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Centres of collective memory redefined: a study of spatial structure, public spaces, land use and primary buildings in the City of Asuncion

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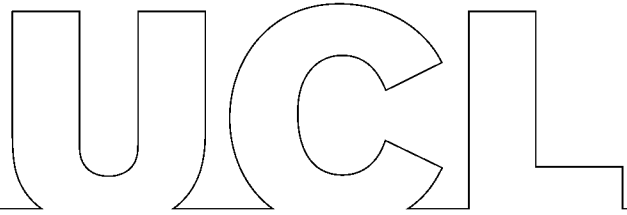
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September 2020

Supervisor: Dr. Kayvan Karimi

**A Dissertation submitted in part fulfilment of the
Degree of Master of Science (MSc) Built Environment
Space Syntax: Architecture and Cities**

**Bartlett School of Architecture
University College London**



MSc SPACE SYNTAX: ARCHITECTURE AND CITIES

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Date created	21 September 2020
Description	
Keywords/tags	
Subject	Space Syntax
Author/owner department	UCL Bartlett School of Architecture: Space Syntax Laboratory
Version	Final
Comments	

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ABSTRACT

The collective memory of a city -hence of a society- is a way of experiencing and identifying the events that characterized it over time, uniting citizens and visitors in an imaginary that transcends its physical construction, but that is not exempt from that condition. Rather, it can be interpreted and analysed through the prism of space and urbanism. Through means of analytical methods, a case about collective identity and a model for its recognition is made for the city of Asuncion.

Historic areas and buildings are considered one part of this collective construction; in this study, it is argued that the structure of the city itself could reveal the permanences that characterise and give meaning to places in the city, by maintaining their location. Furthermore, the extent of the location of such places in conjunction with where concentrations of urban layers are and how this relates to the collective memory is put to test.

The study is divided into two sections: first, the spatial analysis of the historical growth of the city and centralities through time. Also, the current spatial structure present in the city today and centralities in different scales, as well as concentration of elements of urban layers to define six local named areas. Second, a network-based study of the main elements of permanence -representatives of collective events and history- to reveal in this manner the place of collective memory in each area. This can be understood as an aggregated model of urban memory.

The results show that spatial collective memory is related to the mentioned urban layers, and is located not only on historical areas but concentrate on places of high collective use and co-presence. In addition, certain conclusions about the process of growth of Asuncion lead to the recognition of a particular model of urban development; a mixed structure of organic and planned type of settlement that lead to integrated centrality emergences of collective importance.

Keywords: Collective memory, public space, urban layers, space syntax, built form.

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Acknowledgements and Dedications

To my supervisor Dr Kayvan Karimi, for the lessons, tutorials for this dissertation and all the long talks that deeply marked my vision of the city and the social importance of space and architecture. More than a mentor and teacher, I consider you a friend.

To Prof. Laura Vaughan, Dr Sophia Psarra, Dr Kerstin Sailer, Dr Rosica Pachilova and Dr Sam Griffiths for their invaluable teachings throughout the year, they helped make the world so much bigger in my head. I will carry those lessons for the rest of my life. This extends to Gen, Po and Sepehr for their help during the course.

To the national scholarship program "Don Carlos A. Lopez" BECAL for allowing me the opportunity to study abroad, and hopefully, contribute to the growth of the country's knowledge capital. To my first faculty, the FADA UNA for forming me in the profession and all friends and professors from Paraguay – so many of you that I'm probably forgetting but especially Enzo, Diego, Tomas, Juanca, Sergio, Edilio, Carlos and Carlos for contributing in many ways to this work.

To my classmates at the MSc Space Syntax that helped me along the way, especially Gustavo, Laura and Mariana, my latin colleagues– thank you for your honest friendship. To my friends at ILSC, especially Bojan and Gyan, for being my first family upon my arrival.

To Xime, Paz and Gabi for joining me this year and being more than sisters to my heart. The moments with you were the most beautiful.

To Fer, for helping me to come to London and supporting me from start to finish; you gave me so much love, inspiration and affection from so far away. You are the reason that kept me on my feet in the most difficult moments.

To Allan and Sebas, my brothers, for supporting me from afar.

To my mum and dad, for instilling in me the thirst for knowledge, and teaching me my first words and the love for architecture, history and cities.

To Asuncion and London, both in the first place in my affections, for being sources of incessant inspiration. May their collective memories never fade away.

This dissertation is dedicated to Paraguayan students: consecrate your lives to learn and share what you have learned, our society will grow thanks to you. *Jaheka añeteva oñondivepa.*

To the memory of Bill Hillier, thank you for discovering so many of the secrets of space.

And to my future self: look how far you've come, and how far you still have to go.

"I must not fear. Fear is the mind-killer."

CHAPTER 1. INTRODUCTION

The intention of the research is to understand the collective memory of the city of Asuncion based on different layers of localised spatial information: spatial configuration of centralities, land use concentrations, morphology of built form and location of open spaces and important buildings. These aspects of the public space are studied in different areas across the city, but also diachronically in understanding the processes for the emergence of the localities.

Can we understand the character of the place –the genius loci- by understanding how the spatial and functional role of centres change, through the time and across the city? The study intends to locate these elements, to understand how they are related to each other, and fundamentally to understand their spatial logic.

The study takes a morphological approach, in an effort to re-define the concept of the spirit of a place, based on analytical spatial data complemented by literature, ethnography and qualitative observations.

1.1. Problem definition, background and key concepts

The collective memory is a phenomenological concept widely studied in urban history. To a degree, there has been a lack in specific urban data-based studies to understand its spatial dimensions, although there has been efforts to position it in the urban and analytical framework. Christine Boyer (1996) in her book *The city of collective memory*, describes three dimensions of this phenomenon applied on the urban context: the historic city (as a work of art) the modern city (as a panorama) and the contemporary city (as a spectacle). Boyer offers an interesting critique of historicism, a rather cynical look at the concept of architectural entertainment within the city - what makes that city “be”, how aesthetic perception influences and to what extent the collective image of that place is simply an expression of desire for entertainment. Her position is significant in referring to the fact that the city has multiple architectural strata, similarly to other authors from the social and urban sciences; these are considered as important theoretical background for analytical approaches on the subject, although they present difficulties in posing such methods.

One of the aims of this study is to propose a relation between spatial structure and memory elements- a sort of concept of “urban” or “spatial” collective memory. Within the theoretical context of the Space Syntax field, it is argued that urban processes have an intrinsic spatial nature: to understand the collective memory embedded within city spaces, it is necessary to understand two spatial conditions. One is that of historical growth (from evidence by Karimi, 2000), that is, a diachronic analysis of the growth of the urban structure of the city and its

central places-, and a synchronic analysis -how the spatial structure affords the emergence of central areas in a specific time, along different sectors within the city defining different "local collective memory centres".

This is why the emergences of the centres of collective memory is intrinsic to the phenomenon of centrality, which was defined by Bill Hillier as a process rather than a state (Hillier, 1999); the public places of the city, protagonists within the structure as scenarios of the interaction between the members that inhabit a community, are key pieces to understand this process synchronously and diachronically. Then the most "integrated" locations –"shallower" spaces in their topological relation with all other spaces- within the spatial systems are argued to be a probable generators of centres of collective memory. It follows that centrality analyses of the structure of public space –the processes of centrality- could lead to a better understanding of the different layers that give the public space its logic of use and cultural significance.

Is it possible to allocate the collective memory in a city? Christian Norberg-Schulz describes the *genius loci* (spirit of place) as a concept relative to what defines a place as such according to a distinctive character, that provides a sense of belonging and that can be described through its qualitative characteristics but "not through analytic, scientific concepts" (Norberg-Schulz, 1979, p.8). He defines place as "space which has character" (1979, p.5)

Collective memory occurs throughout the city -arguably everywhere- as superimposed layers of elements that are formed over time, conforming the abstract construct that defines it, generating recognizable places all along its extension. Nevertheless, it does concentrates and resonates more in some places, with a stronger character in the identity of said places. Norberg-Schulz refers to these considerations; however, this concept could be extended in its complexity understanding that the city generates dynamics that have an origin in its functionality: that is, there is a relationship between the performance of the city and the memory fragments that can be more or less strong in certain places. These processes are generated through the spatial affordances of the city structure.

There are places that, due to their initially generative condition, remain in character over time and manage to consolidate it. Others simply stay at the level of urban buzz necessary to sustain the economic life of the place. This duality of "condition of permanence/condition of functionality" echoes on Hillier's theory of "Cities of reproduction/production", respectively. Certain structures are maintained with a public monumental status, normally associated with institutions, and others generate dynamic fabrics and of greater economic ease, related to mixed uses and commercial activities, a more "live centrality" as described by Hillier (1999).

Likewise, function gives logic and conceptual strength –the “what for”- to spaces, but it does not define by itself the importance of certain places within collective memory. Various layers are needed that finally define certain places as such, characteristics that are explicit in the logics -often based on cultural features- that are closely related to the shape of the built spaces. In addition to the configurational context and socio-economic data, therefore, other important elements must be considered: places of historical importance, morphology of common spaces and softer layers of locality, such as the particular customs that define these different “fragments” of the collective memory of Asuncion. A palimpsest of superimposed elements, as depicted by Rossi (fig. 1).

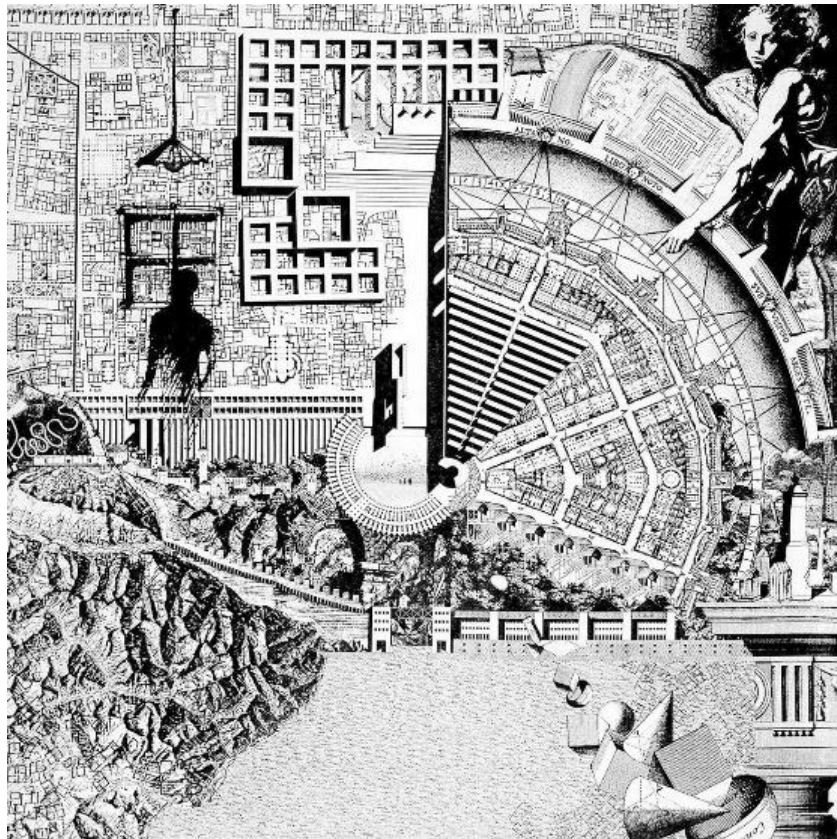


Fig. 1. The analog city, collage by Aldo Rossi (1977). A complex of images and typo-morphologies that express the idea of the collective memory in cities.

1.2. Why Asuncion?

An interesting example of the heterogeneity of these elements can be seen in the city of Asuncion, Paraguay.



Fig. 2. Geographic context of Asuncion, Paraguay. Source: Plan CHA (2014)

A semi-planned city, with a rich history in South America and one of the firsts of many cities to be founded in the continent, it is an interesting case study to test the layers of collective memory and diverse centres of distinctive character, as well as an example of natural urban growth.

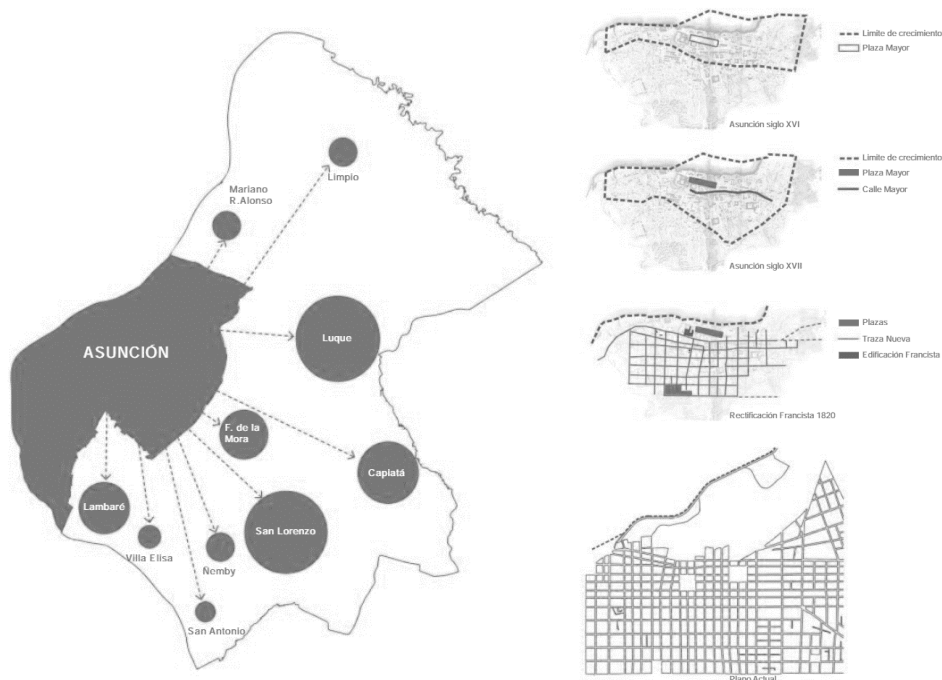


Fig. 3. Asuncion, adjacent "satellite" cities and historic growth process resumed. Source: Plan CHA (2014).

The literature and arts describe Asuncion by its diversity of neighbourhoods and a strong Historic Centre, with the specific urban and architectonic character of a tropical, vibrant metropolitan system.

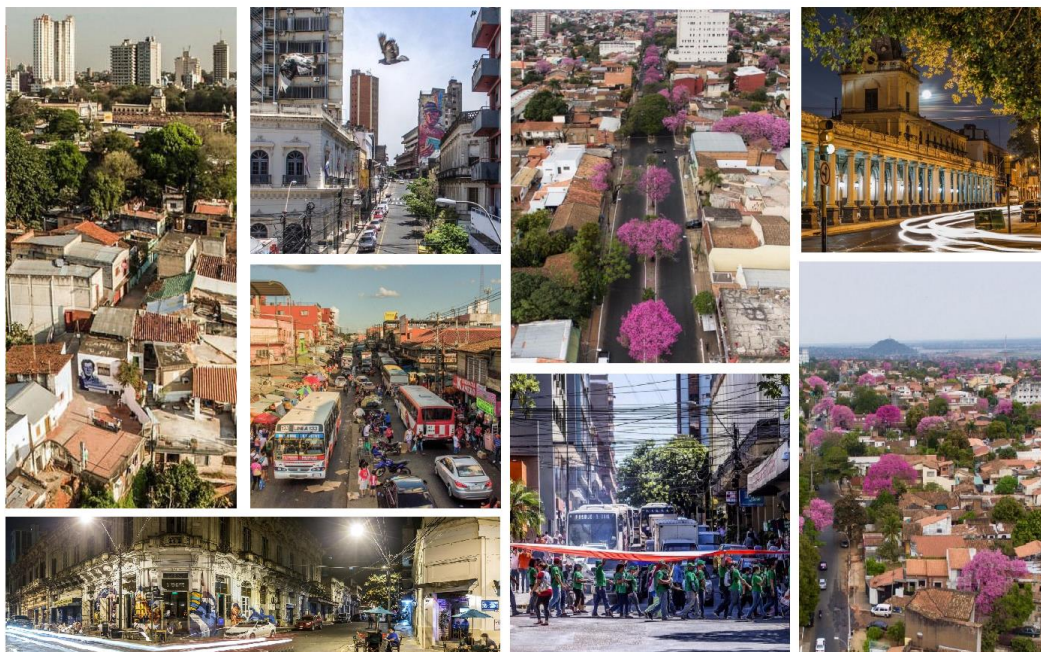


Fig. 4. A collage of the diversity of neighbourhoods and urban elements in Asuncion. Source: Juan Carlos Meza for Fotociclo archive, available at < <https://medium.com/@fotociclo/en-fotos-el-2016-en-las-calles-de-asunci%C3%B3n-f65d3a165c48>>.

1.3. Asuncion as a collective imaginary source: music, arts, and ethnography.

A fundamental characteristic to understand the urban collective memory embedded in a society is its representation in the arts and cultural expressions. For Asuncion this image usually expresses a historicist condition centred on the figure of the city of the early twentieth century: a calm, peaceful city, with a pleasant climate, friendly people and a nascent and vibrant urban life. In music, the guaranias and polkas - Paraguayan folk rhythms - coincide in their descriptions of nature, the colonial urban condition of the patios and galleries, neoclassical facades interspersed with popular peasant dwellings, and in the more traditional they mention well-known specific places. One of them, “Paraguaýpe” (guaraní name that translates to “in Asuncion”) by Flores and Cardozo Ocampo, great exponents of music and poetry, is perhaps the best-known hymn written to the city: this song mentions a series of outstanding places for urban memory.

The translation of the stanzas that highlight these spaces is briefly mentioned:

(...) Plaza Uruguaya, scented jungle,
Oh birdhouse of my song
my pride, beloved duomo,
the Oratory of the Asunción. (...)
Puerto Sajonia my delirium,
blue hill of Lambaré,

the Escalinata, the Mangrullo, the river,
I will sing to you my wandering song. (...)
The bay is an amethyst jewel,
Palma, Colombia, Amambay Street,
the load of tourists...
flower of the flowers of Paraguay.

Certain open spaces (the plaza Uguaya, the Escalinata, the bay, Hill of Lambaré, Sajonia Port), some streets (Palma, Colombia, Amambay) and even buildings (the Oratory, a historic building that is used for civic expressions of joy and protest to this day) are mentioned as a mark of the spatial perceptions of the inhabitant (fig. 7).



Fig. 5. Map of spatially located elements –in pink- mentioned in "Paraguaype" song. The river is often mentioned in folklore, as well as the bay and other important elements highlighted in the image. Drawing by author.

The song mentions the character of a rather classical Asuncion, with hints of historicism and highlighting the calmness and articulation of local scales houses and streets, and the vibrancy of public pedestrian spaces. This same condition is described in the records of a visit from famous architect Le Corbusier in 1929. While travelling through to South America, he took the opportunity to make a short visit to Paraguay; upon arrival, he had a conversation with the prime minister about the city and its possible urban improvements. After observing some areas of Asuncion, Le Corbusier pointed the ethnographic description as follows:

“I told that good minister sincerely and categorically that the Paraguayans do not need to change anything in terms of urban planning, that in the Asuncion one breathes a happy air and a naive and overflowing well-being, and that this smiling city does not have to be modified in the most minimum according to urban plans, because it is made as for the life that is lived there.

(...) Asuncion seemed to me like a joyful, crazy city, a charming city, of a simple, sunny, tingling joy of bright and fresh colours, all compatible with each other and linked by the frantic green of tropical trees; the centre of America”. (Le Corbusier, according to Gutierrez and Gonzalez, 2009).



Fig. 6. "Asuncion", Sketch by Le Corbusier (1929).

This is remarkable as the description still matches mostly the scale of the historic centre and how it is maintained; there is a presence of high and medium rise buildings, but these are scattered, in the same way as the historical buildings and monuments, as well as a wide variety of typologies: thus making a very interesting case of urban typo-morphological diversity. This point is to be further described in the analytical results, as the research focuses to analytically explore these issues.

1.4. Research questions and objectives of the study

This research aims to analytically review the issue of collective memory, taking Asuncion as a case study and scenario for the redefinition of the concept of centres of collective construction with a particular spatial spirit. This redefinition is explored through the revision of the spatial growth of the city and the analysis of sets of data on localised areas.

1. How has the growth of the spatial structure of Asuncion allowed the formation of urban areas of collective memory through time, and how does the current structure denote the emergence of these centres across the city?
2. To what extent are spatial centralities, morphology of open spaces, land use concentrations and primary buildings, defining urban patterns of collective memory in Asuncion?

The objectives of the study are to explore the issue of collective memory in cities, defining it analytically by exploring different urban layers such as urban structure, built form, land uses and primary buildings within its spatial conditions.

Also, to understand the shifting centralities in Asuncion as a spatial and social phenomenon, and its impact on the collective memory of the city.

It's intended likewise to analyse how certain urban form and functions define local centralities of social life, and to understand the character of space in terms of different layers: the spatial structure and land uses, urban form, important buildings and open spaces.

1.5. Research structure

After establishing the problem and research questions, Chapter 2 develops the theoretical aspects that define collective spatial memory, based on the spatial evolution of the city as the main factor for the emergence of collective memory centres, and extending the framework to other urban layers that complement this concept, establishing the theoretical context for the analysis in Asunción. Chapter 3 presents the methodology; Chapter 4 studies the historical evolution of centralities, to define centres of collective memory to analyse in depth in Chapter 5 through various layers of spatially located data, and define their particular character. Chapter 6 refers to the research questions in the light of the analysis and explores the implications of the study for the theoretical and academic context.

CHAPTER 2. LITERATURE REVIEW (2886)

The main objective of the research is to reveal a logic for the definition of urban fragments that have particular character and importance in Asunción, which would lead to an understanding of the collective memory of the city. This objective is posed through relating physical aspects of the city with its functionality, the significance, and the time-driven processes that shape the city; these aspects are argued to conform the collective memory of the place. The literature review explores this themes to address the theoretical and practical context for the proposition of a methodology to answer the research questions and justify the rationale of the themes selected for the study.

2.1. A spatial logic of collective memory

Many authors and schools of thought had explored the concept of urban collective memory through different prisms; the morphology of public space in cities, studies on landmarks and important buildings, functionality and vitality, spatial configuration and evolution of the urban structure, the poetics of place and built form rituals and social everyday practices and many other variations for the physical manifestations of collective memory. It is important to establish from the beginning that, although the basis for the analytical approaches of the memory and concepts of the place is certainly based on phenomenological concepts –brought forward on urbanism mainly by Christian Norberg-Schulz- this research will focus on *spatial* aspects of collective memory, and so it sets the goal to identify new ways to allocate the complex layers of the genius loci in a case study –Asuncion, Paraguay- in an effort to redefine these concepts in an analytical manner. It is only natural to assume that these analytical models must be interpreted and compared to qualitative data, observations and even ethnographic records to bring light to such a complex urban subject.

In this way, our understanding of cities could be analytically approach trough a prism of concepts relating to the collective memory, a sort of model of the” spirit of place” in cities: different scales and resolutions in understanding the urban structure, relating various aspects –morphological, functional and significant- to its spatial condition.

In most cities, all of these elements are part of the same intricate and complex whole, and it is almost impossible to distinguish them from one another whilst experiencing the city. However, for the purpose of analytical descriptions -of this “spirit of place”, of what “makes a city a city”- this conceptual separation could be useful. Then, relating them into one set of multi-layered model through the analysis and trying to add the complexities of one scale into the others, the notions that we are trying to address with the study could be represented and assessed.

In *The architecture of the city* (1982) Aldo Rossi describes the collective memory as one of the ways of understanding the city, described not as an abstract concept separated to the physical world, but embedded in the urban fabric and characterised by the people who live in it and experience it. The locus or “spirit of place” as he describes resides in the city -part of the physical constructs and attached to them in the forms of memories- constantly modifying and transforming the structure that originates it, but bridging the meanings of the past with those of the present. In his description:

One can say that the city itself is the collective memory of its people, and like memory it is associated with objects and places. The city is the locus of the collective memory. This relationship between the locus and the citizenry then becomes the city’s predominant image, both of architecture and of landscape, and as certain artifacts become part of its memory, new ones emerge. (Rossi, 1982, p. 130).

2.3. Space and continuity: the urban structure.

The model must firstly consider the spatial conditions that shaped the city across time, giving it its existing structure. The process of understanding centralities (Hillier, 1999) is closely related to the idea of a collective memory: the evolution of centralities through the history of the city helps in understanding how the city grows, consolidating certain places, and if and how they shift over time. When analysing the spatial condition synchronously, it is also useful to review centralities at different scales: nevertheless, it is important to recognize a range of sectors with different degrees of centrality, to explain more precisely the complexity of public space within the city, concentrating not only on the foreground network but on its relationship with the background, understanding how pervasive centrality extends the location of those important places for collective living to the less integrated sectors of the city.

