



GIVING BACK STREETS TO PEOPLE
a case of urban regeneration in Lima

Pablo Andres Pajares Mori | European Postgraduate Masters in Urbanism



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COLOPHON

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ABSTRACT

Lima has experienced a rapid growth of its population and urban area, mainly characterized by the horizontal expansion towards the peripheries that produced a center-periphery pattern of urban development. Furthermore, Lima suffers from mobility problems due to a lack of priority from government entities with the public transport issue. The transport system is mainly based on an extensive informal public transport system by buses. Recently, the government started to implement mass public transport corridors in the city, such as the BRT system called *Metropolitano* in 2010, and the Metro Line 1 in 2011.

Besides it, as in many cities of the global south, Lima's historic center suffers from abandon and decay problems; the number of people living in the area declined significantly over the last decades. Added to the tourist potential of the area, there are great potentials in terms of location and accessibility that should be explored.

This work aims to take advantage of such potentials to cope with the urban problems identified in a specific area between the historic and modern center, using as catalyst the implementation of Metro Line 2, currently under construction. It is proposed an urban project based on strategies that include the development of an appropriated vehicular plan, enhancement of public spaces, and a greater diversity and density of uses that ensure an active urban life and greater safety in the area.

“Not too long ago, it looked like our cities were dying, but in fact they boldly threw themselves into the information age, adapting and evolving to become the gateways to a globalised and interconnected world. Now more than ever, the well-being of human society depends upon our knowledge of how the city lives and breathes.”

Glaser, Edward (2011)
Triumph of the city.

INTRODUCTION

Current government policies are car-oriented and sculpt a hostile city to the majority of its inhabitants that commute by public transport and/ or walking. In the absence of a general plan for Lima and the focus of the authorities in vehicular infrastructures works, scattered and isolated, the “city planners” end up being the private interests that are incapable of making a fair city for all. What is the city that is resulting from this type of planning?

Lima has made over the last ten years large investments in transport infrastructures, such as the numerous vehicular by-passes and especially the construction of the second metro line of the city. Projects of this magnitude can generate a great positive impact if they are part of general strategies with the aim to benefit the city in a short and a long term. How can we make Lima a kinder city with all its inhabitants and not only with the minority that own cars?

The conurbation Lima-Callao is an unified metropolitan area that concentrates one-third of the country’s population and half of the national economy. The presence of an important financial center in Lima, and of important transit ports in Callao, enhance the importance and the character of Lima as a regional node. Besides, the Historic Center of Lima was declared World Heritage Site by UNESCO, that alongside with the city’s monuments and museums, make of Lima the second touristic destination in the country.

However, like many historical centers of cities in Latin America, Lima’s historic center suffers from problems of densification, unbalance of uses, insecurity, traffic congestion chaos and difficult to preserve its monumental value.

The present work is centered around this context, and approach these problematics in order to create spatial strategies and apply them in case study. The chosen case study is a strategically located area, in between the historic and modern center. It is proposed to revitalize using as catalyst the Metro Line 2, currently under construction, and one of its most important station that will be integrated will be integrated with the BRT Metropolitano.

Lima is the capital and the largest city in Peru, located in the central coastal part of the country with the Pacific Ocean on the west and the Andes Mountains on the east. Alongside with the Constitutional Province of Callao, it forms a contiguous urban area known as Metropolitan Lima that counts with almost 10 million inhabitants, around 30 percent of the country's population (INEI).

Peru is politically divided into departments, provinces, and districts. There are 24 departments and one constitutional province, represented by Callao with 6 districts. The Department of Lima is divided into ten provinces, and the Province of Lima is subdivided into 43 districts.

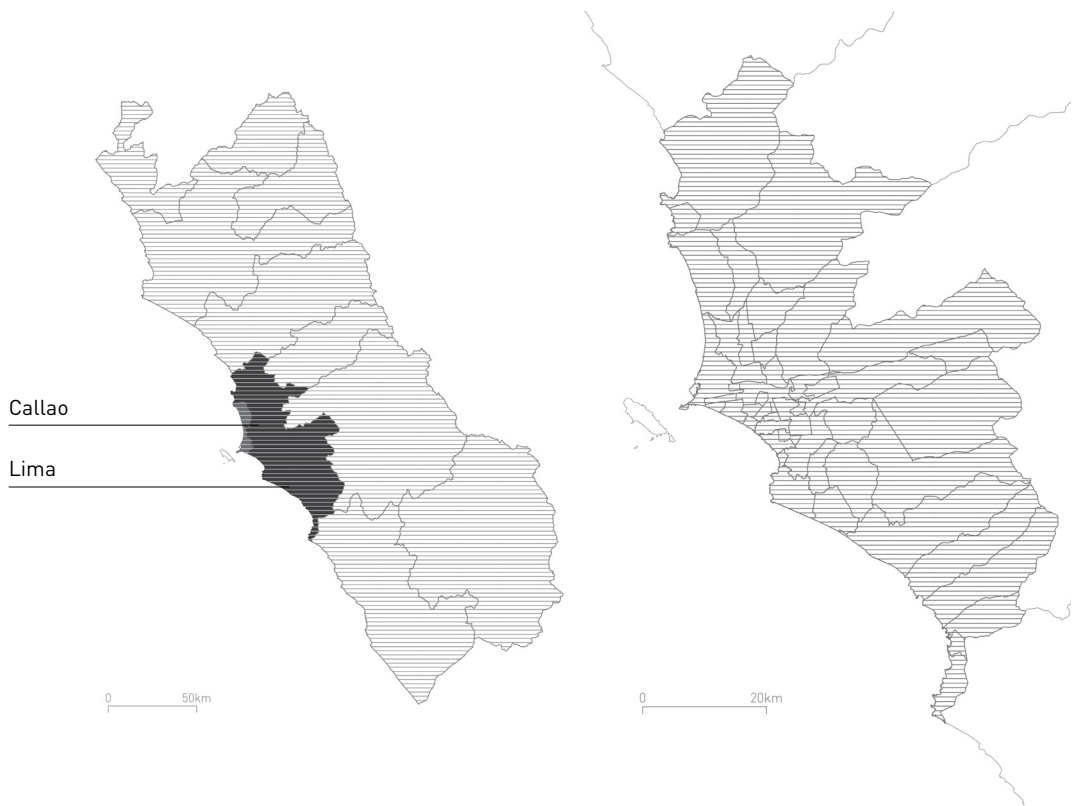
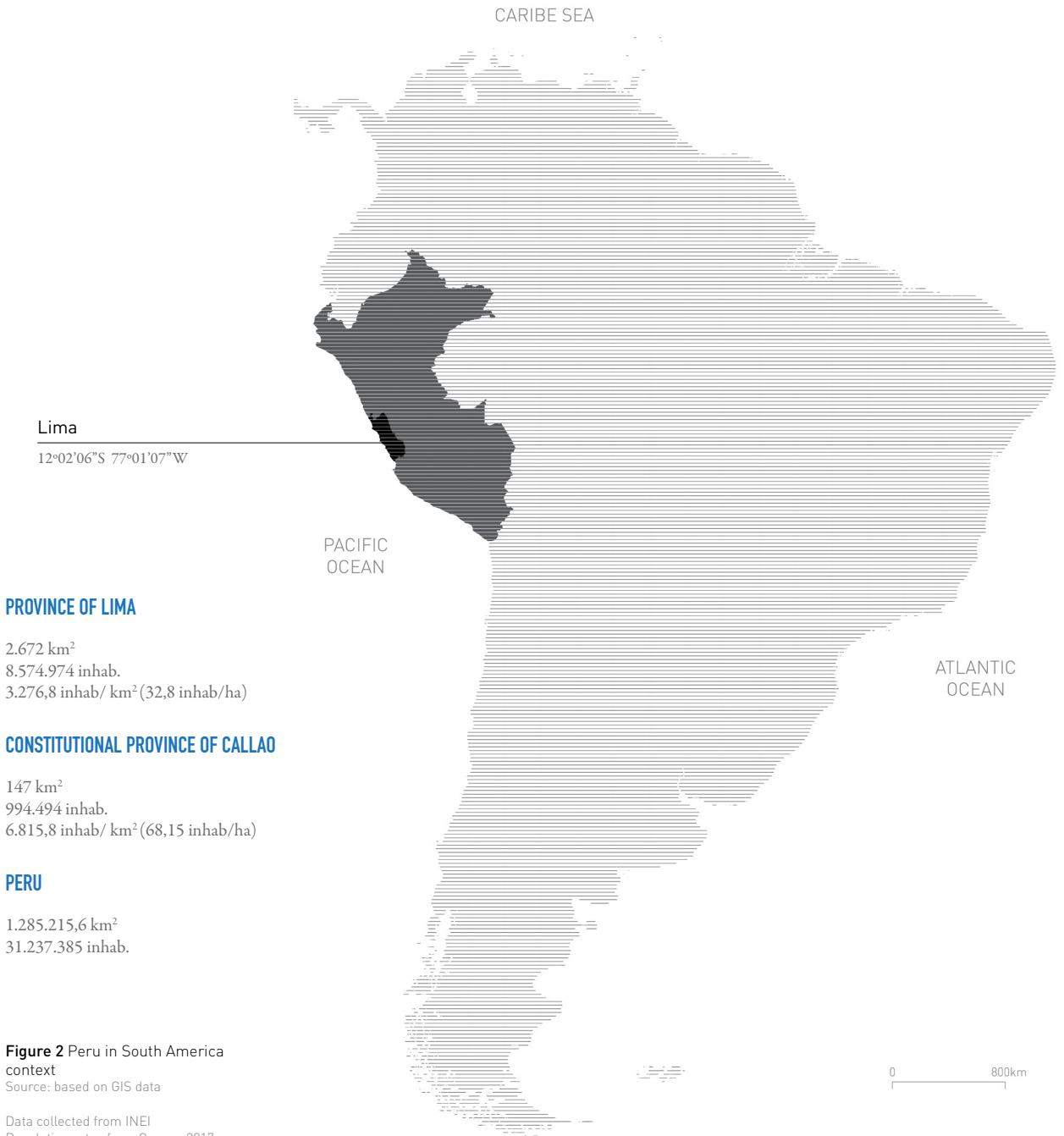


Figure 1 Department of Lima and Metropolitan Lima's districts
source: based on GIS data



CARIBE SEA

Lima

12°02'06"S 77°01'07"W

PACIFIC OCEAN

ATLANTIC OCEAN

PROVINCE OF LIMA

2,672 km²
 8.574.974 inhab.
 3.276,8 inhab/ km² (32,8 inhab/ha)

CONSTITUTIONAL PROVINCE OF CALLAO

147 km²
 994.494 inhab.
 6.815,8 inhab/ km² (68,15 inhab/ha)

PERU

1.285.215,6 km²
 31.237.385 inhab.

Figure 2 Peru in South America context

Source: based on GIS data

Data collected from INEI
 Population rates from Census 2017

0 800km

METHODOLOGY

The starting point of this work is the construction of the metro Central Station on a strategic location of the city. The aim is to explore how the expansion of the mass public transport system and the implementation of one of its main station may impact on the urban regeneration of an area that has been suffering of urban problems over decades. The objectives are related to the implementation of combined projects that optimize the adjacent urban environment by promoting densification and optimization of land use.

Considering that a transport station is a centrality in itself, this work will assess the following hypothesis: (i) the exploration of the centrality potential can promote diversification of land use and densification; and (ii) densification in central areas can influence the creation of vital urban spaces and so, boost urbanity and revitalize it. These hypotheses will be tested through spatial strategies applied to a design proposal.

Therefore, the main research question is:

How to take advantage of the strategic character of a major metro station and explore its centrality function to induce the urban regeneration of its surrounding area?

The following subquestions are defined to guide the work and help the answer to the main question.

Which existing urban elements can improve the development potentials in the area?

What tools and strategies can be applied in the case study area?

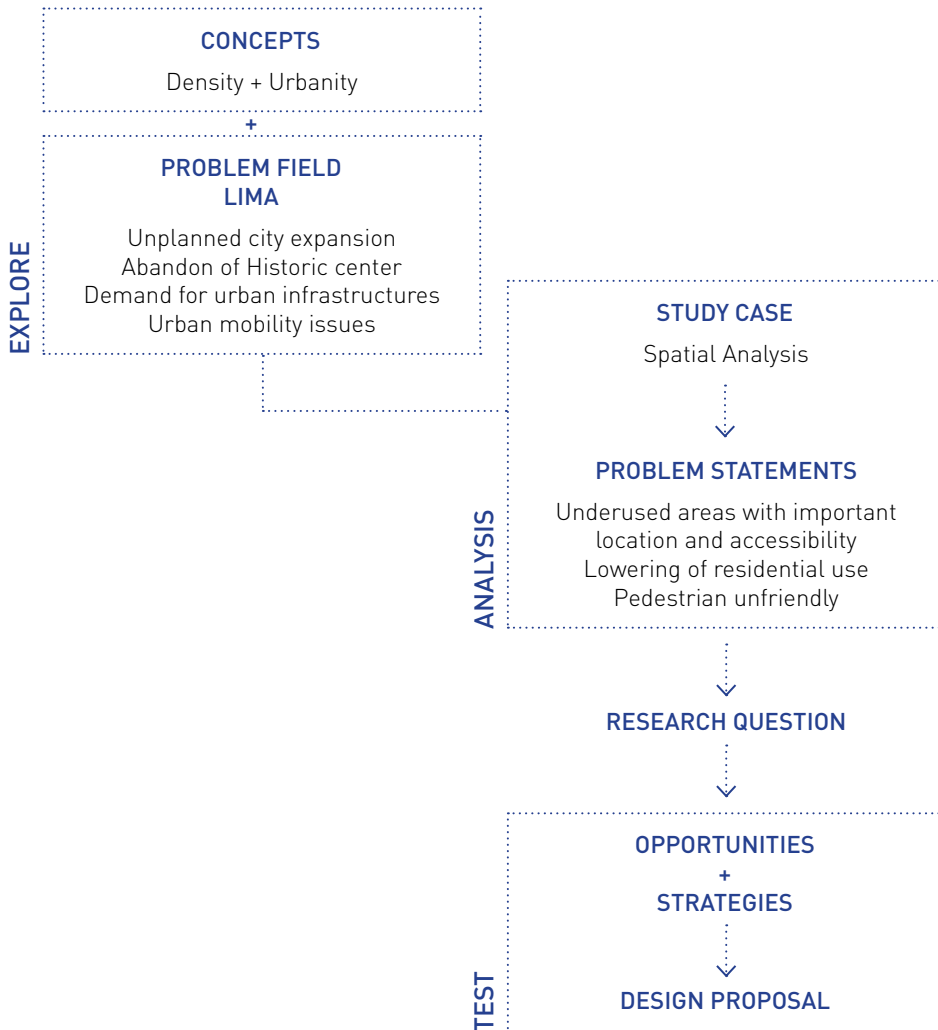
The methodology is structured into four parts: conceptual, contextual, analytical, and proposal. The first two parts are more exploratory; the first is dedicated to the literature review around the topic of urban densification, in order to understand the inherent concepts related to urban density and the ways of measuring it. The second part introduces the city of Lima through an overview of its current context, which will introduce the problem field of this work. The idea is to approach the history of a problematic and understand the current conflicts, building a discussion around them to search for possible alternatives.

Further, it is presented the case study and a spatial analysis is done by mapping realities through analytical drawings crossing spatial data through geographic information system (GIS), satellite photos, and urban statistics. The main data sources are based on available data of Census 2017 conceived by the National Institute of Statistics and Informatics (INEI).

From the analysis, the problem definition is derived and it is done some research questions. It is identified opportunities and a vision for the case study is built, which will lead to a design proposal. This last part aims to test through design how this vision can be achieved with the

proposition of strategies and a set of actions to be carried out, combined with the principles previously discussed.

Lastly, a reflection is done on the finding to what extent the proposal is tangible, and on the role of planning to execute the proposed strategies as well as on what should be the role of the stakeholders involved in this equation.



PART I CONCEPTS

In order to address a strategically area of Lima with important conditions of location and accessibility, the first part of this work introduces some key concepts around urban density and its relations with urban form and urbanity in the contemporary city.

The discussion around the topic of density is usually bounded to issues like the urban sprawl, obsolescence of central areas, urban mobility and urbanization processes. The aim is to define parameters related to density and creation of vital urban spaces, through criteria that influence urbanity in the urban space, associating density to morphological aspects, uses and spatial configurations that may enhance the urban qualities in it.

1 ABOUT URBAN DENSITY

1 ABOUT URBAN DENSITY

The concept of density is borrowed from physics in which the meaning is clear: mass divided by volume. However, the concept of density in urban planning and design has been thoroughly discussed and has greatly varied over time; even today the literature about the concept varies. In a very wide definition, urban density is commonly referred to the number of people inhabiting a given urbanized area. According to Berghauser Pont & Haupt (2009), in urbanism, density refers to the relationship between a given area and the number of certain entities in it, that could be people, dwellings, services or floor space.

Looking into history, during the second half of the nineteenth century, industrialized cities suffered from fires, diseases, and social problems; the great population and overcrowding of these cities, were argued to be the main cause of these issues. It was during this period that density was introduced as a tool to analyze and diagnose the quickly growing and often overcrowded cities. In a following period of increased state intervention, the concept expanded into an instrument able to give solutions, prescribing higher density solutions in order to guarantee certain qualities of urban environments. However, subsequently, minimum densities started to be encouraged in order to support amenities and public transport, and as part of a plan to achieve more sustainable urban environments [Berghauser Pont & Haupt 2009].

At the beginning of the twentieth century, after the Great War, Raymond Unwin, an English urbanist, claimed that nothing could be gained from overcrowding in cities, and so he proposed a standard density of 30 houses per hectare maximum, insisting on the idea that new developments should be peripheral satellites (Unwin 1909 cited in Berghauser Pont & Haupt 2009). Only 50 years later, Jane Jacobs argued that American cities built around cars and low densities would only result in places with less vitality and less participation of the population in city life. Jacobs reassessed the term urban density, which became a synonym for the urban. She suggested a minimum of 250 dwellings per hectare in order to create vibrant, urban and healthy cities (Jacobs 1961).

In contemporary studies on urban density, the term is usually followed by the topics of urbanity and urban form. Urbanity has been a central concept on urban discussions; it refers to the potential for people to interact with the city. Jane Jacobs (1961), one of the main defenders of this concept, argues that urbanity is dependent of the level of urban vitality, which refers to the presence of public life, and the mutual interaction of people and urban space. Characteristics such as mixture of uses, social diversity, building compactness, dense population and existence of quality public spaces are related to urban spaces more likely to have urban vitality (Gehl 2010; Jacobs 1961, Rogers 1997). Urbanity is based on urban density, and is often associated to diversity, identity and flexibility. About diversity, Jacobs refers to a diversity of both architectural and social aspects; diverse architectural typologies, types of public spaces and activities, and also diversity of people from different ethnic groups and social-economic backgrounds.

Density in itself does not necessarily produce urbanity but an appropriate dense concentration

of people using and living in a certain area is a conditioning factor for achieving urbanity. Certain densities are required to generate interactions that make certain urban functions and activities viable, which in turn contribute to the diversity of primary uses and activities, allowing a greater urban vitality, needed to achieve urbanity (Lozano 1990). However, it does not mean that there is no limit for density, that higher densities are always positive. On the contrary, high urban densities must be prudent in order to stimulate the concentration of activities and people in a given area, favoring a more vibrant urban life. A very high density can lead to a negative performance of urbanity; it can result on standardization, congestion and parking problems, lack of open spaces that are unattractive for urbanity (Jacobs, 1961; Lozano 1990).

Despite the advantage of using the concept of urban density in urban planning, the way it is used and/or measured generates conflicts as it is considered a too elastic concept (Berghauser Pont & Haupt 2009). One of the main points of discussion is the weak relation between density and urban form; the definition of the scale of measurement and the characteristics and boundaries this scale should include in order to be contrastable. It is important to highlight that there is not an unique accepted measurement of density shared by different countries, researchers and planners.

Indeed, there is a relation between building type and density, but this is not crucial. Usually higher densities are related to high-rise buildings, and lower densities are related to detached or semi-detached houses, but that is not always the case. As Lozano (1990) points out, the relationship between building type and density is not that relevant, once it is possible to obtain the same density with different building typologies, as it can be obtained different densities with the same typology.

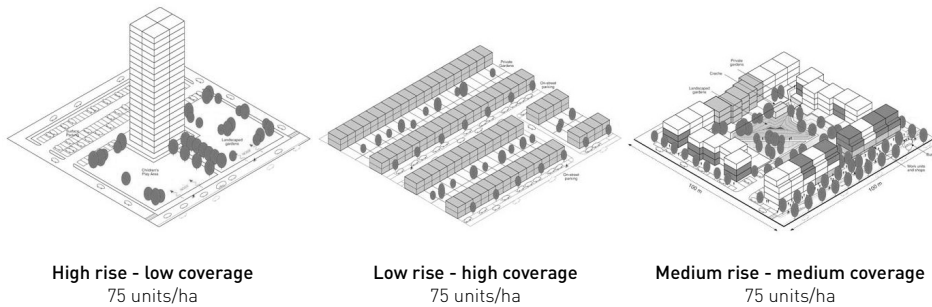


Figure 3 Different spatial organization for 75 dwellings per hectare on the same plot.
Source: Fernández Per & Mozas, 2004.

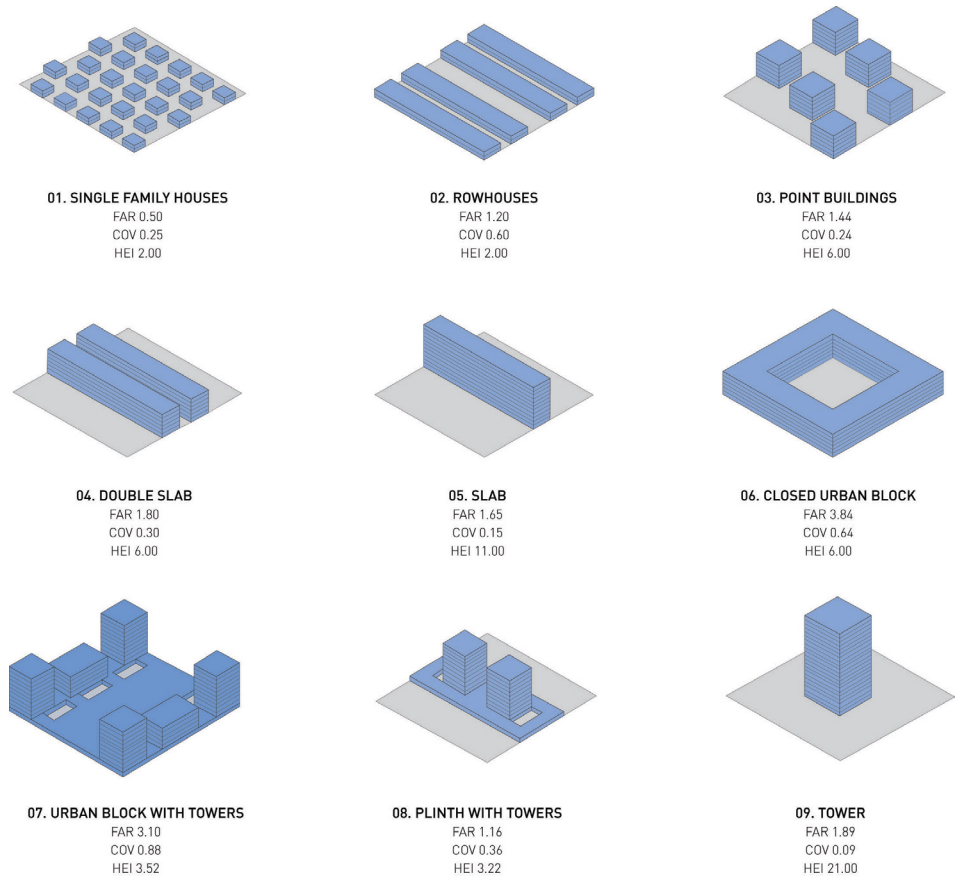
The figure above shows three different ways of relating public and private space; the three typologies achieve the same density but with different spatial organizations on a same block size. The third typology with medium rise buildings and medium coverage has potential to achieve higher levels of urbanity when compared to the others, once the urban form allows different levels of interaction with the public space, open block model that may be served with public equipments for the community, different building typologies, and thus more flexibility and identity for the block, allowing more diversity of uses and a building scale more related to the street level.

“The urban refuses to be defined by the quantitative criterion of density alone. For instance, high-rises may indicate a high construction and population density but they are not urban if they have no specifically designed public spaces, urban facades and mixed function.” (Sonne 2017: 40)

One example of this commonly misunderstood relation between density and building type is the Eixample district in Barcelona, which has a high density of 352 inhab./ha distributed in medium-rise buildings with an average of five floors. It is a city that follows a compact city model and it is known for its medium-rise buildings.^[1] When comparing Paris and Manhattan, both regions have similar high densities. Although, the first counts with 216 inhab./ha and it is mainly characterized by medium-rise buildings up to 12 floors, and the second one counts with 278 inhab./ha, and it is commonly known for its skyscrapers (Tanscheit, 2016).

[1] Data from 2015, collected from Ajuntament de Barcelona.

Figure 4 Examples of possibilities of stacking floor-area on a plot.
Source: A+T Research Group, 2015



For some, the density measurement could be defined by the number of people in a given area or population density, however, it could be argued how the measurement of people only working during the day or people who only stay at night in this given area is being well represented in this formula. Another way of defining density is by using the number of dwellings in an area, but the problem with this definition relies on how variable is the relation between the number of people living in different sizes of dwellings. Besides it, the total building mass per given area, also known as land use intensity, can be also defined as density. What is more, the distinguishing between net and gross density varies, according to the criteria used to define the area that density is based, which could be metropolitan areas, urban areas, agricultural areas, heavy industry zones, areas which include public spaces or only built areas etc.

The A+T Researcher Group (2015) defends that dwellings per hectare are no longer an indicator of density once a building may produce and exchange different uses, from residential uses to offices, or from commercial spaces to public equipments, what actually should be desirable. The researchers, following the work of Berghauser Pont & Haupt (2010), consider Floor Area Ratio (FAR) - the Gross Floor Area divided by the Total Area of the plot - as a measure of density, defending it is a more balanced indicator, and so more abstract and generic. Added to it, they also consider as indicators of density the Coverage (COV) - the relationship between the Covered Area on the plot and the Total Area of the plot - and the Height Index (HEI) - the relation between FAR and COV, obtained by dividing the Gross Floor Area by the Covered Area on the plot (Fernadéz Per, Mozas, Ollero & Deza 2015: 58).

Overall, it can be said that nowadays there are different ways of measuring density and there is not only one measurement method that could be established as the most relevant. It seems that the correct approach to use density as a tool for urban planning would be to use and compare different measurements to be able to deal with different characteristics of cities.

The concept of density becomes more valid nowadays when we take into account that the population living in urban areas represent 54% of world's total population. Furthermore, it is expected that by the year 2050, urban population will nearly double it. Facing this scenario of vertiginous growth of urban areas, density plays a central role on the search for a balanced and appropriate urban development in the cities. Affluent lifestyles and profligate use of land, both in developed and developing countries, result on a disproportionate use of resources and urban forms that are often unsustainable (Jenks 1996). Cities concentrate the economic, social and cultural activities of the population, and that is why it is important to be prepared for the challenges that this predicted urban growth will bring, but also to take advantage of all opportunities wisely.

The growing urban world requires an updated approach in urban planning, and because of it, the United Nations established the New Urban Agenda, during a conference on Housing and Sustainable Urban Development (Habitat III) in 2016, setting the importance of achieving a sustainable and inclusive life for millions of urban dwellers.

Densification is considered to be a sustainable approach for city development. One of the main arguments in favor of it, is that less dense cities consume more energy (Newman & Kenworthy 1999 cited in Berghauser Pont & Haupt 2009). This kind of cities become more dependent on private transport once creating a public transport network is harder and more expensive.

Moreover, it is more difficult for the authorities to provide services and essential utilities when the urban growth is more horizontally and spread out. However, there is the contradiction, also known as the *Tragedy of the Commons*, between private and public interests in relation to the density of urban living; most actors aim to increase their private benefits, but this can only be achieved at the expense of public interests (Hardin 1968 cited in Berghauer Pont & Haupt 2009). For example, less dense urban areas are preferred by families who look at high density places as more chaotic, polluted and insecure, which motivates the real estate speculation in areas farther from urbanized areas, the suburbans.

“In that respect, the dense city requires public-private partnerships to carry out the vision, participation of citizens at decision-making levels, and a good dose of tolerance and social concern.” (Fernández Per, Mozas & Arpa 2015)

On this investigation and further project, it is thought that higher densities bring more benefits to cities than cities with lower ones, however, a plan that involves the citizens is vital to overcome the negative vision that some people still have. In order to achieve higher densities, it has been explained that is not only a matter of form but also a matter of mixed uses, activities during the whole day and provision of basic services over short distances, available through an organized public transport flow. The key is the balance between verticalization and occupation of the land, and this represents a challenge in the way density is measured so it can be compared and referenced to other good examples of cities density.

PART II CONTEXT

This chapter introduces the city of Lima through an overview around the current context, characterized by the country's growing economy that presents new challenges for the urban planning. The current context has roots in the city's history, marked by the country's centralized development that resulted in the rapid growth of migration rates to the country's capital, and a consequent expansion of the urban area and urban sprawl. The rapid transformation of the city was not followed by a coherent urban planning, unable to control the urban growth. Among the several consequences of the uncontrolled urban growth, it is highlighted the collapse of the transport system in the city.

2 GENERAL PERU OVERVIEW

3 HISTORY OF A PROBLEMATIC

2 GENERAL PERU OVERVIEW

2.1 A COUNTRY RICH IN DIVERSITY

Biodiversity refers to the variety of all species of life on Earth and the ecosystems within which they live and interact. Any human activity affects directly to this ecosystems and is also directly influenced by them.^[1]

Peru is a country with a high amount of biodiversity, it has 84 out of the 104 life zones identified around the world. Its geography and nature have made the country to be considered one of the seventeen mega-diverse countries around the globe.^[2] Peru's diversity comes from the characteristics of its territory and the history tells us that its population has always adapted to this diverse territory in extraordinarily and efficient ways.

Peru's 1.285.215, 60 km² are divided into three well-defined areas, the Coast, the Highlands and the Jungle. The coast occupies 12 percent of the territory, the highlands 28 percent and the jungle 60 percent.^[3] Furthermore, three are the watersheds that are part of Peruvian territory, the Pacific watershed, which are the rivers that go through the coastal zones, the watershed of the Amazonas and the watershed of the Titicaca Lake.

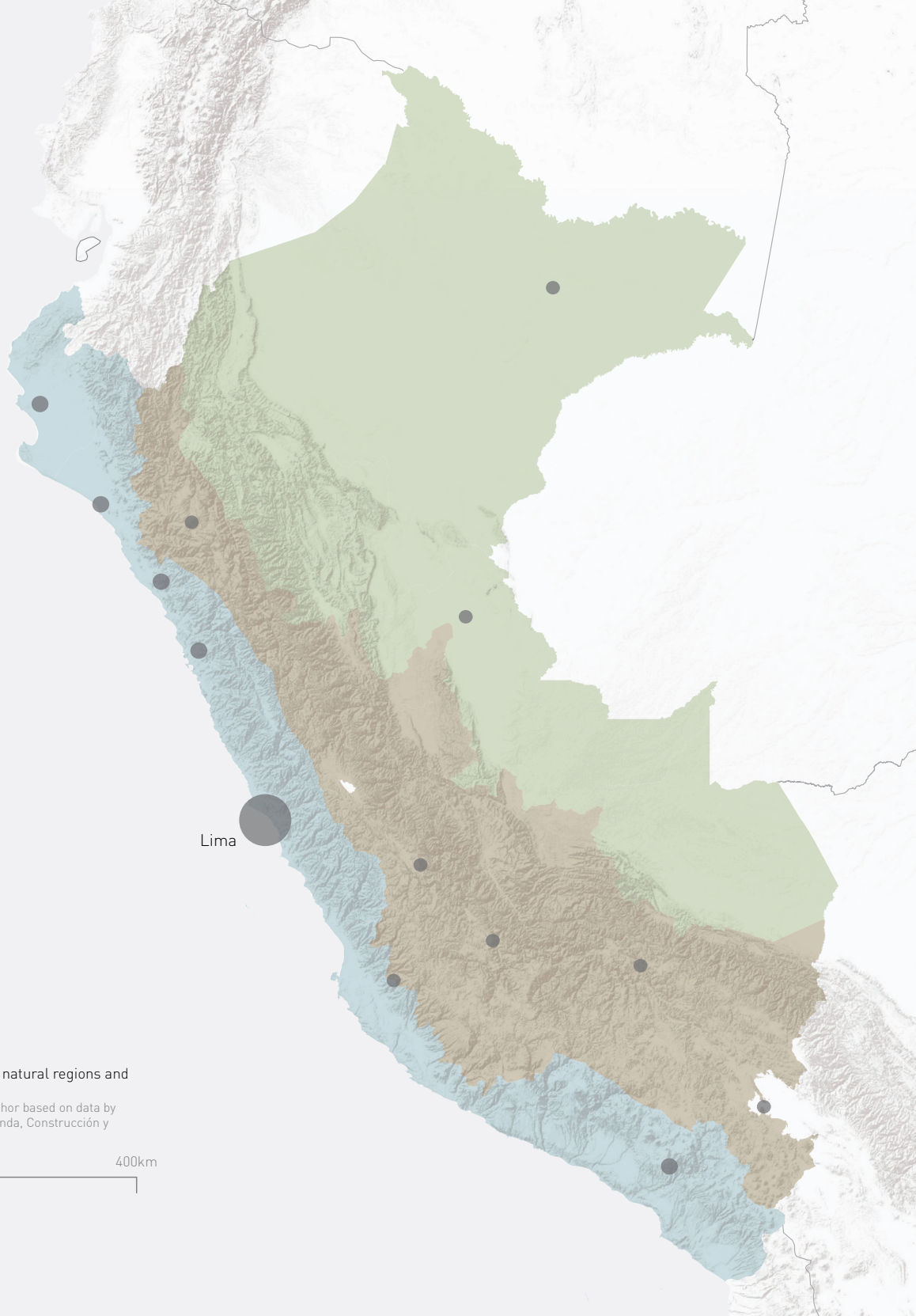
Now in this new century, Peru faces a big challenge such as the climate change, while it continues its development and tries to deal with other global problems, this menace to earth's health is being treated in a very naive way. It is a fact that Peru is a third world country that is experimenting steady economic improvement but is also a reality that we are heading towards the same environmental problems that are being confronted in first world countries since long time ago. Cars only oriented policies, urban sprawl, contamination, water problems and many other environmental issues are some of the problems that all the countries are confronting. In a country with such a diverse and rich natural environment, the consequences of contamination will get critical faster.

