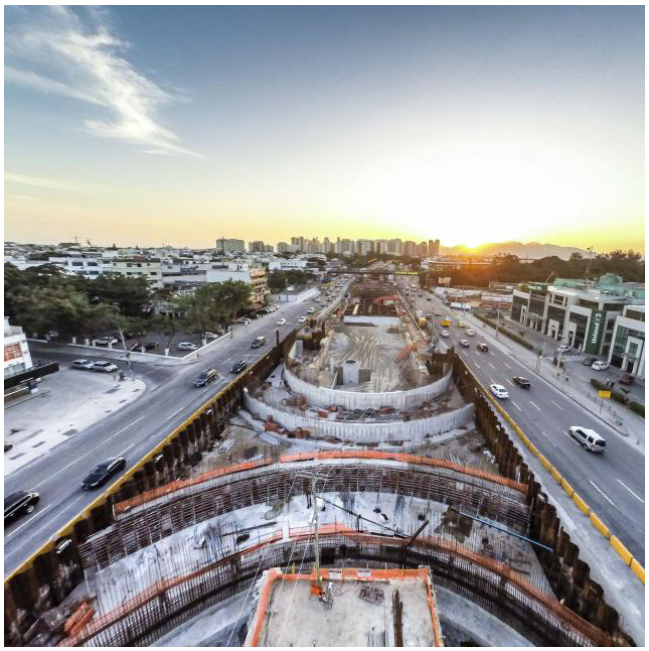
5.3 – **The Host City**

The Olympic Games of 2016 took place between August 5th and August 21st of the same year in the city of Rio de Janeiro, and concerning the event itself, it was considered an enormous success. Nevertheless, a few days before the Games, the city was struggling to keep up with the requirements for the realization of the event, and Rio's government decreed a state of public calamity (Baron, 2014).

Mobility works, such as the extra line of the metro network, were under the risk of not being delivered on time. The new BRT line proposed after the candidature (TransBrasil) was not delivered on time, and the Light Rail Vehicle (LRV) of the port area project was only partially working during the Games. The promised renovation of the railway network was also shortened, with only the train stations close to the Olympic clusters receiving improvements (Neto et al., 2018).

The remediation of the Guanabara Bay, one of the most anticipated legacies which would give Rio's landscape and liveability a considerable upgrade, was not even close to being achieved. Furthermore, the promise of a residential neighborhood in the port area was abandoned halfway, leaving behind building's skeletons (Bastos, 2014; Fernandes, 2016).

1



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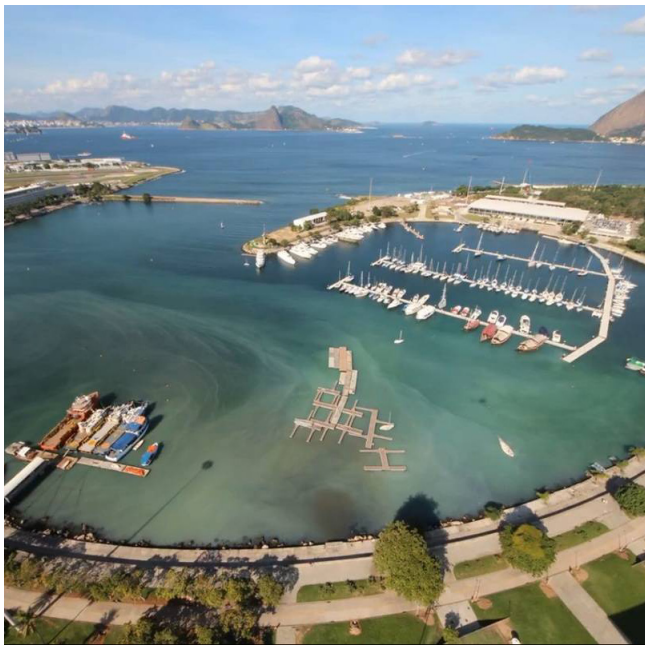


3

4

FIG. 5.6 (1)(3) Debris and sewage stains in the Guanabara Bay

Photos by Cristiano Trad Soares de Nazaré (1) and by Mário Moscatelli (3).

(1) Retrieved from: https://noticias.r7.com/rio-de-janeiro/fotos/as-vesperas-das-olimpiadas-biologo-flagra-mancha-de-esgoto-na-baia-de-guanabara-24112016#!/foto/1
(3). Retrieved from: http://g1.globo.com/rio-de-janeiro/vc-no-g1-rj/noticia/2013/07/internauta-fotografa-baia-da-guanabara-no-rio-repleta-de-lixo.html

(2)(4) Mobility works (metro and BRT) for the 2016 Olympic Games

Photos by GERJ (2)(4).

(2) Retrieved from: https://fotospublicas.com/obras-da-linha-4-do-metro-do-rio-de-janeiro/

(4) Retrieved from: http://www.shreditorial.com.br/brasil-tem-335-obras-de-mobilidade-paradas-atrasadas-ou-que-sequer-foram-iniciadas/

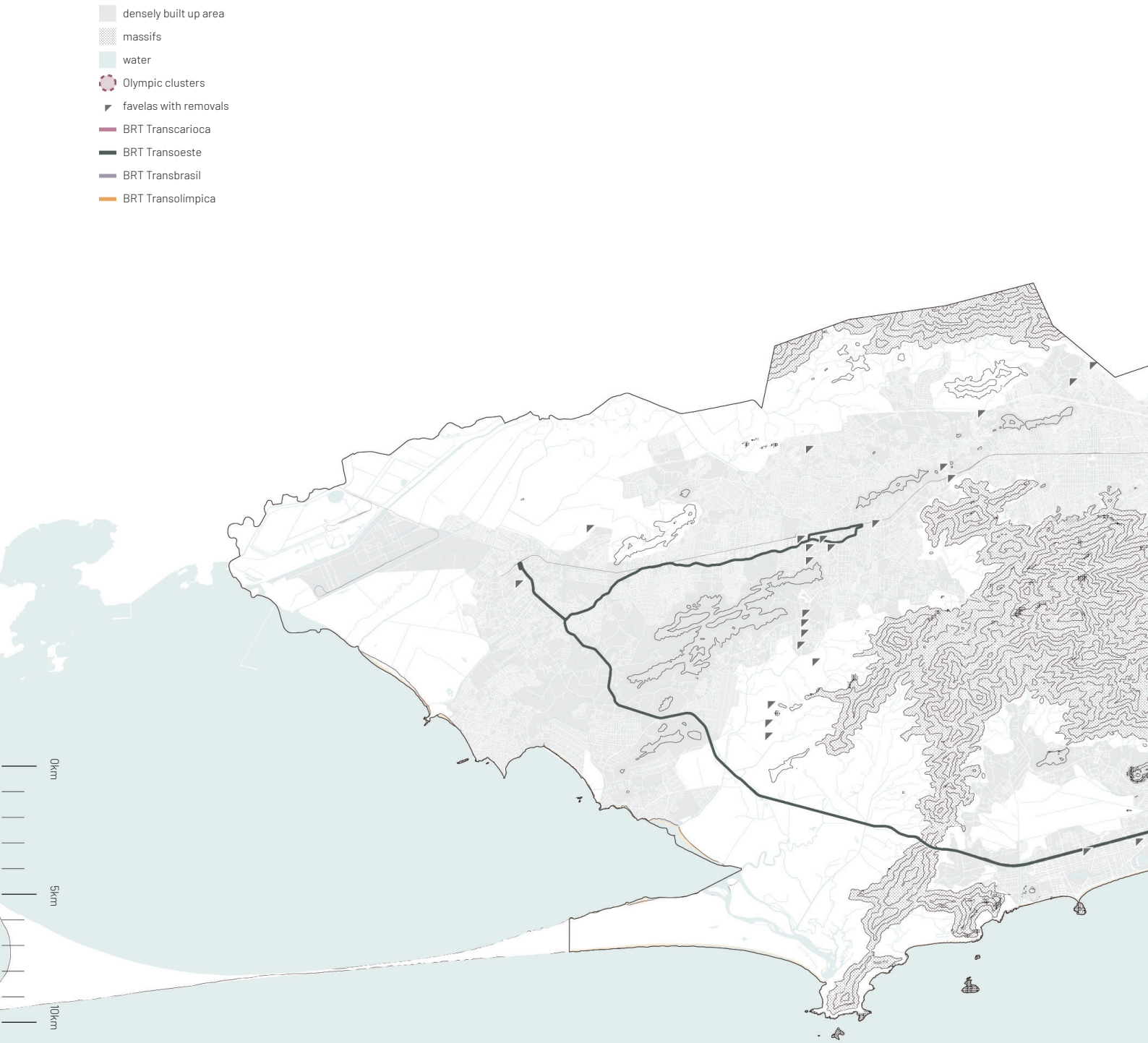
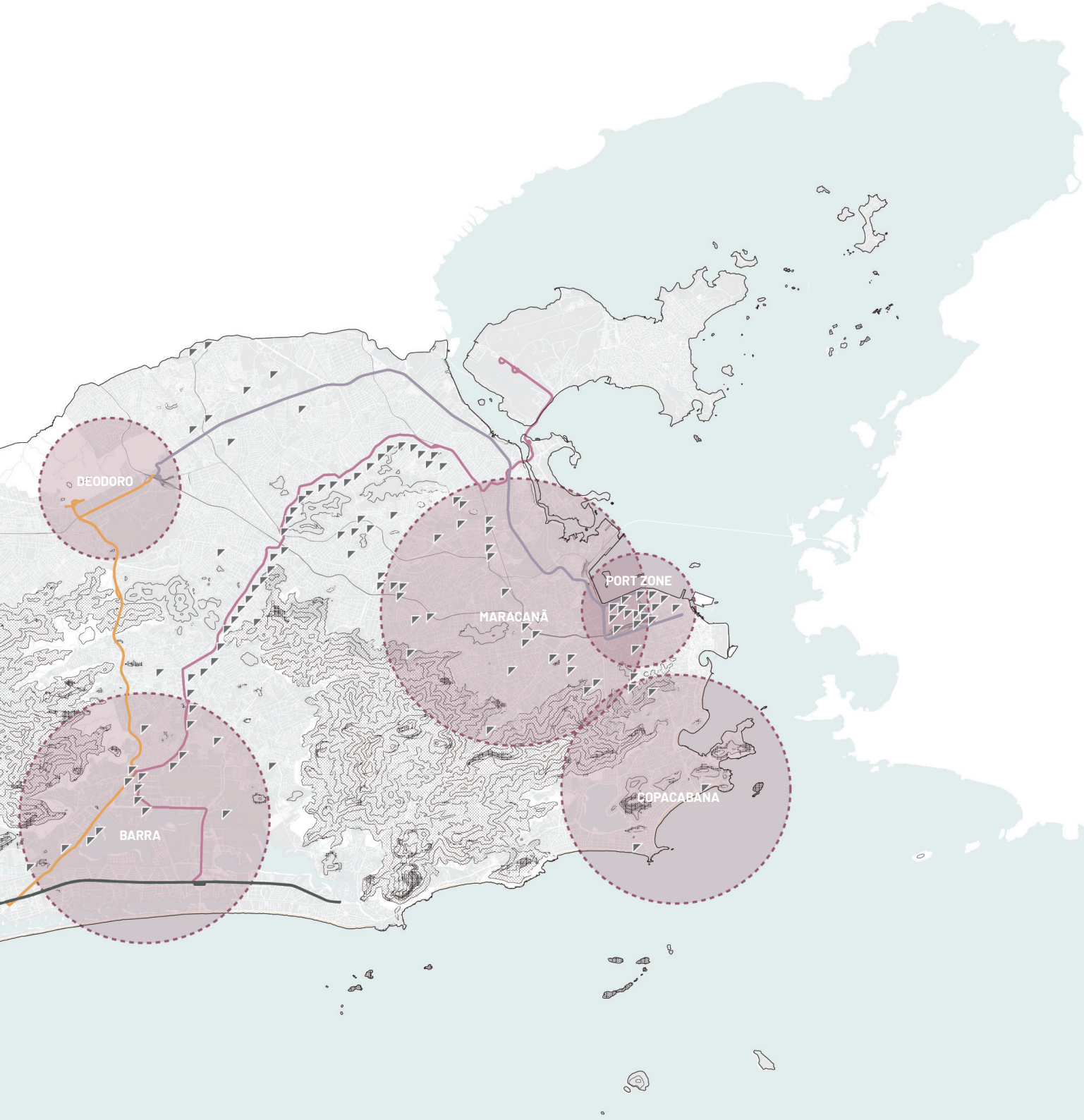


FIG. 5.7 Removals along transportation infrastructure related to the Olympic Games

Source: author, based on DataRio, Geofabriek, INEA ,the book "SHM 2016: remoções no Rio de Janeiro Olímpico" (2015)


DEODORO
PORT ZONE
MARACANÃ
COPACABANA
BARRA

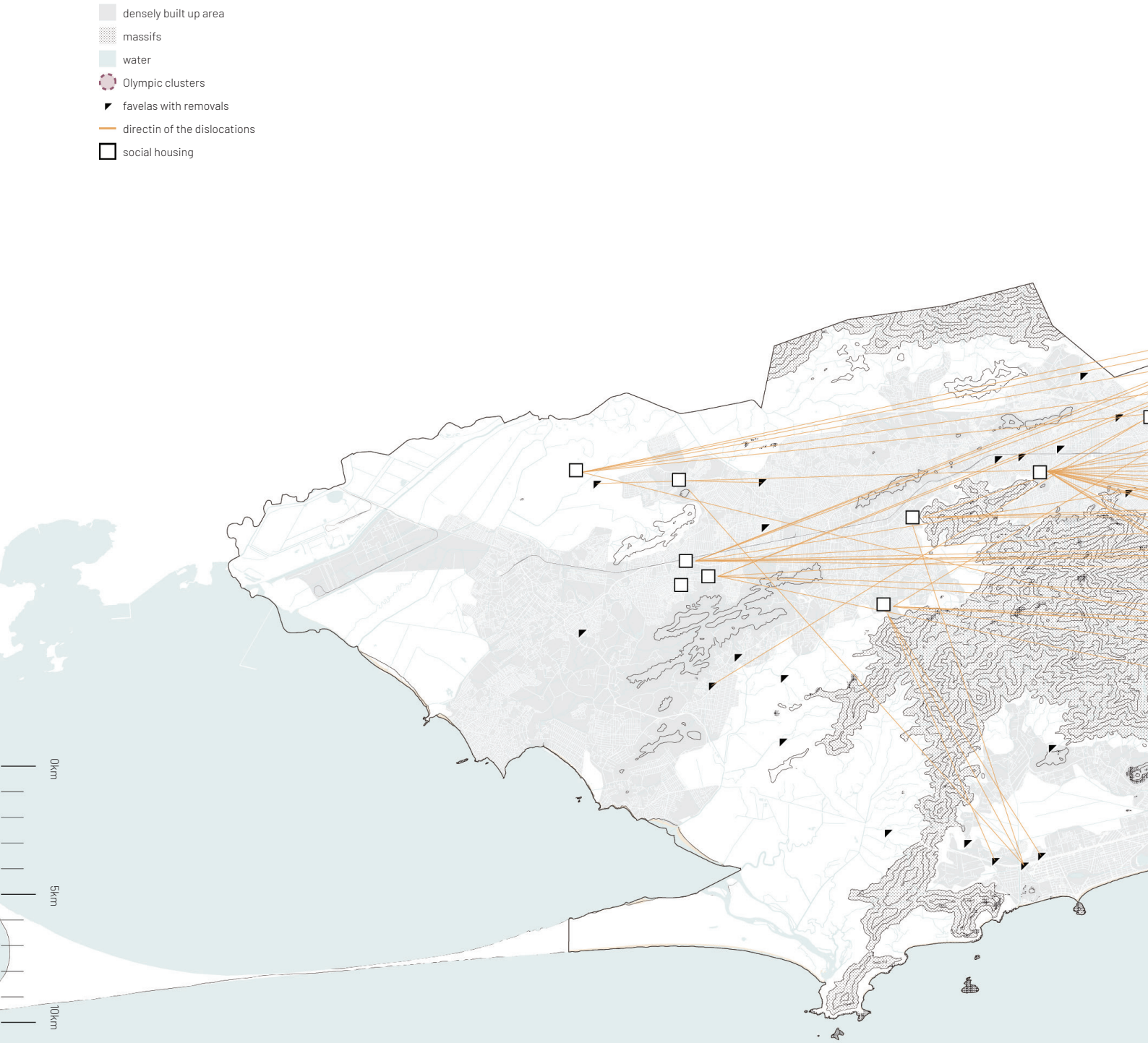
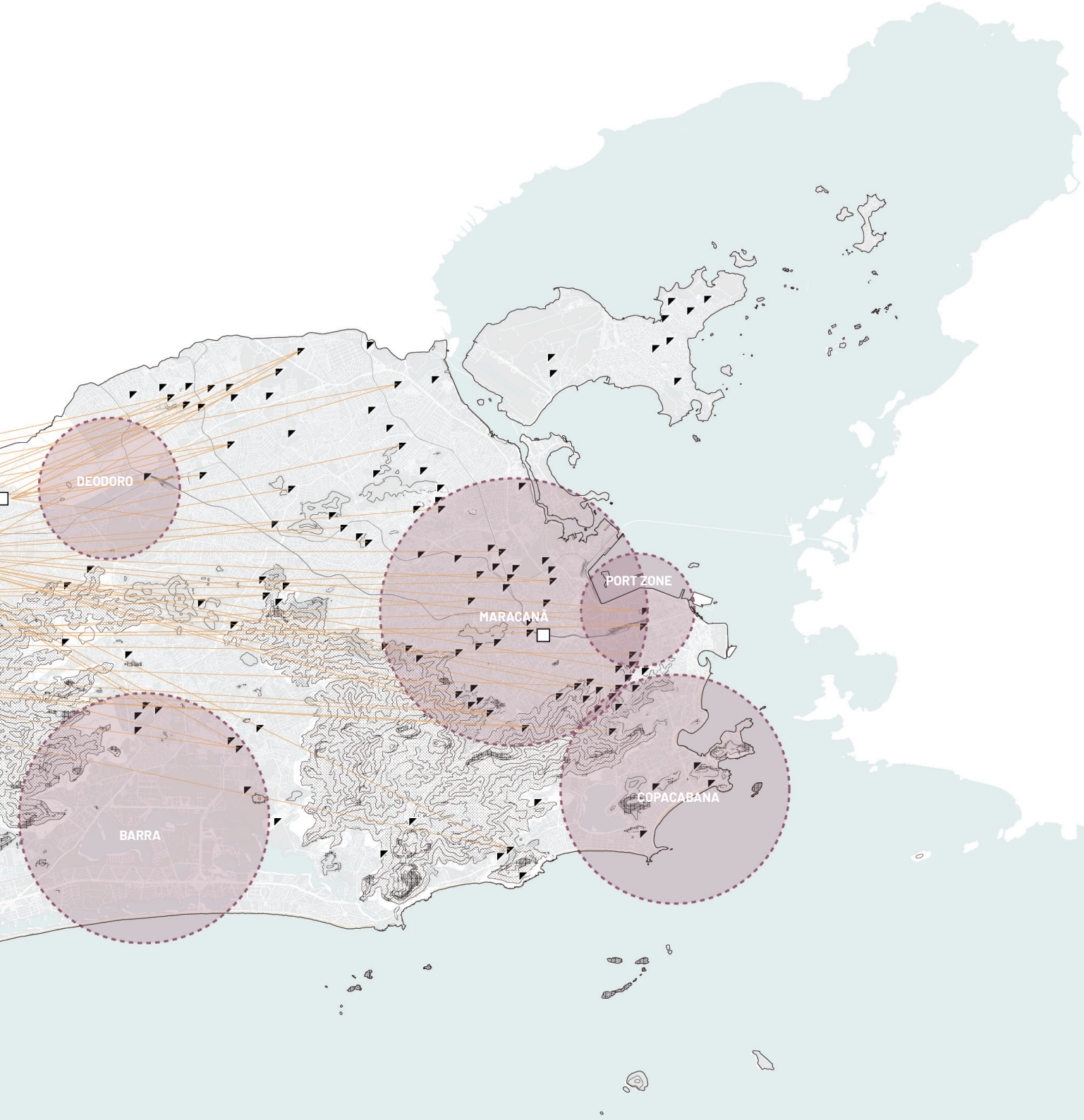


FIG. 5.8 Relocation of people to social housing in the suburban area

Source: author, based on DataRio, Geofabriek, INEA ,the book "SHM 2016: remoções no Rio de Janeiro Olímpico" (2015)


DEODORO
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COPACABANA
BARRA

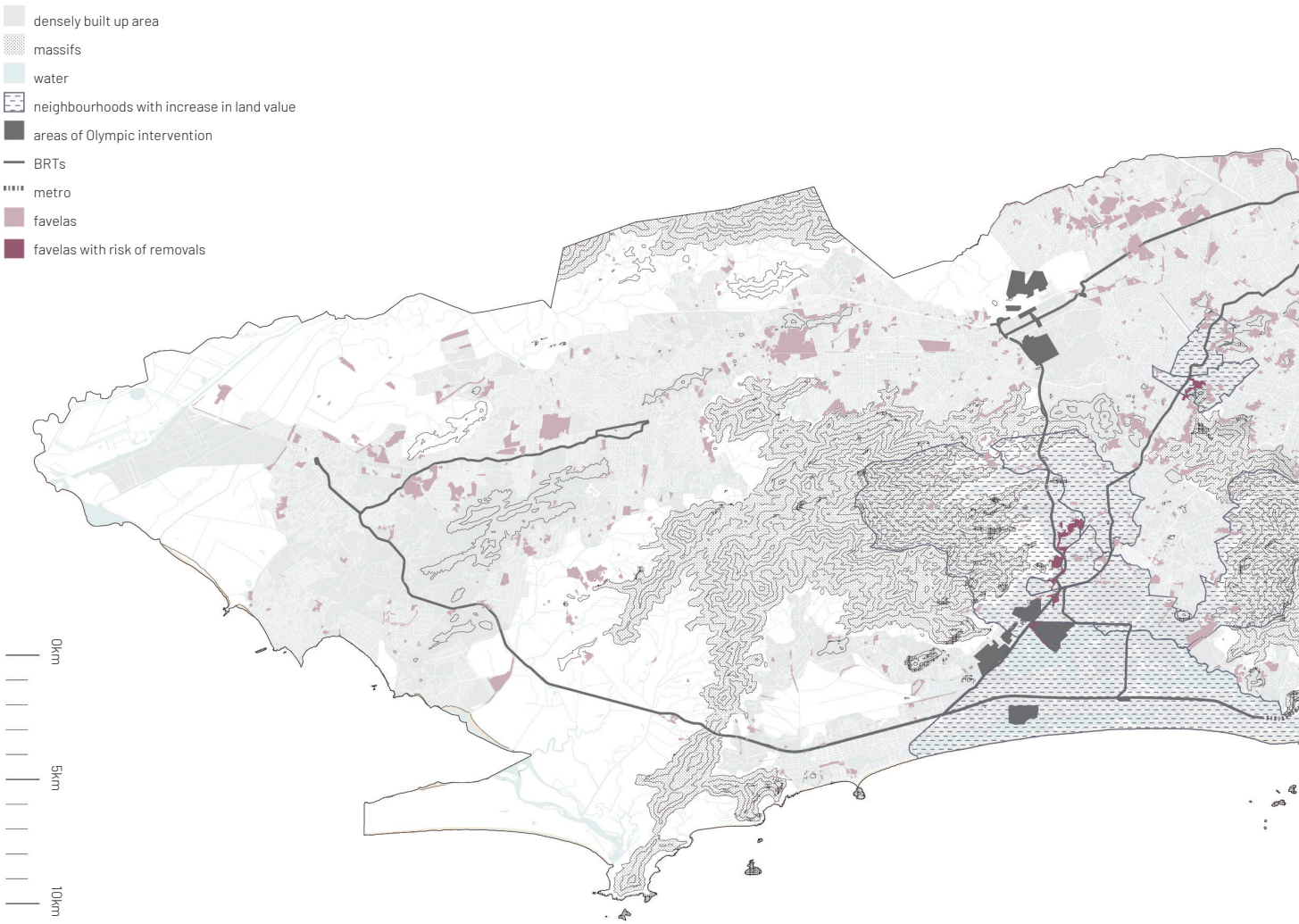
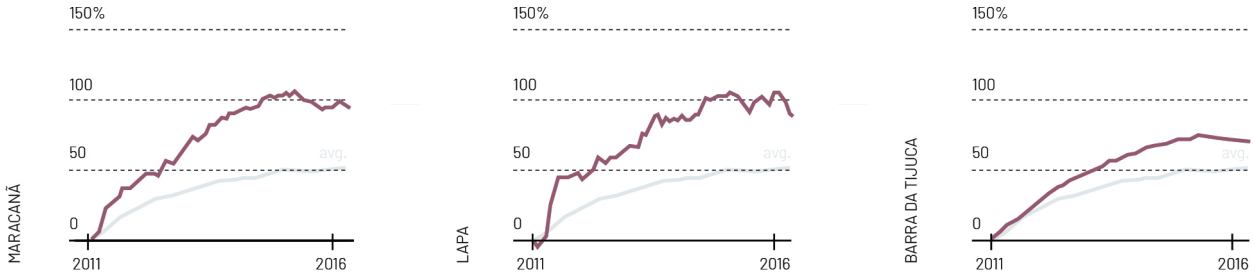
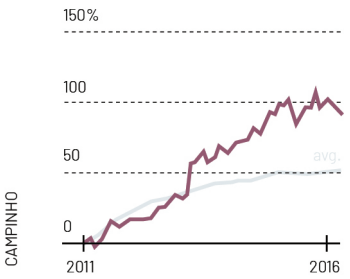
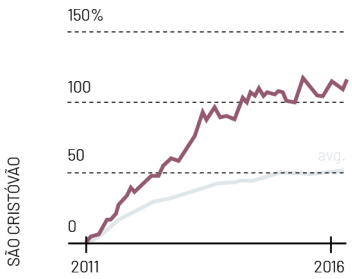
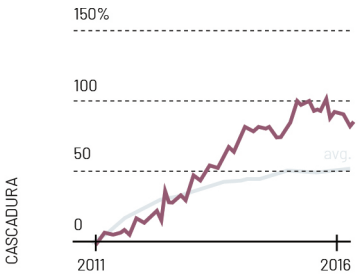


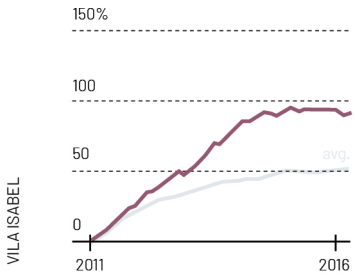
FIG. 5.9 neighborhoods with increase in land value and slums with risk of removal around Olympic projects
Source: author, based on DataRio, Geofabriek, INEA, The Guardian

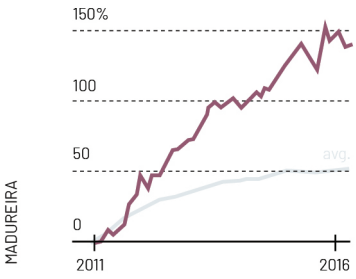












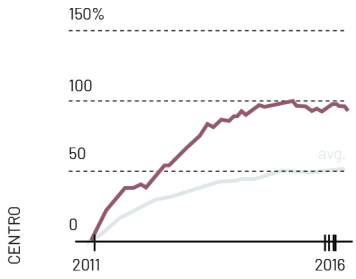
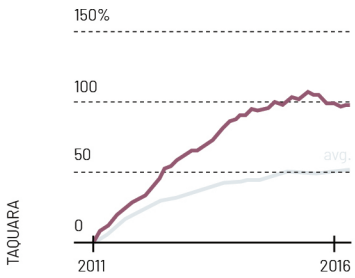
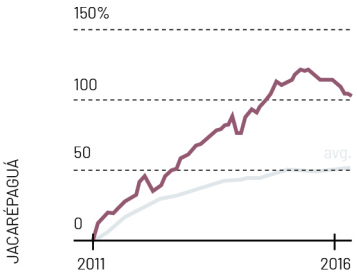
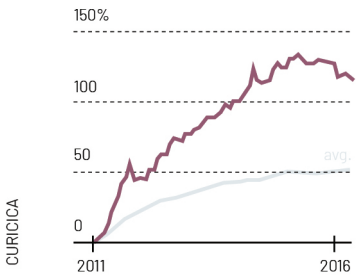


FIG. 5.10 graphs showing market speculation of neighborhoods around Olympic interventions (in gray: the average increase of propriety prices in the city; in pink: the average increase of propriety prices in the neighborhood)

Source: author, based on The Guardian



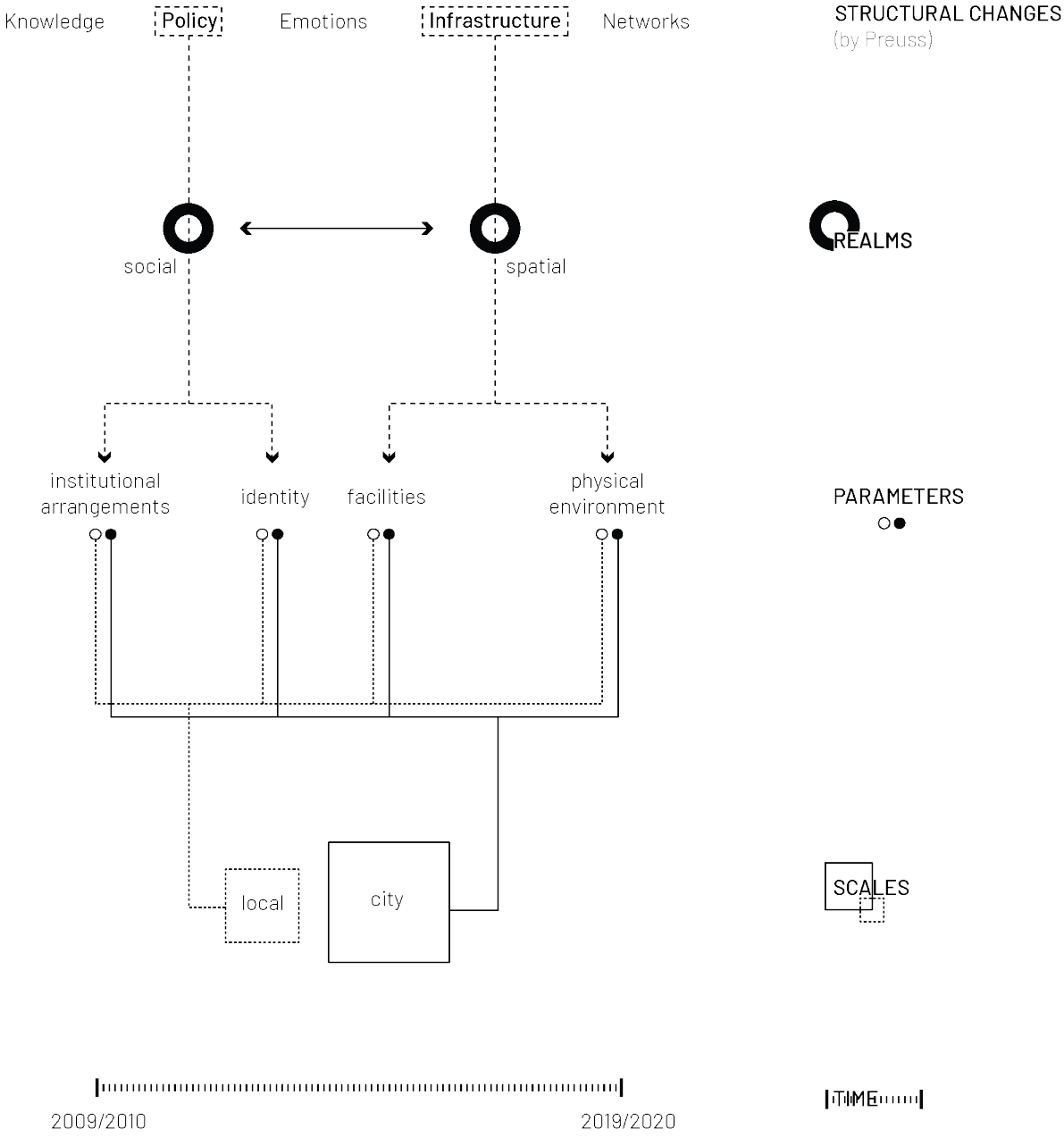




PART 4

Rio 2019

The aftermath


Knowledge
Policy
Emotions
Infrastructure
Networks
STRUCTURAL CHANGES
(by Preuss)
social
spatial
REALMS
institutional arrangements
identity
facilities
physical environment
PARAMETERS
local
city
SCALES
2009/2010
2019/2020
TIME

6 – The legacy

6.1 – **Introduction**

Three years after the Olympic Games, the city of Rio de Janeiro is already "witnessing the emergence of negative legacies" (Neto et al., 2018, p. 123) as the legacy plans are not being fulfilled. The venues in the Olympic Park at Barra da Tijuca are mostly underused or abandoned, bringing little or no benefit to the population.

During the preparations for the Games, many informal settlements suffered from brutal removals, mainly due to infrastructure works for the transportation system, which were not finished up until today (Assis, Pereira, & Figueiredo, 2019). Furthermore, the development of the transportation infrastructure changed completely the environment of the neighbourhoods it crossed and left behind many idle spaces along the way, bringing no benefit for the local community.

Beyond the removals along the BRT lines, many families were displaced, removed or evicted also from the Olympic venues vicinities. Actions which ignored a set of social laws and were supported by emergencial decrees and sometimes carried out with the use of police violence (DOSSIE 2015). These same Olympic locations are now facing uncertainty about their future, mainly due to lack of accountability and an economic crisis that the nation and the city are struggling to get out of (Cashman, 2003; Kozlowski et al., 2019).

The following sections will analyze the legacy of the Olympic Games to the city of Rio de Janeiro based on two of the five categories of structural changes defined by Preuss (2015) (see "The Legacy Concept", p. 52-53): policy and infrastructure. To facilitate data analysis, parameters and indicators were defined as follows:

EVENT STRUCTURE	PARAMETERS	INDICATORS
Infrastructure	Facilities	New built equipments
	Physical Environment	Changes in the urban configuration of the site/city
Policy	Identity	Changes in the appropriations and social configuration of spaces, its uses and users
	Institutional arrangements	Set of policies, and agreements created to make the operations legal

TABLE 6.1 Definition of parameters and indicators to analyse the event structures defined by Preuss (2015).

These two structures have a close relation to urban planning. While the first is easily identifiable as it represents the physical changes in the urban form of cities, the latter is represented by urban policies, which allow the physical changes to happen. The analysis uses the parameters and indicators defined to look into the processes in two scales: the city and the local. Time is also a relevant variant; thus, a before and after Olympic period was selected: 2009/2010 and 2019/2020.

FIG. 5.11 Diagram of analytical framework

6.2 – **The city scale**

In 2009/2010, the city of Rio de Janeiro was articulated between one metropolitan centrality: the city center, and two metropolitans sub centralities: Barra da Tijuca and Campo Grande. At this time, the vulnerable population was scattered around the city in the favelas and irregular settlements (fig. 6.2).

With the realization of the Olympics, this dynamic suffered some changes, mainly caused by the improvement of the public transportation system and the renovation/ development of certain areas in the city. These works were executed in a short timespan and had a significant impact on the life of the city's inhabitants.

social housing
favelas
irregular settlements
densily built area
water
centralities
favelas with removals
removals by BRT
ferry stations
airports
train
main roads
metro
tram
transportation stations

Facilities

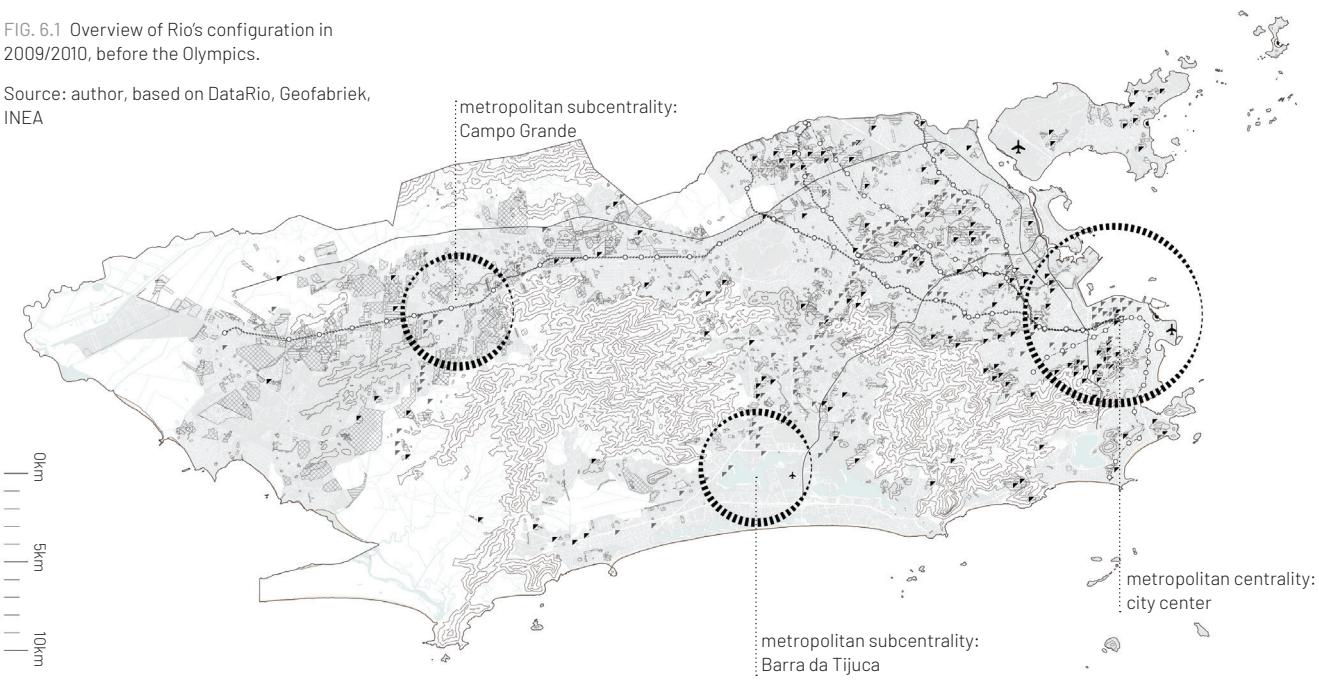
Regarding facilities created, the mobility improvements are the most relevant ones. Four Bust Rapid Transit (BRT) lines, a light rail system, cable cars, and a new metro line were created to facilitate commuting in the city (fig. 6.3).

Physical environment

Changes in the physical environment at this scale can be seen in the development or renovation of specific areas in the city, such as the renovation of the port zone, the new developments in Barra da Tijuca and the creation of Olympic venus in Deodoro, such as the Radical Park. The implementation of the BRT lines also causes significant changes in the urban space, as it cuts through the consolidated fabric of the city. Furthermore, all the BRT lines go through Barra da Tijuca, one of the sub-metropolitan centralities. Therefore, with the increase of accessibility and increase in numbers of developments in Barra da Tijuca, this centrality is enhanced (fig. 6.4).

FIG. 6.1 Overview of Rio's configuration in 2009/2010, before the Olympics.

Source: author, based on DataRio, Geofabriek, INEA



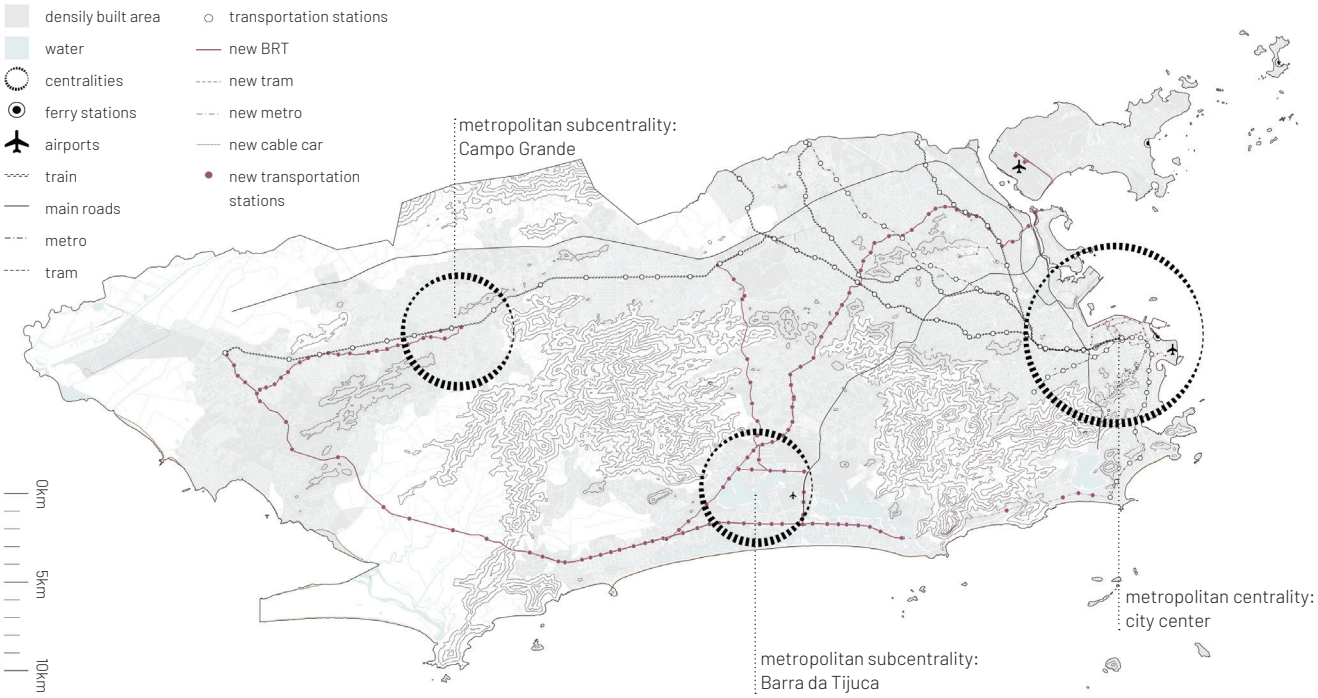


FIG. 6.2 New mobility infrastructure built in the preparation for the Olympics.
Source: author, based on DataRio, Geofabriek, INEA

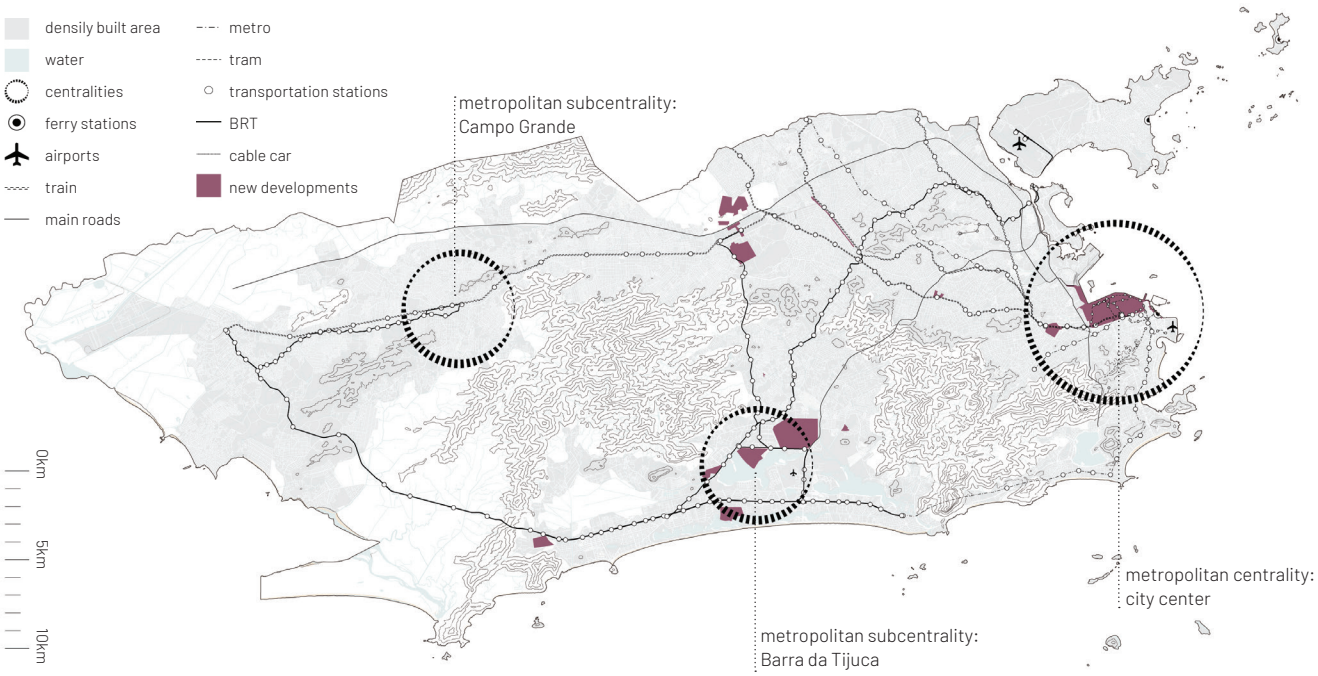


FIG. 6.3 New developments in the preparation for the Olympics.
Source: author, based on DataRio, Geofabriek, INEA

Identity

By looking only at the infrastructure brought by the investments of the Olympics, one could conclude that the Olympics had a positive impact to the city as it enhanced the city center and Barra da Tijuca centralities by concentrating most of the investments in them and increasing accessibility in the city with the implementation of the BRT lines. However, when looking at identity and the social disruption behind these processes, it is clear that the operations serve to push the most vulnerable population further to the periphery of the city and open space for private capital and market speculation.

By mapping the Olympic clusters and the BRT lines and crossing it with the location of the published expropriation acts, Faulhaber & Azevedo (2015) demonstrated that these infrastructure improvements were the cause of the removal of more than 60.000 people (fig. 6.5). A higher number than ones from mega-projects that occurred in the city in previous governments, which are known by its strong policy of removals.

The displaced population was mostly moved to the periphery of the city, far away from areas benefited by the investments generated by the Olympic Games (Bottura, 2014). Therefore, the new planning paradigm focused on the Games and the aspiration of becoming a global city, expels the vulnerable population from the revalued areas (Salles & Miranda, 2018). Furthermore, the process of removals was not transparent; the population living in the affected informal settlements did not take part in the discussion of the plans. Many of them found out about the evictions only when their houses were marked with the initials' SMH', which stands for Secretaria Municipal de Habitação (Municipal Housing Secretariat) and meant that the house would be demolished (Lauriano, 2011).