Following the issue of the analytical understanding of collective memory, the works of Julienne Hanson (1989) and Kayvan Karimi (2012) on the concepts of order and structure are relevant to the developing of a research strategy. Differentiating order -as the geometrical form of the spatial patterns- and structure -as the complex relation of the parts component to the system- is fundamentally important to analytically understand how the places of the city, and the city itself as a whole, has developed through time and acquire distinctiveness, as Karimi explains (2012 a, p. 47). The conceptual difference is explained as follows:

Whereas order is about similarities and differences of forms, structure is about how we, as human beings, read urban systems and their relational patterns linking parts and the whole together. (Karimi, 2012 a, p. 39).

The work of Bill Hillier (2009) regarding the concepts of background and foreground networks is also relevant to the structural study of the city of collective memory: the conceptual division of the city in a binary system, being the foreground network arguably the main scenario for the collective activity and precise through time, thus constructing the urban continuity through centrality:

By some as yet unknown process, cities of all kinds, and however they begin seem to evolve into a foreground network of linked centres at all scales, from a couple of shops and a café through to whole sub-cities, set into a background network of largely residential space. (Hillier, 2009, p. 4).

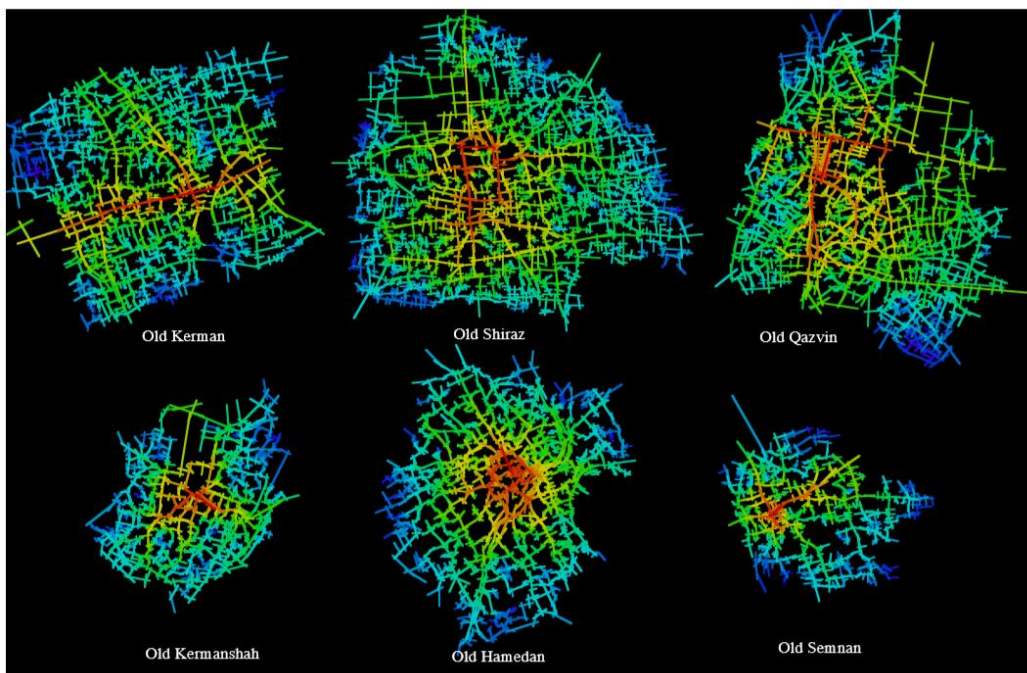


Fig. 7. Axial analysis of Iranian cities by Karimi (2012 a) revealing the underlying spatial structure of cities that at first view do not reflect a particular geometrical order in their plans.

2.4. Centrality as an index of collective imaginary.

In *Centrality as a process* (1999), Hillier extends the explanation of the understanding of centralities in cities not as a stage in the urban structure but as a complex process in time; this process is driven by multiple socioeconomic and historic factors, but it is also -and most importantly- a complex spatial phenomenon, that continuously reciprocates with the former factors mentioned, creating in this way the patterns of natural movement (Hillier et al, 1993) that generate the foreground network of centralities.

Moreover, the concept of 'centralities' as spatial emergences that derive from the aforementioned phenomenon can be related to the concept of collective memory. In the diachronic (the evolution through history) as well as the synchronic (the current momentary stage of the spatial system) understanding of the city, the spaces that have maintained their values of integration (the index of centrality) in the form of 'to movement' spaces, or values of spatial co-presence, therefore reveal the areas of the city that could be catalogued as "places of collective imaginary", places that have maintained character over time and driven by high movement, that equals high levels of activity and sense of collective use and arguably, identity and character.

2.5. Primary elements and landmarks

Another important aspect to understand is how various primary elements within the city shape the forms of permanence that also greatly contribute to the collective identity of a place. There are several possible classifications for these elements: perhaps the easiest to target are buildings of relevant character, either for their historical importance as a setting for important events, or for their architectural importance as a physical testament to the past. It is essential to understand their role not only as important individual elements, but mainly their position within the city system, what their potential impact is within the spatial structure of the city and whether they can be intelligibly recognized. In addition to the important buildings, places such as markets, bazaars, squares or commercial and pedestrian streets can be mentioned.

Rossi (1982) speaks of an idea of urban permanences: primary elements of architecture that define a scale of connected locations and places for the city, and another of the wider, structural space:

(...) Thus we consider locus the characteristic principle of urban artifacts; the concepts of locus, architecture, permanences, and history together help us to understand the complexity of urban artifacts. The collective memory participates in the actual transformation of space in the works of the collective. (Rossi, 1982, p. 130).

It seems that initially the concepts that Rossi presents achieve a fairly recognizable conception of our experience of cities, an approach that has an analytical spirit in the first place (as is recognisable throughout *The architecture of the city*) but does not go much further in offering a methodological framework for understanding the impact of these elements within the city structure. In *A reflection on Order and structure in urban design* (2012 b), Karimi extends this topic by analysing the primary elements in English and Iranian cities; the results suggest that in both cases there is a correlation between high spatial integration and the places where these

primary elements emerge within the system, in the English cities the elements maintained the correspondence in locations, in the Iranian cities, there is a shift in their spatial logic. This example contributes to the argument of centralities understood as places that denote the permanence of these elements, adding another layer to the understanding of collective memory.

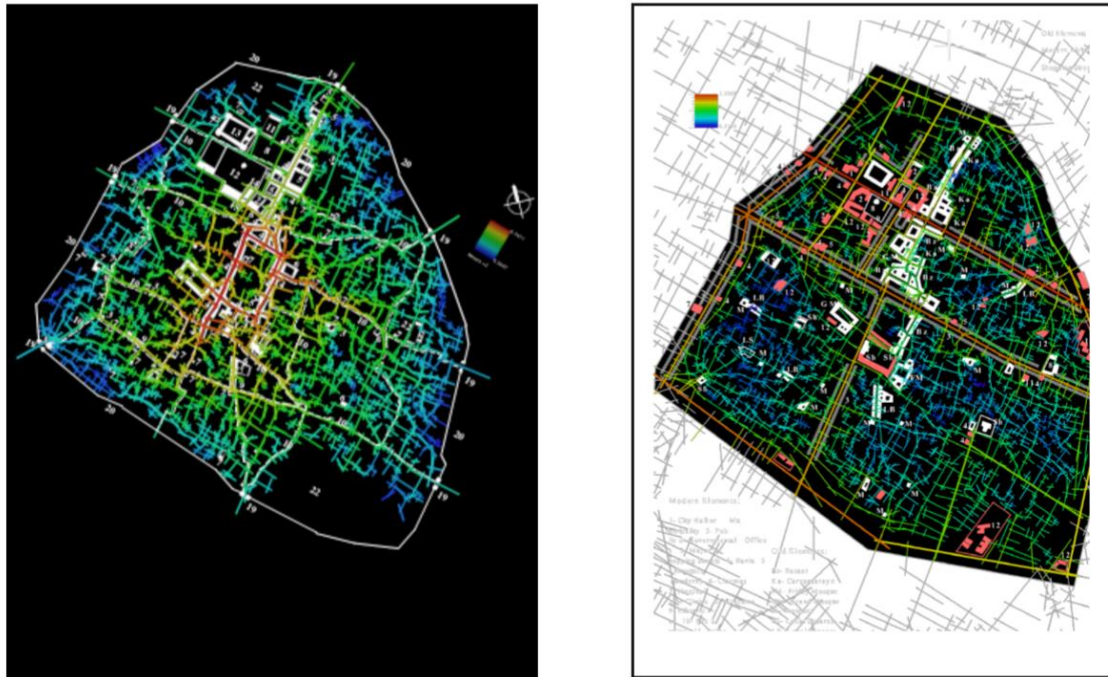


Fig. 8 The primary elements superimposed with the global spatial system, in old and new Shiraz (Karimi, 2012 b).

2.5. Built form and morphology of public space: the street

It is relevant to this study –especially to inform the selection of cases to the analysis in a variety of space typologies- to understand how the society within a certain territory knows and applies knowledge in the way in which it settles, and how society conditions the physical spaces of common use through the buildings it constructs. In Asunción, this condition has been only barely studied, and the ordinance laws only contemplate planning policies according to certain sectors or zones, limiting itself to defining heights, free spaces vs. built spaces, and retreats from the sidewalk. It should be noted that there are no explanations for these regulations within the land planning law, there is no body or framework that explains what the urban benefits of these limitations are, nor a sociological or cultural understanding of why in certain areas there may be buildings of certain type and not others.



Fig. 9. Different examples of building morphology types generating patterns of street space: Siena and Davis. Own author from OSM. Available at <<https://download.geofabrik.de/>>

In any case, the morphology that architecture takes in these different sectors conditions the way of experiencing public space, causing diverse fragments to be generated within the city, related to these various ways of experiencing street space. This occurs for a double condition: the way in which different tissues or fragments are generated according to the morphology of each sector, and therefore the different ways in which the architectural construction is related at the edges with the street.

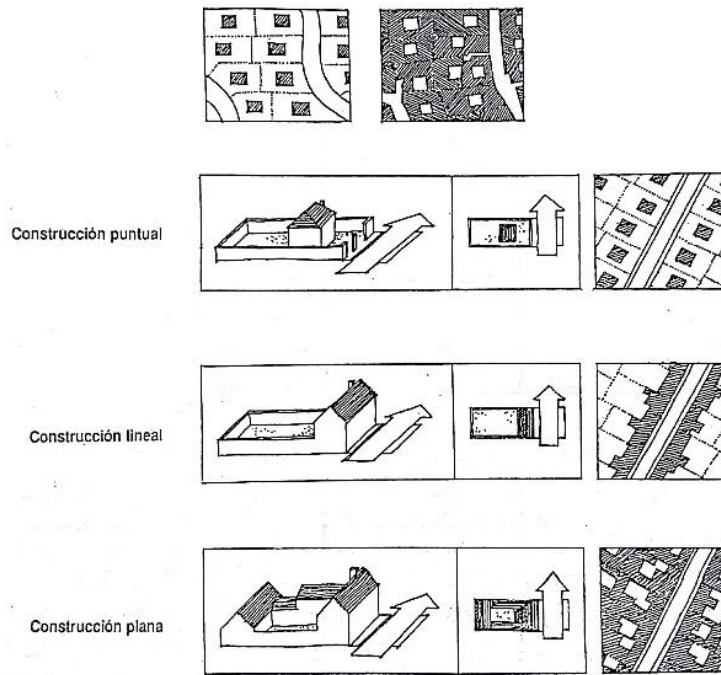


Fig. 10 Structuring of the urban fabric through building types. Source: Naselli (1992).

The morphology of built form then adds another layer of complexity apart from the spatial conditions of integration explicit in spatial networks –the grid patterns-, the block sizes and other morphological aspects, helping in this way to define the “res publica” as seen in diagrams of Leon Krier (fig. 12 on the next page). The private building settlements –res economica- end up conforming the different typologies of public space that eventually shape particular urban images for different zones or fragments of the city. The layer can be further described by the interior spaces of public buildings, as in the map by Nolli (fig. 11 below).



Fig. 11. Detail of Nolli's map of Rome: public space and public building interiors in white, are defined by construction in grey.

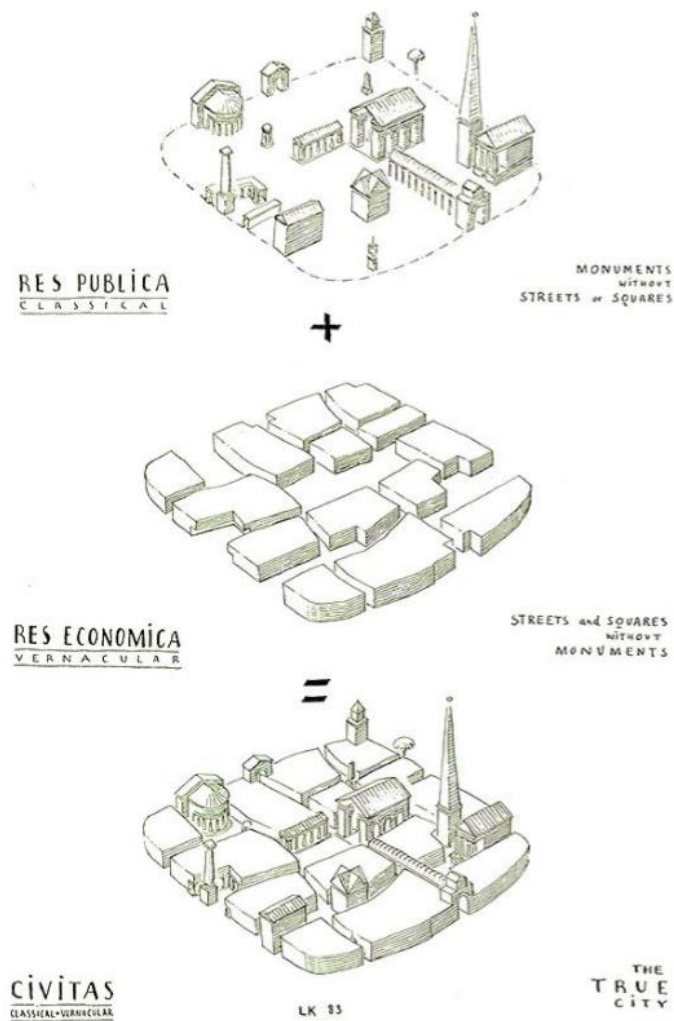


Fig. 12 Graphic synthesis of Leon Krier, the public Res or public element (the system of spaces and public buildings) and the economic Res or residence element (private buildings that constitutes the void by opposition). The conjunction of these elements makes up "the true city". Source: *Drawing for architecture* (2009). Leon Krier.

In other words, the configuration of residence leads to a type of unit that ultimately relates to the common, collective, public place of everyday life. This is (in most cases) the 'street' type, formed by the building type and its relation to the open space. It can reflect continuity or heterogeneity during its ever-changing evolution, depending on multiple factors (e.g. plots and buildings composing the open space). This is important for two reasons: one, the housing type defines the street patterns and public character and two, the ways of living in itself are a form of collective memory of the place, and are in fact embedded in the spatial coding of housing.

2.7. Morphology and location of open spaces: the squares

A special note can be made regarding the open public places of the city; the identifiable convex spaces with particular character and vibrancy, reflecting the social constructs of the

locality and allowing public appropriation, interaction and interchange. Usually defined by public functions, collective nature of the use of space, economic and social activity and political expression, these systems -can be- are historically related to local architecture buildings of importance in both harmonious functional use and spatial definition of the space.



Fig. 13. Open spaces: Covent Garden in London and typical Plaza in Asuncion.

If a set of public places work together, this system brings a certain ‘architectonical’ or ‘cultural’ emphasis of the global urban structure. They are very successful in bringing the “public/collective character” to cities -the system of connected squares, in addition to landmarks and buildings. Following the compositional relationship with architecture explained in the morphology of street space, this criterion of the sets of “places” can strongly give character to a wider scale; they can be organically formed or planned.

In Asuncion, the plaza –an open space of local scale- has had historical importance in the development of collective sense of community and identity. Currently these spaces are used scarcely and unfrequently (Flores et al., 2012), therefore an analysis on the intelligibility of these spaces is opportune under the propositions of this study.

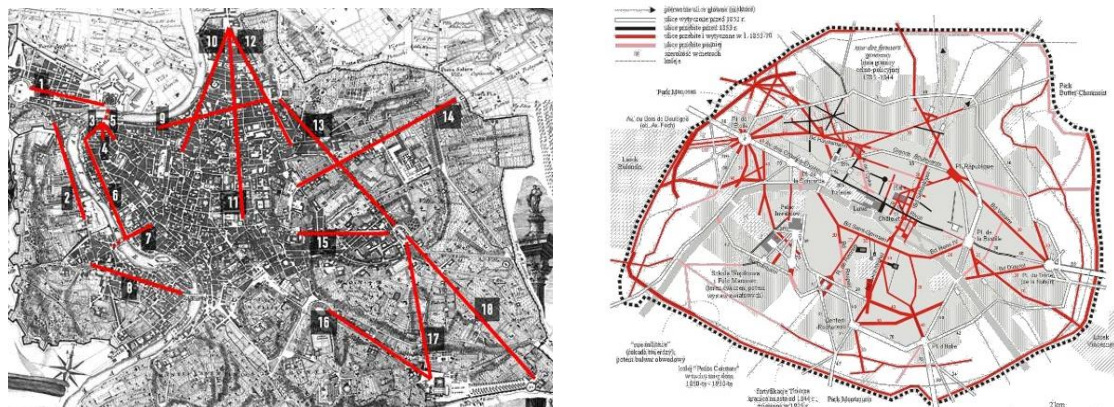


Fig. 14. Recognisable systems of open public spaces and important buildings: the plan for Rome by Sixto V and the plan for Paris by Haussmann.

2.8. The live centrality: land-use concentrations as collectiveness generators

Another important theme that shape the overall concept of collective understanding of cities is the patterns of land-use that emerge driven by multiple spatial and socio-economic factors (Vaughan, 2015). In addition, certain particular functions within the city can be related to places that are recognizable as central, which also articulate a large number of people around them, among workers and visitors; the function of these areas causes great movement and exerts an important influence, different from other types of centrality such as the streets with a high presence of shops throughout or small local centres scattered in the territory.

The concept of “live centrality” (a concept that refers to mainly commercial and retail areas, in contrast to other central functions such as administrative or religious ones) is explained by Hillier (1999); this is a phenomenon that occurs at all scales. An interesting argument to highlight is the relationship between land use diversity and the evolving nature of space: the urban form affords patterns of natural movement that influences the emerging land uses. This generates a virtuous circle that generates more movement, and modifies the local grid in the process. In the centres and sub centres, this produces what is called an intensified local grid that promotes large amounts of movement (Penn et al., 2009; Vaughan, 2015).

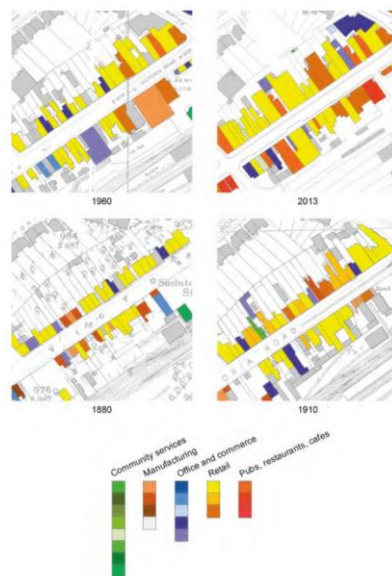


Fig. 15. Image showing the evolution of morphology and land use patterns of Victoria Road, by Vaughan et al. (2015)

Finally, it could be argued that concentrations of economic activity -in contrast of concentrations of residence- can expand the process of allocating collective activity in the centres and sub-centres, adding a layer of social data to the model of collective memory. An example of this differentiation can be seen in fig. 16.

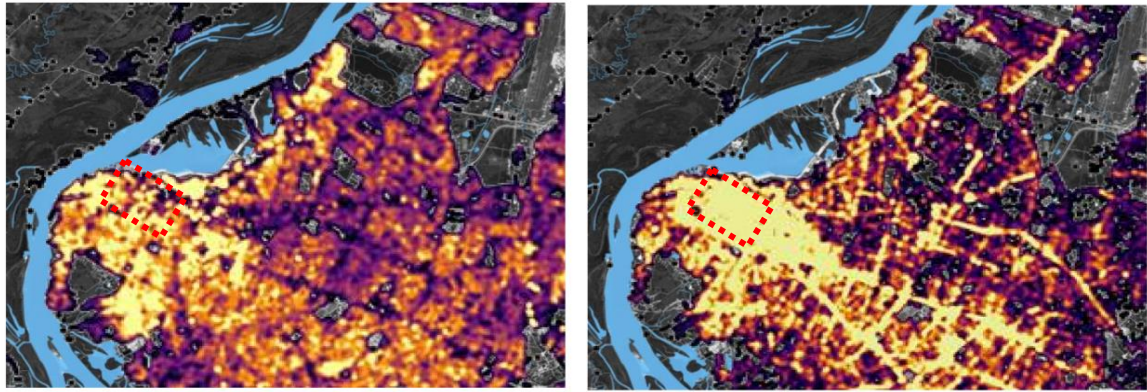


Fig. 16. Asuncion, Density maps showing difference in density of points of residence (left) and points of commerce and services (right). The bright yellow colour corresponds to high clustering of points; the red dotted square marks the Historic Centre area, showing a low concentration of residence and a large concentration of retail and economic activity. Source: autor.

2.9. The softer urban layers of the spirit of place

Other important layers of information that can be mapped -or at least be localise- can help to enrich the model of places that have a strong character. This could be more related to the quotidian or processional, or even cultural conditions of the city. They are “a source of time-space orientations towards the world that afford social memory” (Griffiths,2015). This include places that have night lighting (fig.), materiality of the buildings as a testament of the character of the place, important routes of high movement, ordinance plans, and even places mentioned and depicted in works of art.



Fig. 17. Night view of Asuncion. Photo available at <https://encrypted-tbn0.gstatic.com/images?q=tbn%3AAND9GcTrxAVBNB7lokDWAqP5y26RS1H_dPhlGq2Hg&usqp=CAU>

CHAPTER 3. METHODOLOGICAL FRAMEWORK

The research questions denote that the study approaches the issue of collective memory as a spatial phenomenon, and so the methodology must follow the enquiry of its spatial dimensions. The methodology is based on a layered analysis of the diverse elements that make up the concept of collective memory explained in the literature review. The historical process of conformation of centralities, based on Hillier's theory (1999) serves as the starting point to recognize areas in Asunción. Then, a study of the presence of urban memory elements helps to define six areas of study, and characterise them according to the variation of these urban memory layers.

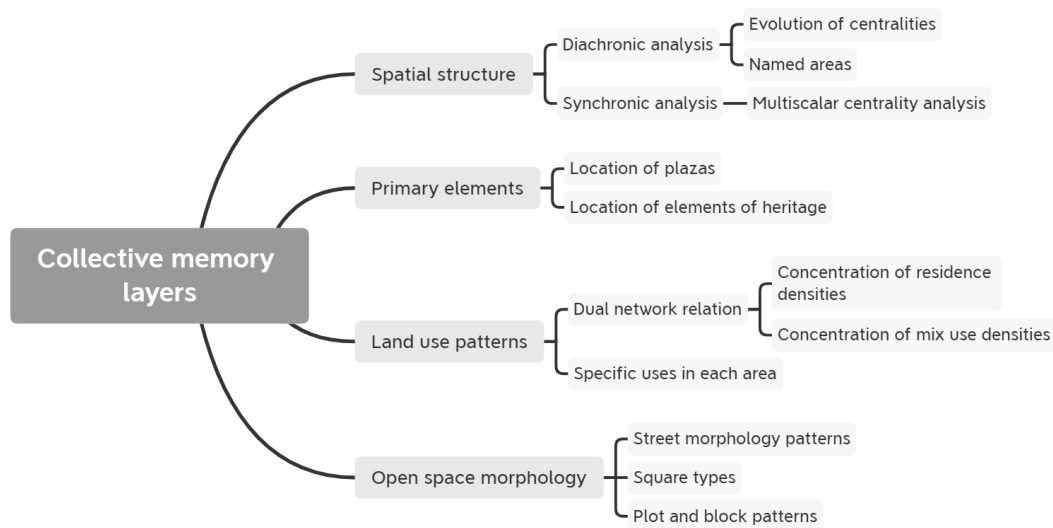


Fig. 18. A diagram of spatial collective memory layers and themes from the literature.

3.1. Analytical methods

3.1.1. Explaining the spatial structure and shifting centralities

For the first question, a centrality analysis: integration values (for different historical periods and the current structure: main sub-centres at the local scale comparing to the global. A more detailed explanation of each area, explaining the social factors as consequences of spatial transformation and socioeconomic processes that also influence these changes.