As the base of this investigation and project, it is important to highlight the natural richness of this territory and how this should affect any action or planning that aims the development in every sector of the country in years to come. Perhaps it is time to look back again to how first Peruvian inhabitants used to live and protect the territory and use this rich heritage to protect it as we try to find solutions for the future.

[1] Oxford Dictionary.

[2] Data collected from UN Environment World Conservation Monitoring Centre.

[3] Data collected from INEI.



- Jungle
- Highlands
- Coast
- Main cities

Figure 5 Peru's natural regions and main cities

Source: By the author based on data by Ministerio de Vivienda, Construcción y Saneamiento

0 400km

2.2 GROWING ECONOMY, BIGGER CHALLENGES

What is happening with the country's economy? Where is the country main investment going?

For the last years Peru's economy has been growing steadily and according to the INEI, Peru's GDP has increased at a pace of 4,05 percent approximately for the last 12 months of 2016, although this growth rate was under the expected. To put this in context, it is important to say that it is still one of the best places among Latin American countries, nonetheless, the tendency in the southern continent is to get lower because of certain global events and economic and social crisis.^[1]

Despite having experienced a decrease in the construction sector, the country is still pushed by what it has been its main engine, the mining of resources like copper, iron, and lead. However, specialists have warned that the most important mining settlements have already reached their highest point of production, so this constant push that the country has been receiving will be slowed down.

So taking into account all of this information, we know that today the government has more money than on the last decades, what is more, Peru has been creating a more positive climate for investments and the middle class has progressed in general. However, this progress has been unequal among all the population and it is one of the main reasons why Peru's urban growth has become what it is today, a situation that will be explained in the next chapters of this work.

In order to study the general situation of the plans and investments that Lima have made in infrastructure as well as housing, we need to first take a look at the economic situation backing them up. Construction has been experimenting a decrease for the last few years, after being one of the sectors with the biggest increase next to mining.

This steady improvement of Peruvian economy, in general, has given the chance for bigger infrastructure projects for the country and its cities, which are trying to better position the country in the global economy. Projects like the expansion of the main important international airport of the country the Jorge Chavez will assure the objective of consolidating Peru as an attractive place not only for tourism but for big companies and international enterprises. Other big projects like the Interoceánica highway, finished in 2010, that connects Peru's Pacific Ocean to Brazil's Atlantic Ocean, and enabled the creation of an interoceanic axis, facilitating the collaboration between these countries and their connection to global markets.

In Lima, in the year of 2010, the Bus Rapid Transit (BRT) system started functioning, one year after the Metro Line 1 was finished, a project that took more than twenty years to be concluded. Another accomplishment on the last years was the construction of a convention center that could hold massive congresses that were already being held in the city of Lima, but with the project's conclusion, these events will have a more proper place. The Gran Teatro Nacional, or national theater, a new building opened in 2013 in Lima, is one of the most important investments

in cultural infrastructure for the past years. In the year 2017, the construction of the national archaeology museum began, and it will hold a very important amount of high-quality pieces that used to be stored inefficiently and away from most visitors. Another important investment in infrastructures from government's initiative is the new building for the Banco de la Reserva, the National Bank of Peru, that started operating in 2015.

However, for a city of almost ten million people, it still has a big deficit of infrastructure and services; people demand activities and a way to survive to the mobility chaos that has overwhelmed Lima. It is crucial for the government to incentive private investments, but above all, public investments, which could be the most beneficial for the majority of the population, and to consolidate a resilient economy that does not depend entirely from the extraction of minerals, which is highly dependent on the worldwide demand. Long is gone the time that the Peruvian government was one of the firsts in Latin America to invest in social housing; now, financial help has evolved but the infrastructure that is built depends mostly on private companies, and on the recurrent unappropriated planning that is not able to generate a resilient plan for Lima's growth, situation that culminated with the peripheral expansion and urban sprawl, caused mainly by migration from cities located on the highlands of Peru.



Figure 6 Housing deficit: district Villa El Salvador, Lima
Source: Predes



Figure 7 Transport deficit: traffic congestion and informal public transport, Lima
Source: Andina/ América TV

3 HISTORY OF A PROBLEMATIC

How has the city grown into a huge peripheral expansion? Understanding the way Lima has grown is the only way of understanding its citizens and better plan the future for them.

Lima was founded by the Spanish in 1535 and it was named as the City of Kings, however, the word used by the locals (Lima) was the one that lasted.^[1] It was placed in a strategic position because of its closeness to the Pacific Ocean which represented the best way of communicating the new lands and Spain. The land was part of the fertile and rich valley of the Rimac River, which guaranteed resources and fertile land for the new settlement (Hemming 2004). In 1543, the city became the capital of the viceroyalty of Peru that occupied most part of South America (Klarén 2000: 87). The city experienced an economic prosperity and grew from a population of 25.000, in 1619, to nearly 80.000 in 1687 (Andrién 1985: 30). During the second half of the XVIII century, the viceroyalty lost economic power because of competition from the viceroyalty of La Plata and the fewer demand of its resources, in addition to it, a devastating earthquake in 1746 magnified the crisis (Higgings 2005: 75). When Lima became independent in 1821, the years that came after experienced a lot of conflicts until governmental stabilization was reached, which left the city with several economic issues.

[1] Data from Central Library of San Marcos University.

3.1 ORIGIN OF AN URBAN SPRAWL

“New demographic trends (decrease of rural migration, lower fertility rates), economic trends (recession and hyperinflation), and political trends (rise of neo-liberalism and application of Structural Adjustment Programmes – SAPS) completely changed the urban context of Latin American cities since the 1980s and the 1990s. The spatial impacts of such trends include a new wave of expansion toward the periphery, the acceleration of private sector-led urban development, the resurgence of the real estate market and the commodification of urban development.” (Córdova, Fernandez-Maldonado & Del Pozo 2015: 29)

Since the independence, Peru has experienced a big growth and in the year 2016, its population was estimated at 31.826.018 inhabitants, according to official entities (INEI). Lima is one of the 35 most populated cities in the world, 9.985.666 inhabitants distributed over a total area of 2.811,65 km², which represent only 0,2 percent of the country's territory but has one of the highest densities with an average of 3.551 inhabitants per square kilometer (INEI 2015). The city has always experienced a privileged situation in comparison to other cities of the coast since its designation as the capital of the viceroyalty of Peru by the Spanish.

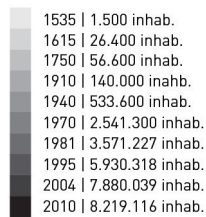


Figure 8 Lima's urban growth evolution

Source: By the author based on data by Ministerio de Vivienda, Construcción y Saneamiento



Moreover, the coastal cities are the most developed ones and the cities in the highlands and jungle have struggled to get solutions from the government to attend their needs. This situation came to a crisis point around the 1980s, when internal social and drug traffic problems generated an armed conflict that, during this time, was one of the main causes of a massive migration to the coast and mainly to Lima. This new emergent population settled where they found vacant lands, and without laws, in the capital city. The government could not assist in any way, letting them aggravate Lima's urban sprawl, without any planning that should control it.

The fast and dispersed growing expansion of the city established a center-periphery urban pattern. This expansion was not followed by an adequate planning and generated a horizontal expansion marked by informal settlements along the peripheries, without any basic infrastructure. In 1940, eight percent of Peru's population lived in Lima, however, by the 1970s this value had increased to more than 23,7 percent (Vega Centeno et al. 2011). It is important to take into account that Lima does not have a territorial plan and grows spontaneously. As shown in Figure 1, the city experienced two waves of urban growth: in the period between 1940 and 1970, and during the 1980s.

As the city grew more, the social segregation increased once most of the migrants settled on vacant lands away from the center and difficult to access. This unplanned urbanization gave origin to the phenomenon of *barriadas*, that characterized most part of city's expansion during the period between 1940 and 1980. The *barriadas* are formed from the occupation of land by families on their own initiative, or by public authorities. The occupied land did not have any kind of urban infrastructure; the provision of public services and facilities, and the construction of the houses were held in a slow process generally carried out by the local population (Driant 1991).

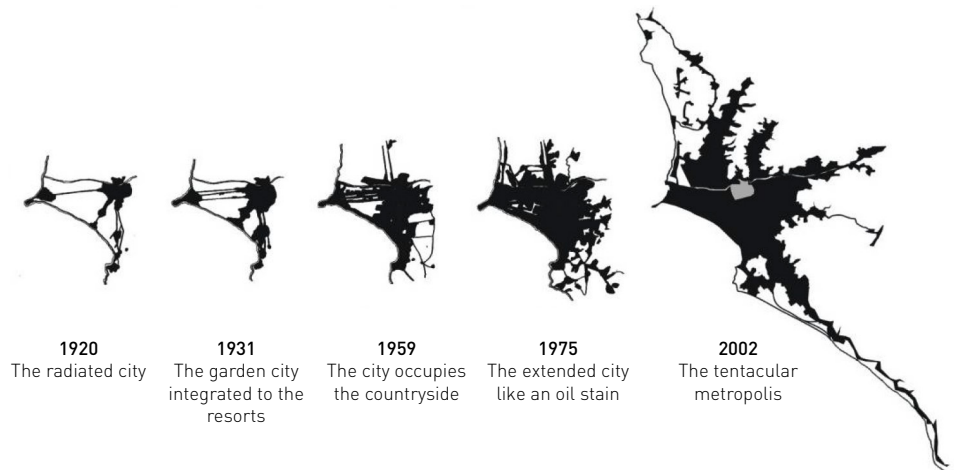


Figure 9 Historical urban evolution of Lima
 Source: Saez, E., García J. and Roch, F. 2010



Figure 10 Andean migration
Source: Robert Laime

3.1.1 CENTRALIZED DEVELOPMENT

Latin America and the Caribbean are one of the regions with the most inequality in the world, their 525 million inhabitants live with the worst distribution of wealth. Only the tenth part of the richest Latin Americans receive 48 percent of the total income, and the poorest receive only 1,6 percent (Matos Mar 2004). This huge gap between the richest and the poorest is increasing and with it, their resources and services like health, education, and housing. Peru is not an exception but presents one of the most critical cases in which a city, a capital like Lima has outgrown and developed far from the other cities of the country.

Peru's distribution of its population is also highly uneven, Lima has close to ten million inhabitants while the second most populated city has only around a million. In a country of approximately thirty million people, having a third of them in only one city is a real problem that the government has been trying to solve with little to no success.

The economic power of Lima is based on services, commerce, and manufacture; moreover, the city concentrates more than 50 percent of all industrial, administrative, social and medical services to serve this third of the population. Equally important is that the city is perceived as the one that has the more possibilities for anyone to progress, and education facilities are a proof of it. In the year 2016, there were 140 universities in Peru, 93 are in Lima (SUNEDU 2016); also in the 2014 QS World University Rankings made a ranking of the 300 best universities of Latin America, and 16 universities were from Peru, from which 13 were from the capital Lima.

The Department of Lima produces around 50 percent of the national GDP, from which the Province of Lima was responsible for 43 percent, and the Constitutional Province of Callao for 4.5 percent in the past year of 2019 (INEI). Peru's development is concentrated in the Metropolitan Lima, which explains the disproportional rates of GDP and results in an unbalanced distribution of economic wealth in the country. Besides it, the socioeconomic levels are also unbalanced inside the metropolitan region, where the higher incomes are concentrated by only 20 percent of the population, represented by the social classes A and B (INEI).^[1]

Although mining represents the country's main economic sector, and these are concentrated in the hinterlands, the economy is centralized around the capital, what might be explained by the presence of the main transit ports of the country, the Maritime Port of Callao and the International Airport Jorge Chavez. Since the colonial period, the Port of Callao is the main Peruvian port, and one of the most important in Latin America. Most of the production from the hinterlands are exported through these transit ports. Moreover, the port is responsible for the creation of an industrial and logistics sector, in Lima and Callao, centered around the port activities. This condition enhanced the centralized development of the country along the history, and it contributed to increase the migration rates to the capital.

[1] As mentioned in the introduction chapter, Peru is politically divided into departments, provinces, and districts. The Metropolitan Lima is represented by the Province of Lima and the Constitutional Province of Callao.

3.1.2 MIGRATION TO THE CAPITAL

The unequal development of the country, centered around Lima, enhanced the socio-economic differences between the Coast and the other regions, and between the urban and rural areas. Lima has always enjoyed a privileged position, and it became the center of economic and political power, enhancing its accelerated expansion and changing its economic relations with the rest of the country, which resulted in a great population growth.

The migratory movements changed the Peruvian society, from a rural society towards a predominantly urban society. If in 1940 the rural population represented 65 percent of the national population, in 2017 (last national census) the urban population represented 74.6 percent of the country total population, according to the official census (INEI; Figure 4). Most of the migration flows origins from small cities in the highlands towards the great cities in the coast, especially Lima. Since the 1940s, Lima experiences a great growth and expansion of its industrial activities that ensure the economic growth and enable a greater participation in the global market, moving from a rural-based economy towards an urban-based one. Apart from the industrial activities, Lima experiences a significant growth in the tertiary sector.

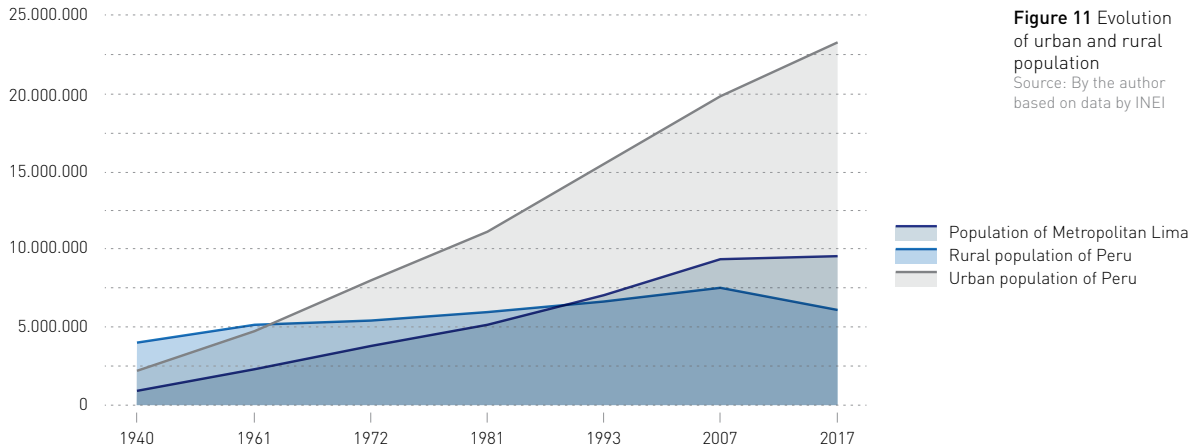


Figure 11 Evolution of urban and rural population
Source: By the author based on data by INEI

Lima experienced two big waves of migration; initiated on the decade of the 1940s due to a huge migratory movement from the highlands, induced by the post-war crisis that affected the agricultural production, and attracted by the initial process of industrialization of the capital and by the offer of public services, such as hospitals and schools. Between 1940 and 1960, Lima and the municipalities on its coast plain experienced an accelerated urban expansion that culminated on the conurbation known as Great Lima or Metropolitan Lima. The expansion happened in two main directions: the axis Lima-Callao and from Lima towards the south balnearies, that were gradually integrated into the continuous urban sprawl. During these

years, the population of greater economic resources was displaced to the periphery, mainly to the southern areas in the old balnearies, while the population with fewer resources settled in the historic center that was being vacated, and the new population composed by migrants from the hinterlands settled on the vacant lands around the formal city. The historic center and its surrounding neighborhoods were degraded considerably, and new areas began to be informally urbanized and later became conurbations that were added to the city. As a result, Lima became more socially segregated, with great differences between the different communities inhabiting different districts.

The second wave was during the decade of the 1980s, that was marked by the internal conflict in Peru driven by the terrorism that affected mainly the cities from the highlands of the country, and so many people were forced to leave to the coastal cities, especially Lima, in order to escape from the violence. During the period between 1980 and 1992, the internal conflict put the whole country in great fear. Attacks from terrorist groups first started to occur in the cities in the highlands, always forgotten by the government, until it finally reached the coastal cities, and the capital Lima. We may say that it was late when the government realized the crisis that the country was facing, but it helped people realize the problem and better understand how deep it was.

By the time, there was a growing socio-economic gap between the poorest and the richest classes regarding resources and access to services such as health, education, housing, and employment. These issues derived from the persistence of problems arising from the period of formation of the republic and the change of traditional Peruvian society that the government was not able to adjust. There was no national plan that would respond to the process of transformation under progress in the country; the government did not adapt to the new reality and was not able to attend the requirements from the popular sectors (Matos Mar, 2004). These factors led political groups to declare a people's war against the State, as an attempt to call the attention towards the cities in the hinterlands, always forgotten by the authorities, once the economic development was concentrated in the coastal cities, especially Lima. The movement relied on terrorism to make itself heard, and the tremendous social inequality of the time boosted it.

The once just communist parties Sendero Luminoso (SL) and the Movimiento Revolucionario Tupac Amaru (MRTA) were inspired from a desire to bring equality for the oppressed people, usually marginalized and excluded from society; forgotten farmers and workers of the lands, that in their vision, had been taken away by the bourgeoisie. This turned into a plan full of violence when the drug traffickers and radical leaders took the charge and started a bloody fight in many small towns from the highlands of Peru. The message for the innocent population was to help the terrorists in their drug dealing and expansion of their guerrilla tactics or die. Nearly 69.000 people died in this violent period and it caused more than 25 million dollars in material losses (Matos Mar, 2004).

People from the affected towns fled to bigger cities, especially Lima, looking for safer places and better opportunities. Peasants occupied the shanty towns, the risk areas and anywhere they could establish themselves even with just a tent. The more prosperous medium class settled in new areas in the periphery of the traditional Lima, still with few basic services, but that was enough to start believing in new beginnings. The impacts in their hometowns were

substantial, besides the obvious bad consequences of the sudden depopulation; the birth rate dropped and the economically active population reduced, which lead to stagnation of the economy and the increase of poverty on these areas (Matos Mar, 2004).

On the other hand, Lima had received a mainly young population that was eager to do anything to progress but was all left alone as the city was not prepared to receive them. The strategy from the government evolved into a point that it was just reaction, trying to formalize their situation and to start recognizing the informal settlements, but still not being able to plan in advance anything for them or to the people that kept coming. It is important to emphasize that in most of the times these people seek refuge and settle themselves in Lima as communities, so they bring their culture and social system with them. In the absence of governmental authorities, they created their own local leadership which helps them to progress as a community.



Figure 12 Villa El Salvador in 1975, South Lima
Source: Institute for Housing and Urban Development Studies

Figure 13 Villa El Salvador in 2016
Source: Juan Carlos Guzmán/Andina

The northern part of Lima, which was the first area that migrants reached around 1960 and is also known nowadays as *Cono Norte*, has approximately 2.530.560 inhabitants, 25.55 percent of the total population of Lima. The southern area or *Cono Sur*, that began its urbanization around 1970, has 1.897.786 inhabitants, which corresponds to the 19 percent of the whole city. The eastern part of Lima also known as *Cono Este*, urbanized around 1980, has 2.450.660 inhabitants, 24.74 percent of the total population. It all sums up to 6.879.006 inhabitants, the 69.45 percent of the whole city of Lima that has been urbanized since the 1940s by this strong migrant population.^[1]

This is a turning point for Lima; there is no more a traditional Lima that has been growing like every other city. Now the country and the government first must understand that to the traditional Lima we have to aggregate the opulent Lima and the Lima of *Los Conos* (Matos Mar, 2004). A lot of people that used to live in provinces of central Peru and the highlands have become the new inhabitants of Lima, their second or third generation are the new majority in all the cities of the Peruvian coast and mainly in Lima.

[1] Statistics numbers from 2015, collected by INEI.

The government lacked the strategy to attend the housing demand of the new Lima citizens, so they developed their own ways to be recognized and progress. Now the once precarious settlements have evolved into three or four level building urbanizations, a sense of community is still perceived and their use of public space in their new neighborhoods still resembles this (Matos Mar, 2004).

Meanwhile, in the traditional Lima, the historical center was abandoned by the opulent and a lot of their heritage that was not part of the patrimonial secured area became at serious risk of falling apart. These forgotten buildings most of the times started to be occupied by families in extreme poverty in overcrowding situations. This is another face of migration and its consequences, families who could not achieve progress, became poorer and occupied the leftovers of urbanized areas trying to survive.



Figure 14 Abandoned building in Historic Center
Source: EFE



Figure 15 Financial Center in San Isidro, Modern Lima
Source: Agencia Andina

FOUR LIMAS & CALLAO

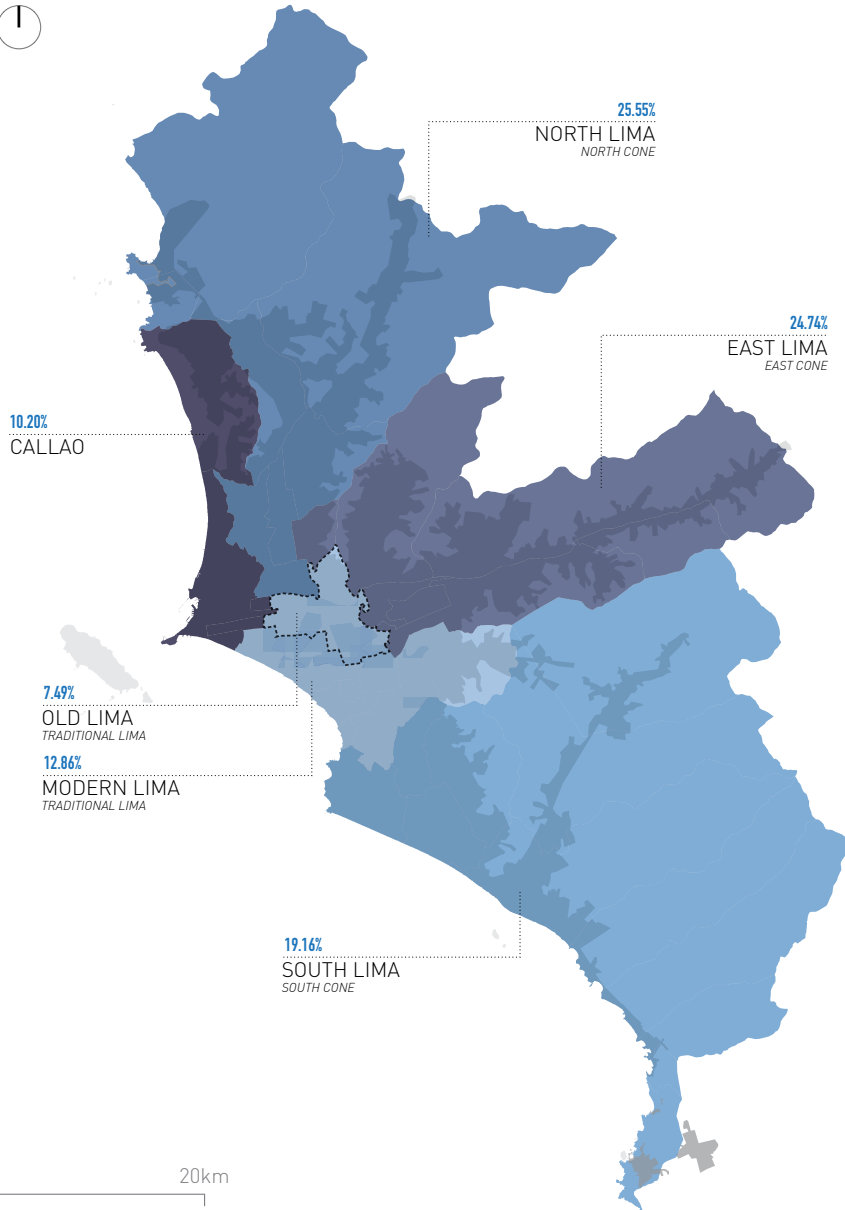


Figure 16 The 'cones' of Lima - *Lima de los Conos*
Source: By the author based on data by INEI, 2015.

Conos - or *Cones* - was the denomination used to refer to the territories that project to the north, south, and east of the city from the traditional center. Nowadays *Conos* has been replaced by the denomination "Limas", once the term was popularly pejorative, related to the poorest districts, the marginalized districts.^[1]

The settlement of North Lima began in the 1960s; South Lima corresponds to the 1970s, while East Lima to the 1980s, mainly by migrants who fled of the terrorist violence in the highlands.

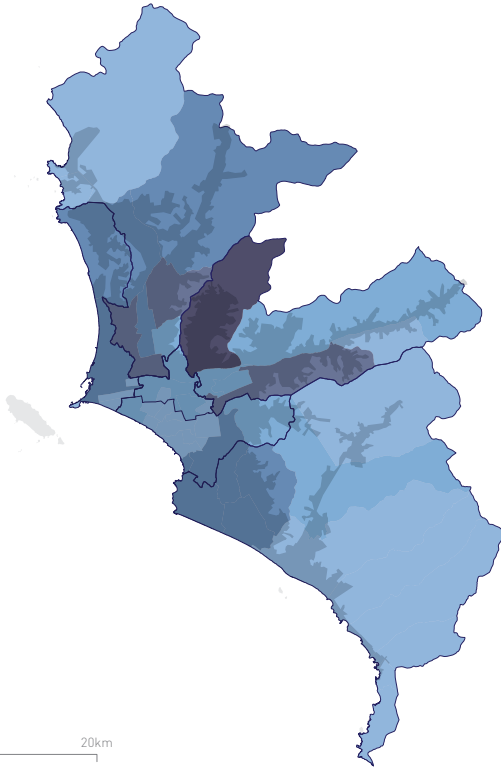
North Lima represents a quarter of the total population of Metropolitan Lima, although the most populated district is located in South Lima. On the other hand, the Center of Lima, comprehended by Old Lima, represents less than 10 percent of the total population.

To get an idea, while the most populated district (San Juan de Lurigancho) counts with nearly one million inhabitants, the Modern Lima counts with around 1,2 million inhabitants, and it concentrates the most part of commercial and tertiary activities in the city.

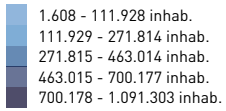
The different *Conos* of Lima are pushed by their inhabitants and have become the new emergent middle class. Despite having experienced a lot of progress, there is also a lot of inequality. The absence of the government let a very high amount of informal work rise in these areas, but on the other side, informal work has lowered and helped to deal with unemployment rates.

[1] The Traditional Lima comprehends the Old Lima, formed by the Historic Center and its adjacent working-class neighborhoods, and the Modern Lima, planned neighborhoods and old balnearies added to the city.

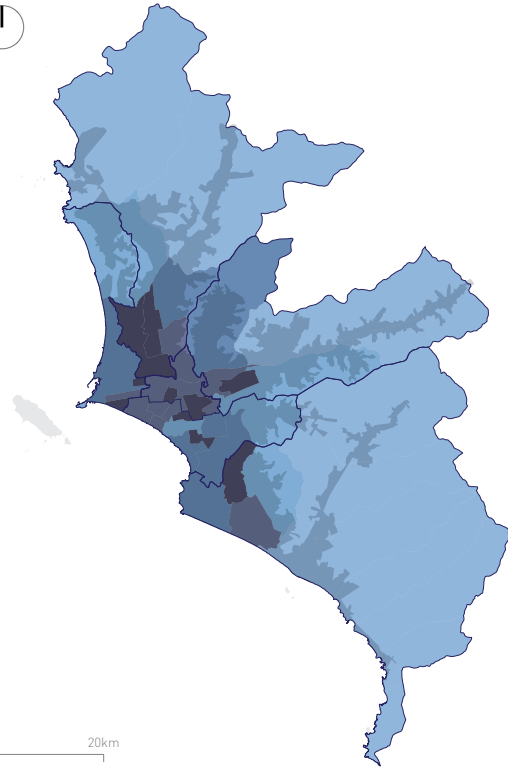
POPULATION



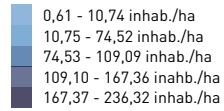
0 20km



URBAN DENSITY



0 20km



The city expanded towards the peripheries first by the process of *barriadas*, and through the years these areas got consolidated.

Although the highest buildings are concentrated in the central area of the city, this area does not present the highest density in residential terms. As mentioned before, the largest population and highest densities are detected in the northern area of Lima, on the other hand, the historic city center has the lowest population and densities.

At first, the main economic activities and political institutions took place in the Historic Center. Eventually, a large part of the activities and institutions moved to the new metropolitan center in the Modern Lima. The structure of the city followed a pattern where the most powerful and influential neighborhoods, from a social and economic point of view, develop larger centers and with variety of services, while the poorest neighborhoods develop smaller centers with fewer services (Chion, 2002).

The economic activities are mainly located in the Traditional Lima, however, the other Limas have their own dynamic and a great economic weight in the city. North Lima is the one with the greatest capital mobilization, despite having a very heterogeneous population from an economic point of view (Matos Mar, 2004). The peripheral Lima has today its own dynamic and identity; it has become trade markets and places of investment, consolidating into newly specialized centralities of the city.

Figure 17 Population distribution by districts (left); Urban density by districts (right)

Source: By the author based on data by INEI, 2015

3.2 MOBILITY CRISIS

“Between three and four hours a day takes someone who commutes in public or private transport in Metropolitan Lima, which valued represent \$4 billion per year.”^[1]

In the first half of the twentieth century, there were electric trams and bus lines operating parallel to it, both operated by a public company, in Lima. Due to the high demand of transport, and the competition with the flourishing bus/ micro-bus system, in 1965 the tram system had been suspended by the government because it was considered to be obsolete and the future would be to improve highways for cars and buses. During the 1970s, Peru was governed by the military dictatorship of Juan Velasco Alvarado and during this period many business were nationalized, including the public transport companies. So, in 1976 a national public transport company was created and it developed a bus rapid transit (BRT) system which circulated on the central corridor of an important express way that connected the central and southern part of Lima. However, in the early 1990s, the company was liquidated and several bus lines started to circulate on this corridor (Dávila, 2011).

In 1986, Lima began the construction of its first Metro Line and by the year 1990 the project was paralyzed as it had exceeded the planned budget, and because of the economic crisis that the country was experiencing, it was impossible to continue with the project. Only 9km of its length were finished and because it could not succeed fulfilling people's demand for travels, it never began operating. Since it was an elevated metro, the remains of the construction became part of the landscape of the city until 2009, when a plan to rebuild and improve the line was approved; only by the year of 2011 the first metro of Lima started to operate.

Due to the economic crisis of the 1980s the public transport system collapsed. In 1991, during the government of Alberto Fujimori, a neo-liberal economic focus was established and a lot of laws regarding public transport were canceled, encouraging the free competition in this sector. Since 1970 Lima had been growing at a very fast pace and on a horizontal way, along with it, the public transport system was not able to handle the demand for transportation that the city needed, and so the government privatized the failing public transport system, leaving it in hands of the free market and letting the problem to solve itself. Importations of used cars, that were mainly mini buses, was favored; new routes of public transport were authorized indiscriminately and without any planning, just based on demand; also a massive amount of taxis, legals and illegals, rose in the city. Once again, the informality helped all the unemployed people to get a way of living.

However, in 2010 the city took another urgent step towards creating a massive public transport system, the bus rapid transit system also called Metropolitano started operating. This system is a mass public transport that connects over 17 districts and attends more than 1 million and a half trips per day. Its main route covers over 36km and has a segregated corridor for the buses and 38 stations (Protransporte).

The release of the transport system in the hands of the free market as a response to the

[1] 'Lima pierde 4 mil mlls. por el tráfico vehicular', Diario Correo, 03 May 2015 [Online].

inability of the government to deal with the population demand, meant the absence of Public Power and the increase of informality (Dávila, 2010). Nonetheless, the vision of the authorities is still focused on private cars mobility and not to plan a good public transport system, making every citizen and visitor of Lima waste time in a permanent traffic jam. This chaotic way of commuting has translated into a poor civic culture around this topic, which represents a huge challenge once it is not only about implementing a new efficient public transport system, but also a matter of recognizing the importance of it; instructing people how to use and take advantage of it.

The urban transport system is composed of several types of vehicles, formal and informal. The bus lines are based on traditional transport axes with long routes that cross from one end to the other of the city. The operation of the various routes is granted to several companies that use vehicles of various sizes. The multitude of lines operating generates an oversupply with the consequent deterioration in the quality of service and traffic chaos throughout the city.

According to the Urban Transportation Management - UTM (2013):

- Metropolitan Lima counts with 403 active routes and 156 routes from Callao.
- The routes are grouped in 298 public transport companies.
- There is a vehicle fleet of 20.644 units (3.220 buses, 9.842 micro-buses, and 7.582 mini-vans)
- 80% of trips are done by public transport, with an average commuting time of three to four hours a day

Motor-taxis also take part in the system, especially in the peripheries due to its low cost and easier access to areas located on hills with strong slopes. Motor-taxis are restricted in most of the central districts.

In 2014, the Municipality of Metropolitan Lima (MML) started the implementation of the Integrated Transport System (ITS) in order to organize the vehicular traffic in the city by granting concessions to operate different routes. This system proposes to operate different types of bus corridors in order to eliminate the overlap of routes; improve the bus service; integrate with the other mass transport systems, and to renovate and decrease the fleet by replacing them with standard buses. It also seeks the formalization of the sector; the reduction of traffic congestion, the improvement of productivity and the reduction of environmental pollution (Mendiola et al. 2014).

At first, the project contemplated feeder routes but the project has been reduced to trunk axes, so the system still depends on conventional lines. All the operation is under the authority of Protransporte (CODATU). The ITS comprehends 36 routes distributed into five different corridors, however, there are currently 14 routes under operation in three different corridors. The project failed in implementing an unique tariff system, and consequently the integration between the different mass transport systems.