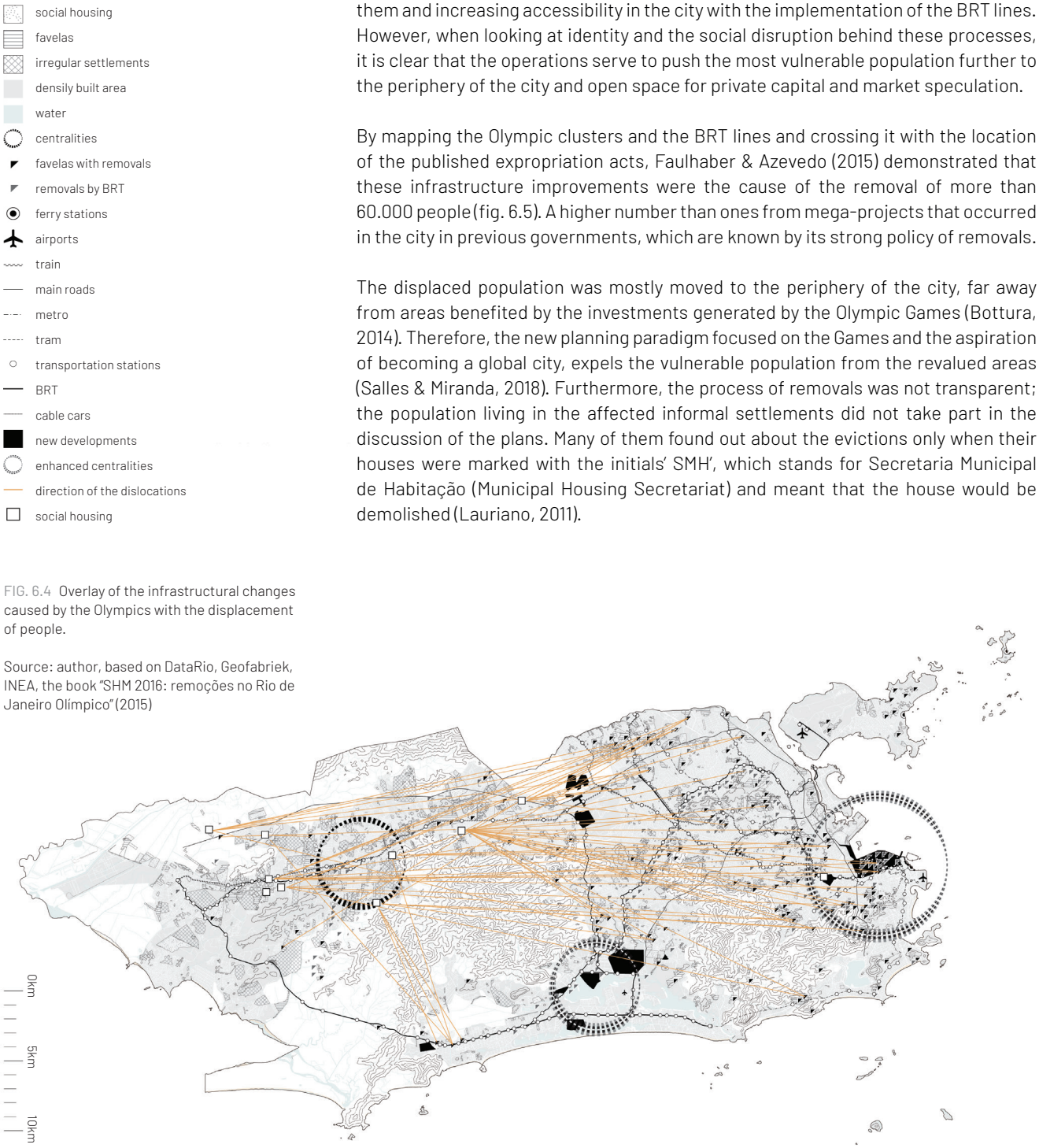


FIG. 6.4 Overlay of the infrastructural changes caused by the Olympics with the displacement of people.

Source: author, based on DataRio, Geofabriek, INEA, the book "SHM 2016: remoções no Rio de Janeiro Olímpico" (2015)

Institutional arrangements

The creation of partnerships between public and private sectors was widely adopted for financing the Olympic Games in Rio. These partnerships entailed in the creation of laws (or exceptions to it) in order to realize the necessary changes for hosting the event and generate profit.

Laws were created in the different spheres of government, such as the federal law known as the Olympic Act (Ato Olímpico) and the Rio de Janeiro State Olympic Act (Ato Olímpico Estadual do Rio de Janeiro), which ensure guarantees for the candidacy of the city of Rio de Janeiro and establish special rules for its realization. However, the creation of laws at the city scales stands out, especially the Municipal Decree 30.379 (Prefeitura do Rio de Janeiro, 2009) and the Municipal Decree 34.522 (Prefeitura do Rio de Janeiro, 2011).

The first one gives to the International Olympic Committee (IOC) ample possibility of using the assets belonging to the municipal administration, even if occupied. It also states that the municipality must "[...] promote expropriations and other indispensable measures for the construction of sports and non-sports facilities [...]" (Prefeitura do Rio de Janeiro, 2009, p. 7).

The second one establishes "[...] the need to update and standardize municipal administration procedures for the eviction of areas in popular settlements, necessary for the implementation of projects of public interest [...]" (Prefeitura do Rio de Janeiro, 2011, p. 7). For that, it approves "[...] the guidelines for the demolition of buildings and relocation of residents in popular settlements." (Prefeitura do Rio de Janeiro, 2011, p. 7).

Striking in these laws is the fact that the expulsion and relocations of people, and the demolition of houses, highly incisive processes, may occur due to the realization of an ephemeral event, which promotes interventions only in certain areas and does not consider the needs of the city as a whole. Therefore, by the implementation of these laws, the right to housing, one of the foundations of human dignity ensured by the 1988 Constitution, was at the mercy of the urban developments driven by private interests (Carvalho & Rodrigues, 2016).

Conclusion

One can conclude that the Olympics changed the dynamics of the city. It enhanced the centralities of Barra da Tijuca and the city center by concentrating most of the investments in these areas and increased the city accessibility with the construction of new mobility infrastructure. However, all these processes were carried out at a tremendous social cost, as social cleanliness and gentrification, backed up by the law, were the means adopted for the construction of the image of Rio as a global city. Therefore, the Olympics served to dictate the direction and kind of development in the future of the city (Gaffney, 2019). One that allows pushing the most vulnerable population further to the periphery of the city in order to open space for private capital and market speculation. Instead of improving the quality of life for all inhabitants, the Olympics created a new city where the most vulnerable population has no place (Gaffney, 2019).

6.3 – **The local scale**

The Olympic Games contributed strength the existing center-periphery dichotomy, as centralities were enhanced by new developments that demanded relocations of people to the periphery.

By mapping the developments and the relocations of people, the areas which went through most spatial changes and had most social impacts are highlighted: the city center with the revitalization of the port area, the north zone with the implementation of the BRT Transcarioca and Barra da Tijuca with the construction of Olympic facilities. These are the areas selected for the analysis of the Olympic processes on the local scale.

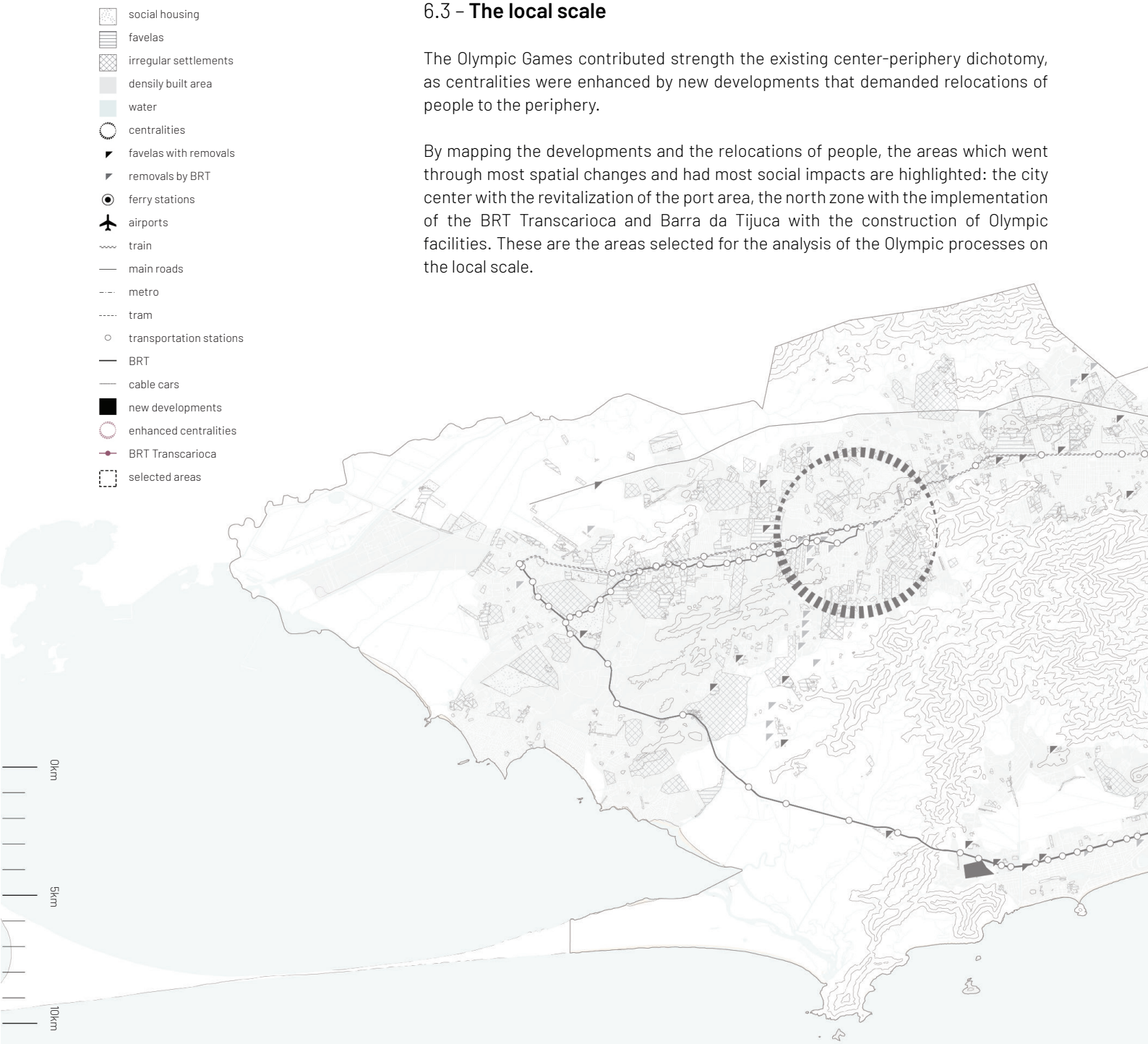


FIG. 6.5 Selected areas for further analysis in the local scale: areas which received most of the investments and suffered most social disruption.
Source: author, based on DataRio, Geofabriek, INEA


North zone
implementation of the Transcarioca BRT line
City center
revitalization of the port area
Barra da Tijuca
construction of Olympic facilities

6.3.1 – **The port area and the Olympic Boulevard**

Located close to the city center of Rio de Janeiro, directed connected to the Guanabara Bay and formed by the neighborhoods of Saúde, Gamboa, Santo Cristo, and Caju, the port area was initially not included in the candidature dossiers. The plans for revitalizing Rio's port area can be traced back to the 1980s but were realized only in the 2000s when the chance to host the Olympic Games created the legal and financial basis for launching the project. It then became a flagship project in the construction of Rio de Janeiro as an Olympic city under the name 'Porto Maravilha' [Wonderful Port].

FIG. 6.6 Zoom location: city center.
Source: author, based on DataRio, Geofabriek, INEA

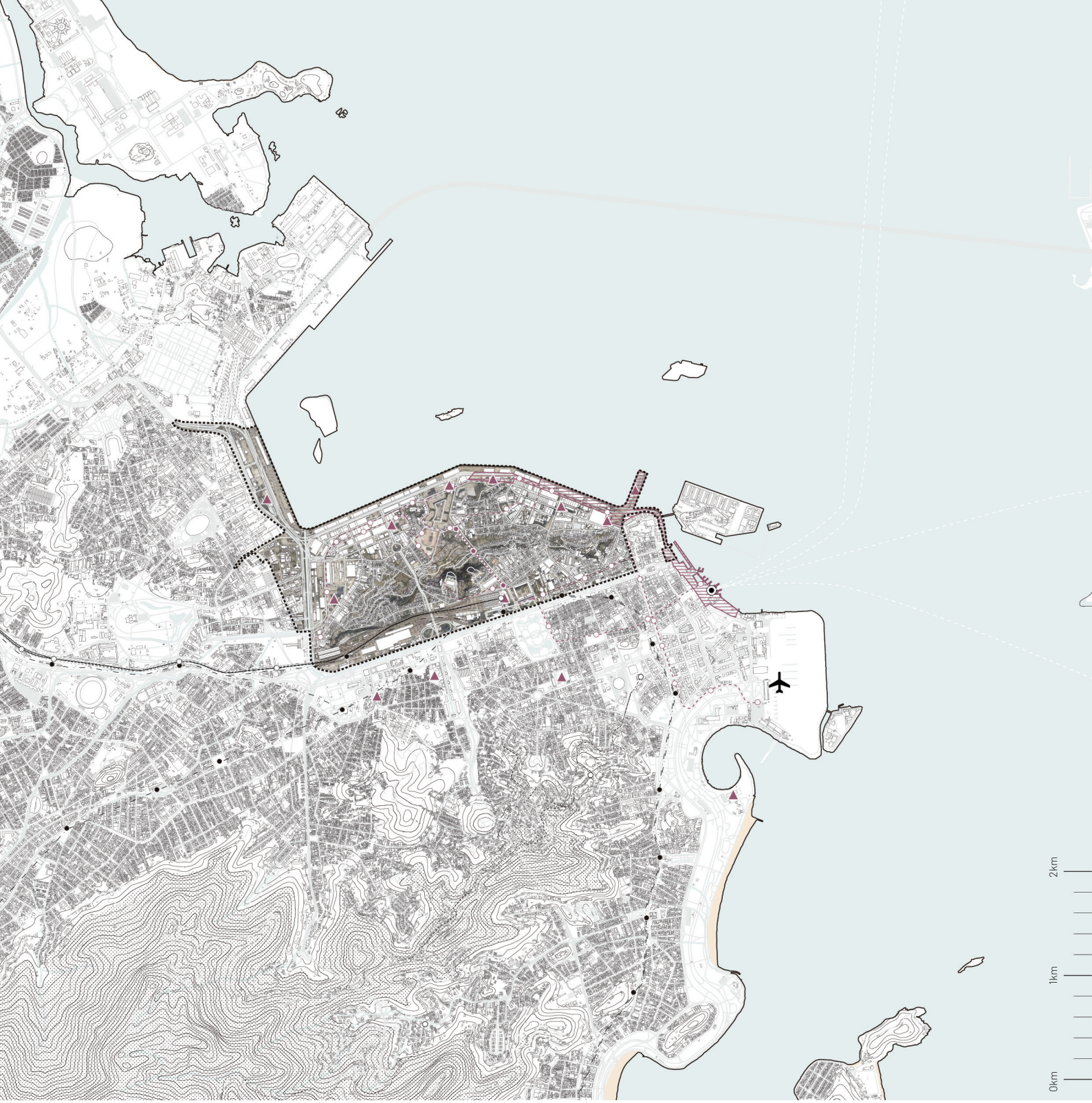


FIG. 6.7 Zoom location: Porto Maravilha.
Source: author, based on DataRio, Geofabriek, IPP, INEA

[1] An urban operation consortium is a legal instrument, which according to the law is a "[...] set of interventions and measures coordinated by the municipal government, with the participation of owners, residents, permanent users, and private investors, to achieve urban structural transformations, social improvements and environmental enhancement in one area" (ESTATUTO DA CIDADE, 2001, p. 78). The urban operation consortium Porto Maravilha was created under the decree 101/2009.

[1] Most of the proprieties in the port area were owned by the government (62% owned by the Federal government, 6% owned by the State and Municipal governments and 25% owned by private parties) and are now available to the interest of the private market (Galiza, 2015).

Institutional arrangements

The Port Zone became an Olympic cluster as it would contain the referees and media villages. Therefore, only one month after the victory of Rio de Janeiro as host of the 2016 Olympics was announced, the creation of the urban operation consortium of the port zone of Rio de Janeiro was voted under an emergency regime and modified the city's Master Plan, the most important legal instrument for the urban development of the city (do Pinho & Moreira, 2019; Galiza, 2015; Rolnik, 2015).

Furtado (as cited in Galiza, 2015, p. 88) indicates that the "urban plan was prepared based on previous decisions on financial resources contributions, and not the other way around, as the law foresaw.". Furthermore, regarding the social aspect, Furtado (as cited in Galiza, 2015) highlights how the plan creates gentrification by lacking social diversity, provision of social housing, and social participation. Regarding the economic aspect, Furtado (as cited in Galiza, 2015) still states that the financial apparatus created to finance the Porto Maravilha does not cover the estimated costs of the project, and it serves to transfer public property to the private initiative.

The Porto Maravilha works were carried out by the creation of the Porto Novo concessionaire. The concessionaire is constituted by the three largest construction companies in the country and responsible not only for the works but also for the administration of the area for 15 years (renewable for more 15 years). These same construction companies acted in all phases of the project: as proponents, formulators, planners, implementers of the works and services, and investing partners in the projects (Rolnik, 2015). More important, two of these construction companies were involved in the country's biggest corruption scheme (Galiza, 2015).

Furthermore, the pieces of equipment that should be placed in the port zone were later moved to the West Zone. In order words, the only connection of the Port Zone to the realization of the Olympic Games was removed from the area (Galiza, 2015). Therefore, one can conclude that the Porto Maravilha, the current biggest public-private partnership in Brazil and probably the most controversial one, was made possible only due to the circumstances created by hosting the Olympic Games, and as Rolnik (2015, p.360) stated, it was "a mega operation for the extraction of income over public land assets".

Identity

The port area has historical importance for the city of Rio. It was the place where the disembark of slaves and operations for coffee exportation took place but also the cradle of notable cultural manifestations in Rio, such as Samba, Jongo, and Candomblé (Bentes, 2010).

With the transfer of the capital of the country from Rio to Brasília, the deconcentration of industrial production, and the construction of the Perimetral viaduct, which segregated the area from the city center, the port area started a process of stagnation and degradation (Bentes, 2010). Activities were reduced, leading to an emptying of the area, which left behind many deactivated public buildings later occupied by homeless people (Galiza, 2015).

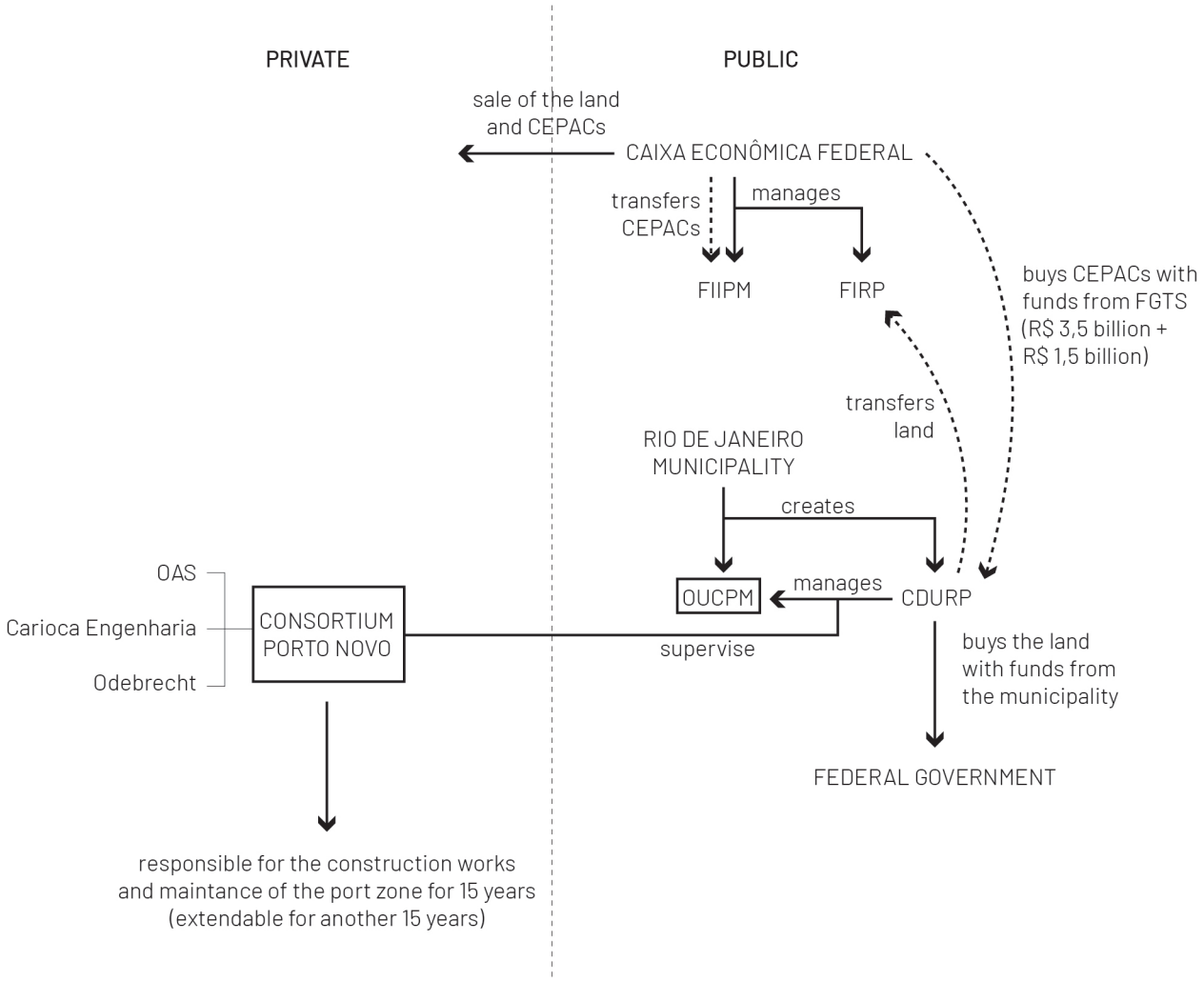


FIG. 6.8 Diagram of the financial and institutional arrangements created for the realization of the *Porto Maravilha* project.
Source: author, based on Galiza (2015) and from input from André Albuquerque's interview

CAIXA ECONÔMICA FEDERAL: federal savings bank;
FGTS (Fundo de Garantia do Tempo de Serviço): workers service time guarantee fund;
CEPACs (Certificados de Potencial Adicional de Construção) : additional construction potential certificates issued by municipalities to finance the consortiated urban operation;
OUCPM (Operação Urbana Consorciada Porto Maravilha) - Consortiated urban operation *Porto Maravilha;*
CDURP (Companhia de Desenvolvimento Urbano da Região do Porto do Rio de Janeiro): Urban development company created to manage the port area.
FIIPM (Fundo de Investimento Imobiliário Porto Maravilha): real estate investment fund created to finance the works of the port area.
FIRP (Fundo Imobiliário da Região do Porto): real estate fund of the port area.

The area also contains the oldest favela of the city (Morro da Providência) and some popular settlements (Morro do Pinto and Morro da Conceição), which are responsible for the higher population density in the area. This population, in its majority, consists of low-income families. Furthermore, several cultural groups and associations of African origin are also located in the area, as the port's history is intrinsically related to the history of this population (Pinho & Moreira, 2019). For this reason, the port has many places and ruins full of memories and meanings, which were then integrated into the renovation project. The discovery and renovation of these places helped in the construction of heritage, contributing to the symbolic change of the area, appropriate to tourist interest and real estate speculation (Pinheiro & Carneiro, 2016).

The Porto Maravilha project, especially with the development of the Olympic Boulevard (the flagship project of the area and strongly associated with the idea of promoting a global city), caused a process of social cleansing of the area. Part of the

FIG. 6.9 Current uses and users of the Olympic Boulevard.

by author.

population was relocated or removed from the area, notably the homeless people that occupied the empty buildings in public land, which are now available in the market (Pinho & Moreira, 2019; Galiza, 2015). Therefore, the renovation of the port zone is a project that replaces residents and users with others from higher-income.

However, as Pinho & Moreira (2019) showed, this new class is currently only in the area as users of the newly built spaces and facilities but not as residents yet. Although not equally distributed, the users and uses in the Olympic Boulevard seem to be heterogeneous, putting together the remained original population with the newcomers as observed by the sharing of space of informal activities with newly created cultural facilities.

Physical environment

The biggest changes to the port zone's physical environment were caused by the reorganization of the road network and the revitalization of the shore. The most significant impact was the substitution of one of the most crucial roads in the city, the Perimetral viaduct, for newly built tunnels, which gave way to the development of the Olympic Boulevard.

The development of the boulevard renovated three significant squares in the city center: the Mauá, the XV of November, and the Candelária squares. It also opened up a military area to public access and activated the abandoned Mauá pier.

The implosion of the Perimetral viaduct and the development of the Olympic Boulevard, with the opening up of private areas, represented the reconnection of the city to the Guanabara Bay, as the viaduct was a strong physical barrier.

Facilities

The Olympic Boulevard concentrates most of the facilities built in this area, more specifically the surroundings of the Mauá square. The square was redesigned and activated with the renovation and transformation of an old building into a museum and the construction of an iconic building: the Museu do Amanhã.

Furthermore, the old warehouses along the shore were renovated, one of them transformed into a cultural center (Armazém da Utopia) and the others became available for temporary uses, office buildings were constructed, accessibility was increased with the implementation of the Light Rail Vehicle (VLT) and the cable car at Morro da Providência (currently deactivated). More recently, the inauguration of the aquarium AquaRio and the Ferris wheel Rio Star brought more touristic attractions to the area.

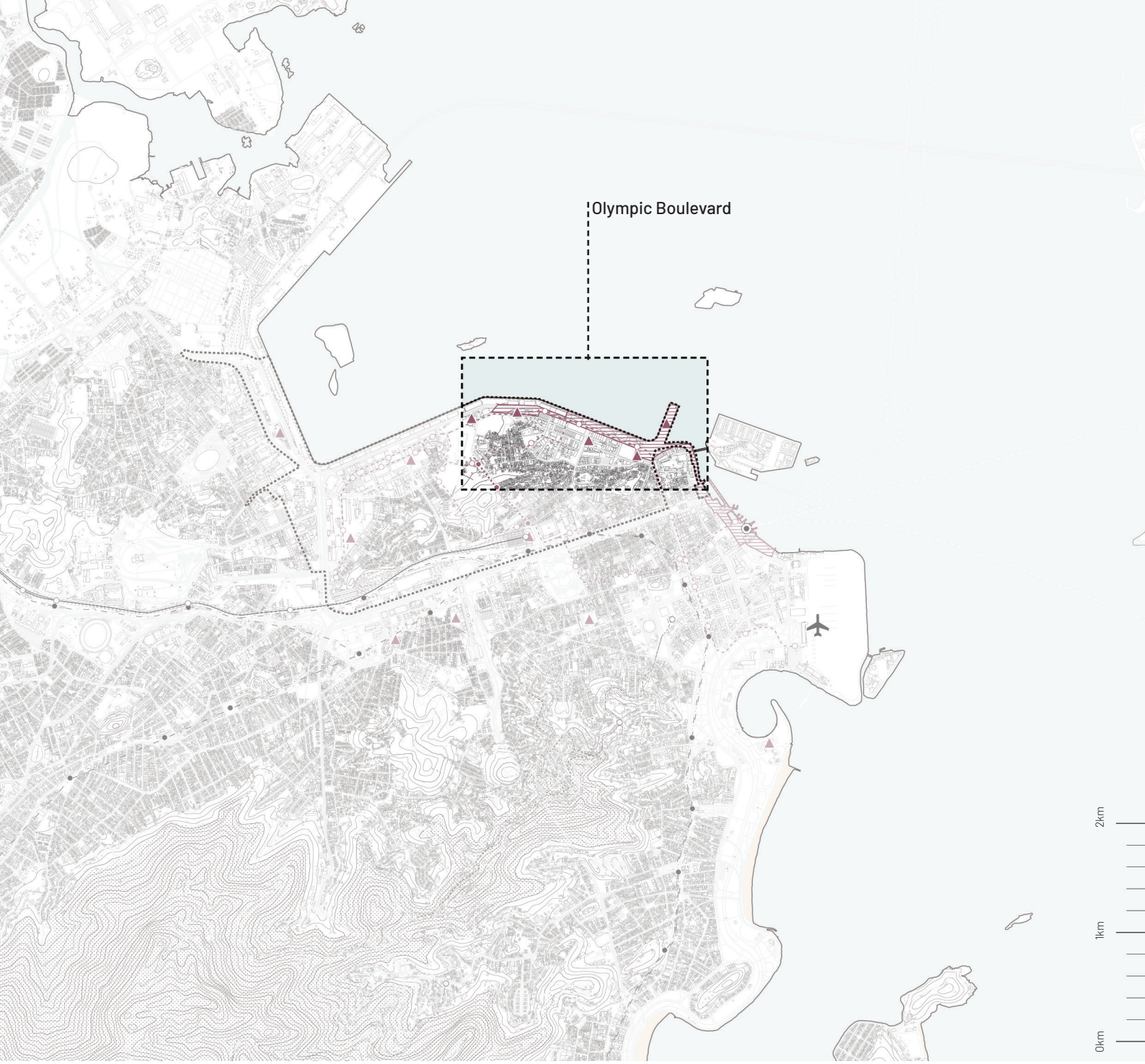


FIG. 6.10 Zoom location: Olympic Boulevard.

Source: author, based on DataRio, Geofabriek, IPP, INEA

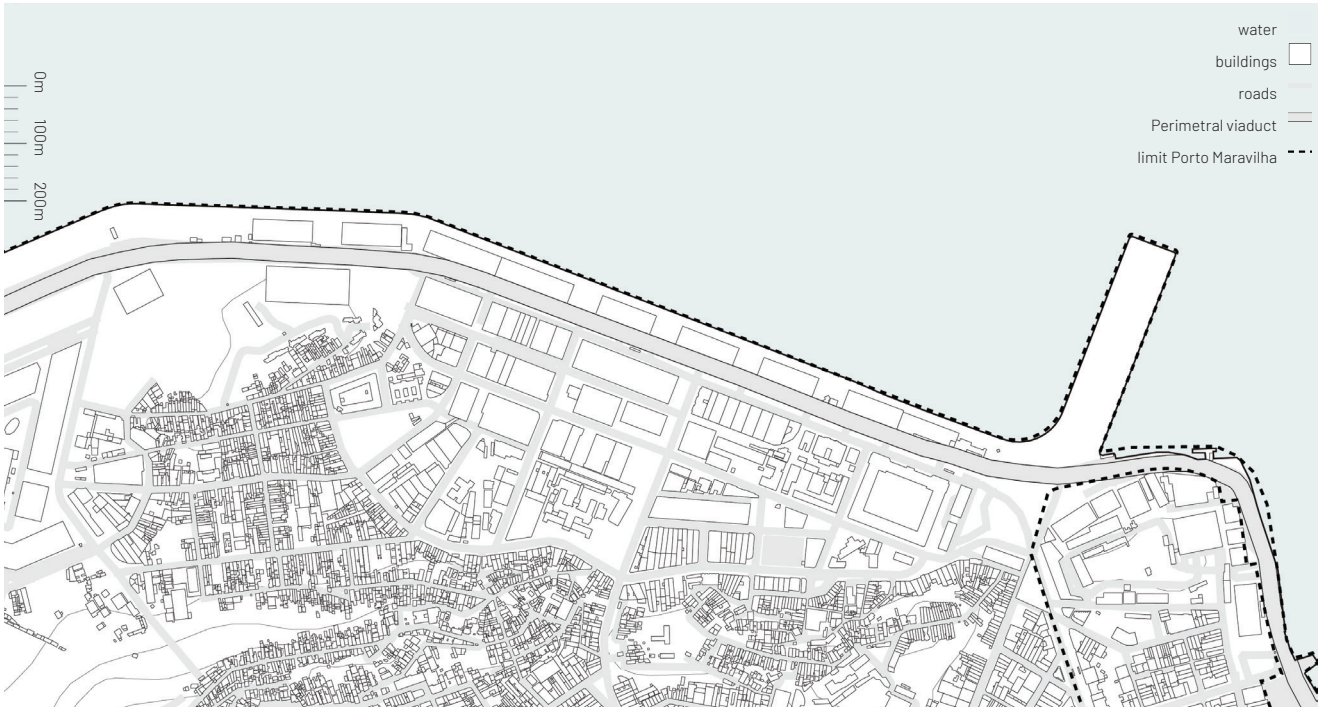


FIG. 6.11 Situation of the port shore before the Olympics

Source: author, based on DataRio, Geofabriek, IPP, INEA

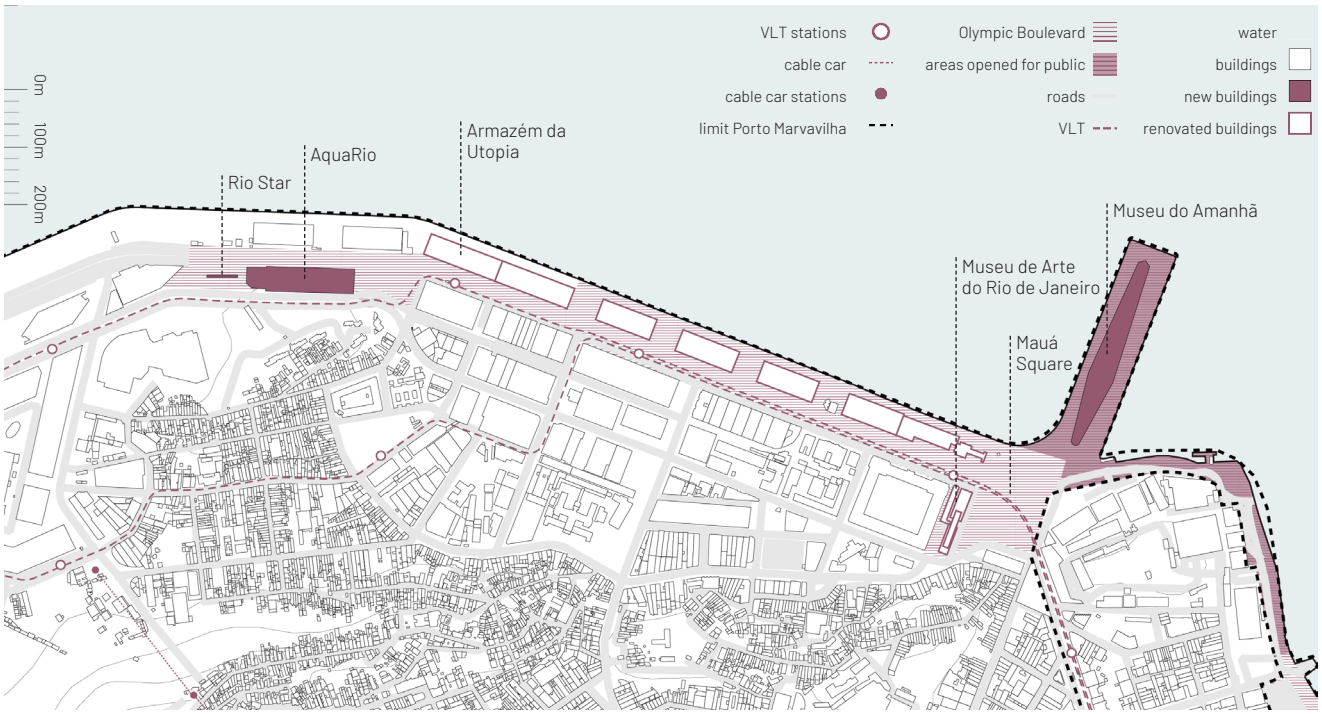


FIG. 6.12 Renovation of the port shore after the Olympics: creation of the Olympic Boulevard.

Source: author, based on DataRio, Geofabriek, IPP, INEA

FIG. 6.13 The Mauá square before the Olympics.
by Prefeitura do Rio. Retrieved from: https://www.portomaravilha.com.br/fotos_videos/g/52

FIG. 6.14 The Mauá square after the Olympics.
by Prefeitura do Rio. Retrieved from: https://www.portomaravilha.com.br/fotos_videos/g/52

6.3.2 – **Barra da Tijuca and the Olympic park**

Barra da Tijuca is a high-class neighborhood located in the West part of the city and surrounded by natural landscapes: the Pedra Branca and Tijuca massifs to the north and the beach to the south. This area received the Olympic Villa and the Olympic Park, the most iconic structures of the Games. The Olympic park was one of the main promised legacies of the 2016 Games to the city of Rio, as it would be transformed into an integrated mixed area consisting of a linear park for the community and residential, work, and leisure facilities.

FIG. 6.15 Zoom location: Barra da Tijuca.
Source: author, based on DataRio, Geofabriek, INEA

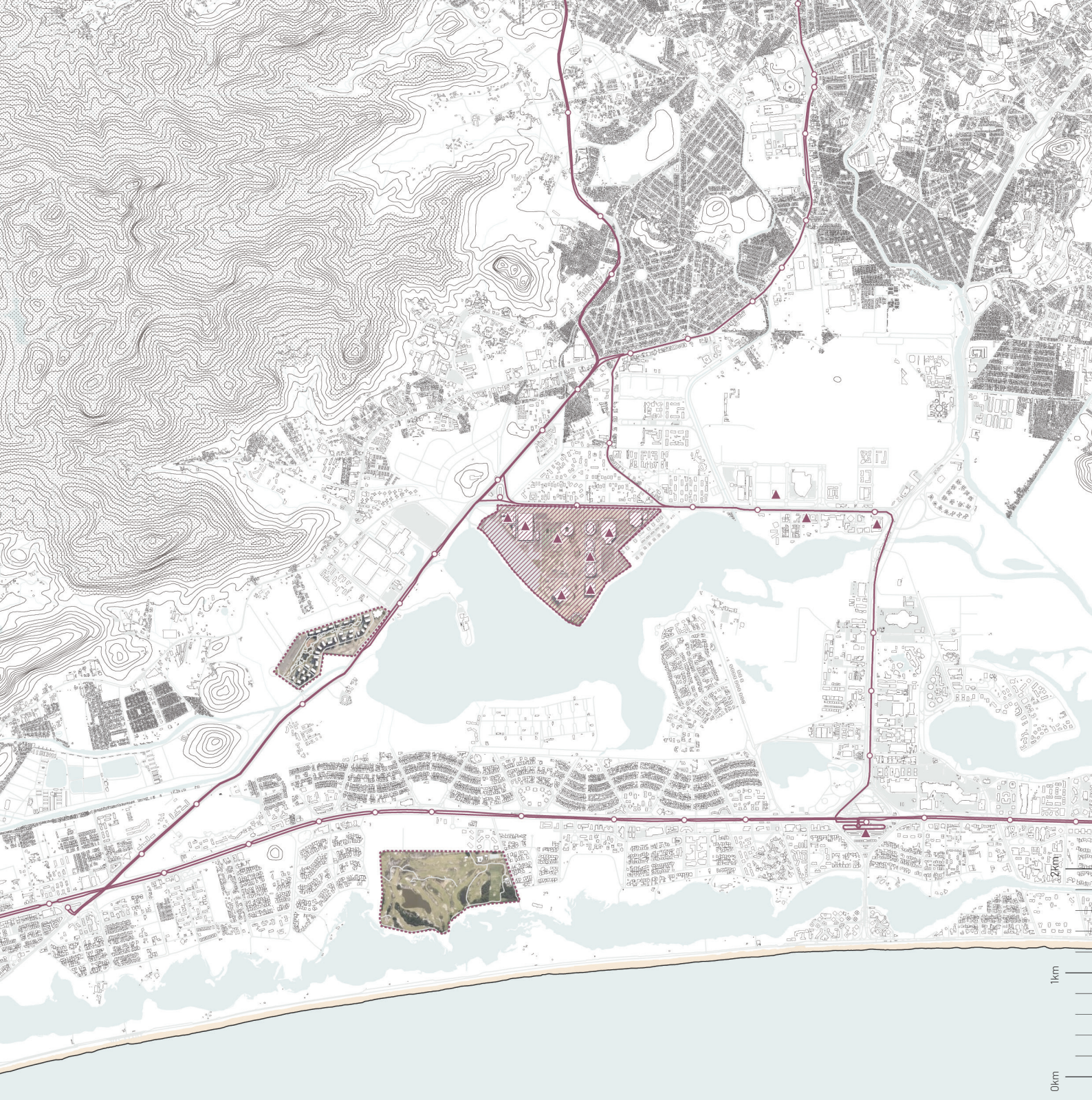


FIG. 6.16 Zoom location: Barra da Tijuca.
Source: author, based on DataRio, Geofabriek, IPP, INEA

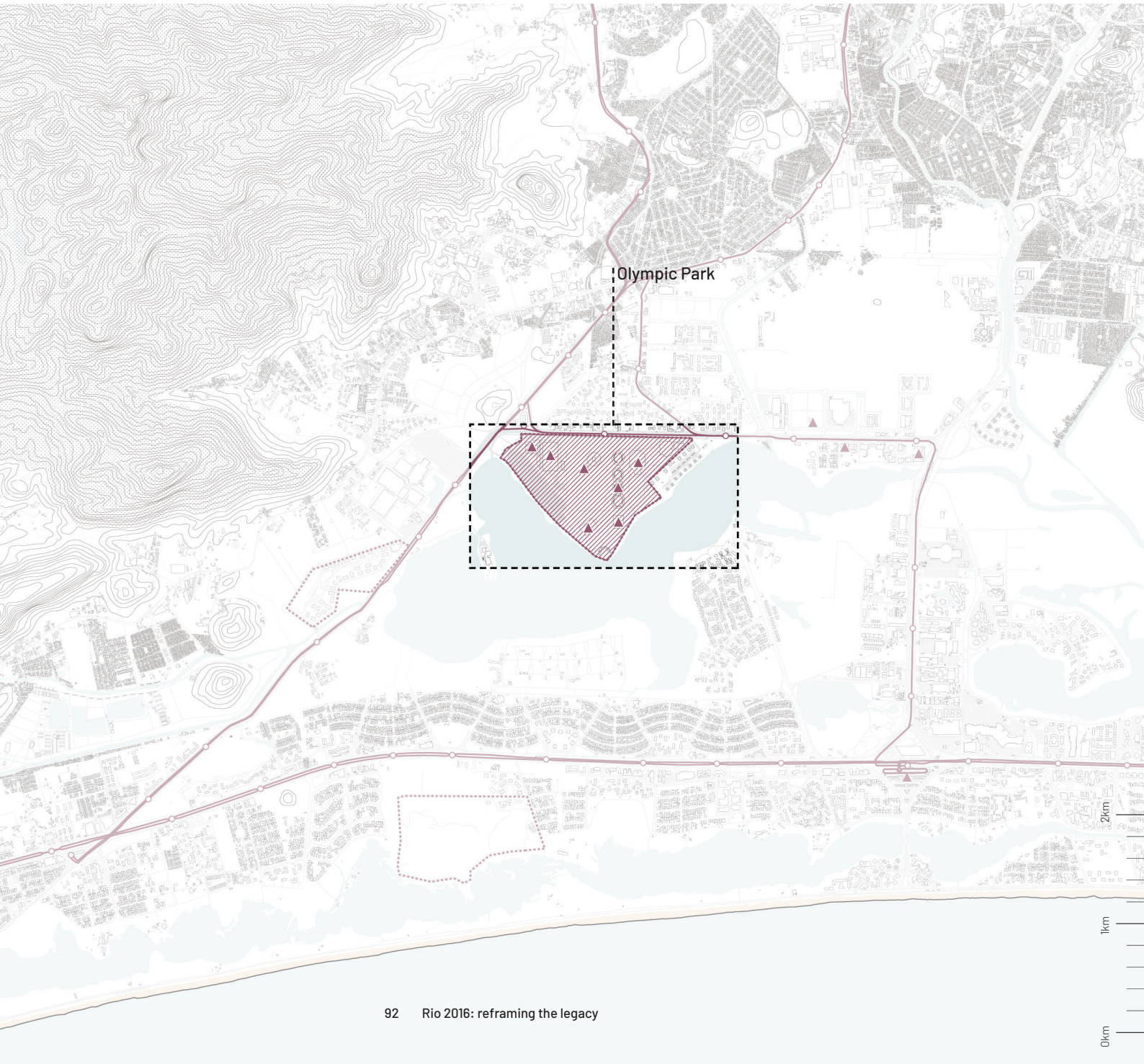


FIG. 6.17 Zoom location: Olympic Park.

Source: author, based on DataRio, Geofabriek, IPP, INEA

Physical environment

The Olympic Park was built in the location of the old city's racetrack, which had already been partially demolished for the construction of some venues for the 2007 Pan American Games. The Park had a master plan divided into three stages, aiming at first to accommodate the infrastructure necessary for the Games and later to transition to an integrated developed area in the neighborhood.

FIG. 6.18 The Olympic Park area before the Olympics: race track and the 2007 Pan American venues.
Source: Google Earth (2009)

FIG. 6.19 The Olympic Park after the Olympics.
Source: Google Earth (2020)

FIG. 6.20 Master plan of the Olympic Park in the Games stage.

retrieved from: https://www.archdaily.com/162510/aecom-wins-international-competition-for-master-plan-of-rio-2016-olympic-park

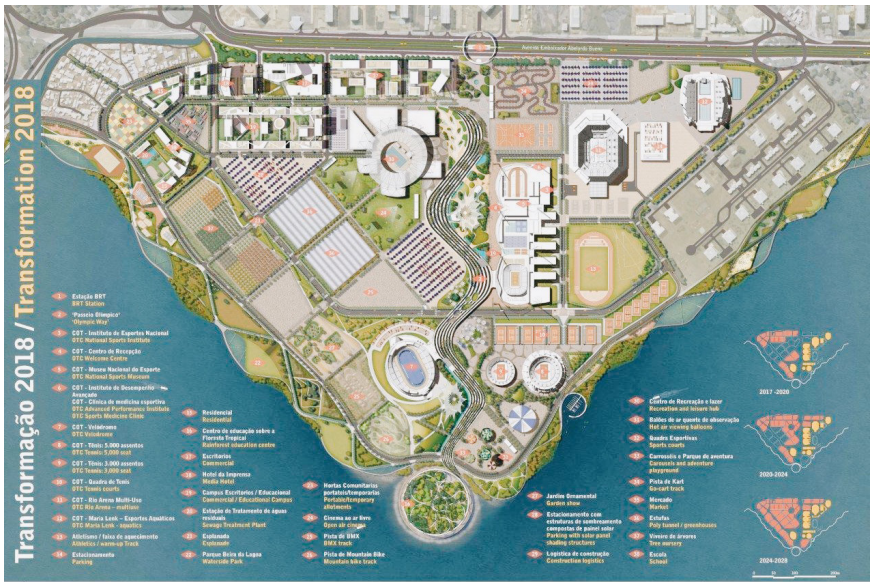


FIG. 6.21 Master plan of the Olympic Park in the Transformation stage.

retrieved from: https://www.archdaily.com/162510/aecom-wins-international-competition-for-master-plan-of-rio-2016-olympic-park

The three stages are Games, transformation, and legacy. While the first one aimed at guaranteeing the good performance of the competitions, the second and third ones aimed at ensuring the sustainable reintegration of the area into the city. Firstly by transforming the 120 hectares of land into a linear park for the community and later, by slowly including new residential, work, and leisure facilities.

However, today, only three years after the Games, the Olympic Park is practically still in the Games stage configuration. According to the master plan, by 2018, the realization of the transformation stage should have been started. Nevertheless, there are no signs of changes. The Park is mostly abandoned, and only a portion of the area is open to controlled public access, bringing not much benefit for the population as it is an incomplete legacy.