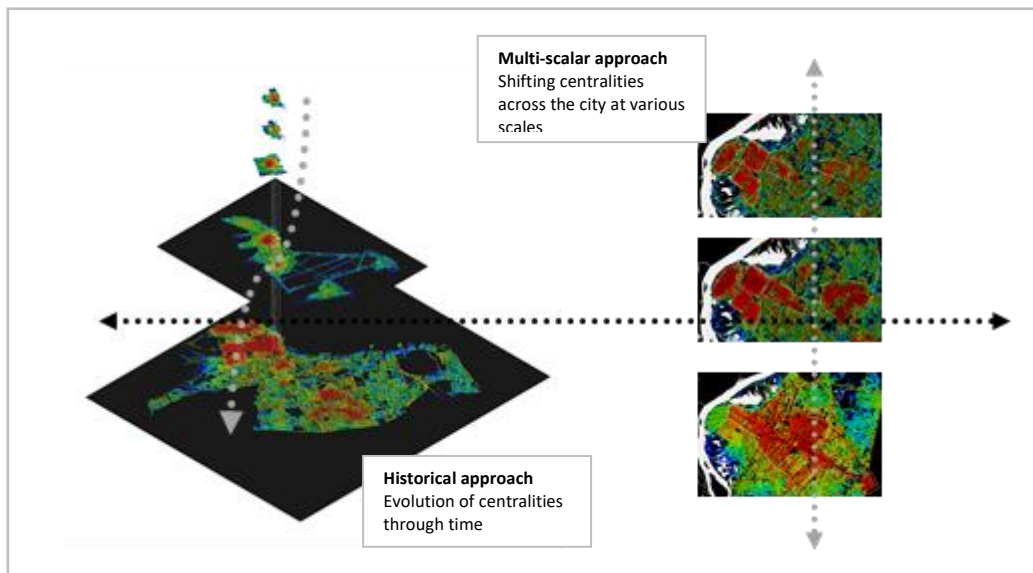


Fig. 19. Diagram of Historic and Multi-scalar analyses of evolution of centralities in Asuncion.

3.1.2. Emphasis on the local elements of collective memory

For the second question, a morphological approach on different patterns of built form and how this affect the accessibility of public space. This will give a better idea of how public space is qualified in the aforementioned areas, relating to the patterns of configuration.

This question also implies an analytical exploration of patterns of open space. There are two main types of open public space: parks (a bigger area, city scale like), plazas (a local space, usually green surfaces- these are the most common).

The plazas cluster at some areas but are in general scattered throughout the city. This spaces, especially the plazas, are considered to be the main (and lost) space of civic relationship and leisure activities.

Studying these points of interest, adding to a model that could consider important buildings, other softer layers of data and the previous factors, could in-sum form a very in-depth explanation for the understanding of collective memory and the changing character of areas. Then, descriptive statistical analyses are used to compare and summarise the findings.

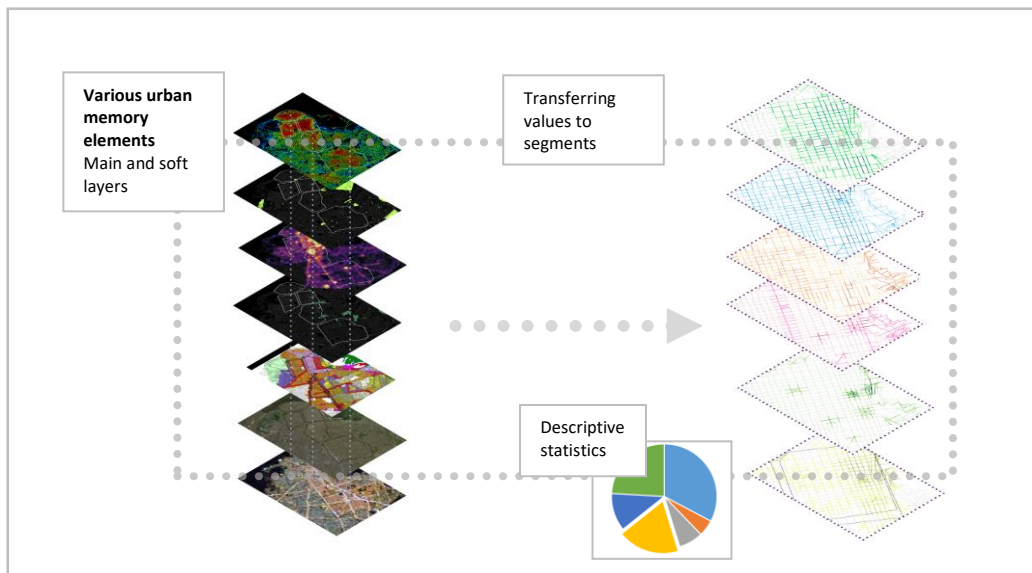


Fig. 20. Diagram of Meso and Micro scale analysis of urban memory elements.

3.2. Network approach

By transferring various measures of urban layers to the segment network we can identify which areas of the city are more relevant for the understanding of the urban collective memory. This analytical process generated several maps of density for each layer: mainly, points of economic activity, landmarks and heritage buildings, open spaces and plazas, and other softer layers such as places of cultural relevance.

3.3. Data assessment and collection

Sample selection is part of the quantitative research process: for this research it refers to areas with a specific centrality grade in all cases, in emerging areas with high integration for historical analysis and in a diverse density range for the analysis of the current city.

Within the time scope and limitations over access to field data, the in-depth analysis on the public space was limited to certain areas within the political boundaries of the city of Asunción, selecting areas based on the configuration of public spaces and / or distribution of elements of strategic importance for the analysis (e.g. open spaces). Land use diversity ranges are another proxy to show the different forms of spatial memory in the city. The data for the analyses are used in this context, referring to the understanding of this layers but also as a way to define recognisable areas.

The segment maps of different periods of the city were modelled based on historical maps and pictures, with the natural limitations of the access on this sets of information: the maps are available in their majority online in the National Archive of Paraguay.

The segment map of the wide area of Asuncion is based on the Road Centre Line map of Asuncion, available at Geofabrik website. This map was simplified using the Space Syntax toolkit for Quantum GIS, following the simplification principles for segment angular analysis.

The set of points of heritage –all points- was collected from the List of Properties Registered in the National Register of Cultural Property by Law 946/82(Asuncion: Directorate of Cataloguing of Cultural Heritage). The same source was used for the dataset of Buildings of different value (Historical-Architectonical-Environmental-High and Medium Rise) and these are related to the level of conservation attached to them (total conservation, Typology conservation and façade conservation, respectively).

The set of points of Residence and Economic activity was collected from the Census of Asuncion 2012.

For the summarise of spatial collective memory in the 6 study areas the data sets were added to a GIS model to count the sum of elements and compare them between areas, this was useful to confirm the relevance of the areas for the model of spatial collective memory.

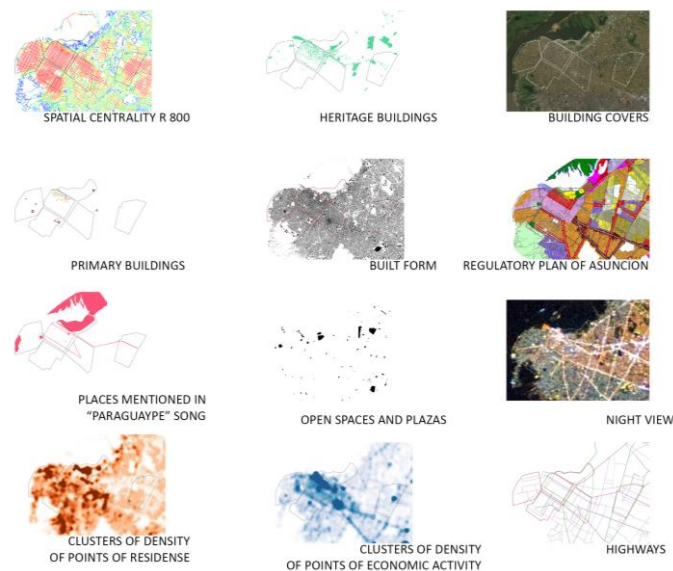


Fig. 21. Summary of main analysed layers that play a role on urban memory, concentrating on six main areas.

CHAPTER 4. HISTORICAL EVOLUTION OF CENTRALITIES

4.1. Introduction. The different localities of the memory of Asuncion

Although it is arguable that Asuncion has a powerful historical image within the South American region, that is visually distinctive in its historic areas (illustrated by the scale and urban elements in a picture by Fotociclo photographer Juan Carlos Meza, fig. 19), this research makes the argument that there is actually a “palimpsest” –a series of layers that have been created through time one over the other, operating together to bring up a whole idea- of the collective memory embedded in distinguishable areas or places of Asuncion; this is considered to be a tangible reality in this case as in any other city, apart from the first impressions or most recognisable features that a city or settlement might have.



Fig. 22. Historic Centre of Asuncion, the urban landscape: façade-lids, urban furniture, commerce and retail, historic buildings on Palma Street; the imaginary of the city in the physical components gives a strong character about the physical permanences, but this is not equal to the wide memory of the city nor it suffices to describe the collective understanding of the place. Source: Fotociclo archive. <Available at <https://medium.com/@fotociclo>>

In order to identify the most important areas that make up the character and identity of Asuncion, the research takes a historical approach; the places that have maintain its character over time would be argued to be the most important in this context. Furthermore, the spatial structure of the current city in different scales gives a panorama to identify and analyse centres that conform the spatial collective memory, allowing the deeper exploration on this areas.

4.2. Historical analysis: Understanding the spatial evolution and urban growth of Asuncion

The understanding of the structure of Asuncion and the spatial character of its historically relevant centres is explained through the analysis of the stages of its urban growth and how the spatial structure has evolved. The metric of Integration is used as indicator of the condition of maintenance of the important areas, considering it to be appropriate for the argument of “places that have maintained their spatial character”. The radius 800 for integration models has shown to be useful in the representation of the consistency of the centrality of the area of the currently called “Historic Centre”, and the emergences of other areas to be considered as historically relevant and therefore subject of further research.

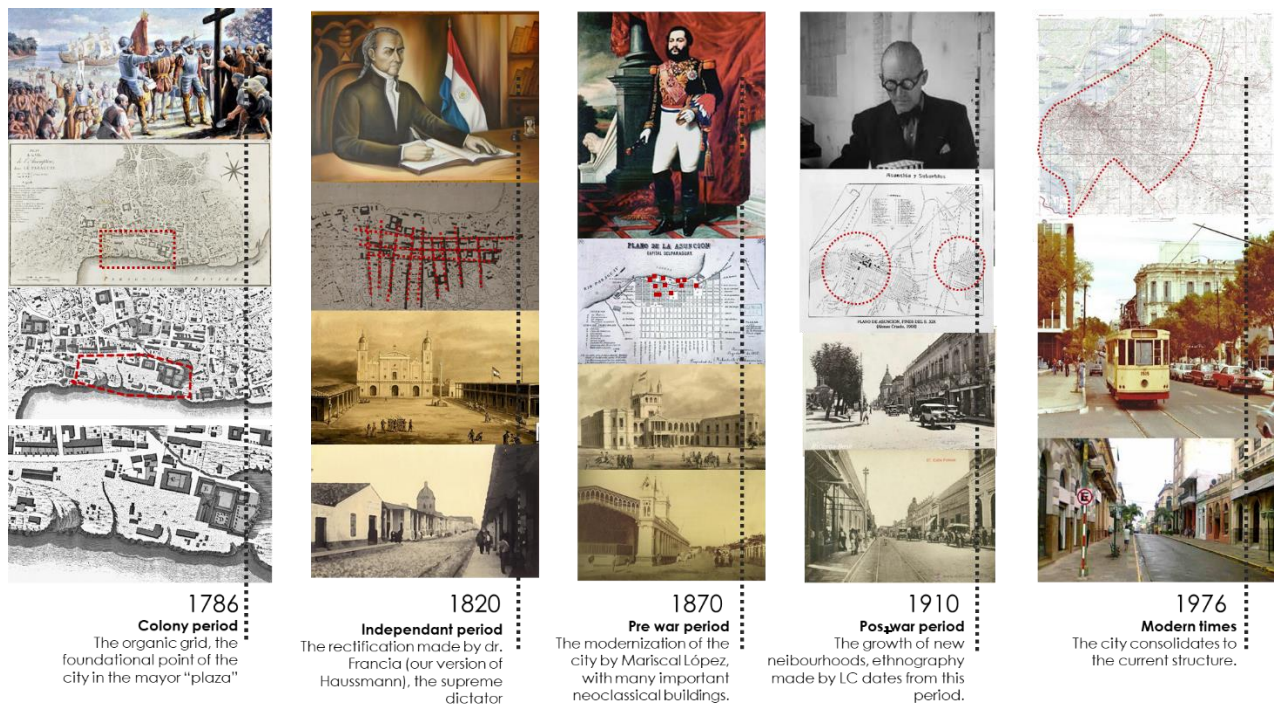


Fig. 23. An ethnography of the urban evolution of Asuncion. Source: author.

4.2.1. Colonial Period (1786)

In the beginnings of the city of Asuncion, the first main residences were allocated around a central core where the city was founded in 1537. The main powers of society –the church, the political force and the military- were placed around the “Gran Plaza”; we can find the most integrated line in the axial map in front of this plaza. The houses were built in the high grounded spaces left by the multiple streams that ran through the territory: these were normally dry. In times of heavy rain, these “paths” got flooded.

From what would later become the centre, the founding site, a completely organic fabric was

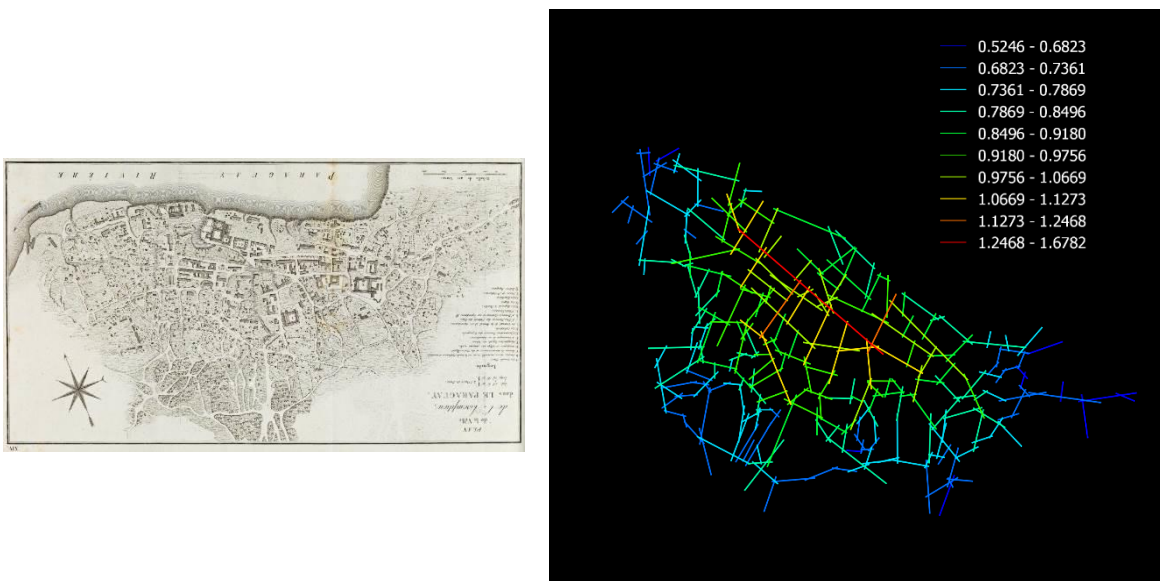


Fig. 24. Map of Azara (1786-National Archive) and its simplification as an axial map, modelled by author.

thus generated, following the hills and adapting to the topography and the streams that flowed to the river.

Year of map	Time period	av NAINr300m	av NAINr400m	av NAINr800m	av NAIN
1786	Colonial period	1,24852	1,13673	0,99409	0,90119

Table 1. Summary of av. NAIN values for Colonial period at various scales.

The settlement had the particularities of a sub-tropical town, with an urban landscape that had key elements with cultural significance, but that were originated by the typological

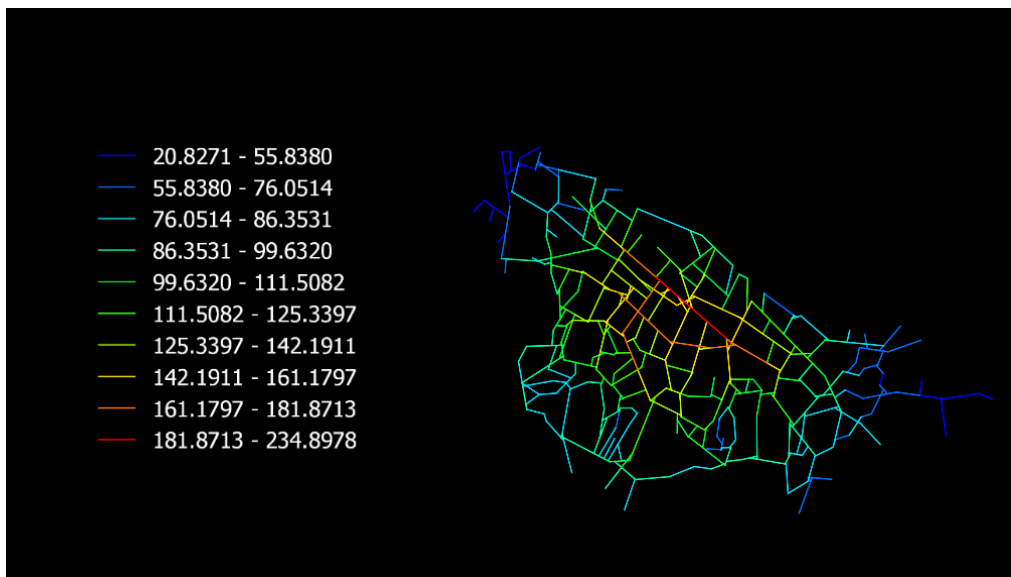


Fig. 25. Segment model from the map of Felix de Azara of 1786. Source: author.

characteristic of the houses: adapting to the hot climate, the house adopted the intermediate space of galleries. This eventually became an urban constant that define the space between buildings.

4.2.2. Independent period/rectification of the grid (1820)

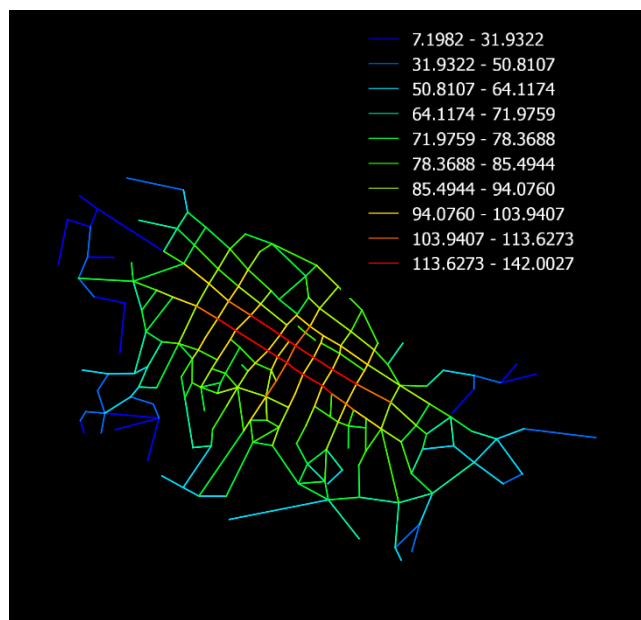


Fig. 26. Map of the rectification of Dr Francia (1820) and its simplification as a segment model. Source: National Archive and author.

Then, in 1820 a “jump” in the spatial configuration occurs. The government of Dictator Rodriguez de Francia rectified the organic urban fabric in the form of an orthogonal grid. This was based on numerous factors, among them the need for control in urban activity, but also for sanitary reasons (Rodriguez, 2005).

The housing typologies remained the same, more or less. This configuration is a structural precedent for the regular grid that we find today as a general rule in Asuncion.

Year of map	Time period	av NAINr300m	av NAINr400m	av NAINr800m	av NAIN
1820	Independent period	1,36449	1,32201	1,23822	1,17187

Table 2. Summary of av. NAIN values for Independent period at various scales.

From this period are the oldest buildings that remain in Asuncion, being the Cathedral of Asuncion (marked 1) the most important one, along with “Casa de la Independencia” (marked 2), where the independence revolution was planned.



Fig. 27. Primary buildings: the Cathedral (1), and “Casa de la Independencia” (2).

4.2.3. Pre-war Period (1870)

The main structure of the city is consolidated as a centre until the period between wars. Around 1860, the city changed in the form of its naturally grown extension (fig. 16) and the intervention of a different, democratic government. Paraguay was then a prosper nation, and in close contact with European ways of life, the president and his representatives gave the order of “modernizing the city”.

Year of map	Time period	av NAINr300m	av NAINr400m	av NAINr800m	av NAIN
1870	Pre-war period	1,65185	1,67037	1,86076	2,05928

Table 3. Summary of av. NAIN values for Pre-war period at various scales.

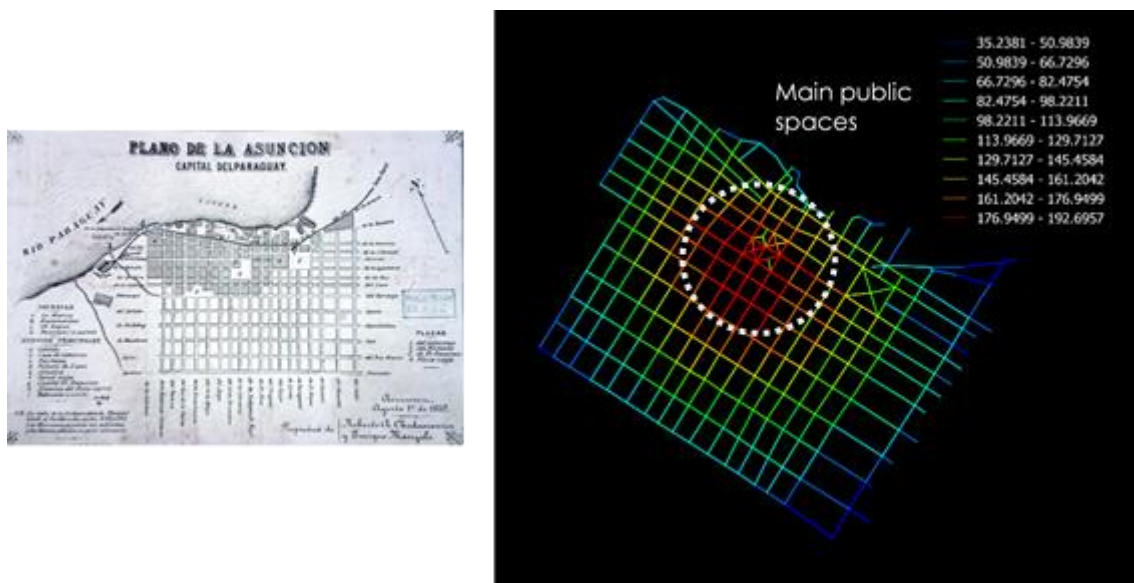


Fig. 28. Map of Chodasiewicz (1870) Lopez period (Paraguayan War) and its simplification as a segment model. The main public spaces start to appear as an important centre Source: National Archive and author.

Multiple architectonic interventions, new buildings and squares were design and constructed; the major change in the space of the city, was the shift of the gallery typology for the “façade-lid house”. This created a more compact urban configuration, and also was in conjunction with a social shift of European ways. The social activity, formerly happening in the streets and galleries, changed to the clubs and internal patios, making houses more introvert. From this period, we have a lot of examples of architecture that remained today, but in fact scattered across the city centre.

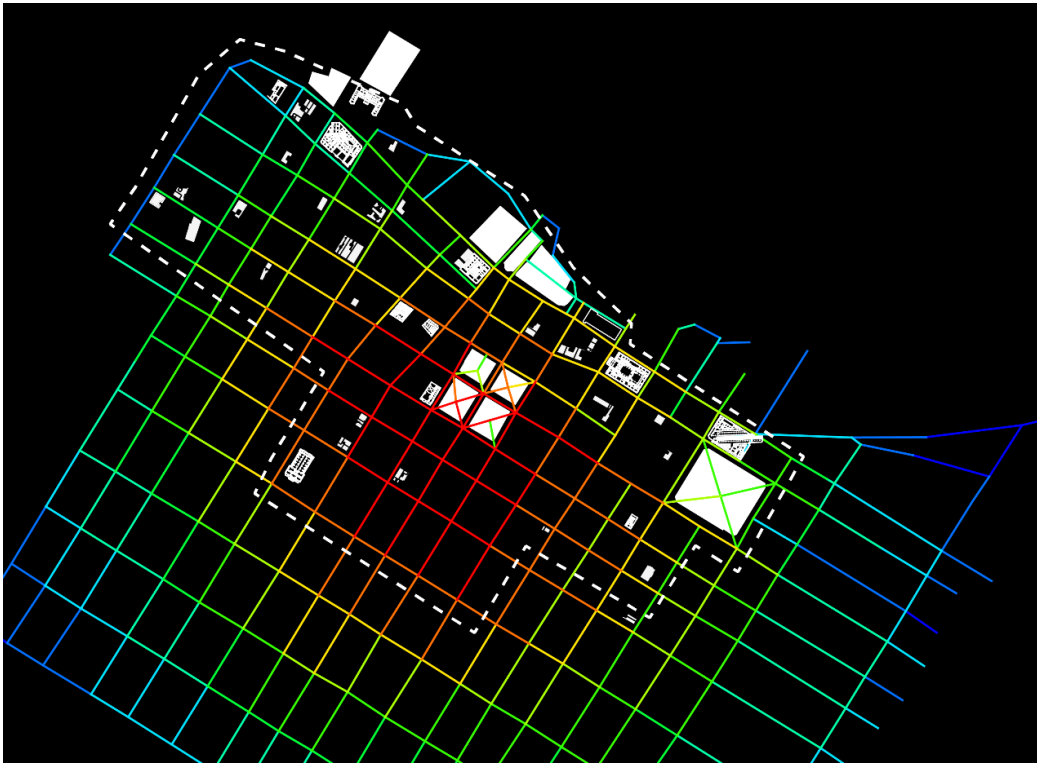


Fig. 29. Primary buildings on the Lopez period: main public buildings such as the Train Station, the Lopez palace, the Public Mail and the Cabildo were constructed by the governments of Don Carlos and Francisco Solano Lopez. The main aristocratic area of the city (the new social life) is suggested in a dotted line.