BRT METROPOLITANO

1 trunk line, 21 feeder buses
capacity: 160 passengers per bus



METRO

1 line
capacity: 200 passengers per train



INTEGRATED TRANSPORT SYSTEM (ITS)

12 routes under operation



BUS

capacity: 70-80 passengers per bus

Figure 18 Types of urban transport in Lima

Source: Indicated on each photo



MICRO-BUS

capacity: 35-50 passengers per micro-bus



MINI-VANS "COMBIS"

capacity: 15-25 passengers per mini-van



TAXIS

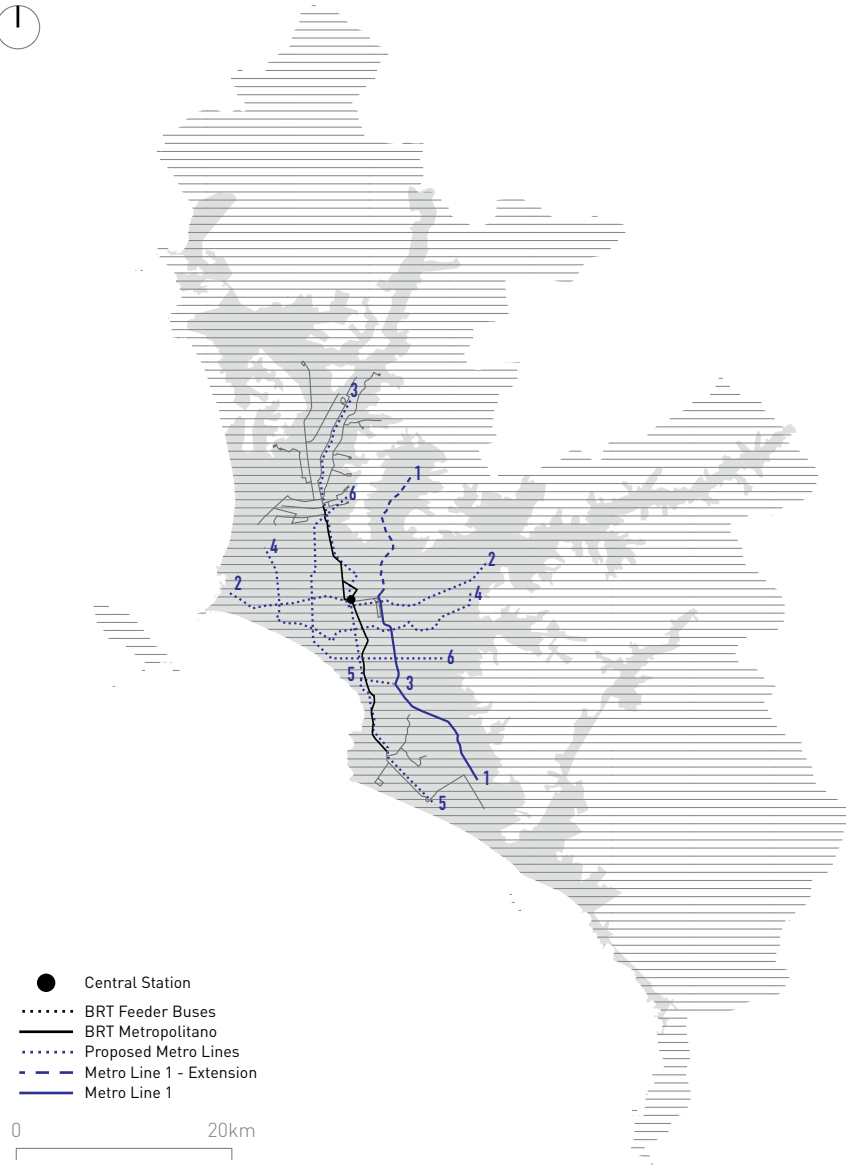
capacity: 3-4 passengers per car



MOTOR TAXIS

predominant in the peripheries and restricted in most of the central districts
capacity: 2 passengers per motor taxi

MASS TRANSPORT NETWORK



The city expanded towards north, south, and east, from the plain of the valleys to its foothills. It is difficult to move around the city due to the congestion of the main road axes that go towards the center, where the activities are mostly concentrated, but also because of the lack of mass transport infrastructures.

As shown on the map, the mass public transport network is disproportional to the city's dimensions. The scarce network is formed by only two modes, that connect the city in a north-south direction: the Bus Rapid Transit (BRT) corridor *Metropolitano*, and its feeder buses departing from its end stations and from the central station; and the Metro Line 1. These lines were introduced recently in 2010 and 2012, respectively. Although these are the preferred modes by the population, they represent a minority of the travels. The inhabitants rely on only two lines that do not establish interconnection between each other, at a physical and tariff level; the only existent (official) physical connection is done through a feeder bus from Central Station.^[1]

Currently, the Metro Line 2 is under construction, and it will connect Callao, on the west, to the east of the city. It is also under construction part of the Metro Line 4, that will connect the Airport to the Metro Line 2. The construction began in 2014 and its conclusion is expected to late 2022 (MTC).

[1] It is curious to note that this lack of integration between the two systems - BRT and Metro - is also noted in the available maps of their networks. None of their official available maps show the existence of both systems. In a certain way, this reflects the lack of integration between the governmental entities responsible for the operation and planning of each system. The BRT is managed by the Metropolitan Municipality of Lima (MML) and the metro by the Ministry of Transports and Communications (MTC).

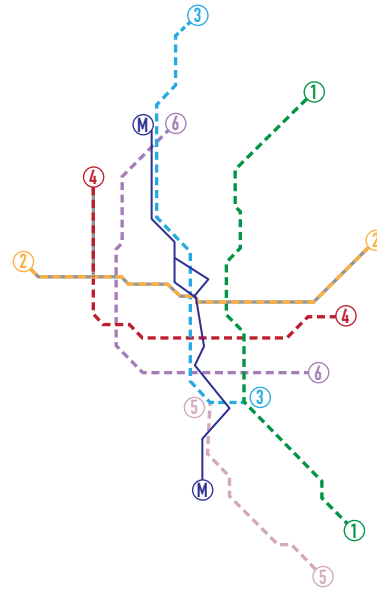


Figure 19 Mass Public Transport Network (existent and proposed)

Source: By the author based on data by Protransporte and AATE

Figure 20 Planned Metro Network

Source: By the author based on data by Protransporte and AATE

- **Metro Line 1**
- 35 km | 26 stations
- **Metro Line 2**
- 27 km | 27 stations | under construction
- **BRT Metropolitano**
- 26 km | 4 trunk lines + 8 express lines
- **BRT Feeder Buses**
- 21 lines
- **Integrated Transport System (ITS)**
- *complementary corridors*
- 3 trunk lines under operation
- *Each system has its own tariff and method of payment except the BRT feeder buses that have a complementary tariff to the BRT tariff.

3.3 GOVERNANCE AND PLANNING THE FUTURE LIMA

What happens when a mass of people is left unattended by a rigid and not inclusive governmental planning?

Peruvian territorial administration is organized in 25 departments, 195 provinces and 1841 districts. Lima is not only a province but also the capital of the country which generates a confusing political and governance status; different administrative entities coexist in the same city, managing the same area.

The Metropolitan Area Lima-Callao is conformed by two different administrative territories: the Province of Lima, managed by the Metropolitan Municipality of Lima (MML), and formed by 43 districts; and the Constitutional Province of Callao, managed by the Provincial Municipality of Callao (MPC), and formed by 7 districts.

When we analyze the decision making process, the problem is clear: the province has an administrative authority and major, in its turn, each district of the city has its own major and municipality with its own administrative structure. Planning a region with so many authorities, that are attending their own agendas and have a certain autonomy, becomes very inefficient and conflictive, hindering a shared management that transcends the political-administrative limits, and encouraging segregation between districts. The inequality of resources between districts does not allow an equal spatial distribution of urban equipments and public services, intensifying the territorial contrasts.

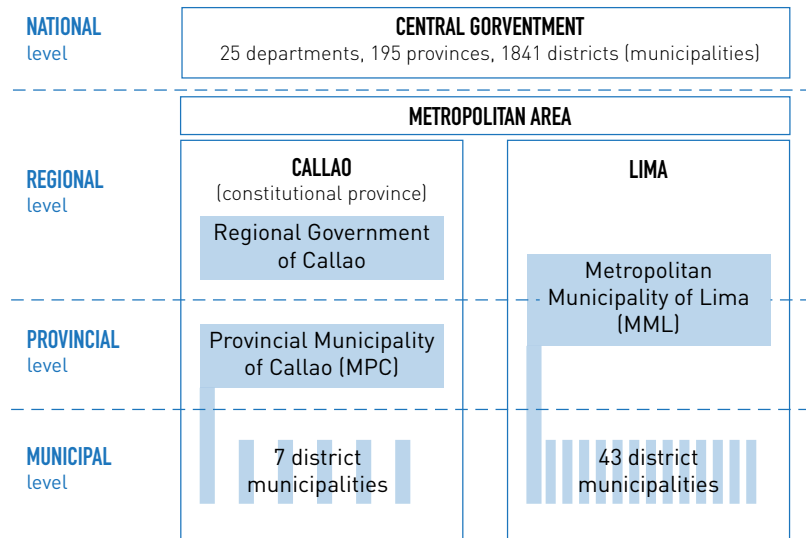


Figure 21 Political division of Lima and Callao
Source: CODATU

Added to it, there is a lack of a general vision and plan for the entire city that guides the different administrative realms. The plans often do not last more than a mayor's mandate, which results in a wasting of opportunities for the city. The fragmentation at different administrative level hinders the management of the metropolitan area whose problems of urban and transport planning are totally related.

During the twentieth century, the country has been governed alternately by democratic and by dictatorial regimes, which have strongly impacted on the urban development plans, not having a continuity in long-term plans, and usually prevailing the low-cost projects in the short term (Dávila 2011).

Regarding the urban planning realm, there is the Metropolitan Planning Institute (MPI) in charge of urban planning for the MML, without including the MPC, which in turn has its own planning entity. In 2014, it was carried out the Metropolitan Plan for Urban Development Lima-Callao (PLAM 2035) which was an attempt to make a common planning proposal for the metropolitan area. However, during the successor mandate, the plan was not approved or revised, and no other plan was proposed as an alternative.

The territory is regulated through different normative and municipal entities. Each district municipality uses technical normative instruments in order to manage the territory and create plans, regarding zoning plans and building regulations. Each district has its own zoning plan, which is approved by the MML. Besides it, the districts have a certain autonomy and some of them make their own mobility plans and infrastructure works such as bike lanes, public parkings etc, and are also responsible for regulating the traffic.

The planning and regulation of transport is one of the most affected issues by this governance fragmentation. The local authorities are responsible for the planning and regulation of urban transport in its territory, and there is not a plan that unifies the different existent plans. Because of the fragmentation at different levels, it is common to have conflicts between different districts and the MML around the policies and mobility plans. This prevents the construction of a common vision for the urban development of the city, which becomes a vulnerability. There is not only a territorial division, but also an institutional division inside the Municipality. The governance structure, regarding transport and urban development, is composed of several entities and in this equation, each actor stands for different levels (strategic, tactical and operative) in the transport policies (CODATU).

There are different authorities managing and regulating transport, and each of these has different visions about the topic. Added to it, the fragmentation into different levels of public actions and scope, results in the indefiniteness of what is the role of each actor and makes that the various public transport systems existents and projects are developed independently without any integration with each other, whether at the operative, physical and tariff levels (CODATU).

According to Fernández-Dávila, this scenario in which the competencies are blurred and diluted, hinders the promotion of minimum planning standards to define long-term strategies of urban management. Considering the evident lack of management with long-term vision in the city, it is urgent to redefine the institutional structure that brings together the different

actors, in order to have a more efficient management for Metropolitan Lima and Callao.

The authorities of Lima have been trying to implement small plans or solutions for the problems of Lima with different kinds of success. For 2021 the country and the city of Lima are planning to celebrate its 200th Anniversary of the Independence with projects that aims better the city's most critical problems. More green areas, solutions for the water deficit, housing and the mobility crisis are the topics that the authorities are saying they will deal with. These major projects are the future of Lima and while they seem to be headed in the right direction, the lack of a general plan that is resilient to different political parties governing Lima is what makes them fragile.

"The problem is not only political corruption, but also the inability to think the city and plan the urban development that each city requires. Thinking the city implies asking who has the right to what in the city and what kind of improvements or substantive changes are sought to produce. The main challenges (public spaces, accessibility and transport) require technical and political coordination." (Martin Soto Florián, 2017)^[1]

[1] 'Lima-Callao: la ciudad fracturada', Revista Casas, Urbanismo: 26-30, 17 May 2017.

3.3.1 PLAM 2035: AN ATTEMPT TO PLAN

In 2014 the Metropolitan Plan for Urban Development of Lima and Callao 2035 (PLAM 2035) was finished and given to the authorities of the Municipality of Lima so it could be reviewed and then implemented as a vital tool for the future of Metropolitan Lima. The existence of the document was never even recognized when the new Major was elected, mainly because of political reasons, once the plan was elaborated during the government of the opposition party. The plan has been apparently discard and nothing similar has being worked on as an alternative.^[1]

However this does not mean that Lima is not in urgent need of a plan that guides a sustainable growth and solves its many problems and challenges. Lima has had three urban plans that tried to establish some guidelines for the development of the city. The first plan was concluded in 1946, when the population was less than a million, and the last plan applied was the PLAN MET, finished in 1992 when the population of Lima was around 6 million people. This last plan was supposed to last until 2010, but without any updates during the time, its validity as a tool for making city became doubtful. In this context, in 2012 the PLAM 2035 started being elaborated by a group of mainly young specialists which were not only Peruvians but foreigners with experience in the area.

The PLAM 2035 recognized a number of strategic guidelines as the most important for the elaboration of an urban plan that would define the future of the metropolitan area for the next 20 years, and that would create a toolbox to reach a sustainable and flourishing city. These guidelines are:

[1] Plan Metropolitano de Desarrollo Urbano de Lima y Callao 2035 - PLAM 2035.

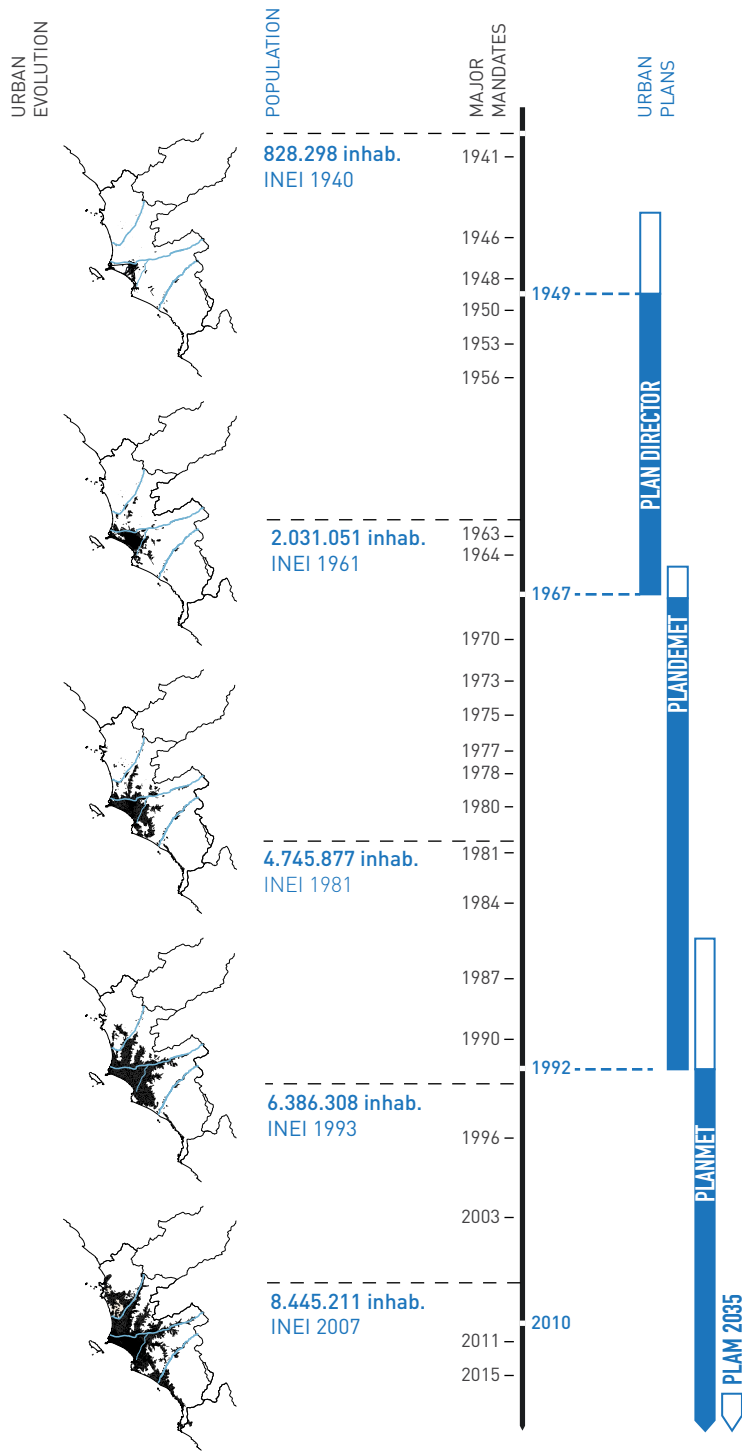


Figure 22 Chronology of urban plans
Source: PLAM 2035

Fair and inclusive city by creating a better distribution of services and urban equipment reachable by the whole population;

Heritage and creative city by enhancing its heritage value, well maintained and able to sustain itself and become part of a cultural and innovative city network;

Sustainable and resilient city by protecting and putting value back to their different ecosystems;

Compact city, integrated and polycentric. Planned densification of strategic zones of the city connected with an integrated public transport system;

Regional city, by creation of urban equipments that could be used by cities in the whole Pacific south area. Expansion of the airport and Port of El Callao, and generate a better connection within the city;

Competitive city with a network that supports well connected industrial areas and other production infrastructures that increase economic growth;

Planned and governable city by creating laws and regulations that support the urban planning of the city.

From these guidelines, a series of projects that went into more specific cases were elaborated, applying some kind of "urban acupuncture" as a strategy, in order to demonstrate how a proper urban planning and instruments of urban management may enhance the opportunities of development projects that affect the social, economical and physical dynamics of the territory.

One of the main contributions of the plan is the establishment of a clear land use regime, by defining three categories: urban land, urbanizable land and no-urbanizable land. The aim is to define normative instruments to regulate and control the urban expansion. Within the proposal, it was established four urban systems that arrange the structure and functionality of the territory: Mobility System; Open Spaces System and Ecological Infrastructure; Equipments System; and Basic Services System (Puente, 2017).

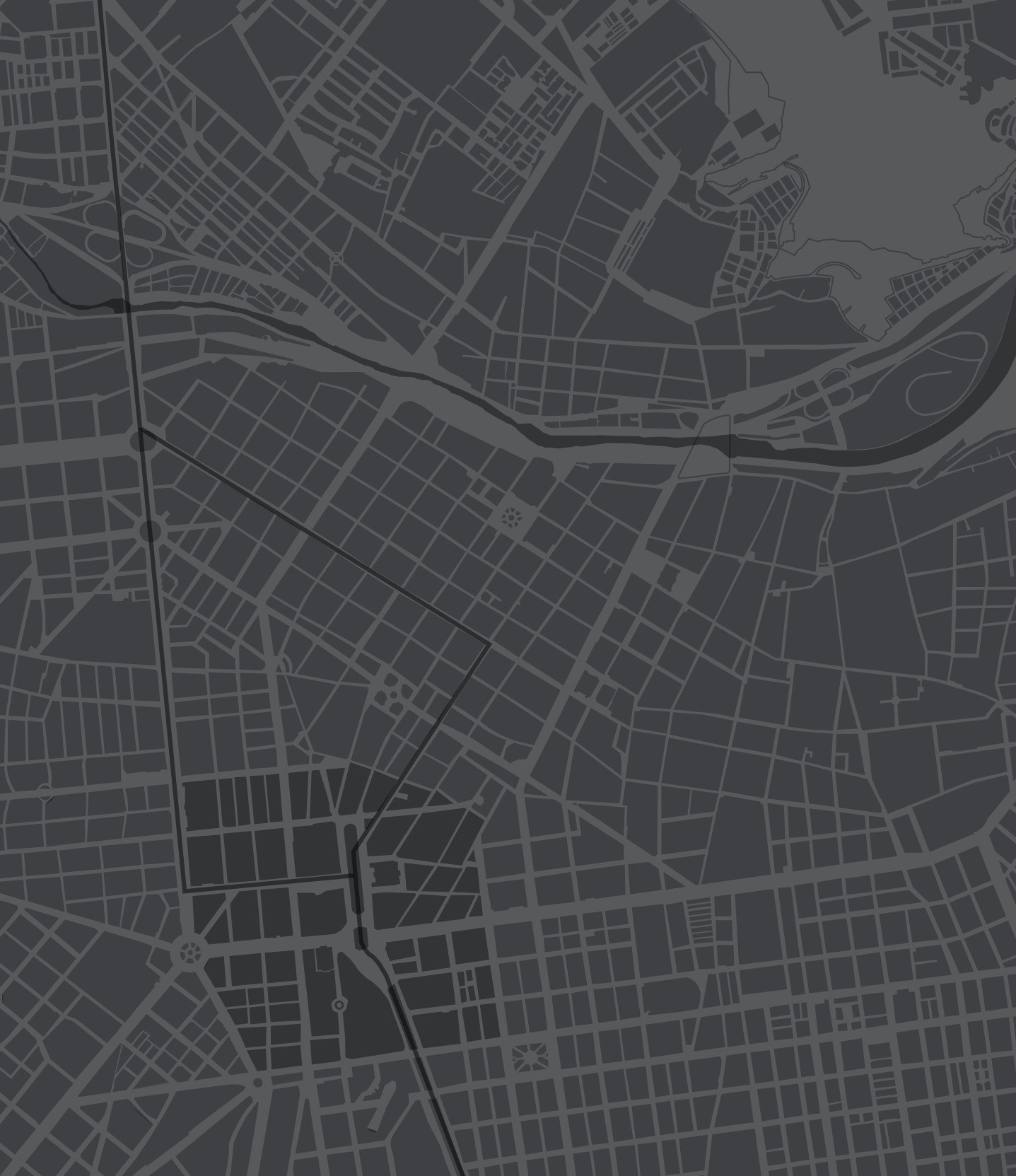
Another important contribution was the proposal of a set of urban programs and structuring projects. The urban programs group a series of projects that share the same character and are organized by type of intervention in the different areas of the territory. The structuring projects have the aim to generate structural changes and new synergies in the territory.

Although the plan has not reached success and could not be further developed, it may be considered as the only attempt of urban planning for Lima since 1992, when the city had 4 million less people inhabiting it. The scale of the challenges and problems that Lima faces today can not be solved by short term projects, which had been the failed strategy of the last majors and authorities in charge. This thesis work has been elaborated taking into consideration the PLAM 2035, once it is a valuable document of reference and maybe the only document that has talked about the Lima of today, and that is exploring for the first time how should be planned the future of the metropolis.

PROBLEM FIELD

More than 60 percent of Peruvian population settle in the cities, and the conurbation Lima-Callao is a metropolis that concentrates one-third of the country's population, and half of the national economy. Every year the number rise, creating a scenario with possibilities and contrarities that require innovative ideas, attentive to face the new challenges in the city and to provide solutions in favor of different social groups.

Lima experienced a horizontal expansion towards the peripheries, without any plan to contain it, and that left the historic center abandoned. The flow of migration increased the demand for urban lands and infrastructures, and the government failed to attend these needs. The city now suffers from urban mobility and socio-economic inequalities translated into spatial segregation. Lots of investments have been done, but there is a lack of a proper plan that could coordinate and guide the urban development of the city.



PART III CASE STUDY

As case study, it is analyzed a specific area between the historic and modern center, using as catalyst the Central Station of the BRT and the Metro Line 2, currently under construction. This chapter aims to presents the potentials and opportunities of the area, based on the recognition of its critical problems, in order to propose a set of urban strategies for the development of its surroundings. The strategies include different themes regarding transit networks, enhancement of public spaces and urban space.

4 THE AREA AND ITS SINGULARITIES

5 LANDMARKS AND PUBLIC SPACES

6 NEW OPPORTUNITIES

Figure 24 Underused
land in the city center
Source: By the author





BANO

136028

BAÑOS Y DUCHAS
GASEOSAS Y AGUAS
MARCIANOS
DE FRUTA

4 THE AREA AND ITS SINGULARITIES

Figure 25 The case study area
Source: By the author based on basemap from Google Earth

The case study is the area of direct influence of the BRT Central Station, considering a 600m walkable distance from the transit station, and it comprises an area of 114.70 ha. The area chosen has a strong connection with Lima's history as it is located between the districts of *Cercado de Lima*, which includes the historical city center, and the district of La Victoria, both belonging to the beginning of the settlement of Lima. The area concentrates different and typical phenomenon of the capital city. It has suffered deterioration not only physical but also social, and it is now growing in a very fast pace and in a way that the government can not anticipate and assure that it turns into benefits for everyone. When the construction of Metro Line 2 finishes, the area will have one of its most important stations connected to the BRT Central Station located in the area; this could be an opportunity for a better development and valuation of its surroundings. Despite the presence of important buildings that are part of Lima's architectural heritage and interesting public spaces, the predominance of an intense traffic isolates them and hinders the development of the area's potential for the articulation of new urban environments.

Following up, it is analyzed some patterns of density and urban form, and on how it reflects in urban vitality. The aim is to understand the area and to identify the potentials of urban transformations based on its conditioning elements. The analysis is done by a qualitative and quantitative approach on the local scale of the block, regarding aspects related to built density, urban form and urbanity aspects. This scale allows us to evaluate aspects that encompass the main elements that structure the urban fabric: blocks, streets, and squares.



HISTORIC CENTER

BREÑA

CERCADO DE LIMA

JESÚS MARIA

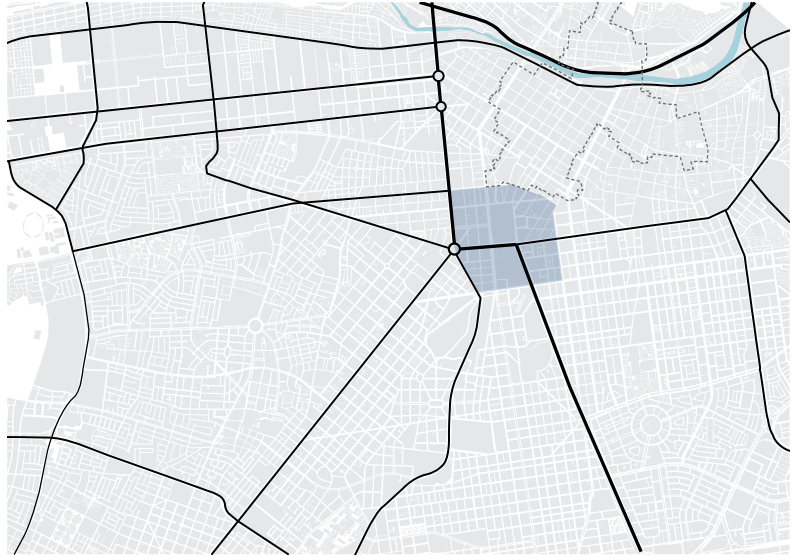
LA VICTORIA

Figure 26 Road network

Source: By the author based on data by MML

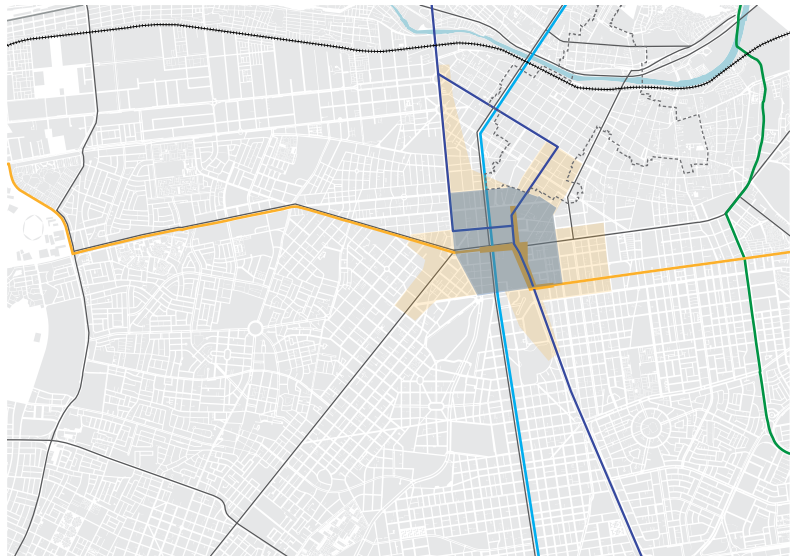
Figure 27 Mobility network

Source: By the author based on data by Protransporte and AATE



- Case Study Area
- Heritage Site
- Central Station
- Station direct influence
- Metro Line 3 (predicted)
- Metro Line 2 (under construction)
- Metro Line 1
- BRT Metropolitano
- Integration and Complementary Corridors
- Railway
- Arterial Roads
- Expressways

0 0.5 1km 2km



A METROPOLITAN NODE

The strategic location of the area in between the historic city center and the modern center, the high integration with the metropolitan road network and the potential intermodality makes the area attractive for an urban regeneration and development of mixed-use projects. The development of the Central Station will articulate much of the mass transport system once it would interconnect the Metro Line 2 (currently under construction), Metro Line 3 (predicted) and the BRT Metropolitano.

The area is crossed by important regional and metropolitan roads, responsible for most of the car flow from different regions of Lima, generating intense traffic congestion. This implies a fragmentation of the area at a local scale, and the roads end up being barriers on the territory.

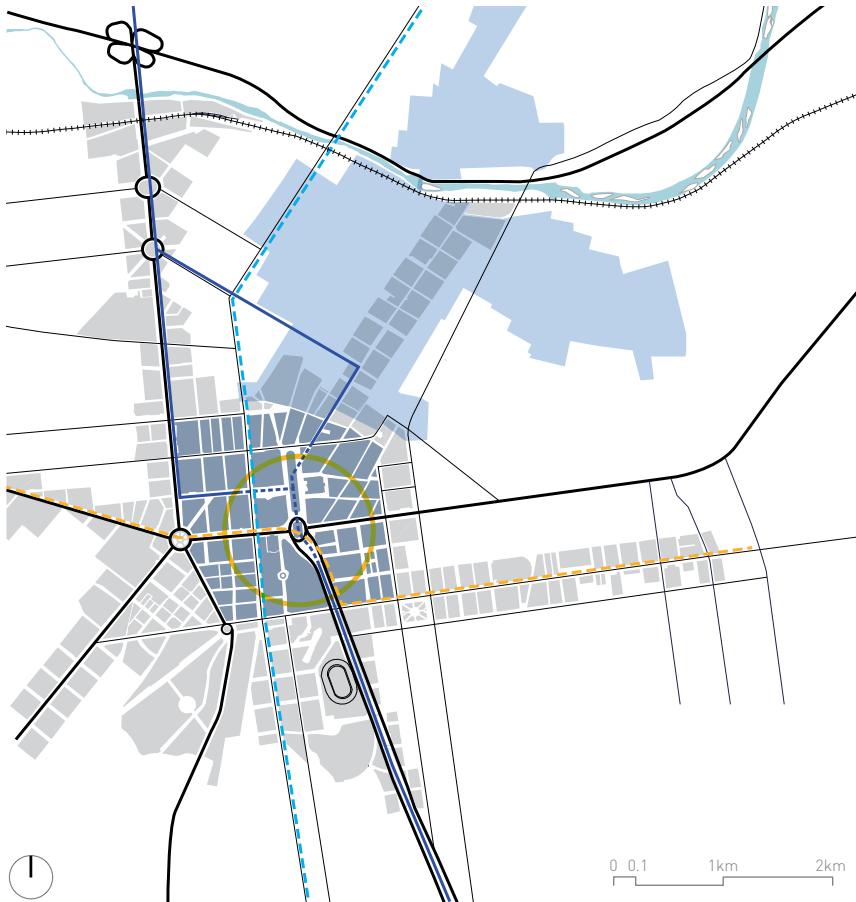


Figure 28 Central Station: Metropolitan Node

Source: By the author

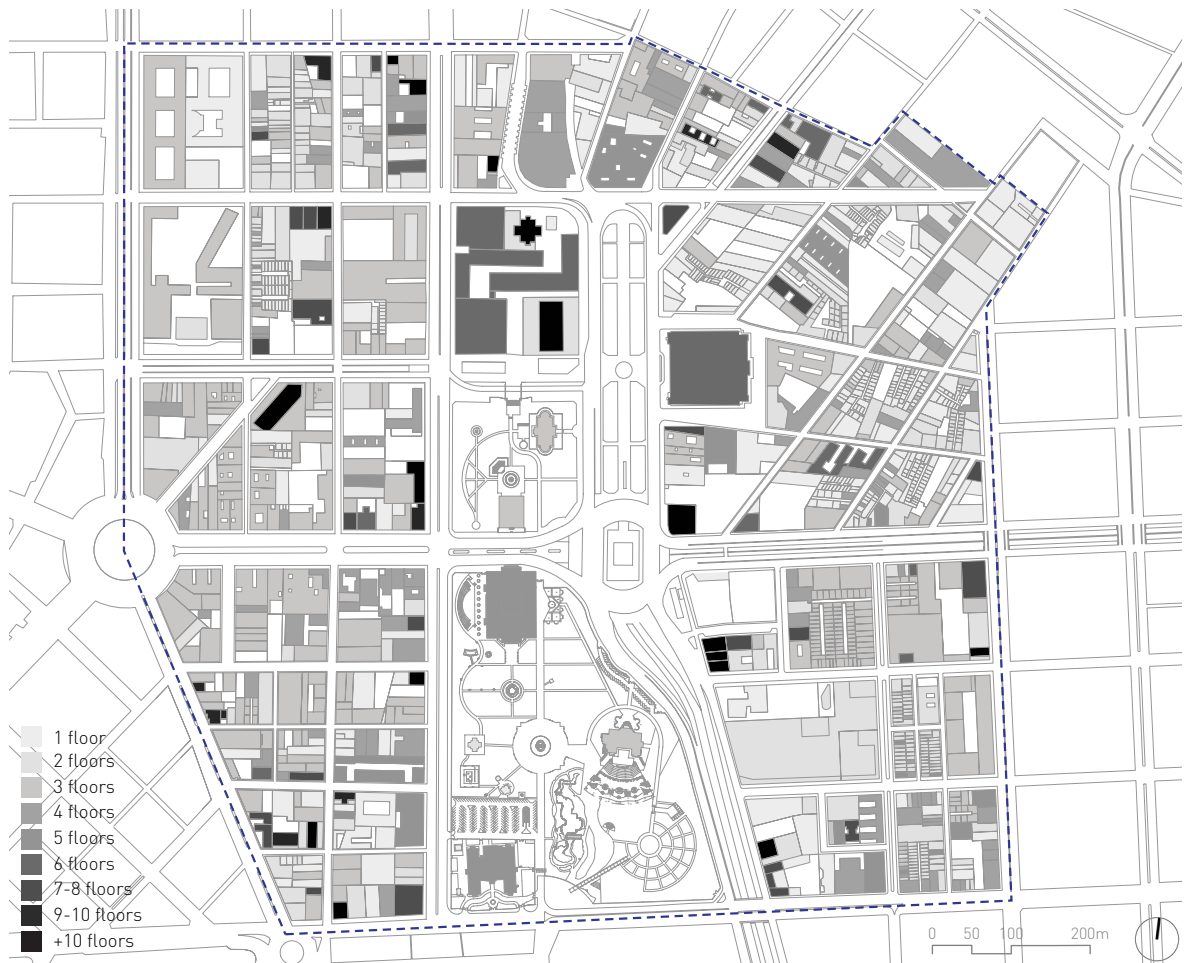
[1] The routes of line 3 and 4 are being revised, in order to optimize the system. However, the line 3 will continue to pass through the area. The route represented in the map is based on data by AATE.