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FIG. 6.22 (1) Fences and remainings of festival structure in the Olympic Park; (2) Fences at the entrance of the Olympic Park to control public access. The Park is open only from Tuesday to Sunday from 7 am to 10pm; (3)The Arena do Futuro, which should have been disassembled and tarnsformed into four schools, is abandoned; (4). Current situation of the Olympic Park: empty and lacking maintenance. Pictures by author

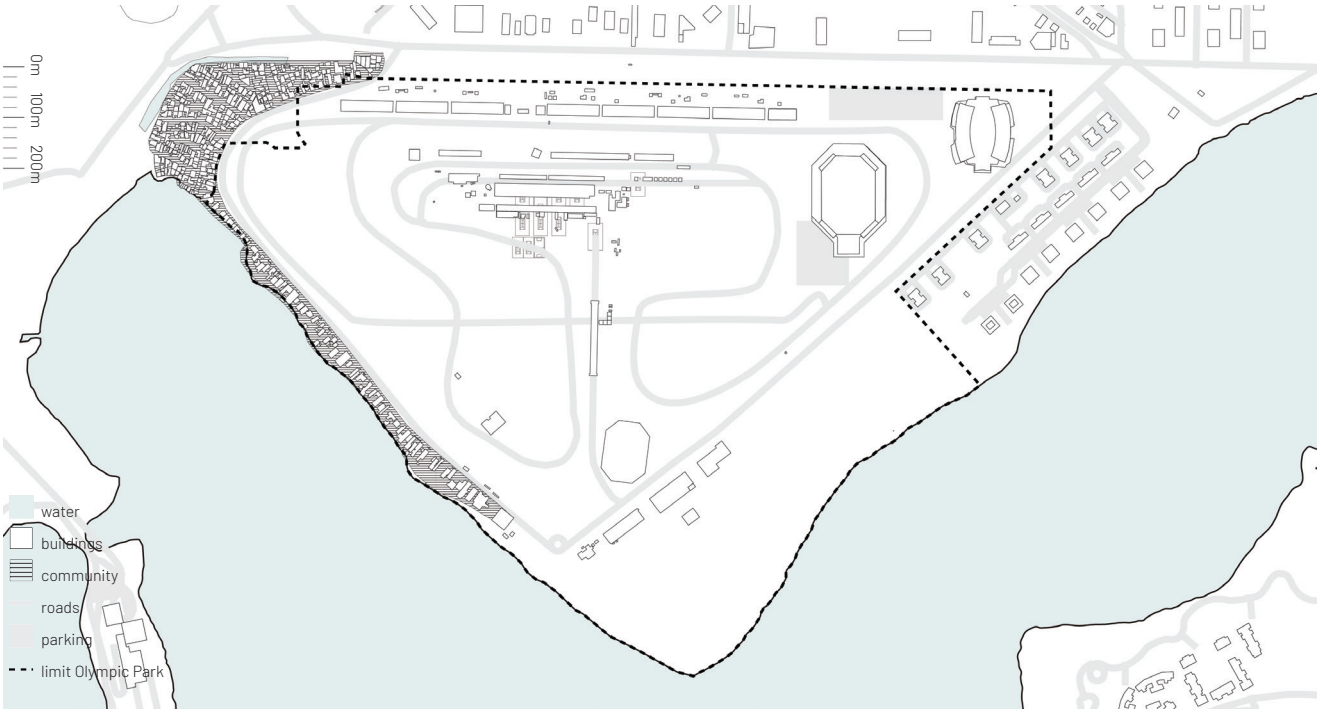


FIG. 6.23 Situation of the Olympic Park area before the Olympics

Source: author, based on DataRio, Geofabriek, IPP, INEA

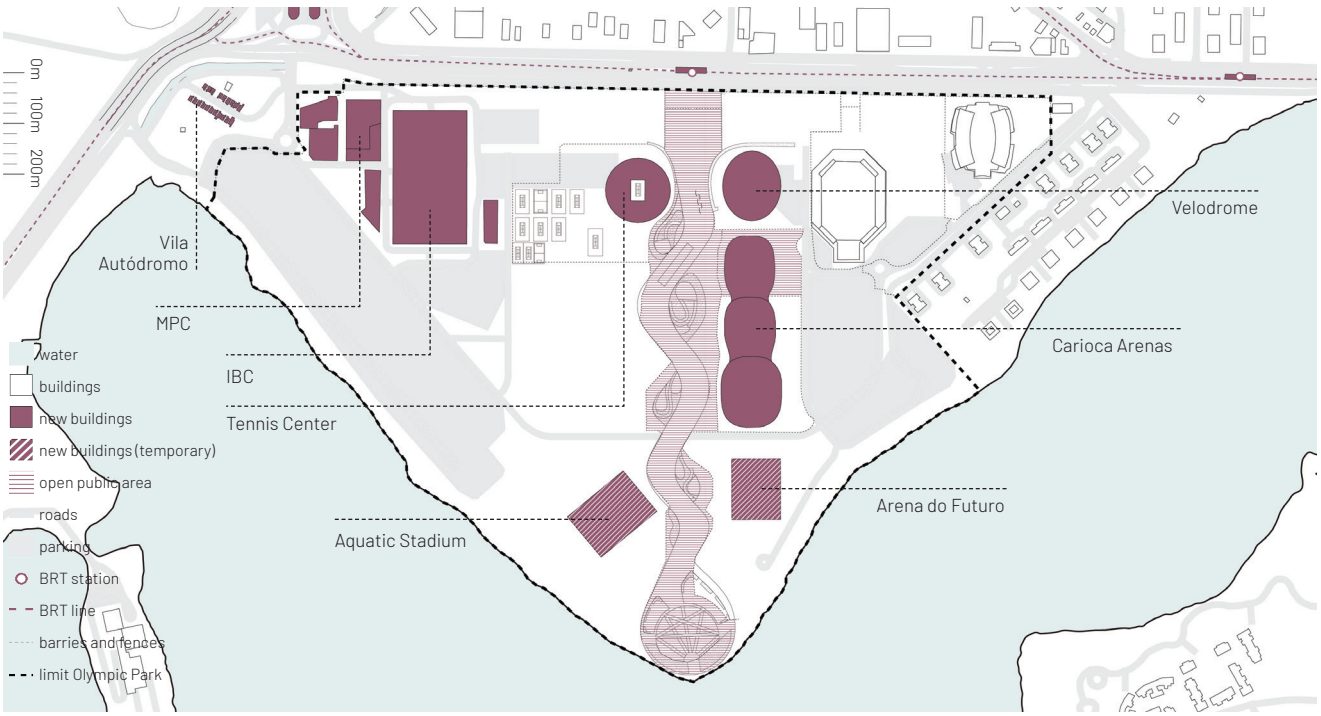


FIG. 6.24 Creation of the Olympic Boulevard.

Source: author, based on DataRio, Geofabriek, IPP, INEA

Facilities

As the whole area was redeveloped with the specific purpose of hosting most of the sports during the Games, except for some venues built for the 2007 Pan American Games, the whole Park had to be built from scratch.

The list of facilities built includes a new velodrome, three arenas (called Carioca Arenas), the handball arena (called Arena do Futuro), the Aquatic Stadium, a Tennis Center, the IBC (International Broadcasting Center), the MPC (Media Press Center) and a hotel. The IBC should be transformed after the Games into a commercial center, the Arena do Futuro and the Aquatic Stadium would be disassembled, and the first one would be transformed into four schools. However, all these venues are still standing and with no signs of use.

Besides the construction of the Park, the area received the infrastructure of the new BRT, and the neighboring community called Vila Autódromo was drastically transformed with the replacement of the whole community by a few new houses.

Identity

What is essential to highlight is that all three stages of the plan acknowledge and maintain the Vila Autódromo community. Nevertheless, most of the families were abruptly removed from the area (Kozlowski et al., 2019; Rolnik, 2015).

FIG. 6.25 Empty Olympic Park.
by author.

The Vila Autódromo started as a fishermen's settlement during the 1960s. It started to grow due to racetrack's construction in the 1990s, as many of the workers settled there. The residents of the community have been living in the area for more than thirty years and had the legal right to occupy the land for residential use, but the threat of removals was always present.

According to Nathalia Silva, a resident of the Vila Autódromo interviews by the author, the threat was always constant but never became a reality due to the government's lack of money. With the realization of the Olympics, the necessary investments for the removal to take place were available.

Notwithstanding, the community resisted for years, suffering from cuts in water and electricity supplies, demolitions, and even police forces. Most of the families yielded to the government's efforts to remove them, but twenty families stood there until the end. The agreement between the municipality and these families consisted of the demolition of the remaining houses and the construction of new ones as an attempt to urbanize the community.

FIG. 6.26 New houses at Vila Autódromo
by Luiz Claudio Silva. Retrieved from: https://rioonwatch.org.br/?p=46130#prettyPhoto

Today, the Vila Autódromo is reduced to an enclave of twenty houses along a paved street between express roads (the BRT lines) and high-quality facilities (the Olympic Park), occupying a minor portion of what once was a dense active community of more than 700 families. Meanwhile, the Olympic Park lies mostly empty. The population rarely uses it, and except for a few festivals and concerts that attracted a considerable number of people or a few punctual events with a target audience, the daily use of the Park is restricted to residents jogging or a few tourists. Furthermore, the Olympic Park has been facing maintenance and management problems, which resulted in its closing a few times.

Institutional arrangements

As a way to reduce public spending on works for the Olympics, the Park was built through a public-private partnership. The consortium Rio Mais made up of the construction companies Odebrecht, Andrade Gutierrez, and Carvalho Hosken, was the winner of the public bid as it was the only bidder interested. Rio Mais would be responsible for building and maintaining the infrastructure of the Olympic Park for 15 years after the Games. It was the responsibility of the consortium to build some of the venues, the infrastructure of open spaces, and the underground infrastructure. In return, the consortium Rio Mais would receive 75% of the public land for future real estate development (Rolnik, 2015; Sanchez, 2019)

Furthermore, although having a master plan, many changes were made to the Park in order to ensure better use of the land for future developments by the concessionaire. Moreover, a new urban alignment plan, which defined the road layout and neighborhood lots, was approved in 2012, presenting bigger blocks and no public areas between the private land as it designed in the masterplan, benefiting the construction capacity of the future developments in private lands (Sanchez, 2019).

Another relevant urban plan to highlight is the one called PEU (Plano de Estruturação Urbana - Structuring Urban Plan) das Vargens from 2009. According to Rolnik (2015), the city's master plan from 1991 considered the area where the Olympic Park is located as an urban expansion containment in order to preserve the fragile environment and stimulate development in already consolidated areas of the city. Therefore, the constructive potential of the area was relatively low.

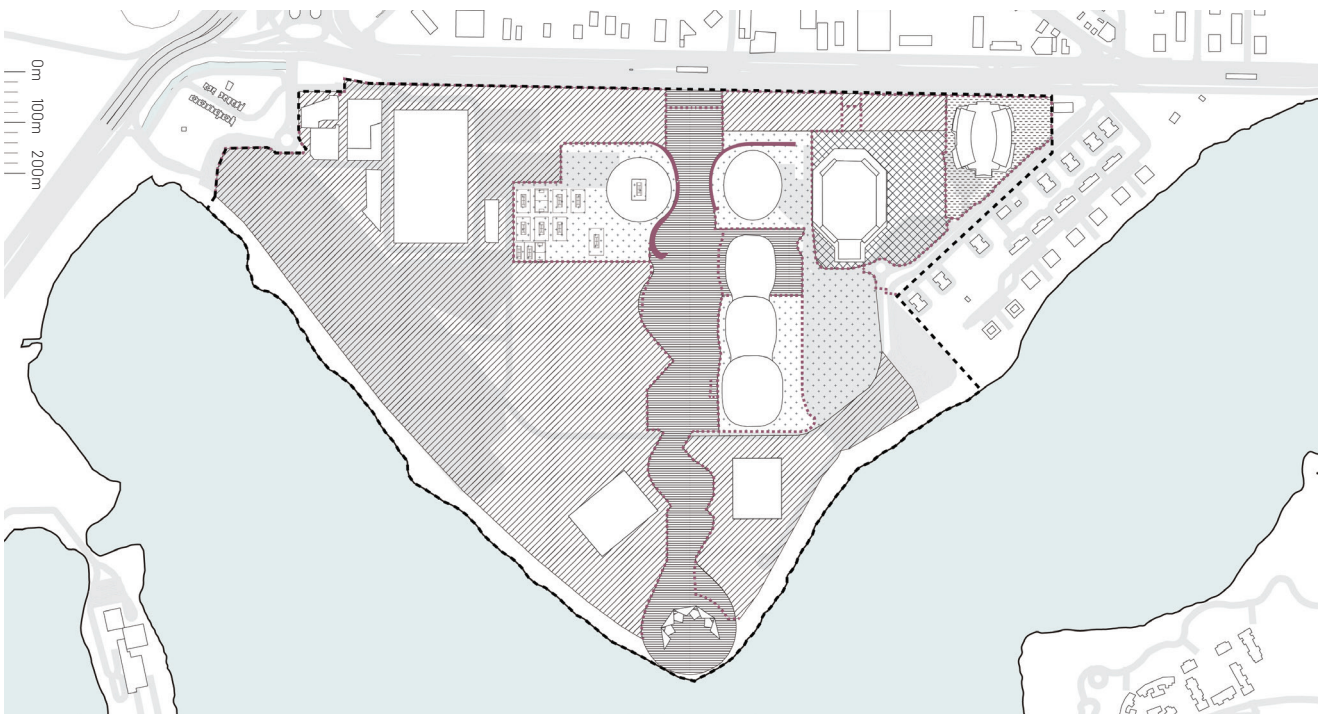


FIG. 6.27 Management division of the Olympic Park.

Source: author, based on DataRio, Geofabriek, IPP, INEA, Perez & Castellar (2020)

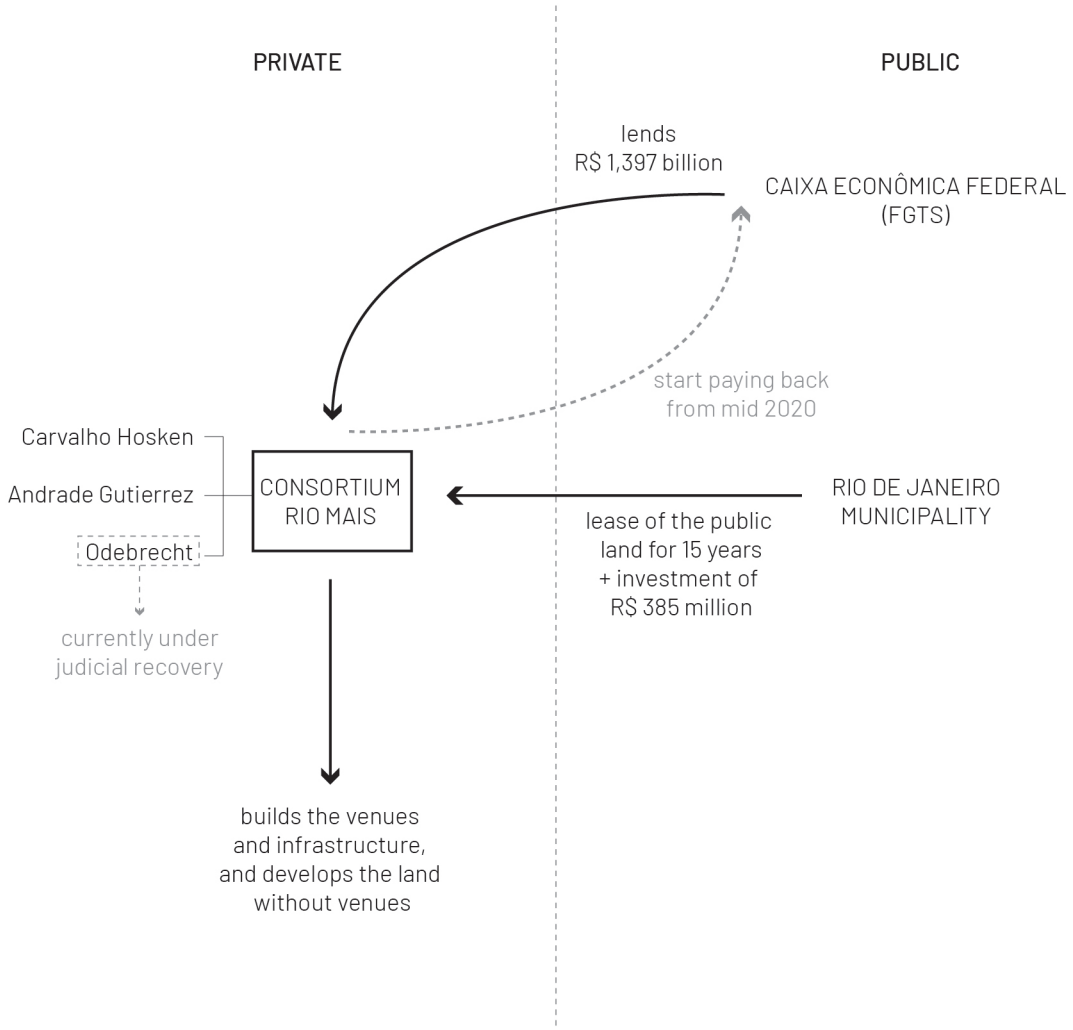


FIG. 6.28 Diagram of the financial and institutional arrangements created for the realization of the Olympic Park.
Source: author, based on Rolnik (2015)

CAIXA ECONÔMICA FEDERAL: federal savings bank;
FGTS (Fundo de Garantia do Tempo de Serviço): workers service time guarantee fund.

As Barra da Tijuca started to grow as a centrality and became a profitable vector of expansion of the city, many attempts were made to increase the constructive potential by the approval of a new structuring urban plan. All attempts failed, until 2009 when under the consensus of the Games, the plan was approved. The PEU das Vargens made the Olympic Park possible and many other real estate developments in the area (Rolnik, 2015).

Today, one of the companies that make up the concessionaire is bankrupted, and the loan payment, which had been agreed to start in 2020, is uncertain. The private land is still undeveloped, and the management of venues and the public space in the Olympic Park is currently divided between the federal and municipal governments.

6.3.3 – **The North zone and the Transcarioca BRT line**

The North Zone is a portion of the city located distant from the waterfront and the city center. It is also the area where most of the middle and low-income population lives. There was no Olympic cluster in this area, but it was included in the Olympic plan as a place for the implementation of the Transcarioca BRT line. With 39 km of extension and crossing 21 neighborhoods from the suburb of the city, the Transcarioca connects the international airport to the Olympic cluster at Barra da Tijuca. Therefore, apart from the BRT line, the area did not receive as many investments as the previous two.

FIG. 6.29 Zoom location: North zone.
Source: author, based on DataRio, Geofabriek, INEA

FIG. 6.30 Zoom location: North Zone.
Source: author, based on DataRio, Geofabriek, IPP, INEA

Physical environment

In order to illustrate the changes caused by the TransCarioca BRT line, three fragments were chosen based on observations from fieldwork: the surroundings of the stations Campinho, Cardoso de Moraes/Santa Luzia, and Vicente de Carvalho.

Through these three fragments, it is possible to see that the BRT line's implementation caused significant changes in the physical environment of the area. It cut through a consolidated urban fabric, demolishing buildings, extinguishing the few existing

FIG. 6.31 Zoom location: BRT stations Campinho, Cardoso de Moraes, and Vicente de Carvalho.

Source: author, based on DataRio, Geofabriek, IPP, INEA

public squares, creating new underpasses and viaducts, and widening roads to give space for the necessary transportation infrastructure.

This operation divided the neighborhoods, as there is a barrier between the two sides of the BRT roads for protection, and it is possible to cross only in a few delimited places. The BRT also left behind many fragmented unused spaces, rarefied green areas, and scarce of areas for social activity, as the implementation of the BRT lines was not followed by a restructuring plan of the areas it cut through (Izaga, 2014; Rocha & Lopes, 2015).

Facilities

As mentioned before, the North Zone did not receive many investments other than the TransCarioca BRT line, and as it did not have a complementary plan, the only new pieces of equipment built were the stations. Other than that, just a few new necessary infrastructures for accessibility of the stations, connection to other existing transportation modes, and crossing between the two sides of the road were also built in some places.

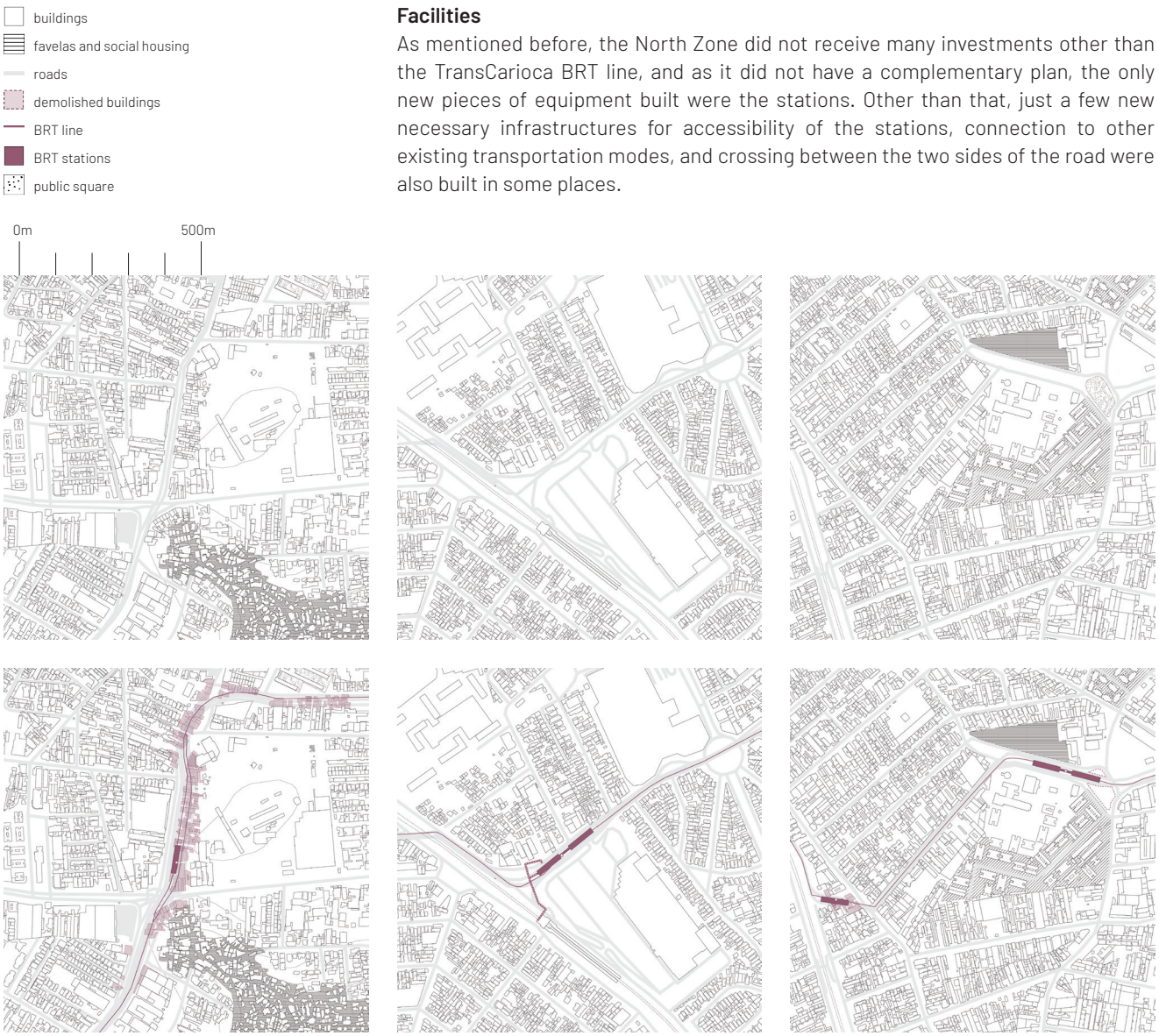


FIG. 6.32 Before (first row) and after (second row) of the surroundings of the BRT stations Campinho, Vicente de Carvalho and Cardoso de Moraes (left to right).
Source: author, based on DataRio, Geofabriek, IPP, INEA

Identity

The Transcarioca line largely disregarded the memory of some of the suburban neighborhoods it cut. With about 3.600 expropriated buildings for demolition (including some heritage buildings), it directly affected the neighborhoods' image and identity (Rocha & Lopes, 2015). According to Deborah Anjos, a former resident of Campinho (one of the neighborhoods cut by the Transcarioca) and interviewed by the author, the BRT completely changed the area. It transformed human scale areas into a passage for an express transportation line, leaving gaps in terms of reference points already incorporated by the local population.

Furthermore, Deborah states that the expropriations were always a concern for the population, as the Transcarioca line is an old plan that was presented in different ways through the years. The route has been planned already as an express road and even as a metro line. According to Izaga (2014, the current route (with some small variations) is recurring in several city's plans since the 1960s.

In conclusion, the Transcarioca superimposed a new reality to the neighborhoods it cut. It partially erased the memory of the neighborhoods by demolishing a significant amount of buildings and transformed portions of these consolidated residential suburban neighborhoods into disconnected transition areas, consisted of a scale that does not match the everyday reality of these areas.

FIG. 6.33 Before (first row) and after (second row) of the surroundings of the BRT stations Campinho, Vicente de Carvalho and Cardoso de Moraes (left to right). Source: Google Street View 2009 and 2019.

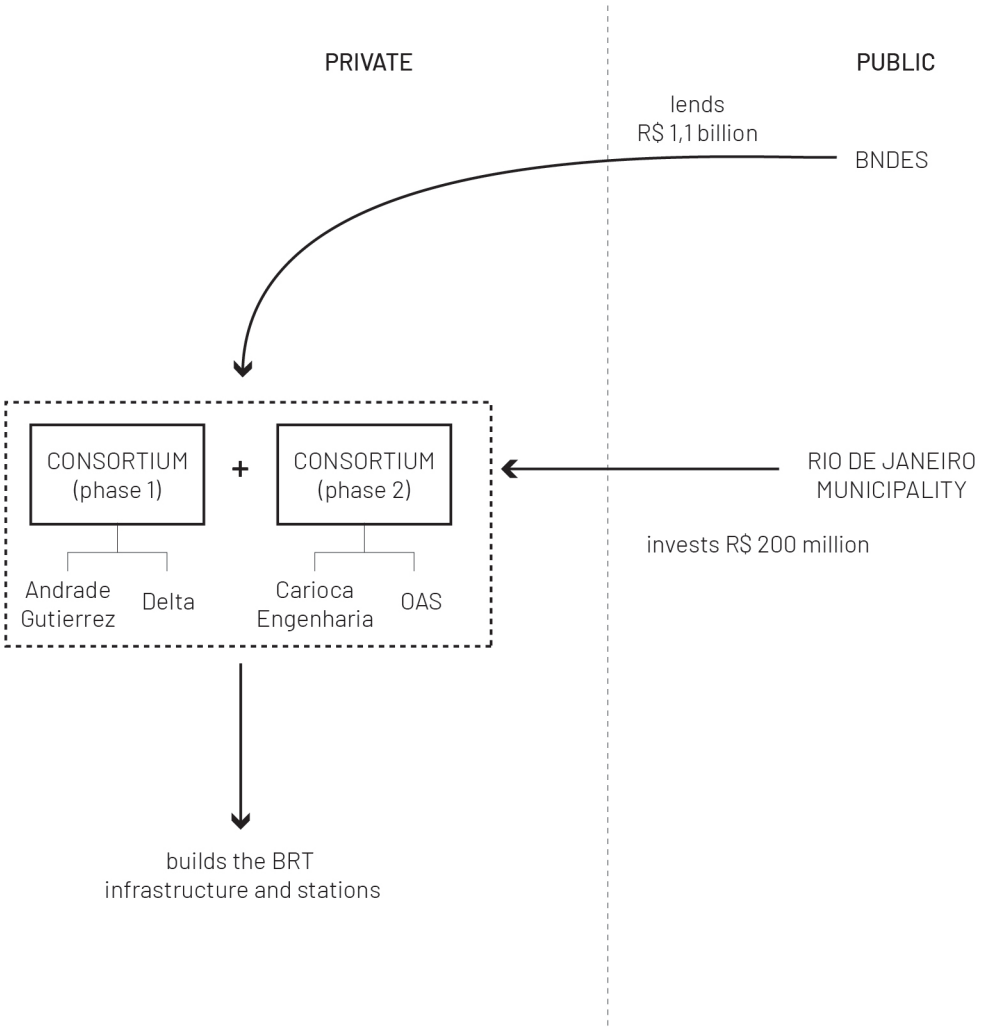


FIG. 6.34 Diagram of the financial and institutional arrangements created for the realization of the Trancarioca BRT line.
Source: author, based on RJ TV (2017)

BNDES (Banco Nacional de Desenvolvimento Econômico e Social): federal development bank

Institutional arrangements

The construction of the BRT lines was also realized through a private-public partnership. The Transcarioca had two phases as the original route was extended. Initially, the route would connect the neighborhoods of Barra da Tijuca and Penha. However, the Brazilian Government (Federal Executive Power) conditioned the release of the money's loan to the extension of the project to the international airport, as studies showed that the addition would make the system serve over 100 thousand users (Mobilidade Urbana, 2012).

Therefore, the Transcarioca was built in two phases (Barra da Tijuca - Penha and Penha - international airport) and with two consortiums consisting of the construction companies: Andrade Gutierrez and Delta (first phase) and OAS and Carioca Engenharia (second phase). With an initial cost of R$ 1.3 billion, the project ended up costing almost R$ 2 billion, financed by public money (RJ TV, 2017).

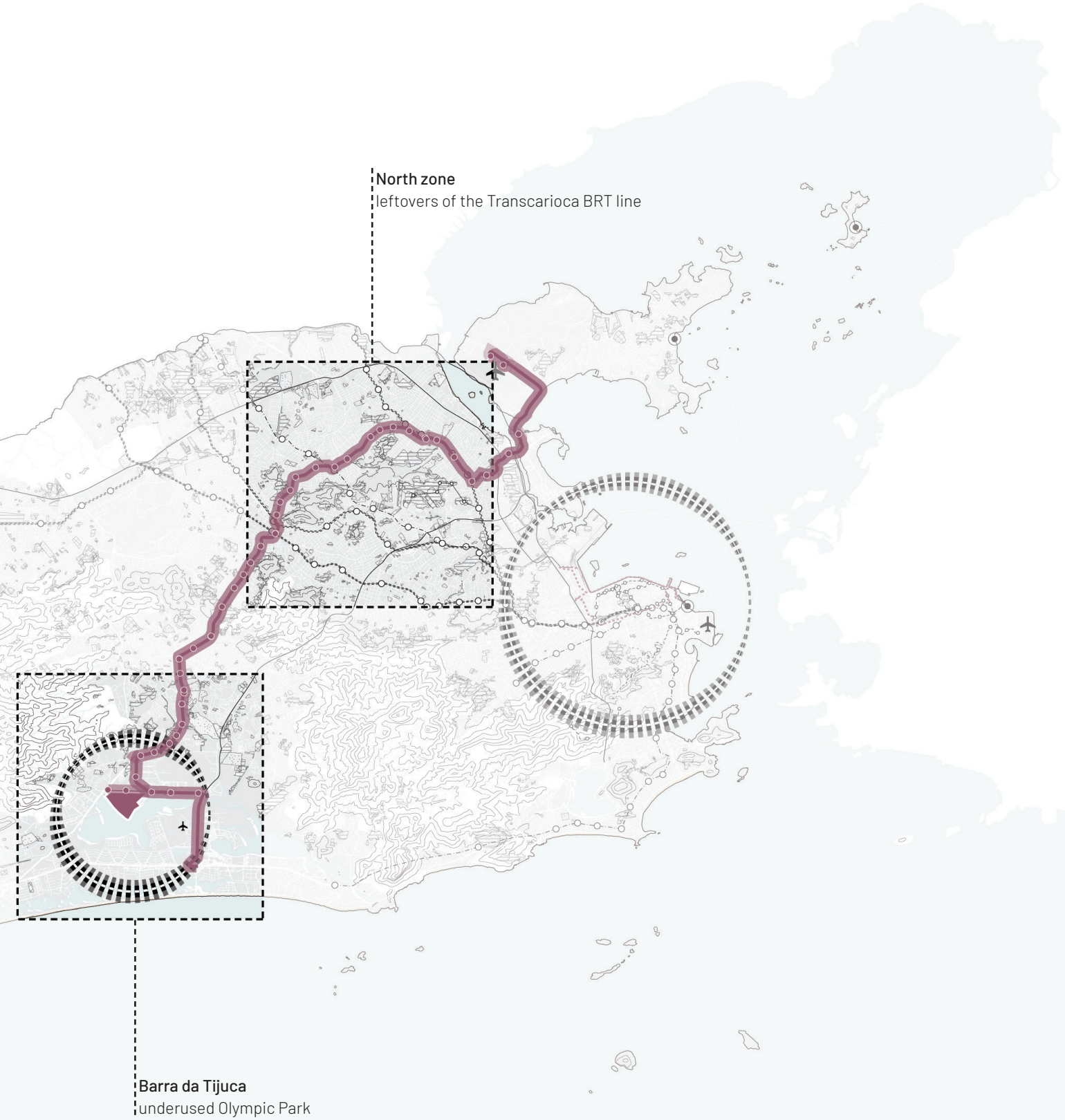
6.4 – **The incomplete legacy**

The Olympic Games changed the city of Rio de Janeiro not only spatially and socially, but also institutionally. These three levels were intertwined and could not be seen separated, as one directly affects the others. Transformations in the physical environment had an impact on the city's dynamics, influencing the distribution of people within the city and affecting the socio-spatial configuration. Also, these spatial transformations and social dynamics reconfiguration were only possible due to the new institutional arrangements implemented.

Moreover, the changes affected areas of the city in different ways. The renovation of the port area in the city center, although still lacking to create better connections with the local community, to provide accessible housing and to activate its core, physically and psychologically reconnected the area to the rest of the city. By creating more attractions, upgrading the infrastructure, and repurposing public areas directly connected to the waterfront, a historical area that was stigmatized by the majority of its population as abandoned and degraded is now part of the city again. Meanwhile, Barra da Tijuca, with the Olympic Park, and the North Zone, with the Transcarioca BRT line, seems to be struggling for activation and connection.

The currently underused/underdeveloped Olympic Park and the leftover spaces from the implementation of Transcarioca can be understood as the incomplete legacies of the 2016 Olympic Games. These areas are currently facing uncertainty, as the original plans were not followed through or had never even existed. Hence, the opportunity to reframe it, taking advantage of the incompleteness the legacy has to offer to incorporate the once ignored local needs.

FIG. 6.35 Selected areas for proposals: leftover spaces along the Transcarioca BRT line and the underused Olympic Park.
Source: author, based on DataRio, Geofabriek, INEA


North zone
leftovers of the Transcarioca BRT line
Barra da Tijuca
underused Olympic Park

PART 5

Inclusive Rio

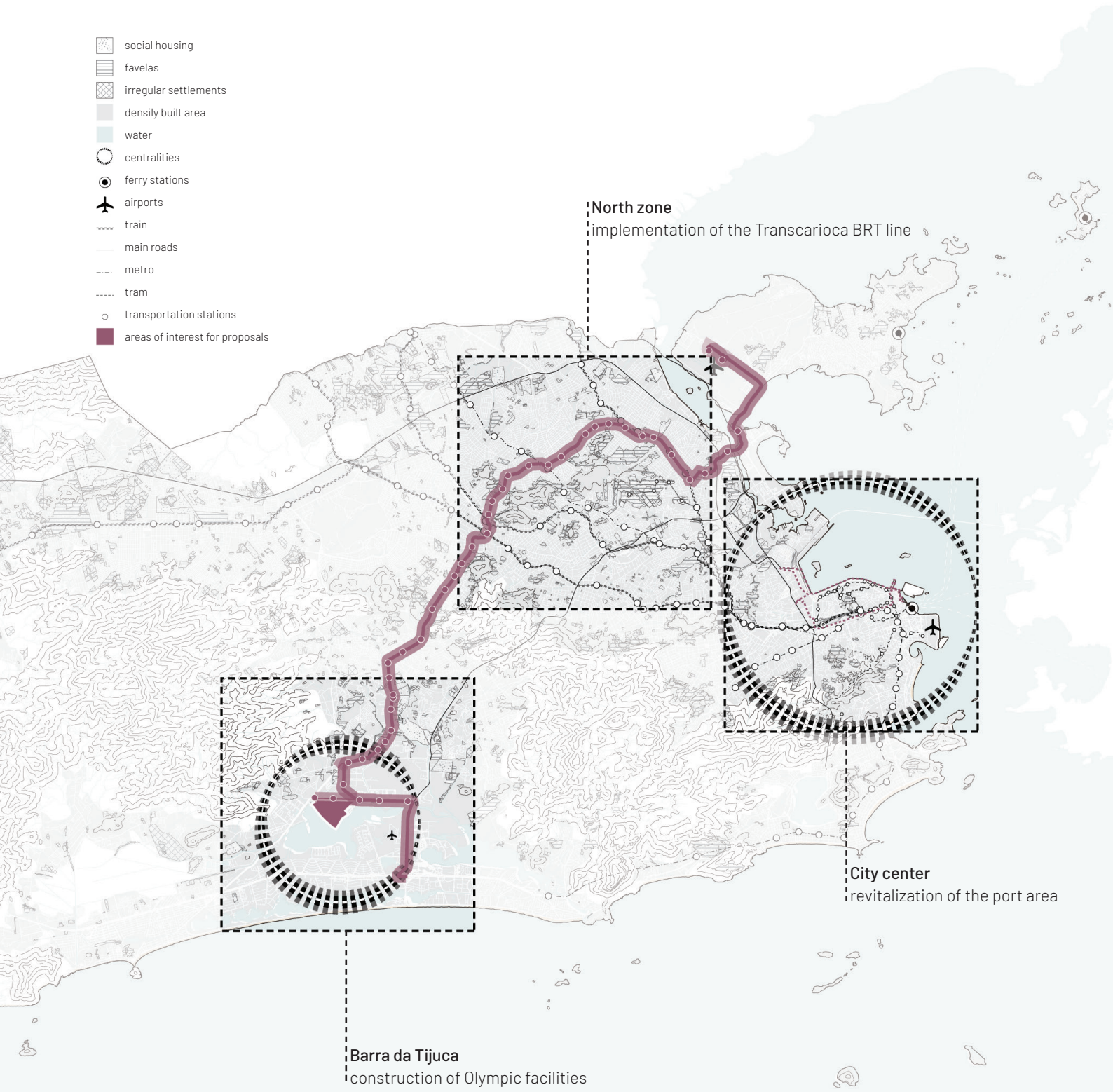


FIG. 6.36 Location of the areas for the analysis.
Source: author, based on DataRio, Geofabriek, INEA

7 – Context analysis

7.1 – **Introduction**

Based on the conclusion of the processes' analysis, two areas with incomplete legacies were selected for the development of proposals: the Olympic Park and the leftover spaces along the Transcarioca BRT line. However, first, it is necessary to understand the context of these spaces in order to create proposals coherent with the potentials from each area. While the Olympic Park has the potential to reach a large influence area and a defined area for spatial intervention, the spaces along the BRT line are multiple and have a more local influence area. Therefore, the context analysis approaches are a bit different for the Olympic Park and the BRT leftover spaces.

The Olympic Park is located in a sub-metropolitan centrality, has a defined physical space, and its development created a public area for the population. These are some characteristics that could be related to the ones found in the Olympic Boulevard, which is located in a metropolitan centrality, has a defined route, and regained an abandoned public area to the city. The main difference between these two is that the Olympic Boulevard appears to be more attractive and active than the Olympic Park. Therefore, admittingly not perfect, the Olympic Boulevard still can help inform what could be improved in the Olympic Park, if the difference in context is considered. Thus, the Olympic Park context's analysis is drawn as a comparison with the Olympic Boulevard's context, in the city center, to understand what could be implemented and find potentials in the area.

The context of the Transcarioca BRT line is analyzed using the same parameters of the Olympic Park's, but as the BRT's leftover spaces have a more local influence potential, a comparison with any other location seems irrelevant and unfruitful. Then, in this case, the analysis of the context is restrained only to the North Zone as a way to understand the needs and potentials of this specific area that could be enhanced or incorporated within the proposals.

FIG. 6.37 Areas for the analysis (from left to rigtht): , city center, Barra da Tijuca and the North Zone.

7.2 – **Barra da Tijuca vs. City center**

Physical Environment

While the city center has a more compact urban fabric and not significant green areas either in number and area, Barra da Tijuca seems to have the opposite configuration: numerous large green areas and a more scattered urban fabric. Both, though, are directly connected to the water bodies.

FIG. 7.1 City center's urban fabric.

Source: author, based on DataRio, Geofabriek, IPP, INEA

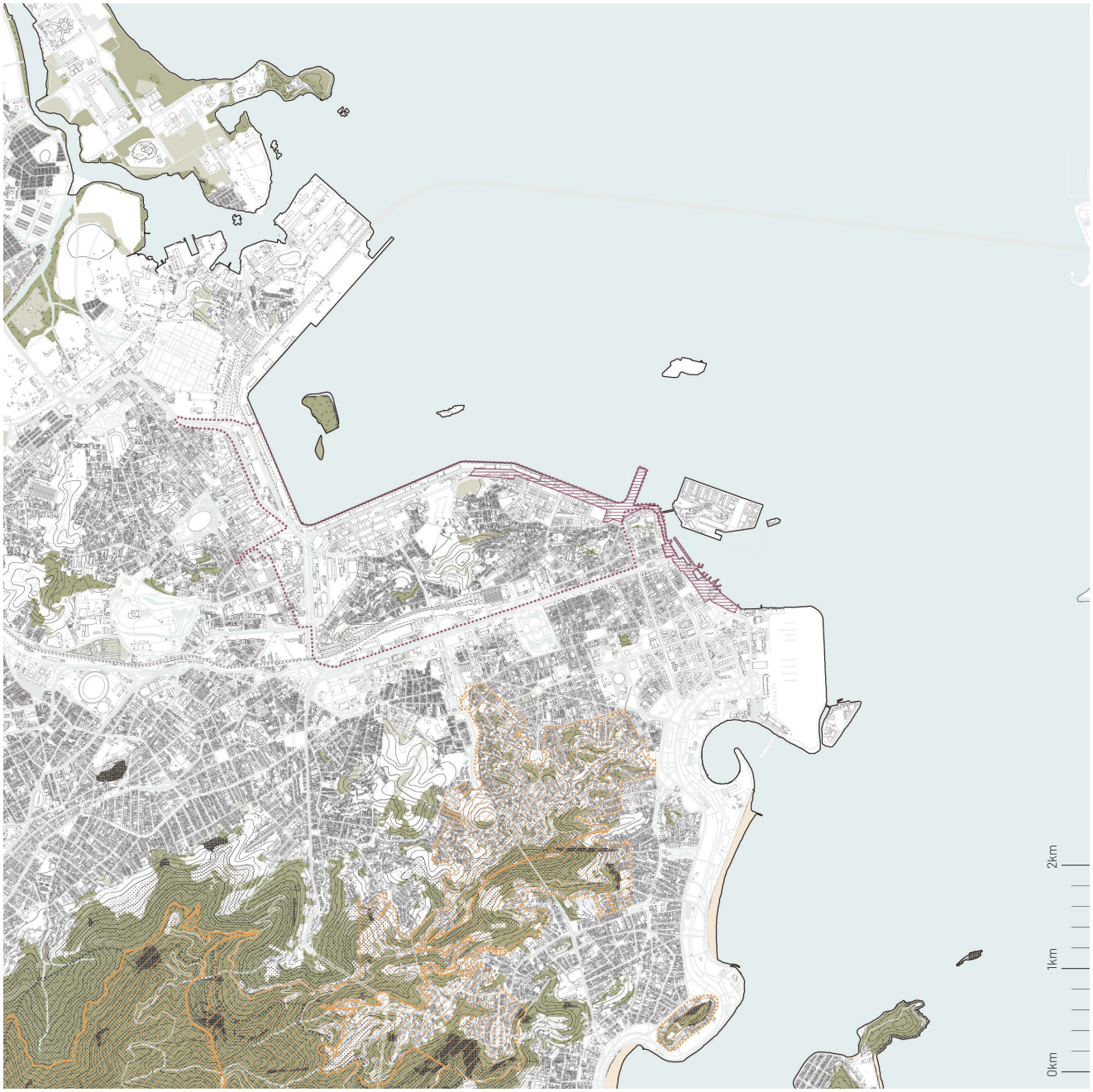
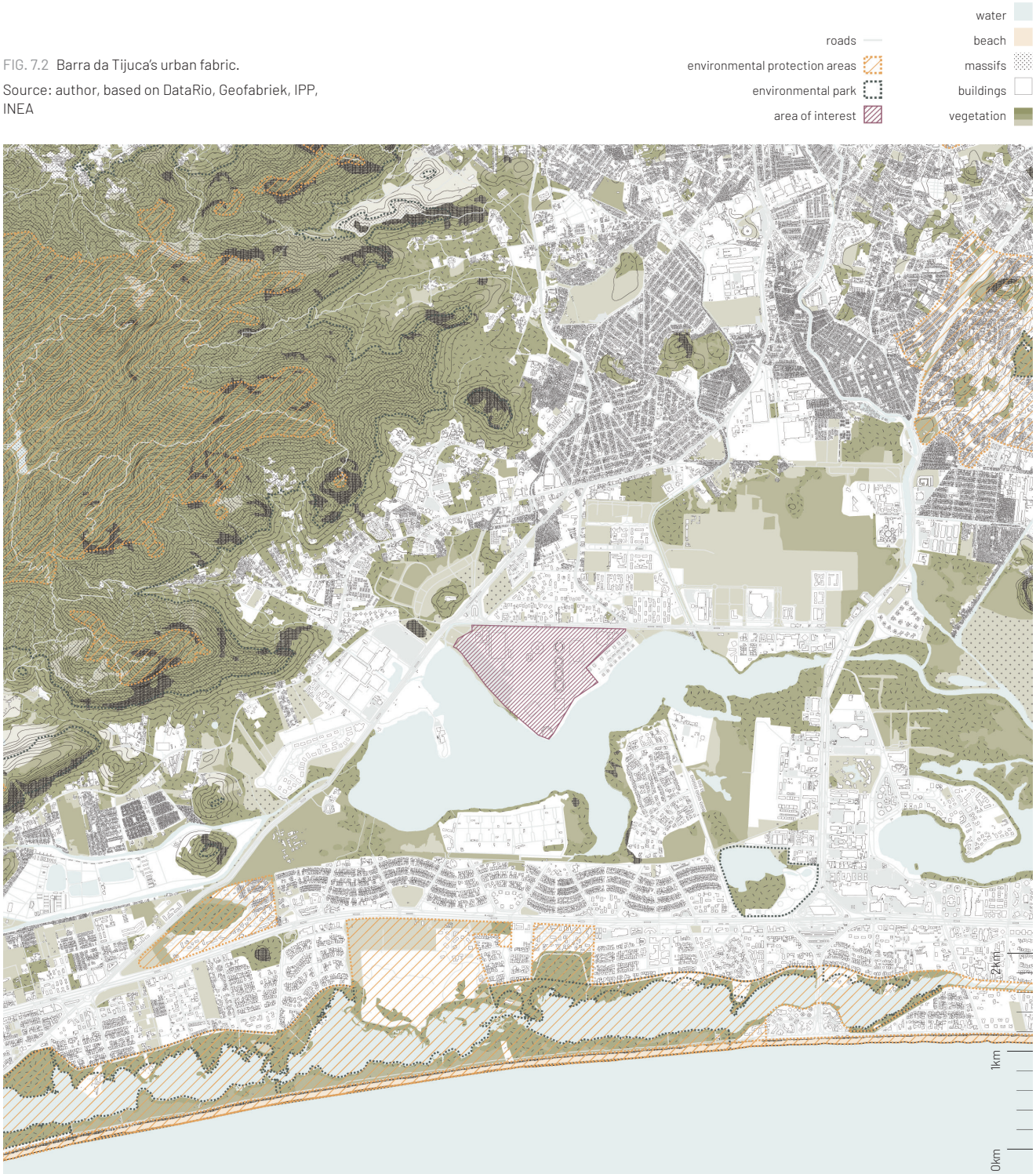


FIG. 7.2 Barra da Tijuca's urban fabric.

Source: author, based on DataRio, Geofabriek, IPP, INEA



The city center has a condensed distribution in land use: commercial, leisure, and residential activities are not distributed far away from each other, and industrial activity is located in the periphery. In the case of Barra da Tijuca, the distribution is more scattered: residential is spread all over the area, but commercial activity is clustered close to the crossing of two main roads, leisure activities are concentrated in the area closer to the water bodies while the existing industrial activities are located at further away from the shore.

FIG. 7.3 City center's land use.