4.2.4. Post-war period (1910)

During the 1900 urban centres grew in different areas - commercial developments and centres for new social groups -such as “Villa Morra”, “Villa Aurelia”, the zone of the Municipal Market n°4, etc. - thanks to clustering of commercial activities and residence of important characters of society. These were important villas built in extended plots, creating almost rural-Palladian suburbs, although they were not too many of these. The once original centre started to vary in architectural interventions thanks to the arrive of foreign families, creating a painteresque urban landscape, from colonial to classical Italian facades, art nouveau and then art deco buildings, scattered around the historic centre.

Year of map	Time period	av NAINr300m	av NAINr400m	av NAINr800m	av NAIN
1910	Post war period	1,54373	1,53951	1,58790	1,34056

Table 4. Summary of av. NAIN values for Post war period at various scales.

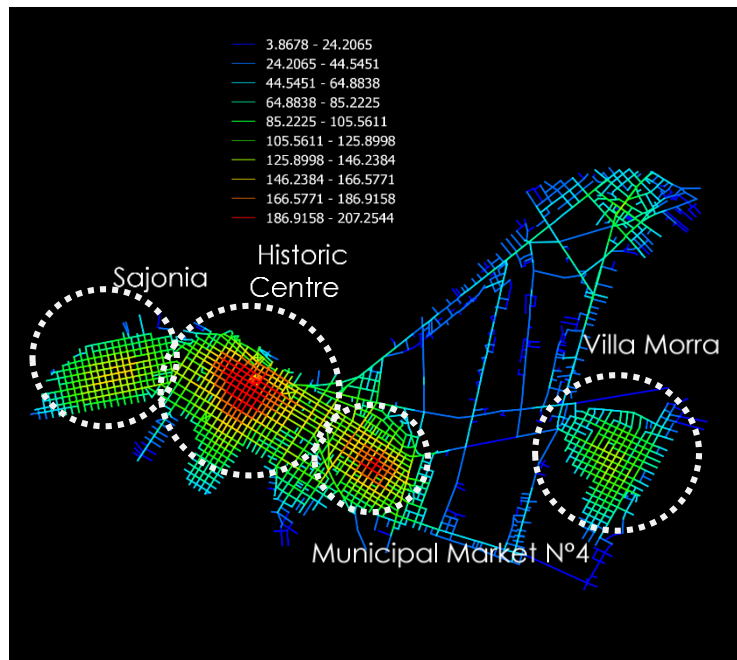
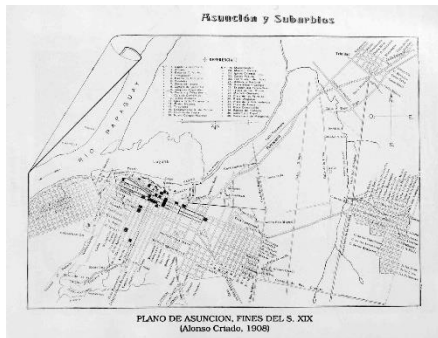


Fig. 30. Map of Criado (1910) Post war – New centralities emerging. Source: National Archive and author.

4.2.5. Modern centralities (1976)

The axes of the main streets grew, and from these the new neighbourhood networks, usually with a regular grid, but rotated or adapted to the various angles that remained between the main avenues (according to some authors, the grid turned following the curve of the river in the first neighbourhoods, i.e. Sajonia, Obrero and the Historic Centre itself - Cristaldo, 2009; Pistilli, 1987).

Year of map	Time period	av NAINr300m	av NAINr400m	av NAINr800m	av NAIN
1976	Modern period	1,45223	1,37358	1,25752	0,98130

Table 5. Summary of av. NAIN values for Modern period at various scales.

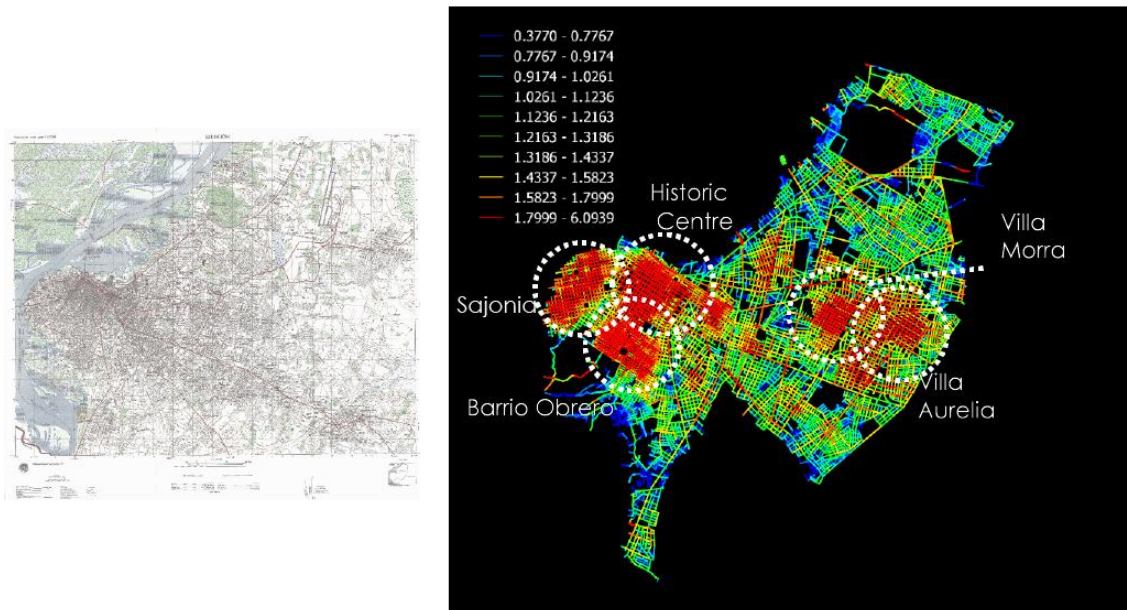


Fig. 31. Map of US survey (1975) Modern city. Source: National Archive and author.

The Historic Centre, Barrio Obrero, Sajonia and Villa Morra are noticeable emergences in terms of centrality through time, as evidenced by the integration values, and confirmed by the authors' ethnographic descriptions, as well as symbolic representations (historical photos, paintings and drawings) that position them as places of memory and image of Asuncion.

Summary of Asuncion spatial structure growth

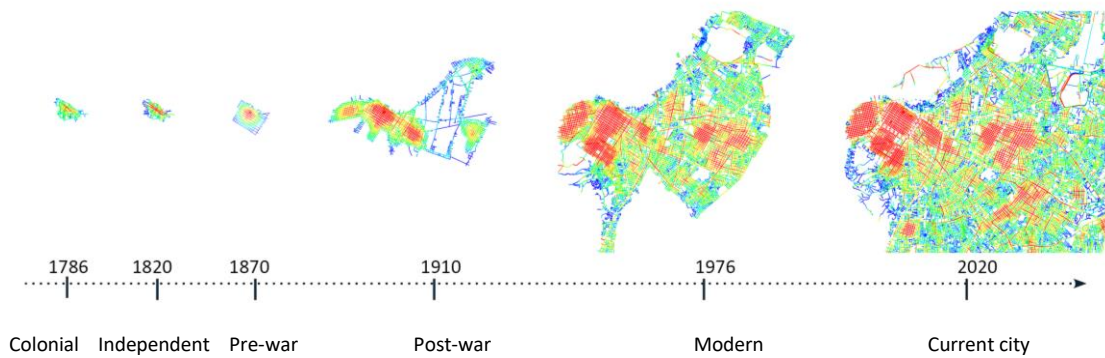


Fig. 32. Summary of the spatial growth of Asuncion, all segment maps at the same scale for integration $r800$. Author.

Year of map	Time period	av NAINr300m	av NAINr400m	av NAINr800m	av NAIN
1786	Colonial period	1,24852	1,13673	0,99409	0,90119
1820	Independent period	1,36449	1,32201	1,23822	1,17187
1870	Pre-war period	1,65185	1,67037	1,86076	2,05928
1910	Post war period	1,54373	1,53951	1,58790	1,34056
1976	Modern period	1,45223	1,37358	1,25752	0,98130

Table 6. Summary of average NAIN at various scales for all time periods. Author.

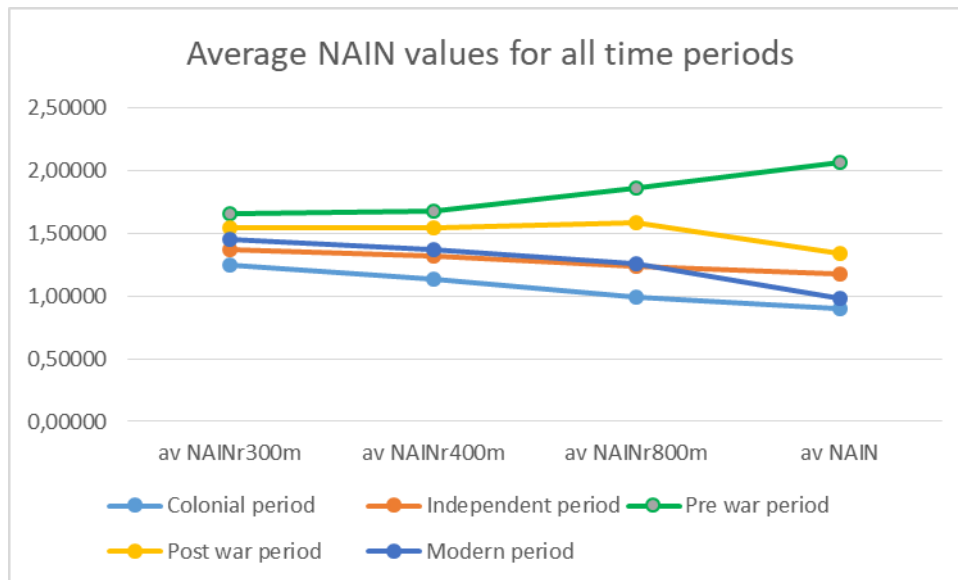


Fig. 33. Chart summarising the variation of average NAIN values at various scales for all time periods.

By a spatial join we can overlap segments between periods, generating a better understanding of the segments that have maintain its place along the city growth, and generating areas that started to gain character; the Historic Centre is the predominant but also other mentioned areas such as the old neighbourhoods of Sajonia, Market 4 and Villa Morra emerge from the analysis. Logically, the oldest segments (in green) whit the most overlap will represent the areas of more representative “spatial history”.

Overlapping segments between periods

- Modern and Post-war
- Modern, Post-war and Pre-war
- Modern, Post-war, Pre-war and Independent
- Modern, Post-war, Pre-war, Independent and Colonial

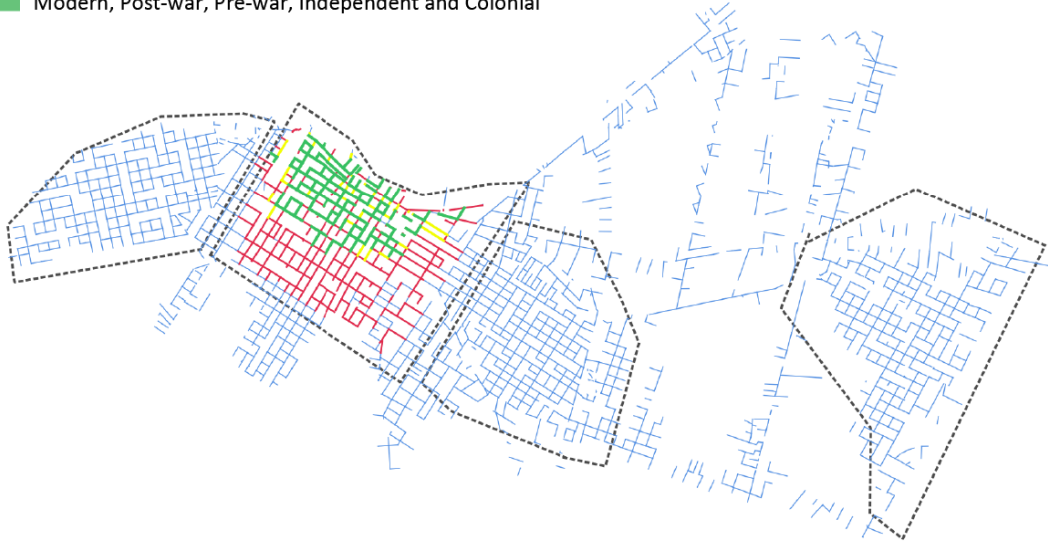


Fig. 34. Map showing a classification of segments from oldest (in green) to newest (in blue); the spatial joint shows the sequenced overlapping of segments, for a more comprehensive summary and weight of segments by time period.

4.3. The current city: Shifting centralities on Asuncion spatial structure.

4.3.1. Asuncion and the buffer area of the city.

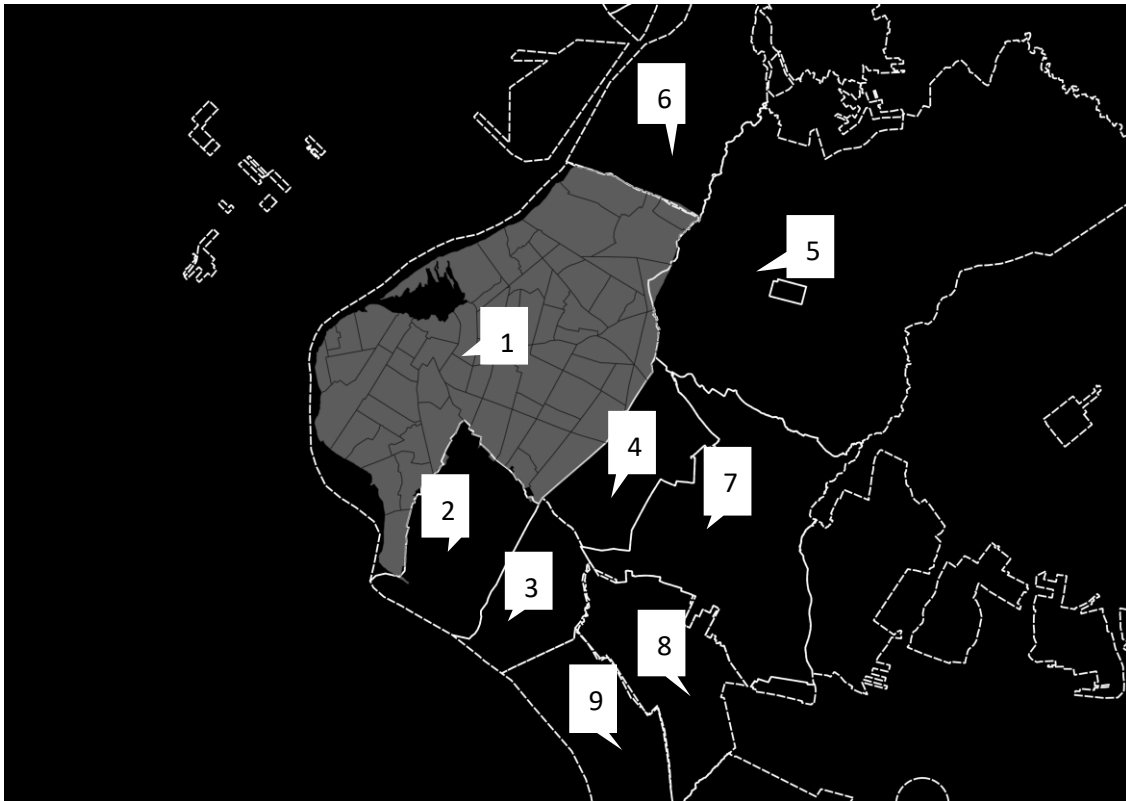


Fig. 35. Asuncion (1) and the surrounding cities: Lambaré (2), Villa Elisa (3), Fernando de la Mora (4), Luque (5), Mariano (6), San Lorenzo (7), Ñemby (8), San Antonio (9). This is considered the metropolitan area of Asuncion.

Asuncion as a metropolitan system consist on several cities around the main district that is the actual city of Asuncion (1 in fig. 35). For the issue of collective memory, it is important to recognise that the urban fabric has extended to this wider area, as is in fact keeping on growing. Each of these cities have their own main centre and particular character; for the purpose and scope of this research, the focus is on Asuncion and the main areas of the central district. A segment map of the urban continuity of the wider area is presented to give an idea of the scope and scale of this metropolitan system, an analysis on the spatial structure of the whole area and further cities. Even at this scale, the beginnings of the urban development of Paraguay in the basin of the river, the Historic Centre, presents an interesting centrality.

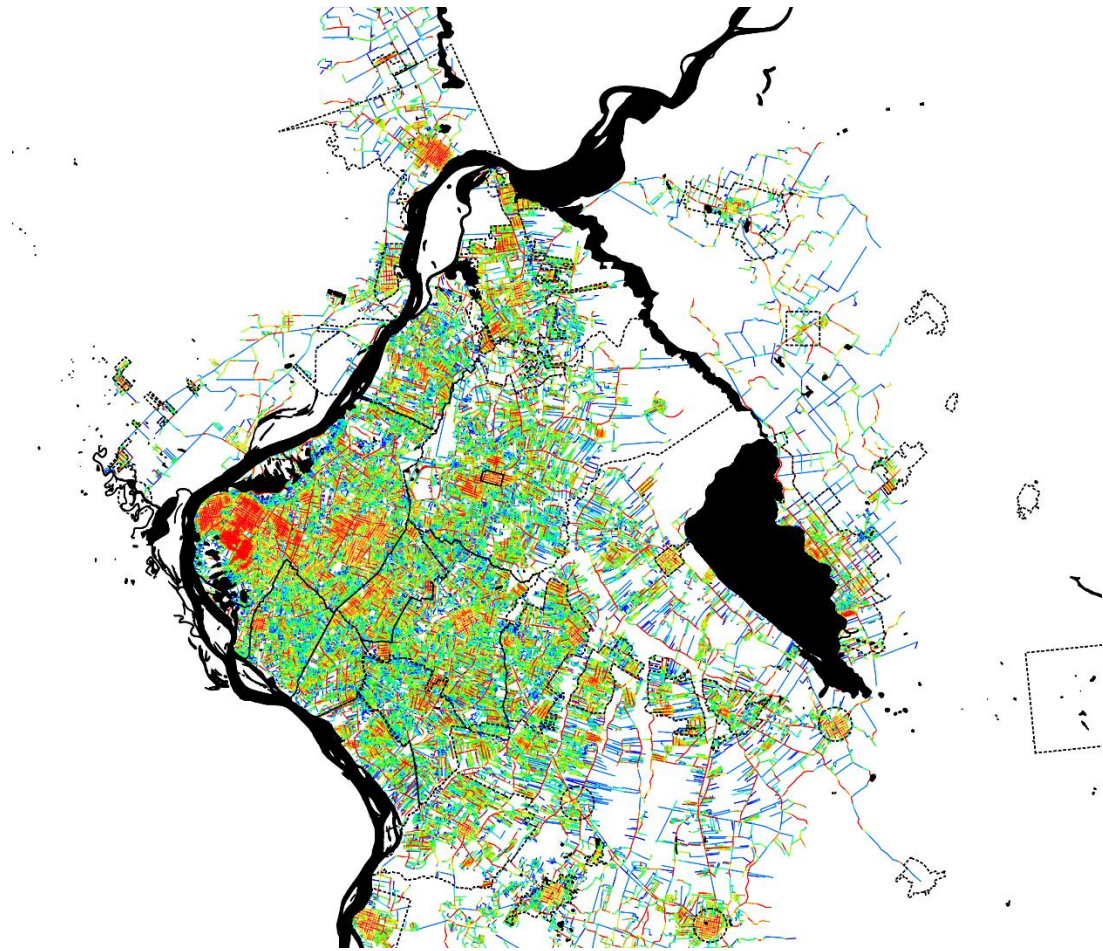


Fig. 36. The wide urban area of Asuncion and the adjacent cities: a large structure that keeps expanding. Main centres emerge: the Asuncion local centres, the centre of Luque, San Lorenzo and others. Local integration analysis that shows the spatial importance of the city of Asuncion at even this large scale.

The model of the city alone (fig. 37) is considered to be too short for the range of the study; a buffer is proposed to manage the analyses of the urban centralities and to avoid the edge effect (fig. 38 and 39). There is a particular relationship between Asuncion and San Lorenzo in terms of economic activity; this is the reason that the buffer begins to consider the centre of San Lorenzo as part of the spatial model, connected through Eusebio Ayala Avenue as the main commercial motorway and most transited access to the city.

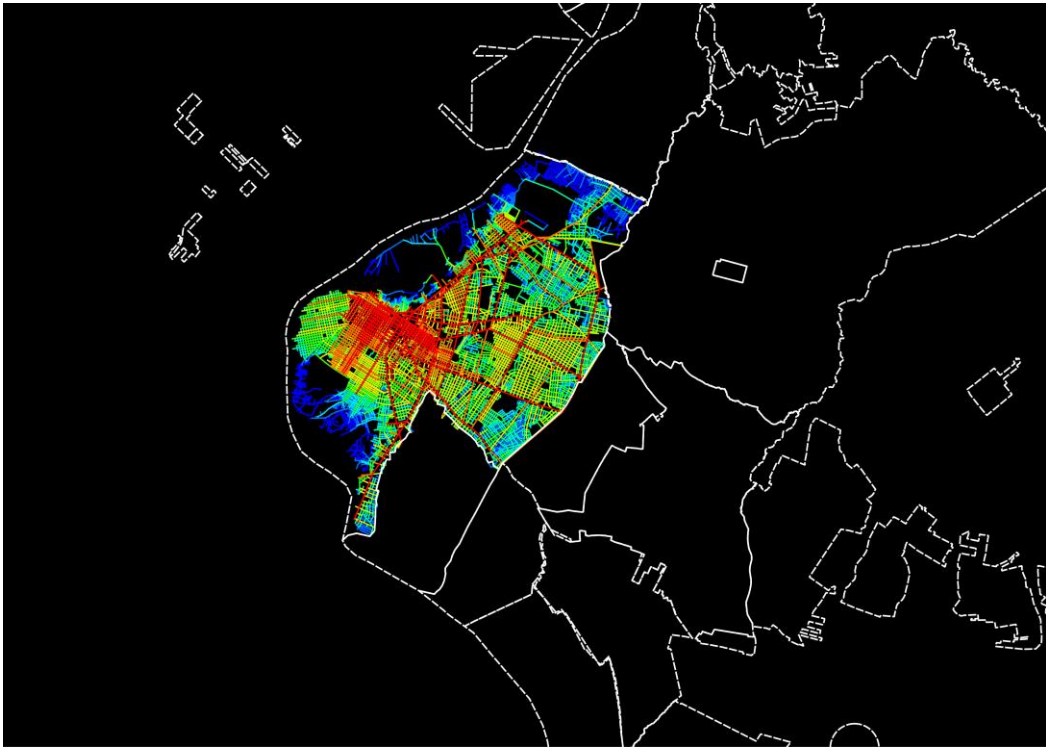


Fig. 37 Model of the city of Asuncion only, in context with the wider area.