BUILT DENSITY

Figure 29 Building Heights
Source: By the author

The area has an irregular skyline mixing mostly buildings with less than 4 floors with empty lots, a few tall buildings used for private and governmental offices and the Civic Center tower pop up in the urban grid. The shopping center, the Sheraton Hotel, the Civic Center tower and the Palace of Justice create the visual nodes of the area and become the first attraction and indicators of the historical city center just blocks from them.

Garcilaso de la Vega and Paseo de la Republica avenue have most of the tall buildings of the area which have more than 8 floors. However these buildings are spread along, and do not stand out from the majority of 5 floor buildings and public spaces in front of them.



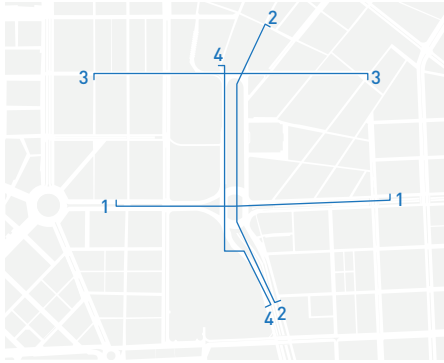
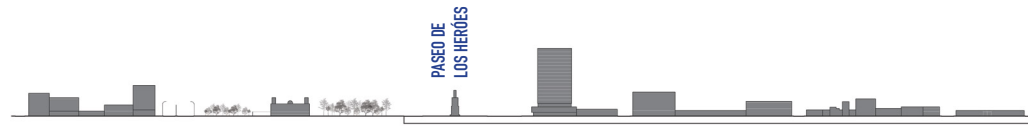
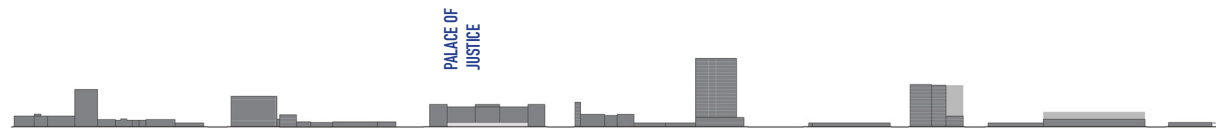


Figure 30 Longitudinal Sections of the area
Source: By the author



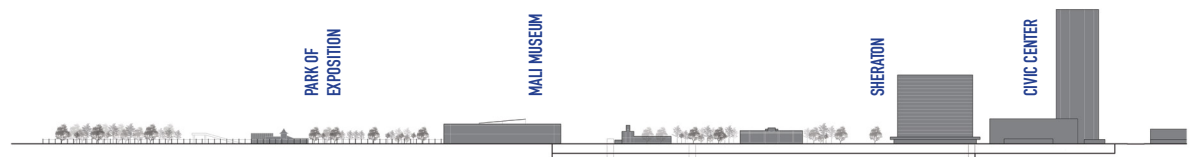
SECTION 1 | Grau Ave./ Paseo Colón



SECTION 2 | Paseo de la República Ave.



SECTION 3 | Franklin D. Roosevelt Ave.



SECTION 4 | Paseo de la República Ave.

4.1 LOWERING OF RESIDENTIAL POPULATION

The city center was planned as a regular grid next to the Rimac River by the Spanish, the core was a plaza surrounded by the main government buildings and the cathedral. The city built its walls between 1684 and 1687, the reason behind this construction was not a matter of protection once the pirate attacks have already ceased, it was more about showing the wealth and power of the vice-royalty. From an urban perspective, the walls meant a lot as it defined the morphology of the historical center and the districts surrounding it. Another major event that defined the urban growth of Lima was the earthquake of 1746 which destroyed a great part of the city and the Port of El Callao. This catastrophe put an end to the Great Baroque style of the city, and the rebuilt was made following a Rococo style and later, by the decades between 1920s and 1940s, the urban idea of the English garden city through a North American influence was adopted in the city. During the years following the country's independence (1821), Lima did not undertake any mayor urban project because there were years of political and economic instability; the areas inside the walls where the city was supposed to expand were left empty as the growth of the city hold back. In 1870, the walls were demolished as part of a plan for modernizing Lima and expand it towards the sea. The area where the walls were located, was replaced by boulevards and wide avenues full of trees surrounding the city like a ring. However, this ambitious plan was more a way of speculating towards a future urbanization as the land inside the wall, by the that time, was only covered by 58 percent, so there was no need for this aggressive expansion plan (PROLIMA 2014).

During the 1920 to 1940s the city expanded by the creation of big urbanizations of villa type houses. Eventually the center was no longer attractive to live for the high and medium classes, they preferred less crowded and larger lands farther from it, which had free space to build their villas. So around the year 1945, when the process of migration to Lima was starting to get massive, the people with lower incomes started occupying lands outside the grid in the periphery but first they saturated the neglected city center trying to fulfill the lack of housing infrastructure that was available for them. In these last decades a deteriorated city center was occupied by the poorer, the big houses once the homes of a single big family were informally divided and became the home of lots of poor families living in an overcrowding critical situation. Many buildings also were adapted for commerce and office use and reached four to six levels. All this situations led to the distortion of the traditional urban space of the historic city center (PROLIMA 2014).

It was mainly developed road projects looking for a better way of mobilizing with cars in the city center and in Lima. It was just in 1986 that the authorities created a special group of people that was in charge of creating a plan for the development and maintenance of the city center. Furthermore, in 1991 Lima's historical center was declared world heritage by the UNESCO because of its rich architecture and history (PROLIMA 2014). Around 1997 the mayor of Lima started applying radical measures to restructure a city center that had lots of problems, including a disastrous cleaning system, insecurity and a proliferation of street vendors that occupied the streets with precarious structures.^[1] Big steps towards a renovation of the city

[1] 'Alberto Andrade: El legado que dejó el ex alcalde a todos los limeños', Peru 21, 19 June 2015 [Online].

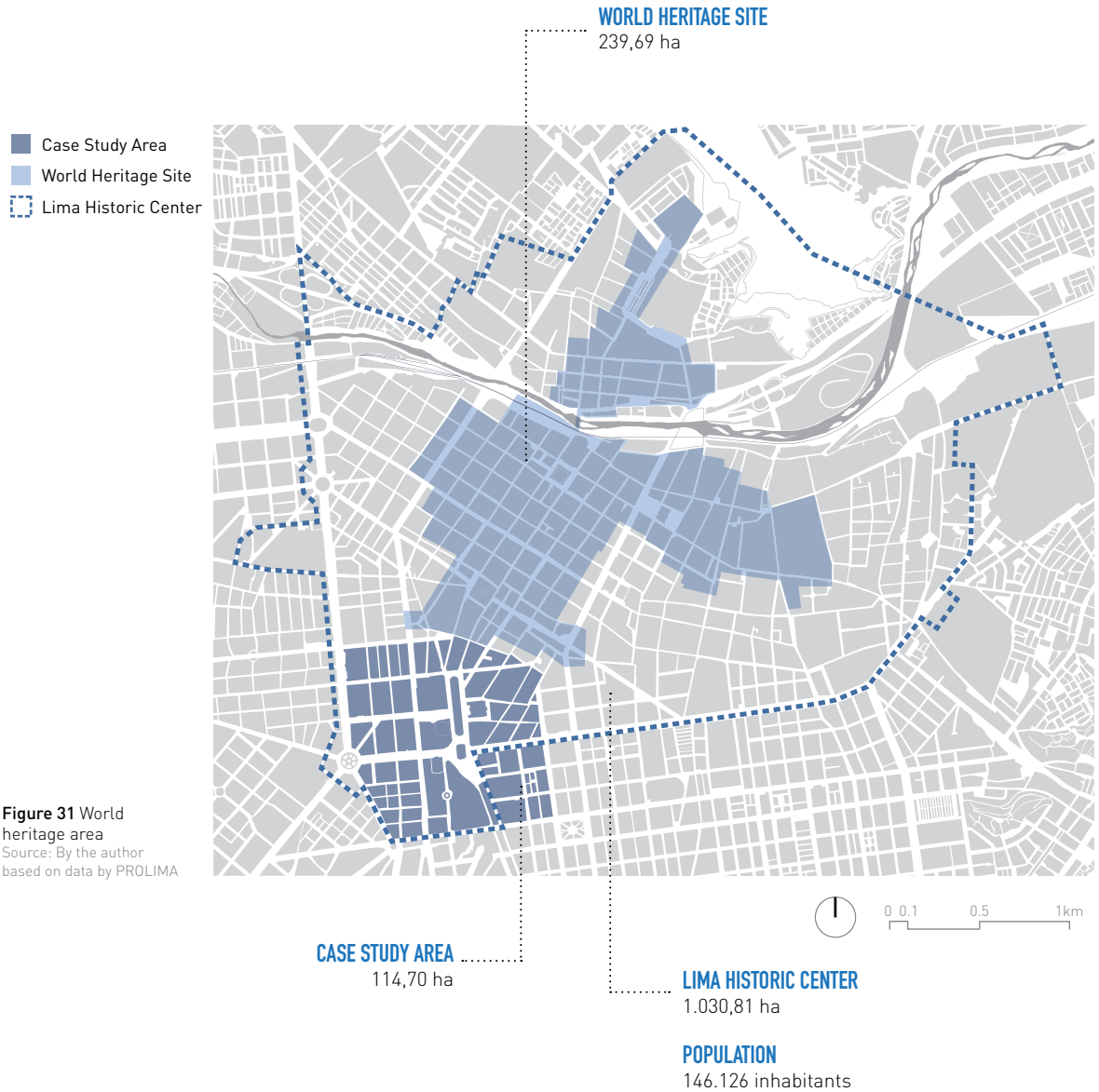


Figure 31 World heritage area
 Source: By the author based on data by PROLIMA

It is estimated that more than 1 million 800 thousand people circulate in the area^[1]

[1] Statistics numbers from 2015, collected by INEI.

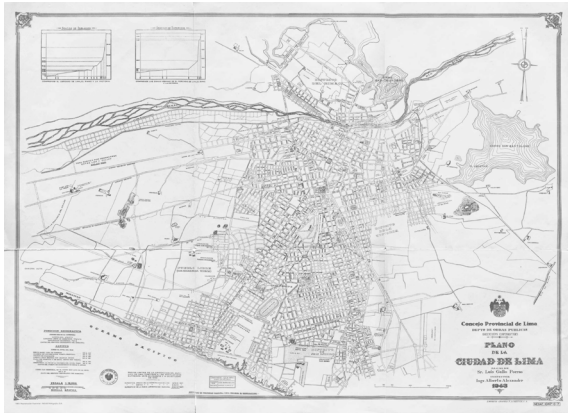
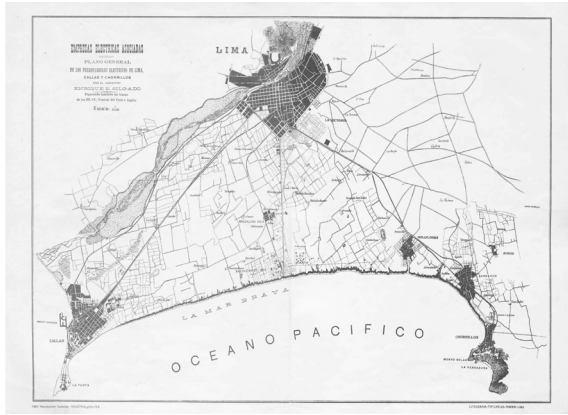


Figure 32 Lima, 1908
Source: Planos de Lima, 1613-1983

Figure 33 Lima, 1943
Source: Planos de Lima, 1613-1983

center were successfully done, however a lot was still to be accomplished, private investment was attracted and many buildings were renovated but mainly in the more touristic or intense commercial areas.

Outside the site declared as World heritage the situation is a lot more critical as authorities can not support owners to maintain their properties and there are no laws and incentives that requires to maintain them. There is not a culture of appreciation for the architectural heritage as most owners prefer commercial uses instead of investing in renovating or looking for other options that would benefit from the historic attractiveness of the buildings.

In the present an unbalanced intensity of activities exists during night and day in the area and in the whole city center, which contributes to the insecurity of the place. The buildings that have been renovated have been mainly for office uses which only generate activity during the day, new residential buildings projects are very few and the increase of warehouses also do not contribute for people that could be walking and using any kind of services during the night assuring more vigilant eyes on the streets and creating a better neighborhood life.

All of this situations do not help making the city center once again an attractive place to live, and instead other uses are dominating the area, creating an unbalanced flow of activities and deteriorating the area. The added benefit of living in a historical and attractive place is being wasted as most residential buildings are in need of maintenance. The problem of overcrowded houses in precarious conditions needs a solution, by readjusting this buildings and/or relocating the families into proper edifications, preferably in the same area in order to incentive residential use in the neighborhood and to fill the housing deficit.

RESIDENTIAL LAND USE

There are few residential buildings and none future residential projects in the area. Furthermore many of the residential buildings are overcrowded, occupied by several families, sometimes illegally, and at risk of collapsing due to the building's age and the lack of maintenance. The reduced number of residential uses is a tendency in all the city center, and contribute to the insecurity and commercial informality.

Figure 34 Residential use at street level
Source: By the author

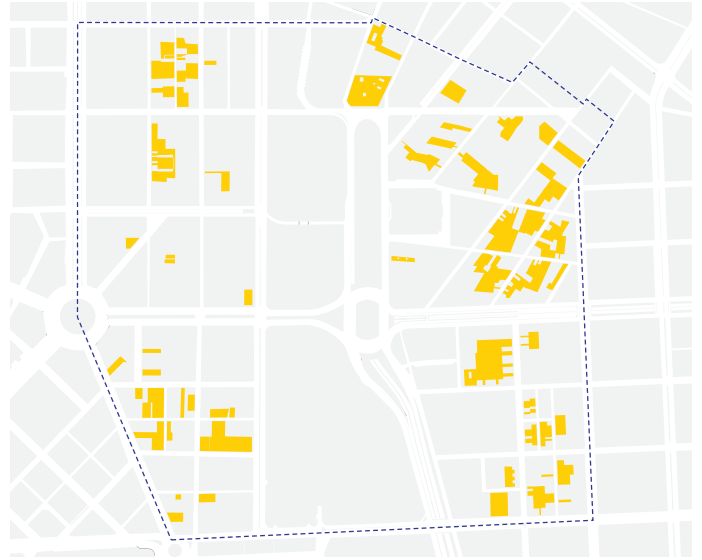
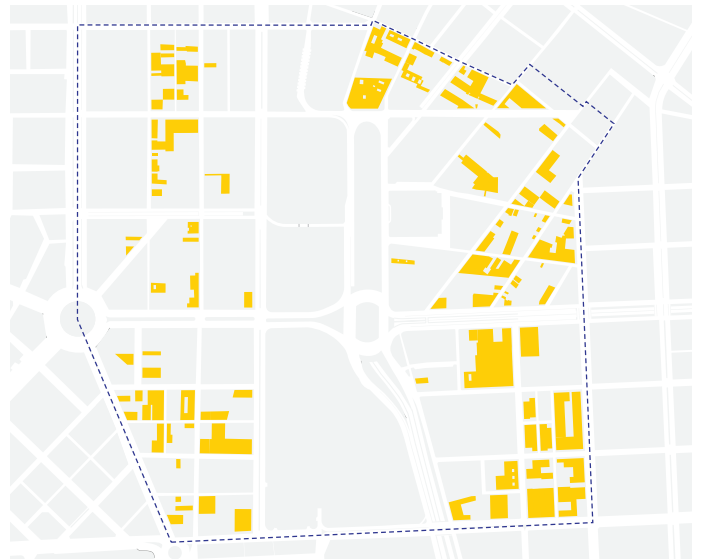


Figure 35 Residential uses at upper floors
Source: By the author

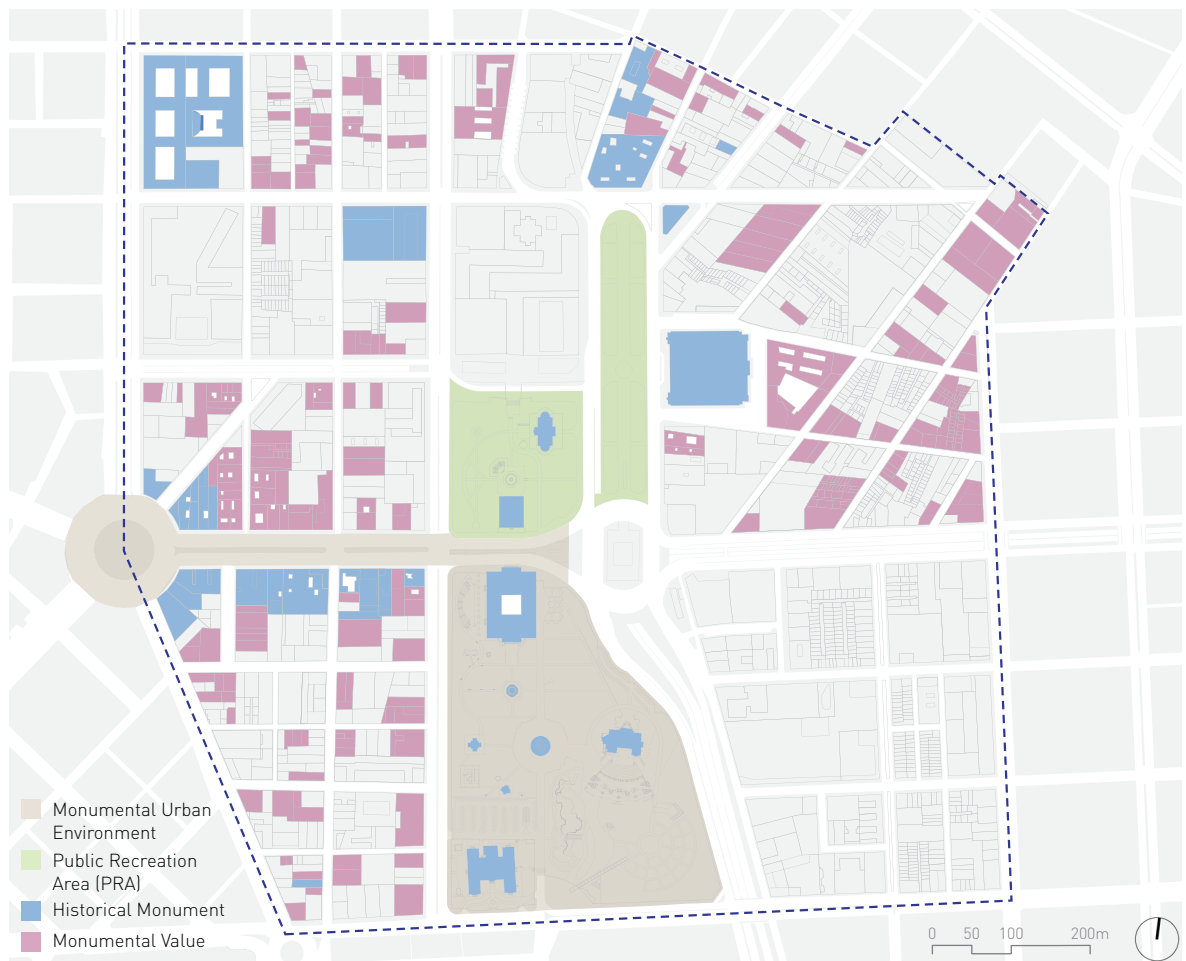


THE HERITAGE VALUE

Figure 36 Heritage status

Source: By the author based on data by PROLIMA

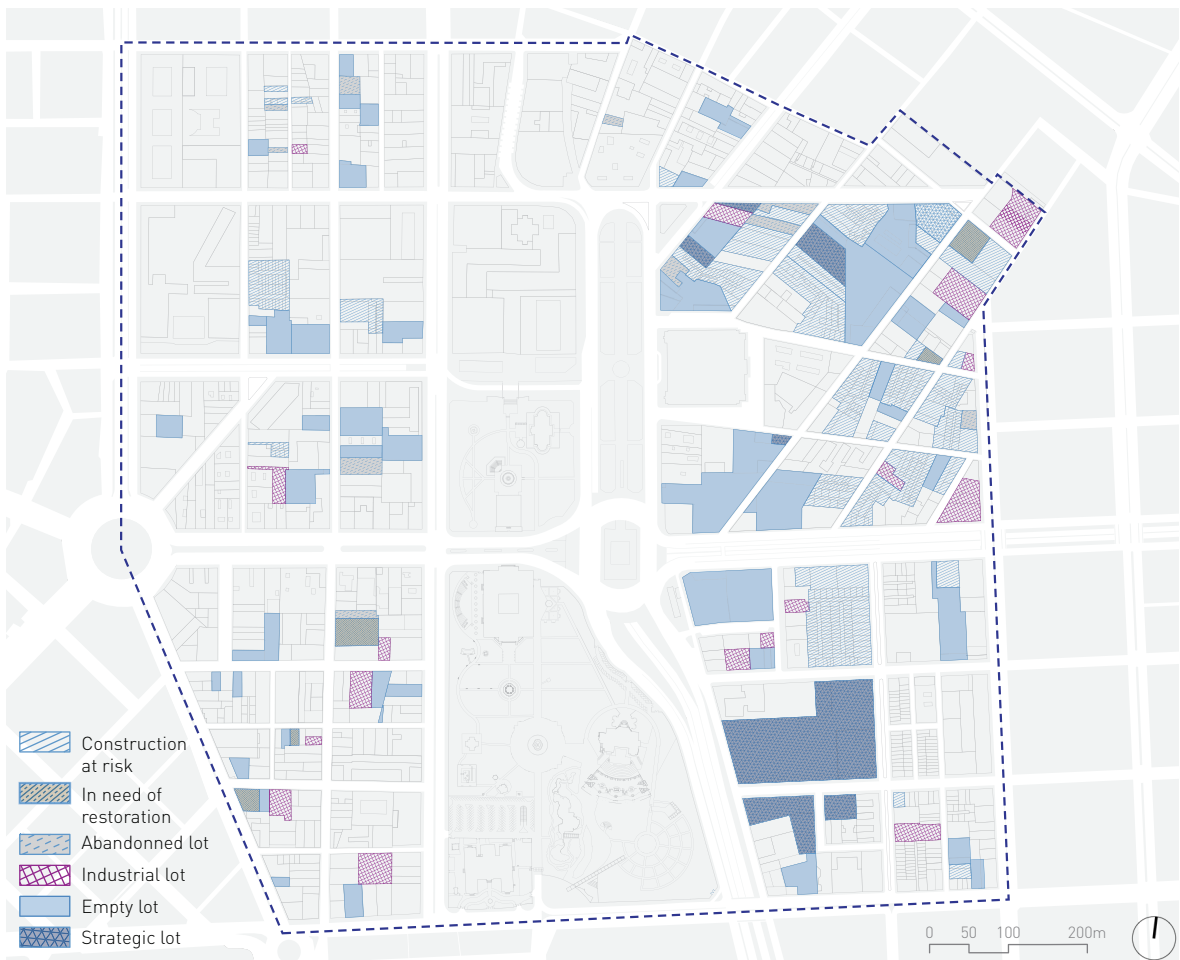
Although the area is not part of the World Heritage Site, it has historical monuments, many buildings considered with Monumental Value and areas considered Monumental Urban Environments. However, it is a challenge to maintain the buildings that are considered of monumental value as their ownership belongs to privates that do not see any benefit in maintaining them and are not being well supervised and encouraged by laws and public policies. Fires and prohibited demolitions are common to happen, and so the heritage value is continually being reduced.



POTENTIAL URBAN VOIDS

The area surrounding the Palace of Justice shows a concentration of lots that are in need of restoration or that are empty/ underused. A considerable amount of empty lots shown in the map are currently used for parking, storage or even small bus terminals. The strategic lots indicated in the map, correspond to lots with existing commercial activities that might have its use enhanced guided to an urban development of the area. Currently, these commercial uses respond to another need that entail a higher informality in its surroundings.

Figure 37 Built status
Source: By the author

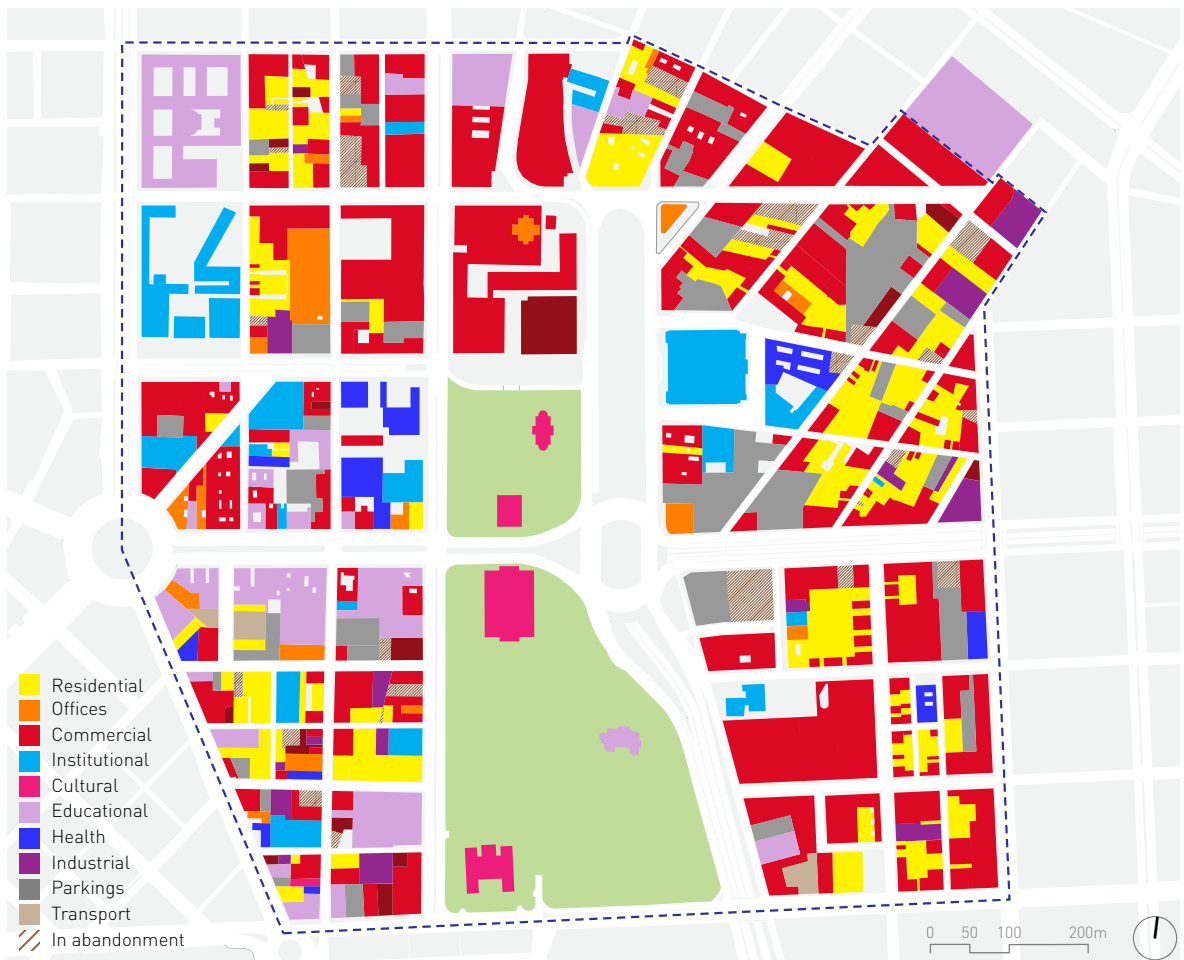


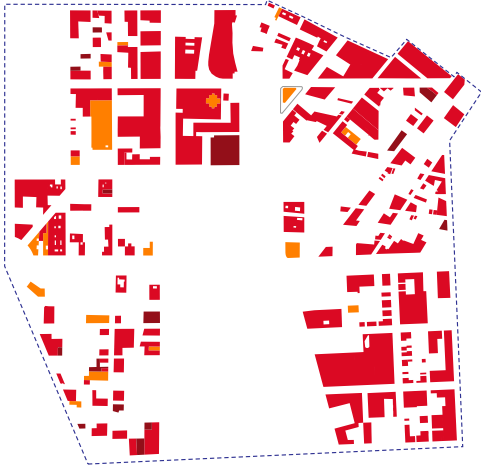
GRADIENTS OF LAND USE

Figure 38 Land uses at street level
Source: By the author

In the area a heterogeneous land use has been identified, predominantly commercial uses. The Historic Center along with the metropolitan Lima, have experienced the process of changes and transformation of the city within the context of the global economic restructuring, due to the rise of the tertiary sector, in other words, commerce and services. The area is characterized by intense commercial activities, most of these are composed by small business, commercial conglomerates and various services.

The ground floor are usually occupied by retail trades and restaurants, while the upper floors are office occupation. The small commerces are mostly linked to population density and daily

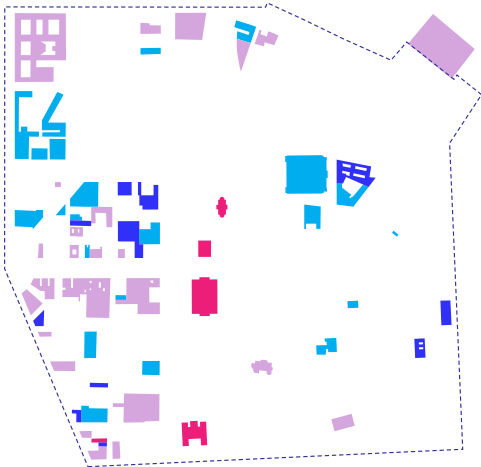




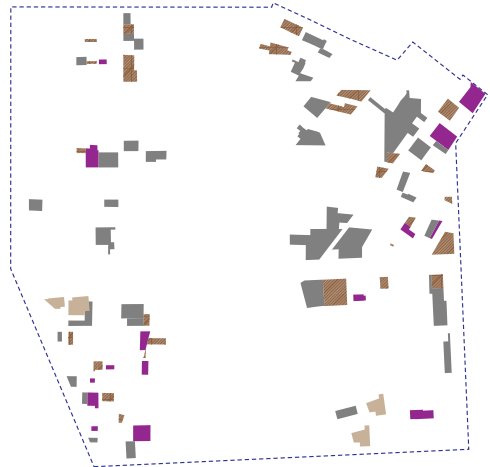
COMMERCIAL + HOTELS + OFFICES



RESIDENTIAL



INSTITUTIONAL + FACILITIES



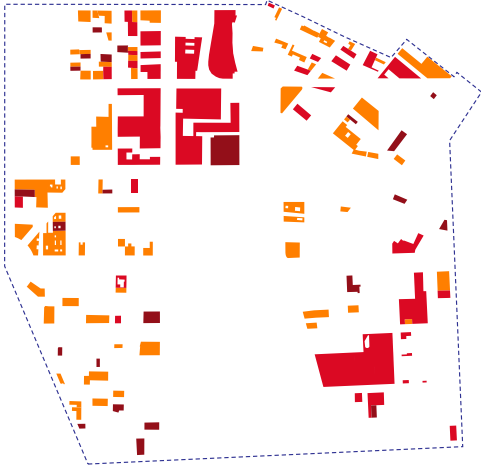
UNDERUSED AREAS

Figure 39 Land uses at upper floors
Source: By the author

dynamics, and have been opened progressively without any order or municipal control, some of them in the residential houses themselves, generating a dispersed commercial system with a low level of service quality and economic attraction.