Source: author, based on DataRio, Geofabriek, INEA

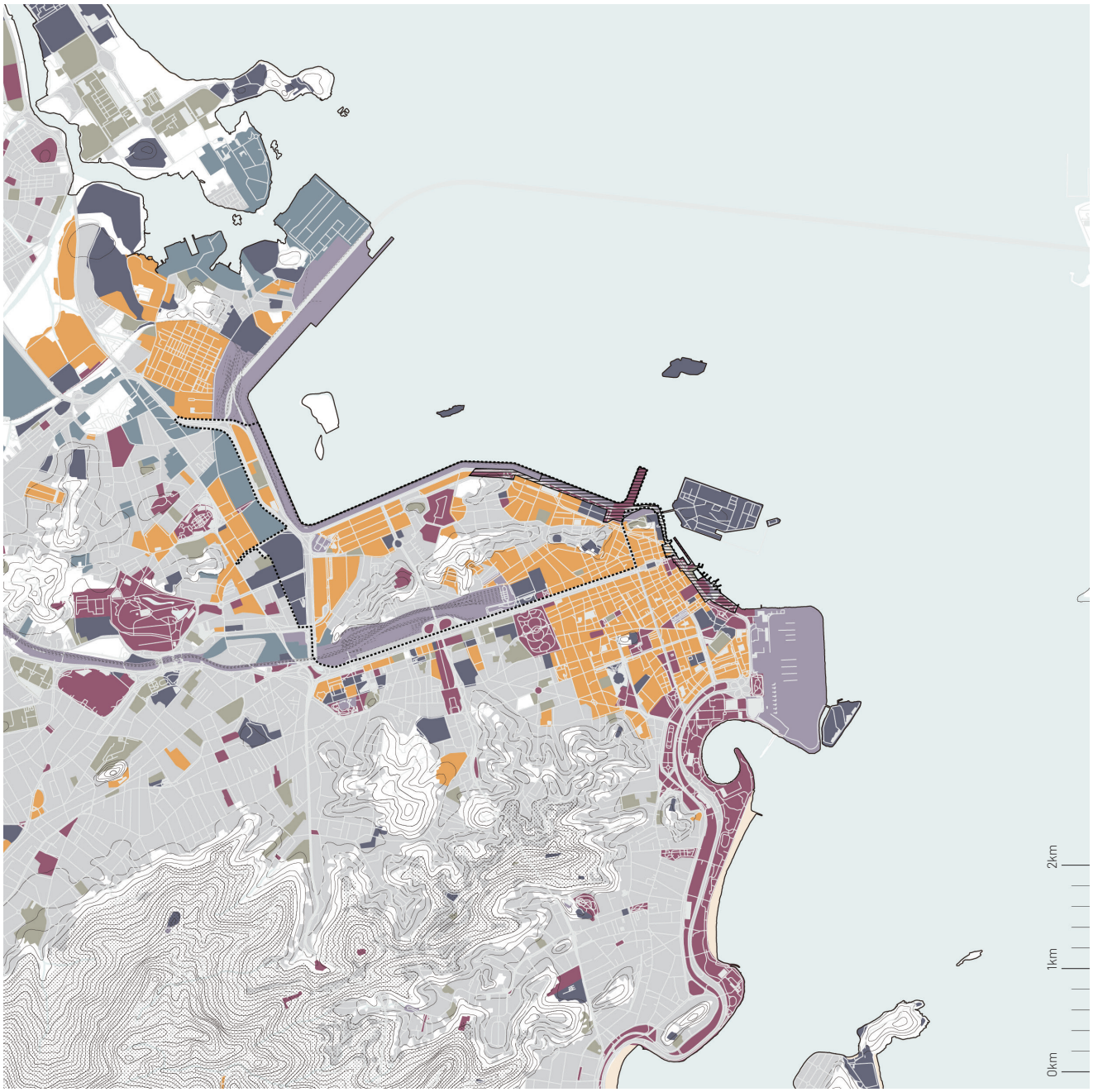
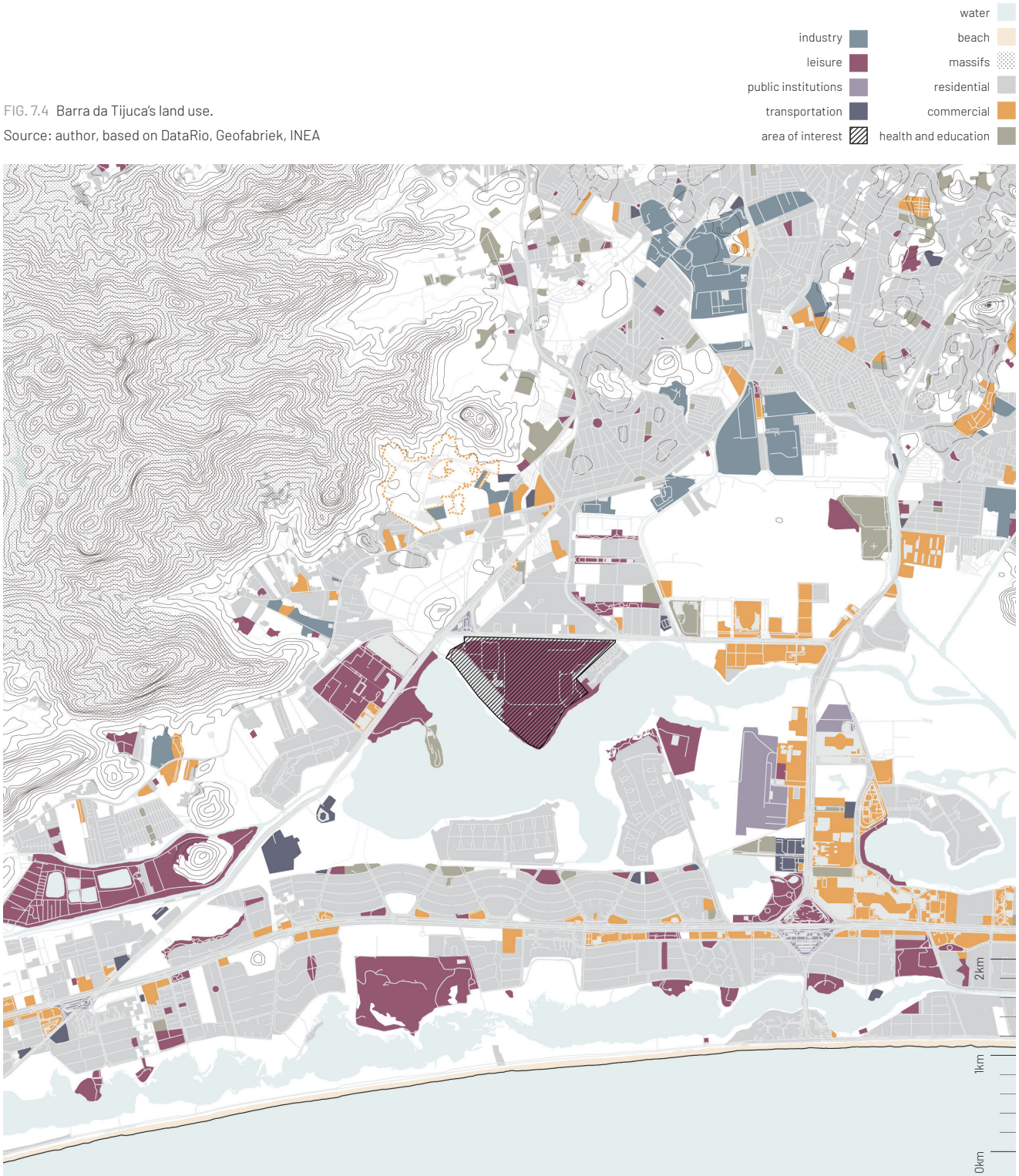


FIG. 7.4 Barra da Tijuca's land use.

Source: author, based on DataRio, Geofabriek, INEA

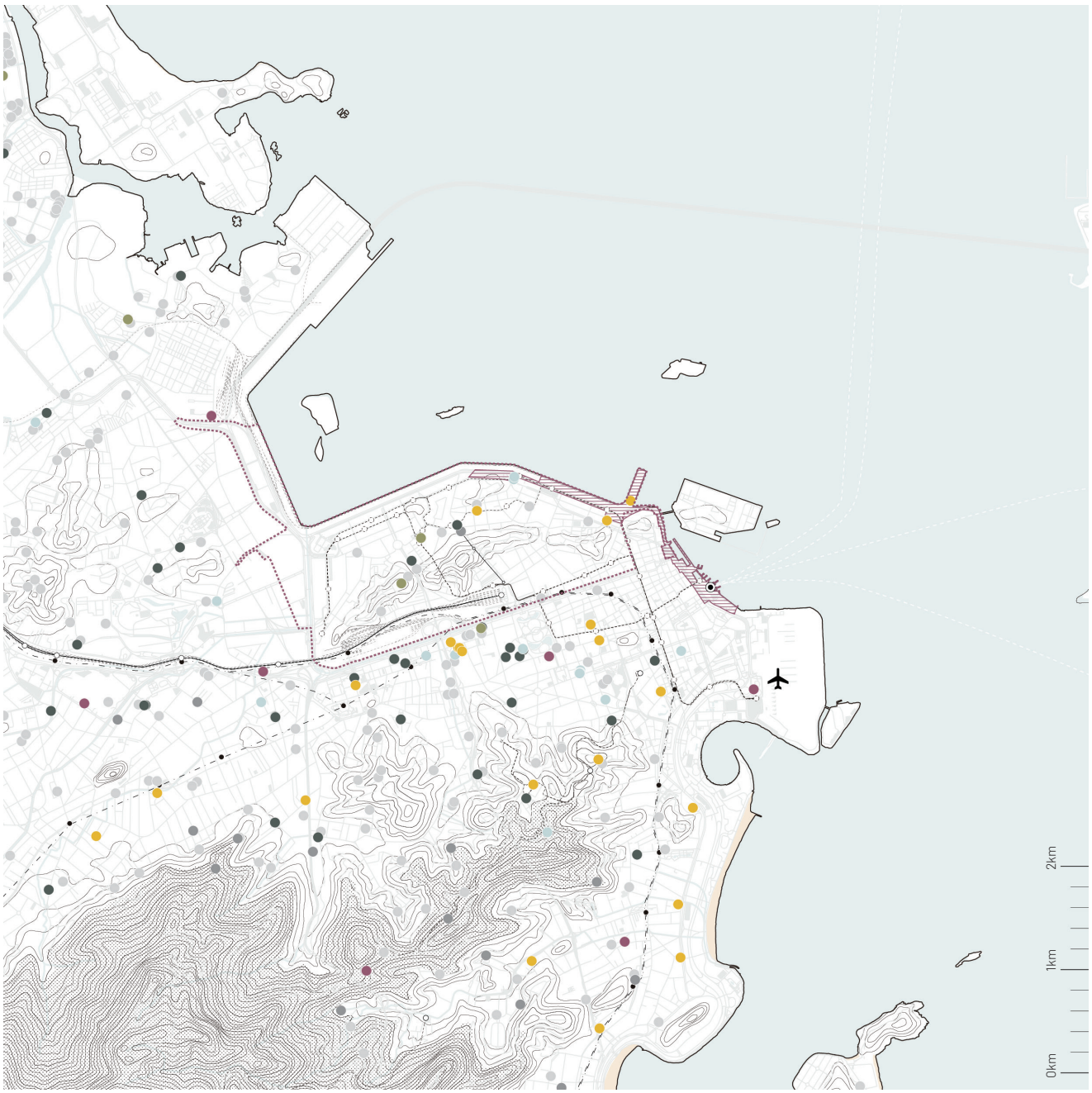


Facilities

Regarding types of public equipments and transportation, it is clear that the city center has more diversity and is more easily accessed as all the existing transportation modes in the city go through it. However, if looking specifically in the proximity of the Olympic boulevard, the lack of equipment is evident if compared to the rest of the area. The only existing pieces of equipment are the ones created within the project of the Boulevard.

FIG. 7.5 City center's distribution of public equipments and transportation.

Source: author, based on DataRio, Geofabriek, INEA



Meanwhile, Barra da Tijuca lacks public equipments and variety in transportation modes. The BRT lines increased this need, especially around the Olympic Park; however, the lack of activities around it still makes it a crossing area.

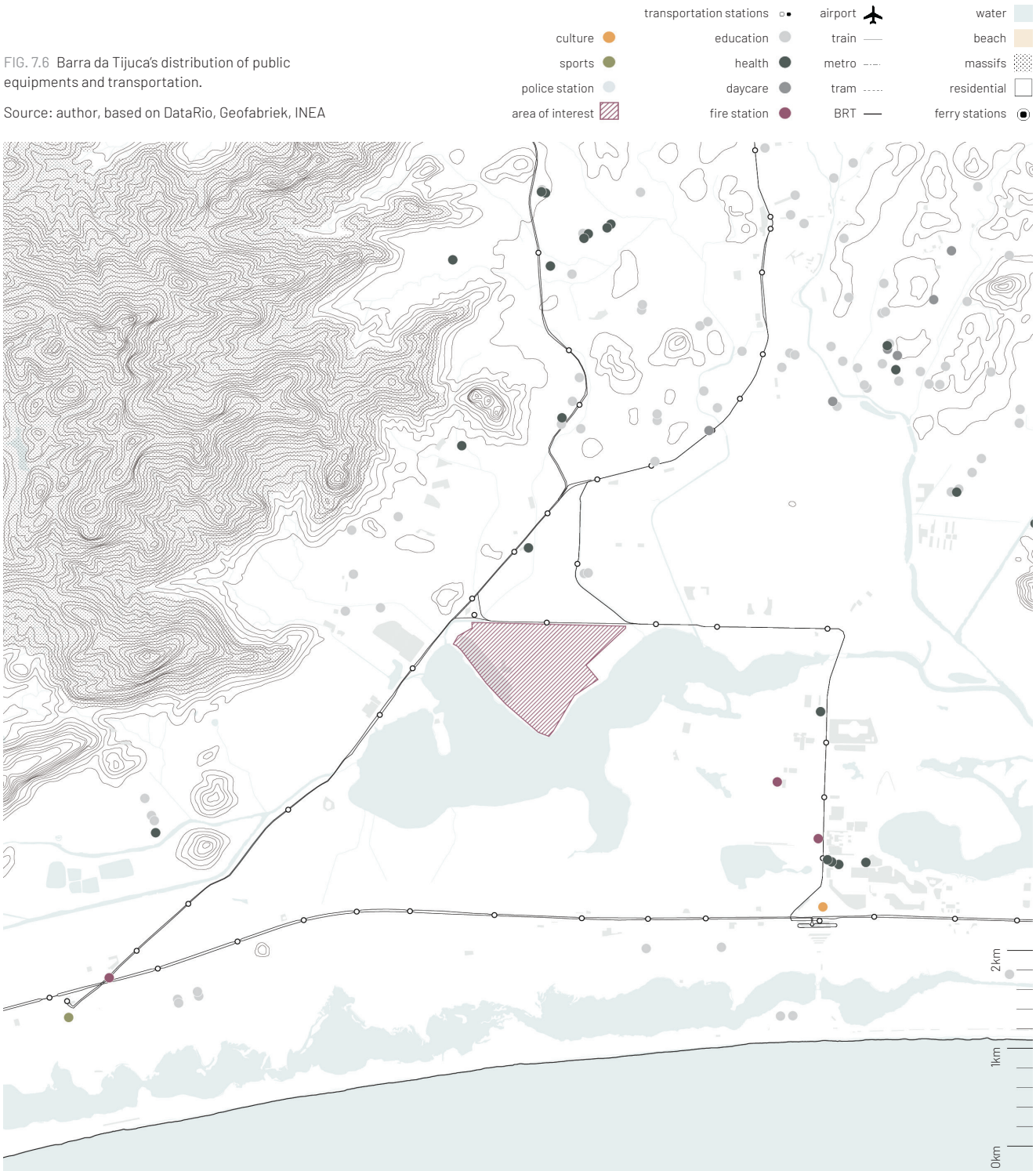


FIG. 7.6 Barra da Tijuca's distribution of public equipments and transportation.

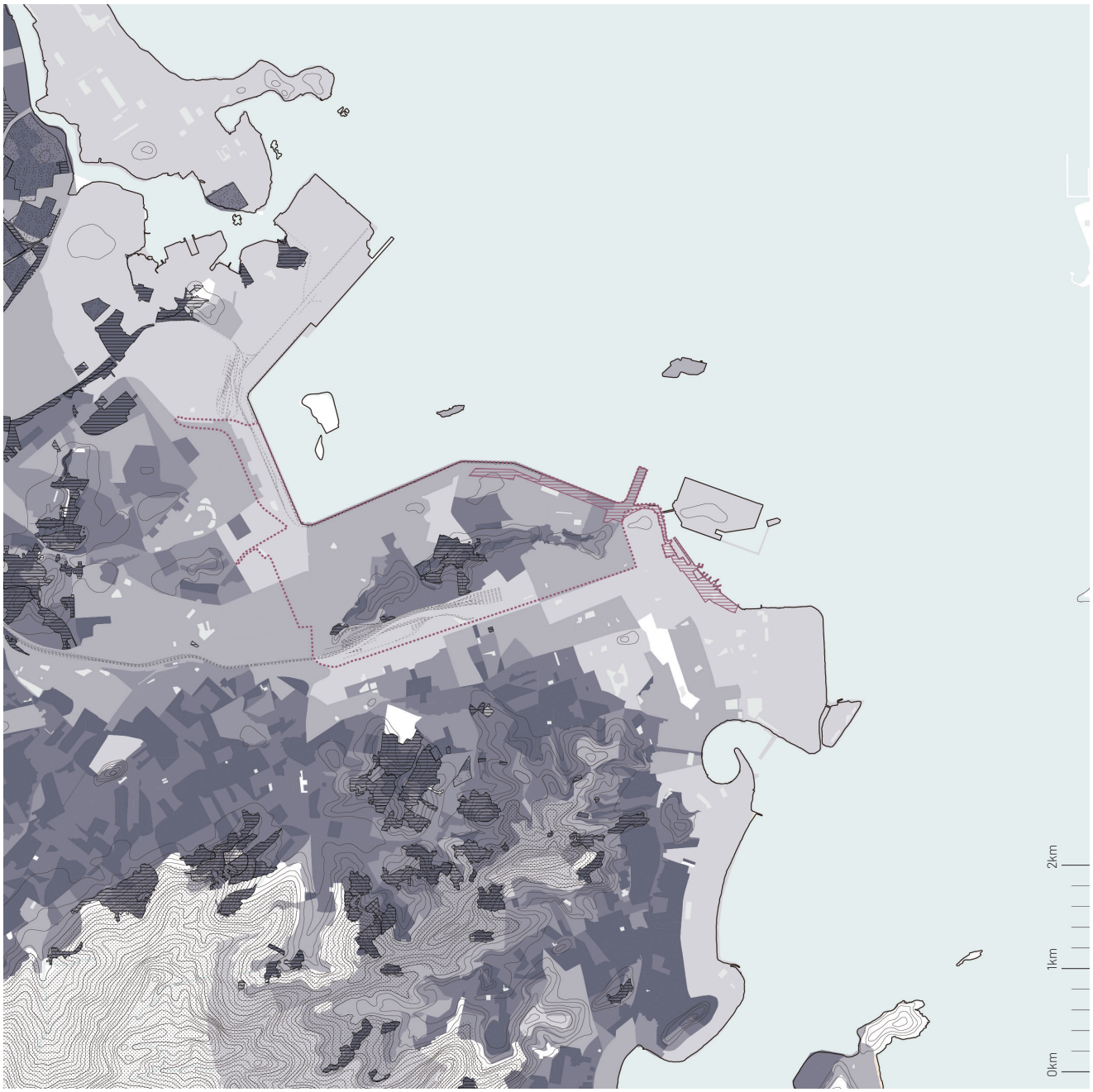
Source: author, based on DataRio, Geofabriek, INEA

Identity

When looking at population density, neither of the neighborhoods are significantly occupied. In the case of the city center, the historical development of the area explains the situation. Contrary to most European city centers, the case of Rio does not have a mix of facilities and residential units. The city center of Rio is mostly a business center surrounded by residential neighborhoods. The port area follows this pattern, and except for its core where the Morro da Providências (the first favela) is located, it presents a low population density.

FIG. 7.7 City center's population density and distribution of informal settlements.

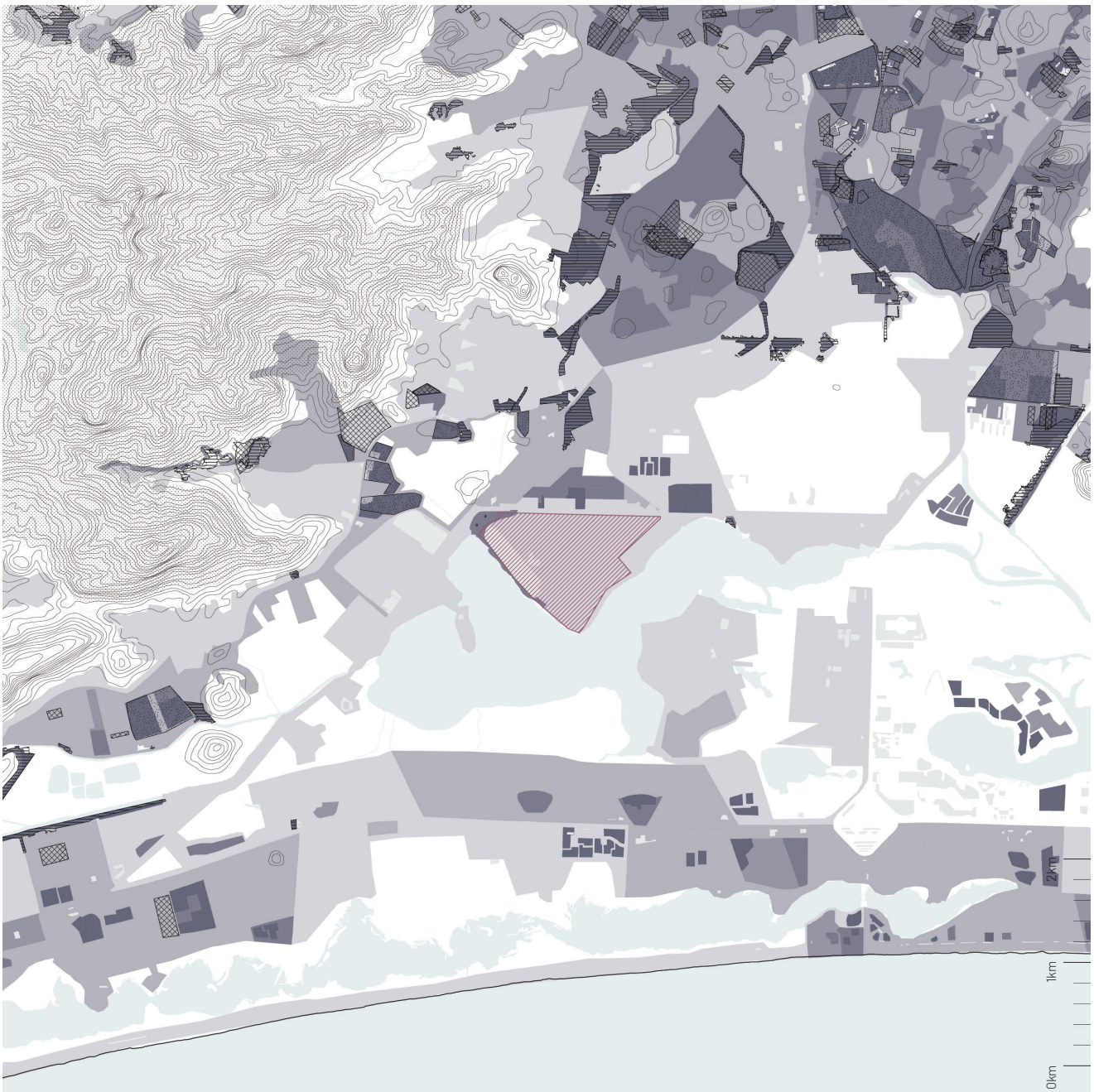
Source: author, based on DataRio, Geofabriek, INEA, IPP, IBGE



Barra da Tijuca also has low population density, which can be explained by the late development of the area. However, there is a strong distinction between the portion located closer to the water bodies and the one further away. The latter presents a higher density level, where all the irregular settlements and social housing existing in the area are condensed.

FIG. 7.8 Barra da Tijuca's population density and distribution of informal settlements.

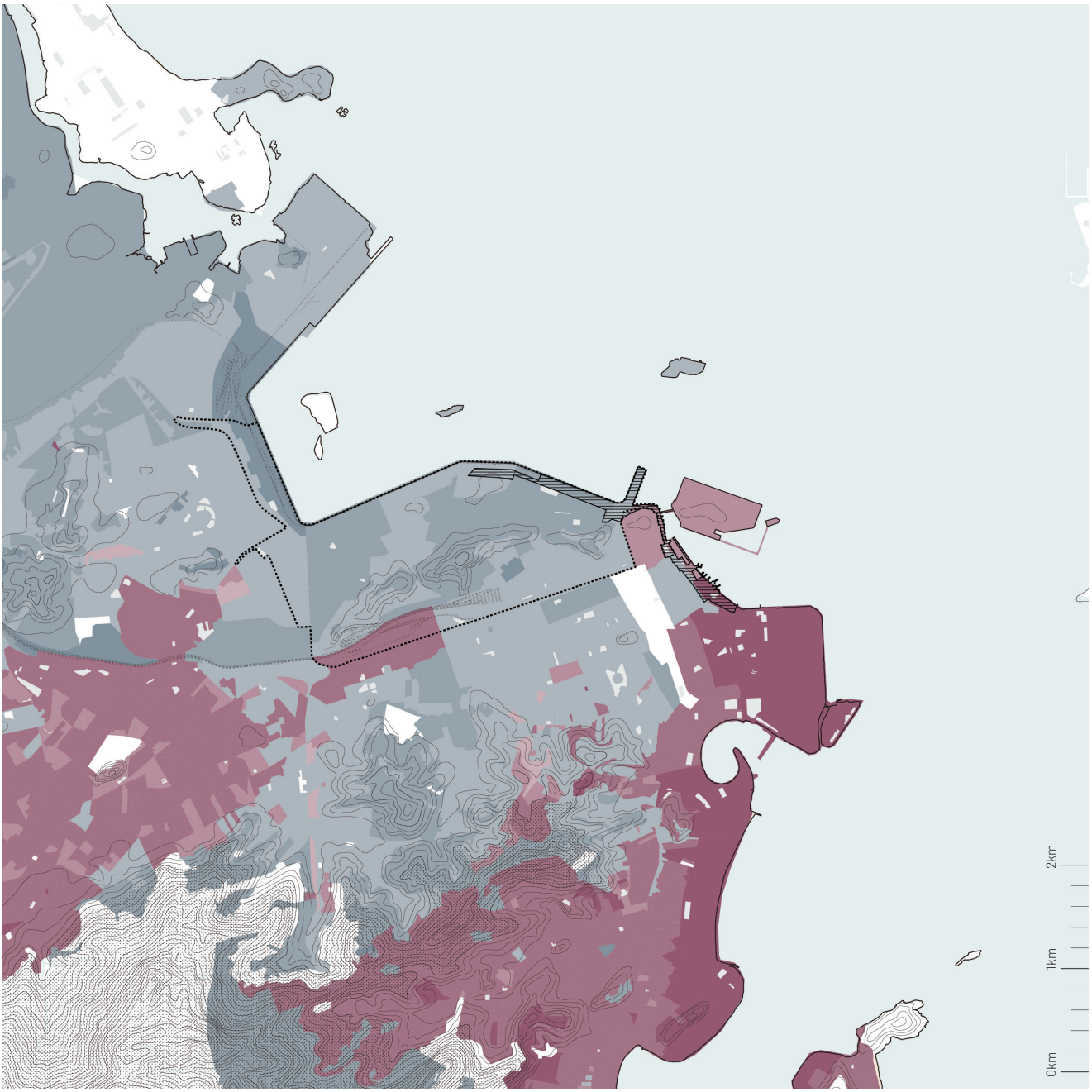
Source: author, based on DataRio, Geofabriek, INEA, IPP, IBGE



The distribution of population income in the city center shows a concentration of the highest income population in the Southern portion of the shoreline, while the Northern part (the Olympic Boulevard included) is mainly constituted of a lower-income population. Furthermore, while a lower-income population inhabits the city center's core, its periphery has a population with a higher degree of income. This scenario can be explained by the fact that the city center is a business neighborhood that lacks enough quality habitation.

FIG. 7.9 City center's population income distribution..

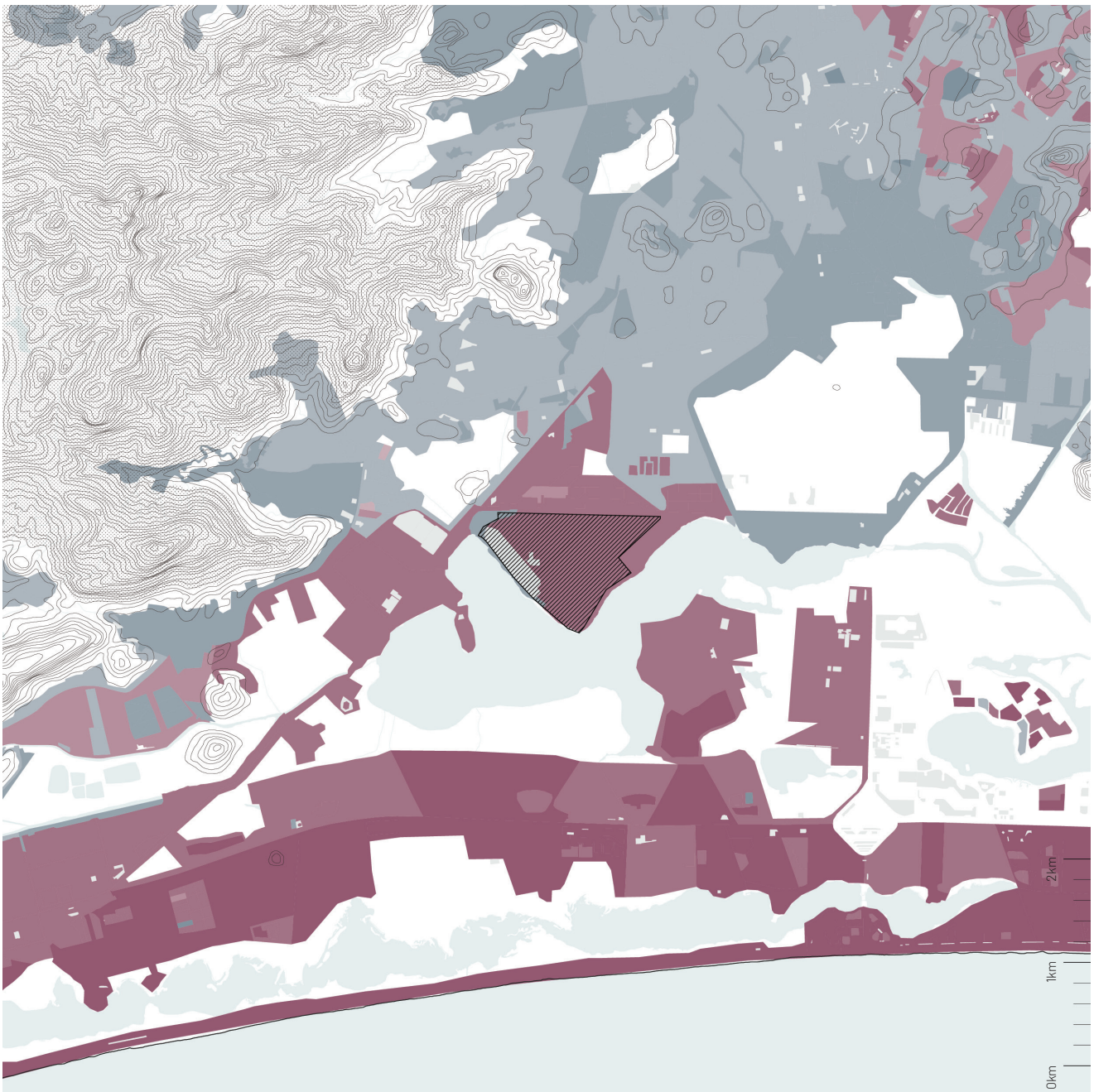
Source: author, based on DataRio, Geofabriek, INEA, IBGE



Barra da Tijuca shows a clear distinction: while a higher income class is located mainly in the waterfront, a lower-income class starts to appear when moving further away. There is a marked spatial division, and the Olympic Park sits right in the limit of it.

FIG. 7.10 Barra da Tijuca population's income distribution.

Source: author, based on DataRio, Geofabriek, INEA, IBGE



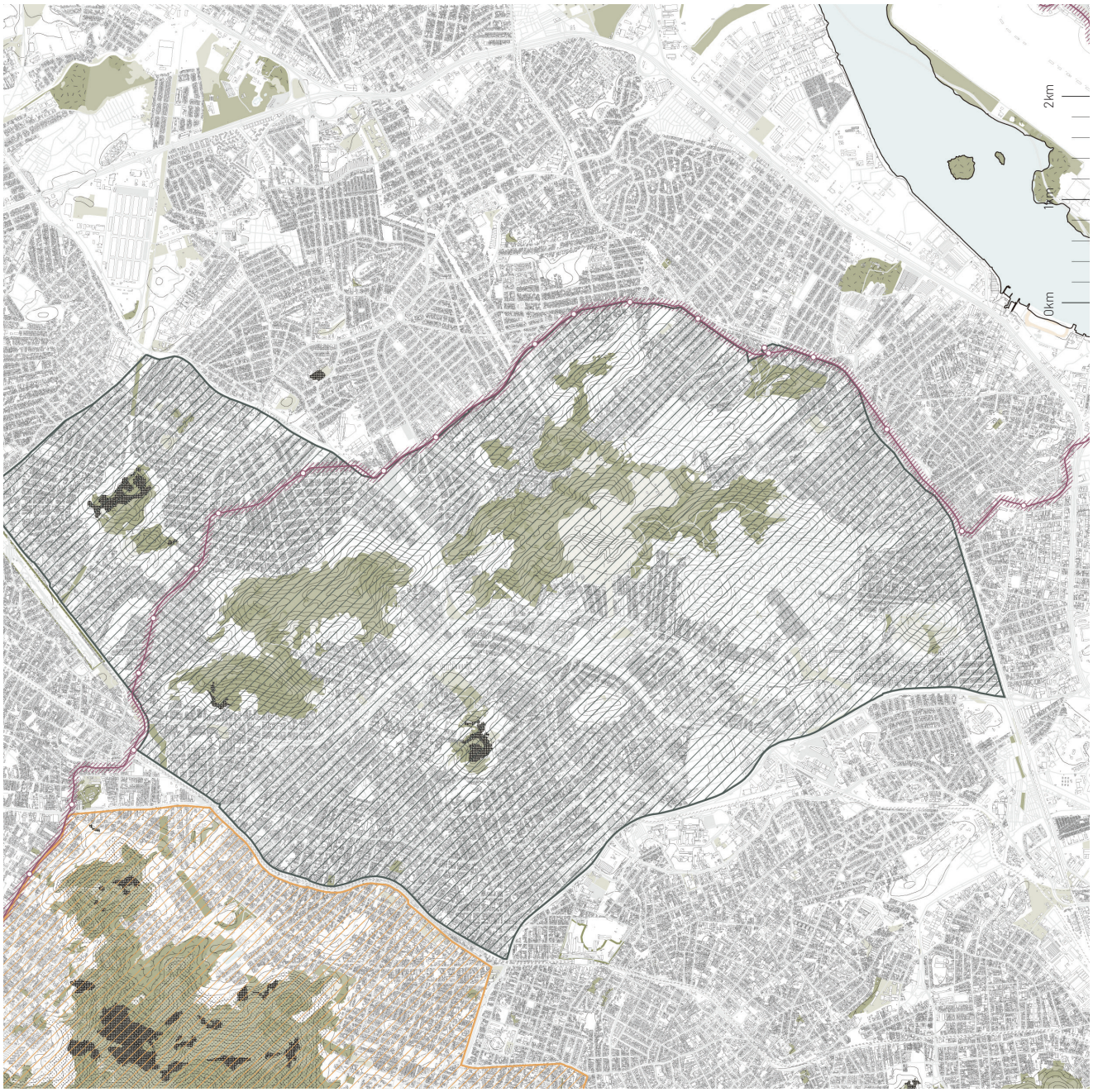


FIG. 7.11 North Zone's urban fabric.

Source: author, based on DataRio, Geofabriek, INEA, IPP

7.3 – **The North Zone**

Physical Environment

The North Zone is quite different from the previous two areas. Its urban fabric is constituted of smaller pieces and less open space, which gives a fine-grain characteristic to the area. The scarce existing green areas are also smaller and disconnected.

The core of the area mainly consists of residential use, with some pockets of commercial use scattered throughout the territory. Going towards its periphery, these pocket increase in size as well as in the variety of uses. The area lacks leisure areas as these seem to be the ones found in the least amount.

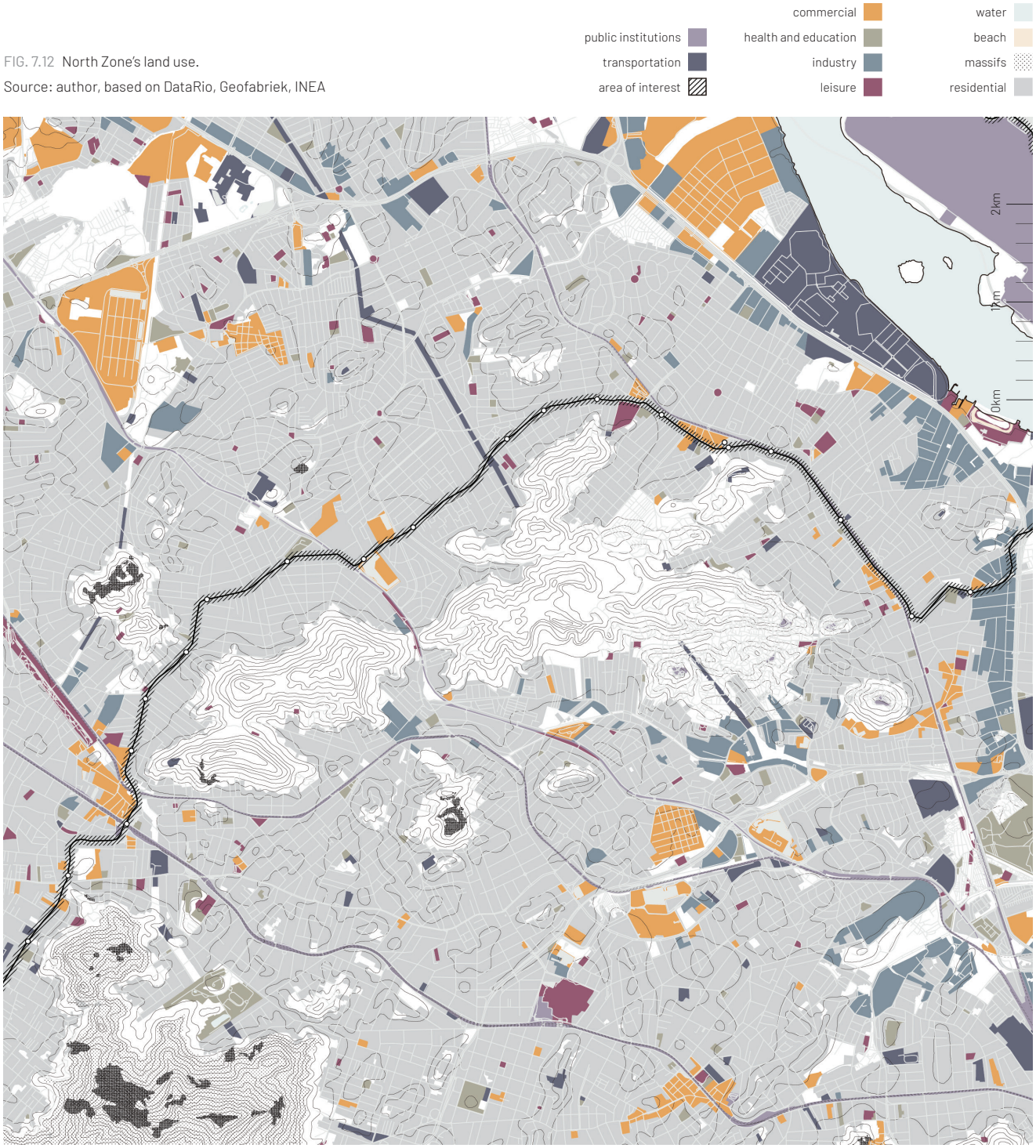


FIG. 7.12 North Zone's land use.
Source: author, based on DataRio, Geofabriek, INEA

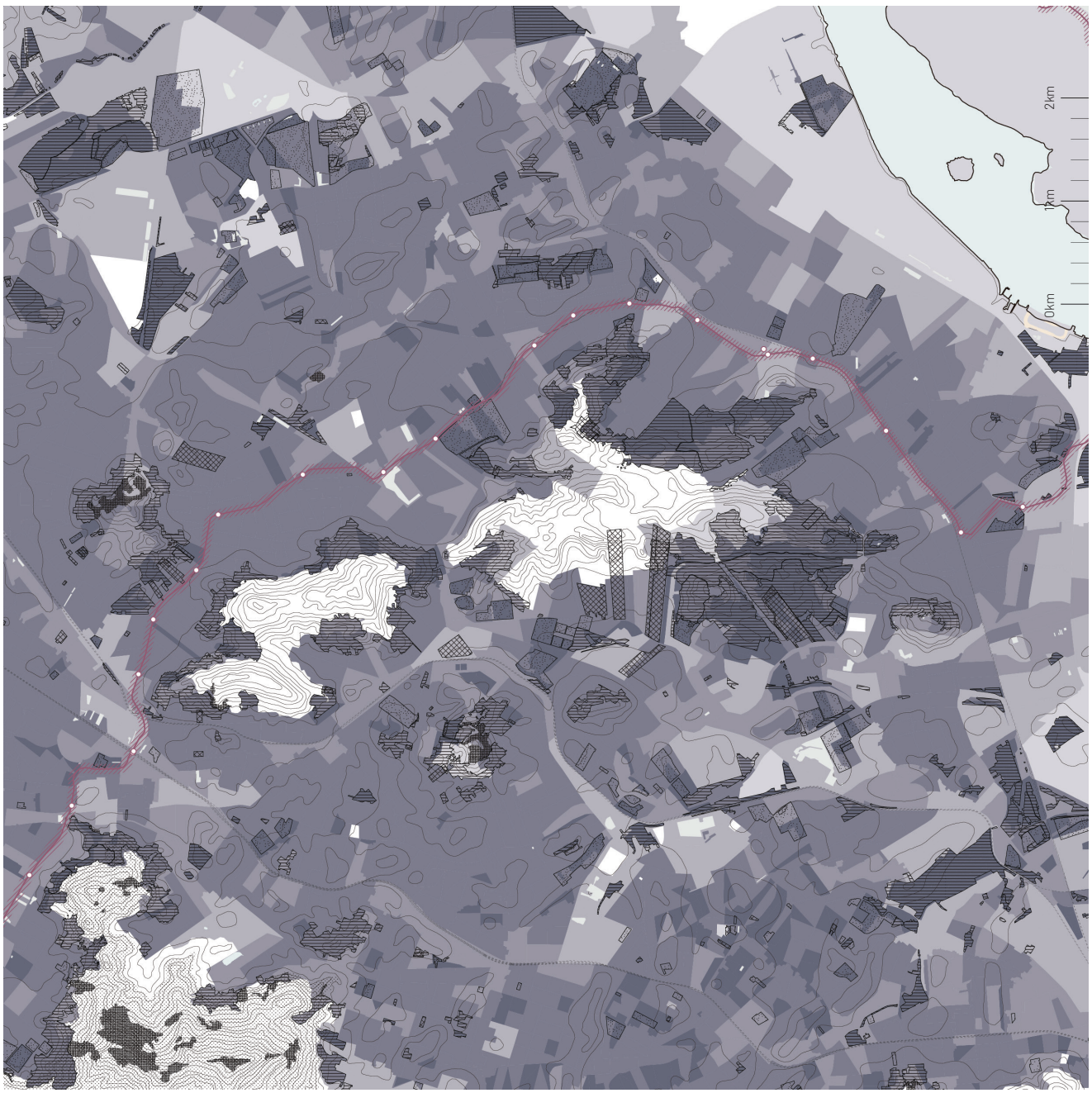


FIG. 7.13 North Zone's population density and distribution of informal settlements.

Source: author, based on DataRio, Geofabriek, INEA, IBGE, IPP

Identity

The North Zone is one of the most densely populated areas of the city, with irregular settlements, favelas, and social housing units scattered evenly throughout the territory. The socioeconomic profile of its population is relatively homogeneous and consists, in its majority, of low-income inhabitants. This current scenario can be seen as a consequence of the pattern of development of this area. Looking at the historical urban evolution of the city: the North Zone was initially occupied by the lower-income working population and developed itself without urban plans, as the government

highest income

lowest income

area of interest

FIG. 7.14 North Zone's population income distribution..

Source: author, based on DataRio, Geofabriek, INEA, IBGE

only invested in the South Zone, where the higher-income population had settled. Thus, the current scenario is only a reflection of a recurring segregation pattern of development in the city.

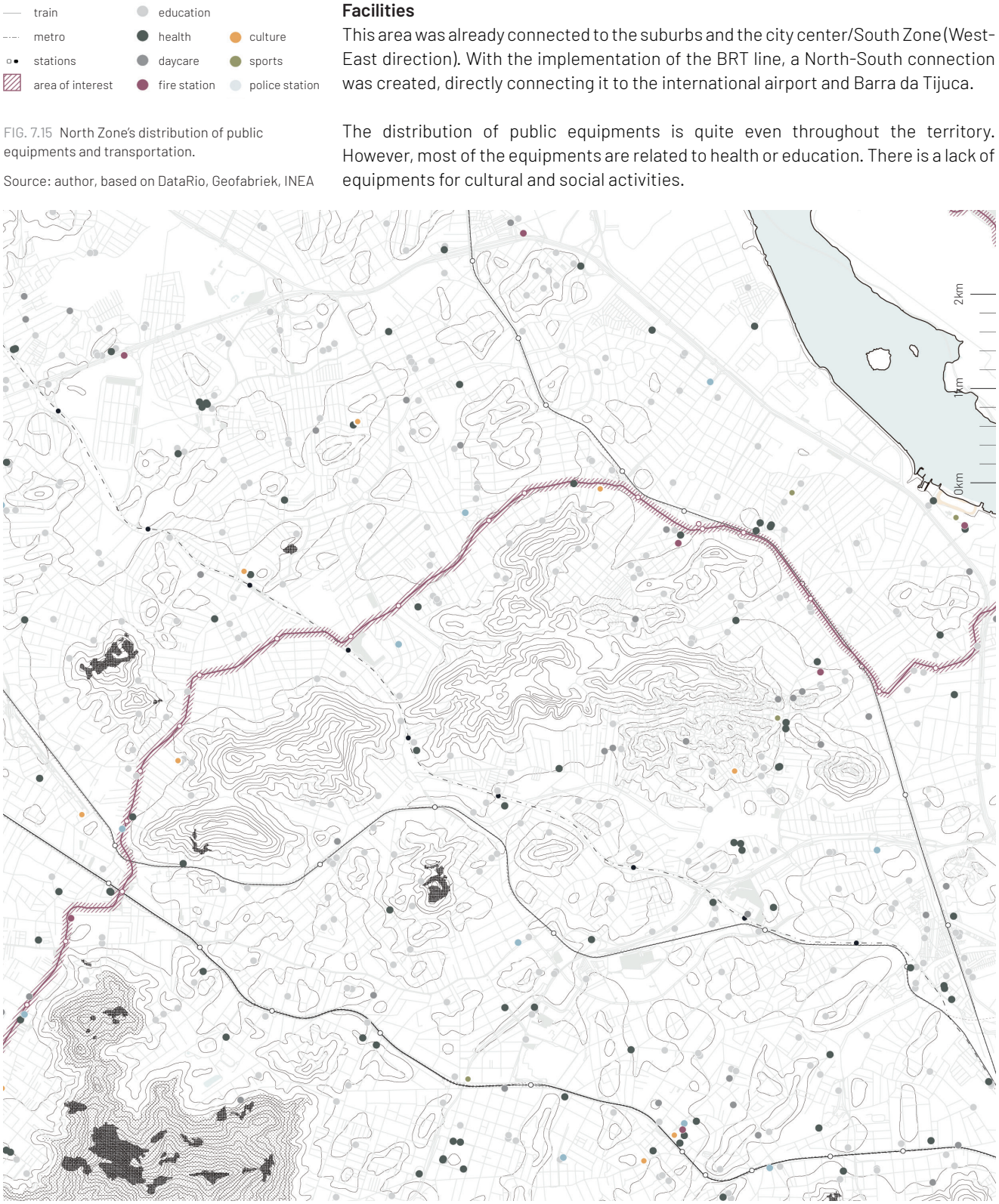


FIG. 7.15 North Zone's distribution of public equipments and transportation.