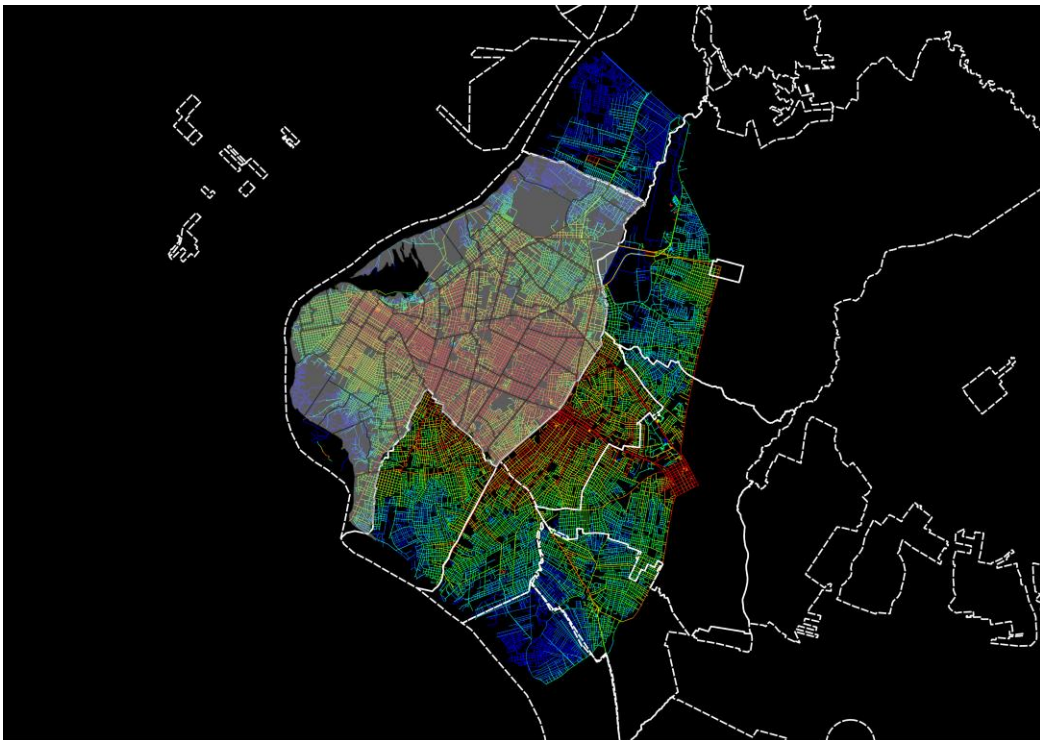


Fig. 38. Wider model in context with the city of Asuncion (in grey) and the surrounding areas.

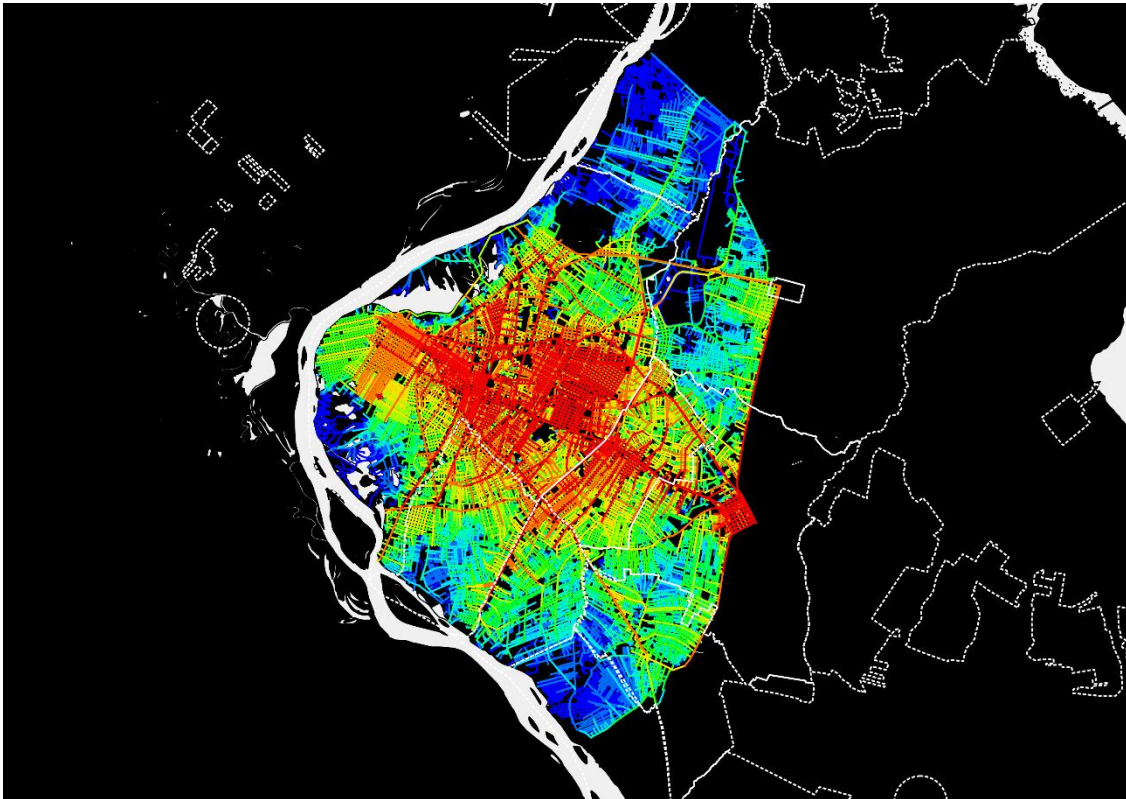


Fig. 39. Wider model of the metropolitan system (Asuncion and the buffer) in Nain rn.

4.3.2. Current structure: main spatial centrality emergences

From the analysis of the city as a whole system, the values of integration show certain clusters of highly integrated lines—excepting Chacarita and its surroundings as these are informal segregated clusters- in well-defined, known “named areas” that in most cases relate with the descriptive literature of the important places for Asuncion. The areas are Chacarita, the cluster of the Historic Centre, Sajonia and Obrero, the cluster of Villa Morra and Villa Aurelia and some clusters at Trinidad up north and Ita Enramada at the South. The multi-scalar model of integration summarizes the aforementioned emergences of integrated areas, consistent from the local to the global.

There is a particular dynamic in the configurational structure of Asuncion that have established the collective understanding of the movements and localities for the local users. This is equal to say that where people lives, works, and goes for leisure and civic activities –all layers that conform collective memory- are primarily shaped by movement and by the maintained character of these areas; the analysis of the shifting centralities serves to explained these dynamics.

4.3.4. From the Historic Centre cluster to new town centres: economic movements of Market 4 and the Villa Morra complex.

The spatial structure of the city started with the historic centre: this is a clear finding from the historical analysis. From there, the areas surrounding the HC grew with it, creating the cluster or simply “the Centre” as it is known. This is mainly conformed by the surrounding residential areas: Barrio Obrero and Sajonia, apart from the Municipal Market 4, perhaps the largest market in Asuncion. The segment analysis at local scales (radius 400 and 800) reveal this strong character of origin, showing the small areas mentioned as clusters of integrated lines with average integration values of 1.69 for the Historic Centre, 1.65 for Obrero and 1.60 for Sajonia. The market shows to be a local centre with average 1.55. Villa Morra emerges as a centre at 800, with an average N_{in} of 1.54.

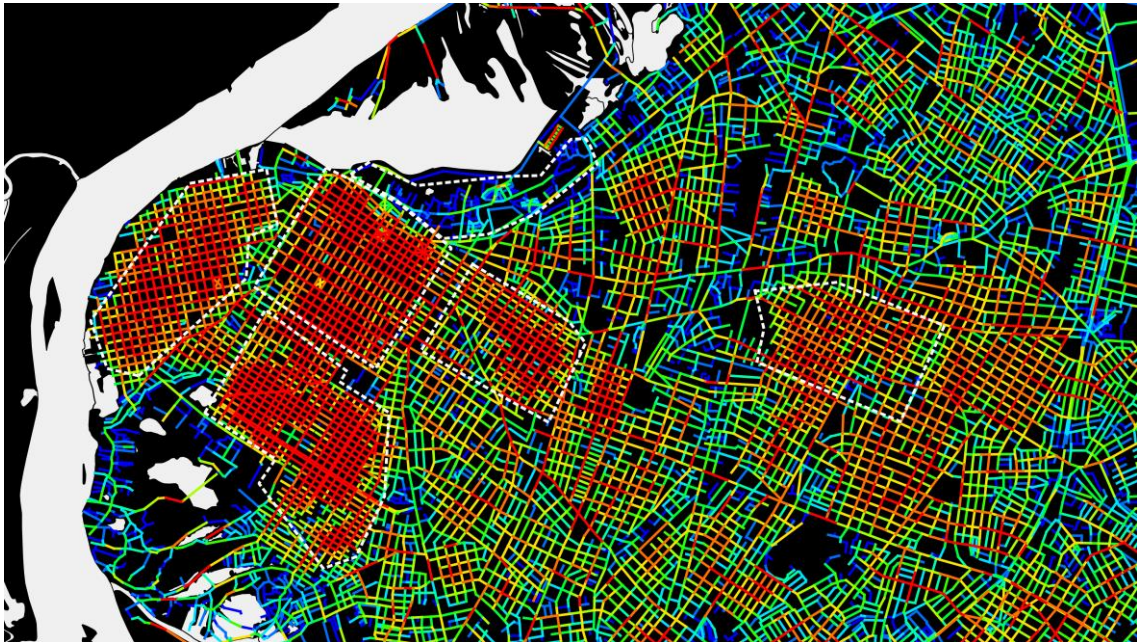


Fig. 40. N_{in} r400, showing the HC, Sajonia, Barrio Obrero and the low emergence of Villa Morra on the right.

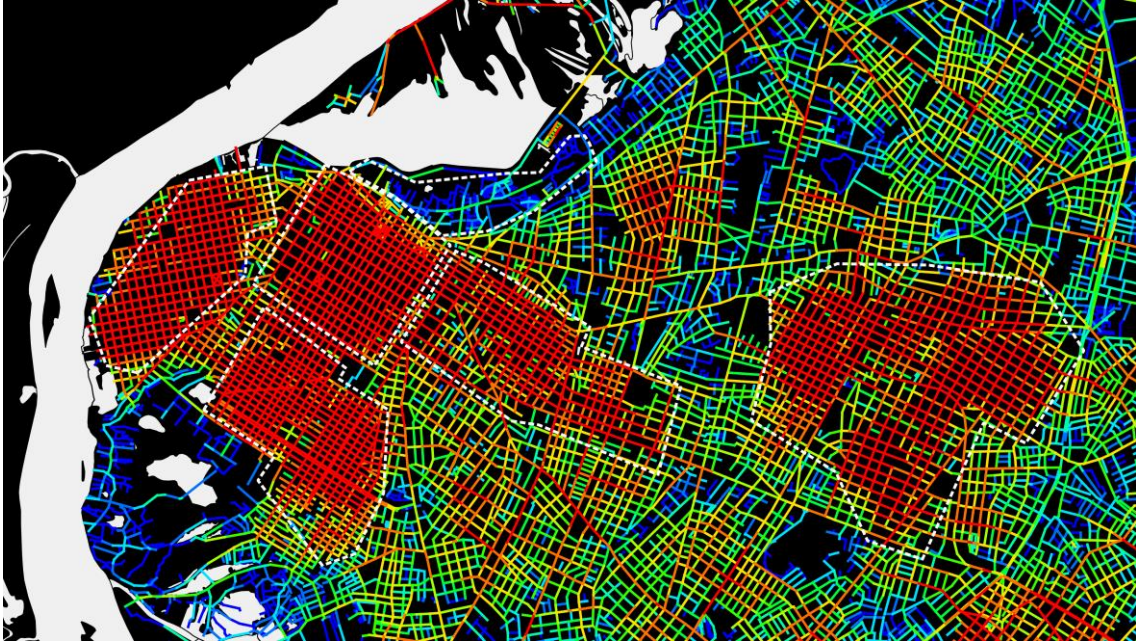


Fig. 41. Nain r800: Villa Morra joins up with villa Aurelia and Herrera on the right, showing the prominence of this new town centre. The Market area expands to the east over Eusebio Ayala, the commercial motorway.

On radius 1200, the three clusters join to make “the Centre” a visible spatial phenomenon. This is critical for the collective identity of this whole area for the inhabitants of Asuncion; when entering these places there is a distinctiveness that is picked up by the analysis at this medium scale. Most noticeable is the fact that the Market 4 and its surrounding buffer extends its spatial influence up to the two main arteries of the city: Eusebio Ayala and Mariscal Lopez avenues, with a Nain 800 average of 1.60.

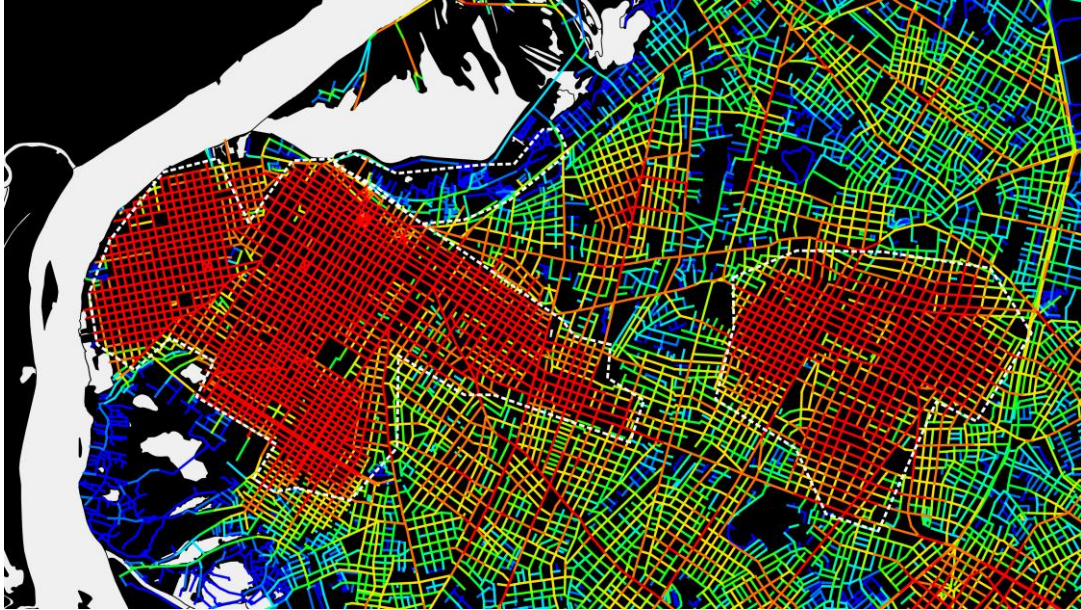


Fig. 42. Nain r1200: The called "centre" is visible, with the three clusters of Sajonia, Obrero and HC joining up. The other clear emergence is Villa morra.

In radius 1200, the foreground network commonly recognisable when in transit through Asuncion becomes clearer: the "Centre" joins up with the new local centres being Villa Morra the identifier but adding other adjacent areas such as the new developments of Santa Teresa around España Avenue. The main commercial roads articulate the spatial connexion: Eusebio Ayala, Mariscal Lopez and España are the most representative.

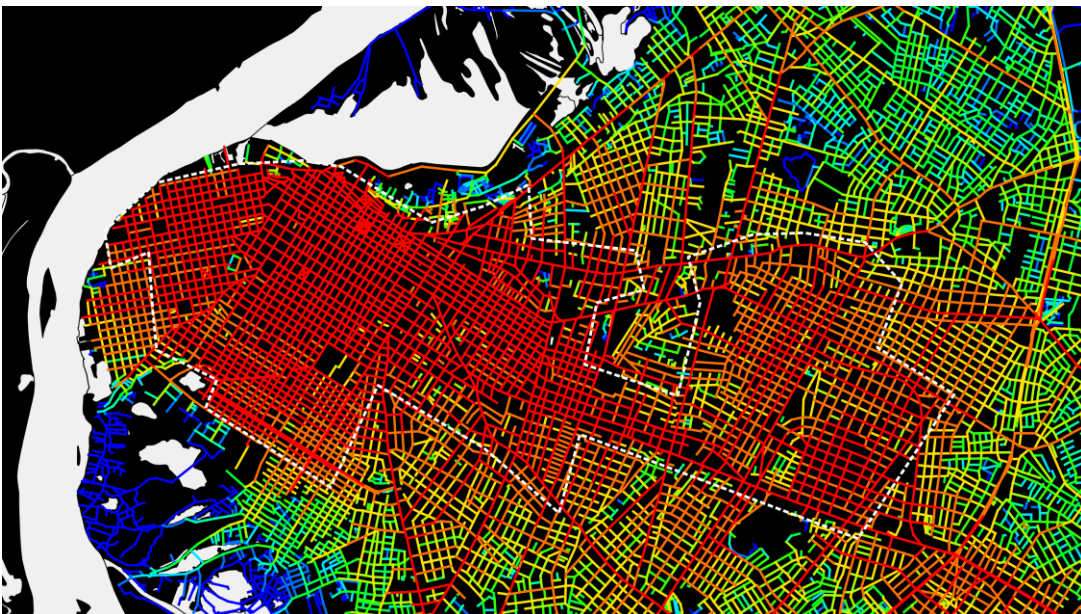


Fig. 43. Nain r5000: The foreground of central Asuncion becomes apparent: The "centre" joins with the Villa Morra and new developments up north through the main avenues, Eusebio Ayala Avenue, Mariscal Lopez and España, and continuing further more through these and other avenues.

In sum, the foreground is almost one continuous cluster at radius 5000, separated only by certain programs of segregated nature in the middle (the US embassy and the President official residence).

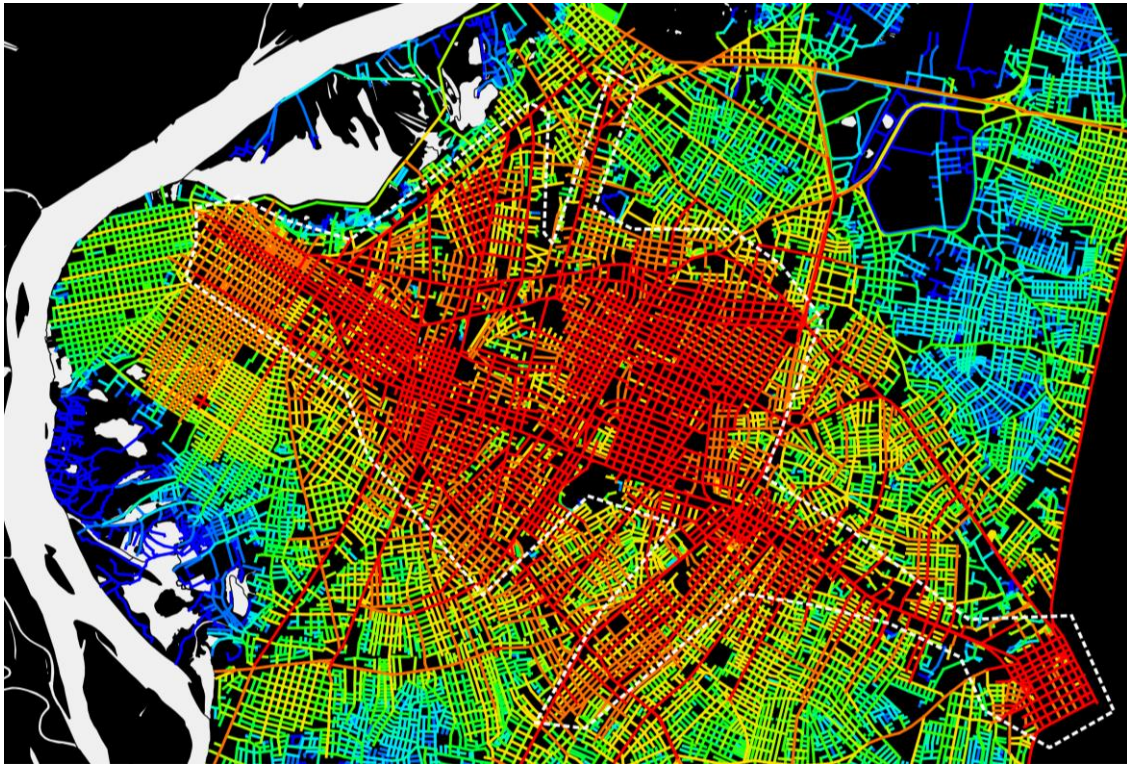


Fig. 44. Nain radius n , the global context leaves the old neighbourhoods with less weight in terms of centrality, consolidating a system of long travels between main arteries.

In radius N , the shift is drastic; nevertheless, there is still a certain weight of the Historic Centre. Sajonia and Obrero are left rather segregated from the global system; this is tangible on the memory of these places. These neighbourhoods as well as the HC present an image of old places, in contrast with the new developments on the east of the city.

The other major centrality complex at this scale is the highly-commercial Eusebio Ayala Avenue, practically connecting with the city of San Lorenzo on the east of Asuncion. This matches the economic articulation between Asuncion and San Lorenzo through this mayor artery.

Summary of average integration values for named areas

Named area	NAINr400m	NAINr800m	NAINr1200m	NAINr5000m	NAIN
Historic Centre	1,68682204	1,53265285	1,61584601	1,93065821	1,26307561
Obrero	1,2387669	1,31350743	0,14084193	1,45295346	1,33912397
Sajonia	0,16281624	1,45684271	1,23540079	1,38900229	0,11695085
Mercado 4	1,89283292	2,02277825	1,87257306	0,18119944	1,38720994
Chacarita	0,97136	0,80517	0,88388	1,1283385	1,31309629
Villa Morra	1,18992984	1,39106591	1,35082114	1,25275555	1,34591721

Table 7. Summary of Average integration values for main areas at various scales.

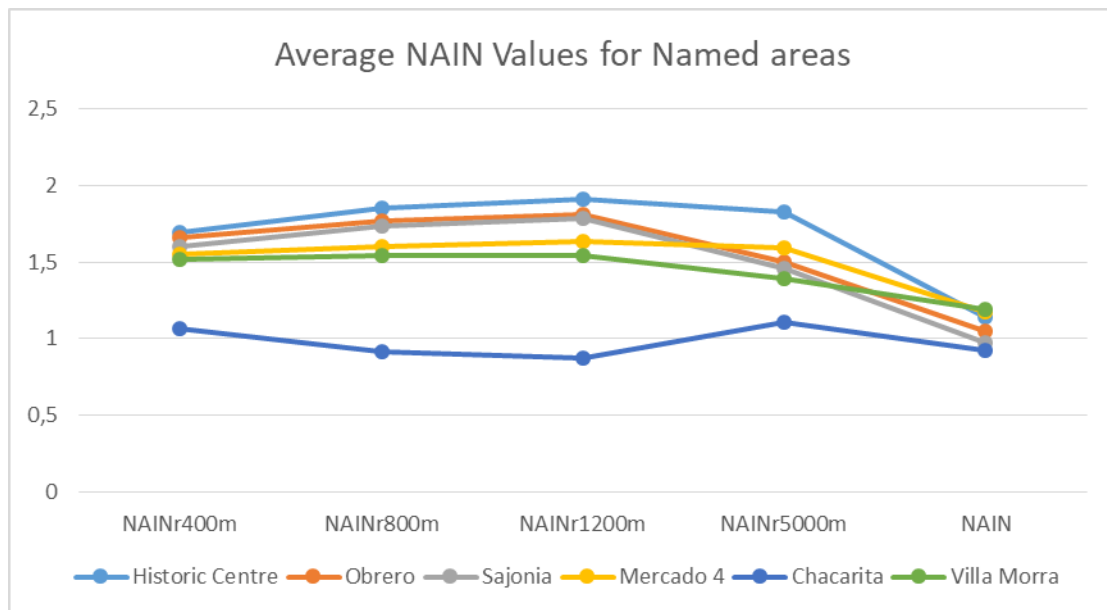


Fig. 45. Chart describing the shifting centralities by a summary of average Normalised integration values for each area, at various scales. Source: author.

CHAPTER 5. CENTRES OF COLLECTIVE MEMORY: LAYERS OF URBAN CHARACTER ON NAMED AREAS

5.1. Medium scale recognition.

It is useful at this stage to distinguish the 'named areas' mentioned, to select the ones consistent with the shifting centralities analysis and that confirm a sort of "shifting memory" for the city to investigate further. These areas are:

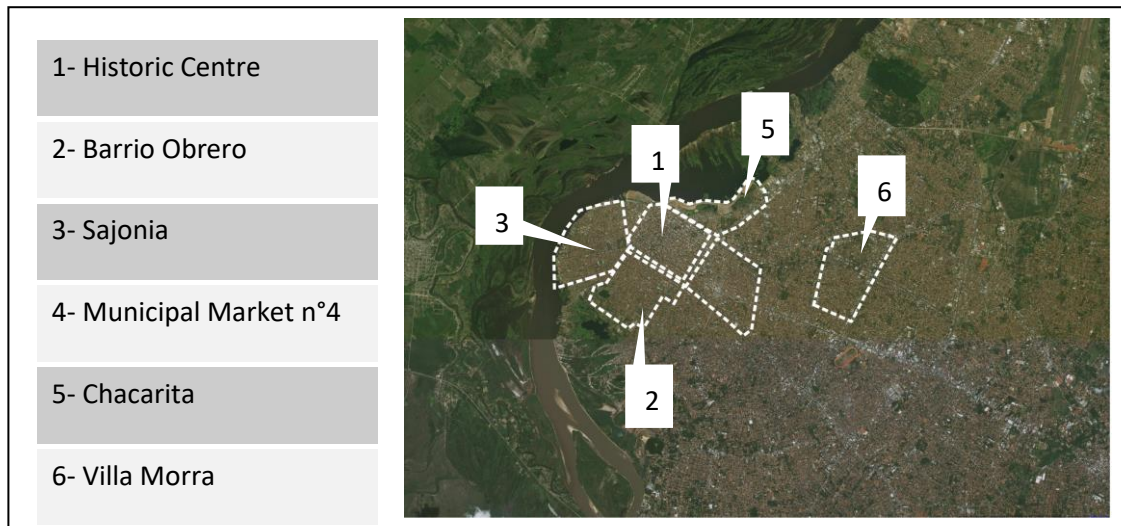


Fig. 46. And Table 8. Main areas of study.