The city center still concentrates most of the administrative activities of the public sector, religious and cultural activities, once the Government Palace, the seat of the executive branch is located nearby. In the area is located the Palace of Justice, and consequently legal activities and services related are concentrated on its surroundings. There are many empty plots occupied by public parkings and transportation companies of buses, and some few remaining industrial plots that have been replaced and surpassed by other activities

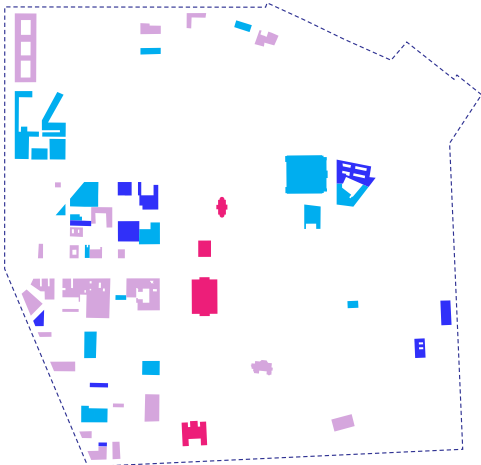




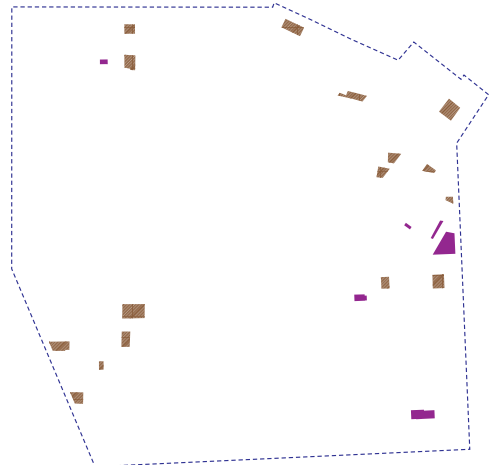
COMMERCIAL + HOTELS + OFFICES



RESIDENTIAL



INSTITUTIONAL + FACILITIES



UNDERUSED AREAS

4.2 INTENSE COMMERCE DOMINANCE

Three very crowded commerce clusters coexist in the area, with high concentration of street vendors on its surroundings. One of them is located mainly in Wilson's Avenue and concentrates the most important group of small, medium and large stores related to computers, technology and printing in the city and in the whole country. It started occupying one or two galleries full of small stands, however nowadays the situation spread into more than three blocks along the avenue and more than 20 galleries sell related products. Software piracy is commercialized in the whole area and has been part of the culture of many, instigated by an informal economy that has grown aggressively with time, and although some have become formal, the majority remain informal. This commercial activity has expelled other uses as the demand for new spaces for galleries has increased the prices. As a consequence, residential use is minimal in the area close to the galleries, which results in a very intense activity during the day but almost none at night, increasing insecurity. This intense commerce activity converted the place a reference point for all the city; almost every citizen of Lima has once bought something from this technology cluster, which has a huge potential for public projects.

The intense flow of people in the area encouraged the private investment, and a large chain of shopping centers has settled in the old civic center building, bringing all the modern entertainment facilities to the place. The change of use from a public building to a private commercial space somehow improved nearby streets by connecting them through an open first level.

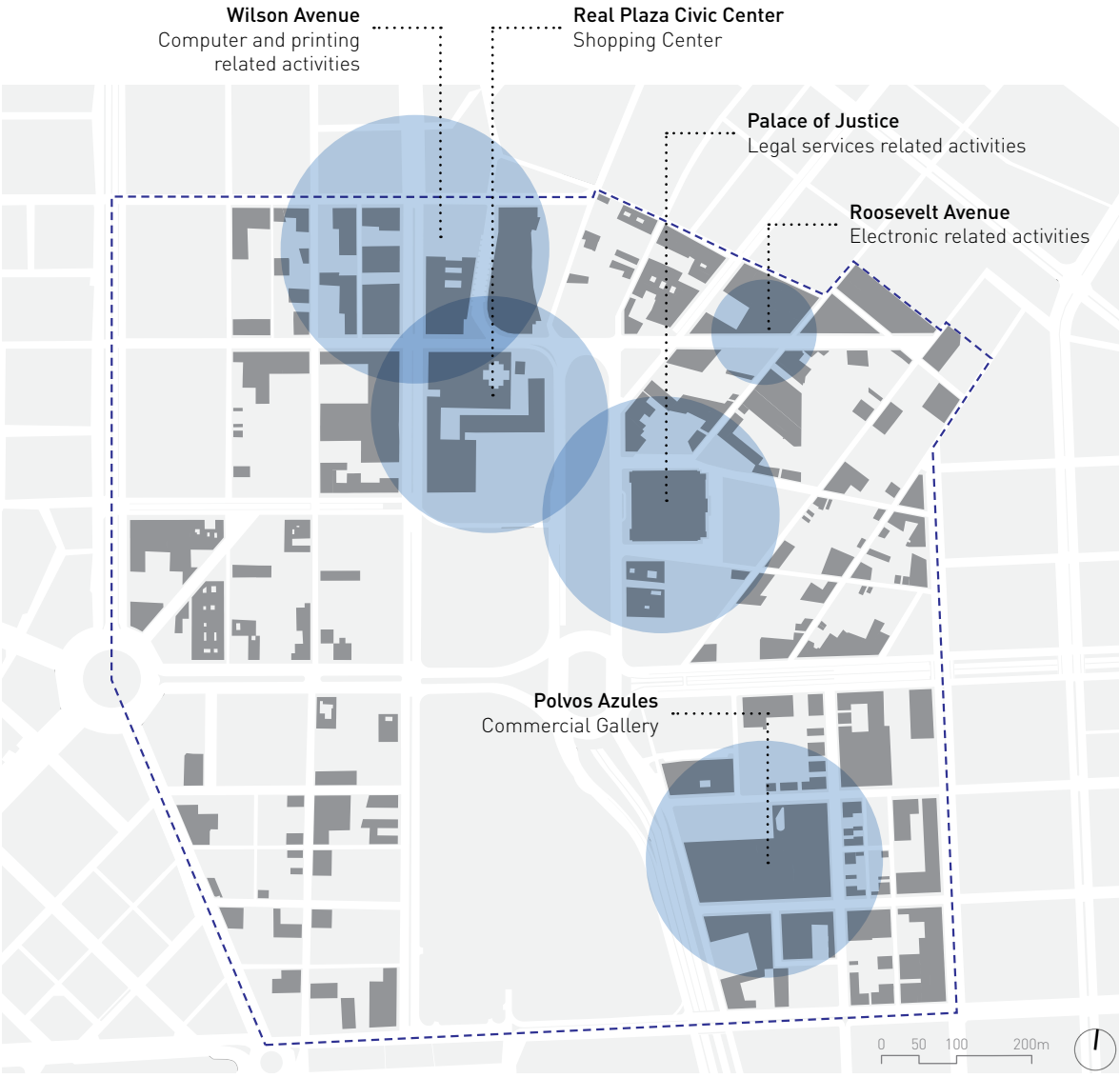
Next to Paseo de la Republica Avenue and in the district of La Victoria is located the commercial gallery of *Polvos Azules*. This place was built by a group of around three thousand vendors who used to be street vendors and who were grouped in an empty open space close to the Rimac River. The plot was not suited for commercial activity and the authorities demanded their removal from the site, but only after a suspicious fire, occurred in 1993, the group of vendors accepted to move to another site where they were able to build a gallery of around 30.000 square meters. Now this gallery has increased commercial activities in all the surroundings, but it has also decreased the demand for residential projects.

An informal commerce agglomeration surrounds the Palace of Justice. The legal activity and printing services that work well with the Justice building operations have attracted an alternative informal and illegal businesses of small stands that offer any kind of documents, including illegal falsifications for a specific price. A couple of blocks full of this kind of activity are well known to operate in the area and although the police do make operations to eradicate them, it only stops them for short periods of time.

Not only have the commerce increased but also the offices, the majority of people work in the city center but do not live there. The demand for parkings is really high, and the use of public transport is not an option for the office workers, because of the poor quality of service that most of the buses offer. As a consequence, lots of empty small plots have been transformed into improvised parking lots. These parking lots are also used for the real estate speculation, and meanwhile, it is being missed the opportunity to offer a good use of these plots that could provide something interesting to the city and its inhabitants, and hence, value the area.

Figure 40 Commercial clusters
Source: By the author

Although these intense commerce activity keeps the area with an intense flow of people during the day, the predominance of this mix of informal and formal activities has repelled residential uses, which increase the insecurity of the area, especially during night hours. Warehouses are installed in old buildings that are no longer habitable, as the demand for space for commercial purposes increases, and this also encourages the remaining residents to sell their deteriorated properties instead of trying to restore them.



4.3 PEDESTRIAN UNFRIENDLY

For the last decades Lima has had a car oriented vision that has influenced every plan and infrastructure project made for the city. This particular area lacks of any kind of bicycle paths; sidewalks tend to be narrow and pedestrian crosses are a challenge as people have to walk through a sea of chaotic drivers. However, this is not only an isolated case, it is the usual situation in most areas in Lima. There is a very poor driving culture, where pedestrians come last in priority; not only the environmental contamination but also the acoustic contamination caused by car horns and old engines are a constant hazard towards people.

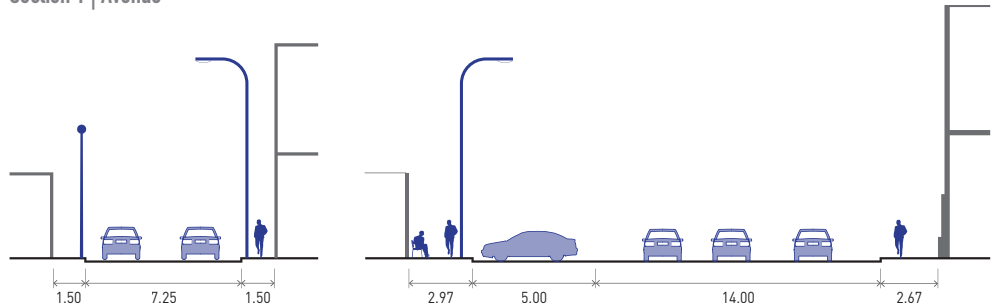
One of the main problems regarding transit is that the vehicular traffic, which keeps getting more congested, has to cross the city center as it is a forced way to get to the most populated districts in the northern part of Lima. Moreover, Paseo de la Republica is a metropolitan express way that ends up at Grau's Avenue, this creates an intersection which is heavily congested once lot of cars that need to get into Lima's north districts have it. For a pedestrian crossing, this intersections are scarce, really stressful and not safe, even though a lot of transit police are trying to help organize the traffic during the whole day.

There are many parking lots in the area, however there is only one big parking building in the area close to the city center, and it belongs to a shopping center, all the rest of the parking lots

Figure 41 Typical Street Sections
Source: By the author



Section 1 | Avenue



Section 2 | Local street

Section 3 | Local street with parking

Figure 42 Car circulation diagram
Source: By the author

are spread in empty lots. This situation does not help to organize a more pedestrian use of the areas and increase the circulation of cars looking for parking spaces.

Citizens and authorities understand that there is an urgency to solve the vehicular transport chaos and so the priority has been given to projects that try to improve circulation of cars and buses. However, without a general plan that serve as a guideline project, it usually end up being isolated solutions that do not generate great impacts and become overloaded with time. Nonetheless, over the last years the government has started investing in mass public transportation, the bus rapid transit system, the metro and even some municipality's initiative in alternative transportation like bicycles. However, there are lot to be done, specially concerning bicycles and pedestrian improvements.

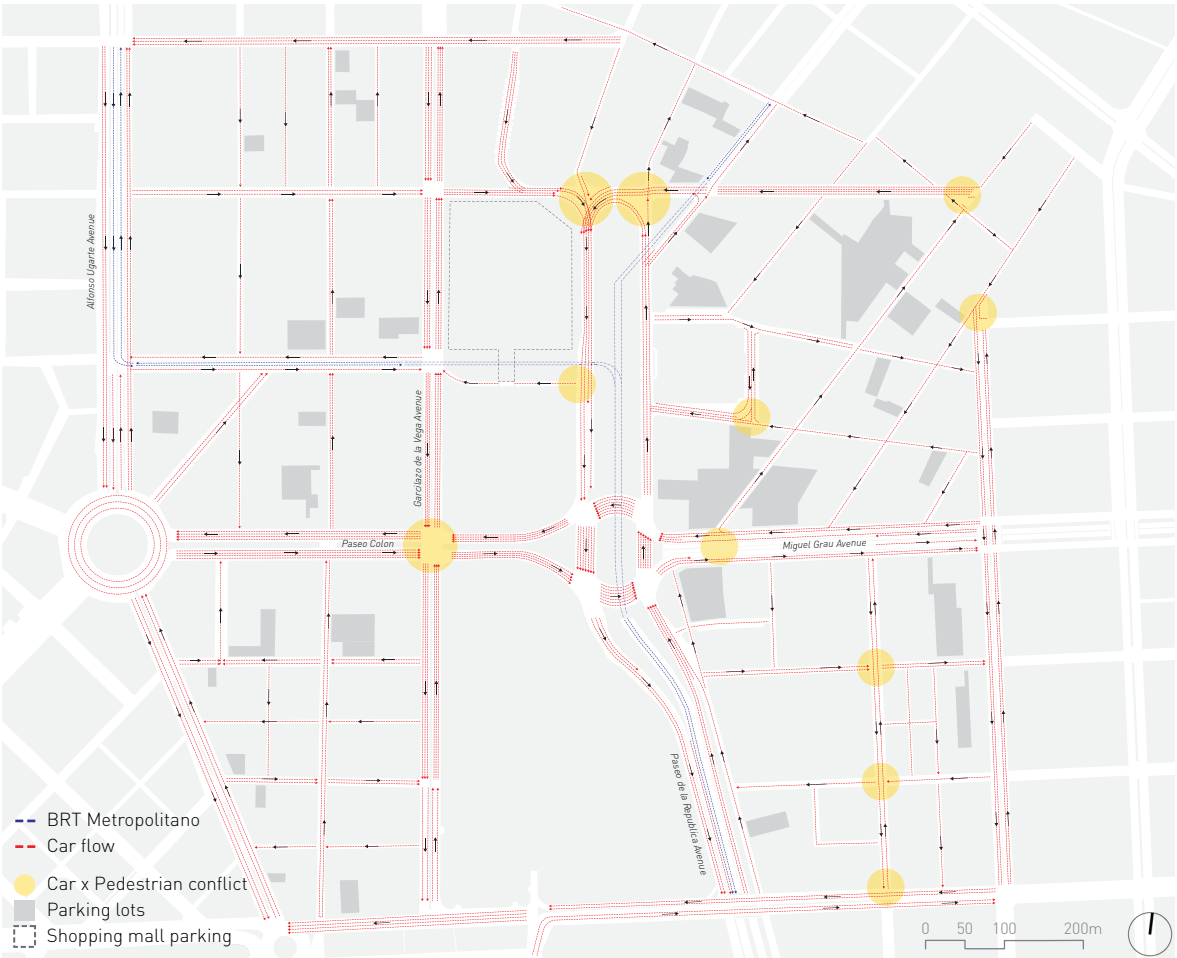




Figure 43 Lack of pedestrian crossings and wide avenues
Source: By the author



Figure 45 Lack of pedestrian crossings - Paseo de los Heroes
Source: By the author



Figure 44 Narrow streets and sidewalk
Source: By the author



Figure 46 Underused plots (on the left) and the Palace of Justice (on the right)
Source: By the author



Figure 47 Constructions at risk and abandoned

Source: Google StreetView

Figure 48 Constructions abandoned (on the left) and construction with monumental value (on the right)

Source: Google StreetView

Figure 49 Constructions with monumental value

Source: By the author

Figure 50 Polvos Azules commercial gallery

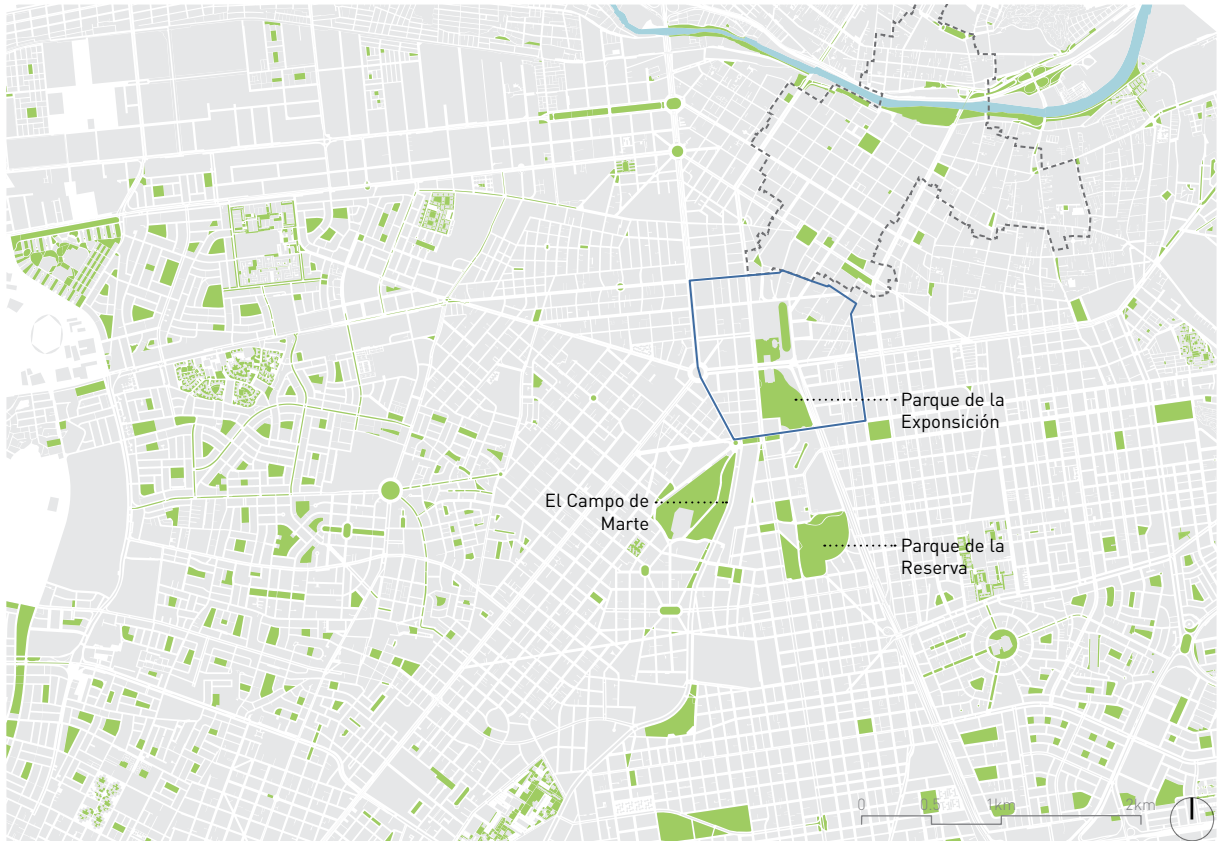
Source: RPP

5 LANDMARKS AND PUBLIC SPACES

Figure 51 Green Areas network
Source: By the author

Lima has been known as “garden city” due to the large number of parks it owned, especially in the early twentieth century, but with the intense migration during the mid twentieth century, and the consequent substantial growth of the urban area, the city lost this attraction. According to the PLAM (2014), there is approximately 3.6 square meters of green area per inhabitant (against the 9 to 12 square meters per inhabitant recommended by the World Health Organization - WHO).

At the center of the map three of the largest green areas of Lima are shown: *Parque de la Exposición*, *Parque de la Reserva* and *El Campo de Marte*. *Parque de la Reserva* has become an entertainment park with an entry fee required, the other two are free, although, the entrance is organized according to an schedule.



The area is characterized for having big scale visual references that are easily recognizable for Lima citizens; they are unique either by their size or the image they have, as Kevin Lynch describes, this particular recognizable objects in a city could be described as landmarks.

Figure 52 Landmarks and relevant public spaces
Source: By the author

The historic city center has many landmarks with different characteristics, the area does not lack visual interest and it is already in the visual imaginary of the citizens. It is interesting to analyze what is the importance of these landmarks and if their function in the city could be further enhanced, which of these could become nodes or already are potential places that could help create a better urban life.

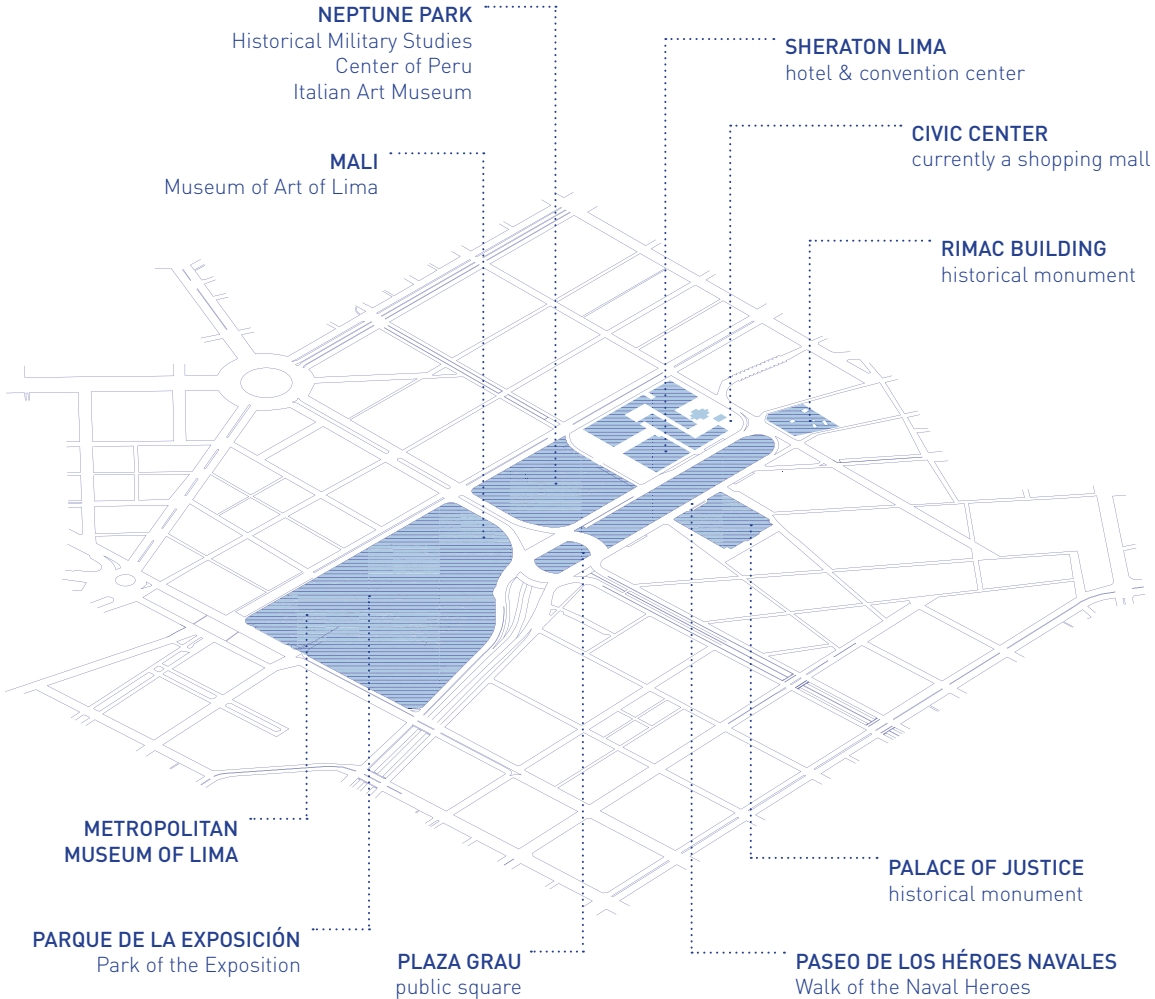


Figure 53 Green Areas and Vegetation
Source: By the author

STUDY AREA 114.70 ha **GREEN AREA** 9.18 ha **PUBLIC SPACE** 17.98 ha*

Most of the green areas are concentrated in the Parque de la Exposición. Paseo de los Heroes also has green areas but are only ornamental and people are not allowed to step on them. Because of the Bus Station underneath there are no big trees. Streets have almost no vegetation and if they have is modest and can not provide any shadows to pedestrians. There is a critical problem of pollution from cars and buses which affects not only people but the scarce vegetation and animals in the area.

* Streets and sidewalks not included



STUDY AREA 114.70 ha **BUILT SURFACE AREA** 49 ha

The area is defined by grid-like pattern, and is characterized by a large public area in the middle surrounded by blocks. Inside these blocks there are many open areas with variable sizes. Blocks vary from having almost all their surface occupied to having half or without any building. Most of these lots were once buildings with historical value but are now areas for parking or abandoned waiting to become storages.

Figure 54 Built and non-built areas
Source: By the author



ITALIAN ART MUSEUM

SHERATON LIMA

CIVIC CENTER

RIMAC BUILDING



Figure 55 View north from the Paseo de los
Heroes Navales (Walk of Naval Heroes)
Source: By the author

PALACE OF JUSTICE

ACCESS TO CENTRAL
STATION



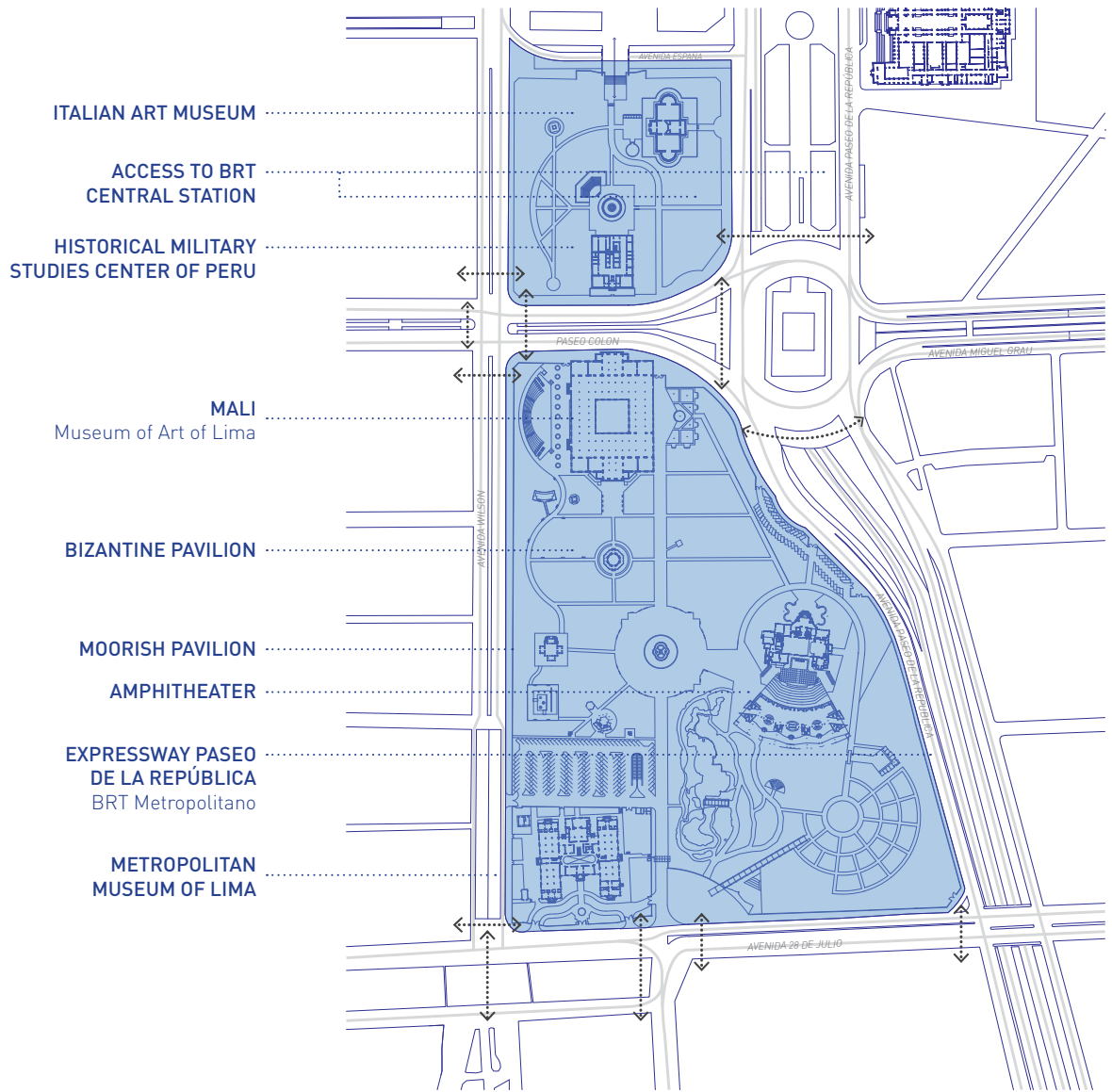


Figure 56 Park of the Exposition - Site Plan
 Source: By the author

5.1 PARQUE DE LA EXPOSICIÓN PARK OF THE EXPOSITION

When the walls that surrounded Lima were demolished in the year 1868, new areas for the expansion of the city became available. It was also during this time that international fairs were happening all over the globe as symbols of progress and wealth, so Lima made its first public exposition to show its own local natural products, its industry, its local art, and its historical and interesting archaeological pieces.

What is more, the president at that time wanted to celebrate the 50th Anniversary of the independence and so in 1869, he ordered the construction of *El Palacio de la Exposición* (Exposition Palace) which was built as one of the most iconic buildings of the exposition. In 1872 the exposition opened its doors to the public, the building/palace was surrounded by large green areas that included pavilions, fountains, lakes, zoos, and many other attractions. This space became the largest and first public space of Lima, the palace was also the first building made with steel in the country, even its columns were brought from Europe directly from the Eiffel House. All of this shows the effort that the government made for showing that Peru was a country with a great present and bright future.^[1]

The city grew and more urban areas appeared further away from the once walled center, new axes were created to connect this new Lima, and as a result the large land used for the exposition, once the largest public space in the city, was cut down to small parts divided by roads for future car use. The Exposition Palace, after the exposition and until 1879, was used as the headquarters of the society of fine arts and then it became a blood hospital during the Pacific War. After 1883, when the war was over, it was used by different governmental institutions until 1954, when it became the Museum of Art of Lima (MALI). In 1973, after its restoration, it was declared a historical monument and in 2016 a public international architecture competition was held for designing the expansion of the museum in an area next to the original building. The presence of the building on the surface will be minimum, instead, most of it will be underground so it will not cause any conflicts with the original monumental architecture.

The Museum of Art is one of the most important cultural places of the city, moreover, there is also the Italian Museum of Art and some other small pavilions that make the area a cluster of culture. The park is also an attractive place for citizens once it works as a resting and entertaining area during the whole week for students, office workers and tourists, however, the roads that divided the original park have become very congested avenues. As a result, this public spaces work as fragments and moving through them for pedestrians have become tortuous.

The first major public space in Lima could have a better relation with its context instead of becoming isolated in the middle of the vehicular traffic and being fragments of parks. Pedestrians should be given priority in the area, new plans and projects should aim for enhancement of these conditions for them.

[1] Hiromoto, C. (2016) 'Clásico de Arquitectura: Palacio de la Exposición/ Antonio Leonardi. [Online] Available: <https://www.archdaily.pe/pe/789597/clasicos-de-arquitectura-palacio-de-la-exposicion-antonio-leonardi>

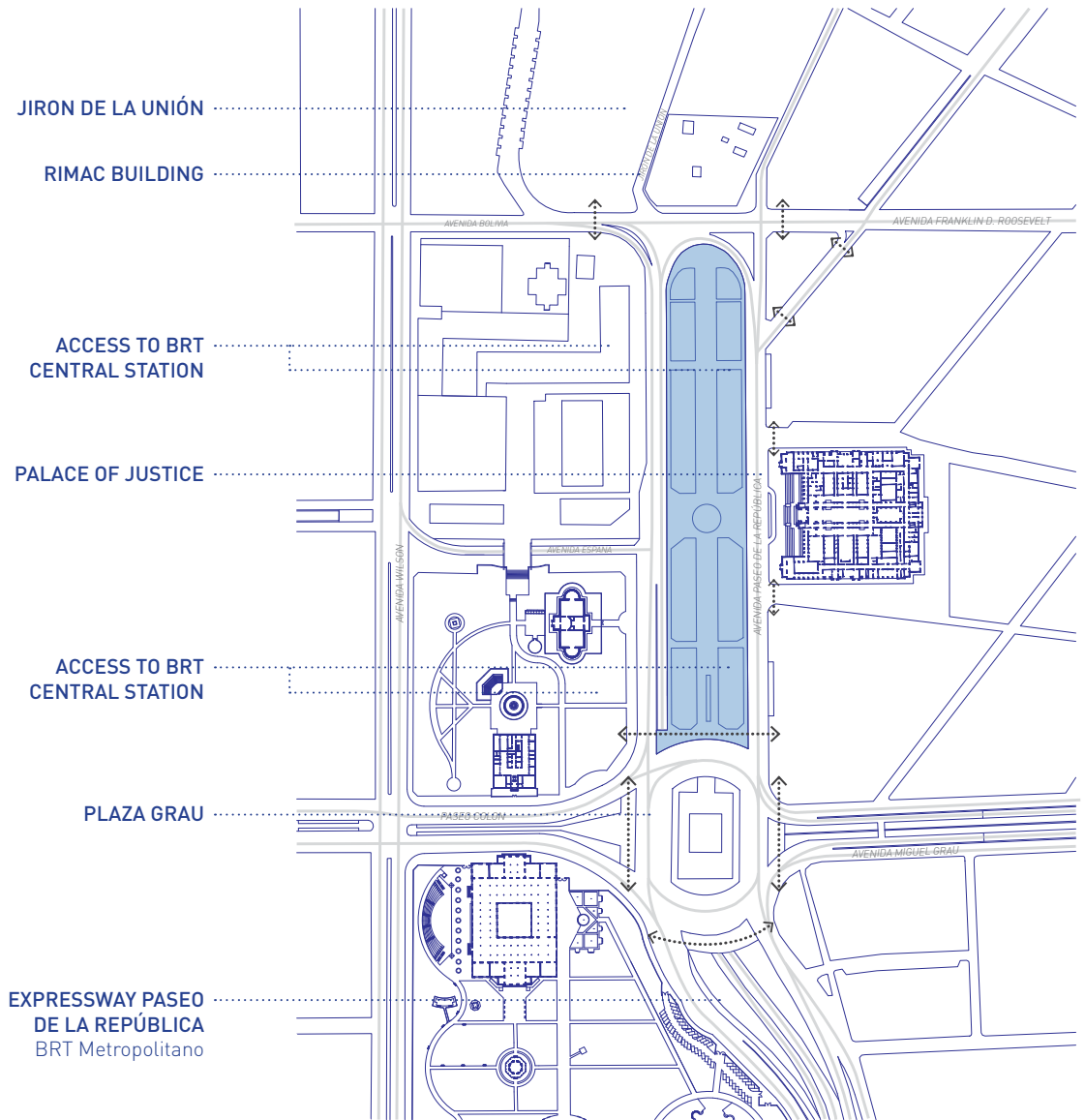


Figure 57 Walk of the Naval
 Heroes - Site Plan
 Source: By the author

<---> Pedestrian crosses
 — Vehicular flow



5.2 PASEO DE LOS HÉROES NAVALES WALK OF THE NAVAL HEROES

This public space was built in 1920, its design is longer and less wide than a common plaza but it has been the main stage of many important massive social events in the recent history of Lima. The main reason why it has been chosen for many manifestations is that it is just in front of the Palace of Justice, and it is accessible and close to the historical center where most of the governmental buildings are located.