Source: author, based on DataRio, Geofabriek, INEA

Facilities

This area was already connected to the suburbs and the city center/South Zone (West-East direction). With the implementation of the BRT line, a North-South connection was created, directly connecting it to the international airport and Barra da Tijuca.

The distribution of public equipments is quite even throughout the territory. However, most of the equipments are related to health or education. There is a lack of equipments for cultural and social activities.

7.4 – **Conclusion**

Through the analysis of these three fragments, it is possible to exemplify the diversity in the urban fabric and its sociospatial profile of the city of Rio de Janeiro.

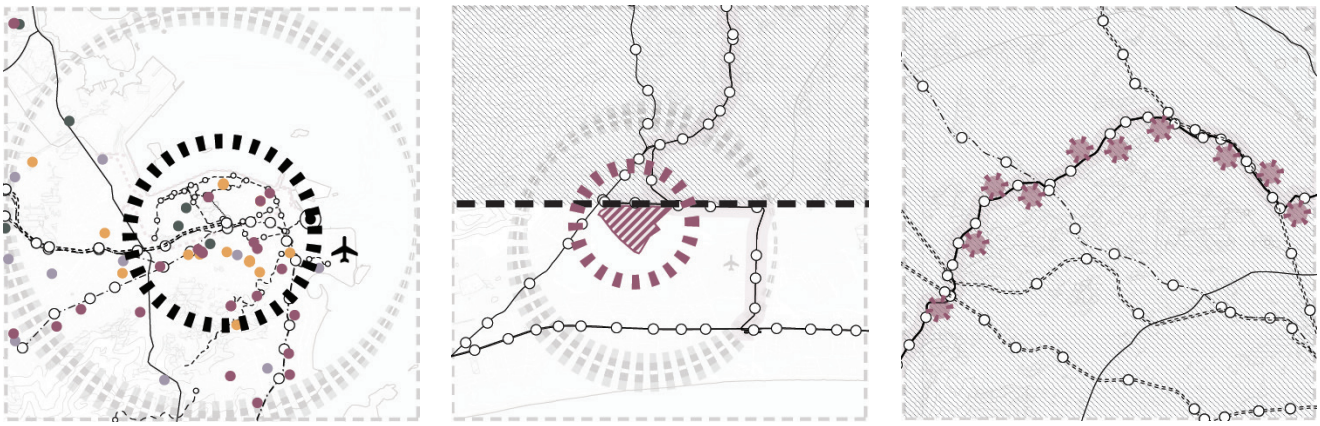
The city center, the cradle of the city, contains many buildings with historical importance and a significant amount of public equipments. It is the most accessible neighborhood: all the existing transportation modes in the city runs through it. However, it is solely a business center as, through the years, the population started to move out. This emptying process led to a lack of housing supply and occupation by the lower-income population. Albeit, the area is still quite attractive for all social strata, it is a highly accessible and attractive core in the city.

Meanwhile, Barra da Tijuca is a relatively new, planned, high-class neighborhood that presents a sharply sociospatial division. While the shorefront is occupied by the higher-income population and concentrates most of the leisure spaces, the backside is almost exclusively for the lower-income population and industrial activities. The Olympic Park is located right in the division line, which makes it strategic for breaking this line and perform as a catalyst for social cohesion, resembling more to the configuration of the city center.

The North Zone is the densest area both in terms of population and urban fabric. It is also more hegemonic than the other two areas regarding population socio profile. Connectivity to the rest of the city is relatively high as the public transportation modes run through the area. However, this dense consolidated urban fabric lacks cultural equipments, green infrastructure, and open spaces for daily social activities. This current scenario is a result of a lack of government investments, leading to poor urban environment quality.

In conclusion, despite the need for housing supply, the city center seems to be the most functional area. Barra da Tijuca lacks urban amenities and a better vector of development that increases social cohesion. Therefore, some of the principles from the city center could be adapted to the reality of Barra da Tijuca as a way to create a more inclusive neighborhood. Meanwhile, the North Zone analysis shows how the area lacks quality in the urban environment and open public spaces that promote social activities, which could be developed in the leftover spaces of the Transcarioca.

FIG. 7.16 Diagrams of analysis conclusion (from left to right): city center, Barra da Tijuca and the North Zone.



PHYSICAL ENVIRONMENT
improve and integrate

create new/better connections

remove barriers

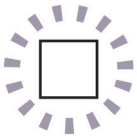
enhance/create green infrastructure

reorganize physical structures

create protection against traffic and climate

FACILITIES
enhance and create

repurpose existing underused equipments



improve existing functional equipments

create mixed use equipments

create supporting equipments

improve/create urban furniture

IDENTITY
activate and connect

integrate local activities

stimulate seasonal events

create infrastructure that support multiple uses

create community centers

create social programmes with community support

INSTITUTIONAL ARRANGEMENTS
incentive and support

flexibility on existence of infomal activity

land lease of public land for local ccommunity or small enterprises to develop

facilitate legal matters for temporary appropriation of spaces

tax deduction for companies willing to invest in local community projects

create public bidding for development of public spaces with the local community

8 – Reframing the legacy

8.1 – **Principles and Strategies**

As demonstrated in the previous section, Rio's Olympic legacy is considered incomplete as it left behind fragmented spaces with low quality disconnected to the urban fabric and underused areas/equipments. Furthermore, the lack of acknowledgment of local culture in the plans led to the creation of spaces detached from the local reality, which are now stigmatized and struggling to thrive. In addition to that, the absence of social participation and abrupt measures for the implementation of the projects increased the distrust in the public sector by the population.

In order to create a complete legacy that directs the city towards a more inclusive reality, it is necessary to adopt an "integrated approach that combines physical and social measures, building local capacity, providing adequate financial resources" (Schreiber & Carius, 2016, p. 324). Therefore, four guiding principles and strategies, and four institutional models are suggested. The principles follow the same four parameters used in the analysis (physical environment, facilities, identity, and institutional agreements) and set aims for each of them as follows:

Physical environment: improve and integrate
It concerns the quality of the urban environment and its connections. It aims at increasing the quality of public spaces and at integrating fragmented spaces into the urban fabric.

Facilities: enhance and create
It relates to urban furniture and pieces of equipment. It focuses on making better use of the existing infrastructure and finding the ones necessary for fulfilling the needs of the local population and users of a specific space.

Identity: activate and connect
It relates to the uses of a space, its users, and its network. It seeks to incorporate local knowledge and create connections between people and between people and places.

Institutional arrangements: incentive and support
It concerns legal matters and stakeholders' involvement. It aims at facilitating/ legalizing the emergence of some activities and at creating a bigger array of actors involved in developments.

Depending on the goal, strategies under one of the principles will be more relevant than others. For example, if the goal is to reintegrate a specific space into the urban fabric, the strategies under the physical environment principle will probably be more effective than the others. However, this does not mean that the strategies should be applied separated, as some of the strategies are effective in different ways to achieve a specific goal.

FIG. 7.17 Diagrams of strategies according to principles' aims.

8.2 – **Institutional Models**

As shown in the process analysis (p. 75-107), most of the Olympic plans were realized by public-private partnerships (PPPs). The way these PPPs were put in practice led to a wave of privatization of the public land and diminished the availability of places that could spark social relations. Furthermore, these PPPs failed to incorporate social participation in the process, which led to an unbalanced relationship between the three sectors: while the connection between the private and public sectors was enhanced, the connection between civil society was weakened or even broken.

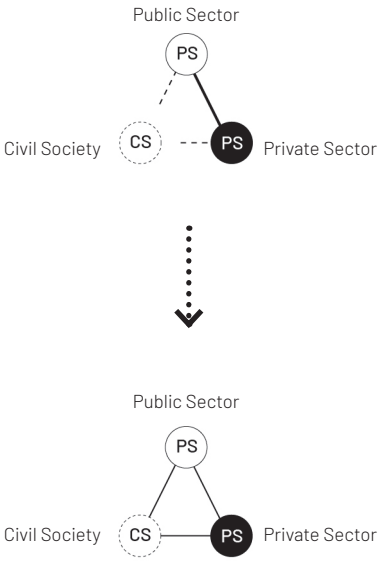
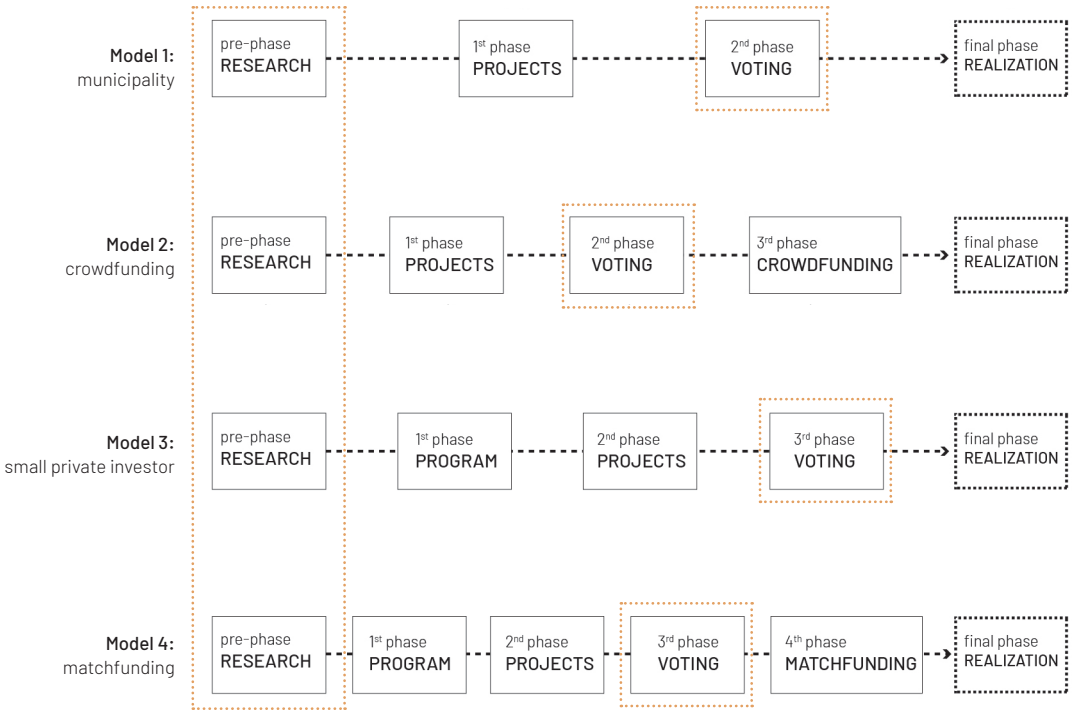


FIG. 8.1 Model 1: participation of local community and civil society, financing by public sector.

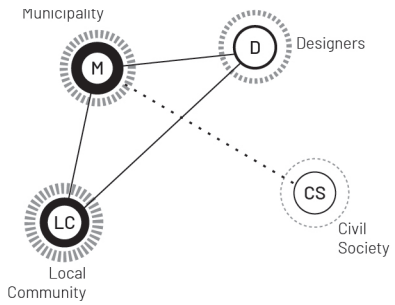
In order to revert this scenario, the following proposed institutional models aim to complement the strategies by creating new arrangements that emphasize local community participation as the fundamental guide. All the models start with a pre-phase consisting of research with the local community by the municipality. This way, the scope of the project transfers to the hands of the local community instead of the municipality's or private investors'. Thus, the local community, instead of just being informed by the municipality's plans, actually start to build them together. Furthermore, all the models have a voting phase in which the general population (all inhabitants of the city) can decide which of the presented projects for a specific area should be implemented. These two phases could help to regain the lost trust of civil society in the public sector, as social participation will be more evident and transparent.

Ultimately, the financing system and actors involved are slightly different in each of the models. The only constant it the public investments by the municipality, which can be complemented by the private sector or civil society, helping to promote balance between the sectors and create a sense of belonging.



Model 1: government

This model is closely related to the current system, where the municipality creates the scope of the plans and its realization. The main differences are in the incorporation of a pre-phase and voting stages. These stages incorporate the local community needs into the project's scope definition and make the decision-making process more participative by involving the civil society in the selection of which project to implement. The main actors involved are the municipality, the designers, and the local community. These three actors are in a cooperative relationship in the creation of the project's scope, while funding remains the municipality's responsibility.



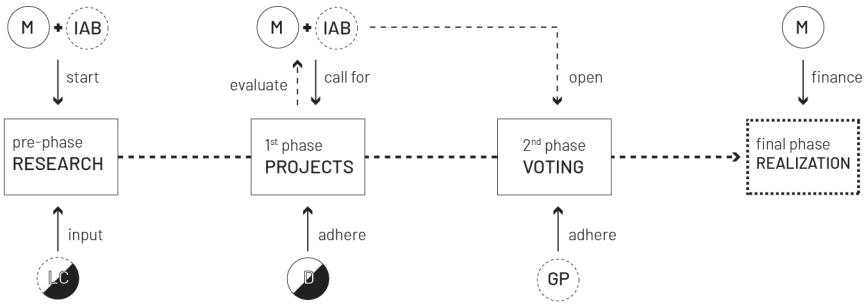


FIG. 8.2 Model 1: participation of local community and civil society, financing by public sector.

M - Municipality
IAB - Institute of Architects of Brazil
LC - Local Community
D - Designers
GP - General public

Power:
highest lowest

Interest:
highest lowest

Connections:
— direct connection
· · · direct connection via decision-making process

0 **Pre-phase:** The municipality and the Institute of Architects of Brazil (IAB) start the research with the local community (residents, local businesses, popular organizations, NGOs) to find the area's needs and possibilities.

1 **Projects:** The municipality and the IAB define the scope of projects based on the research and launch a call for projects. Designers (professionals, popular organizations, academia, NGOs) adhere to the campaign with project proposals.

2 **Voting:** The municipality and the IAB evaluate the feasibility of the projects and define the one(s) to proceed to the voting phase. A voting platform is launched where the general public can choose the project(s) to be implemented.

3 **Realization:** The municipality finances, implements, and maintains the winning project(s).

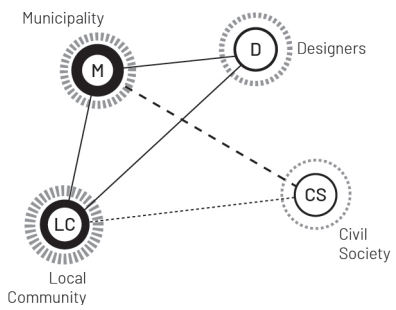
This model is the simplest one and the easiest to be implemented. However, as the responsibility of financing, implementation, and maintenance rely exclusively on the hands of the municipality, the project's scope is limited.

Model 2: crowdfunding[1]

This model aims to amplify the source of investments. It invites civil society to participate not only in decision-making but also in financing. Crowdfunding is already a common practice in Rio (mostly for cultural projects) that could be incorporated into urban development and help to launch small projects that could not be possible only through public investments. Furthermore, inviting the population to invest in the development of a particular public space creates a sense of belonging, which helps to maintain the space. The main actors involved are the same as in the previous model, but with the incorporation of civil society as an investor and not only as a decision-making actor. Thus, the municipality, the designers, and the local community are in a cooperative relationship in creating the project's scope. The municipality and civil society, fund it.

[1] Crowdfunding is a model for financing a project, which consists of the collection of investments from multiple sources. It usually involves three types of actors: the initiator, the moderator, and the supporters. The initiator is who proposes the project to be funded, the supporters are the individuals or groups who invest in the project, and the moderator is the platform that brings the parties together.

Financial goals with different ranges of financial collaboration are stipulated, and a deadline is set. The goal must be achieved within the timeframe; otherwise, the project is not implemented, and the amount raised goes back to financers.



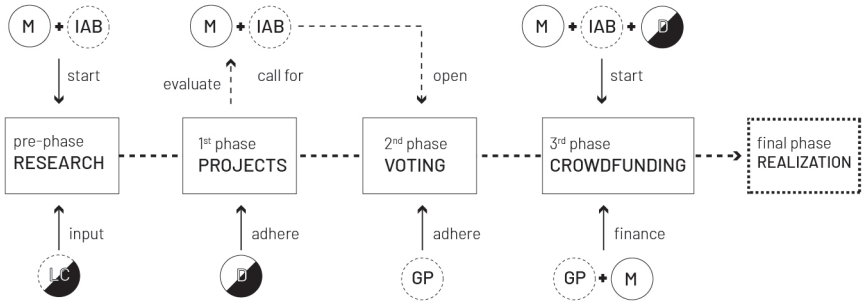


FIG. 8.4 Model 2: participation of local community and civil society, financing by public and private through investment by civil society.

M - Municipality
IAB - Institute of Architects of Brazil
LC - Local Community
D - Designers
GP - General public

Power:
highest ● ○ lowest

Interest:
highest ◌ ◌ lowest

Connections:
—— direct connection
– – direct connection via financing
· · · direct connection via decision-making process

0 **Pre-phase:** The municipality and the IAB start the research with the local community (residents, local businesses, popular organizations, NGOs) to find the area's needs and possibilities.

1 **Projects:** The municipality and the IAB define the scope of projects based on the research and launch a call for projects. Designers (professionals, popular organizations, academia, NGOs) adhere to the campaign with project proposals.

2 **Voting:** The municipality and the IAB evaluate the feasibility of the projects and define the one(s) to proceed to the voting phase. A voting platform is launched where the general public can choose the project(s) to be implemented. The municipality defines the budget allocation for the winning project(s) and the goal for the collective financing.

3 **Crowdfunding:** The selected project(s) proceed for the funding phase. A crowdfunding platform is launched, where the general public can help to finance the project(s).

4 **Realization:** The project(s) is financed by the municipality and the crowdfunding. Implementation is the responsibility of designers and the municipality. Maintenance is the responsibility of the municipality.

This model helps to create a sense of belonging and to maintain a place However, a lack of interest from the general population to invest could hinder the implementation.

CROWDFUNDING:

The NGO Teto was created in Chile in 1997 when a group of young people built emergency homes for families living in precarious conditions after an earthquake. Today, the organization operates in 19 countries in Latin America, seeking to overcome the poverty in which millions of people live, through community engagement and mobilization of young volunteers.

Teto seeks to transform the populations of the communities into actors in the territory in which they live. First, it builds emergency houses, then helps the community solve its major problems, such as lack of water or prospects, by having young people teaching trades, helping obtain microcredit, and demanding solutions from public actors.

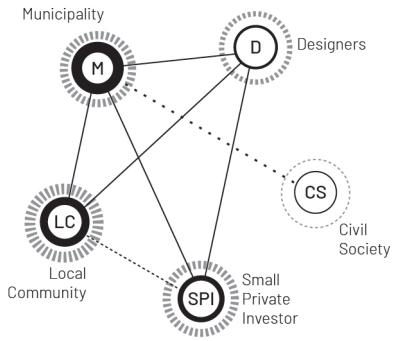
The NGO started to operate in the city of Rio de Janeiro in 2013, building houses for families that lost their source of livelihood after the closure of a dump. The project started with the construction of 5 houses, which were made possible by the collective funding (crowdfunding).

This funding system is used until today by the NGO, which has already built more than four thousand emergency houses in the five states it operates in Brazil since it started to operate in the country in 2007.

FIG. 8.3 Volunteers building the houses by André Hawk/+5521. Retrieved from https://jornalocasarao.wordpress.com/2014/10/30/um-teto-para-jardim-gramacho/

Model 3: small private investor

This model aims to give opportunities for the small private sector to improve and activate public spaces. The cooperation between the municipality and local businesses helps to finance projects that could not be launched by the municipality alone. Meanwhile, it gives the small businesses a possibility to thrive from the generated value of the use of a specific space and improvements brought to the area. This model could also create a sense of responsibility in the maintenance of the space but by a different actor. The main actors involved are the same as in the previous model, but with the incorporation of small private investors in the design process. In this model, the municipality and the designers act as mediators to conciliate the needs of the small private investors and the local community. Funding is the responsibility of the cooperation between the municipality and the small private investor.



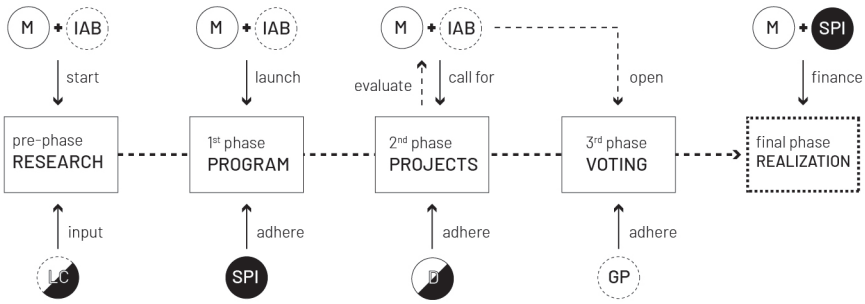


FIG. 8.5 Model 3: participation of local community and civil society, financing by public and private through investment by small businesses.

M - Municipality
IAB - Institute of Architects of Brazil
LC - Local Community
SPI - Small Private Investor
D - Designers
GP - General public

Power:
highest ● lowest

Interest:
highest ◌ lowest

Connections:
—— direct connection
· · · direct connection via decision-making process
----- indirect connection via financing

0 **Pre-phase:** The municipality and the IAB start the research with the local community (residents, local businesses, popular organizations, NGOs) to find the area's needs and possibilities.

1 **Program:** The municipality and the IAB define the scope of projects based on the research and launch a program aiming at attracting small private investors to help to finance the project(s) by, for example, creating tax deductions/exemptions and incentives for economic exploitation of the area.

2 **Projects:** The municipality and the IAB define the scope of projects based on the research and launch a call for projects. Designers (professionals, popular organizations, academia, NGOs) adhere to the campaign with project proposals.

3 **Voting:** The municipality and the IAB evaluate the feasibility of the projects and define the one(s) to proceed to the voting phase. An agreement between the municipality and the small private investors defines the budget allocation for each part involved. A voting platform is launched where the general public can choose the project(s) to be implemented.

4 **Realization:** The winning project(s) is financed by the municipality and the small private investor. Implementation is the responsibility of the designers, the municipality, and the small private investor. Maintenance is the responsibility of the municipality and the small private investor.

This model is a private-public partnership, but it differs from the ones implemented before, as it aims to attract the small private investors instead of big ones. Furthermore, the project's scope is drawn based on the input from the local community instead of interests from the private or public actors. However, this could lead to a lack of interest from the private part, making this model unfeasible. Thus, it may be necessary for the parts involved to make concessions to balance out the burden and benefits.

[1] Matchfunding is a collective funding system, just like crowdfunding. The difference is that in matchfunding, a partner organization (a company or an institution) is involved in the process. For each amount that a person invests in a project's collective funding, the partner organization matches with the same amount.

This system allows for raising a more considerable amount of funds, which allows the implementation of projects with a broader scope that need more investments.

Model 4: matchfunding

This model has similarities with models 2 and 3. Instead of focusing on the small private investor, as in model 3, this one focuses on encouraging big private investors to help to finance public urban projects. However, it differs from a standard public-private partnership as the financing incorporates civil society, by matchfunding. This system is similar to crowdfunding, but for every amount collected by the collective funding, the same amount is matched by the private investor. This model allows for the collection of more investments and, therefore, the creation of better or bigger projects while maintaining a sense of belonging. The main actors involved are almost the same as in the previous model. Instead of the small private investor, big private investors are incorporated in the design process, and civil society is incorporated in the funding process. As in the previous model, the municipality and the designers act as mediators to conciliate the needs of the private investors and the local community. Funding is the responsibility of the cooperation between the municipality, the private investor, and civil society.

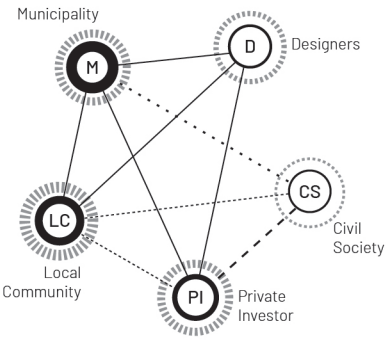


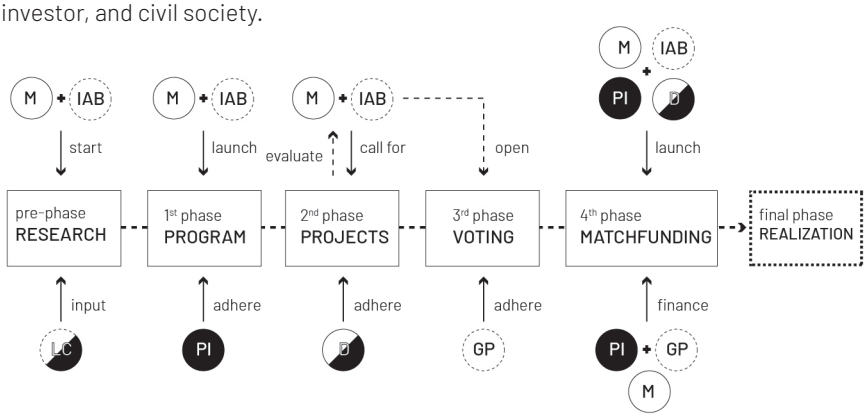
FIG. 8.6 Model 4: participation of local community and civil society, financing by public and private through investment by civil society and private sector.

M - Municipality
IAB - Institute of Architects of Brazil
LC - Local Community
PI - Private Investor
D - Designers
GP - General public

Power:
highest lowest

Interest:
highest lowest

Connections:
—— direct connection
– – direct connection via financing
· · · direct connection via decision-making process
····· indirect connection via financing



0 **Pre-phase:** The municipality and the IAB start the research with the local community (residents, local businesses, popular organizations, NGOs) to find the area's needs and possibilities.

1 **Program:** The municipality and the IAB define the scope of projects based on the research and launch a program aiming at attracting small private investors to help to finance the project(s) by, for example, creating tax deductions/exemptions and incentives for economic exploitation of the area.

2 **Projects:** The municipality and the IAB define the scope of projects based on the research and launch a call for projects. Designers (professionals, popular organizations, academia, NGOs) adhere to the campaign with project proposals.

3 **Voting:** The municipality and the IAB evaluate the feasibility of the projects and define the one(s) to proceed to the voting phase. A voting platform is launched where general public can choose the project(s) to be implemented. An agreement between the municipality and the private investors defines the budget allocation for each part involved and the budget goal for the collective financing.

4 **Matchfunding:** The selected project(s) proceed for the funding phase. A matchfunding platform is launched, where the general public can choose to help to finance the project(s).

5 **Realization:** The winning project(s) is financed by the municipality and the matchfunding. Implementation the responsibility of the designers, the municipality, and the private investor. Maintenance is the responsibility of the municipality and the private investor.

This model is the most complex one as it involves more actors and more processes, which gives it more possibilities. It is also the closest to the private-public partnerships implemented before as it aims to attract big investors, but, just like in the previous model, the project's scope is defined with the local community. Furthermore, an important stakeholder is incorporated in the financing: civil society, which helps to create a sense of belonging and accountability. However, this model could fail due to a lack of interest from the private part in the program phase or lack of interest from civil society in the financing phase.

MATCHFUNDING:

The Natura Cidades [Natura Cities] was a program launched in 2015 in the city of Rio de Janeiro by a Brazilian company called Natura with the online collective financing platform called Benfeitoria.

The purpose of the initiative was to seek to redefine urban spaces through urban intervention projects that would transform the relationship of people with the city of Rio de Janeiro.

It invited the population to submit projects to make public spaces more attractive and functional. The projects were submitted to the analysis by a curatorship, formed by professionals from Benfeitoria. The selected ones had a fundraising campaign via matchfunding, in which every R$ 1.00 (one real) that the project received of the supporters, Natura invested another R$ 1.00, doubling the amount collected, until the goal was reached.

Six projects were selected to proceed to the fundraising step. The projects ranged from the creation of a community garden to the assembling of a parklet and even curation of a photograph exposition. From the six projects, only one of them did not reach the goal and was not implemented. The other five were successful.

This funding system is becoming more popular, and more companies are starting to show interest in participating in the program. In 2017 an insurance company named Youse launched the initiative called 'Matchfunding Yousers', seeking to finance projects in the cities of Rio de Janeiro or São Paulo that promote the culture of care and collaboration, such as actions of recognition, empowerment, connection, and innovation.

Twelve projects were selected to proceed to the fundraising campaign. The projects ranged from the creation of digital applications to the creation of educational initiatives and physical interventions to disseminate local initiatives. From the twelve selected projects, nine of them reached the goal and were implemented.

In 2019 another matchfunding campaign was launched with a partnership between Benfeitoria and BNDS, called 'Matchfunding BNDES+'. This was the first matchfunding that involved the public sector (BNDES is a federal development bank). It sought to finance cultural projects that have broad public engagement all over the country.

Twenty projects were selected to proceed to the fundraising step. The projects ranged from the realization of a documentary to the refurbishing of cultural buildings and construction of a public stage in a park. Only two of the selected projects did not reach the goal and were not implemented.

This year (2020), the 'Matchfunding BNDES+' was relaunched, and the BNDES will contribute with more investments.

FIG. 8.7 Ativa Pedaço: one of the projects from the Natura Cidades initiative

Retrieved from http://www.estudioguanabara.com/projeto/ativa-pedaco

FIG. 8.8 Community Garden in a community: one of the projects from the Natura Cidades initiative

Retrieved from https://www.facebook.com/hortadageneral/photos/

8.3 – **Cases**

In order to test the efficiency of the strategies and the institutional models, and exemplify possible results, two different cases were selected: the Olympic Park and one of the Transcarioca BRT stations (Cardoso de Moraes). These two cases are quite different regarding their scale, context, influence potential, and requirements to fulfill their legacy.

The Olympic Park is a public space with an extensive area cover located in a neighborhood marked by a sharp social contrast reality, which is a sub-metropolitan center. Thus the Olympic Park has the potential to reach people from the whole metropolitan region. However, the Park is currently sub utilized as the legacy plan failed to be implemented, and became a stigmatized place by the local low-income people who suffered from its building process. The possibility in the Park lies in the incorporation of local activities and needs into the physical space of the Park as a way to make it a functional, active public space.

The surrounding of the Cardoso de Moraes BRT station is a reflection of an intrusive process that affected a dense consolidated residential area of the city. It fragmented the urban fabric and created leftover spaces that are currently empty due to lack of following up plans. However, these leftover spaces offer potentials to bring benefits for the local scale as it creates the opportunity to design public spaces for social activities that are currently lacking in the area.

In short, the two cases have distinct characteristics and present different potentials for reframing their legacy according to the socio-economic reality in which they are inserted. The following cases are drawn based on hypotheses on the research outputs and projects that could be proposed.

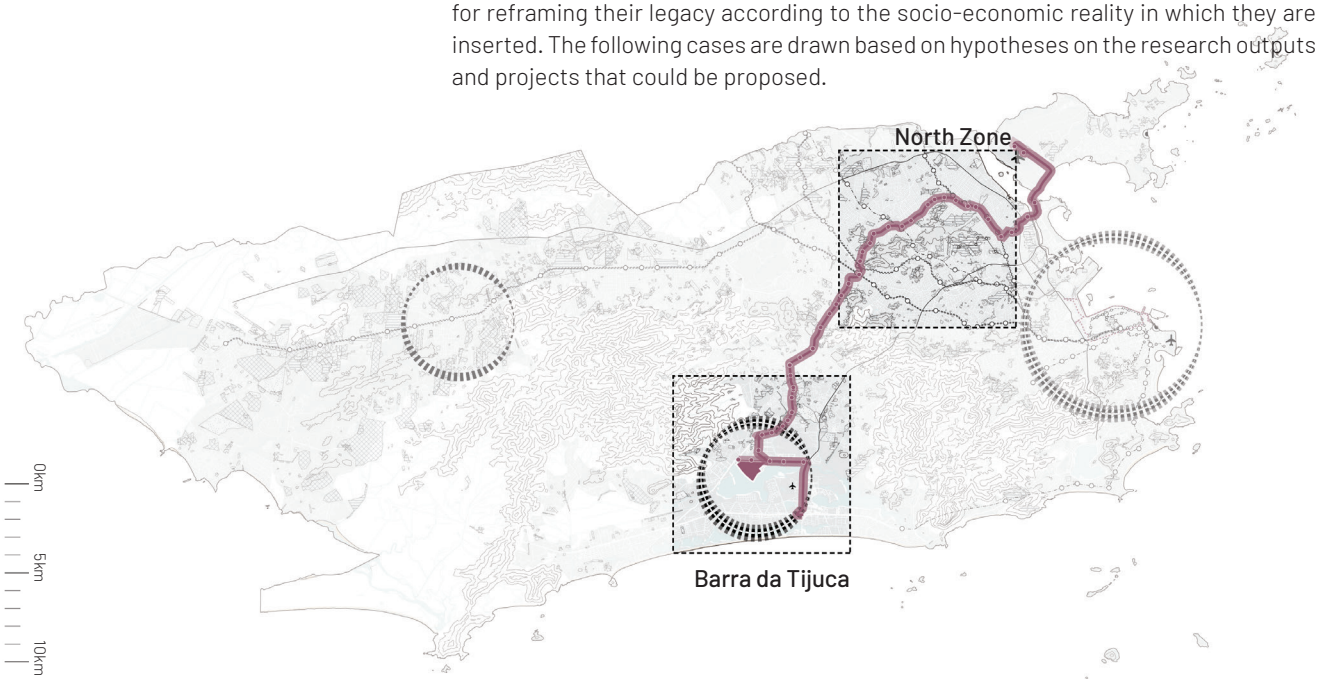
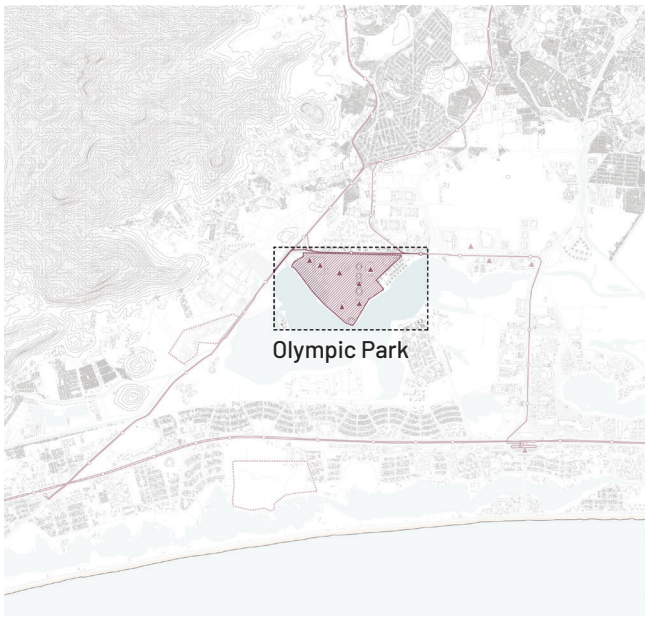


FIG. 8.9 Location of the cases

Source: author, based on DataRio, Geofabriek, INEA



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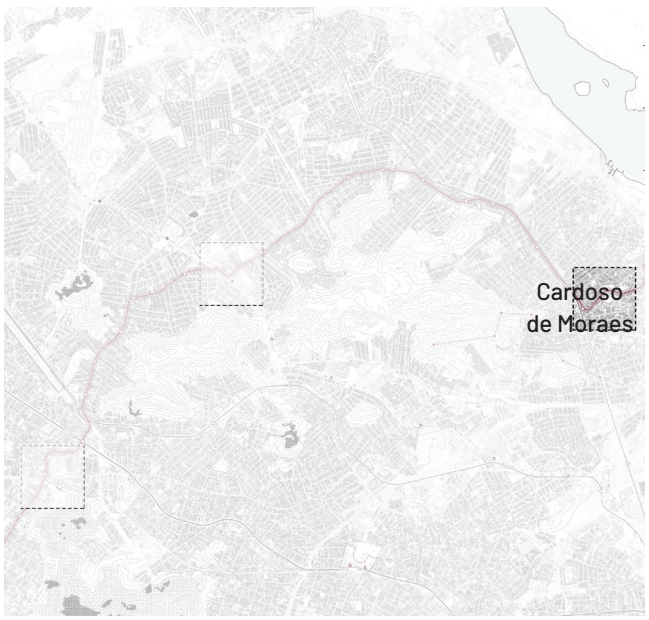

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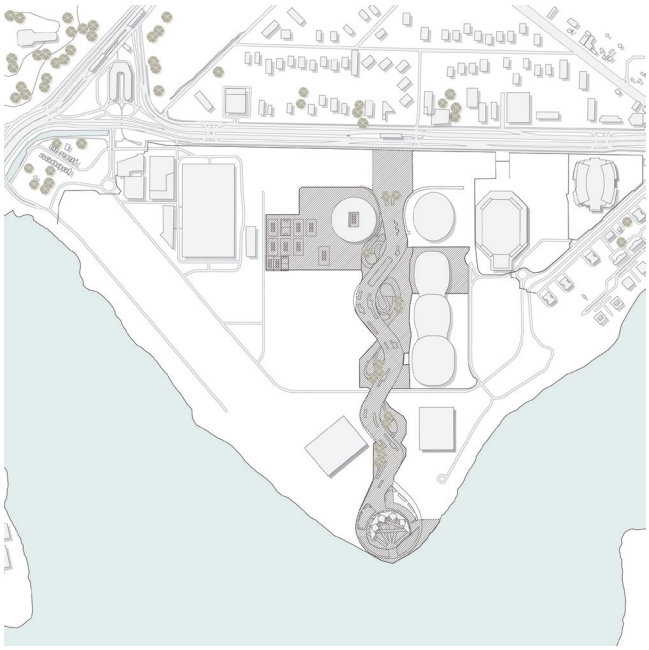

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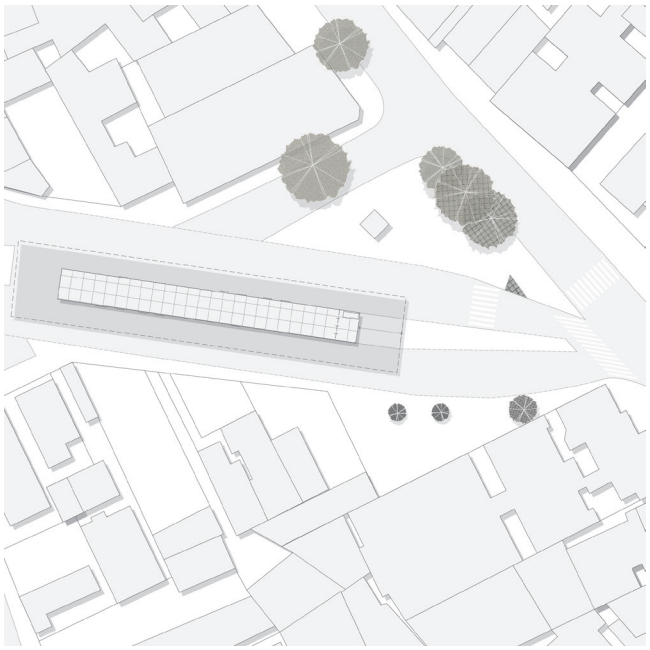


4

FIG. 8.10 (1) Location of the Olympic Park in Barra da Tijuca;
(3)The surroudings of the Olympic Park;
Source: author, based on DataRio, Geofabriek, INEA, IPP

(2) Location of the BRT Cardoso de Moraes station in the North Zone;
(4) The surroundings of the BRT Cardoso de Moraes station.

8.3.1 – **Olympic Park**

Although initially planned to become an integrated mixed-use area of the city, the Olympic Park, as a result of the failure in the implementation of the legacy plans, is currently struggling to even be an active public space. Only a portion of its area is open to public access, which is fenced off and accessible only at specific times. The Park is located in a strategic position and could act as a bridge between the distinct socio-economic realities of its context, thus helping to increase social cohesion.

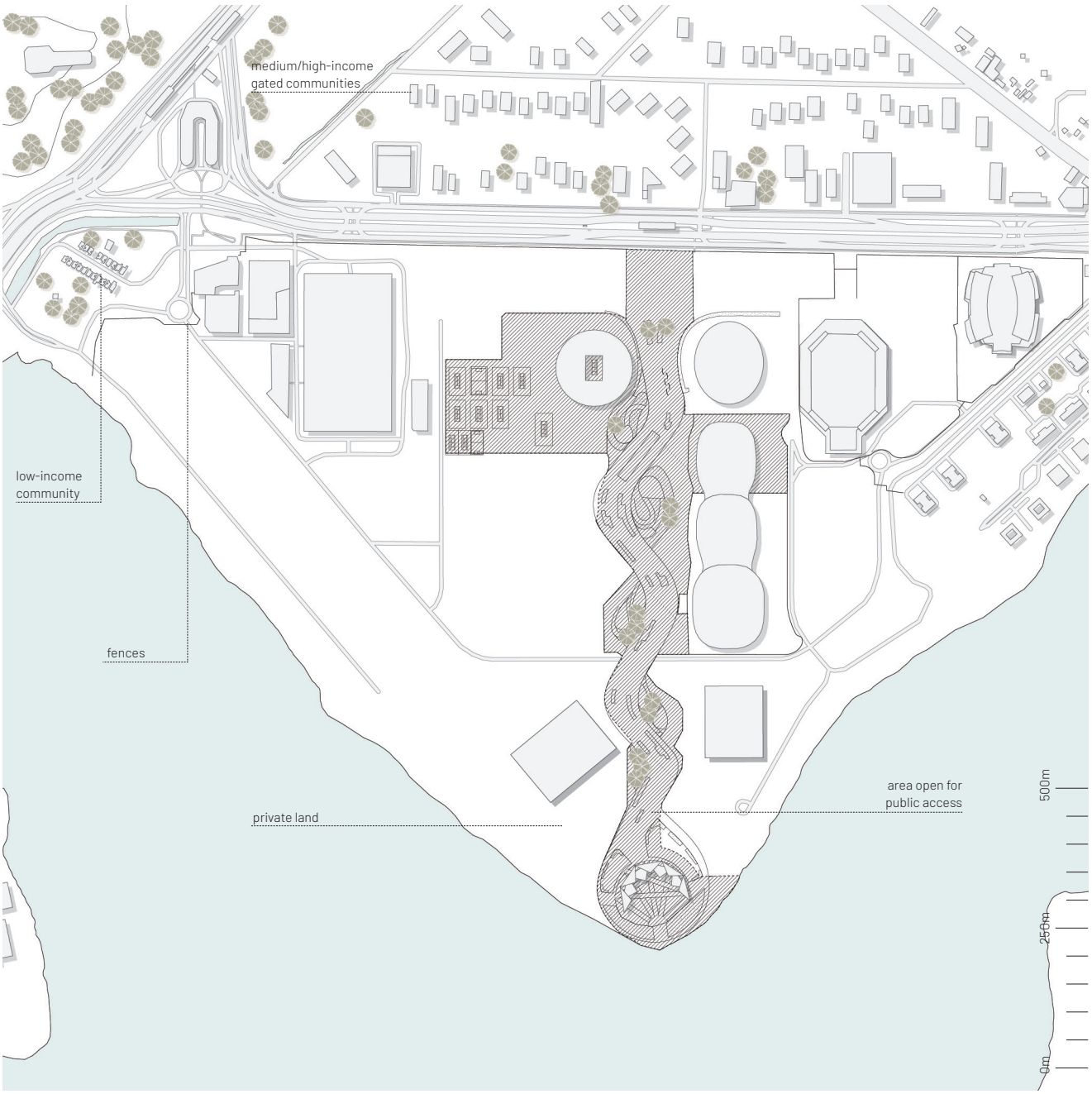


FIG. 8.11 Olympic Park: current situation.

Source: author, based on DataRio, Geofabriek, INEA, IPP

0 The results from the research with the local community (residents, local businesses, popular organizations, NGOs, users of the Park, neighborhood association) phase points out a need for:

- more mixed activities in the Park;
- improvement of the physical environment;
- better use of the existing infrastructure, especially for social projects;
- provision of economic value for the local population.

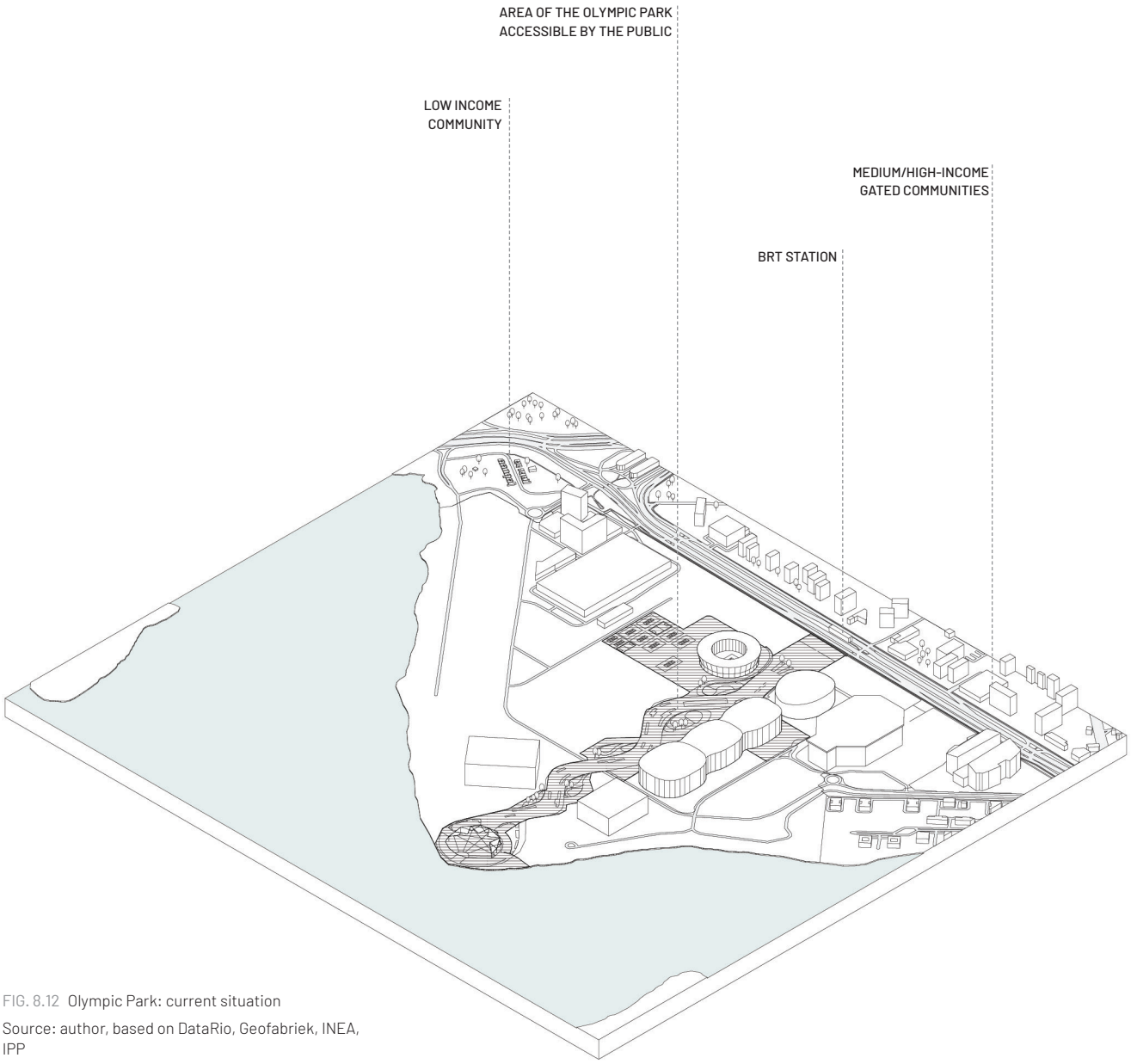


FIG. 8.12 Olympic Park: current situation

Source: author, based on DataRio, Geofabriek, INEA, IPP

STRATEGIES RELATED TO:

- physical environment
- facilities
- identity
- accessible public space
- institutional arrangements
- fences

FIG. 8.13 Olympic Park strategies: model 1

Source: author, based on DataRio, Geofabriek, INEA, IPP

Model 1: government

This model is built upon the cooperation of the local community to inform the municipality of their needs, but it is exclusively financed by the municipality, which poses some limitations to what could be achieved. The strategies applied aims at improving the comfort of the physical environment and creating relations to the local community. Thus, the proposed design relates to the improvement of the accessibility in the park and its facilities, permission to the emergence of new economic activities, and enhancement of its current uses.