The geometric limits (marked in dotted lines) are taken by mixing the named areas in the historical maps and a current map of political boundaries of neighbourhoods from Municipality of Asuncion Data Base; this is relative to the "perceptual" condition of the areas, in other words, they are not exactly following the neighbourhood limits but are taken into account the localised identity that inhabitants give to these places.

In order to confirm the importance of the mentioned areas for the collective spatial memory, a crossed-analysis of layers between areas is firstly made at a medium scale, to proceed if relevant to a micro scale to identify specific elements. The results of this analysis are summarised below.

MAIN URBAN MEMORY LAYERS
for 6 main areas: Historic Centre, Chacarita, Obrero, Sajo-
nia, Market 4 and Villa Morra

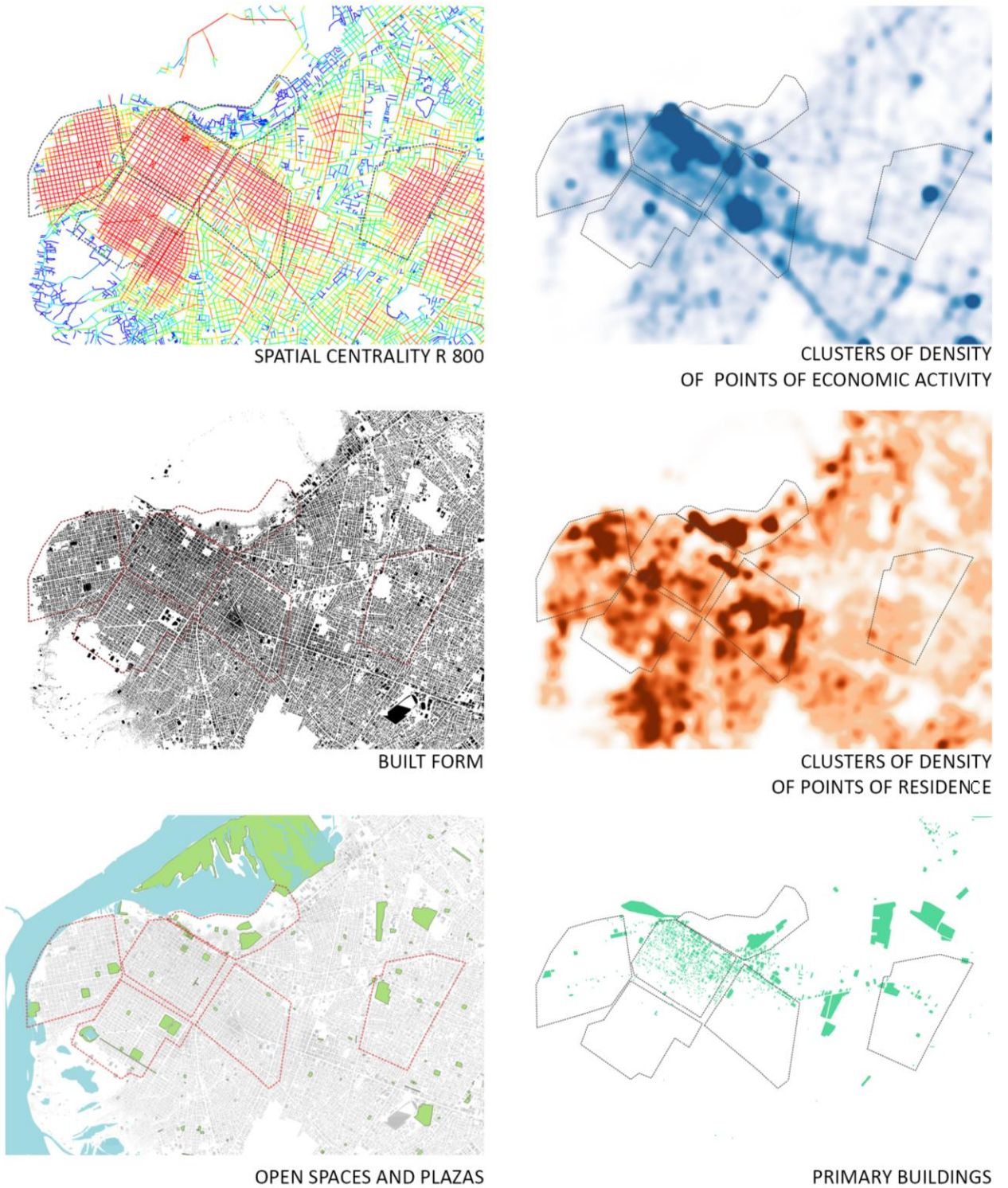


Fig. 47. Observation of main urban memory layers present on 6 study areas.

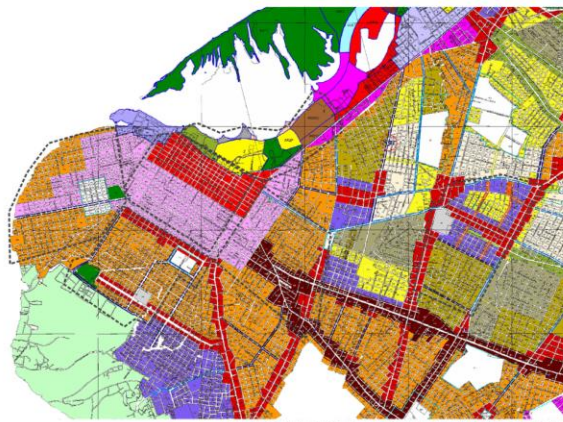
The main layers are described by means of qualitative observation as follows:

<p>Spatial local centrality</p>	<p>The emergences follow a logic that comes from their historical spatial evolution. Thus, spatial centralities are clearly concentrated on the local scale, defining areas with specific character. For radius 800, the clusters of locally integrated lines are consistent with historical emergences and literature depiction of the 6 named areas.</p>
<p>Clusters of density of points of economic activity</p>	<p>Concentrations are observed in the Historic centre, Market 4 and the centre of Villa Morra. In Sajonia and Obrero, mainly on the important routes. In Chacarita it is practically non-existent.</p>
<p>Clusters of density of points of residence:</p>	<p>La Chacarita is densely populated, contrary to the Historic Centre. Sajonia and Obrero have medium to low density, Villa Morra presents low density, and the Market a high density despite its primarily commercial character.</p>
<p>Built form</p>	<p>The fabric in the Historic Centre is dense and compact, diluting this compactness towards Obrero and Sajonia. The Market is also compact; Sajonia and Chacarita present an open plot condition, with patios and voids.</p>
<p>Open spaces and plazas</p>	<p>A dispersion of the element plaza throughout the areas: the Historic Centre presents greater order and articulated structure of open spaces.</p>
<p>Primary buildings</p>	<p>The historic buildings are distributed through the six areas more or less evenly: Mariscal López Avenue is recognized as the main articulator of primary elements, as a cultural axis from the Historic Centre to Villa Morra.</p>

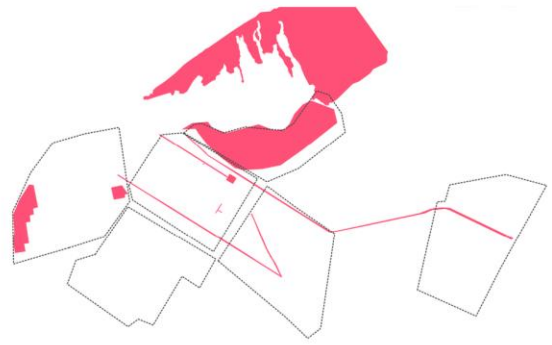
Table 9. Qualitative observations of main urban layers.

After this primal analysis, softer layers of data are observed to complement the former results:

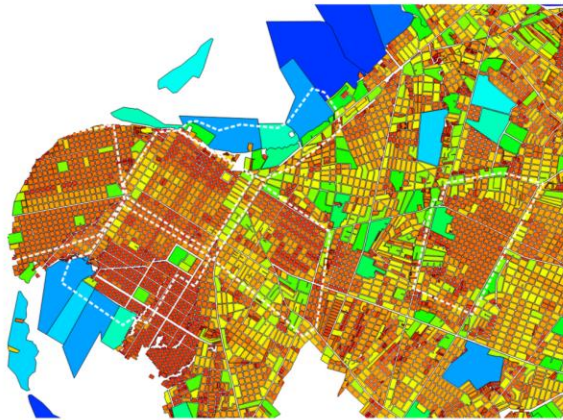
SOFTER URBAN MEMORY LAYERS
for 6 main areas: Historic Centre, Chacarita, Obrero, Sajo-
nia, Market 4 and Villa Morra



ORDINANCE: REGULATORY PLAN



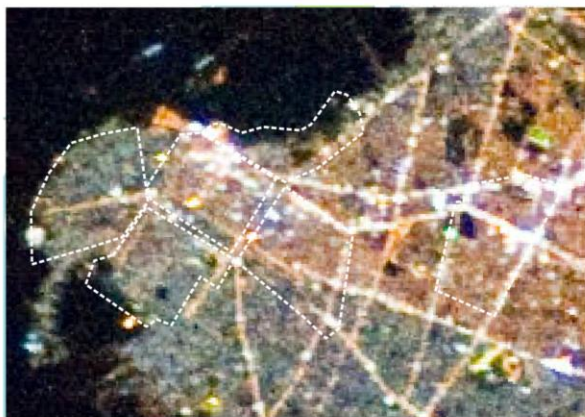
PLACES OF SONG "PARAGUAYPE"



BLOCK SIZE



BUILDING COVERS



NIGHT VIEW



MAIN ROADS AND AVENUES

Fig. 48. Observation of softer urban memory layers present on 6 study areas..

The softer layers are described by means of qualitative observation as follows:

Ordinance regulatory plan	The areas are defined more or less according to how they grew derived from processes of economic speculation. The central and residential areas found correspond to the ordinance plan.
Places of song "Paraguaype"	These places appear remarkably throughout the six areas, with a couple of exceptions further south and north.
Block size analysis:	The centrality denoted by the concentration of blocks of smaller area correspond to the six central areas.
Building covers	There is a clear differentiation between commercial premises –metal covers- and residential buildings –tile roofs- according to colour. In the Historic Centre and Market there is a mixture; in the remaining areas, the predominant tile roofs colour is clearly identified, except for the main avenues with concentrations of metal covers.
Night view	The Historic Centre and the main arteries stand out as they are highly illuminated, evoking the foreground-background network relationship.
Main roads and avenues	They divide the areas forming sectors of concentration of economic activity, coinciding with the clusters of economic land use.

Table 10. Qualitative observations of softer urban layers.

A spatial join allows to quantify the presence of the main layers of urban memory in relation with the spatial system; the tables and charts below summarises the distribution of elements across the 6 areas.

DENSITY MAPS
Points per Segment- MAIN and SOFT URBAN MEMORY LAYERS
for 6 main areas: Historic Centre, Chacarita, Obrero, Sajonia, Market 4 and Villa Morra

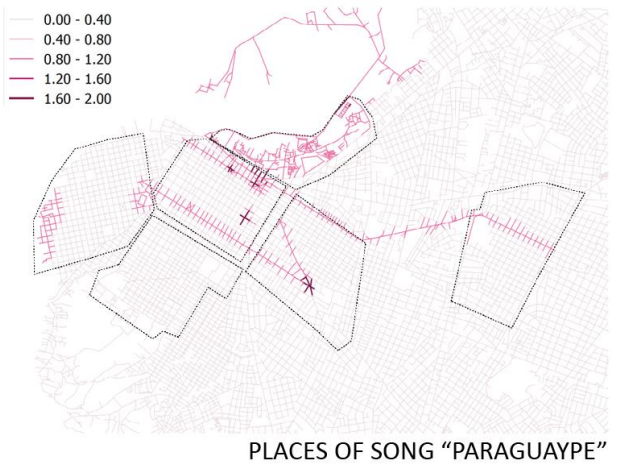
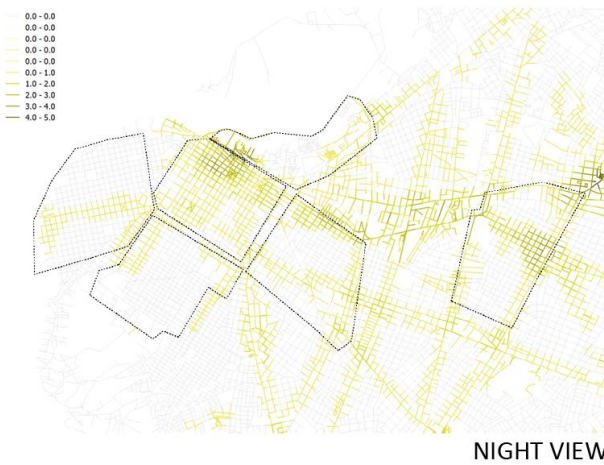
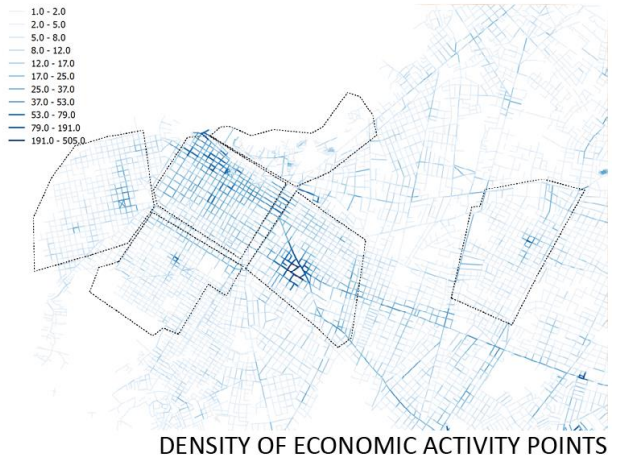
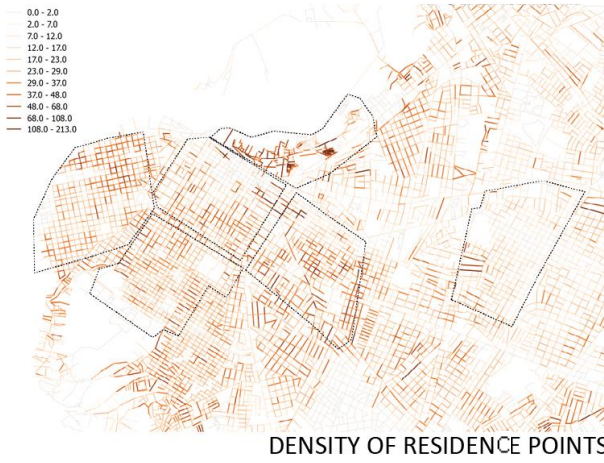
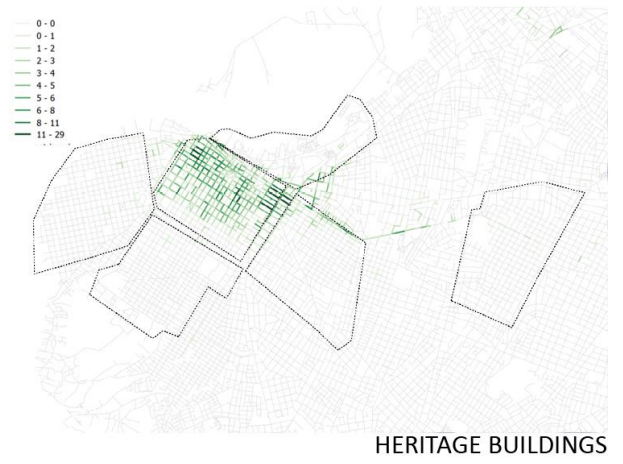
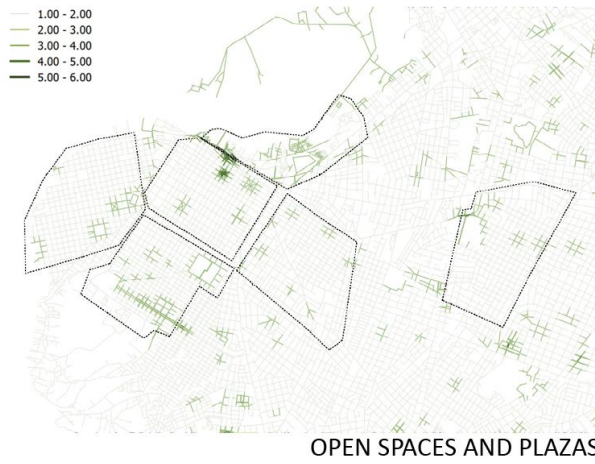


Fig. 49. Density maps for four main urban layers and tw softer layers, present on 6 main areas.

Areas	av NAINr800m	av NAIN	Sum Residence points	Sum Economic activity points	Sum Heritage points	Sum Plaza points	Sum Places from songs points	Sum Lighting points
Historic Centre	1,4105985	1,02645736	5158	2332	864	90	35	910
Obrero	1,337521715	0,98691455	7379	3019	236	69	57	140
Sajonia	1,451376855	1,02039939	6088	4788	503	79	60	207
Mercado 4	1,32960485	1,0118058	7098	2887	170	87	38	528
Chacarita	1,22551201	0,96409865	3732	1462	16	41	41	323
Villa Morra	1,277548239	1,00832342	6345	1880	15	55	40	669
Other areas	1,224159885	0,94415435	220700	72985	929	2364	863	5721
Totals	1,235477218	0,9497914	256500	89353	2733	2785	1134	8498

Table 11. Summary of elements of collective memory by spatial joint (points per segment).

Areas	Local integration	Global Integration	Economic activity points	Residence points	Heritage buildings	Open spaces
Historic Centre	19,66%	17,65%	30,63%	16,56%	82,19%	22,03%
Obrero	18,75%	16,29%	9,10%	17,30%	0,30%	22,03%
Sajonia	18,46%	15,09%	9,29%	21,51%	1,92%	8,47%
Market 4	17,02%	18,18%	36,96%	21,95%	9,09%	13,56%
Chacarita	9,74%	14,32%	3,42%	12,80%	5,10%	23,73%
Villa Morra	16,38%	18,46%	10,59%	9,87%	1,40%	10,17%

Table 12. Percentages of main urban layers on 6 areas.

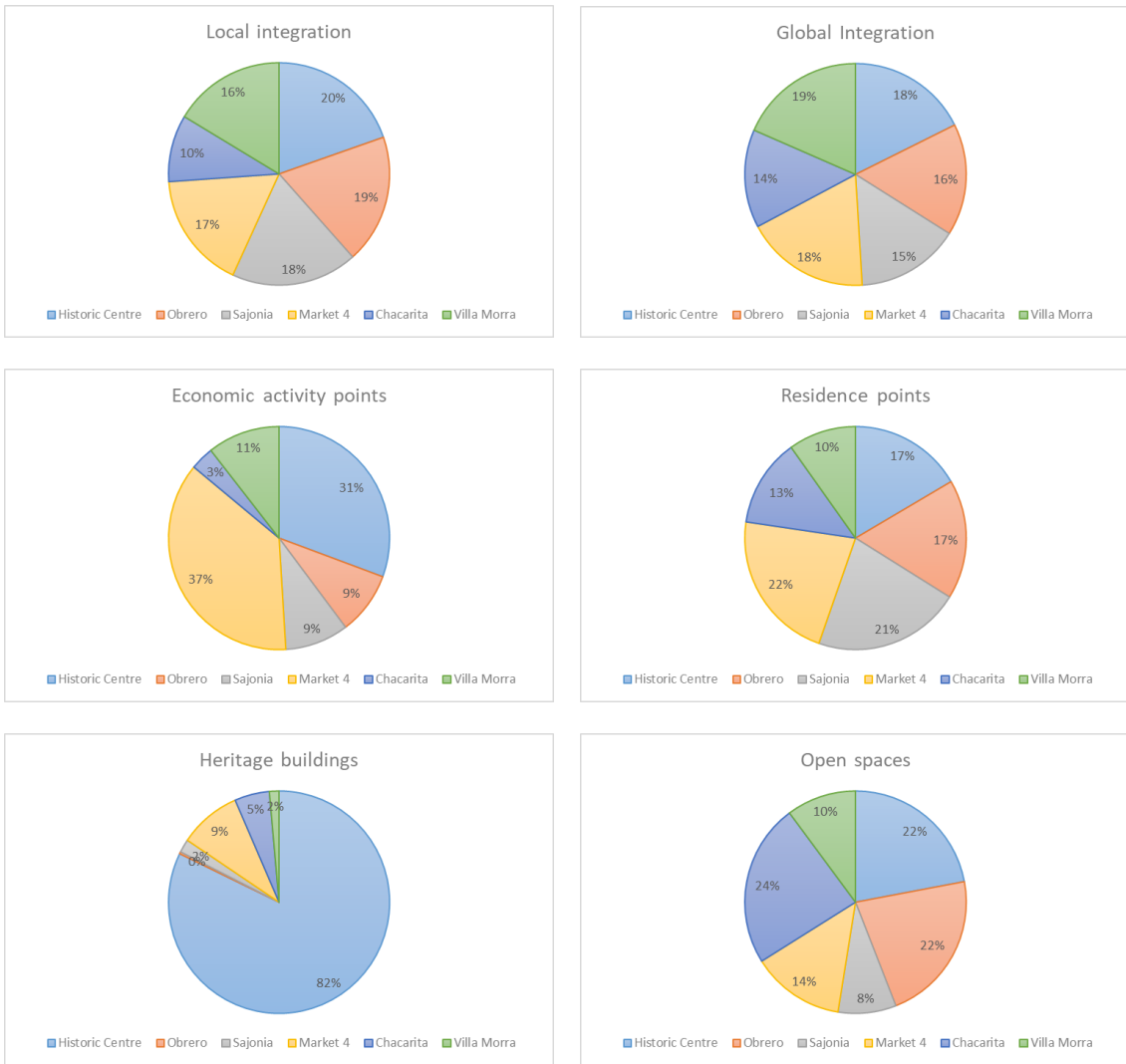


Fig. 50. Charts showing distribution of main and soft urban layers in different areas, highlighting the character of each area.

The areas present a diverse distribution of the memory elements, thus being considered the most representative centres of collective memory in Asuncion. In order to investigate the issue on a variety of scales, the study proceeds to a micro scale analysis of each area individually.

5.2. Centres of collective memory: micro scale

In the next sub-chapter areas of study for Asuncion are described. These are considered significant in the global and historical analysis, and for their historic relevance in literature, making them an ideal subject of enquiry of the presence and depictions of the main layers of spatial memory in Asuncion.

5.2.1. Historic Centre

Asuncion was founded by the Paraguay River in 1537 by the Spanish conquerors. Asuncion grew from this historic core (its foundational centre: Pistilli, 1987) to the current wide urban extension that presents today (fig. 48 and 50).

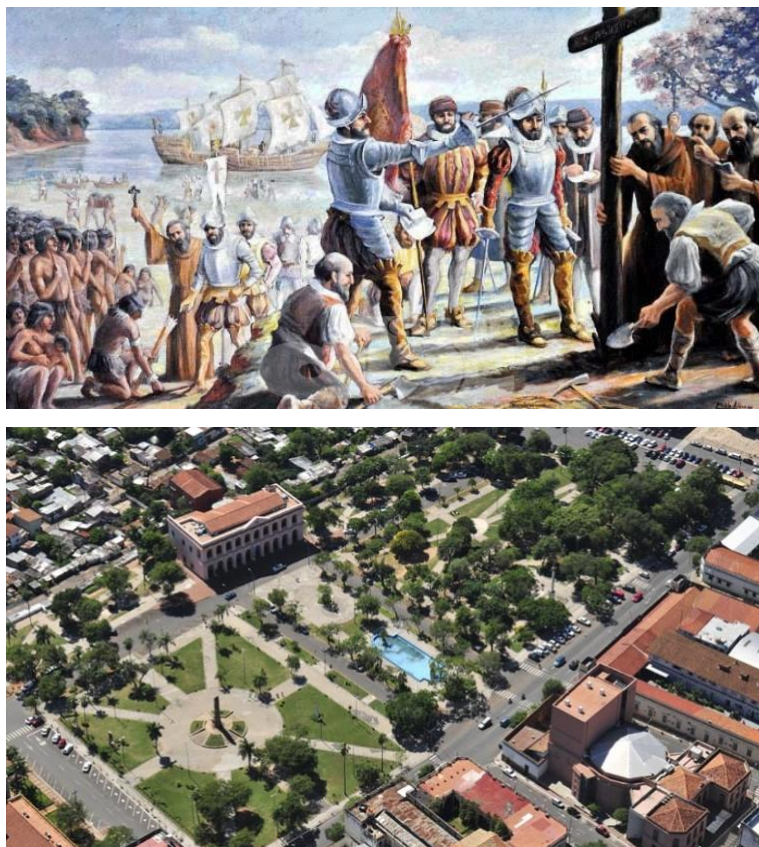


Fig. 51. Asuncion was founded in 1537 (up) on the Plaza de Armas in its Historic Centre (down).