In the year 2007, below Paseo de los Heroes plaza and just in front the Palace of Justice of Lima, the Metropolitano BRT Central station was built. This place becomes important for the city as it is a junction or a break in transportation at the entrance of the historical center; according to the theory of Kevin Lynch it could be perfectly defined as an important node of the whole city of Lima. The construction of the station included new commercial areas and the renovation of the plaza on the surface. Unless there is a public manifestation, the plaza is unlikely to have people using it, the reason for this is mainly because it is surrounded by large avenues with congested vehicular traffic. Although it is not a quite or attractive place to have a rest and there is not an easy pedestrian accessibility, the plaza has been used by dance groups and similar.

Nonetheless, in the future, this node characteristic could be even more strengthened when the connection with the future station for the Metro Line 2 will be finished. This could be an opportunity to take advantage of the strategic location of the plaza and station and reconnect it with the other near public areas; it could stop being an island surrounded by buses and cars and be more accessible to pedestrians who could benefit from a better-developed node.

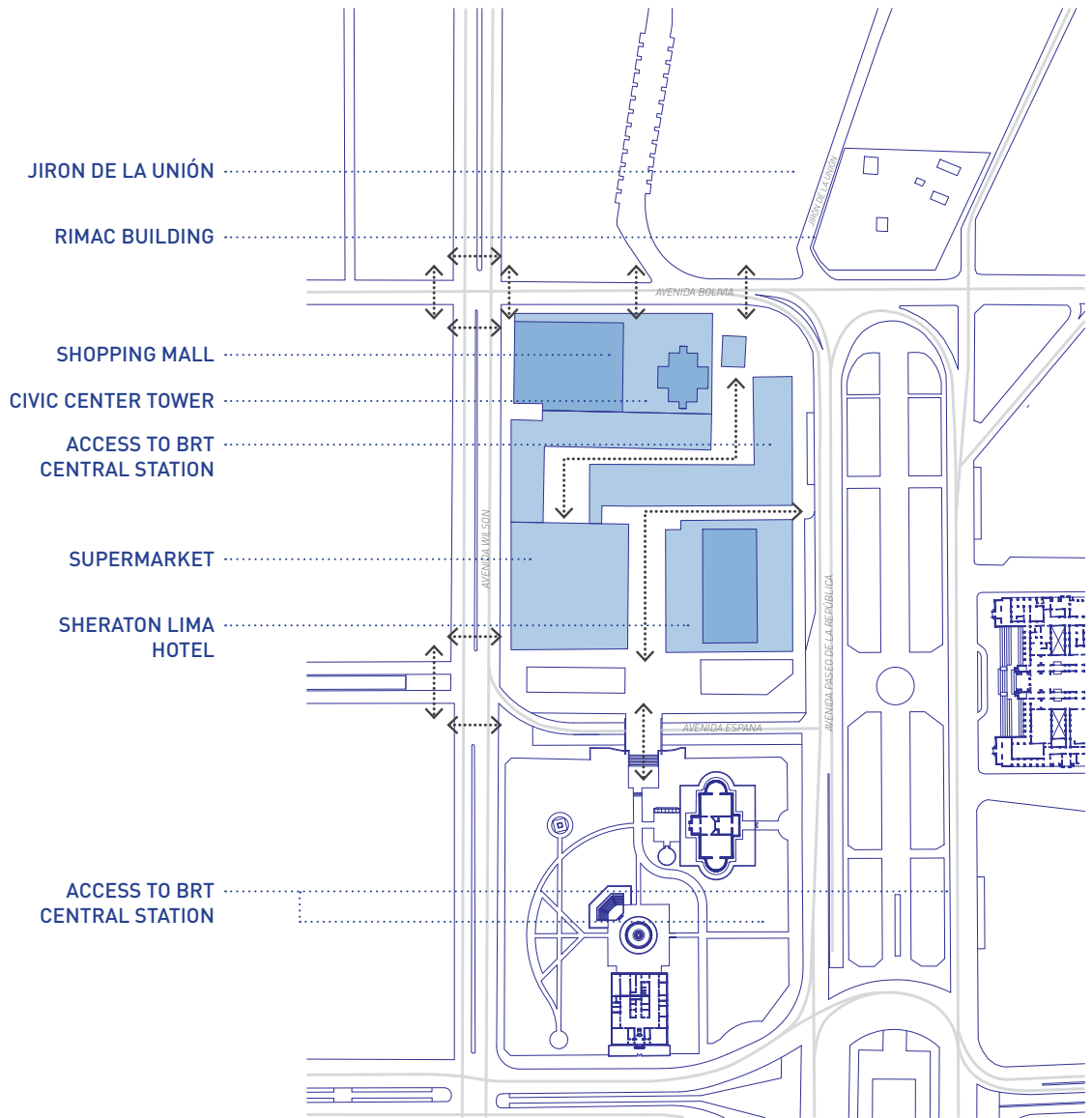


Figure 58 Civic Center -
Site Plan
Source: By the author

5.3 CIVIC CENTER

In 1860 the penitentiary, known as the panopticon because of its design, was built on an empty terrain close to the city walls. It functioned for more than 100 years until it was demolished in 1961 and released the space to begin the construction of the Civic Center (Bryce, 1985).

The idea of building a civic center was born after the Military Coup of 1968, the government was looking to consolidate an image of stability to the population and to the more conservative political parties. In order to do this, they focused on building administrative and institutional architecture. The brutalist style was popular at the time and it went well with the power that the authorities wanted to demonstrate, so the idea came to reality and an architectural competition for the design was won by a group of Peruvian architects.

In the year 1974, the building was inaugurated, the original plan was that the project would become the new center of the historical zone of Lima. The project was connected by two pedestrian axes, the Bolivia Avenue with El Parque de la Exposición and the Paseo de la República Avenue with Garcilaso de la Vega Avenue, and it would have also connected the España Avenue with the Palace of Justice, however this was not accomplished in the final project and neither does the connection with Camaná Street which would have complete an axis towards the city center (Villamonte Dufoo, 2005)

Besides the important urban connections that the project would have, it included two office towers, however in the final project only one was built and became the tallest building in Lima for a while, also a tourist hotel was planned and later it would be occupied by the Sheraton Hotel until nowadays.

Many governmental offices operated inside the civic center and it became an important activity center of the city. Nonetheless, in 1975 part of the place was burned and severely damaged after protests against the military government of that time. As a consequence, most of the buildings were left abandoned and deteriorated for several years.

In 2007 the operating license of the civic center was given to a real estate group for thirty years, and they transformed it into a shopping center. The project has been a commercial success and is seen as something positive by the neighbors, however, all the urban connections have been lost and privatized by the shopping center. More than 500 parking spaces became available in the basements of the mall; it is the largest parking lot in the area and it is used for people that are not only going to the shopping center but to other parts of the city center. When it is well planned, large parking lots like this one that does not occupy potential surfaces are a better solution than the small improvised parking lots that occupy many of the empty lots in the city center.



Figure 59 Aerial view of the Park of
Exposition and MALI from Paseo Colon
Source: Archi. Archivo Digital de Arte Peruano



Figure 60 Paseo de los Heroes - On the right, the Palace of Justice; on the left, the Sheraton Lima Hotel and the Civic Center; on the back the Rímac Building
Source: By the author



Figure 61 Access to BRT Central Station next to the Civic Center
Source: By the author



Figure 62 Civic Center, entrance from Paseo de la República Avenue
Source: Pablo Solórzano

ACCESS TO CENTRAL
STATION

PLAZA GRAU

PARK OF THE
EXPOSITION



Figure 63 View south from the Paseo de los
Heroes Navales (Walk of Naval Heroes)
Source: By the author

MALI

NEPTUNE PARK

ITALIAN ART MUSEUM



PROBLEM STATEMENT

Lima's historic center, despite its touristic potential, monumental value, and high concentration of commerce and services, suffers from severe urban mobility conditions, unbalanced uses, and a decline in the number of residents that rise the insecurity, traffic chaos and decline in quality of public spaces.

PS 1 | Underused areas with important location and accessibility

Strategic location between the historic city and the modern city, well served by public transport but poorly explored given the potential they have.

PS 2 | Lowering of residential use

It began with the expansion towards the peripheries, plus the presence of an unbalanced flow of activities, mainly informal and the increase of precarious buildings push away the promotion of residential developments, increasing the insecurity and the lack of maintenance of public spaces.

PS 3 | Pedestrian unfriendly

Dominance of car a culture and consequently a heavily traffic congestion, resulting on narrow sidewalks, scarce pedestrian crossing, environmental and acoustic contamination.

6 NEW OPPORTUNITIES

Lima traffic system has never been guided by a consolidated plan, instead it has been isolated short term plans that together with economic, governance and social conflicts has derived into a chaotic transportation system; it is the third worst traffic jam in the world and the second one just behind Bogotá in the American continent.^[1]

However, in recent years the Peruvian government has been trying to develop systems of mass transportation for Lima, that is the case of the BRT Metropolitano and the Metro lines. In the case study area, these systems of public transportation will have a direct impact in the surroundings once the BRT central station is located there, and it could have a direct connection with the new Metro line 2, creating a well-connected node which could transform and improve the lack of residential users, deficient services and mixed-uses that characterizes the zone.

[1] TomTom Traffic Index 2018

6.1 A FUTURE SYSTEM OF MASS TRANSPORTATION FOR LIMA

How important is it to develop a good way of implementing this necessary mass transport system with better urbanity? Lima's unplanned horizontal growth must be rethought, and towards increase the ten million population quality of life a mass public transportation must be implemented as part of the city's development. The government is investing in a system of mass transportation, however, because of how congested and chaotic Lima's mobility is nowadays, it will take many years until a consolidated network is completed.

In 2010, the bus rapid transit system also called Metropolitano started operating. This system is a mass public transport that connects over seventeen districts and serves more than 1 million and a half trips per day (Protransporte). Its main route covers over 36km and has a segregated corridor for the buses, it has thirty-eight stations that are located in districts with different characteristics like the historical city center, Barranco, a more bohemian but full of contrasts sector, or Comas one of the most populated districts of Lima with over 600 thousand residents.

Although the construction of the first Metro line of Lima began in 1986, it was only in the year 2011 when it began operating. Bad planning, economic crisis, and corruption delayed this important project for the city. Nonetheless, the government was able to finish the incomplete project and used the elevated railways that were left like ruins so many years within the city.

More recently, in the year 2014, the second metro line of Lima began its construction not without many delays in deciding the final route of the line. The big importance of this line is that it goes through the city connecting very different and distant districts including the international

airport in Callao. Currently, there is no efficient connection by public transport to the airport, and people depend on taxis or private mobility. The completion of this metro line will be one more step towards having a metro network for Lima. The Metro Line 2 implementation will affect the whole city and is a big opportunity for urban development guided by the authorities which could become a step closer to make a city for people and not only for cars.

Lima is expected to be experimenting with a much-needed improvement in public transport mobility in the upcoming years if the authorities keep investing in mass public transportation and complete the Metro and BRT networks. However, not only the mobility in Lima would improve, the construction of the metro lines and the expansion of the BRT network represent an opportunity to develop urbanity and improve Lima citizen's accessibility.

6.2 THE SECOND METRO LINE FOR LIMA

The BRT Metropolitano has its central station under the plaza of *Paseo de los Héroes*, where there is a shopping area available as well as information services and food places available for the public. The Metropolitano public transport system has over 650.000 users (Protransporte) and it is still being expanded to connect important and farther districts of Lima. This organized public transport system still has to compete with other buses of private and some informal companies that have an inefficient service and which have not been completely removed or formalized by the authorities yet, nonetheless, because of the success and efficiency of the system, the idea is to it keep expanding it.

Not only the Metropolitano is expanding, after Metro line 1 was finished the plan for the other six lines has been reviewed and approved by the authorities. By the time the construction of the metro line 2 finishes, it should have one of its most important stations connected to the BRT Central Station under the plaza of *Paseo de los Héroes*. Due to the importance of both public transport networks for Lima, this station could also be a great opportunity for better development of the surroundings creating an important node for the city, taking advantage of the transportation node to develop a better urbanity accessible to everyone.

PROBLEM STATEMENTS

- Underused areas
- Lowering of residential use
- Pedestrian unfriendly

NEW OPPORTUNITIES

- Expansion of the mass transportation system
- Consolidation of Central Station



STRATEGIC ELEMENTS

DOOR PASEO DE LOS HÉROES

as connection and meeting point

It is the interface between the historic city center and the modern city. The enhancement of the doors as point of connection and attractor seek to improve it as place of exchange and accessibility.

ACCESSIBILITY NODE CENTRAL STATION

as product of transportation system and land uses

An efficient land use planning, aiming higher densities and diversification, combined with an efficient mobility may promote equity of access to amenities, commerce and leisure, enabling social life.

INTERSTITIAL SPACE URBAN VOIDS

as articulation of mixed activities

Incorporate diversity of activities supported by dense environments and a mixed use spaces. Promotion of social exchange and public life through public and private interactions in the urban space.

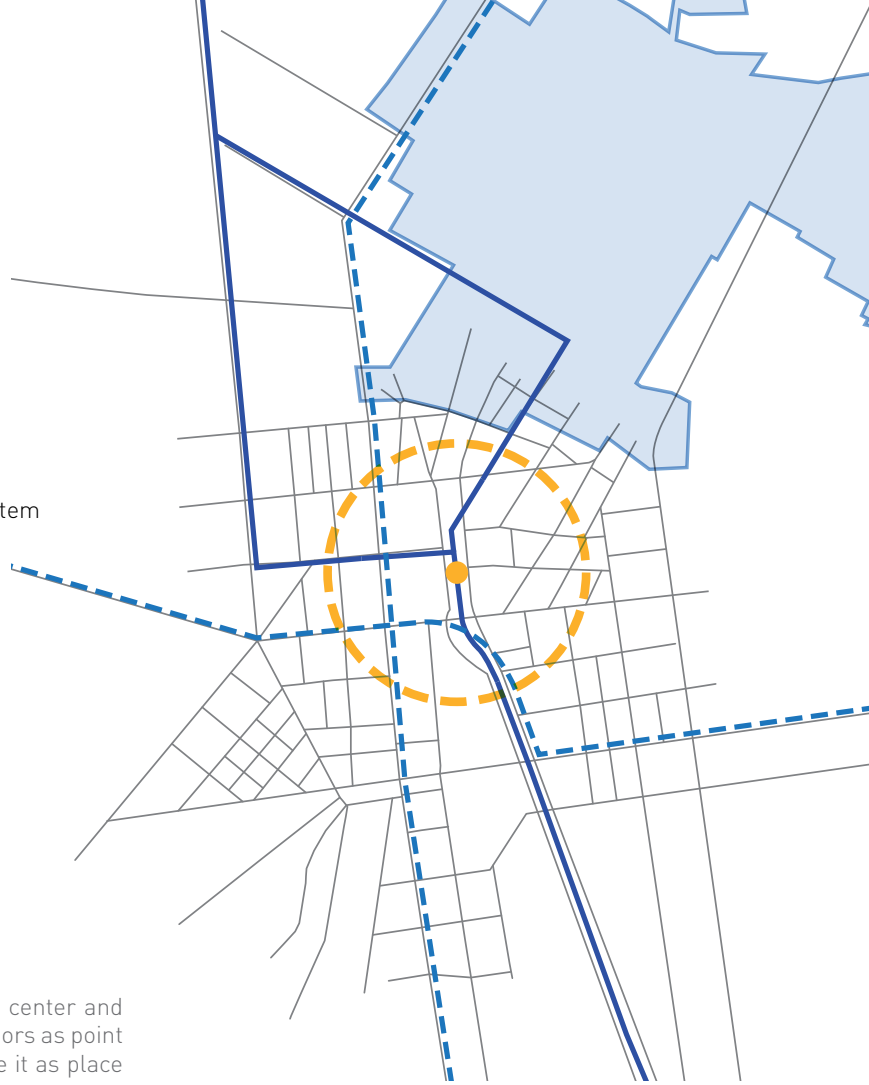


Figure 64 Strategic elements
Source: By the author based on
basemap from Google Earth



Civic Center
Commercial Center

Paseo de los Héroes
Central Station underground

Palace of Justice

Park of the Exposition

PART IV A CASE OF URBAN REGENERATION

ONE VISION

Reverse the decline of the area, by improving the urban space and its physical structure, and enhancing its centrality character, to achieve a balanced flow of activities, and stimulate social and economic regeneration.

FOUR STRATEGIES

RETHINKING MOBILITY

EMBRACING HISTORY AND FUTURE

BRINGING BACK LIVABILITY

INVESTING IN PUBLIC LIFE

7 RESILIENT STRATEGIES FOR 57 BLOCKS

“Changes to a community do not need to be large-scale and expensive to have a transformative impact, in fact, one block, park, or a single person can have an outsized effect on life in the surrounding city.” (Lerner, 2016)

7.1 RETHINKING MOBILITY PRIORITIES

- A reorganization of public transport and car routes are needed so that entering the city center by car will not be allowed if it is not the final destination. Because of the narrow streets and roads of the city center, the traffic becomes congested very easily, unnecessary routes that cross the area should be avoided and encourage other ways of transportation.
- Creating beltways that surround the city center and connect south, east and west Lima to the northern districts would relieve the traffic situation and let pedestrians overtake and benefit from a more walkable and lively area.^[1]
- Paseo de la Republica and Grau Avenue are two expressways that end at the same point creating a very traffic intense area. If both expressways continue underground until they connect to the beltways, the flow of cars will be immensely lowered. There will no longer be needed five or more lanes for cars that are only trying to get through the city center but have no other choice of route. With the space gained from these lanes, the sidewalks and the plaza of Paseo de los Heroes could be expanded, boosting its potential.
- Narrow roads and streets should have a shared pavement for both cars and pedestrians. This will allow people to walk more safely and, at the weekends when there are almost no cars, to use it as a public space.
- Parking should be concentrated underground and in large plots wherever it is possible and should be connected to another type of transportation like bicycle parking or the BRT Metropolitano and metro Central Station. In most streets, parking should not be allowed and instead, these areas would be used to enlarge sidewalks which could have furnishings or even street trees if there is enough space.
- Bicycle lanes should be implemented in the lanes that will no longer be used by cars; the central station will have bigger areas for bicycle parking to encourage the use of this alternative and more sustainable ways of transportation. The high number of students in the area will benefit the most from this, as currently only a few risk themselves to ride a bike as there are no bicycle lanes.

[1] This strategy was part of Lima's PLAM 2025, plan that has been discarded by the actual authorities because of political reasons.

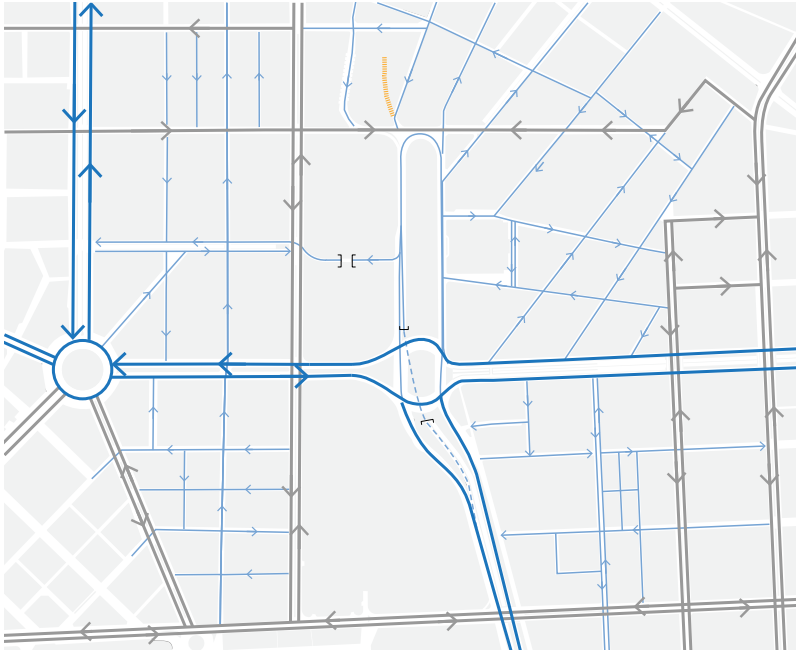
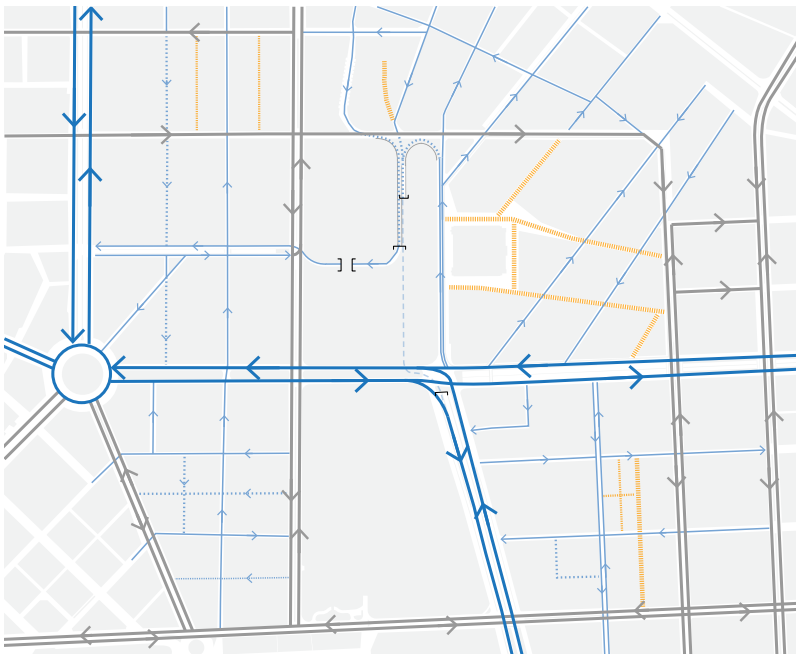


Figure 65 Current road hierarchy and urban fabric
Source: By the author



- Arterial Road
- Collector Road
- Local Road
- - - Pedestrian Street
- - - Shared Street



Figure 66 New road hierarchy and reorganization of urban fabric
Source: By the author

By increasing the densification in the area, it will increase the displacements by walking and cycling. So it is important to create safe routes and minimize the circulation of cars in local streets. It is understood that streets do not function as merely spaces of access but also as the main public space, places of dynamic and social exchange.

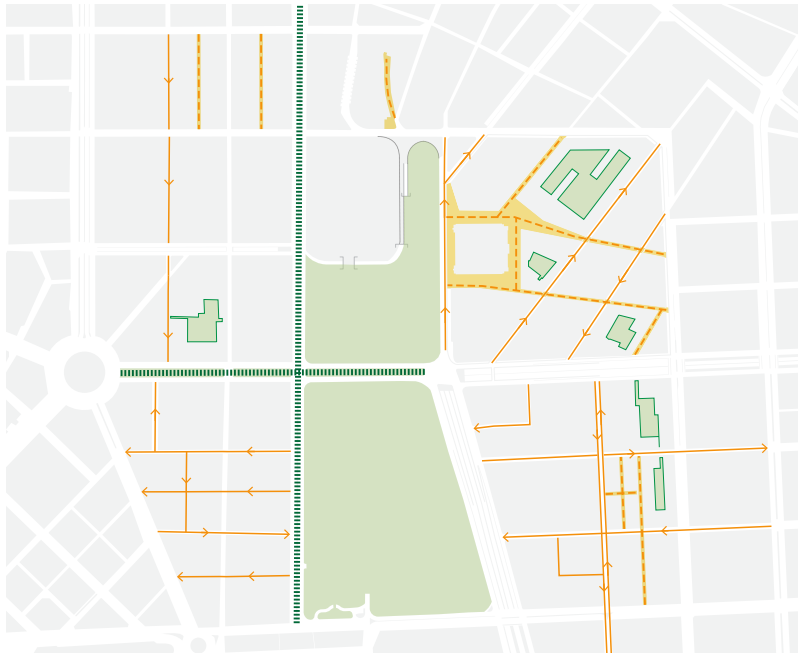
PEDESTRIAN EXCLUSIVE STREET

Streets at the sidewalk level, exclusive for pedestrians, interconnecting different points, enhancing public areas for leisure, culture and entertainment, and ensuring safety and comfort for the pedestrian.

PEDESTRIAN PRIORITY STREET

Establishes the internal connections and should not receive a relevant flow of vehicles; in some cases, the access is mainly for owners and residents.

It can be streets at the sidewalk level, shared by cars and pedestrians, with continuous and uniform pavements, and one way of circulation. Mechanisms of traffic calming should be used to ensure a 30 km/h maximum speed limit.








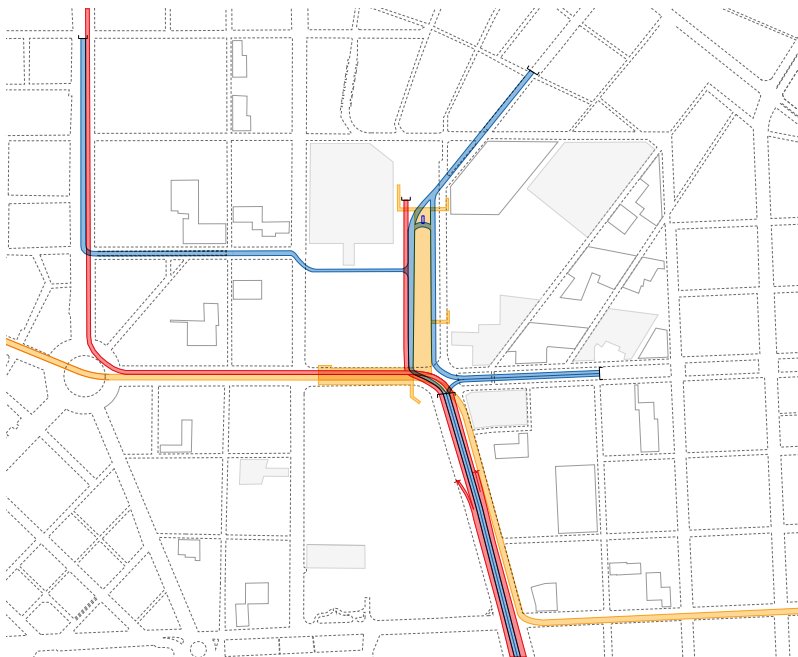
-  Pedestrian Street
-  Pedestrian Priority Street
-  Boulevard
-  Open Public Space
-  Local Squares



Figure 67 Pedestrian circulation
Source: By the author









-  Access to Central Station
-  Metro Line 2
-  BRT Metropolitano
-  Underground expressway
-  Public Parking
-  Private Parking



Figure 68 Underground network
Source: By the author

7.2 HISTORY VS. FUTURE

What is the vision towards all interventions in the historic center and what objectives should be aimed and given priority?

- The conservation of buildings with historical value should be a priority to attract visitors and residents to the area and change the deteriorated mental image that many have of some areas. The touristic areas will be expanded, and new routes will appear including more historical buildings that are now less visited. With the improvement of not only facades but the whole buildings as well as public areas, new uses will be welcomed, and owners will not have as an only economical beneficial option to sell their properties to become warehouses.
- To counterbalance the aggressive expansion of warehouses incentive by the unregulated commerce, a better monitoring from authorities is crucial.
- However, to assure a real positive change, the promotion of campaigns and more ways to communicate to the people the importance of protecting the heritage and the benefits that this could bring to them becomes a priority. Including the public participation of residents in projects of conservation and activities in the neighborhood will assure a better execution of plans and foster a sense of belonging.
- It is very important that projects reach every scale of the city, even the small ones can help promote a better and clear vision that the authorities want to promote.
- Understanding the origin of the urban form will help have a better development in the future, nonetheless respecting history, but adapting to the new demands of the city and its citizens will make the city more resilient to changes. Looking for alternative uses for buildings that were designed when citizens had other needs and have long left the area will let the new residents be able to reconquer the city center. Small workshops, creative offices, co-working offices are only few examples of spaces that could take advantage of this buildings and attract a young public which is much needed in the area.

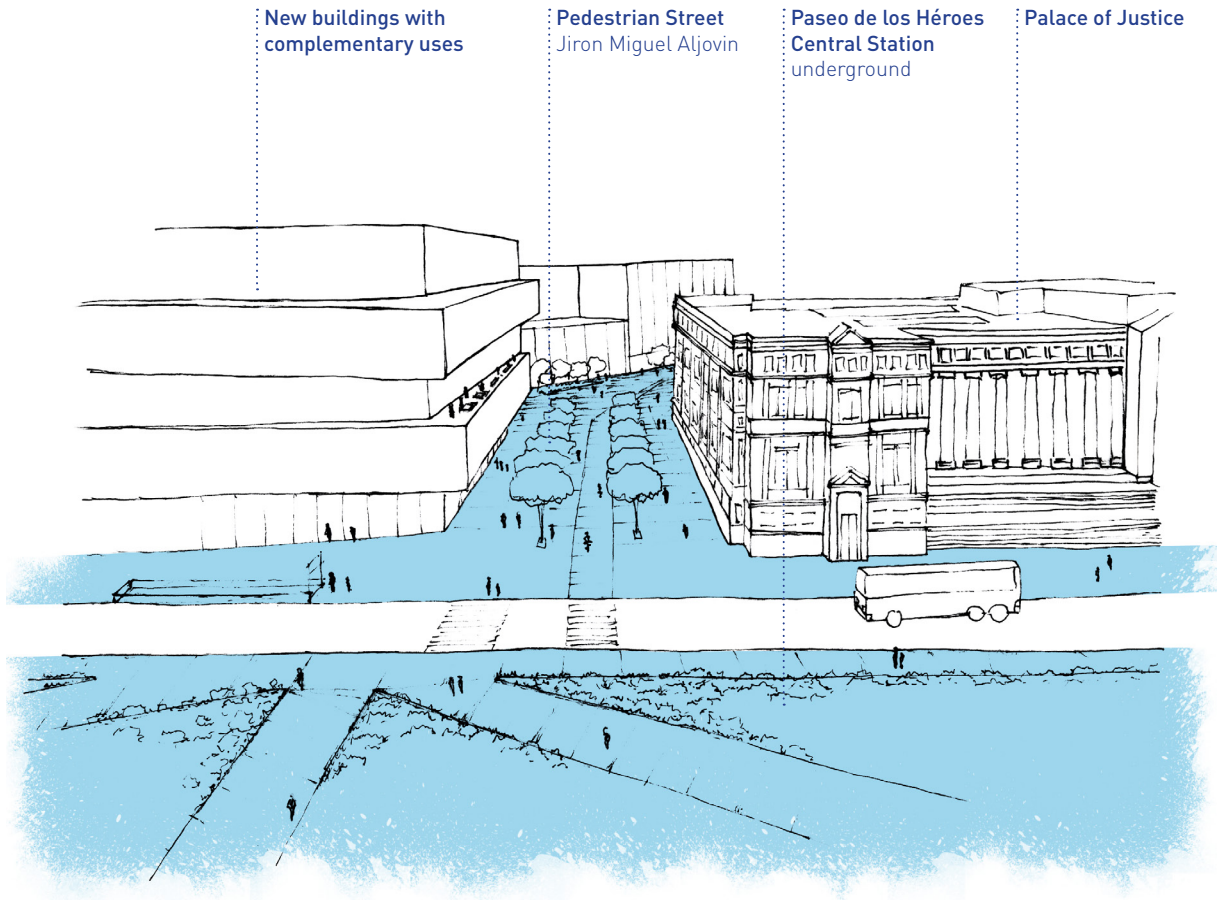


Figure 69 Public common space
Source: By the author

7.3 BRINGING BACK LIVABILITY

“On successful city streets, people must appear at different times” (Jacobs, 1961).

- New initiatives such as the revitalization of historic sites, the realization of cultural and artistic activities, and the promotion of large real estate projects could disassociate the negative image of the area. However, this can lead to a consequent transformation process in the area that can increase rents, housing prices, and the cost of living, causing an eventual displacement of residents and local businesses who can no longer afford to pay. It is important to guarantee the diversity of socioeconomic groups through the implementation of affordable houses and the promotion of incentives to protect small businesses. It is also essential to encourage the community to get involved and engage in the decision-making process and in implementing projects that will affect them.
- Increasing the number of people living in the area will improve security, economic activity, and quality of life for neighbors. Building new residential projects for families of different incomes will let poor families relocate to better conditions and attract new residents, and all will benefit from the advantages of having a more balanced density.
- Empty lots could be used to generate mix-use buildings that include residential uses and offices but also small and medium commerce, generating jobs for locals and providing close services for the neighborhoods. Old buildings may not be flexible enough to allocate many typologies however new projects could be.
- Lima, despite being a city of almost 10 million people, still lacks a lot of cultural infrastructures that could be placed in this area taking advantage of the accessibility and the connection to other cultural poles of attraction like the Museum of Art of Lima. Locating buildings that its use could generate a flow of attraction, not only for the close sites, but for the metropolitan area would improve the image of every other smaller project and will generate a sense of pride and belonging for locals.
- With the overall improvement of the area it could once again become attractive for tourists to stay in hotels closer to the city center, currently there is only one five star hotel, The Sheraton, however, the potential of the place would bring more. New projects that occupy the empty lots would include areas not only for hotels, but also less expensive accommodations for every kind of tourist.