1 The municipality and the IAB launch a call for projects. Designers (architects and urbanists, collectives, academia, NGOs) adhere to the process with project(s) proposals. The municipality removes fences, allows informal activities to take place, and increase dissemination of information about existing social projects.

2 The municipality and the IAB evaluate the project(s) proposals and select the ones to move forward to the voting phase. A voting system is launched with the selected project(s) proposals, where the general public can choose the project(s) to be implemented.

3 The municipality finances, maintains, and implements the winning project(s), such as enhancing the greenery and creating more protection from climate and installation of urban furniture (public restrooms, drinking fountains, benches).

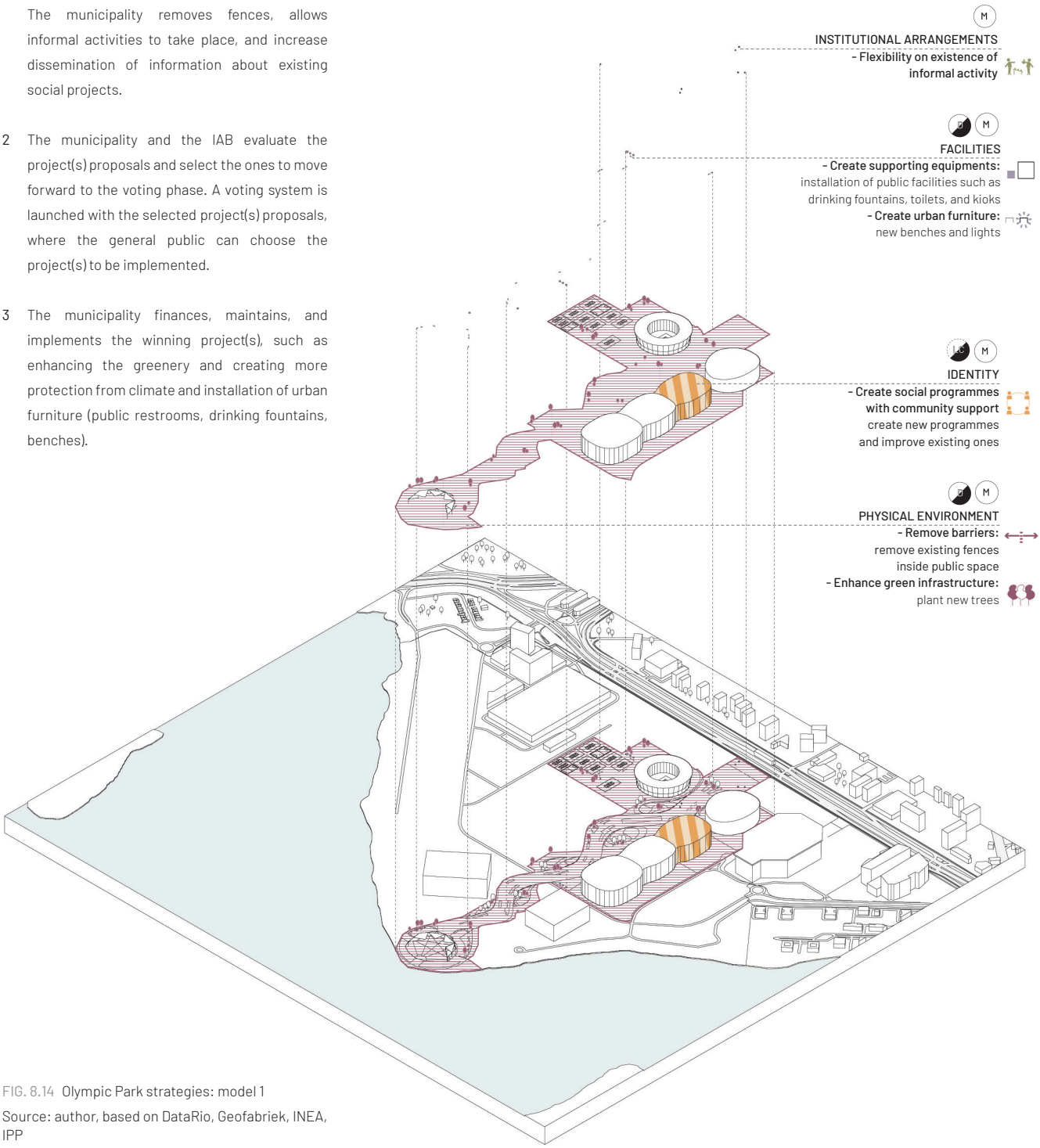


FIG. 8.14 Olympic Park strategies: model 1

Source: author, based on DataRio, Geofabriek, INEA, IPP

STRATEGIES RELATED TO:

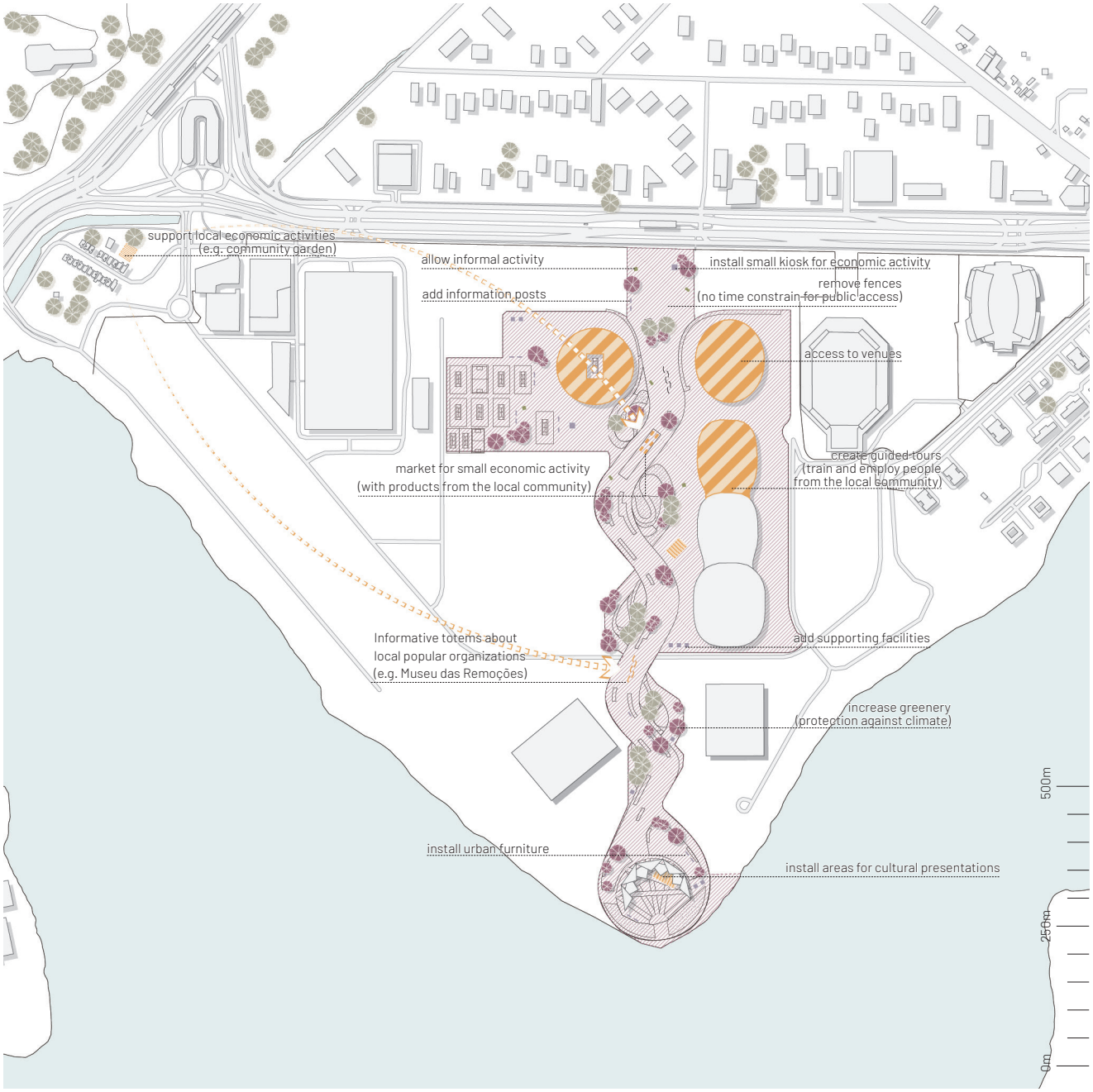
- physical environment
- facilities
- identity
- institutional arrangements
- accessible public space
- fences

FIG. 8.15 Olympic Park strategies: model 2

Source: author, based on DataRio, Geofabriek, INEA, IPP

Model 2: crowdfunding

As this model incorporates civil society in the financing system, local community projects could receive investment to be incorporated into the physical space of the Park, such as small markets and cultural presentations. This presents a chance of not only improving the physical environment of the Park and help to activate it, but also offers a chance of interaction between the medium and high-class residents and the low-class residents, helping to create connections between people of different strata and to the place.



1 The municipality and the IAB launch a call for projects. Designers (architects and urbanists, collectives, academia, NGOs) adhere to the process with project(s) proposals. The municipality removes fences, allows informal activities to take place, and increase dissemination of information about existing social projects.

2 The municipality and the IAB evaluate the project(s) proposals and select the ones to move forward to the voting phase. A voting system is launched with the selected project(s) proposals, where the general public can choose the project(s) to be implemented. Some of the winning project(s) proposals are the creation of a capacitation center for the local community to act as tour guides in the arenas and to create a seasonal organic market with products from local community gardens.

3 The municipality decides to invest in the creation of the capacitation center and support the creation of community gardens. The other selected project(s) proposals proceed for the funding phase. The municipality, the IAB, and the designers launch a crowdfunding platform where the general public can choose to help to finance the project(s).

4 The municipality and the designers implement the project(s). The local community engages in the building process, creating a sense of belonging. Maintenance is the responsibility of the municipality, which is shared with the local community as a result of their engagement in the process.

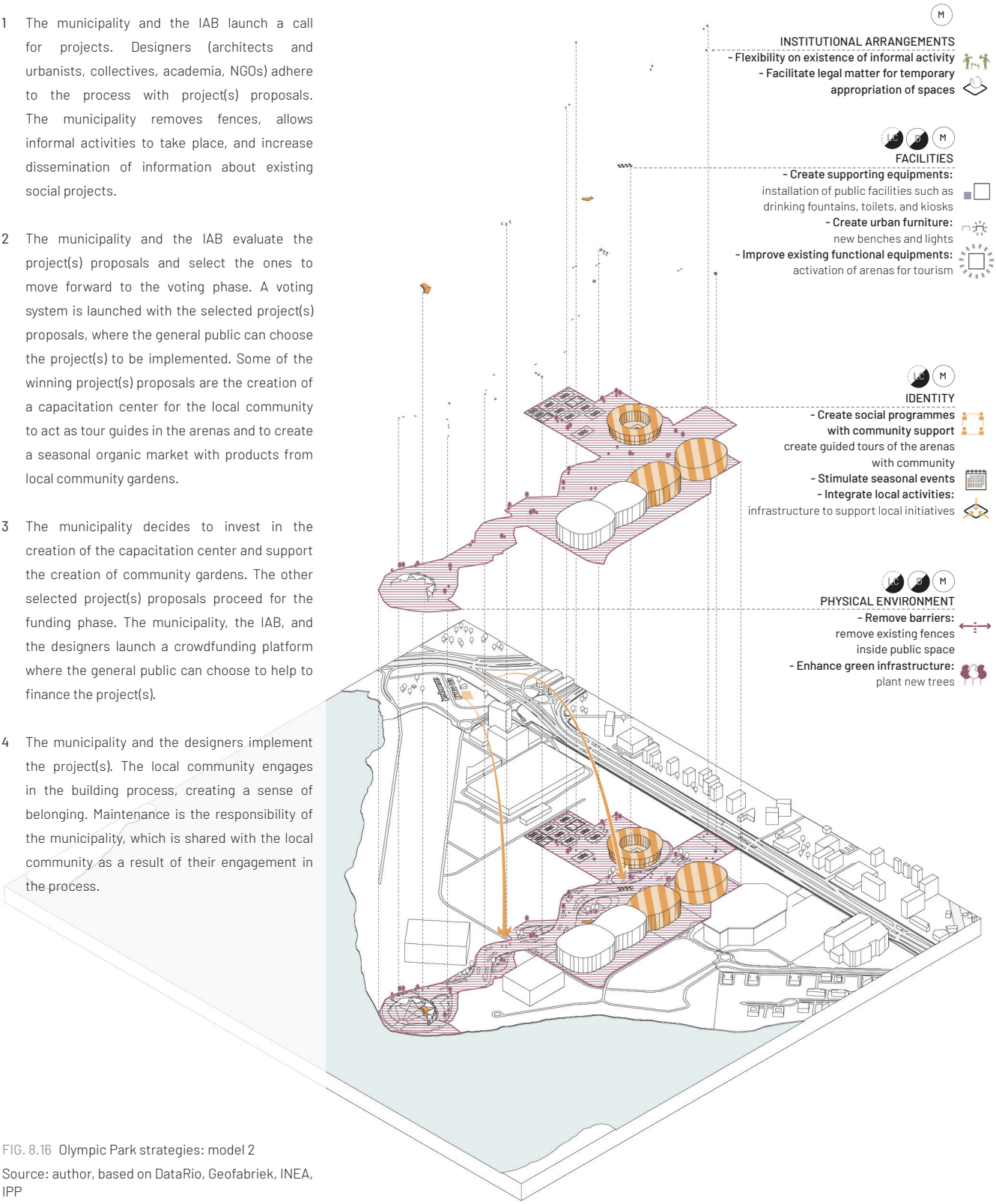


FIG. 8.16 Olympic Park strategies: model 2

Source: author, based on DataRio, Geofabriek, INEA, IPP

STRATEGIES RELATED TO:

- physical environment
- facilities
- identity
- accessible public space
- institutional arrangements
- fences

FIG. 8.17 Olympic Park strategies: model 3

Source: author, based on DataRio, Geofabriek, INEA, IPP

Model 3: small private investor

In this model, the small private sector is encouraged by the municipality to contribute to the activation and improvement of the area. Local businesses could use the Park as an extension of their activities, and new ones could develop in the existing facilities. Furthermore, the investments could also be applied to enhance local community projects that could be incorporated into the Park, and the agreements could help to reintegrate already developed parts of the Park into the urban fabric.

1 The municipality launches a program to attract small private investors to invest in the Olympic Park. Local businesses and small enterprises adhere to the program.

2 The municipality and the IAB launch a call for projects that integrate the needs of the local community and the needs of the small private investors. Designers (architects and urbanists, collectives, academia, NGOs) adhere to the process with project(s) proposals. The municipality removes fences, allows informal activities to take place, increase dissemination of information about existing social projects, and draw an arrangement with existing enterprises located in the Park to open up areas for public access.

3 The municipality and the IAB evaluate the feasibility and relevance of the project(s) proposals and select the ones to move forward to the voting phase. A voting system is launched with the selected project(s) proposals, where the general public can choose the project(s) to be implemented. Some of the winning project proposals are the expansion of the existing community garden in the neighboring community and the creation of water related leisure activities.

4 The municipality decides to subsidy the community garden, and the water leisure activities are carried on by the small private investors, which helps them to generate profit while activating the area. The implementation of the winning projects related to the improvement of the physical space and creation of facilities is shared between the municipality and the small private investors. The municipality, the designers, and the small private investors implement the project(s). Maintenance is a shared responsibility between the municipality the small private investors.

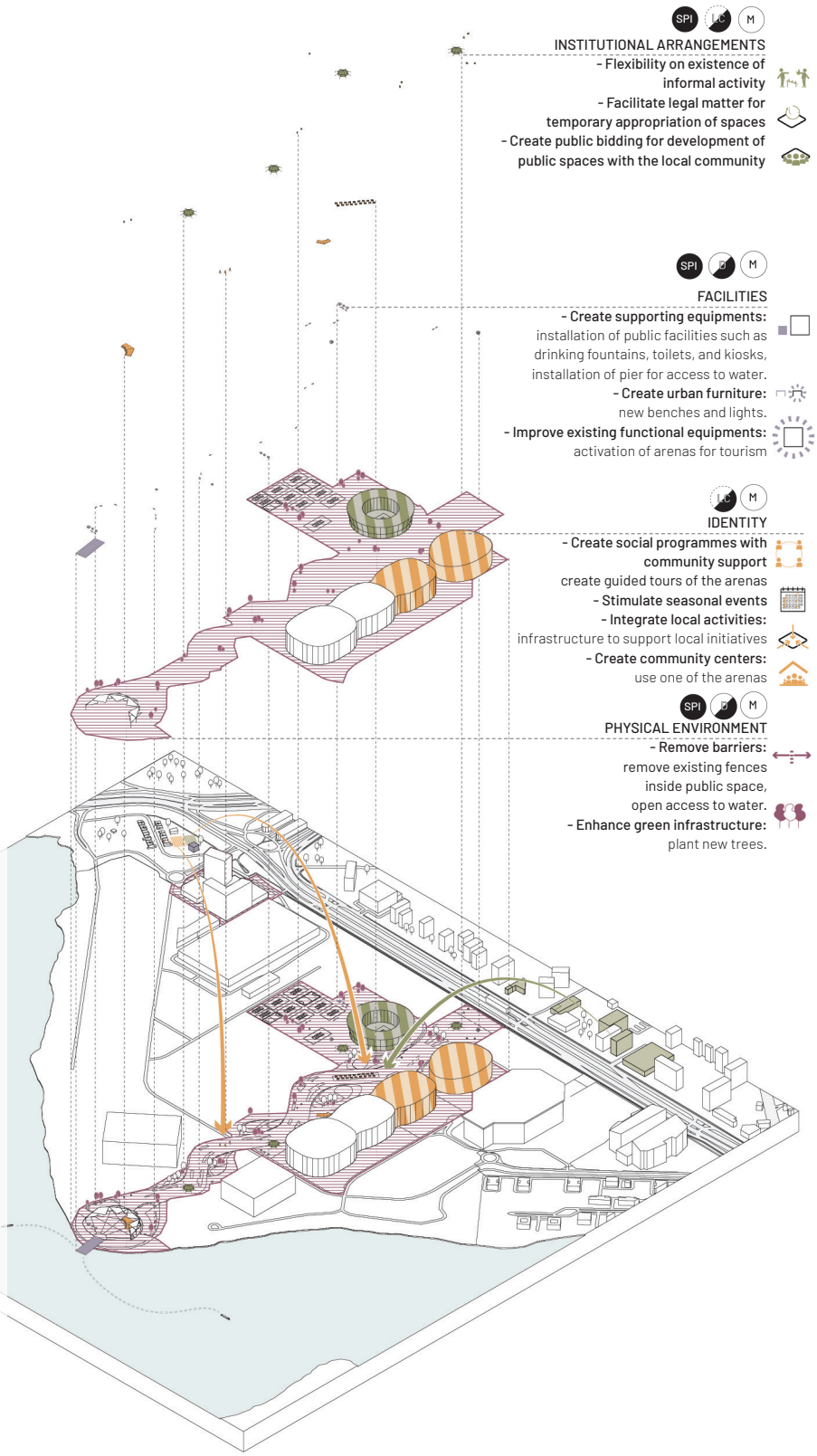


FIG. 8.18 Olympic Park strategies: model 3

Source: author, based on DataRio, Geofabriek, INEA, IPP

STRATEGIES RELATED TO:

- physical environment
- facilities
- identity
- institutional arrangements
- accessible public space
- fences

FIG. 8.19 Olympic Park strategies: model 4

Source: author, based on DataRio, Geofabriek, INEA, IPP

Model 4: matchfunding

By incorporating big private investors, such as the owners of the private lands of the Olympic Park, this model offers the chance to create a better integration of the Park to the urban fabric. Cease of the private land could open up a direct connection to the neighboring community, helping to overcome existing enclaves. This also opens up opportunities for the redevelopment of sub utilized facilities and the creation of bigger infrastructure.

1 The municipality launch a program to attract private investors to invest in the Olympic Park. Big companies adhere to the program in exchange for tax breaks.

2 The municipality and the IAB launch a call for projects. Designers (architects and urbanists, collectives, academia, NGOs) adhere to the process with project(s) proposals. The municipality removes fences, allows informal activities to take place, increase dissemination of information about existing social projects, and draw an arrangement with existing enterprises located in the Park and owners of private land to open up areas for public access.

3 The municipality and the IAB evaluate the feasibility and relevance of the project(s) proposals and select the ones to move forward to the voting phase. A voting system is launched with the selected project(s) proposals, where the general public can choose the project(s) to be implemented. Some of the winning project proposals are the construction of the existing Museu das Remoções [Removals Museum] and the creation of a water transportation system.

4 The municipality decides to invest in the water transportation system and the museum's construction with the private investor. For the other winning projects, an agreement between the municipality and the private investors is drawn defining the budget allocation for each part involved and the collective budget. A matchfunding platform is launched, where the general public can choose to help to finance the project(s).

5 The municipality, the designers, and the private investors implement the project(s). Maintenance is a shared responsibility between the municipality the private investors.

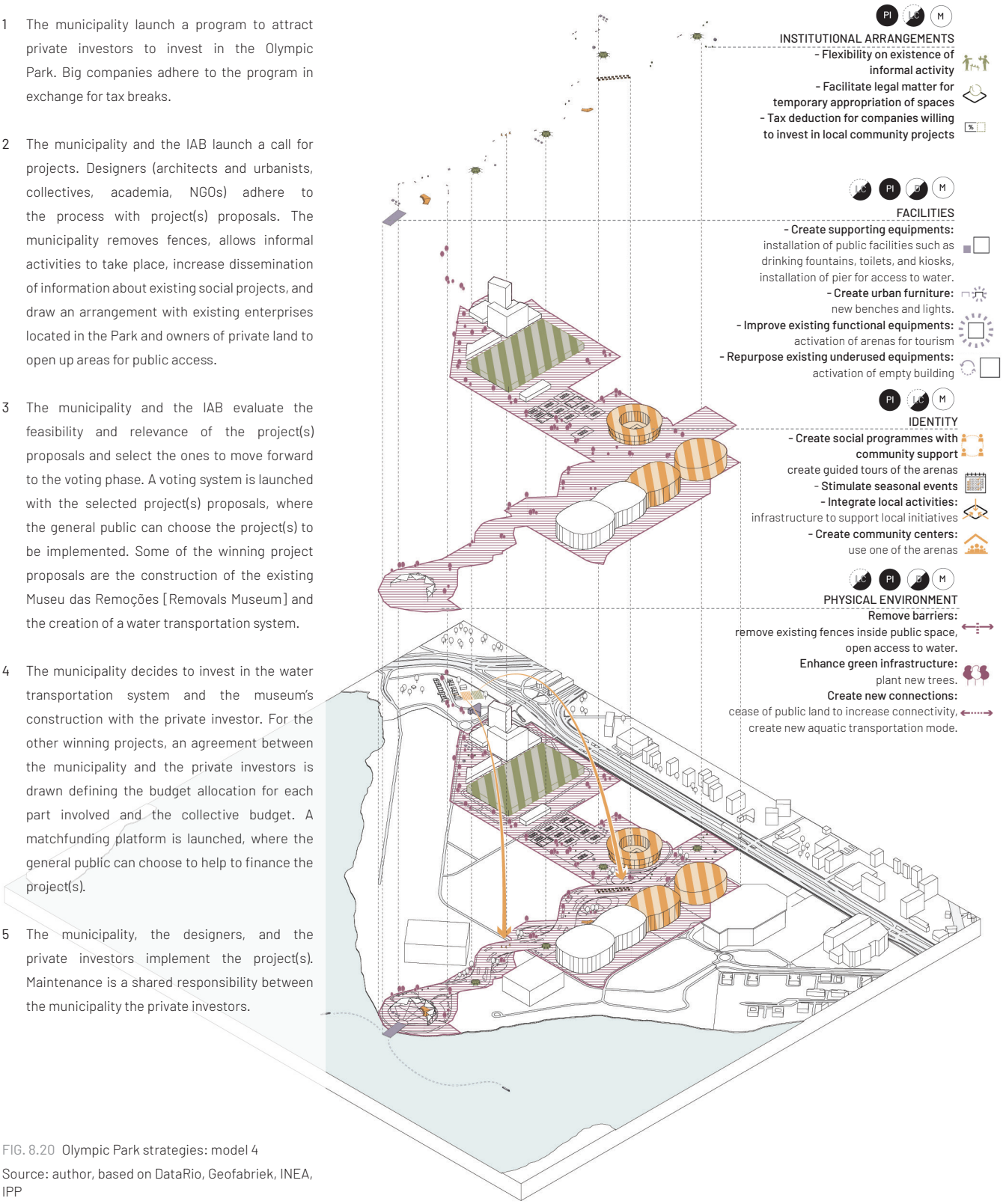


FIG. 8.20 Olympic Park strategies: model 4

Source: author, based on DataRio, Geofabriek, INEA, IPP

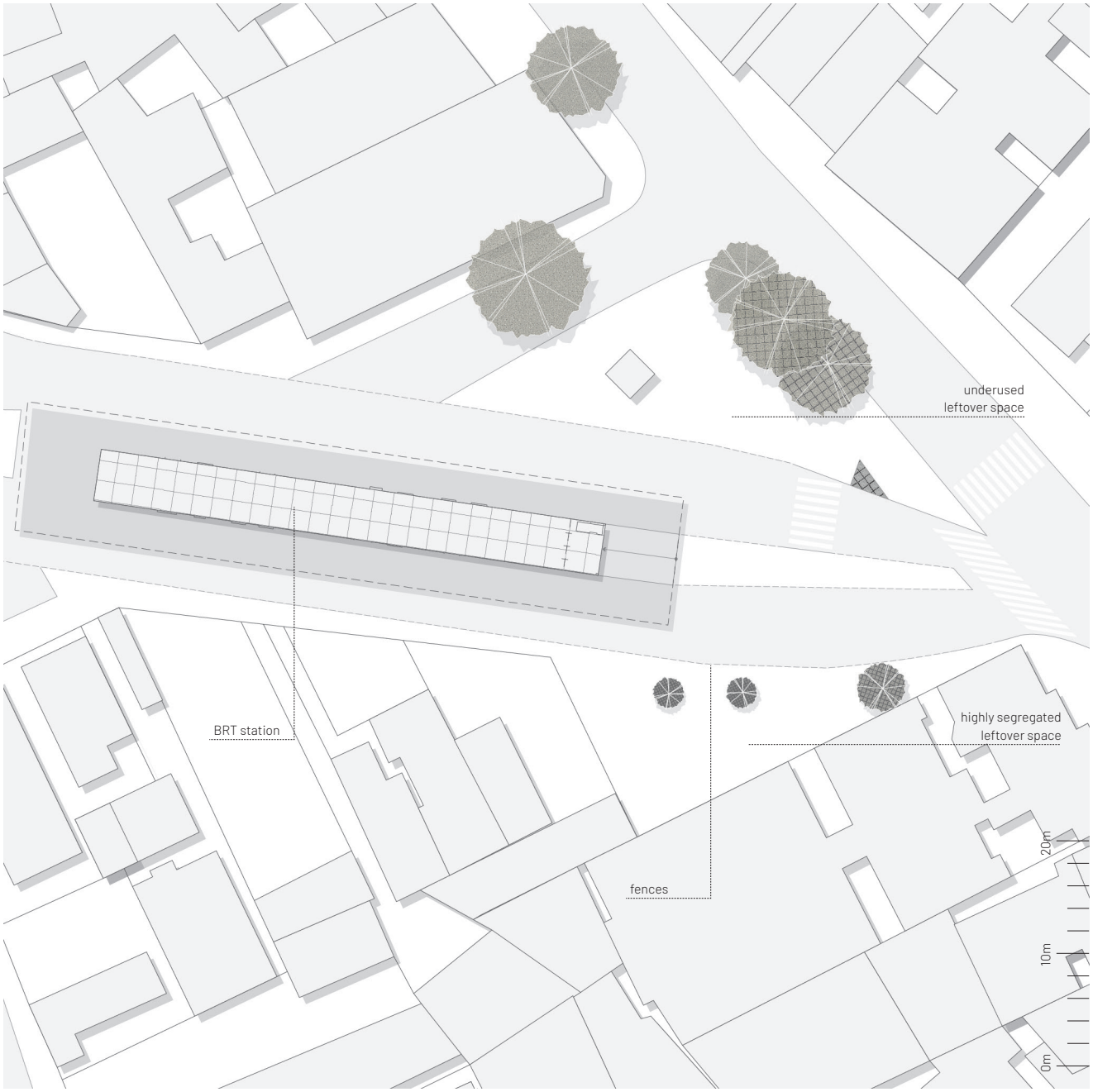
8.3.2 – **BRT station: Cardoso de Moraes**

The implementation of the BRT in this location led to a fragmentation of the urban fabric and the creation of not well-resolved crossings, leftover spaces currently empty, and inactive spaces. As shown in the analysis (see North Zone's analysis, p. 122 - 126), there is a lag of quality public spaces in this area. Thus, these underused fragmented area could be reconnected and improved in order to create a cohesive space that stimulates social activities.

buildings
roads
BRT station

FIG. 8.21 BRT station: current situation

Source: author, based on DataRio, Geofabriek, INEA, IPP



0 The results from the research with the local community (residents, local businesses, popular organizations, NGOs, neighborhood association) phase points out a need for:

- better connections for pedestrians;
- reintegration of areas;
- addition of functions to spaces.

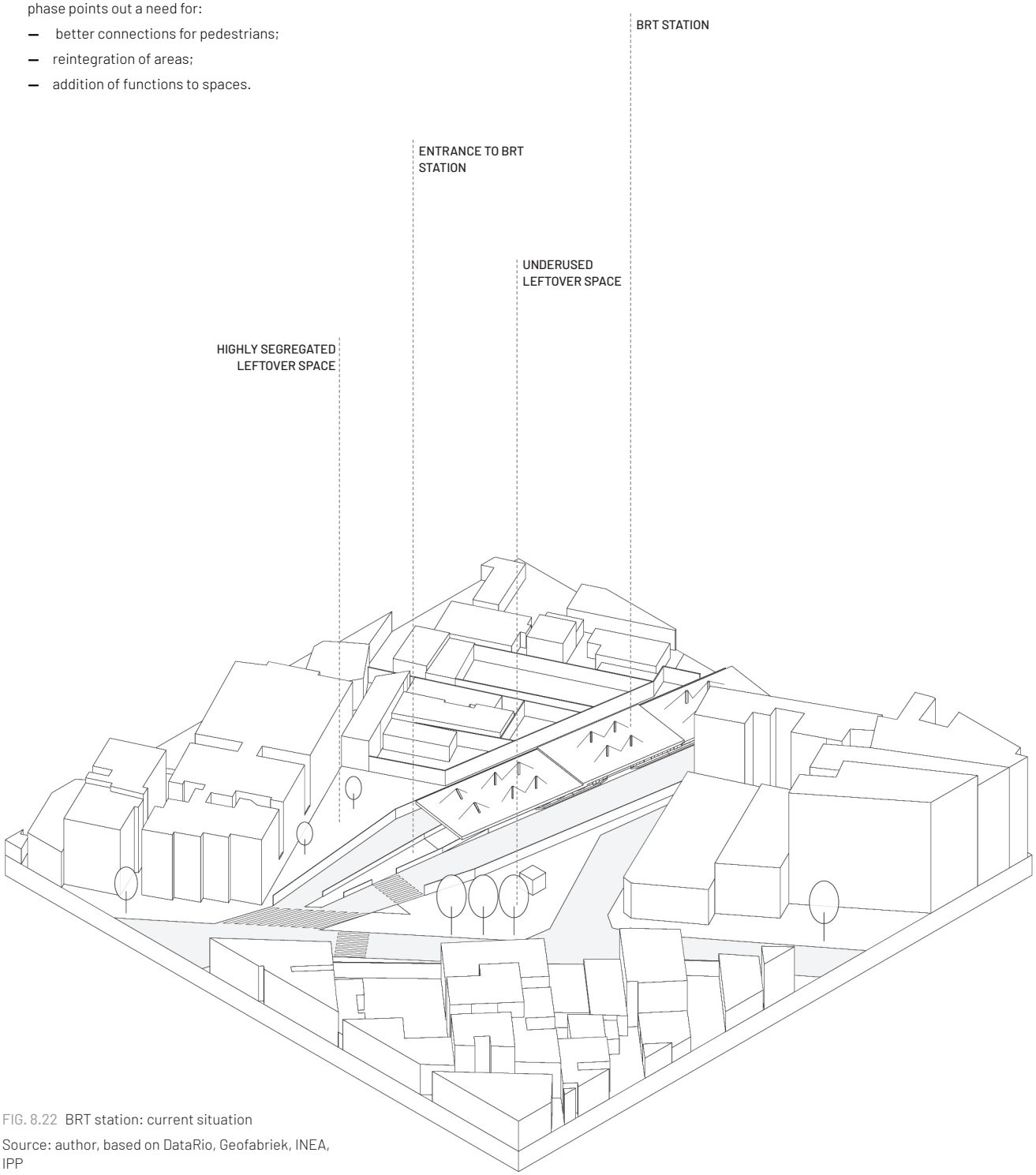


FIG. 8.22 BRT station: current situation

Source: author, based on DataRio, Geofabriek, INEA, IPP

STRATEGIES RELATED TO:

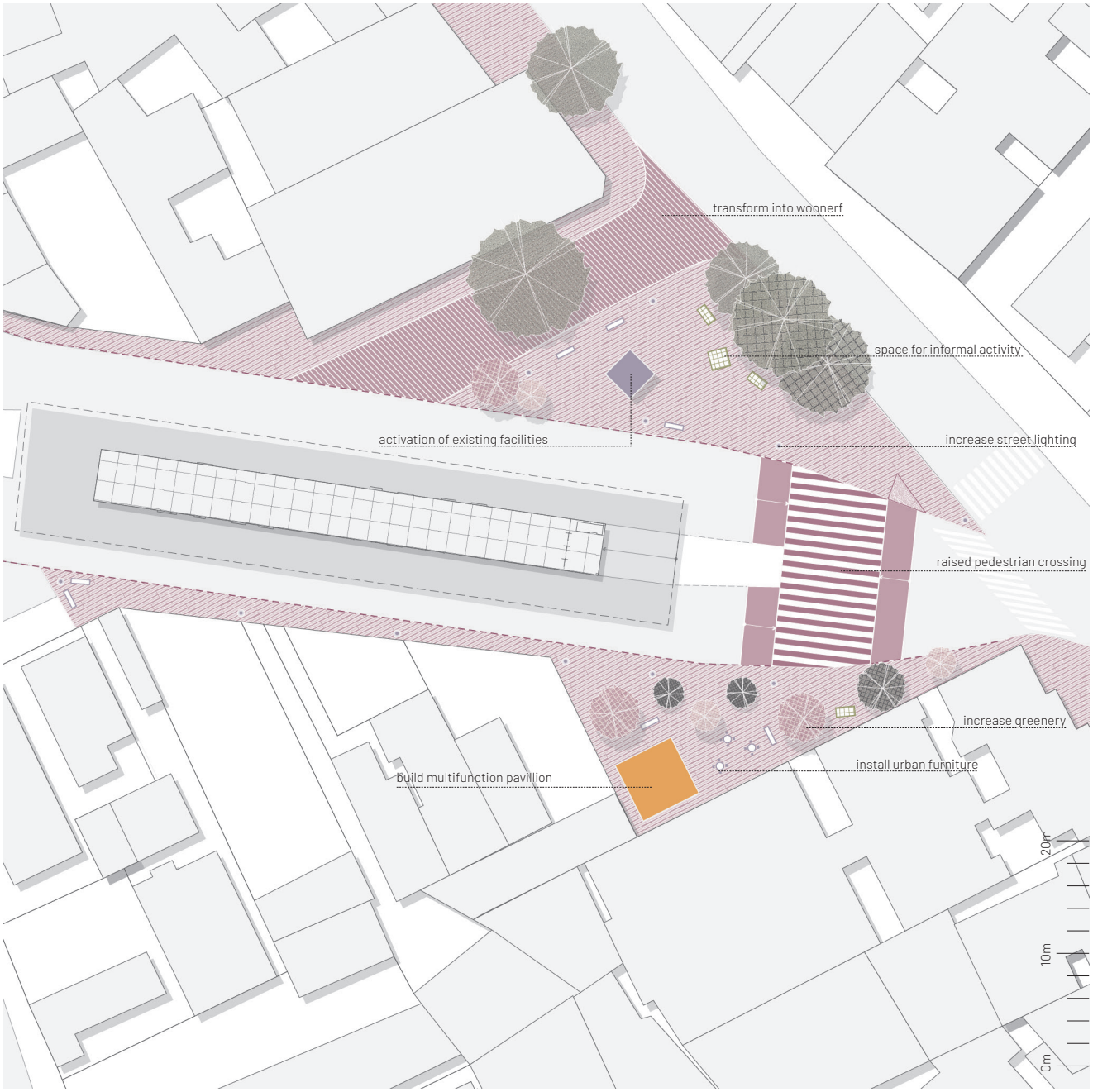
- physical environment
- facilities
- identity
- institutional arrangements
- public land

FIG. 8.23 BRT station strategies: model 1

Source: author, based on DataRio, Geofabriek, INEA, IPP

Model 1: government

In this model, most of the strategies that could be adopted are related to the improvement of the physical environment and its facilities. The area for intervention is also exclusively public land, and the relation between the municipality the local community is mere of consultation for the scope's project definition. This model leads to an improvement of the area as it is physically incorporated into the urban fabric, although maintenance and activation could be issues as the model lacks strong strategies to incorporate social activities and create a sense of belonging.



1 The municipality and the IAB launch a call for projects. Designers (architects and urbanists, collectives, academia, NGOs) adhere to the process with project(s) proposals. The municipality transforms the dead-end street into a woonerf, creates a raised pedestrian crossing and informal activities to take place.

2 The municipality and the IAB evaluate the feasibility and relevance of the project(s) proposals and select the ones to move forward to the voting phase. A voting system is launched with the selected project(s) proposals, where the general public can choose the project(s) to be implemented.

3 The municipality finances, maintains, and implements the winning project(s), such as the building of a multi use pavilion and implementation of urban furniture (benches, street lights).

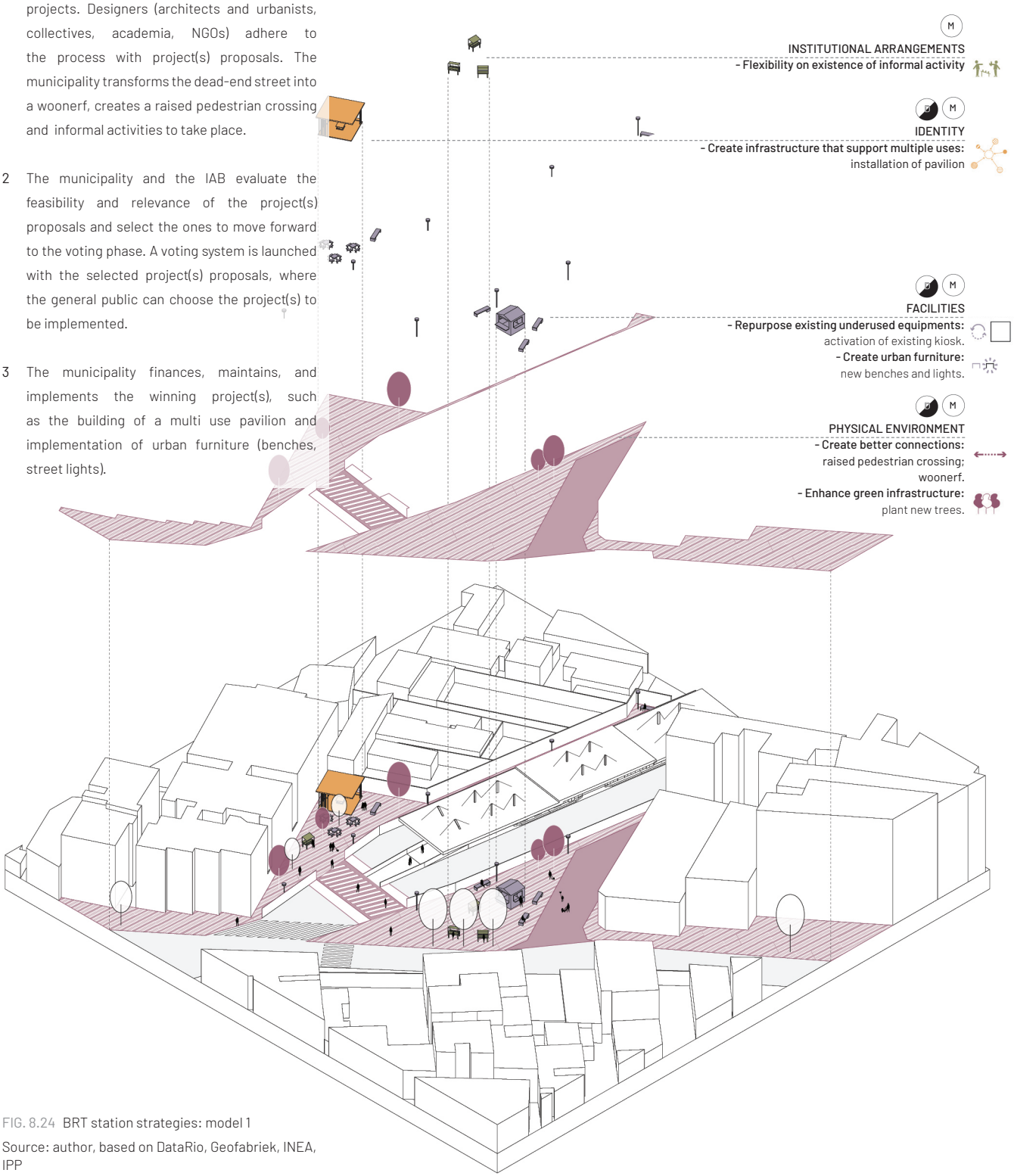


FIG. 8.24 BRT station strategies: model 1

Source: author, based on DataRio, Geofabriek, INEA, IPP

STRATEGIES RELATED TO:

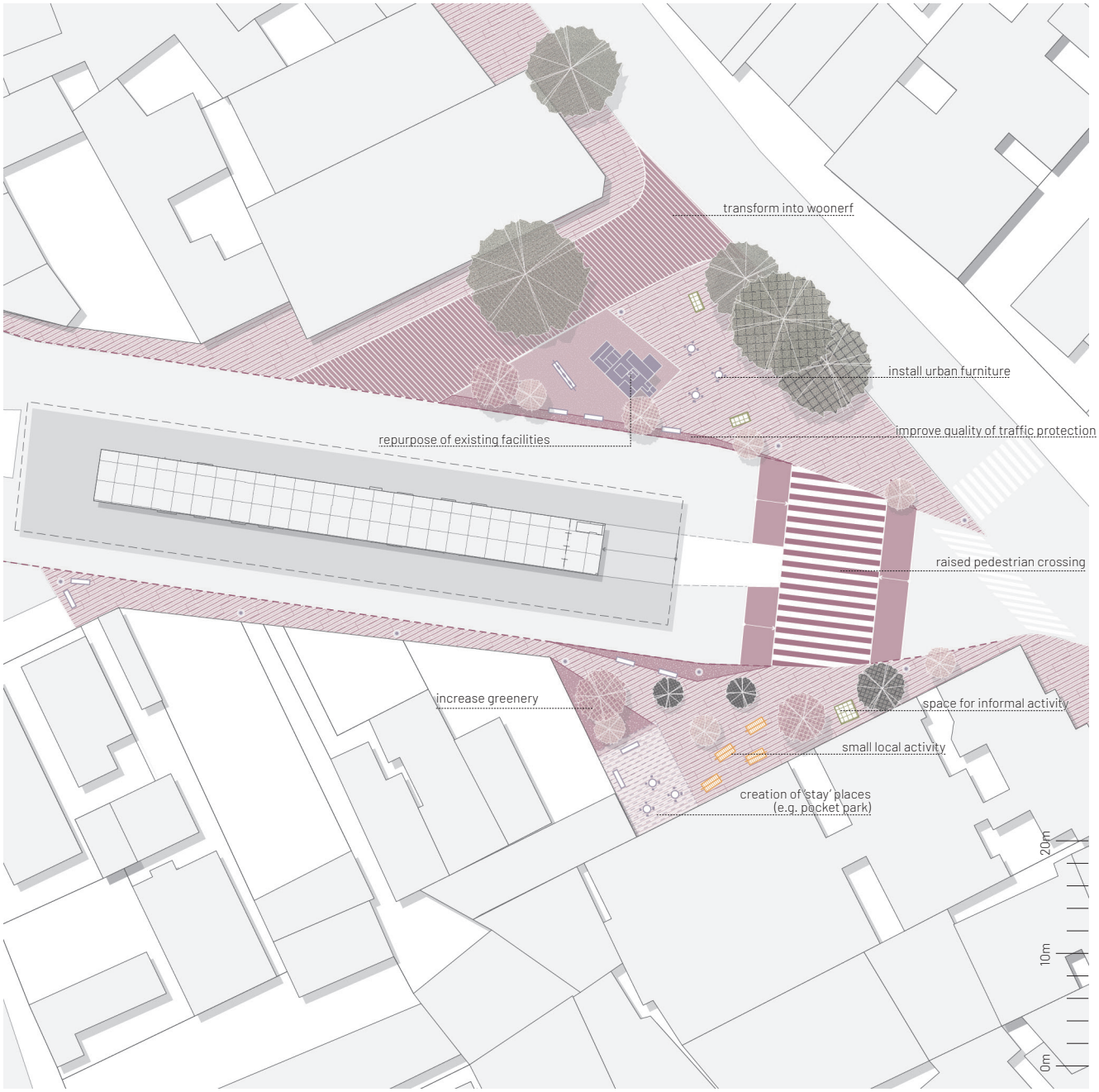
- physical environment
- facilities
- identity
- institutional arrangements
- public land

FIG. 8.25 BRT station strategies: model 2

Source: author, based on DataRio, Geofabriek, INEA, IPP

Model 2: crowdfunding

The relation between the municipality, local community, and civil society is enhanced by the financing system (a cooperation between the municipality and civil society through crowdfunding) and implementation of the project, which could involve the local community in the building process. The area for intervention is still exclusively public land, but the quality of space could be improved, as the process in this model helps to create a sense of belonging, which could help in the maintenance and activation of the space.



1 The municipality and the IAB launch a call for projects. Designers (architects and urbanists, collectives, academia, NGOs) adhere to the process with project(s) proposals. The municipality transforms the dead-end street into a woonerf, creates a raised pedestrian crossing and allows informal activities to take place.

2 The municipality and the IAB evaluate the feasibility and relevance of the project(s) proposals and select the ones to move forward to the voting phase. A voting system is launched with the selected project(s) proposals, where the general public can choose the project(s) to be implemented.

3 Some of the winning project(s) involve enhancing the greenery. The municipality decides to take this responsibility and create a landscape project along with the local community. The rest of the project(s) receive a budget allocation from the municipality, and the budget goal for the collective funding is defined. The municipality, the IAB, and the designers launch a crowdfunding platform where the general public can choose to help to finance the project(s).

4 The municipality and the designers implement the project(s). The local community engages in the building process, creating a sense of belonging. Maintenance is the responsibility of the municipality, which is shared with the local community as a result of their engagement in the process.