Fig. 52. Asuncion, the urban image: Historic buildings mix with medium rise. Source: Fotociclo archive, available at <<https://medium.com/@fotociclo>>

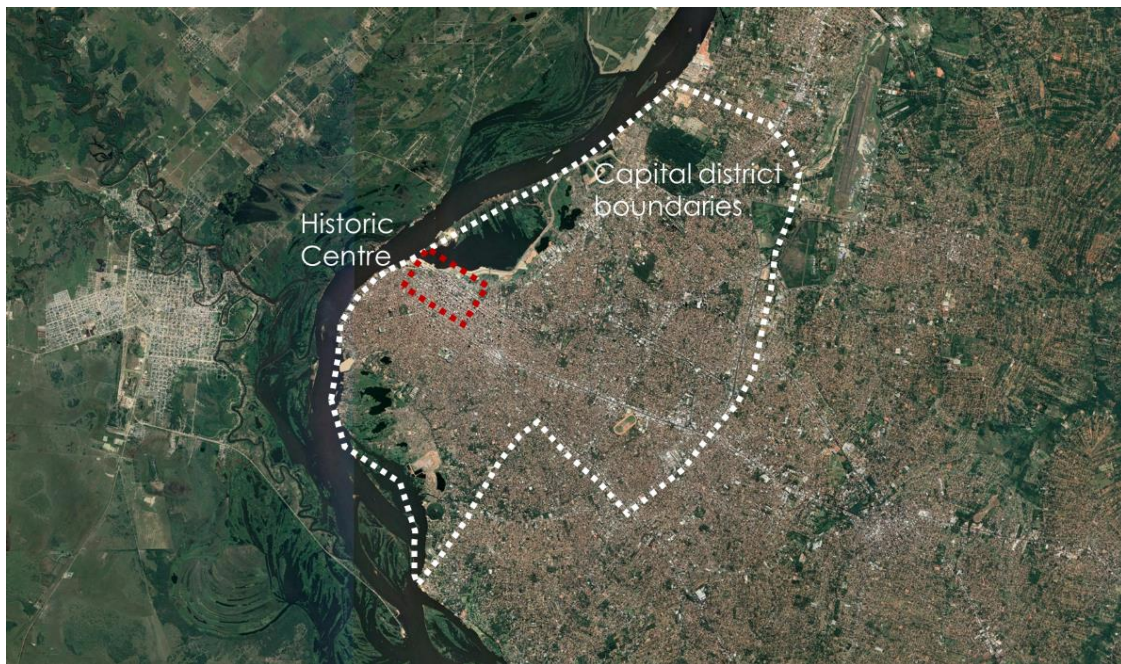


Fig. 53. Political limits of Asuncion and location of the Historic Centre.

The urban image of Asuncion (fig 49 and 51) is given by this area, and it contains the most representative buildings and plazas (fig 52).

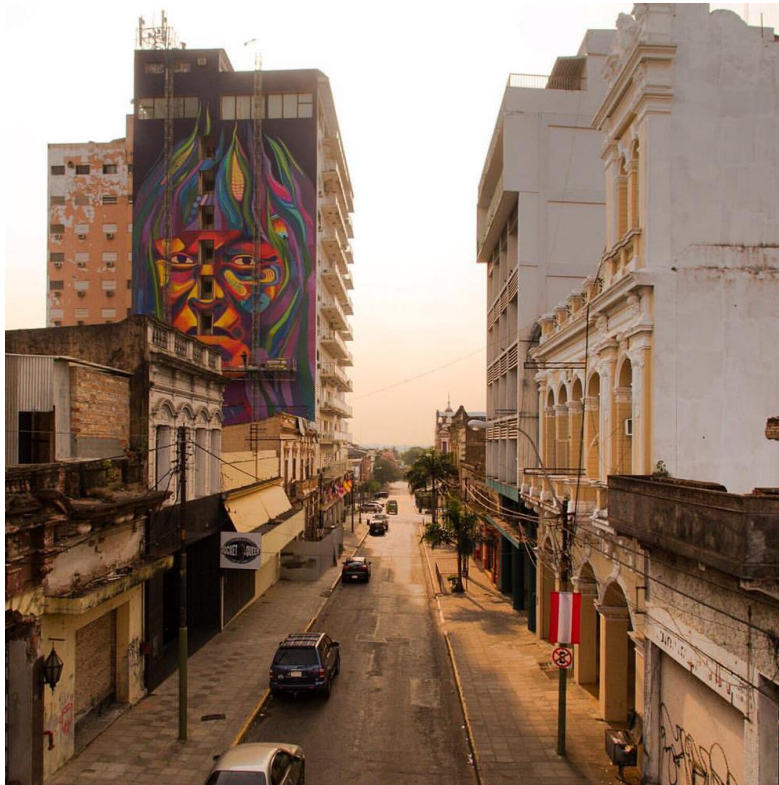


Fig. 54. Urban image of the Historic Centre. Available at <<https://ecosistemaurbano.org/wp-content/uploads/Cq5cncxMwIAATkEz.jpg?x59156>>.

LA CATEDRAL

DEDICADA A LA VIRGEN DE ASUNCIÓN LA CATEDRAL VISA FERIA EN EL PROCESAMIENTO HISTÓRICO DE LA CIUDAD DESDE 1850 AÑO DE SU CONSAGRACION E INVOLUCRACION LOS PLANES DEL TIEMPO FUERON OBRA DEL ARQUITECTO CARLOS ALZATI LOS BARRIOS COMPARTIENDO EN AÑO DE 1957 CONFORMADA POR LO MEXICO Y LO TERRESTAL LA CATEDRAL FUE LA PRIMERA DOCESES DEL AJO DE LA PLAZA Y ANTE PROCESANTE DE LA VIGENCIA DEL 1962

SAN JERÓNIMO

EL MONJE DONA DON FRANCISCO LOS UNO DE LOS MAS ANTIGUOS DE ASUNCIÓN EN 2015 SE CONVIERTO EN EL PRIMER BARRIO TURISTICO Y PLAZA DE VENTA SE RESALVAN SUS CASAS COLONIALES Y PROGRESIVAS SUS PROBLEMAS Y PROBLEMAS CERRAR UNA GRAN OFERTAS DE GASTRONOMIA PARAGUAYA Y CUBIERTA PROXIMAMENTE DE LAS MANOS DE SUS POBLADORES CUANDO ABREN LOS PUERTOS DE SUS ESTABLECIMIENTOS PARA LOS VISITANTES

EL CABILDO

HASTA SU TRASLADO AL NUEVO PRACADO (ECOSISTEMA) EL EDIFICIO ALBERGABA LA CAMARA DE SENADORES DE PARAGUAY DESDE ENTONCES EL EDIFICIO LEVA OCURRIDO POR EL CENTRO CULTURAL DE LA REPUBLICA LE LABRADO SE CONVIERTO EN UN ESPACIO LIBRE Y PUBLICO DONDE SE ALBERGAN LAS DIVERSAS EXPRESIONES DE LA CULTURA PARAGUAYA CON EL OBJETIVO DE FORTALECER LA CONCIENCIA Y LA MEMORIA HISTORICA PROGRESANDO EL PASADO Y EL PRESENTE A LAS GENERACIONES VENIDAS COMO TAMBIEN CONSTRUYENDO EN UN AMBITO DE DIVERSION CULTURAL DE LAS ACTUALES GENERACIONES A LA VEZ QUE SE POTENCIA SU VALOR MONUMENTAL

EL PANTEON

EL PANTEON NACIONAL DE LOS HEROS Y CRONICO DE LA VIRGEN DE NUESTRA SEÑORA SANTA PARRA DE LA ASUNCIÓN TIENEN A CONGRUENCIA EN 1914 FUE TERMINADO EN 1916 DISEÑO DE LA CATEDRAL DEL QUICHO EN EL INTERIOR SE ENCUENTRAN LOS RESOS DE ALGUNOS HEROS DE LA VIGENCIA DE PARAGUAY ASI COMO DE LOS SOLDADOS DESCONOCIDOS Y EL CRONICO A LA VIRGEN DE LA ASUNCIÓN

LA ESTACION

ES UNO DE LOS EDIFICIOS PUBLICOS EMPLERATICOS QUE SE DEDICARON ANTES DE LA GUERRA DEL 90 Y QUE SIENDO HASTA AHORA UN VERDADERO ORNATO DE LA CIUDAD DE ASUNCIÓN LA DEDICACION ORIGINAL DE ESTACION GENERAL FUE ESTACION SAN FRANCISCO SI EN LA ACTUALIDAD EL EDIFICIO LLAMA LA ATENCION POR SUS PROPORCIONES ARQUITECTONICAS Y LAS BELLEZAS DE SUS LINEAS CON MAYOR RAZON TENDRAN QUE DESTACARSE EN EL TIEMPO EN QUE FUE EDIFICADA SU CONSTRUCCION SE DEBE AL ARQUITECTO NIOLES ANTONIO BARRIO ANTONIO TOCARENTEZ EL MISMO QUE JUNTO AL ARQUITECTO RAUZA COORDINARON LA CONSTRUCCION DEL PRACADO DE GOBIERNO

PLAZA URUGUAYA

UNA DE LAS ZONAS VERDES MAS EMPLERATICAS DE LA CIUDAD FUE COMENZO DE LOS FRANCISCANOS DURANTE EL GOBIERNO DEL DR. FRANCO EL SUDO FUE CONSTRUIDO EN CUARTOS DEL EJERCITO Y JUERGO DE LA GUERRA GRANDE 1900 SE VIENDO EL TERMINO UN GRAN AVANCE PORQUE INCLUSO SE ESTABLECIERON PLANTAMIENTOS CONOCIDA COMO PLAZA SAN FRANCISCO CAMBIO SU NOMBRE POR EL DE PLAZA REPUBLICA DEL URUGUAY PLAZA URUGUAYA COPES AJO SE CONSTRUYO AL TIEMPO MAS ANUNDO QUE CONFINANDO LA BARRA DESPUES DE LA GUERRA DE LA TRIPLE ALIANZA

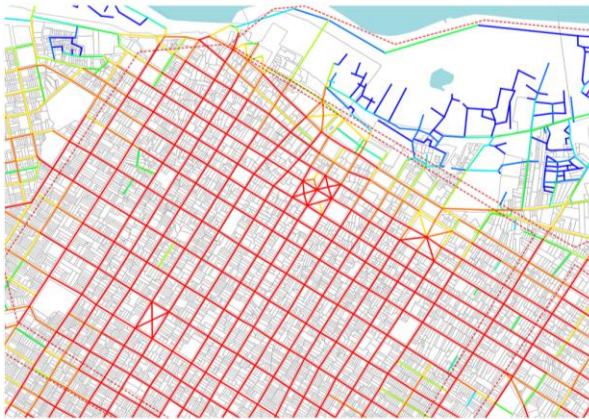
ecosistema urbano + Juan Carlos Cristaldo

Plan CHA - Plan Maestro del Centro Histórico de Asunción

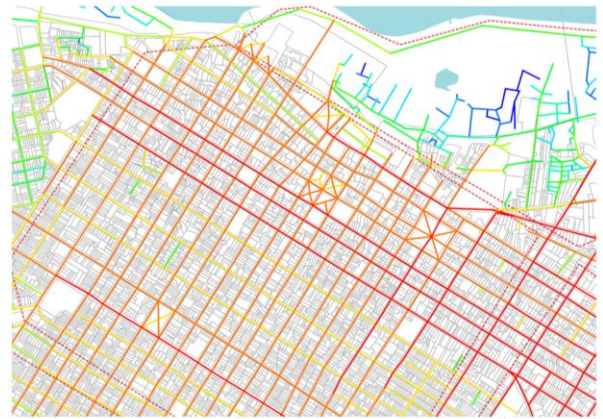
Fig. 55. A taxonomy of historic buildings and plazas in the Historic Centre. Source: Plan Cha (2014).

MAIN URBAN MEMORY LAYERS

Historic Centre



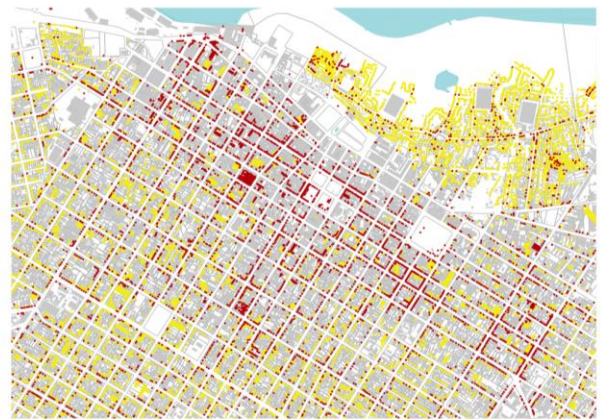
LOCAL SPATIAL CENTRALITY (NAIN R800)



GLOBAL SPATIAL CENTRALITY (NAIN RN)



BUILT FORM



CLUSTERS OF DENSITY OF POINTS OF RESIDENCE (YELLOW) VS POINTS OF ECONOMIC ACTIVITY (RED)



OPEN SPACES AND PLAZAS



PRIMARY BUILDINGS

Fig. 56. Observation of main urban memory layers present on Historic Centre.

n°	Areas	Local integration	Global Integration	Economic activity points	Residence points	Heritage buildings	Important buildings	Open spaces	Built form
1	Historic Centre	1,84933	1,13713	5226	6398	1112	200	13	Compact

Table 13. Summary of memory elements in Historic Centre.

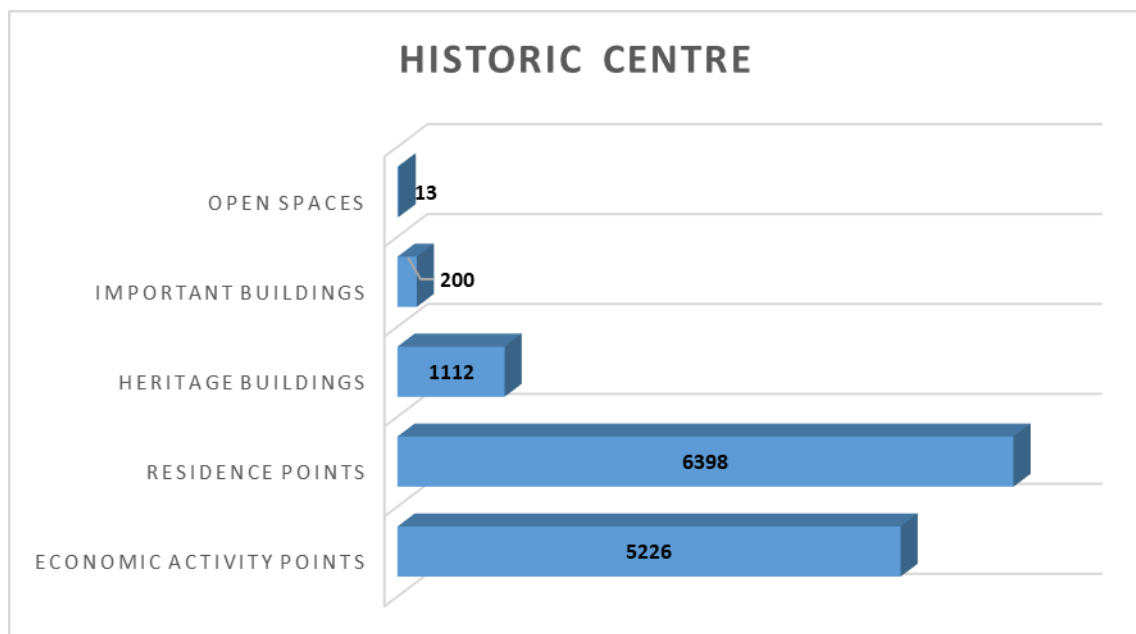


Fig. 57. Chart showing proportions of memory elements in the Historic Centre.

A series of density maps shows an in-depth concentration of memory elements in the area, to identify places with high concentration of elements in the next subchapter.

DENSITY MAPS
Points per Segment- MAIN and SOFT URBAN ME-
MORY LAYERS
Historic Centre

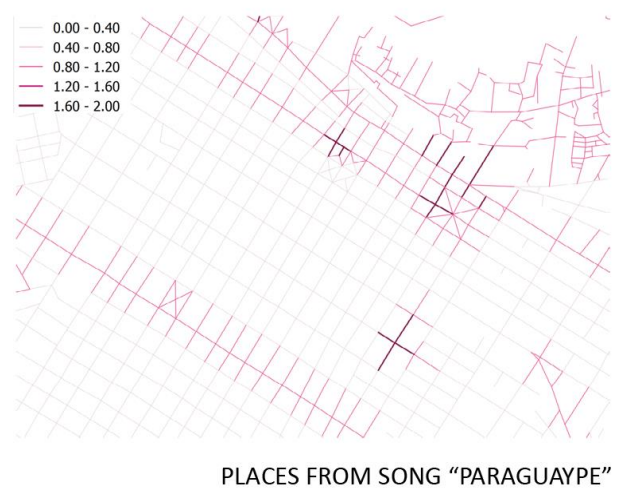
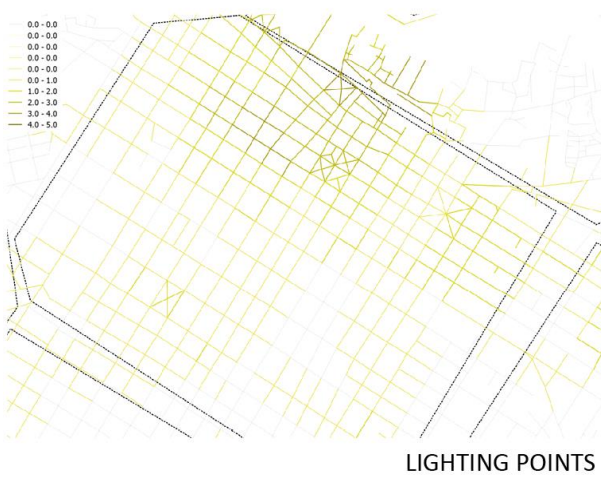
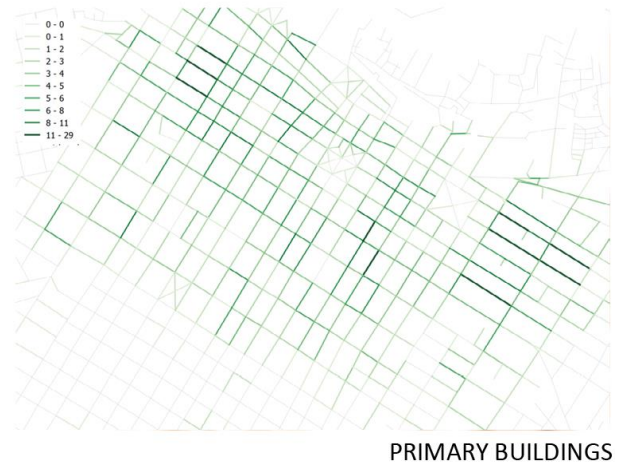
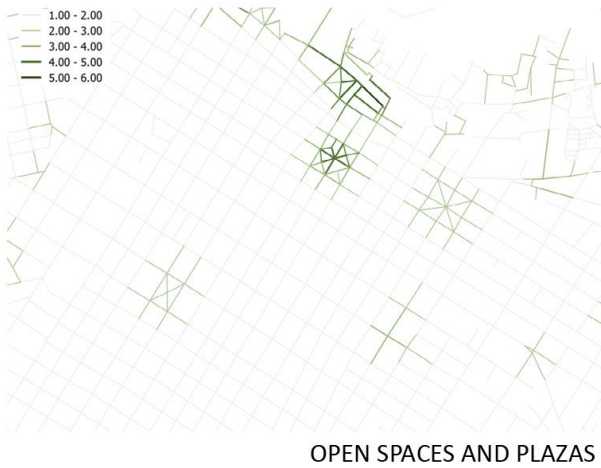


Fig. 58. Density maps showing concentrations of main urban memory layers across the Historic Centre.

The Centre of the Historic Centre. Specific local conditions

The Historic Centre presents the higher presence of heritage elements and buildings from different periods, which can be seen on the Density map on fig 56.



Fig. 59. Primary elements: points of heritage per segment. Source: author, from Catalogued buildings by municipal decree – from “Analysis of the current situation of the historical centre of Asuncion” BID and FAUNA Study (2005).

Two different sets of data add to the model: a list of buildings by value (fig. 57) and by Historic period (fig. 60).

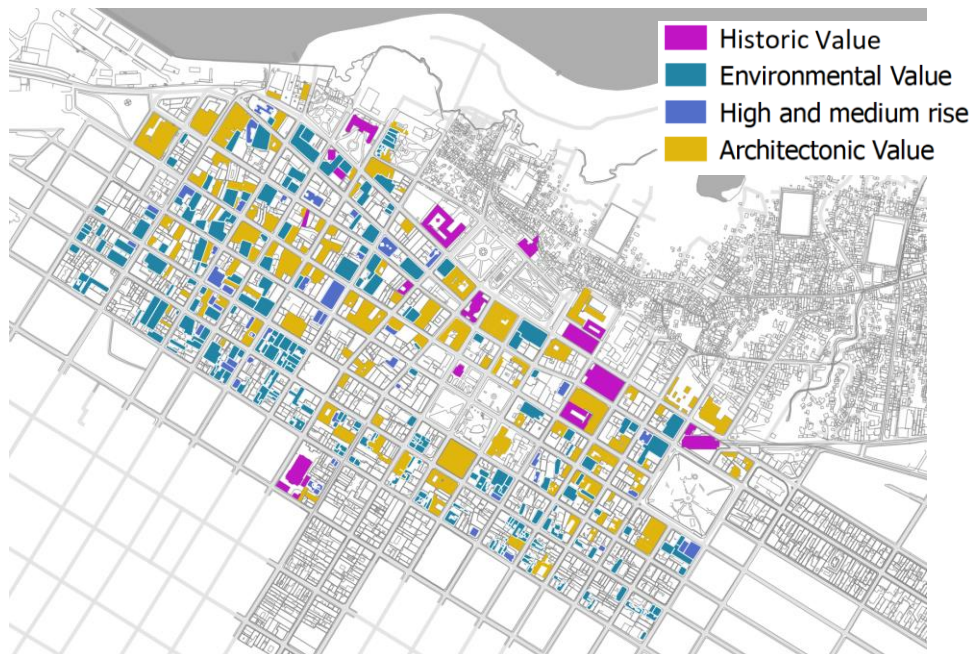


Fig. 60. Buildings of Heritage by value of conservation.

This concentration of elements can be analysed through a segment map, adding the buildings by a spatial join: the two most important elements in the catalogue (historic value-purple elements and architectural value-mustard elements), are illustrated analytically by transferring this points to segments.

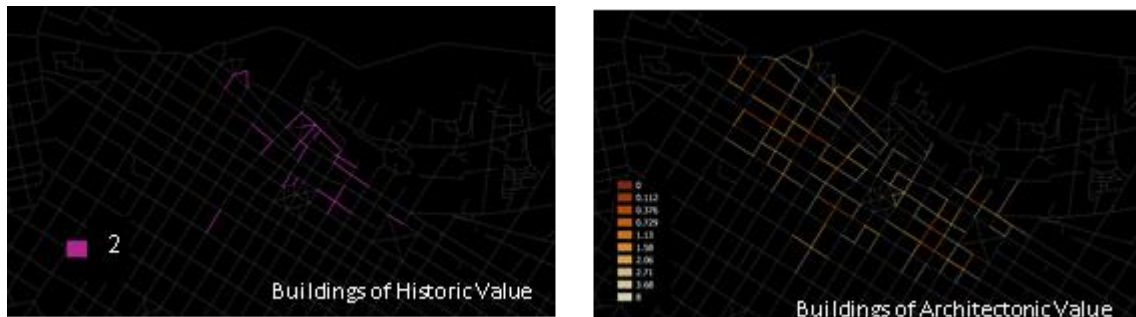


Fig. 61. And Fig. 62. Buildings of Architectonical value, points per segment; Buildings of Historic Value, points per segment. Source: author.



Fig. 63. Buildings of Heritage by Historic periods

Through a VGA the potential of visibility, interaction and co-presence surrounding the main spaces of the historic core can be understood. The main arteries: Palma and Estrella- as well as the plazas pick up the higher integration values, that is, the locations that are “shallower” in their topological relationship with all others.