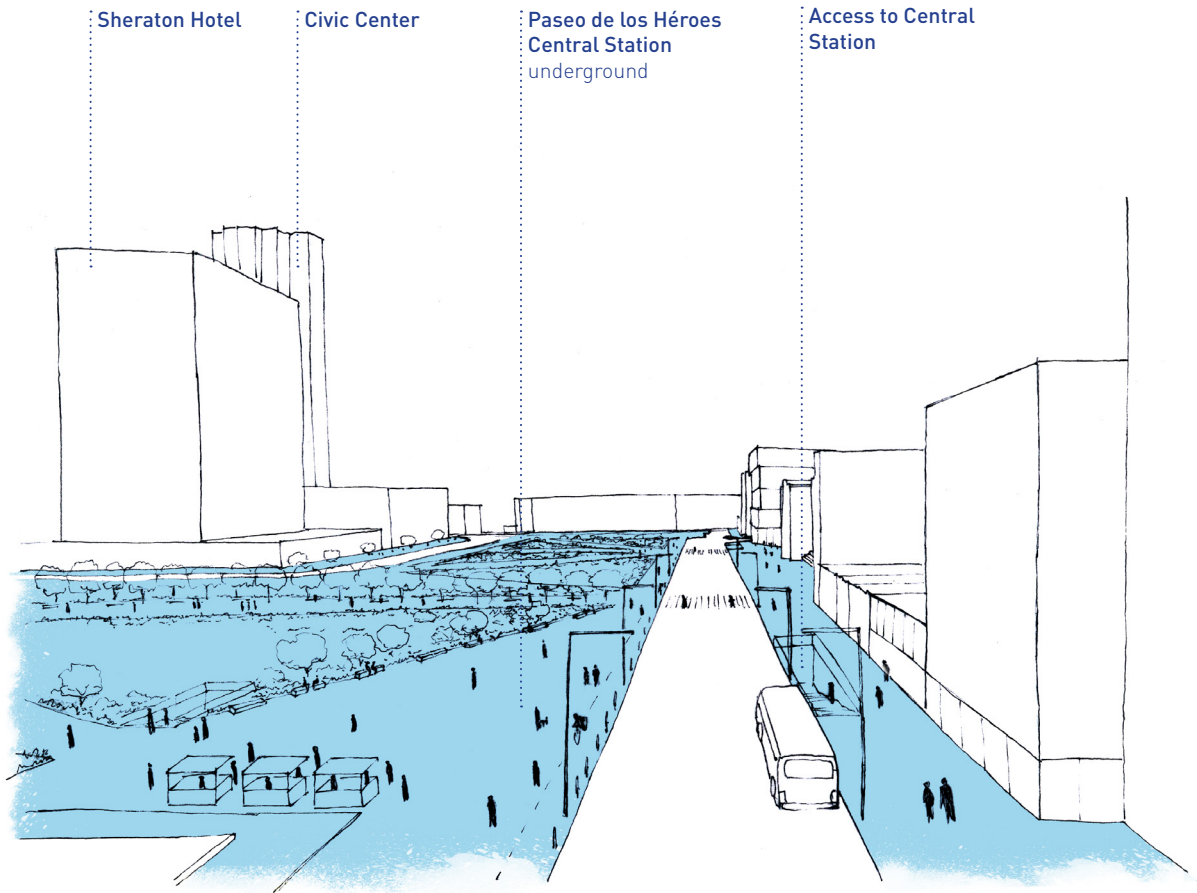
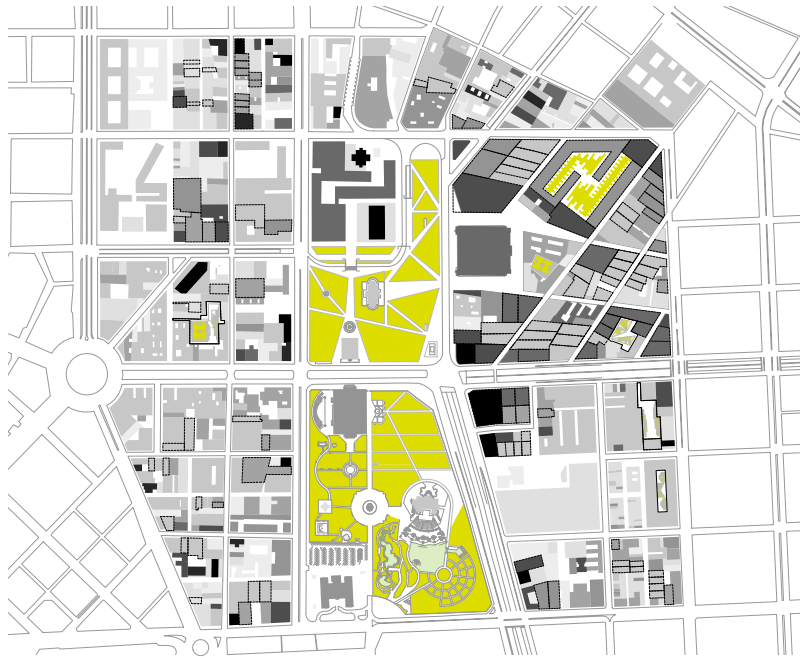


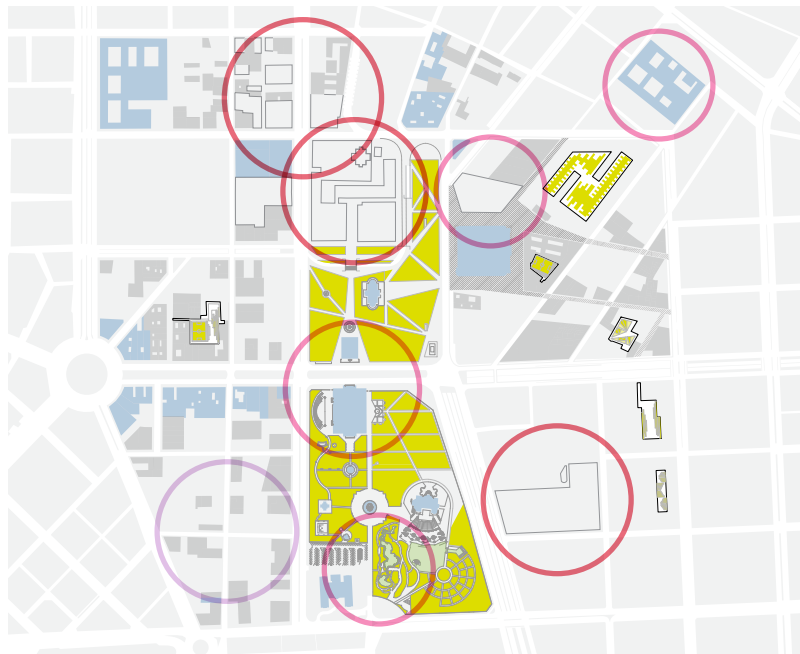
Figure 70 Connected Node
Source: By the author



- 1 floor
- 2 floors
- 3 floors
- 4 floors
- 5 floors
- 6 floors
- 7-8 floors
- 9-10 floors
- +10 floors



Figure 71 Proposed building heights
Source: By the author



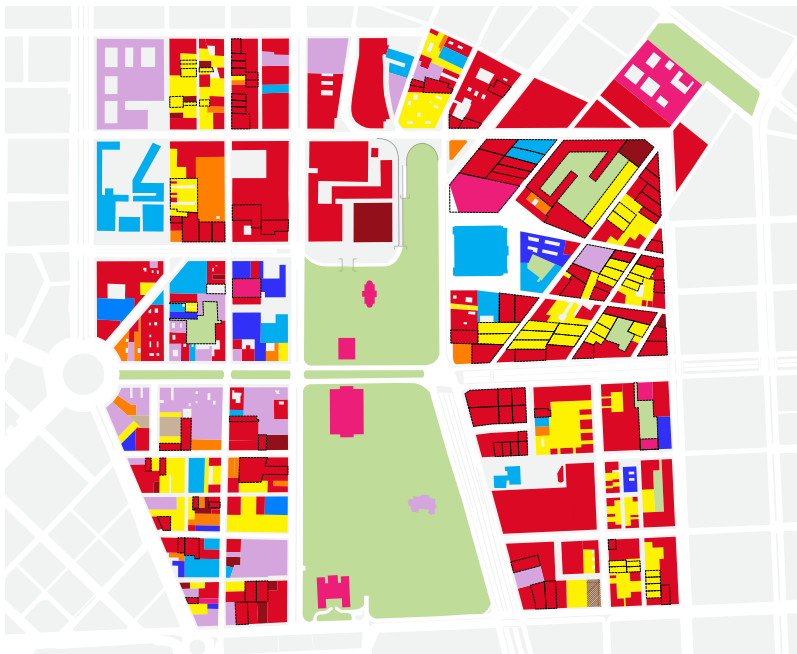
- Cultural Centrality
- Commercial Centrality
- Educational Centrality
- Historical Monument
- Monumental Value
- Open Public Space



Figure 72 Public spaces and urban anchors
Source: By the author



Figure 73 Proposed uses at 2+ floor
Source: By the author



- Residential
- Offices
- Commercial
- Hotel
- Institutional
- Cultural
- Religious
- Educational
- Health
- Open Public Space
- Transport
- ▨ Other use
- New lots

0 100 300m

Figure 74 Proposed uses at street level
Source: By the author

7.4 INVESTING IN PUBLIC LIFE

- With the construction of the underground connection of the expressways and the overall reorganization of the public transport that is happening in Lima, there will be less space needed for cars. Narrowing lane widths result in safer vehicle speeds, increasing safety for pedestrians and bicyclists. Instead of a couple of car lanes, sidewalks would be wider and more accessible, leaving more space for street furniture, proper lighting, and street trees. This will also make pedestrian crosses shorter and safer, and encourage walking.
- Traffic calming can be achieved from narrowing car lanes but it should also consider other measures, according to the street typology, such as adequate pavement markings and treatments, strategic placement of parkings, speed tables, and change of road geometry through neckdowns that provide safer pedestrian crossings.
- Some streets will be pedestrianized to generate connections between public places and keep traffic away, contributing to placemaking. This will also contribute to implementing commercial areas like small shops, café, restaurants, etc. The creation of active facades with shop windows facing the street will increase the visual control in the public spaces, following the concept of "eyes on the street"(Jacobs, 1961), contributing to public safety.
- Vegetation and furniture will be implemented to improve the attractiveness of the new pedestrian routes, trees, and other kinds of roofing will generate shadow and protect people from the high levels of radiation of Lima. Improving accessibility of sidewalks and crosswalks allows universal accessibility for people of all ages and abilities.
- Parque de la Exposición is a park that has an infrastructure that is being underused and could be transformed into better equipment for visitors like playgrounds for kids and more resting areas, without altering the identity of the place. A better design of pathways across the park could benefit not only visitors of the park but also people who are just trying to cross it in a more efficient way.

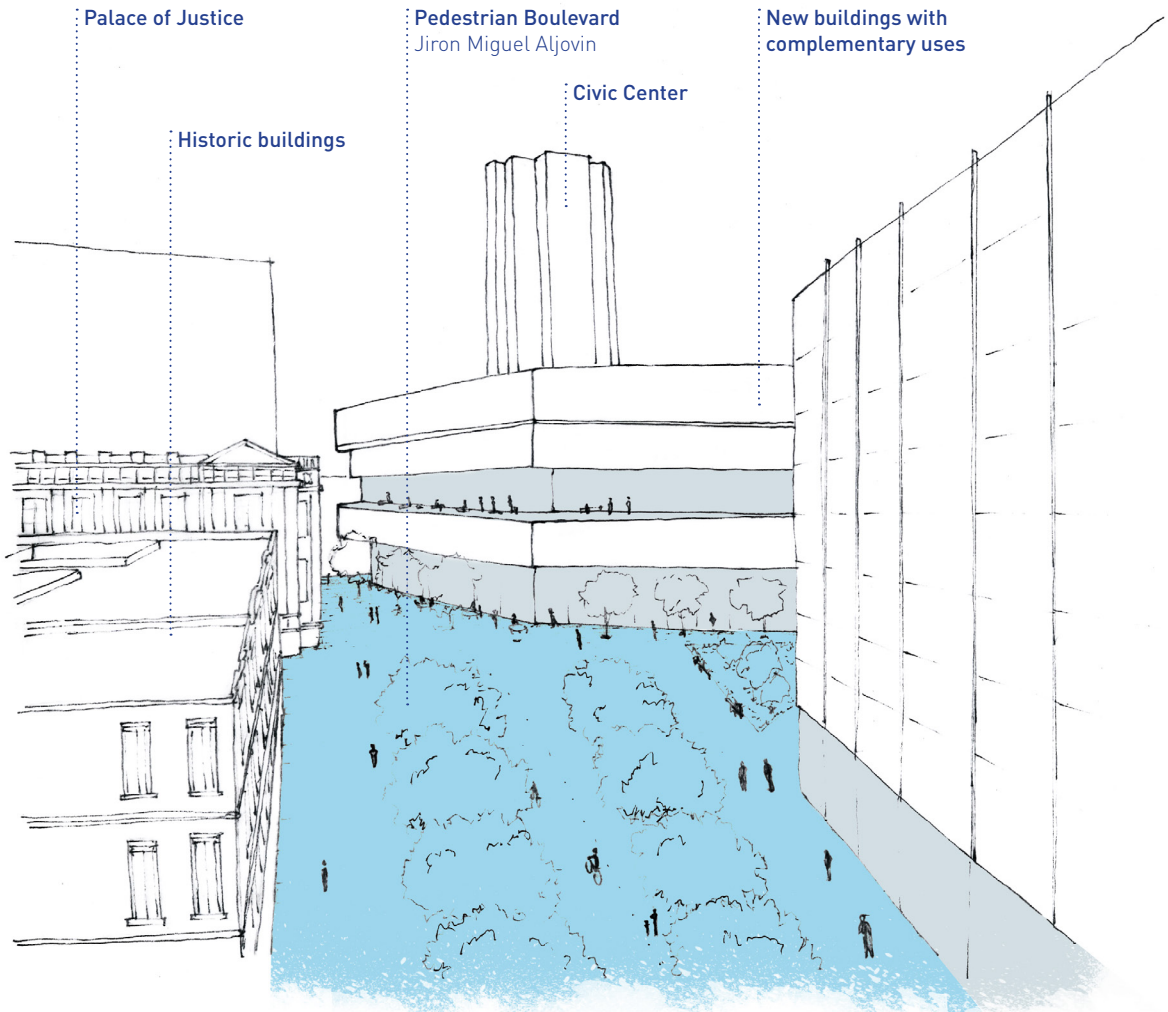
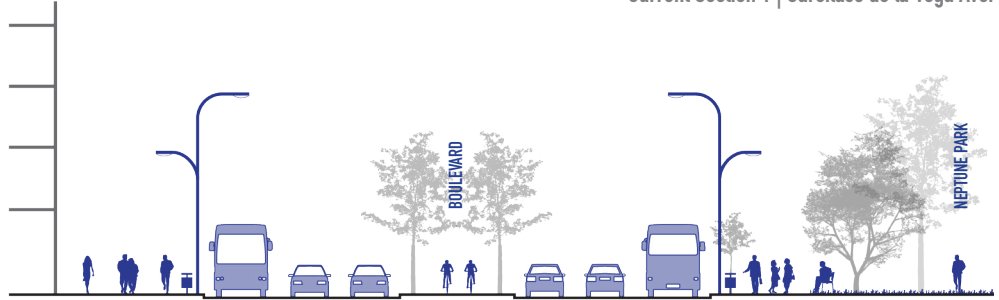


Figure 75 Walkable-active areas
Source: By the author



Current Section 1 | Garcilaso de la Vega Ave.



Proposed Section 1 | Garcilaso de la Vega Ave.

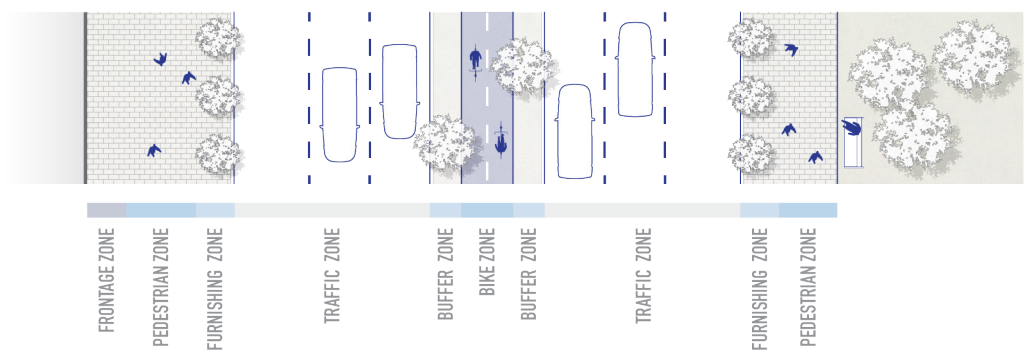
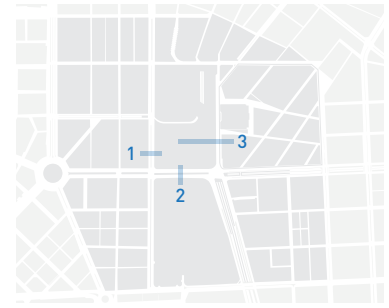
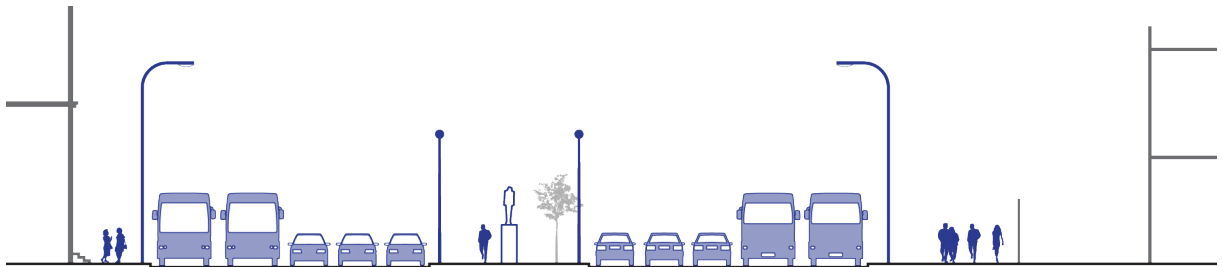


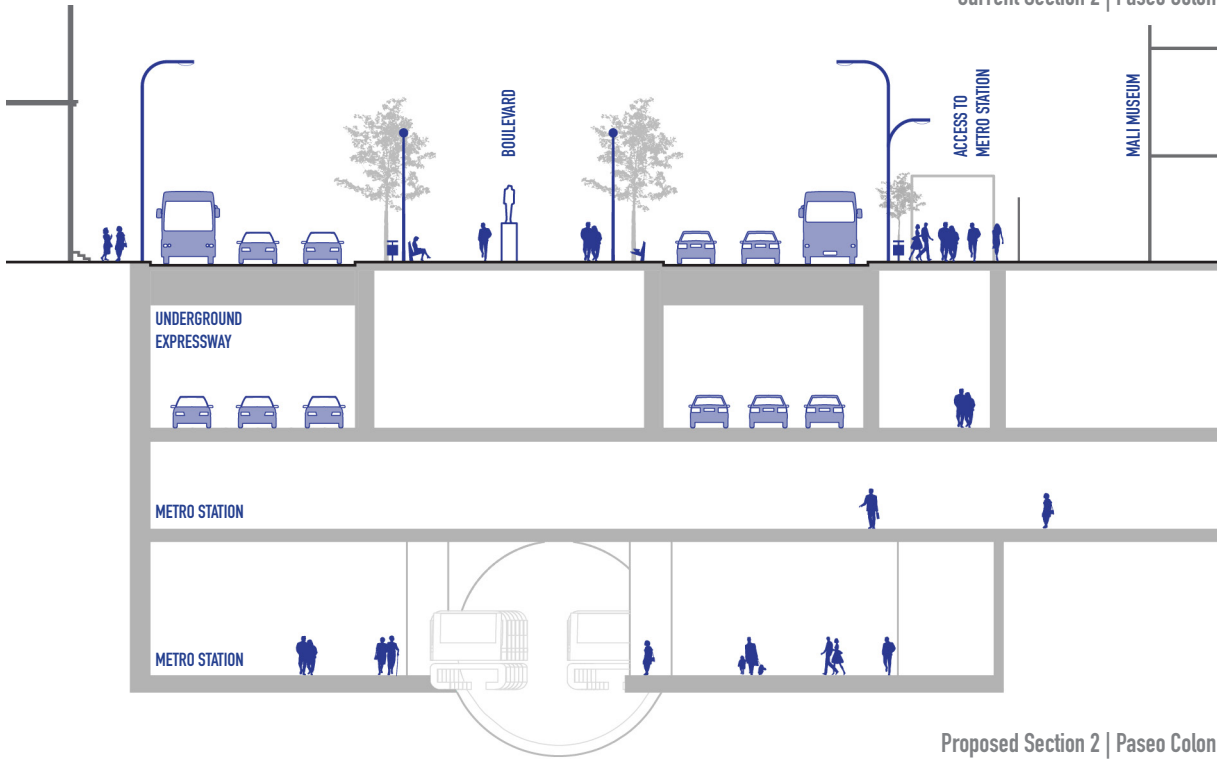
Figure 76 Current and proposed Section 1
Source: By the author

Figure 77 Current and proposed Section 2
Source: By the author

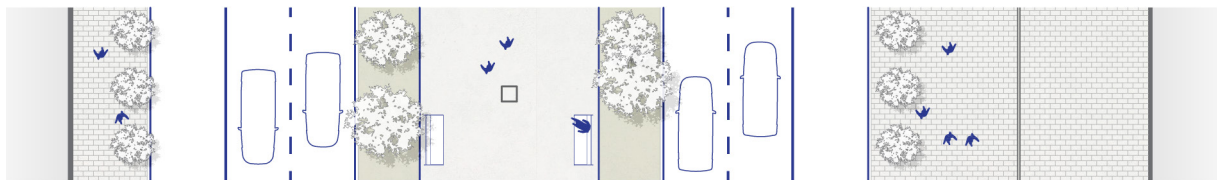




Current Section 2 | Paseo Colon



Proposed Section 2 | Paseo Colon



PEDESTRIAN ZONE
FURNISHING ZONE

BUS ZONE

TRAFFIC ZONE

BUFFER ZONE

BOULEVARD

BUFFER ZONE

TRAFFIC ZONE

BUS ZONE

FURNISHING ZONE

PEDESTRIAN ZONE

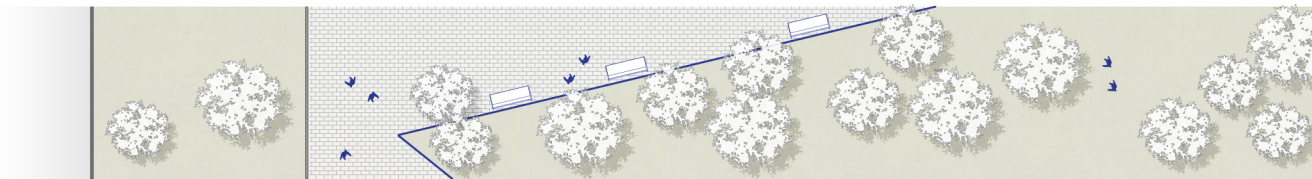
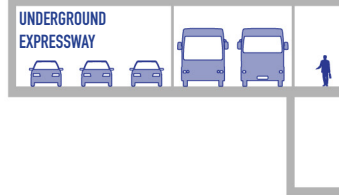
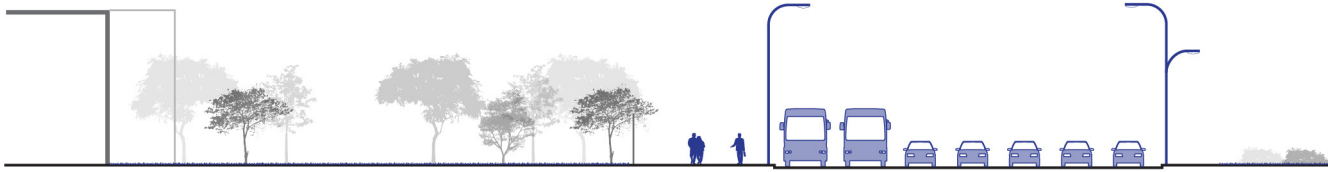
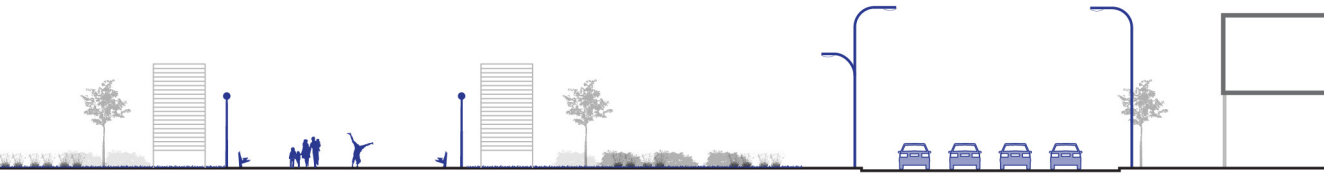
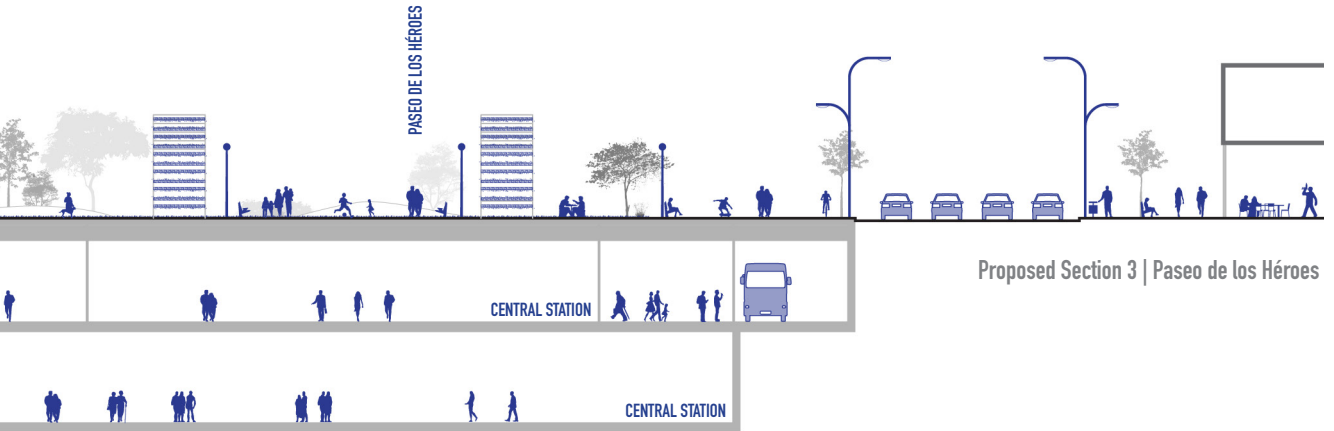


Figure 78 Current and proposed Section 3
 Source: By the author

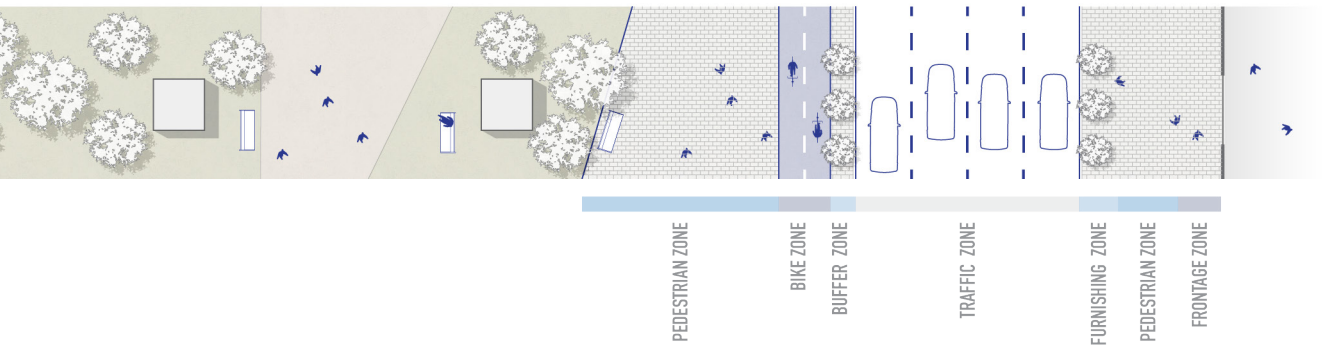




Current Section 3 | Paseo de los Héroes



Proposed Section 3 | Paseo de los Héroes



7.5 DEFINING OPERATIONS AND STAGES FOR STRATEGY APPLICATION

To apply the different strategies, the area is divided into four conceptual operations, all closely related as they affect and complement each other. The criteria used for the delimitation of the operations have been the identification of commercial or educational clusters, the characteristics of the urban form, and the density of the sites.

Operation 1: door interface with the historic center

Enhancement of Paseo de Los Heroes as the main door to the Historic Center. Today this large plaza works as an island, surrounded by large avenues and with only one pedestrian access. The intervention proposes to expand the plaza, integrating it with the park and the Civic Center located beside it. The existing avenue section would continue underground until it connects to the beltways. With Central Station already located underground the plaza, it is a strategic door with immediate influence both in the historic center and the modern city. This intervention would enhance the plaza's character as a place of access and mobility, strengthening the pedestrian flows and interactions, and working as a trigger in the transformation of its surroundings.

Operation 2: superblock intervention type with great land vacancy

Superblocks intervention. The area has a lot of empty plots, lacks population density, and informal activities and commerce are expelling the remaining residents. There are lots of houses with overcrowding problems and seriously deteriorated. The intervention will include a large renovation introducing mix-use projects, a media library, and underground parking.

Operation 3: dynamic interventions in consolidated areas with mixed uses

Isolate interventions in consolidated areas with a high amount of commercial activity. The priority is the transformation of buildings that are underused or abandoned into mixed uses, co-working spaces, and residences plus workshops to enhance local activity and help them to develop. The strong dynamic character of areas such as the commercial corridor in Wilson Avenue, and the commercial center Polvos Azules and its surroundings are enhanced through urban renovations of streets and public spaces to organize the space and value the preference for pedestrians.

Operation 4: punctual interventions on minimum size lots

Social and community focus interventions. Small interventions that would generate considerable impacts on the neighborhood, such as the implementation of small plazas in the middle of blocks. Renovation of abandoned uses, such as one of the few remaining historical cinemas; interventions in the middle of an education cluster, transforming scattered parking into infrastructure for the community. These interventions will depend on project strategies that involve both private and public sectors.

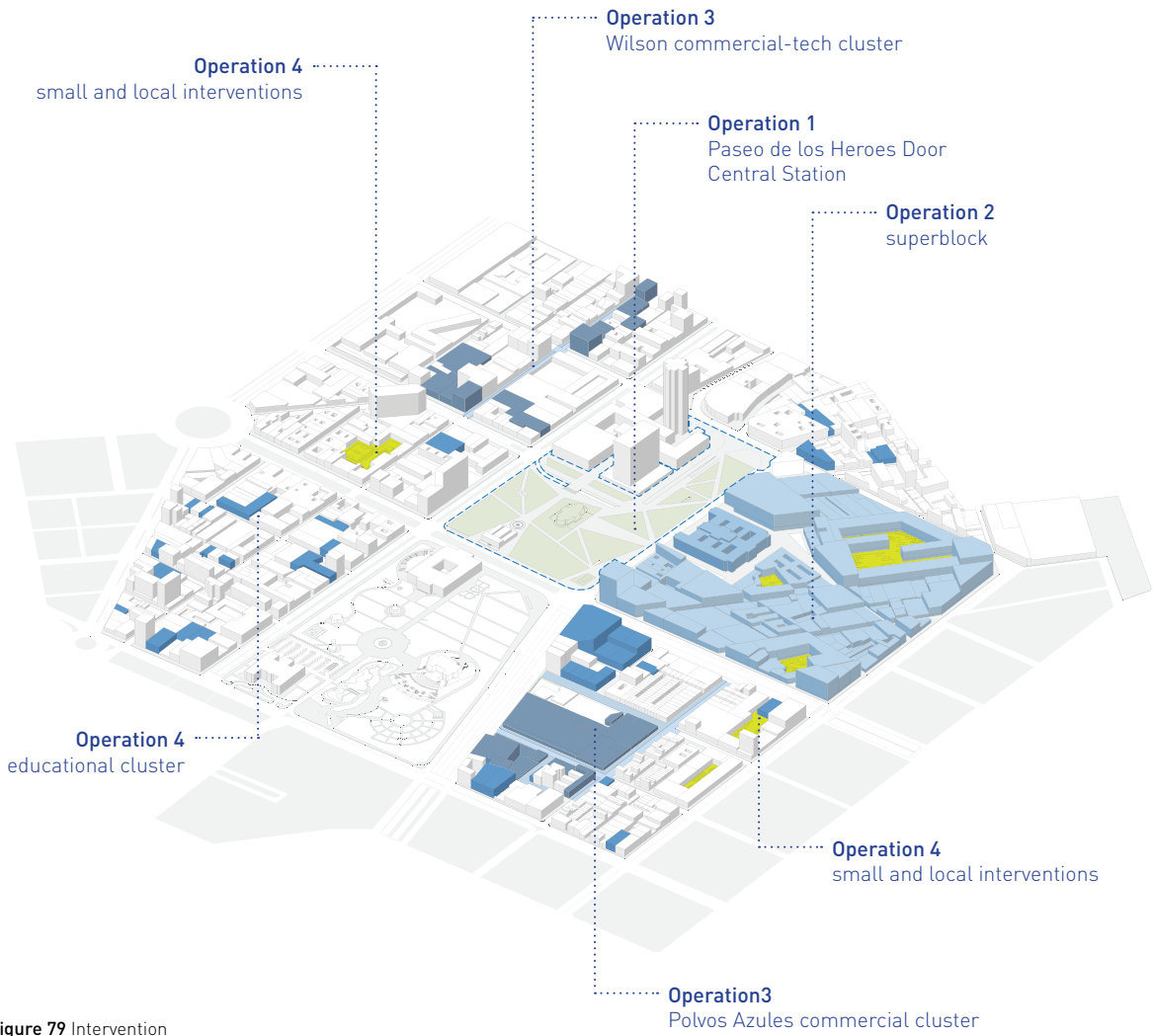


Figure 79 Intervention Zones
Source: By the author

8 A SUPERBLOCK FOR LIMA

The superblock concept was used during the Modern Movement in search of an ordered and functional city. One of the first examples of this concept was part of The Plan Macià for Barcelona (1932-1935) developed by Josep Lluís Sert, Le Corbusier, and Pierre Jeanneret that proposed a network of large modules the size of 400x400m on the grid system of the Eixample, connecting nine city blocks. A large residential complex, based on the *Corbusian* housing models, with apartment buildings co-existing with the community and social infrastructure. This would allow it to connect a part of the city with another with a perimetral network and clear the interior area of the block for key activities such as living, work, and entertainment.

It is important to have in mind that the Plan Macià was based on the premises from The Athens Charter (1933) and the meetings of the IV International Congress of Modern Architecture (CIAM), that summarizes the urban concerns of the architects of the Modern Movement from then, proposals based on order and functionality contrasted the disorder, from their point of view, of the cities of that time. However, the plan tried to improve these urban ideas, which lack a mix of uses and were frequently aggressive interventions, with a plan that could work without rebuilding everything, but rethinking mobility issues and bringing the richness of uses that could be found in a city, not just an urbanization. As a result, there should be a quality public space in which there could be any kind of activities and places and areas where economic, associations, and institutions were located.