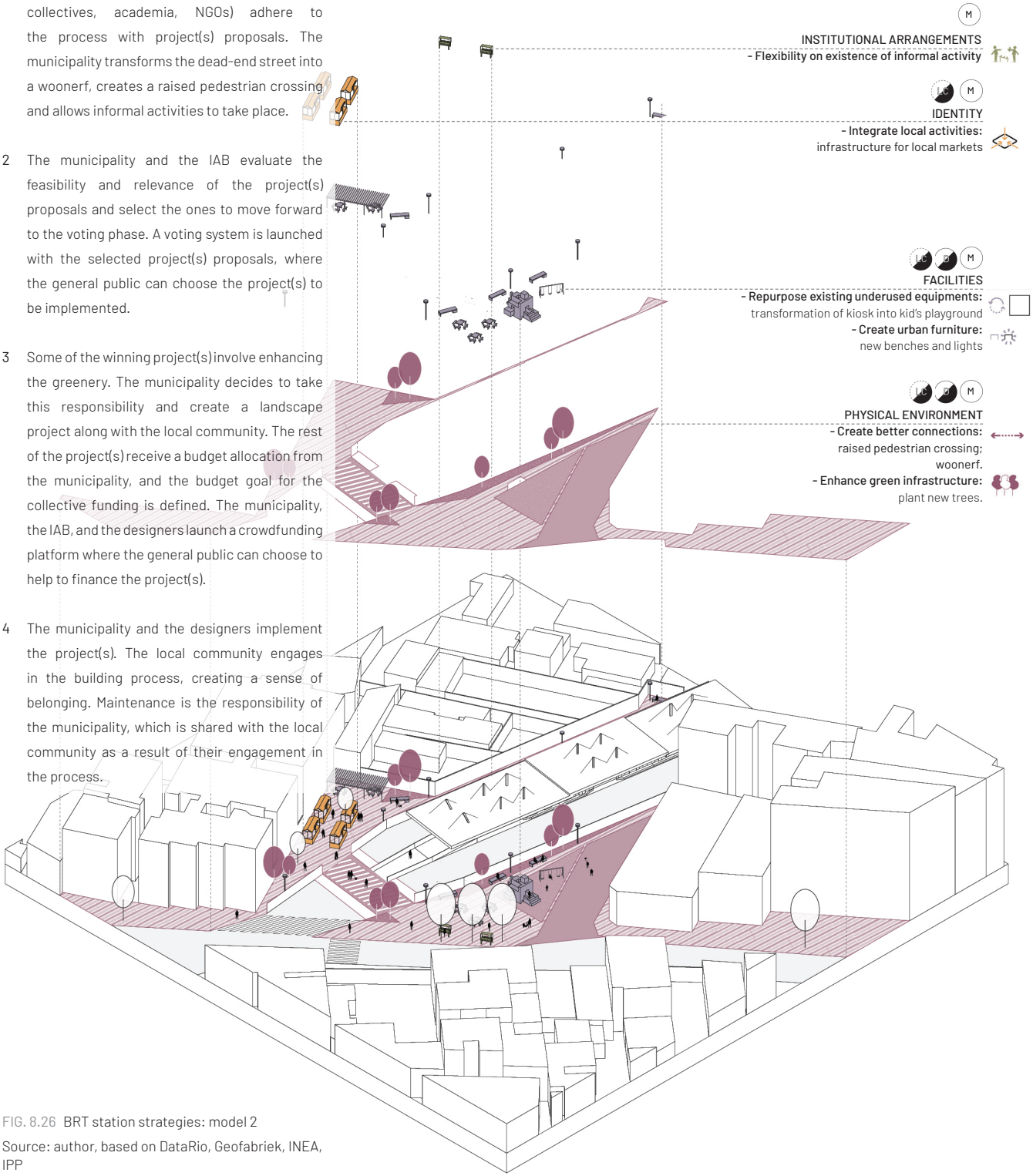


FIG. 8.26 BRT station strategies: model 2

Source: author, based on DataRio, Geofabriek, INEA, IPP

STRATEGIES RELATED TO:

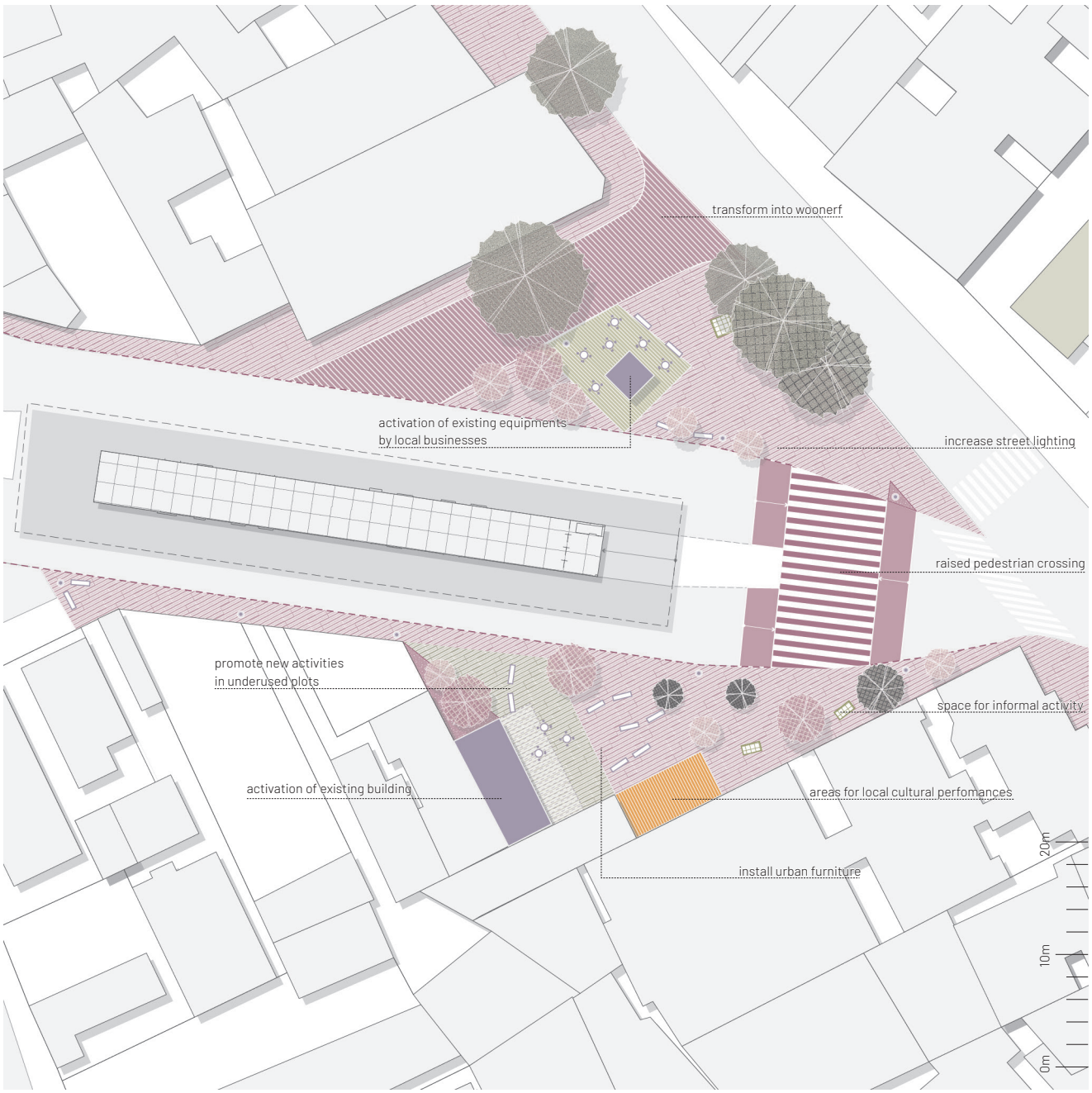
- physical environment
- facilities
- identity
- institutional arrangements
- private land
- public land

FIG. 8.27 BRT station strategies: model 3

Source: author, based on DataRio, Geofabriek, INEA, IPP

Model 3: small private investor

This model gives small businesses an opportunity to use the public space. By encouraging temporary use of public spaces, the municipality attracts the interest of small businesses to invest in the development of a public area to increase their visibility and profit, which helps to improve and activate the area. This also generates a sense of responsibility for the maintenance of the place. Tax deduction and land leases could also be adopted to encourage the use of empty lots for activities. However, a lack of interest from the private sector could undermine the possibilities.



1 The municipality launches a program to attract small private investors. Local businesses, private landowners, and small enterprises adhere to the program to explore the private and public land available by land lease.

2 The municipality and the IAB launch a call for projects that integrate the needs of the local community and the needs of the small private investors. Designers (architects and urbanists, collectives, academia, NGOs) adhere to the process with project(s) proposals. The municipality transforms the dead-end street into a woonerf, creates a raised pedestrian crossing, and allows informal activities to take place.

3 The municipality and the IAB evaluate the feasibility and relevance of the project(s) proposals and select the ones to move forward to the voting phase. A voting system is launched with the selected project(s) proposals, where the general public can choose the project(s) to be implemented. Some of the winning project proposals are revitalizing an existing building in a private lot for a small enterprise to occupy and the exploration of existing public facilities by a local business.

4 The private lot owner leases the land for renovation and exploration, and the municipality leases the public facility to the local business to develop and explore. The implementation of the winning projects related to the improvement of the physical space and creation of facilities is shared between the municipality and the small private investors. The municipality, the designers, and the small private investors implement the project(s). Maintenance is a shared responsibility between the municipality the small private investors.

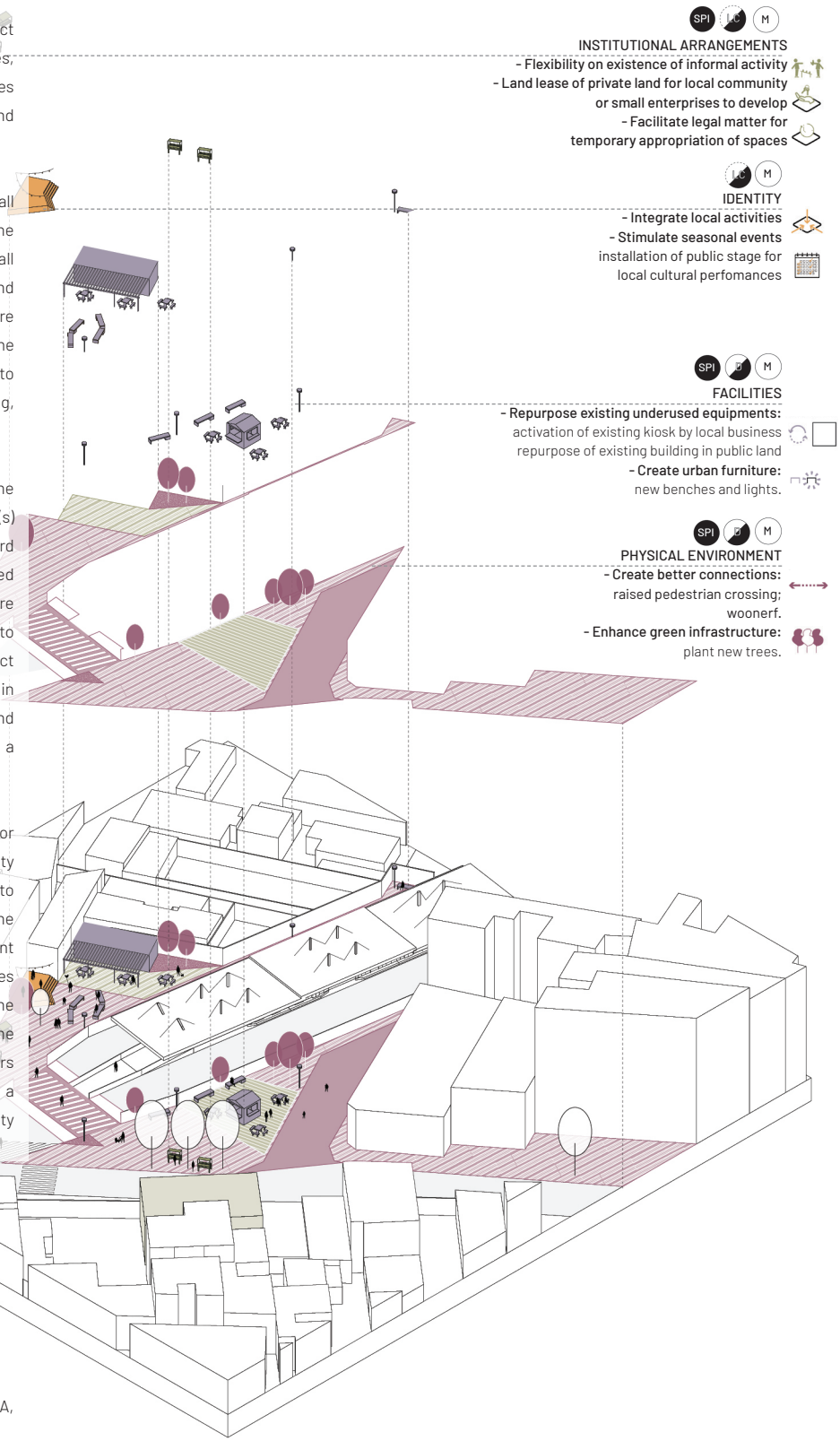


FIG. 8.28 BRT station strategies: model 3

Source: author, based on DataRio, Geofabriek, INEA, IPP

STRATEGIES RELATED TO:

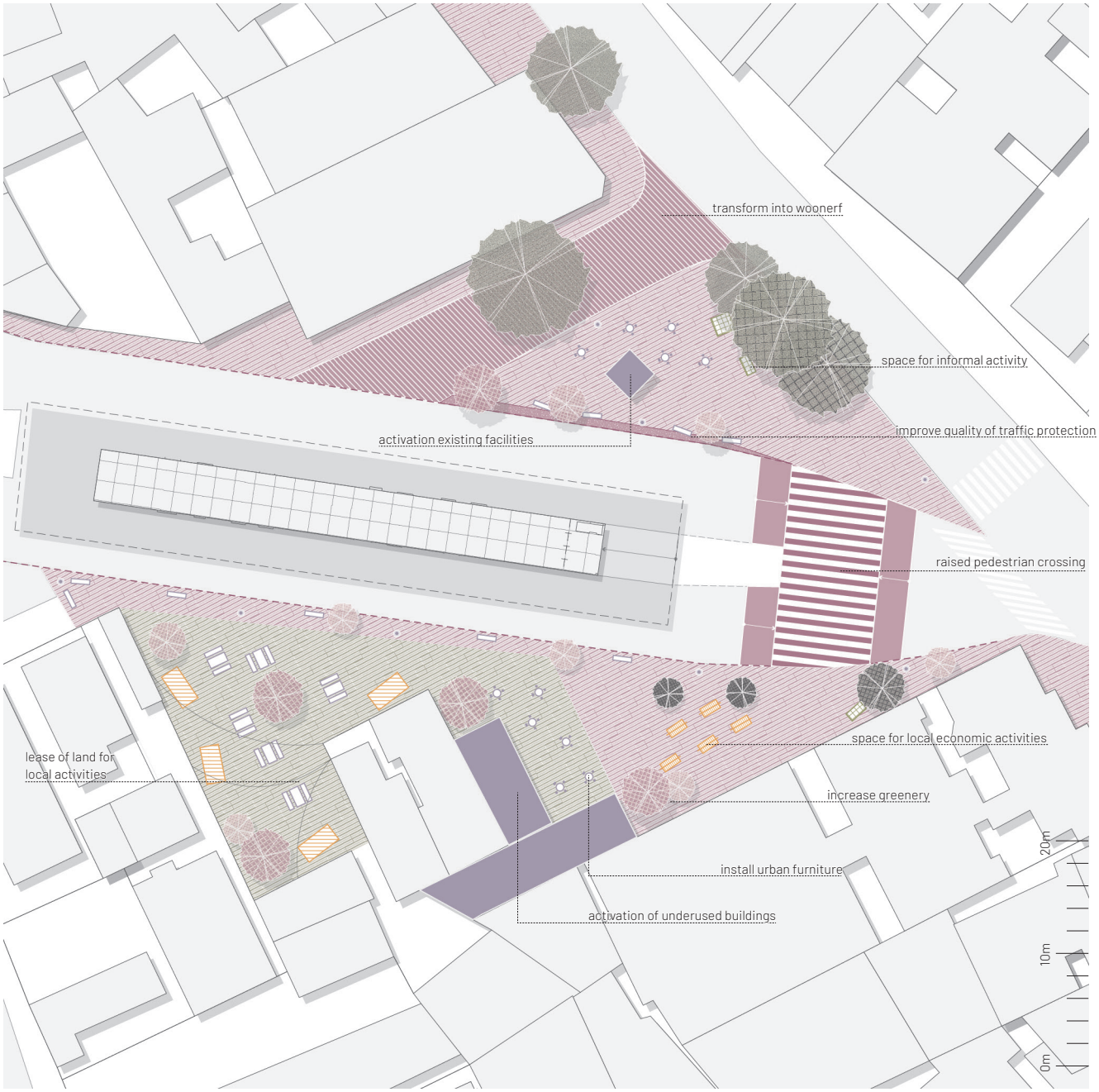
- physical environment
- facilities
- identity
- institutional arrangements
- private land
- public land

FIG. 8.29 BRT station strategies: model 4

Source: author, based on DataRio, Geofabriek, INEA, IPP

Model 4: matchfunding

This model allows for achieving greater projects as it offers an opportunity to collect more funding. The area of intervention in this model could be extended to the private land through the involvement of more actors such as the owners of the empty lots and local businesses. Tax deduction and land leases could be encouraged by the municipality to attract private investors to help developing spaces (private or public). Furthermore, social projects and seasonal activities could also be financed to help to activate the area.



1 The municipality launch a program to attract private investors to invest. Big companies adhere to the program in exchange for tax breaks, and landowners adhere to it as the municipality allows land lease of their private land for development for local activities.

2 The municipality and the IAB launch a call for projects that integrate the needs of the local community and the needs of the private investors. Designers (architects and urbanists, collectives, academia, NGOs) adhere to the process with project(s) proposals. The municipality transforms the dead-end street into a woonerf, creates a raised pedestrian crossing, and allows informal activities to take place.

3 The municipality and the IAB evaluate the feasibility and relevance of the project(s) proposals and select the ones to move forward to the voting phase. A voting system is launched with the selected project(s) proposals, where the general public can choose the project(s) to be implemented. One of the winning project proposals is the creation of a food truck park in one of the empty private lots.

4 The municipality decides to invest in the creation of the food truck park market with the help of the private investor and local NGOs. For the other winning projects, an agreement between the municipality and the private investors is drawn defining the budget allocation for each part involved and the collective budget. A matchfunding platform is launched, where the general public can choose to help to finance the project(s).

5 The municipality, the designers, and the private investors implement the project(s). Maintenance is a shared responsibility between the municipality the private investors.

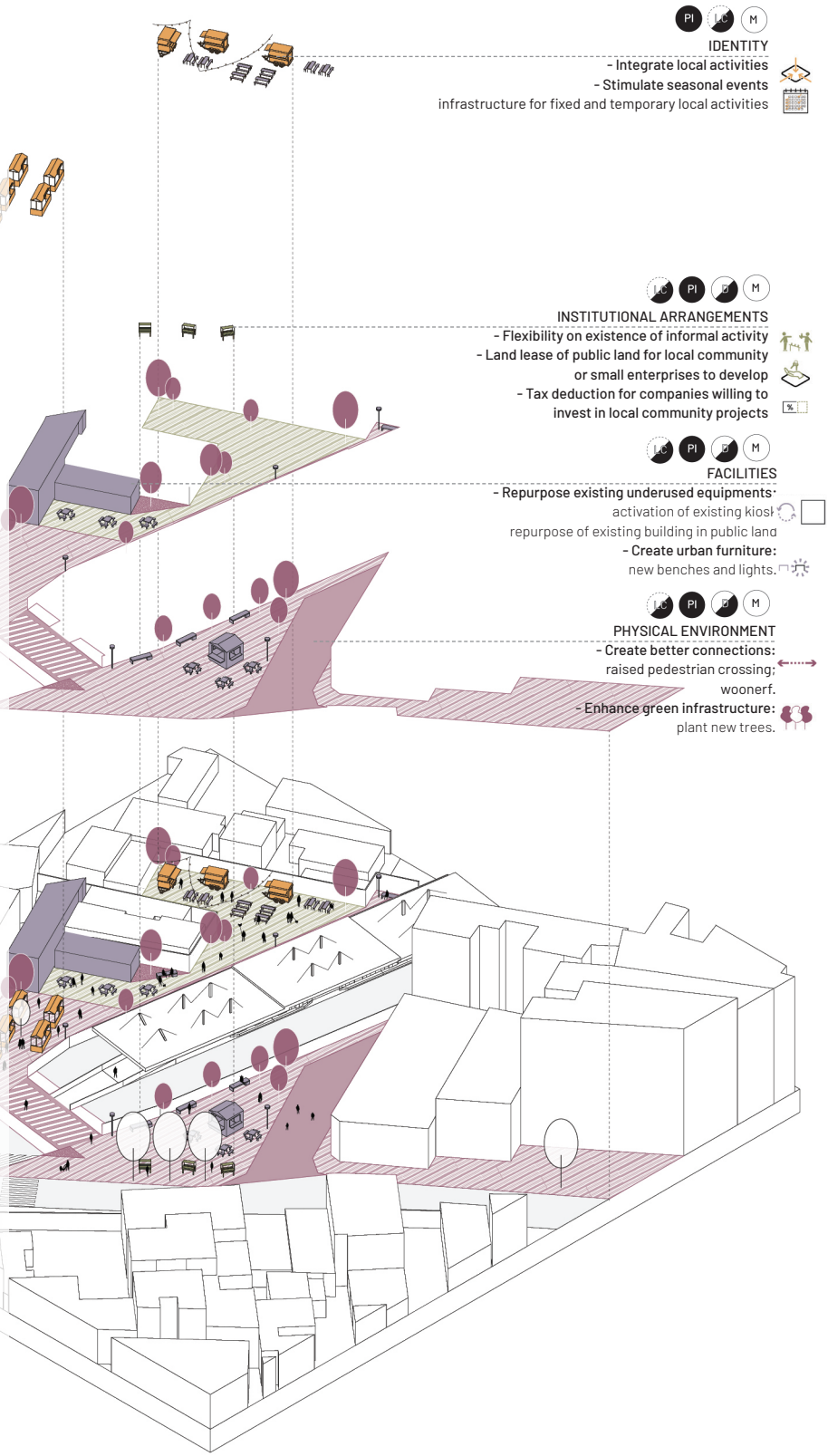
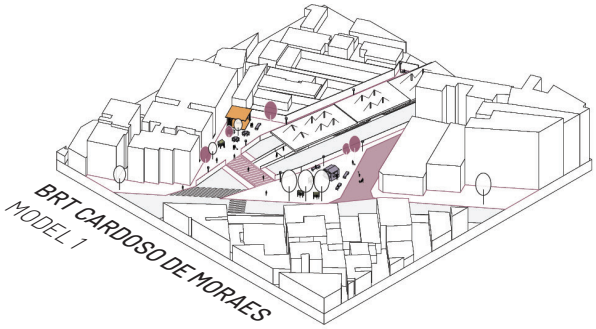
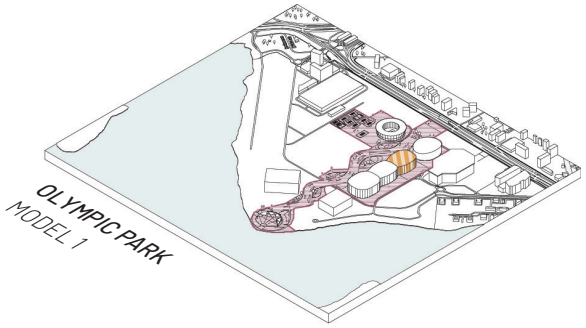
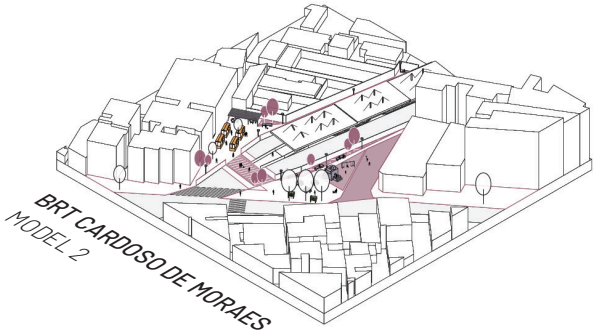


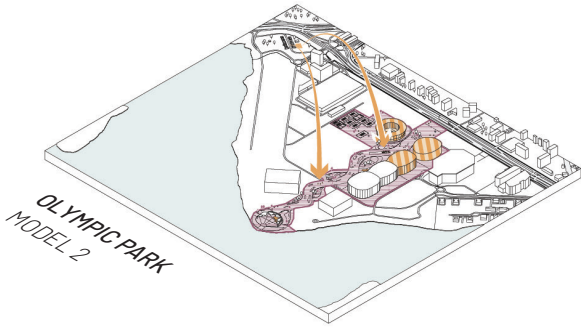
FIG. 8.30 BRT station strategies: model 4

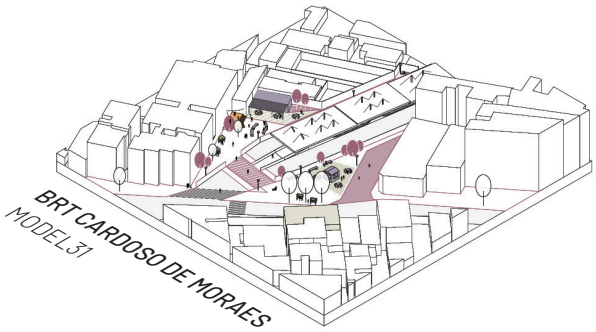
Source: author, based on DataRio, Geofabriek, INEA, IPP

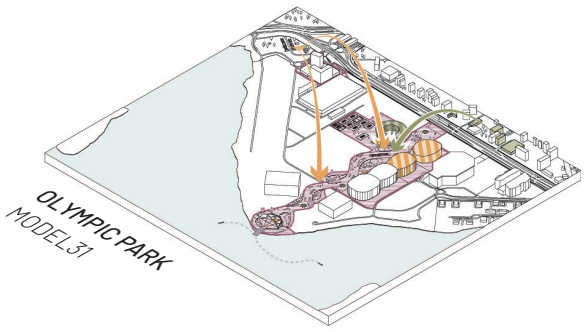

BRT CARDOSO DE MORAES
MODEL 1

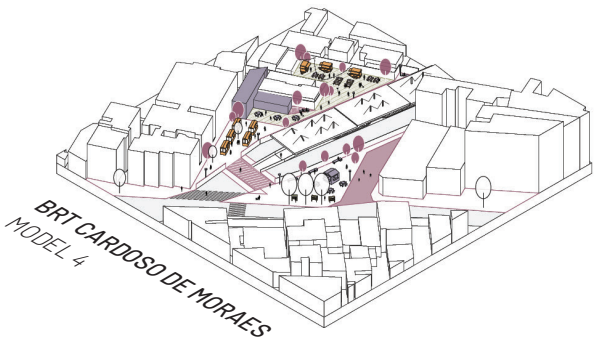

OLYMPIC PARK
MODEL 1

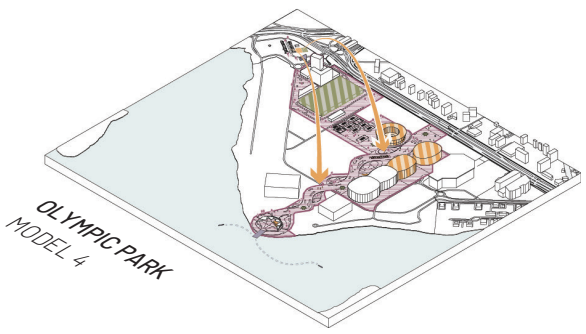

BRT CARDOSO DE MORAES
MODEL 2


OLYMPIC PARK
MODEL 2


BRT CARDOSO DE MORAES
MODEL 3.1


OLYMPIC PARK
MODEL 3.1


BRT CARDOSO DE MORAES
MODEL 4


OLYMPIC PARK
MODEL 4

8.4 – **Design evaluation**

The application of the strategies and the four models into the two different cases helped test their effectiveness in achieving the proposed goals. It also helped to clarify the relationship between the strategies and the models, making explicit that not all strategies are feasible under some institutional models. Moreover, it showed that some models and strategies are more relevant depending on the goal and the socio-spatial configuration of the area.

Both cases showed that no matter the aim, it is clear that spatial and non-spatial measures need to be simultaneously adopted in order to achieve spaces that stimulate social activities and promote social cohesion. For example, in order to stimulate the use of the Olympic Park, one could think that the application of strategies solely related to the appropriation of the area, such as legal matters and social measures (institutional arrangements and identity), is enough. However, the improvement of a space quality (physical environment and facilities) is one of the premises for the appropriation of spaces to happen, as people are attracted to spaces that make them feel comfortable and offer infrastructure for social and economic activities to spark.

Furthermore, the models could be adapted to work as different phases of a plan or concomitant instead of independent. This allows for the realization of small projects that are inserted in a larger plan, ensuring that they are going to be realized in the long run. It also allows the participation of more actors, which, on the one hand, increases the process and management complexity and, on the other hand, increases the results and quality that could be achieved. Moreover, it gives flexibility to the plan as it could be re-evaluated every time before moving to the next phase based on the current needs of the area, thus avoiding the creation of projects detached from the context reality.

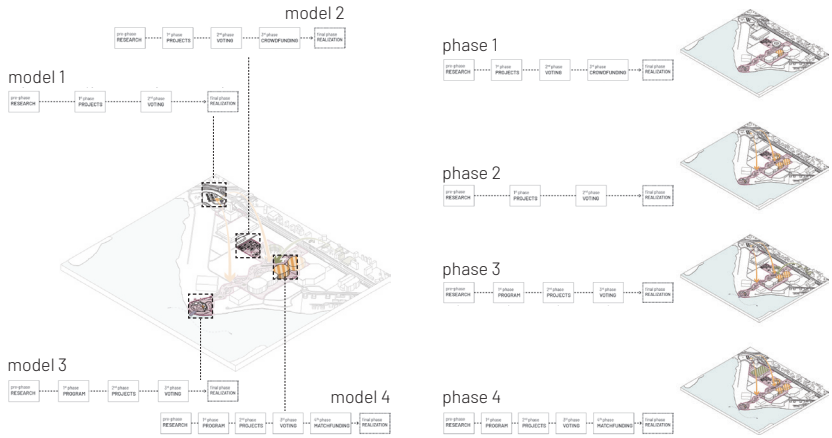


FIG. 8.31 Diagrams of some of the possible ways of application of the models: concomitant or phased

In conclusion, the flexibility within the models generates numerous possibilities that could be adopted in different scenarios depending on the goals, level of engagement, and scale of a plan or project. While the models could be implemented independently, in phasing planning, or concomitant, the strategies are complementaries, no matter which model is chosen. It is not efficient to apply solely spatial (physical environment and facilities) nor non-spatial (identity and institutional arrangements) strategies in order to create areas that are attractive and promote social inclusion.

8.5 – **Scalability**

The four models explored in the two cases rely heavily on social participation, with the inclusion of the local community in the projects. Both cases, due to the chosen representation scale, integrate only geographically close initiatives. However, both contexts present a large number of NGOs and popular organizations that could also be integrated into the projects and offer more possibilities and opportunities for social inclusion and activation of the spaces.

FIG. 8.32 NGOs and popular organizations close to the Olympic Park.

Source: author, based on DataRio, Geofabriek, INEA, participation map from Casa Fluminense and atados NGOs map

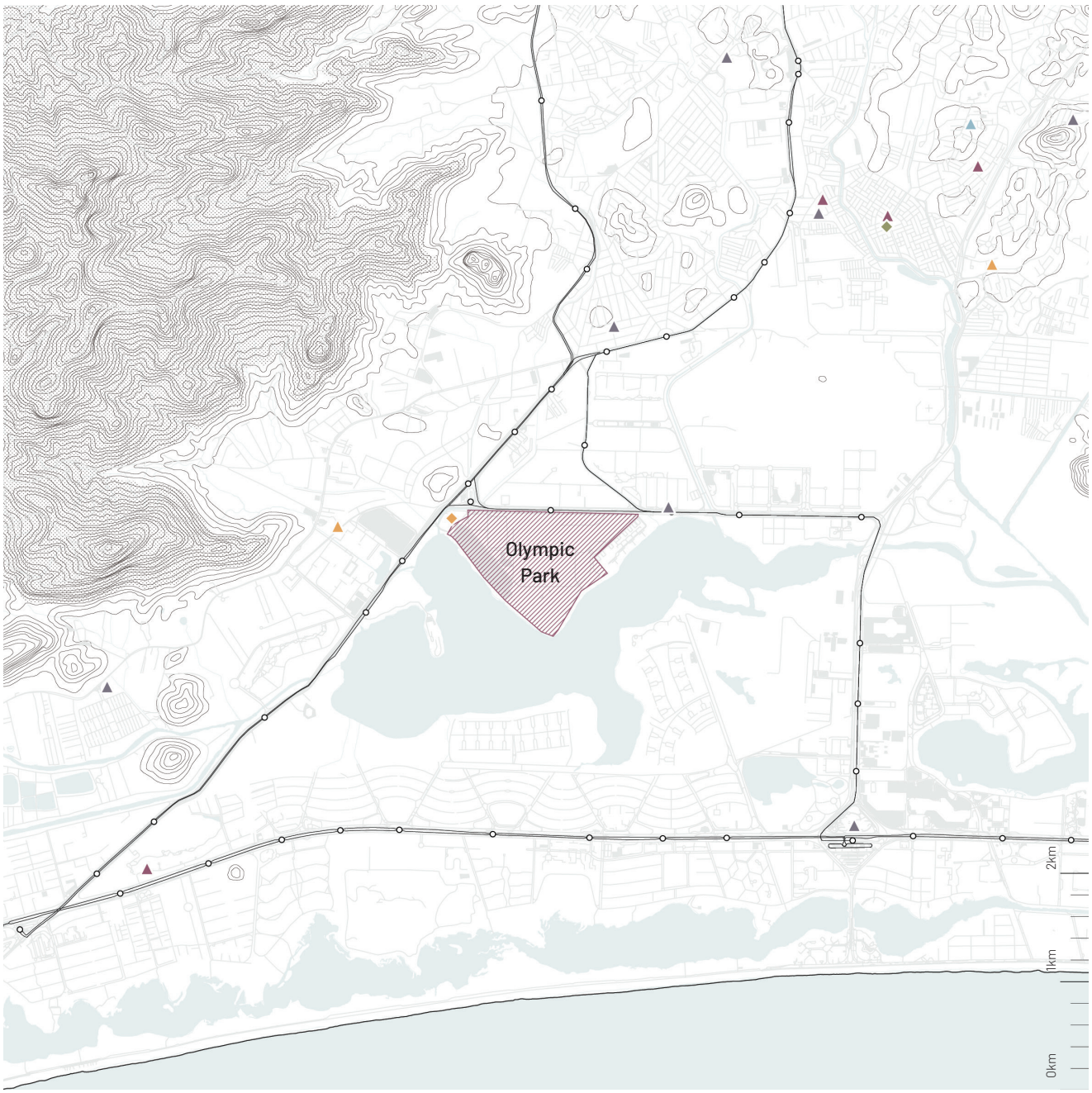
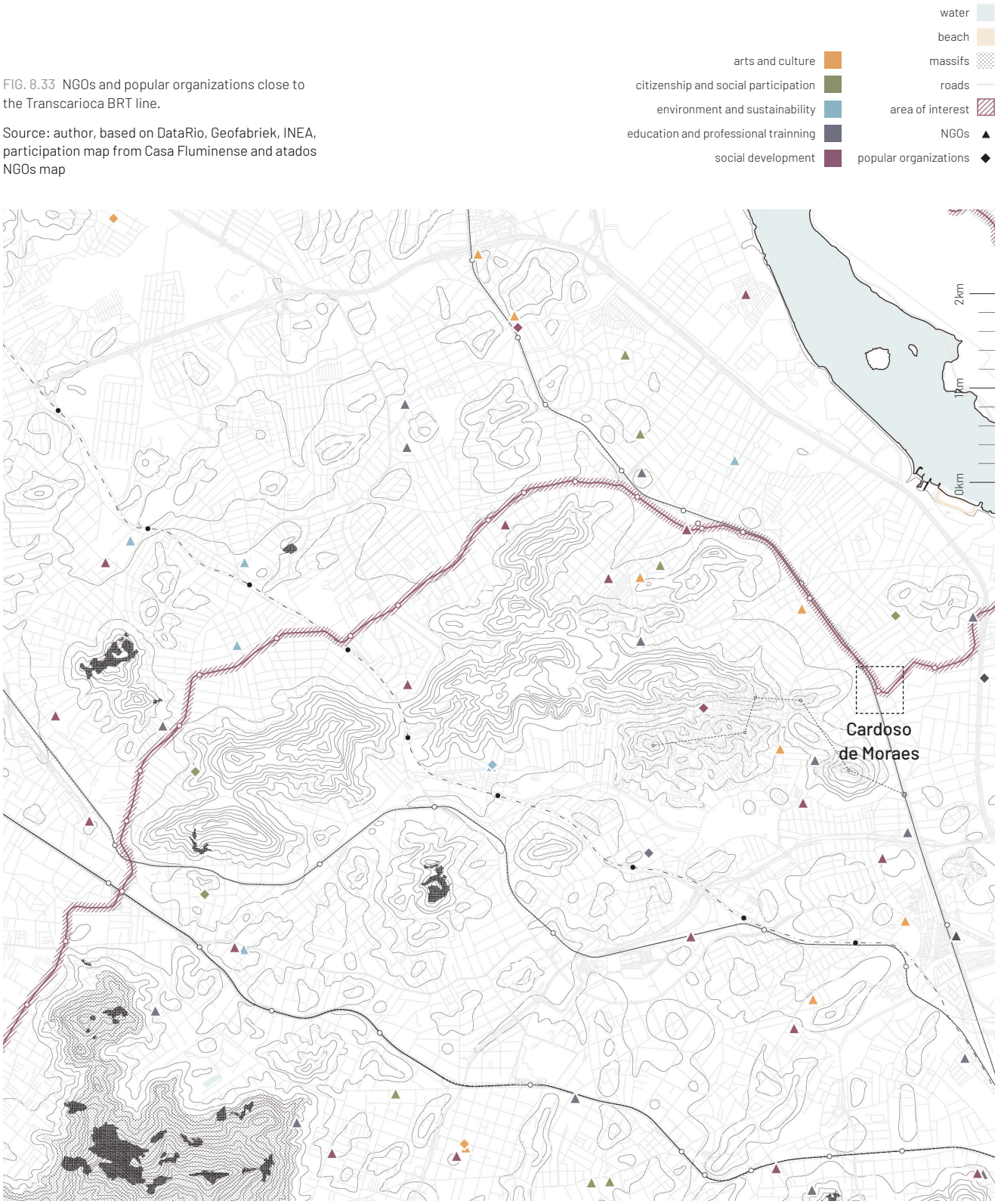


FIG. 8.33 NGOs and popular organizations close to the Transcarioca BRT line.

Source: author, based on DataRio, Geofabriek, INEA, participation map from Casa Fluminense and atados NGOs map



8.6 – **Transferability**

The strategies and models applied in the two cases can be replicated to other Olympic areas in the city, such as in the surroundings of the Maracanã and Engenhão stadiums and the Radical Park in Deodoro. Thus, creating, with local support, more centers of activity throughout the city that can reach a vast area of influence. Specifically to the port zone, the application of the strategies could help to reshape the missing link between the history and identity of the place and the recently created global developments through actively integrating the local community.

The strategies around the BRT stations should be replicated to the other two lines created. Therefore, the BRT lines can be transformed from a disruptive intervention to a mechanism for the local community to thrive. The process could be developed in phases, where the areas with most needs are tackled first and slowly progressing to a continuous project along the BRT lines. Thus, providing spaces with quality that promote social and economic development in areas that were, for a long time, forgotten by the government. Furthermore, by replicating the strategies to all BRT stations, the connection between the existing centralities is enhanced, and more opportunities for the city's inhabitants are created.

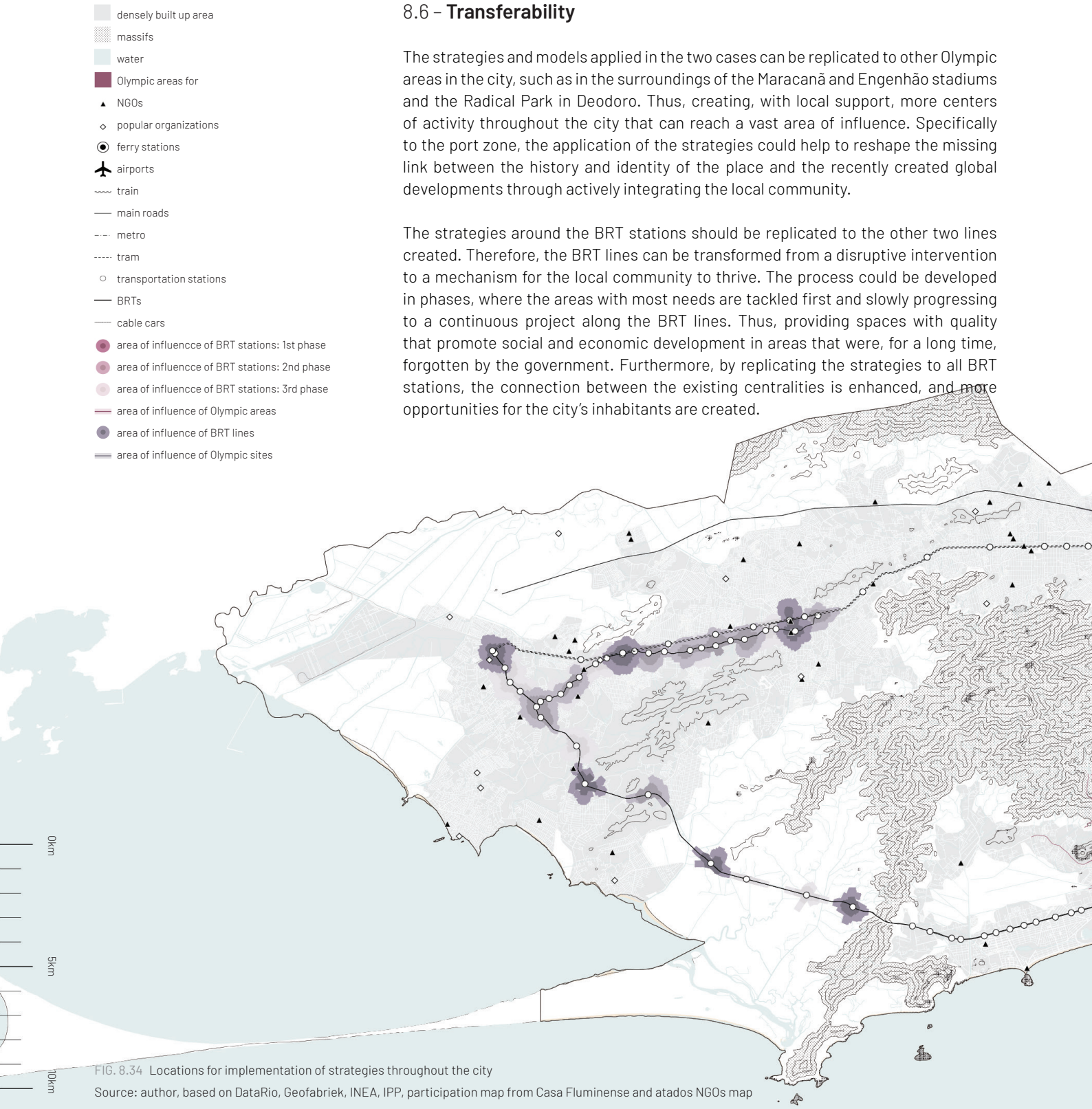
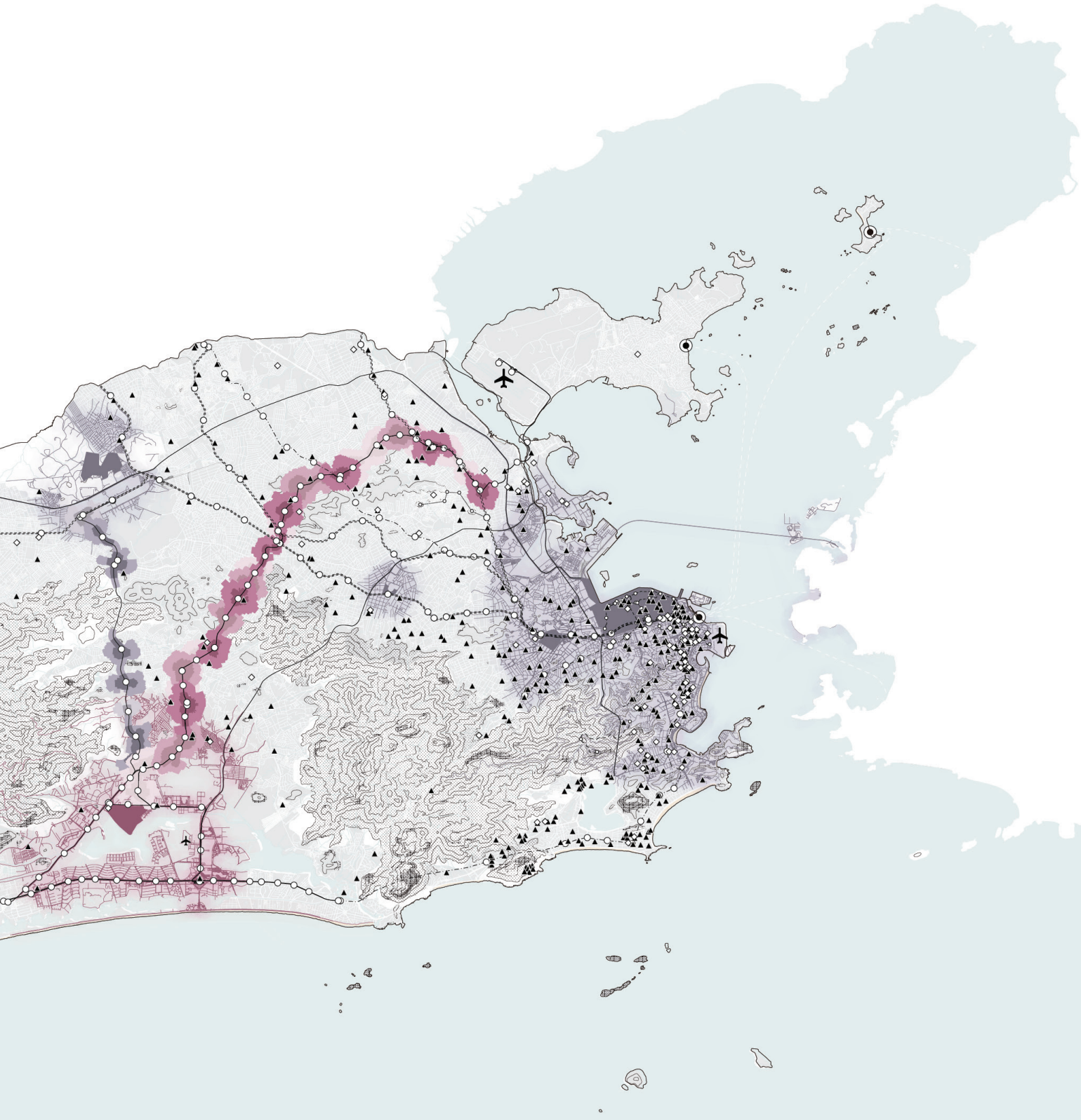


FIG. 8.34 Locations for implementation of strategies throughout the city
Source: author, based on DataRio, Geofabriek, INEA, IPP, participation map from Casa Fluminense and atados NGOs map



PART 6

Conclusions

9 – Conclusions and discussion

9.1 – **Answering the questions**

This thesis focused on addressing the impacts of hosting the Olympic Games by exploring the legacy concept. It addresses the Olympics' social and spatial legacy in the last host city: Rio de Janeiro.

The backbone of the thesis is the main research question: ***What measures could be adopted to reframe the legacy of the Olympic Games in the city of Rio de Janeiro to mitigate the socio-spatial segregation within the city and inform future events?*** In order to answer the main research question, multiple sub-research questions have been developed in order to understand 1) the role of the Olympics in a global context, 2) the legacy concept, and 3) the context of Rio de Janeiro. Preliminary conclusions can be drawn from the answers to these sub-research question, as follows:

What is the significance of the Olympic Games for host cities in the global context? Literature review on the Olympics' history and the concept of global cities showed that the Games evolved from being a celebration of peace between nations to being a powerful strategy for competition between cities to be globally attractive. Literature review on the Olympics' history and the concept of global cities showed that the Games evolved from being a celebration of peace between nations to being a powerful strategy for competition between cities to be globally attractive. As the Olympics grew in popularity over the years, so did its magnitude, which is now considered a mega-event. The infrastructure necessary for hosting it became more extensive over the years, coming from the simple utilization of existing stadiums to the current building up of major venues and urban scale infrastructure.

Furthermore, these transformations on an urban scale, which in normal conditions would have taken years to happen, have to be built at a fast pace, since a host city has only seven years to prepare for the Games (from candidature to hosting). This acceleration that the Olympics impose in urban developments is seen in the eyes of the head of states, especially from the Global South, as a powerful strategy to promote changes that would not happen in normal conditions, attract international investments elevate their cities to a status of a global city.

However, an anti-Olympic spirit among the population of candidate/hosting cities has been arising recently. The cost of hosting the Games is too high for the population, which is the one that suffers the most from the interventions caused by the event. The social costs of the Games do not pay off the promised legacy, which in its majority consists of new infrastructures, which is in its majority are unnecessary and are going to be underused and hard to maintain.

What is the Olympic legacy?

The Olympics have been changing its significance overtime to maintain its attractiveness, and the legacy discourse was the latest strategy created to keep cities interest in hosting the mega event. It focuses on the benefits that the Games could bring to host cities in the long run.

The exploration of the legacy concept found in the literature review is still in its infancy, and many definitions have been drawn. This thesis uses Preuss' (2007) definition in order to explore the concept, as it appears to be the most defined one, and it is the definition that the Olympic Committee has recently adopted. Preuss (2007) argues that the legacy is the structures created for the event that last longer, and it can be planned and unplanned, positive and negative, tangible and intangible. These structures are divided into five categories (Preuss, 2015), which are related to different fields ranging from social to spatial aspects and temporary and permanent effects.

In this thesis, the legacy's focus relied on Preuss' (2015) structures related to the Urbanism field. Therefore, for the purpose of this research, the legacy could be defined as the socio and spatial aspects that cause permanent effects on the dynamics of a city and its population.

How to identify the Olympic legacy in a host city?

As the legacy definition is still unclear in literature, it is hard to understand the aspects that can help identify it. Moreover, the Olympic legacy concerts different fields, and each field can define different aspects to identify it. Therefore, it is essential first to define the field from which the legacy is going to be analyzed and the parameters to identify it.

The legacy analysis of this thesis is based on two of the structures presented by Preuss (2015), which were considered the most related to the Urbanism field: infrastructure and policy. Then some parameters and indicators were defined based on literature review and fieldwork to help to identify the structures and processes that could lead to an understanding of the legacy in the case of Rio de Janeiro.

In short, the legacy is a multifaceted concept that affects different fields and still needs more research and definition to help to find parameters to identify it. This thesis attempted to create an analytical framework based on literature and a specific case study to move further in finding these parameters in the Urbanism field.

How did the urban transformations triggered by mega projects in the city of Rio de Janeiro contribute to socio-spatial segregation?

The historical analysis of the city of Rio de Janeiro showed that the mega-urban projects triggered by the Olympic Games were not the first ones to happen in the city. Rio de Janeiro has a history of urban transformations that directly affects its dynamics since the beginning of the 1900s.

These transformations have always been associated with the city's image, strongly affecting the most vulnerable population that has always been expelled from its

territory under the pretext of sanitary improvements. As social rights were only recently acquired in Brazil with the 1988 Constitution, all the removed population before that did not obtain any support. This population often moved to neglected areas of the city and started to develop these areas by themselves, which led to the occupation of the suburbs and the emergence of the favelas.

The process for hosting the Olympic Games and its effects is just another milestone in the history of the city's urban development, perpetuating a modus operandi that creates inequality and segregation within the city.

What is the legacy of the Olympic Games to the city of Rio de Janeiro?
This thesis created an analytical framework based on literature review and observations from the fieldwork to identify Rio's Olympic legacy. It aimed at uncovering the legacy under the socio and spatial realms. Therefore it analyzed the physical changes and its processes.

The funding for the Olympic Games came almost entirely from public funds, but private investors now own most of the existing public land in the Olympic clusters. Furthermore, the Olympic clusters went through a social cleaning process, increasing the land value, and generating gentrification. This process also intensified socio-spatial segregation within the city, as the most vulnerable population was displaced to areas without proper urban infrastructure or were left without fair options for habitation.

The results from the analysis indicate that Rio de Janeiro's legacy is incomplete, as the benefits for society are not achieved as it should. Since public funds financed most of the built infrastructure and public land that could have been used for public goods is now at the hands of the private sector, there is an unbalance in the gains and losses for the civil society.

To what extent does the redesign of the spatial legacy can be used to mitigate the social segregation and spatial fragmentation reinforced by the Olympics?
The analysis showed that the physical changes and processes were intertwined, and one directly affected the other, causing changes both in the social and spatial realms. Therefore, it seems ineffective to attempt to invest solely in the spatial realm of the legacy in order to mitigate social segregation.

In order to create more positive Olympic legacies, it is necessary to create solutions that effectively act upon the social and spatial realm at the same time. Therefore, this thesis allies the proposed strategies with different institutional models aiming at sparking social participation and creating more inclusive post-Olympic cities.

9.2 – **Informing future events**

This research studied a case to find solutions to an issue that affects cities all over the world: the Olympic legacy. The Olympic Games is a mega-event that drastically affects the spatial and sociodynamics of host cities, and although a legacy plan is included in the candidacy, most of the host cities fail to follow the plans and end up with more burdens than benefits for its population.

Many solutions were researched as a way to act upon the pre-event phase to guarantee the implementation of the legacy plans. However, there is a time gap between the moment when the candidacy plans are drawn and its implementation. Moreover, the transformations triggered by the Olympics are tremendous and change the reality of a city in a short timespan. Therefore, the legacy plans, which were drawn years before the realization of the Games, are outdated and alienated to the newly created reality.

A re-evaluation of the legacy plans in a post-Olympic period it is of paramount importance in order to understand what measures are still feasible and necessary. The reframing of the legacy helps to adapt the legacy plans to the current socio-economic dynamics of the host city and mitigate any negative impacts created during the process.

The case studied in this thesis helps to understand the changes and problems that hosting the Olympic Games provokes in a city, spatially, socially, and institutionally. The proposed process for reframing Rio's legacy opens up possibilities for adapting the legacy plans to the post-Olympic reality and creates more benefits than burdens to its population. It helps to tackle issues such as socio-spatial segregation and underused venues, which are common to many host cities.

To conclude, the adoption of an extra step in the Olympic process consisting of a re-evaluation and consequently reframing of the legacy plans could help to mitigate the negative impacts created during the preparation phase. Therefore, helping to create a more feasible and beneficial event by balancing out the burdens and benefits brought by the Olympic Games to a host city and its inhabitants.

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APPENDIX 1 Reflection

APP. 1.1 – Project topic and Graduation studio

This graduation project was conducted under the Planning Complex Cities graduation studio of the Urbanism Master track. By addressing the topic of the Olympic Games, this thesis becomes relevant to the Urbanism field as the mega-event evolved through time and is currently being used as a catalyst for urban transformations boosted by the legacy's discourse. However, the operations behind the legacy creation transcend the spatial dimension and have a significant impact on the social dimension of cities, especially in cities with a weakened governance system like the ones in the Global South.

The work carried out throughout this thesis relates to the Planning Complex Cities studio through the recognition of global and local influence forces behind policy-making and territorial governance in a city in the Global South: Rio de Janeiro. A city with an unequal governance system, which consequences can be perceived in its current socio-spatial configuration. The thesis specifically analyzed the negative effect on the most vulnerable population of the rapid transformations provoked by the last major urban operations that took place in the city due to the hosting of the 2016 Olympic Games. As a result, an alternative planning strategy was proposed in order to fight back the current segregating planning strategies and create a more inclusive city. One that takes advantage of the recently created dynamic in the city, acknowledges local opportunities, and conciliates spatial design and planning strategies to achieve its objectives.

APP. 1.2 – Scientific Relevance and Transferability

Recently, particularly with the growing anti-Olympic spirit, which makes the population of candidate cities protest against it, much has been researched about the effects that hosting the Olympic Games have on the socio-spatial configuration of cities. However, most of the existing researches focus on analyzing previous editions, revealing the negative legacies, and proposing solutions on how to avoid them by acting in the pre-phase planning in future events. The post-Olympic period, when the legacy plan is supposed to be put in action, is still overlooked by research even though there are many cases of failed Olympic legacies. By proposing strategies to reframe the failed legacy plan to the current needs of a post-Olympic city, this project aims at bridging this gap.

By using the case of Rio de Janeiro, a city that, like many others in the Global South, presents a high degree of socio-spatial segregation and distrust in the government by the population, this project focuses on finding strategies to mitigate the Olympics' effects on the socio-spatial configuration of cities and the relationship between the government and its citizens. It explores the possibility of a new urban planning strategy that recognizes the territorial reality in which is acting upon through the incorporation and enhancement of community initiatives in the redesign of existing spatial infrastructure in order to create social cohesion and restore trust in the government.

APP. 1.3 – Societal Relevance

The timespan for a city to prepare to host the Olympic Games is quite short regarding the number of changes made necessary. Adding to that, actors with a strong political and economic influence take advantage of the attention promoted by the mega-event and drive the direction of the urban transformation of the host city to attend its interests. This process usually entails in pressure on the social structure of a city, with a particular impact on the most vulnerable population, which is reneged from this new reality imposed on the city. During the preparation for the Games, many social conflicts are fought, and after the mega-event is over, the same population who fought these fights is left with a reality that is, in the majority of times, worse than the one before the Games. By addressing the post-event period, this project aims at creating awareness for this issue and seeks to find solutions to revert this negative social legacy once the Games are over.

In the case of Rio de Janeiro, this research shows to be of extreme importance due to the contradictory results that this recent exclusionary process brought to the city and its inhabitants. By creating an Olympic City, this process also opened up space for new forms of dispute for the city, where new actors emerged. The current moment that city is facing is an unprecedented opportunity for the appropriation of decisions on urban planning by the popular sectors of society. It is based on this new opportunity that this project proposes an alternative planning reality that incorporates the reality of the most vulnerable population in order to create a more egalitarian city project, stimulating symmetric relations between different social groups.

APP. 1.4 – Ethical issues and Dilemmas

Native from Rio de Janeiro, I might be biased and have a preconception vision of the city configuration and its public administration. Moreover, the availability of information on the case is mostly produced by researchers who are inhabitants of the city, therefore possibly also biased. This preconception about the city, which derives from personal experience and information gathered about the case, may have strongly affected this research.

However, the realities faced during this research, especially during fieldwork, are far from my reality. Therefore, my intention was to understand the local conditions and aspirations in order to break my preconceptions about the city and its inhabitants and put forward solutions free from preconceived ideas that fulfill the needs of the population.

Furthermore, by trying to define and illustrate a new process for an alternative planning strategy, it may look like this project is simply a static strategy with a rigid solution to specific areas. This is not the intention of this research. Instead, it aims to take advantage of the recently opened social discussion triggered by the Olympic Games to empower civil society, especially the most vulnerable population. Therefore, making civil society to have a voice within urban planning and also thrive from governance decisions. By showing the translation of this process into space, this research shows one possible outcome of many that could happen.

The presented outcomes are also related to the framing of the Olympic legacy within this research. The actual legacy is far greater than the ones discussed here. This research does not provide a full understanding of all the effects of the Olympic plan to the city of Rio de Janeiro and should not be considered a full picture of its legacy. This again reinforces the fact that this project is not a final solution, but rather an exploratory research on processes.

APP. 1.5 – Methodology and Limitations

The initial methodology of this project aimed at using social participation as a way to achieve inclusiveness in urban planning; however, limitations during fieldwork, such as lack of enough connections to the local community and site users, made this approach unsuitable to this research. Therefore, an adaptation on the way social participation could be incorporated into this research had to be made, which led to a change in strategy for the final proposal. Instead of using social participation as a steering component of the proposal, this research incorporates it by taking into consideration the input of the available local community members and site users as catalyst strategies that could be put in place. For a thorough development of inclusiveness through social participation, a more significant population sample should be taken into consideration.

This limitation also affected the outcomes proposed in this research. Initially, the outcomes were divided into different scales: global, national, city, and local. While the global, city, and local context are addressed in different degrees, the national scale, which should have been addressed by the creation of a framework on how to include participative processes in city plans, was affected by the required adaptations described in the last paragraph.

The relations between the theoretical and analytical frameworks and the results of the fieldwork were of great importance for the development of this thesis. The literature review on the legacy concept and historical evolution of the city of Rio de Janeiro and the Olympic Games provide an understanding of the global context

and the case. Parameters found in the theoretical framework and observations from fieldwork created the base for developing a consistent analytical framework, which was essential to support the selection of sites and developing principles and strategies.

The analytical framework of this thesis proposes three levels to explore the effects of the Olympic Games in a city. Complementing these layers, it also proposes a timeframe for a comparison between a pre- and post-Olympic city in order to understand the magnitude of the processes and operations. When looking at infrastructure and physical environment, the comparison is easily identifiable as both relate more to the spatial changes. However, when looking at identity, it gets more complicated as sometimes information about the conditions of cultural appropriation in a pre-Olympic phase is not available.

Furthermore, the latest available statistical data about Rio's socio-demographic reality dates from 2010, as the demographic census operation is performed only once every ten years. Therefore, the reality in which this thesis builds upon is incomplete as it comprehends only the pre-Olympic phase. A revaluation of the socio-demographic reality should be performed once the data from the 2020 demographic census becomes available in order to test if the assumptions from this research about the impacts of the Olympics in the social realm are, in fact, accurate.

APPENDIX 2 Fieldwork compilation

Duration of the field trip: 30th of January - 13th of February 2020
Location: Rio de Janeiro (city)

This appendix is a brief compilation of the work carried out during the fieldwork. During the field trip, site visits for observation of its users, informal interviews with key people from the local population and institutions, and an in-loco and online questionnaire with site users were carried out.

- fieldwork map with places visited
- collection of site pictures
- results from the questionnaire

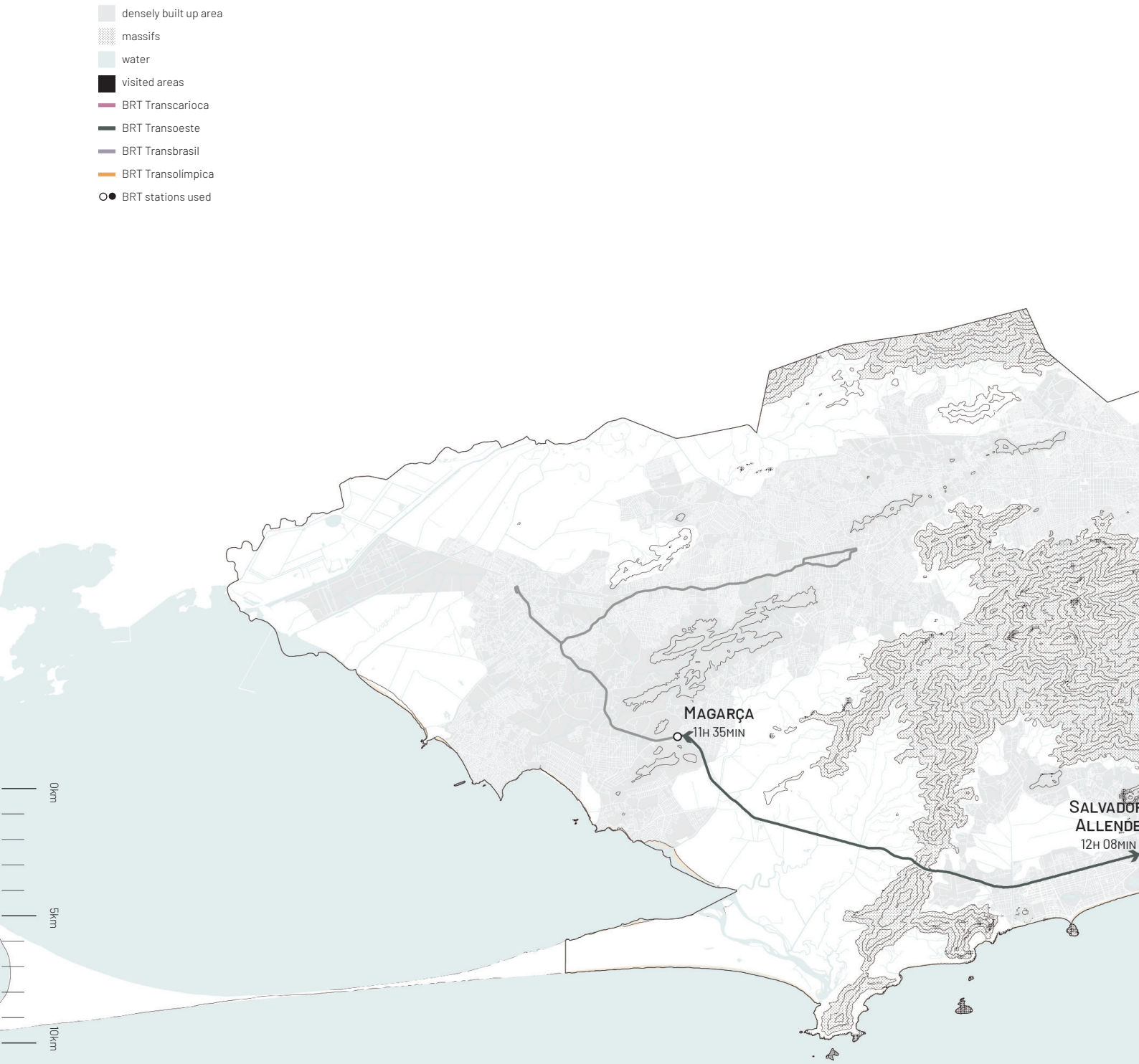
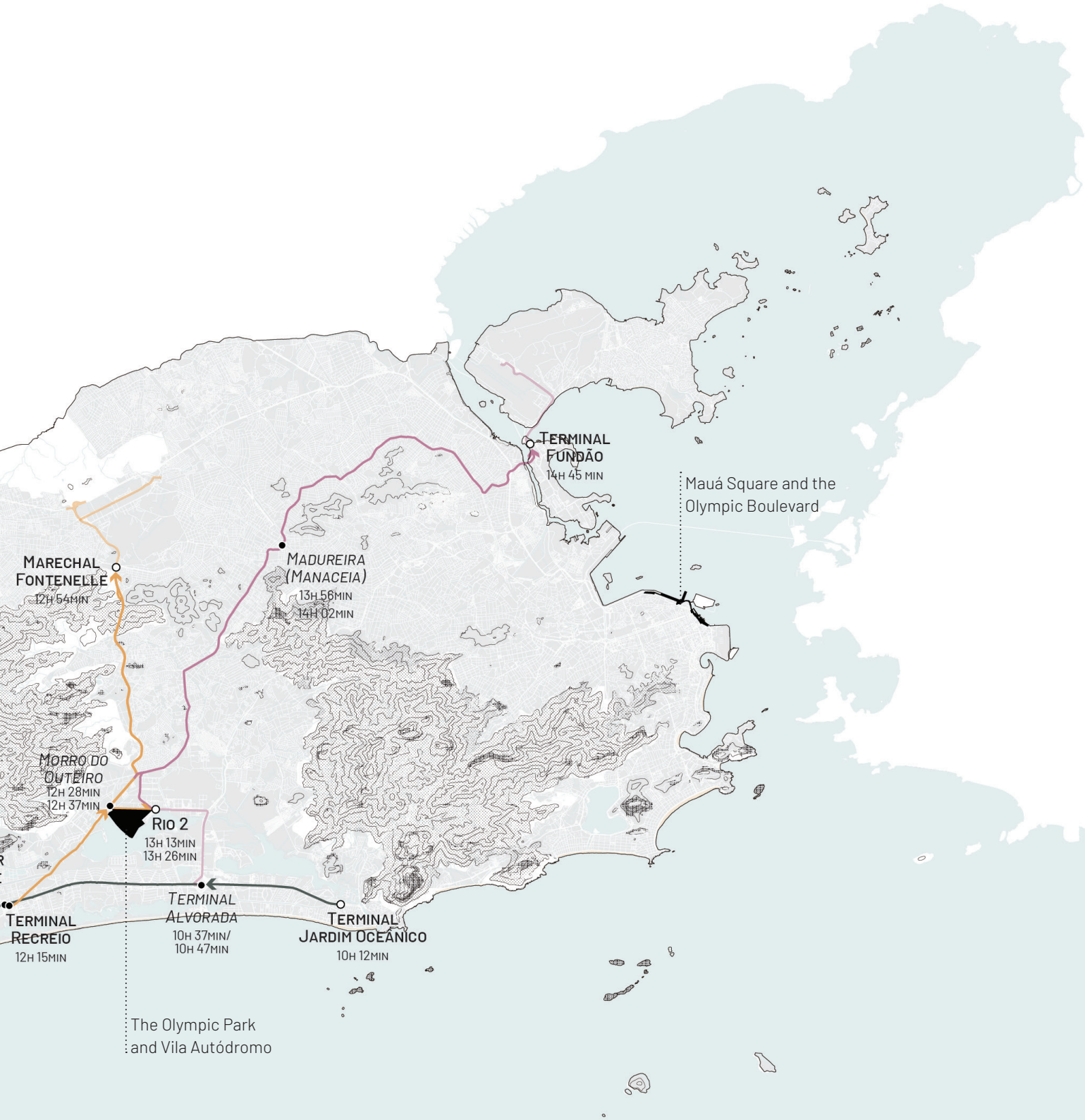


FIG. 9.1 Fieldwork visits
Source: author, based on DataRio, Geofabriek, INEA


TERMINAL FUNDÃO
14H 45 MIN
Mauá Square and the Olympic Boulevard
MARECHAL FONTENELLE
12H 54MIN
MADUREIRA (MANACEIA)
13H 56MIN
14H 02MIN
MORRO DO OUTEIRO
12H 28MIN
12H 37MIN
RIO 2
13H 13MIN
13H 26MIN
TERMINAL ALVORADA
10H 37MIN/
10H 47MIN
TERMINAL RECREIO
12H 15MIN
TERMINAL JARDIM OCEÂNICO
10H 12MIN
The Olympic Park and Vila Autódromo

View of the Vila Autódromo, neighbor community of the Olympic Park

Vila Autódromo's church view from the street: the only building from the original community

View of the medium/high income gated community from the entrance of the Olympic Park

The Jacarepaguá lagoon viewed from the Park, one of the few public accesses

Users in the Olympic Park during the weekend for a sport event

Users of the public tennis courts in the Olympic Park during the weekend

Closed kid's playground in the Olympic Park

Remnants of the dismantling of one of the arenas

The Transolimpica BRT line. Direction: Deodoro

The Transolimpica BRT line. Direction: Barra da Tijuca

BRT express road cutting the consolidaded urban fabric

Opening in the division wall between the BRT express road and the residences

Lack of infrastructure to the regular buses that connects to the BRT

Existence of informal activity inside the BRT stations

View from the Praça Mauá square: the main entry for the Olympic Boulevard

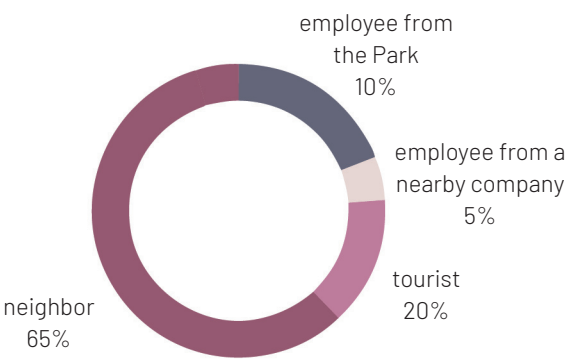
The Olympic Boulevard

Use of the (polluted) Guanabara Bay for recreation at the Mauá Square

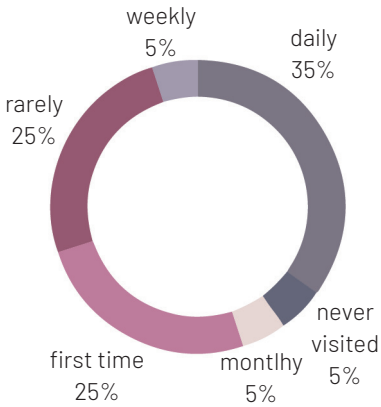
Results from the questionnaire about the Olympic Park with the local community

Sample:
- online with neighbours: 6
- in-loco with users: 14

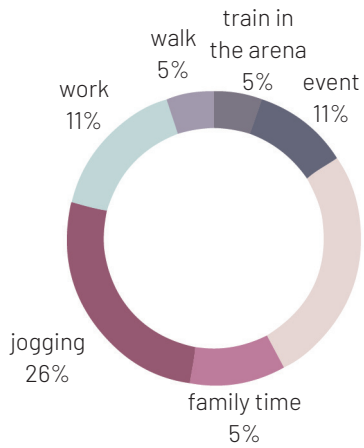
Relation to the Park:



Frequency of visits to the Park:



Main reason for visiting the Park:



Main used transport:

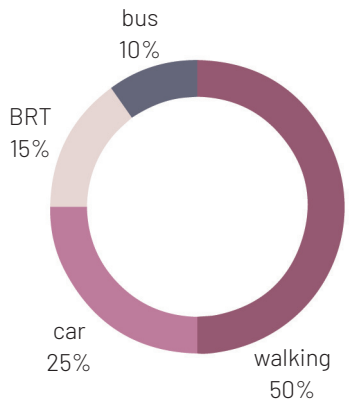
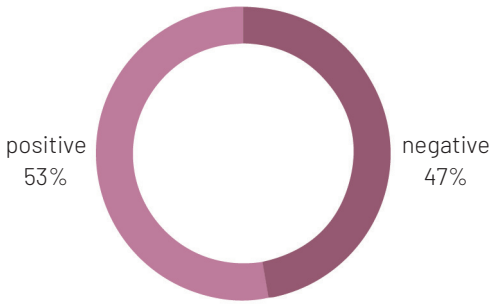
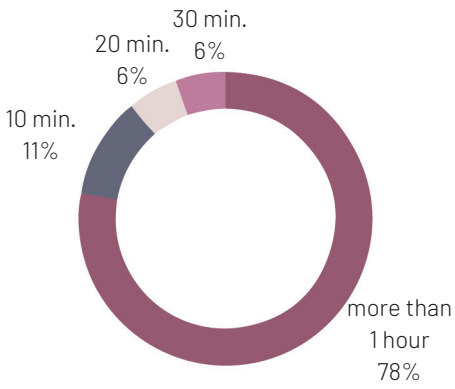


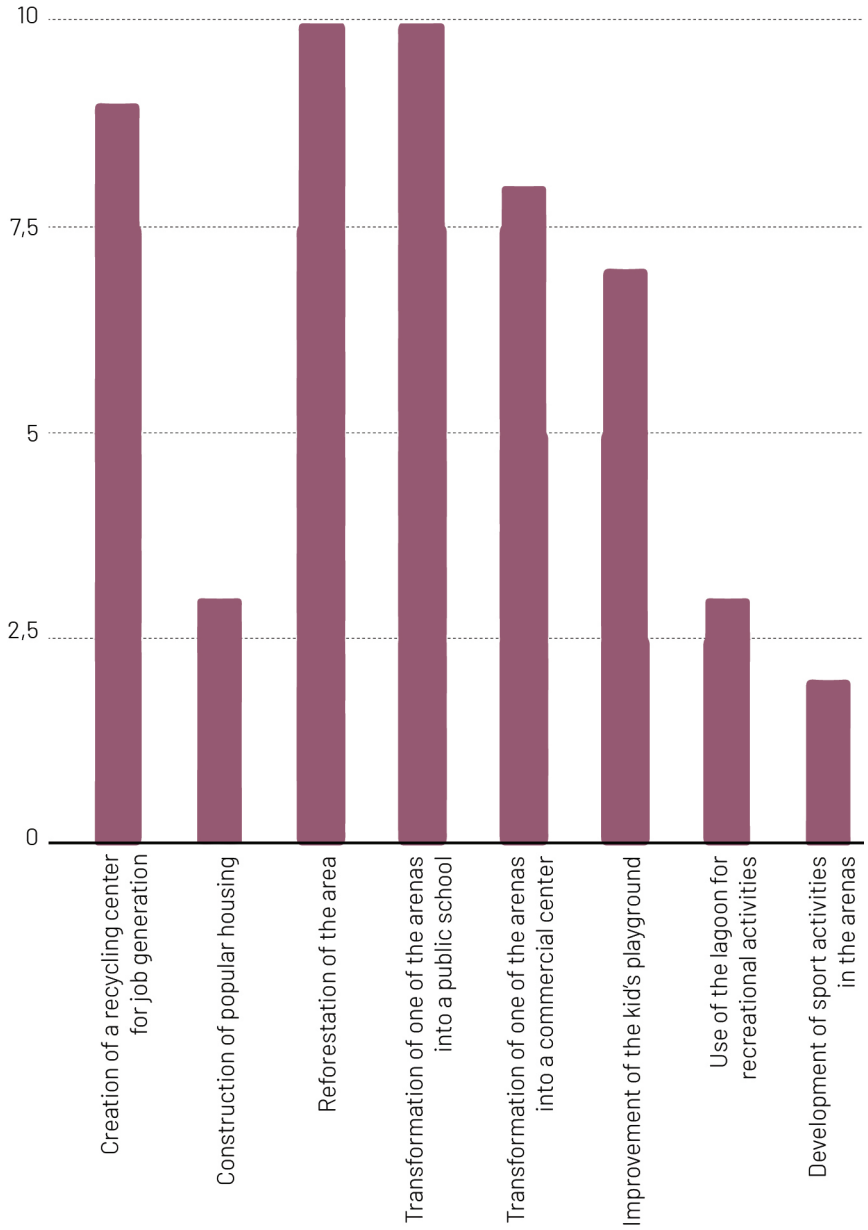
Image evaluation of the Park:



Average time spent in the Park:



As mentioned in the reflection, some limitations were encountered during fieldwork, which resulted in a low number of samples for the questionnaire. However, the results were still valuable information to inform the creation of the strategies and to the following implementation into the cases.



APPENDIX 3 Olympic projects

With the purpose of selecting possible study areas, the following procedure was adopted. First, a list of all the interventions produced by a research group based at the Department of Architecture and Urbanism of the Pontifical Catholic University of Rio de Janeiro (PUC-Rio)[1] was crossed with the Olympic plans present in official documents in order to produce a final list of interventions.

[1] Retrieved from: http://rionow.org/lista.html

Subsequently, the interventions were classified into four different categories: scale (point, area, line), type (new development, renovation, temporary, expansion), status (complete, ongoing, canceled, interrupted), and Olympic association (direct connection, boosted). With a final list, the selection of the interventions to be mapped was carried out by process of elimination: first, all the temporary and unknown types were removed, then all with a canceled status and then all the point scales, except for the ones with a direct connection to the Olympics.

The selected interventions were then mapped according to the category named scale, where point is related to punctual interventions such as the construction or renovation of a building, area is related to interventions that happened in a larger scale such as developments of portions of the city, and line is related to interventions that cross/connect parts of the city, such as transportation infrastructure.

By overlaying these three layers with the layer of social housing present in the map of the removals (p. 68-69), it is evident that, although the Olympic plan highlighted four clusters, two of them received the majority of the investments: Barra da Tijuca and the port zone. It also becomes clear how the Olympic planning of the city only contributed to the further strengthening of the center-periphery dichotomy, as most of the investments were located in the Eastern portion of the city while the Western portion only received the evicted population, without any further improvements of its urban environment.

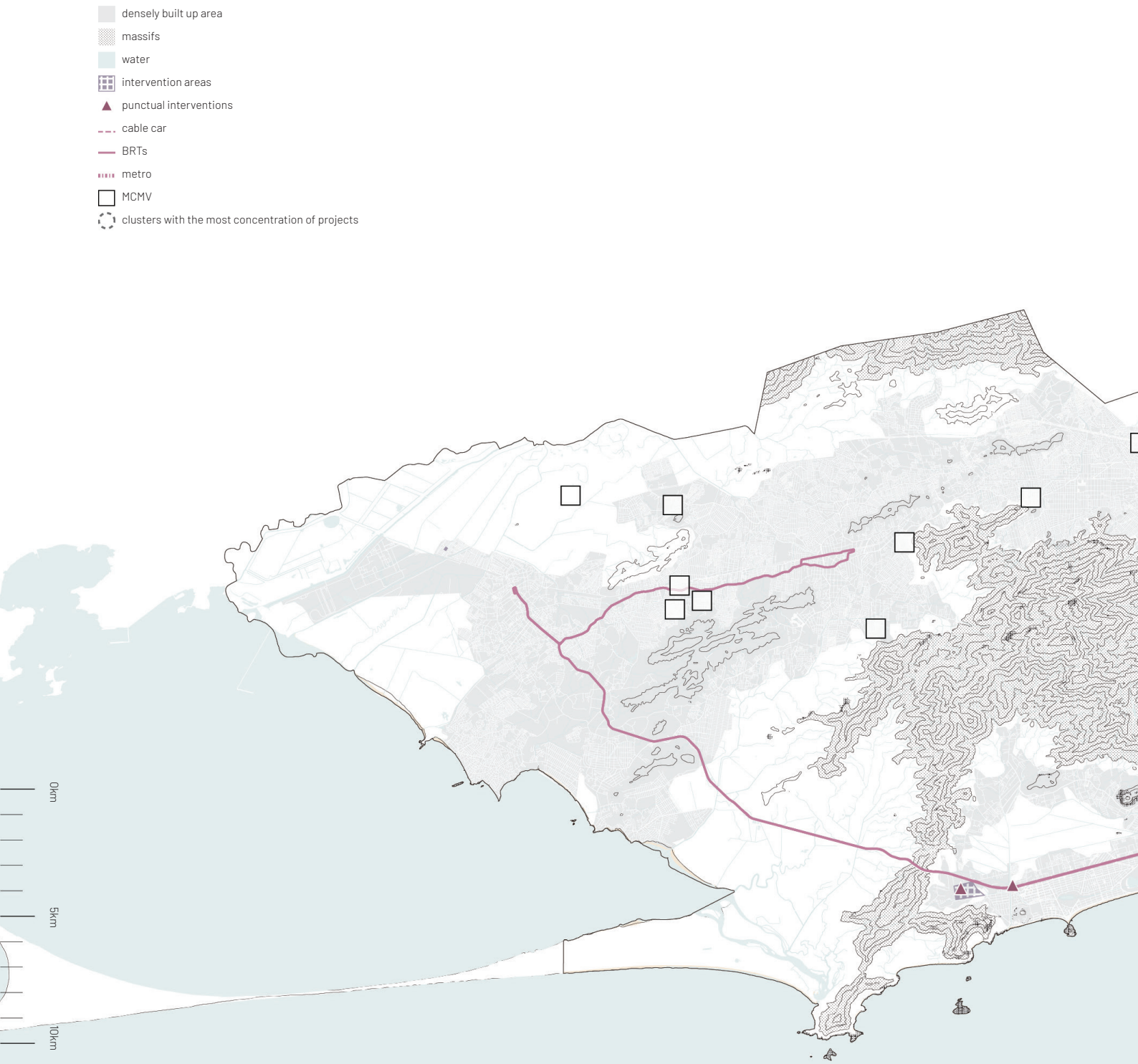
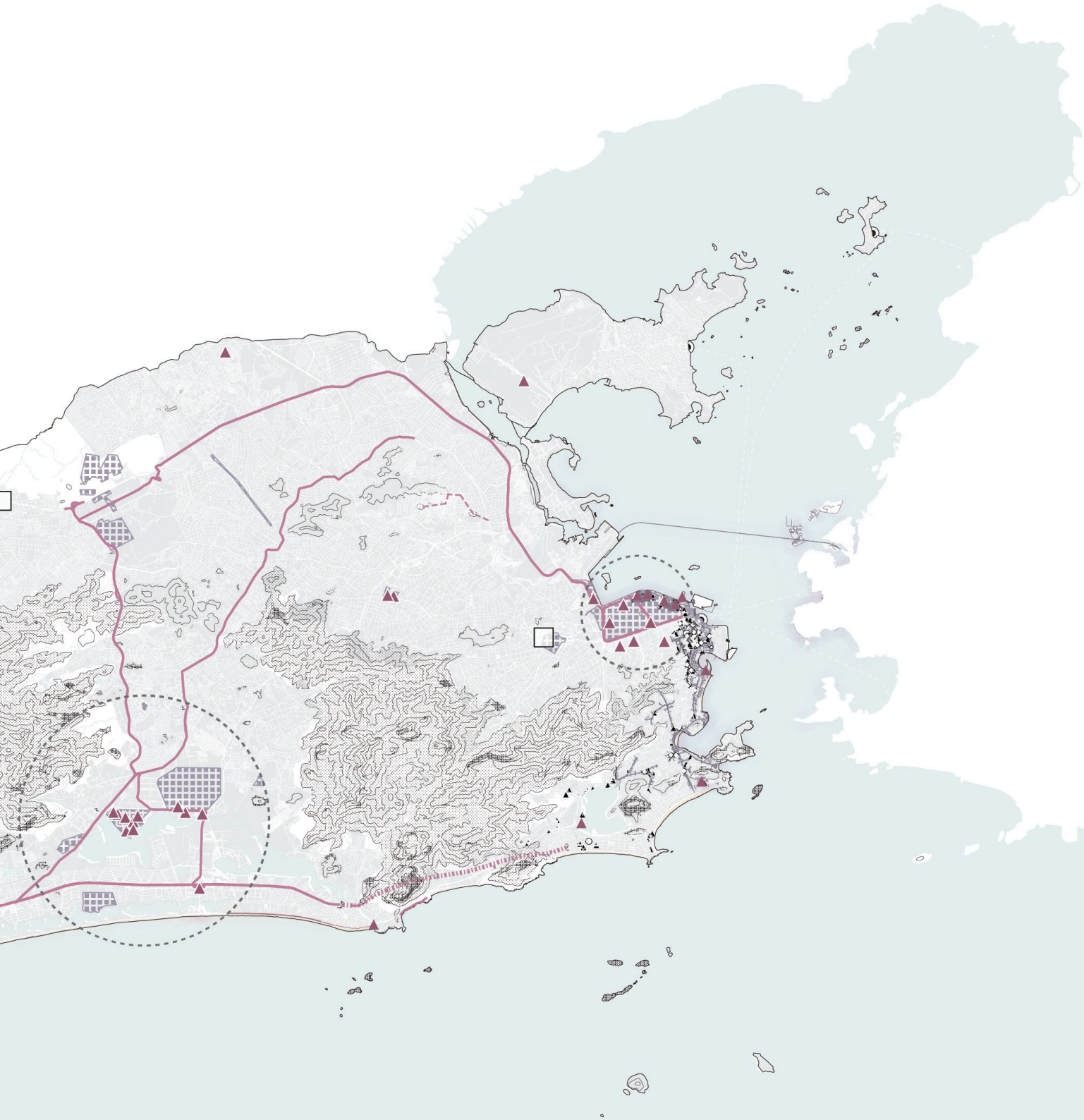


FIG. 9.2 Overlay of Interventions classified as point, area and line, showing the concentration of Olympic investments in the Eastern portion of the city and concentration of social housing projects in the Western portion where the population was dislocated to.

Source: author, based on DataRio, Geofabriek, INEA



PROJECT	LOCATION	SCALE	TYPE	STATUS	OLYMPIC ASSOCIATION
Casa Firjan da Industrial Criativa	South Zone	Point	New Development	Complete	?
Centro Internacional de Transmissão	West Zone	Point	New Development	Complete	Direct connection
Centro Metropolitano da Barra	West Zone	Area	New Development	In development	Boosted
Terminal Alvorada	West Zone	Point	Expansion	Complete	Direct connection
MIS/Museu da Imagem e do Som	South Zone	Point	New Development	Interrupted	?
Centro Olímpico de Tênis	West Zone	Point	New Development	Complete	Direct connection
Parque Olímpico da Barra da Tijuca	West Zone	Area	New Development	Complete	Direct connection
Anexo Biblioteca Nacional	City Center	Point	New Development	Cancelled	?
Museu do Trem	North Zone	Point	Renovation	Complete	Direct connection
Lumina Rio	City Center	Point	New Development	Cancelled	Boosted
Arena Carioca Dicró	North Zone	Point	New Development	Complete	?
Estádio Aquático	West Zone	Point	New Development	Complete	Direct connection
Port Corporate Tower	City Center	Point	New Development	Complete	Boosted
Frames Residence (Vila de Mídia)	West Zone	Point	New Development	Complete	Boosted
Pavilhão Olímpico	City Center	Point	Temporary	Complete	Direct connection
Orla Rio	South Zone	Line	Renovation	Complete	?
Pavilhão Humanidade 2012	South Zone	Point	Temporary	Complete	?
Trump Towers	City Center	Point	New Development	Cancelled	Boosted
Hotel Glória	South Zone	Point	Renovation	Cancelled	-
Moinho Fluminense	City Center	Point	Renovation	?	Boosted
Galeria 1500 Babilônia	South Zone	Point	New Development	Complete	?
Banco Central	City Center	Point	New Development	Interrupted	?
Pier em Y	City Center	Line	New Development	Cancelled	-
Imperator - Centro Cultural João Nogueira	North Zone	Point	Renovation	Complete	?
Pontal Oceânico	West Zone	Area	New Development	In development	Boosted
Casa Daros (Projeto de Intervenção e Reutilização)	South Zone	Point	Renovation	Complete	?
Complexo Hotel Paineiras	South Zone	Point	Renovation	Complete	?
Teleférico da Rocinha	South Zone	Point	New Development	Cancelled	Boosted
Núcleo Habitacional Ulisses Viana	West Zone	Area	New Development	Complete	Boosted
Residencial Casa Atlântica	South Zone	Point	New Development	Cancelled	?
Ilha Pura (Vila dos Atletas)	West Zone	Area	New Development	Complete	Direct connection
Into/Instituto Nacional de Traumologia e Ortopedia	City Center	Point	Renovation	Complete	?
Porto Maravilha Corporate	City Center	Point	New Development	Cancelled	Boosted
Museu do Amanhã	City Center	Point	New Development	Complete	Boosted
Centro Cultural Bela Maré	North Zone	Point	Renovation	Complete	?
Cais do Valongo	City Center	Area	Renovation	Complete	Boosted
Urbanização da Colônia Juliano Moreira	West Zone	Area	Renovation	Cancelled	Boosted
Praça do Trem	North Zone	Area	Renovation	Complete	Direct connection
Passarela da Rocinha	South Zone	Line	Renovation	Complete	Direct connection
RB 12	City Center	Point	Renovation	Complete	Boosted
Porto Atlântico	City Center	Point	New Development	Complete	Boosted
Centro de Operações da Prefeitura	City Center	Point	New Development	Complete	Direct connection
Hotel Atrium Porto Maravilha	City Center	Point	New Development	Cancelled	Boosted
Centro Principal de Mídia	West Zone	Point	New Development	Complete	Direct connection
Casa do Jongo	North Zone	Point	Renovation?	Complete	?
Vila Carioca (Vila dos Árbitros e da Media)	North Zone	Area	New Development	Complete	Direct connection
Leblon Offices	South Zone	Point	New Development	Complete	?
Museu do Meio Ambiente	South Zone	Point	Renovation	Complete	?
Jockey Boulevard	South Zone	Point	New Development	Cancelled	Boosted
Teleférico do Complexo do Alemão	North Zone	Line	New Development	Complete	Direct connection

REC Sapucaí	City Center	Point	New Development	Complete	Direct connection
Hotel Novotel (Parque Olímpico da Barra)	West Zone	Point	New Development	Complete	Boosted
Parque Madureira	North Zone	Area	New Development	Complete	Boosted
Revitalização da Marina da Glória	South Zone	Point	Renovation	Complete	Direct connection
Bola pra Frente	North Zone	Area	New Development	Complete	Direct connection
Morar Carioca		Area	Renovation	Cancelled	Boosted
Sede do Campo Olímpico de Golfe	West Zone	Area	New Development	Complete	Direct connection
MAR/Museu de Arte do Rio	City Center	Point	New Development	Complete	Boosted
Arena da Pavuna (Arena Carioca Jovelina Pérola Negra)	North Zone	Point	New Development	Complete	Boosted
Mares de Goa Recreio Residence (Hospitality Center da Midia)	West Zone	Point	New Development	Complete	Direct Connection
Maracanã	North Zone	Area	Renovation	Complete	Direct connection
Museu Olímpico	North Zone	Point	Renovation	Complete	Direct connection
Arenas Cariocas	West Zone	Point	New Development	Complete	Direct connection
Anexo Edifício Sede do BNDES	City Center	Point	New Development	Cancelled	?
Centro Empresarial Senado	City Center	Point	New Development	Complete	Boosted
Gasômetro	City Center	Area	Renovation	Cancelled	Boosted
Estação Central do Brasil	City Center	Point	Renovation	Complete	Direct connection
Centro Empresarial Cidade Nova	City Center	Point	Renovation	Complete	Boosted
Dimension Office & Park	West Zone	Point	New Development	Complete	Boosted
Hotel Hilton	West Zone	Point	New Development	Complete	Boosted
Morar Carioca Verde	South Zone	Point	New Development	Complete	Boosted
Arena do Futuro	West Zone	Point	New Development	Complete	Direct connection
Hotel Ibis Barra	West Zone	Point	New Development	Complete	Boosted
Estádio de Remo da Lagoa (reforma)	South Zone	Point	Renovation	Complete	Direct connection
AquaRio	City Center	Point	New Development	Complete	Boosted
Porto Vila Residencial	City Center	Point	New Development	Interrupted	Boosted
Complexo Esportivo de Deodoro	West Zone	Area	New Development	Complete	Direct connection
Fábrica de Escolas	North Zone/West Zone	Point	New Development	In development	?
Orla Conde	City Center	Area	Renovation	Complete	Direct connection
Pier em E	City Center	Point	New Development	Cancelled	-
MIS Pro	City Center	Point	Renovation	?	?
Torre Carioca	City Center	Point	New Development	Cancelled	-
Anexo Casa de Rui Barbosa	South Zone	Point	New Development	?	?
Complexo Rubem Braga	South Zone	Point	New Development	Complete	?
Estações BRT	North Zone/West Zone	Point	New Development	In development	Direct connection
PAC Manguinhos	Manguinhos	Area	Renovation	?	Direct connection
Ponte Estaiada Metrô Barra da Tijuca	West Zone	Line	New Development	Complete	Direct connection
Hotel Praia Formosa Holiday Inn	City Center	Point	New Development	Cancelled	-
Naves do Conhecimento	North Zone/West Zone	Point	New Development	Complete	?
Pátio da Marítima (Aqwa Corporate)	City Center	Point	New Development	Complete	Boosted
Edifício Diamante	South Zone	Point	New Development	Complete	?
Biblioteca Parque Estadual	City Center	Point	Renovation	Complete	?
BTS L'Oreal	City Center	Point	New Development	Complete	Boosted
Velódromo	West Zone	Point	New Development	Complete	Direct connection
Boulevard Cidade Nova	City Center	Area?	Renovation	Complete	?
Elevado do Joá	West Zone	Line	Expansion	Complete	Direct connection
Aeroporto Internacional	North Zone	Point	Expansion	Complete	Direct connection