Another example of the application of the superblock concept was in the Pilot Plan for Brasília (1956-1960), projected by Lúcio Costa. The Brazilian capital is characterized by neighborhood units formed by long building blocks surrounded by parks, gardens, and amenities. Brasília may be the case of an idea that turned out to be the opposite of a city-friendly to its pedestrians, once its urban fabric created isolation and the necessity for the use of cars to connect a fragmented city. Even though the main objective of such superblocks was to minimize traffic in certain areas, redirecting it to arterial roads, in practice, it segregated areas unattractive to pedestrians, and the scale of the car became dominant.

Contrasting it, Barcelona developed a new urban model based on a superblock system, driven by Salvador Rueda, direct of the Urban Ecology Agency. The model put the priority in organizing the mobility inside and around the block, giving priority to pedestrians and also on the uses and activities that could be implemented inside the block. What is more, finding a solution for traffic congestion and reducing the environmental impacts of vehicle, like noise and environmental pollution which degrade the quality of neighborhoods. The most recent implementation was the pilot program of superblocks in the neighborhood of Poblenou in Barcelona.

“Superblocks are made up of a grid of basic roads forming a polygon, some 400 by 400 meters, with both interior and exterior components. The interior is closed to motorized vehicles and above-ground parking, and gives preference to pedestrian traffic in the public space. Though the inner streets are generally reserved for pedestrians, they can be used by residential traffic,

services, emergency vehicles, and loading/unloading vehicles under special circumstances. The perimeter, or exterior, of Superblocks, is where motorized traffic circulates, and makes up the basic roads.” (Agència d’Ecologia Urbana de Barcelona)

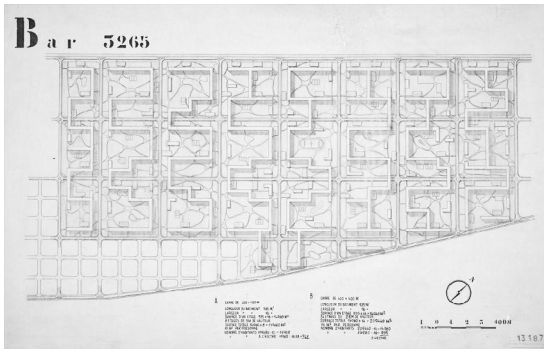


Figure 80 On the right:
Plan Macià
Source: FLC/ADAGP

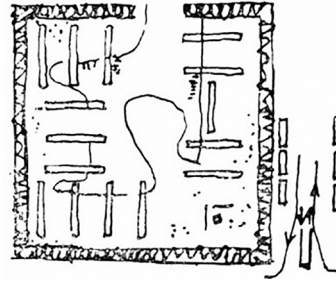


Figure 81 On the left:
Brasília’s superblock
Source: Arquivo Público do
Distrito Federal

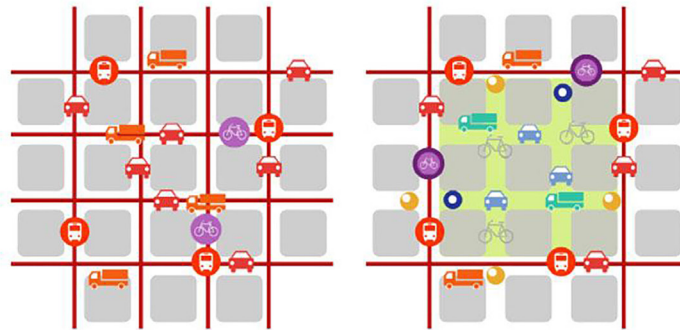
According to Salvador Rueda:

- The superblock has a proportionate amount of people that works and lives in the area so that they have active public spaces and make public transport plausible.
- The superblock public space areas are not committed to non-efficient mobility so it can promote cultural, entertainment, manifestation, among other activities in its public space. Around 75% of public space should be for the realization of these activities.
- Public space with less pollution, more comfortable, diversity of activities, accessible and with enough area for different kinds of users.
- Pedestrian, cycling, and public transport mobility is the priority.
- Diversity of uses and users, a multiplicity of activities that give its residents all kinds of services promoting knowledge and networking.
- Between 25% and 30% of built areas for juridical people that will mainly occupy front facades.
- Superblock could become a sustainable system, incorporating an ecological urbanism in its functioning.
- Walking distance to different services should be no more than 5 to 10 minutes.

One of the most important of the superblock concept is the real prioritization of the pedestrian

and cyclists, the car must become less important in the mobility network; its physical impact must be reduced and one way of achieving this is to segregate them partially or completely from areas, freeing space for activities that enrich the neighborhood life. To have successful superblocks, the center of the block should be connected in a public or semipublic way to the rest of the city and not cut apart from the rest with traffic. Commercial activity, offices, and public spaces could continue flowing inside assuring the liveliness of the area.

Figure 82 Barcelona's superblock: on the left the current situation and on the right the proposed model
Source: Plan de Movilidad Urbana de Barcelona 2013-2018



8.1 MAKING A SUPERBLOCK IN LIMA

The superblock concept could be applied in the city center of Lima by taking advantage of an urban grid that is deteriorated, chaotic mobility in need of reorganization, and a public transportation node in the proximity.

A great opportunity to give the streets back to the people and turn around the historical tendency of the area which has been affected by the construction of big avenues that cut and isolated the zone into fragments that are dominated by the presence of cars and are unfriendly to pedestrians.

Citizens from the majority of districts of Lima are suffering from a lack of public spaces so it is not unusual to find, on weekends where there is less traffic, lots of kids playing on the streets of some neighborhoods, or even families using sidewalks as their improvised patios for their reunions. Opposite to some streets of the city center that have little to no non-residential activity, and serves as parking lots for people working during the day leaving them empty and dangerous when office hours are over.

The superblock could be a unique place in a deteriorated area in the city. The opportunity to have areas where pedestrians and cyclists can feel safe again near the city center is promising not only for residents but also as a lively experiment that could be later replicated in other parts of the city.

Like in Barcelona, superblocks could be gradually introduced in the city until they are adjusted to the characteristics and preferences of Lima and its citizens. It is a great tool to rethink the existing urban mobility pattern and improve the lives of citizens. There is no need to have a superblock system already planned before the reorganization of the public transport system is defined, but it is important to think of Lima and ways of giving the city more quality public spaces and ways of planning and regenerating parts of the city in need.

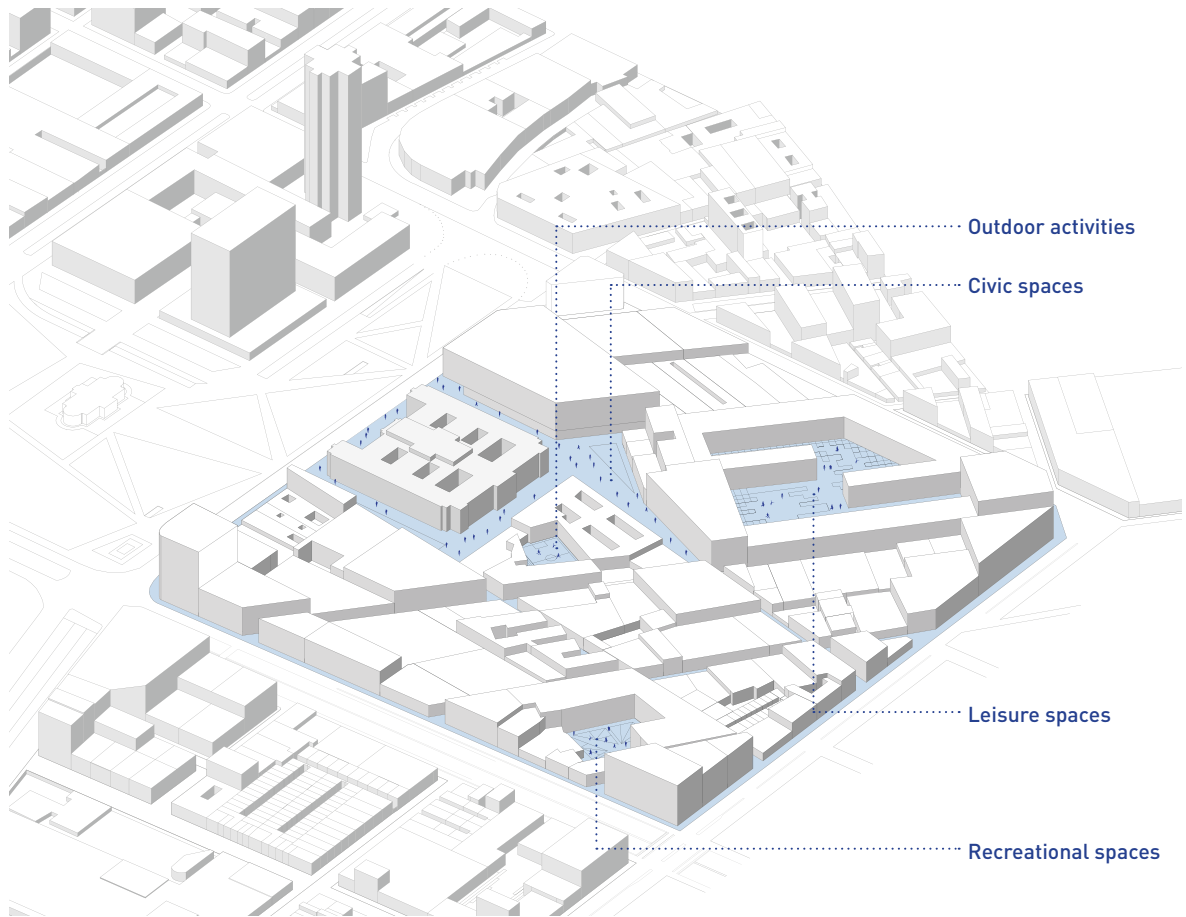
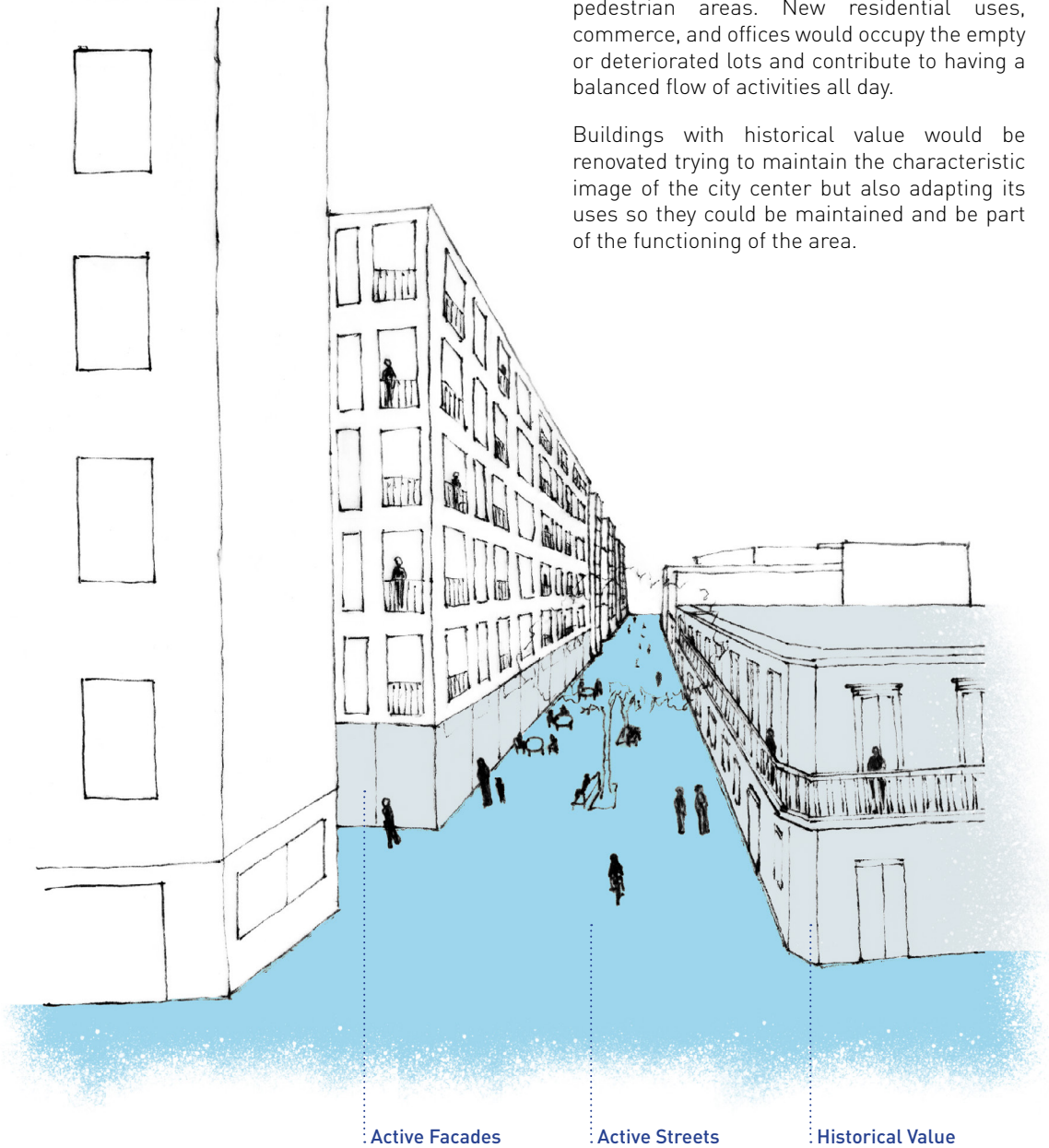


Figure 83 Superblock
Source: By the author

MIXED-USES, NEW VITALITY

Lifeless streets could become attractive pedestrian areas. New residential uses, commerce, and offices would occupy the empty or deteriorated lots and contribute to having a balanced flow of activities all day.

Buildings with historical value would be renovated trying to maintain the characteristic image of the city center but also adapting its uses so they could be maintained and be part of the functioning of the area.



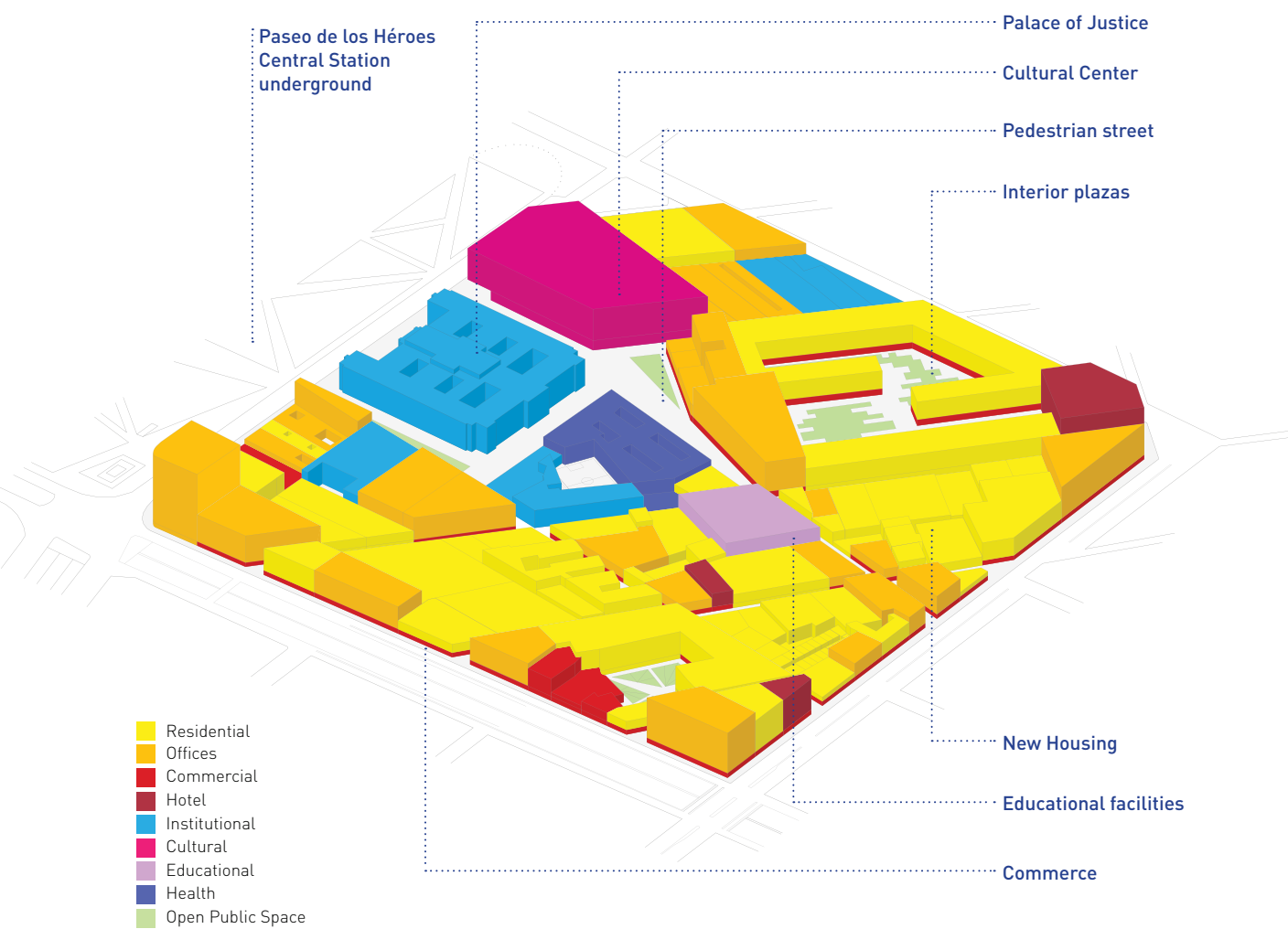


Figure 84 Proposed land uses
 Source: By the author

REVAMPED PUBLIC SPACES

The human-scale of the street is important for its vitality, and so for the successful of urban spaces. New pedestrian streets will be improved with green areas and vegetation that will proportionate shadows for users; surfaces will be prepared for cycling and pedestrians. Car traffic and parking spaces will be reorganized, under a hierarchy that prioritizes the pedestrian traffic, so they can use the services in comfortable and attractive spaces.

The superblock would reorganize the previous order of lots that, because of a rigid distribution and inflexible legislation, did not help to improve the quality of infrastructure and life of people with low incomes living there. The new organization would allow having semi-public areas inside the block, allowing an area for entertainment for residents or passersby, what is more, the building around it will benefit from natural light and good ventilation.

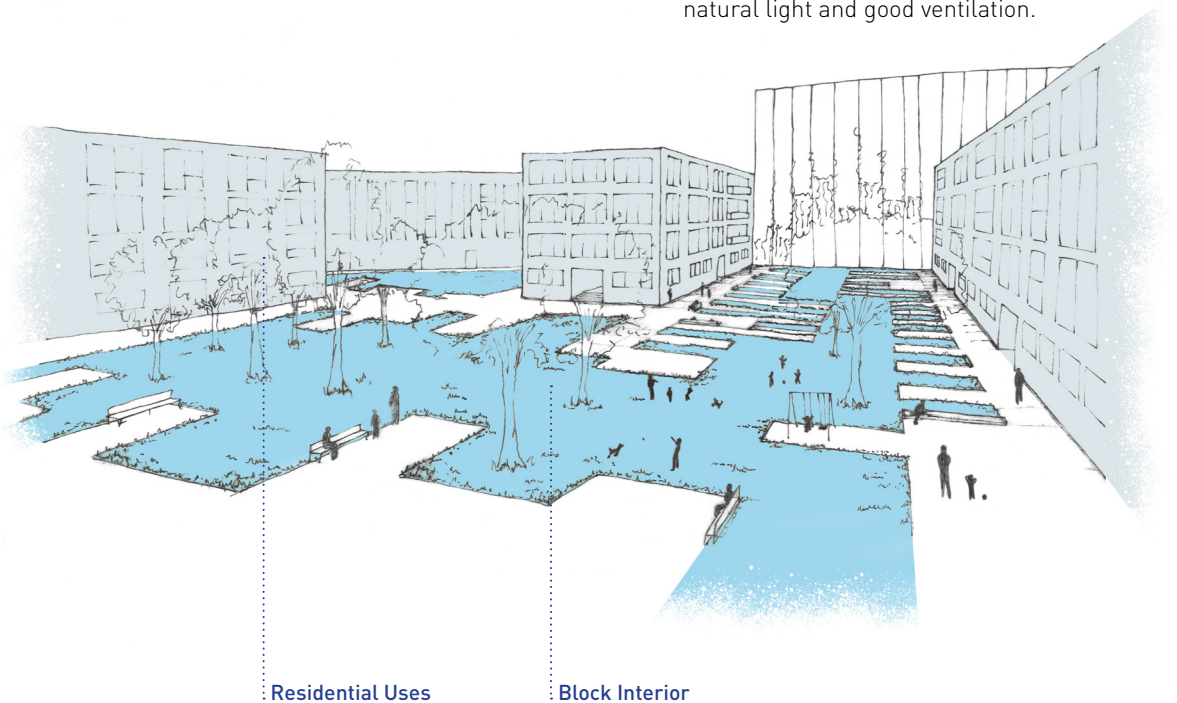




Figure 85 Public Spaces
Source: By the author

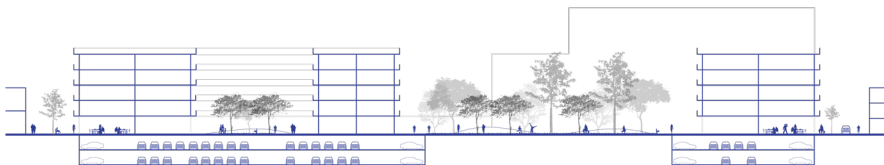
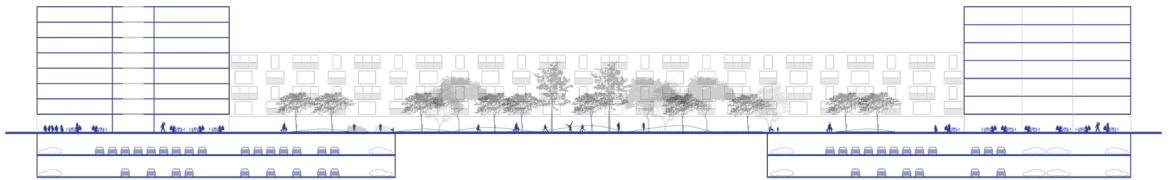


Figure 86 Sections
Source: By the author

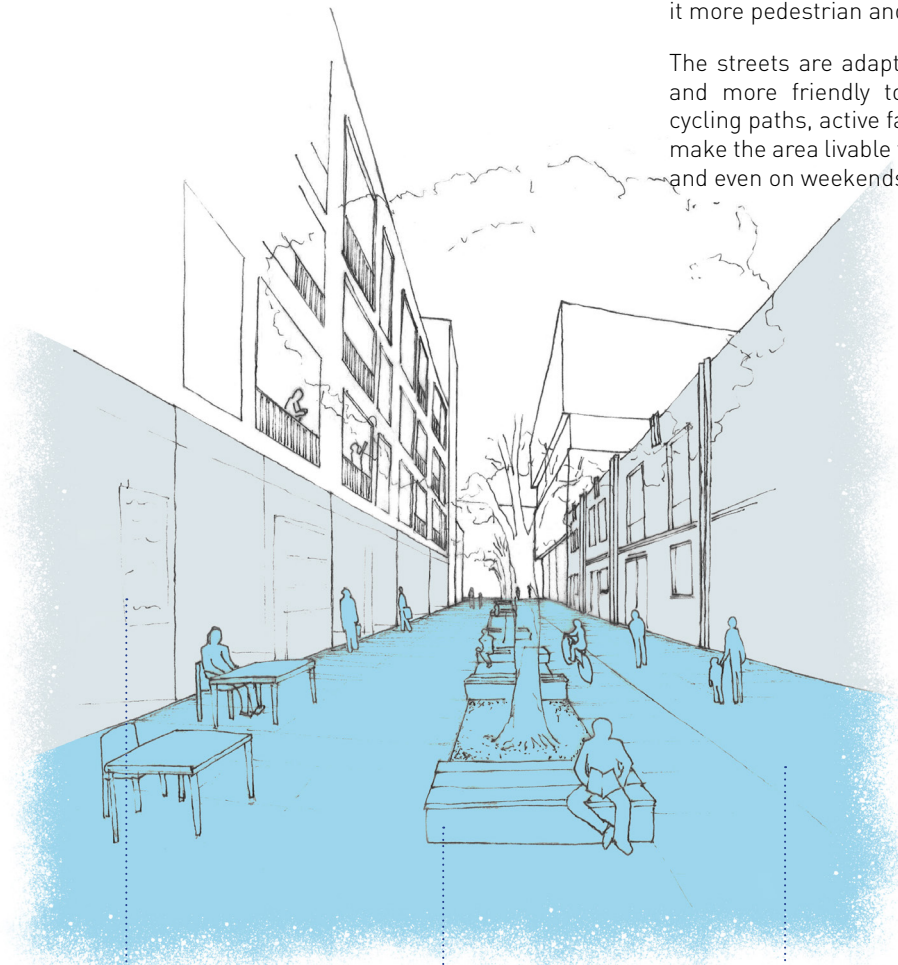


IMPROVED MOBILITY

The area, residents, and users will benefit from the public transport node of Central Station, which would help to reduce the need for private cars. It will also allow interconnectivity with bicycle paths and improved pedestrian routes.

A system of public underground parking in the area will allow reducing to a minimum the flow of cars into the city historical center and make it more pedestrian and cycling friendly.

The streets are adapted to a pedestrian scale and more friendly to them with vegetation, cycling paths, active facades, and terraces that make the area livable throughout the whole day and even on weekends.



Active Facade

Public Furniture/ Vegetation

Pedestrian-Bike Friendly

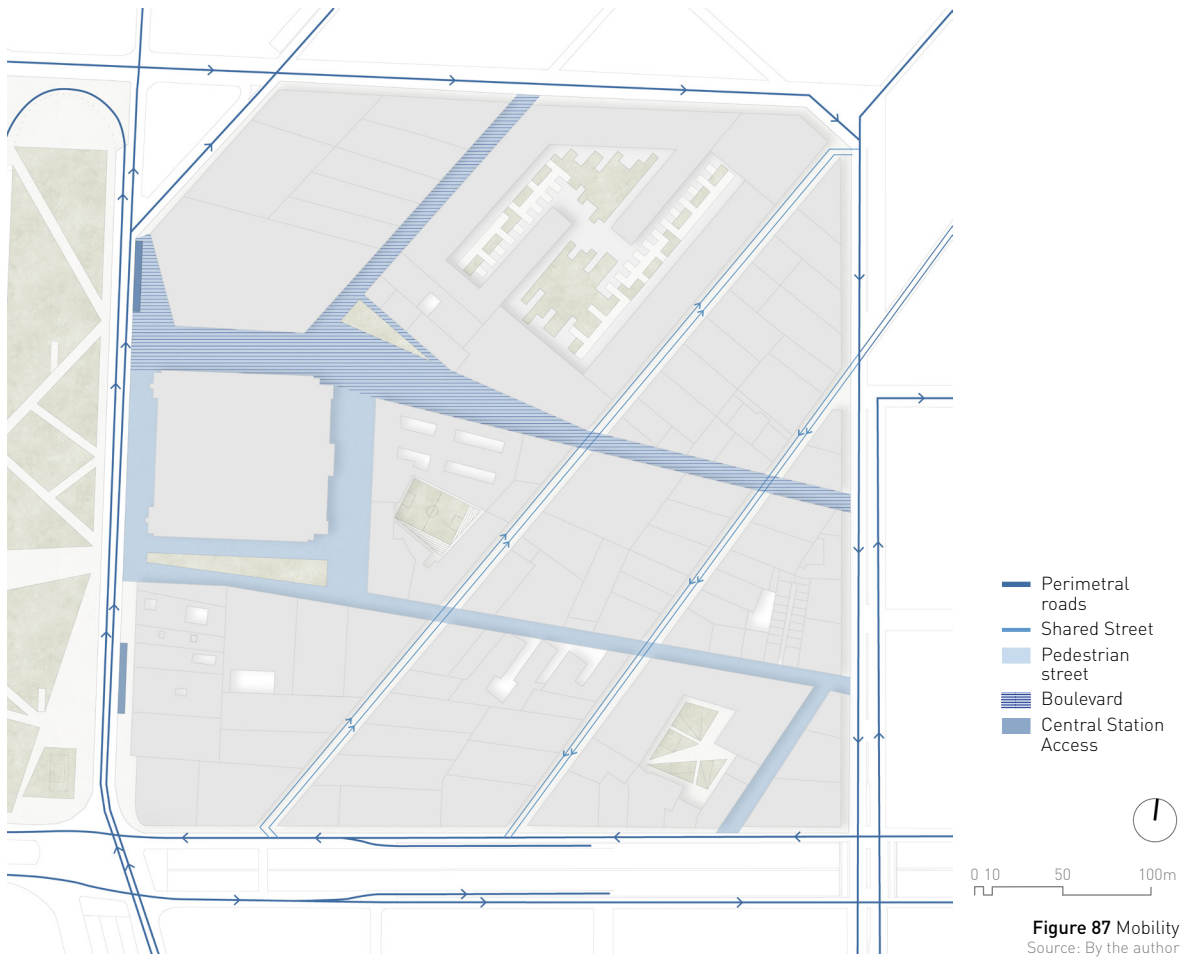


Figure 87 Mobility
Source: By the author

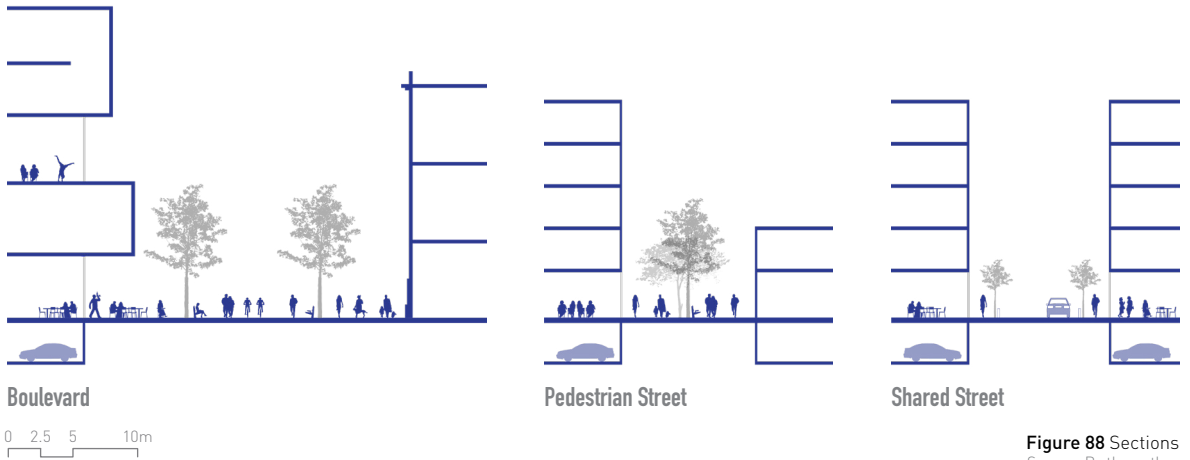


Figure 88 Sections
Source: By the author

FINAL REFLECTIONS

Lima suffers from a lack of urban planning aiming at long-term visions that transcend political mandates, which has been reflected in critical situations. It is a city that expanded rapidly under economical growth, not following any coordinated planning, and has been improvising solutions since then. However, over the last years, the government has started to reintroduce the planning of massive transport systems, and there is also an increased interest in protecting the historical heritage and regenerate degraded areas in the city center.

In this context, this work's starting point was a critical urban area in the city center where an important transport node will be consolidated. The project recognizes the station as a centrality, in terms of location and importance in the public transport network, that has the potential to articulate different programs. The different characteristics of the area generated a project addressed to take advantage of the centrality character and to enable an urban regeneration in its surroundings. The aim was to solve local and urban problems and at the same time integrate different scales of intervention. One of the objectives was to attend to the demand for quality public spaces, purposing solutions and strategies to underused areas and reconnect citizens to a more friendly space for pedestrians, promoting interactions between people and space, and so enhancing a sense of belonging for the place. Some of the concepts explored were density and diversity, through the promotion of new uses and inversion of mobility priorities. The resulted project proposes a regenerated area using different strategies applied through a variety of interventions. In a city that does not have a plan, this kind of project could be used to analyze the effects of these strategy's implementations for later being replied in other areas as part of a plan.

An immediate afterthought after finishing the project and investigation was to think about how it could be implemented in the city's reality. Although this work is not centered around governmental aspects, it is important to highlight the complexity of the governance system in Lima and to ask ourselves if it is the right support system for a city to execute projects like the one proposed in this work. The city has been developed by the actions of disconnected political conditions; there is a fragmentation in the governance structure and an institutional division that hinders the management of complex problems of the city. The abundance of authorities in limited areas makes plans, that affect the city in general, almost impossible as no consensus is ever reached. The current vision that the city is made of independent patches punishes the development of the city as a whole. Although there is an understanding that is important to have a plan that guides the development of the city, it is necessary to update and optimize the governance structure, review parameters for building construction, and define a long-term plan so the city does not rely on real estate speculation to make changes to the built environment.

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DATA SOURCES

AATE - Autoridad Autónoma del Sistema Eléctrico de Transporte Masivo de Lima y Callao (Autonomous Authority of the Electric Mass Transport System of Lima and Callao)

INEI - Instituto Nacional de Estadística e Informática (National Institute of Statistics and Informatics)

MTC - Ministerio de Transportes y Comunicaciones (Ministry of Transport and Communications)

PROLIMA - Programa Municipal para la Recuperación del Centro Histórico de Lima (Municipal Program for the Recovery of the Historic Center of Lima)

Protransporte - Instituto Metropolitano Protransporte de Lima (Metropolitan Institute of Lima)

All maps and diagrams were elaborated and/ or edited by the author based on data provided by identified sources.

GIVING BACK STREETS TO PEOPLE
a case of urban regeneration in Lima

Pablo Andres Pajares Mori | European Postgraduate Masters in Urbanism