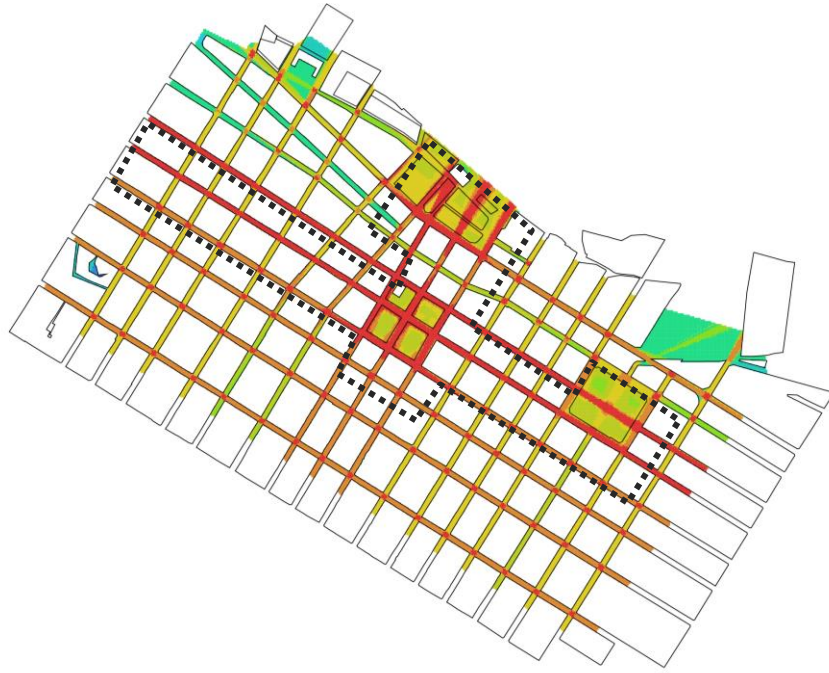


Fig. 64. VGA model of Main public spaces, the historic core. In dotted line: places with most integrated locations (shallowest in terms of steps to all other locations: these correspond with the two most historical avenues (Palma and Estrella) and the main plazas. Source: author

The main clusters of public space are defined by: the concentrations of urban elements (fig. 55) that form clusters of memory places; the plazas, as well as important buildings by Heritage value and historic period, and potential of visual integration. They are qualitatively observed by a in the next Nolli-type maps:



Fig. 65. Cluster of public space and primary buildings in the Historic Centre: the Four Plazas.

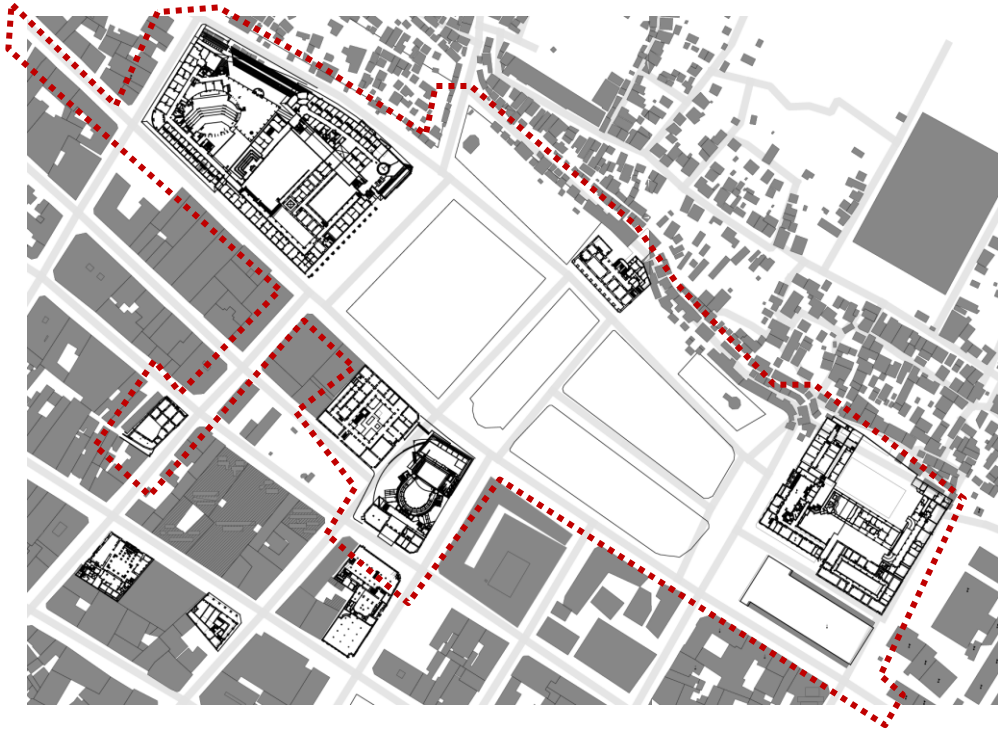


Fig. 66. Cluster of public space and primary buildings in the Historic Centre: the Plaza de Armas.

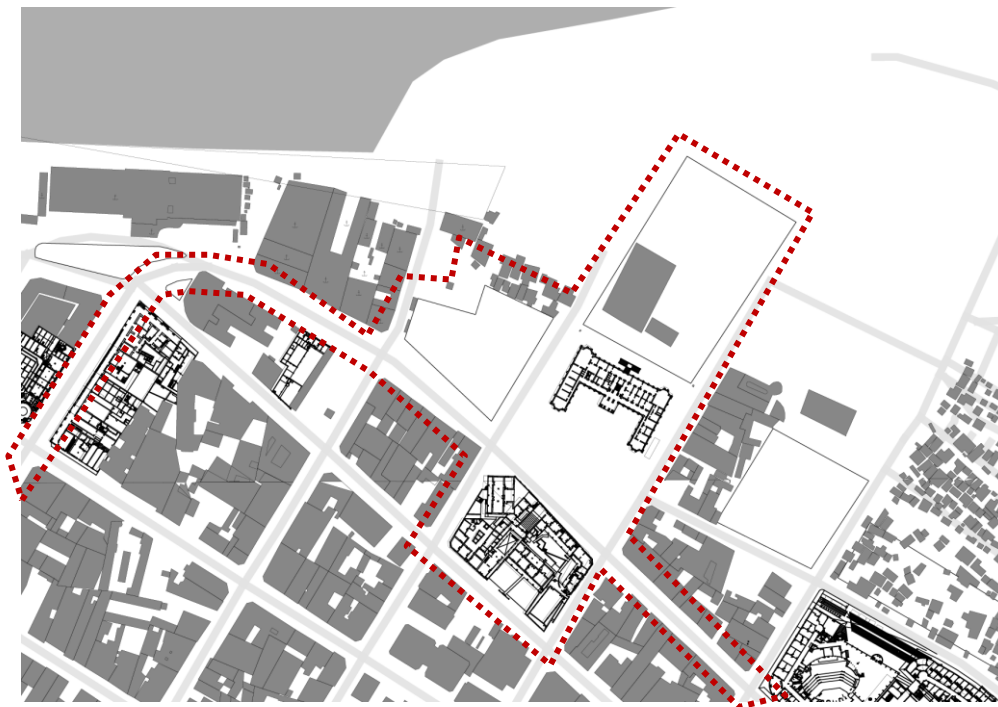


Fig. 67. Cluster of public space and primary buildings in the Historic Centre: the Lopez Palace plaza.

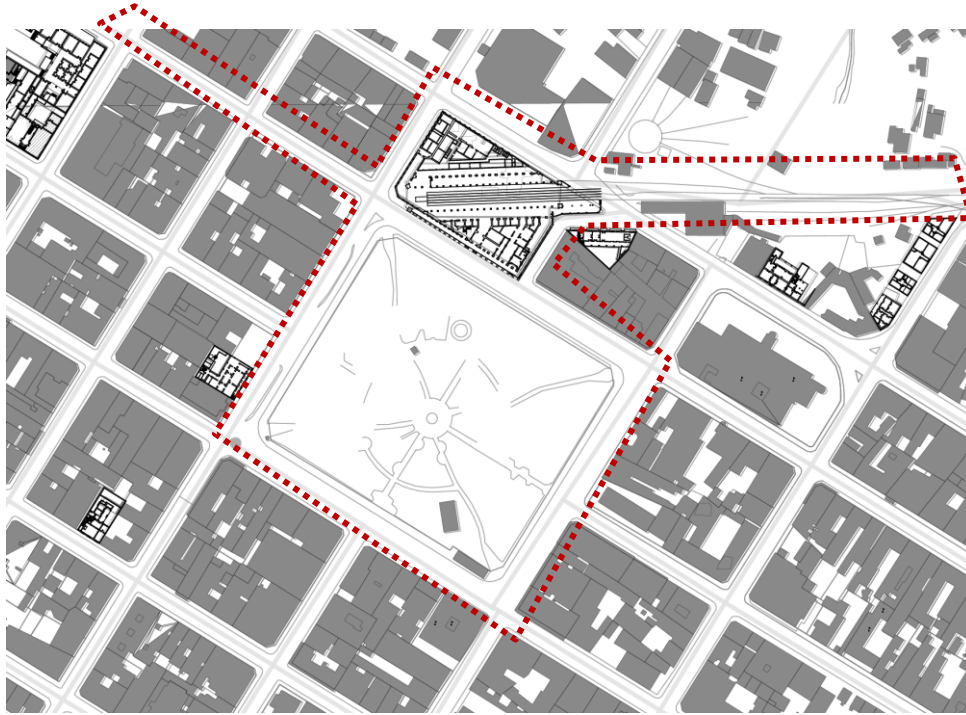


Fig. 68. Cluster of public space and primary buildings in the Historic Centre: the Plaza Uruguayaya.

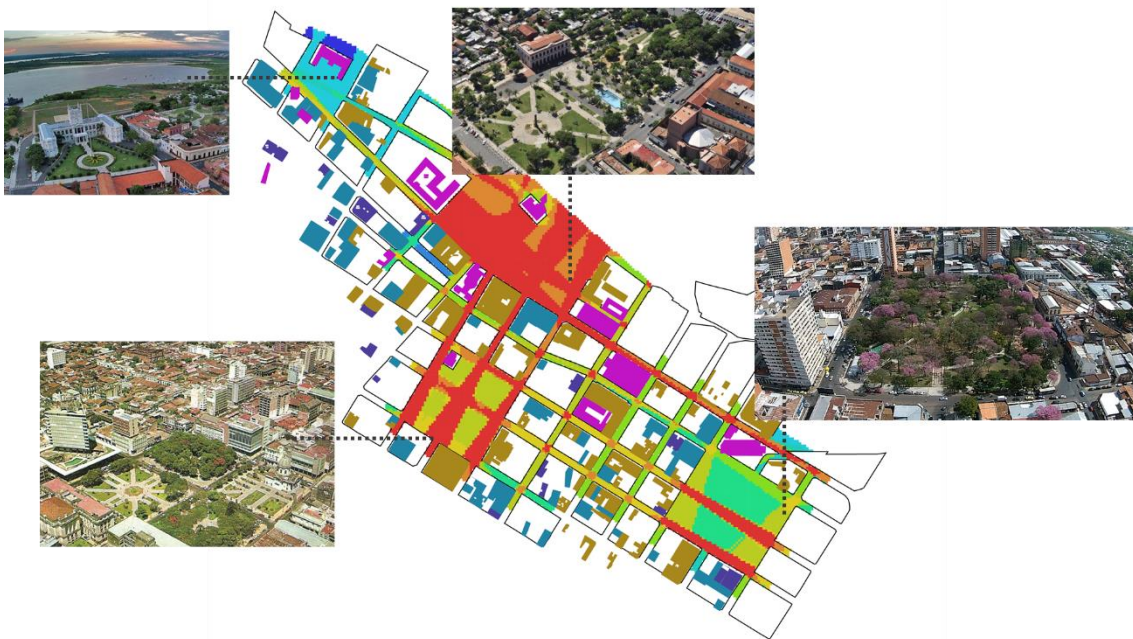


Fig. 69. VGA model of main public spaces, primary buildings and pictures of the plaza: Lopez, De Armas, Uruguayaya and Four Plazas. Source: author and Fotociclo Archive.

The places with the presence of primary buildings are spaces qualified in a particular way by the architecture; we can infer a greater attraction denoted by the VGA of the main centre (the cluster of four public spaces). Based on all previous analyses, this is arguably the Centre of the Centre in Asuncion.

5.2.2. Barrio Obrero

The Barrio Obrero is one of the oldest and most populated neighbourhoods in Asuncion. Among the main arteries are the "Avda 5.ª Proyectada" with some sports institutions and stadiums.

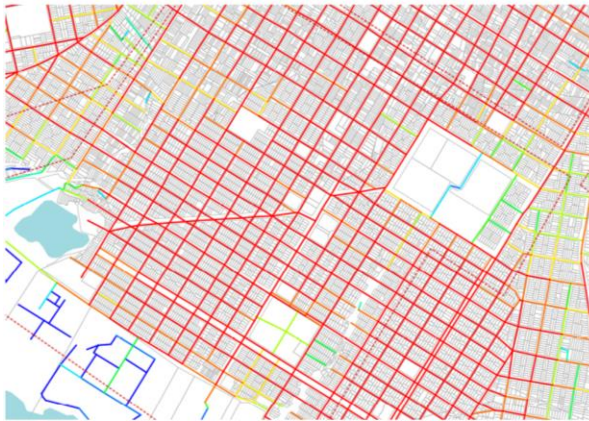
It owes the name of the working-class neighbourhood (Obrero means “worker” in Spanish) to the fact that an old industry settled in the neighbourhood gave a house to each worker who completed 10 years of work in the factory.



Fig. 70. View of Barrio Obrero. Available at <https://i.pinimg.com/originals/f4/6a/39/f46a397ca09214ac9e93f27284a5ccc0.jpg>.

MAIN URBAN MEMORY LAYERS

Barrio Obrero



LOCAL SPATIAL CENTRALITY (NAIN R800)



GLOBAL SPATIAL CENTRALITY (NAIN RN)



BUILT FORM



CLUSTERS OF DENSITY OF POINTS OF RESIDENCE (YELLOW) VS POINTS OF ECONOMIC ACTIVITY (RED)



OPEN SPACES AND PLAZAS



PRIMARY BUILDINGS

Fig. 71. Observation of main urban memory layers present on Barrio Obrero.

n°	Areas	Local integration	Global Integration	Economic activity points	Residence points	Heritage buildings	Important buildings	Open spaces	Built form
2	Obrero	1,76447	1,04984	1553	6682	4	5	13	Open

Table 14. Summary of memory elements in Barrio Obrero..

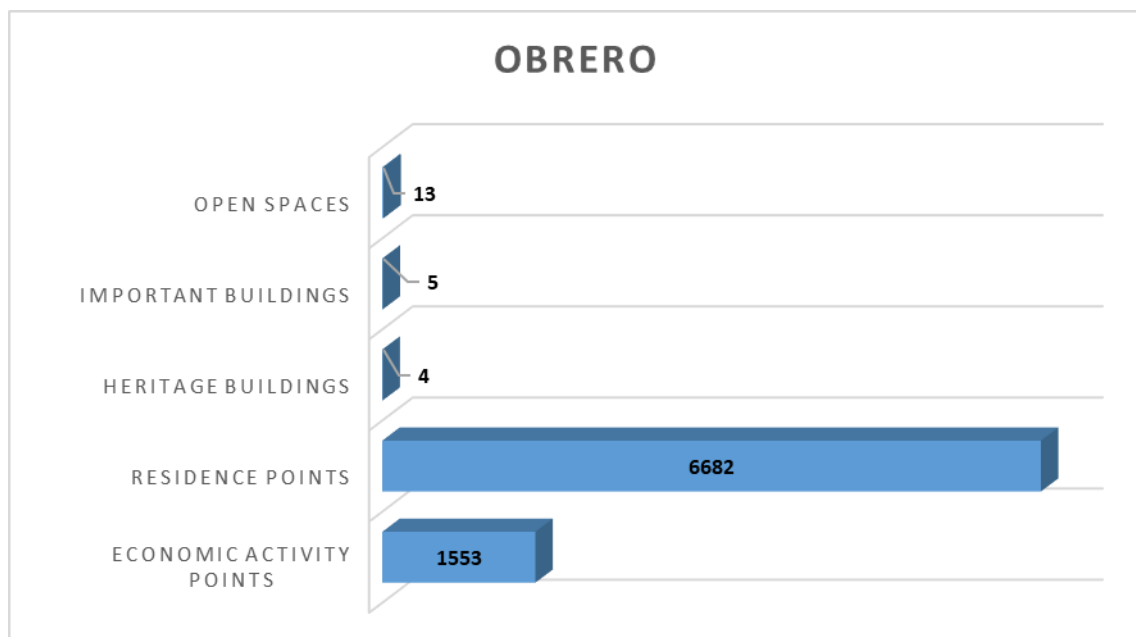


Fig. 72. Chart showing proportions of memory elements in Barrio Obrero.

A series of density maps shows an in-depth concentration of memory elements in Obrero, to identify places with high concentration of elements.

DENSITY MAPS
Points per Segment- MAIN and SOFT URBAN ME-
MORY LAYERS
Obrero

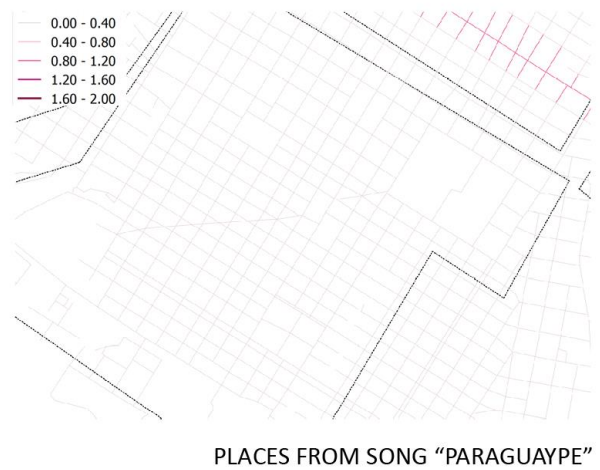
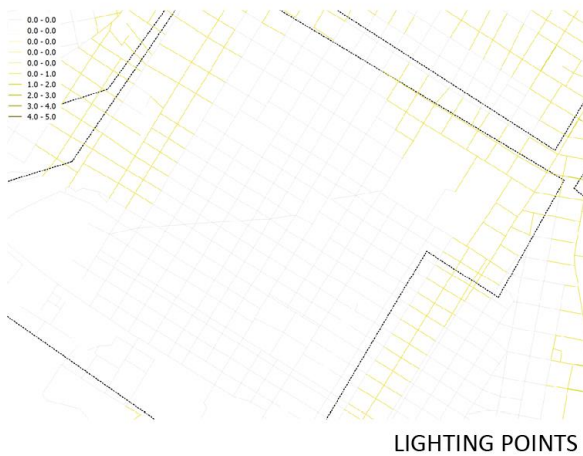
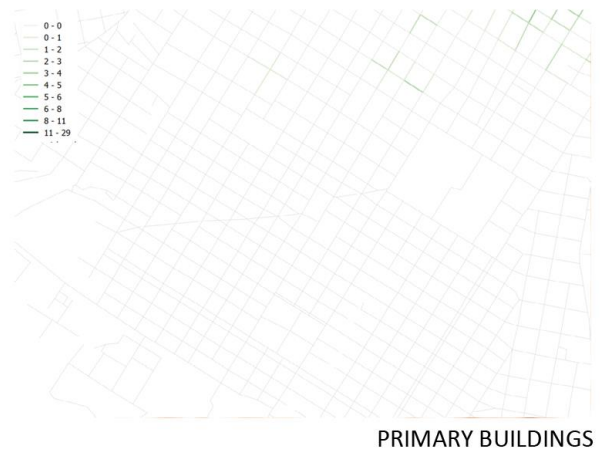
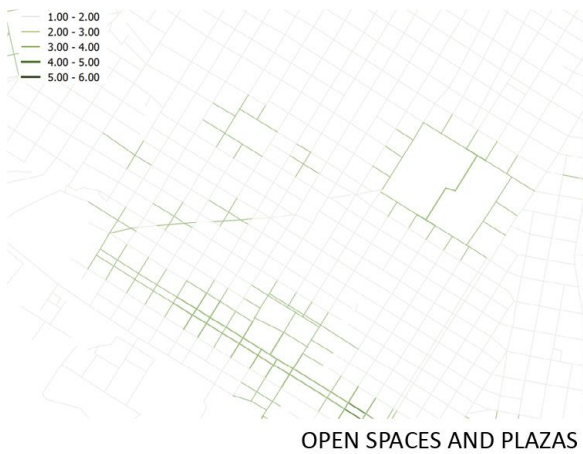
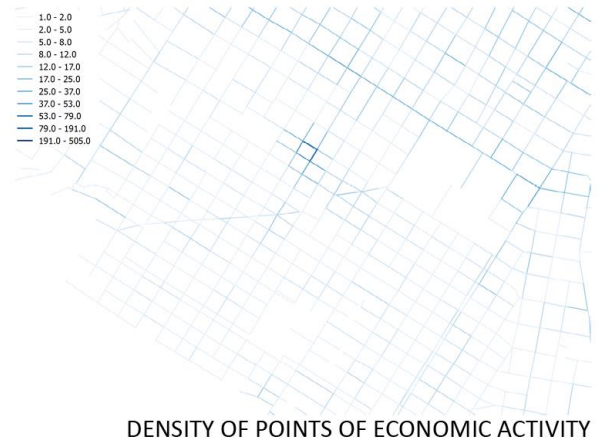


Fig. 73. Density maps showing concentrations of main urban memory layers across Barrio Obrero.

The main public cluster defined by: the concentrations of urban elements (fig. 70) could be identify in the main football fields, but also in the diagonal street “Chiang Kai-Shek”.



Fig. 74. Cluster of public space and primary buildings in Obrero: the Chiang Kai-Shek axis.

5.2.3. Sajonia

Sajonia is one of the most traditional neighbourhoods in the capital (Causarano and Chase, 1987). Characterised by residences that housed many wealthy families, at present the Municipality has reduced the limits of the old Sajonia neighbourhood (which also included the current Carlos Antonio López and San Antonio neighbourhoods), although the entire area is still known by that name, as is the Port Saxony, on the Paraguay River.

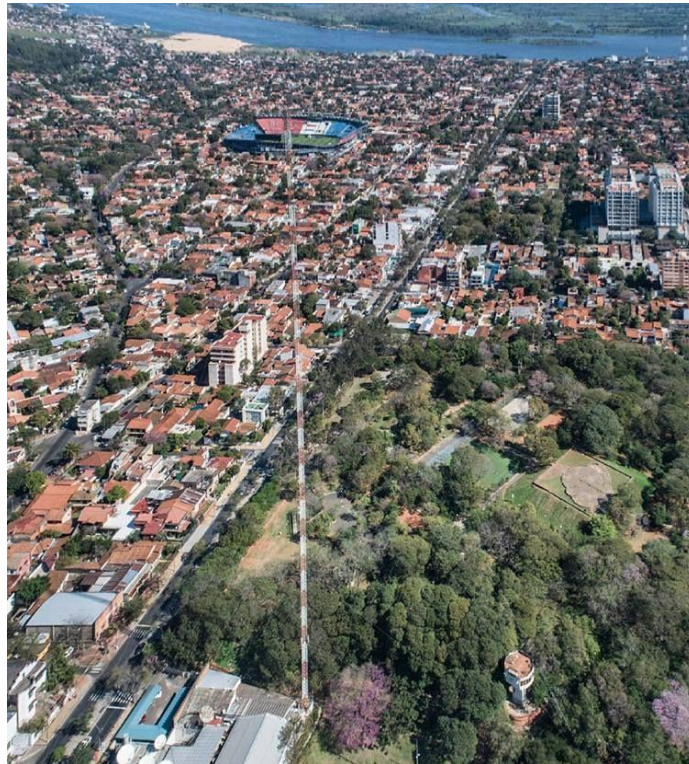


Fig. 75. View of Sajonia, available at <<https://pbs.twimg.com/media/DjJbFOkX0AEeBpQ.jpg>>.

MAIN URBAN MEMORY LAYERS

Barrio Sajonia

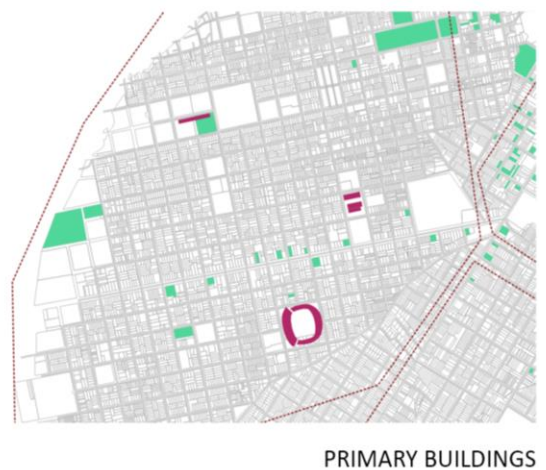
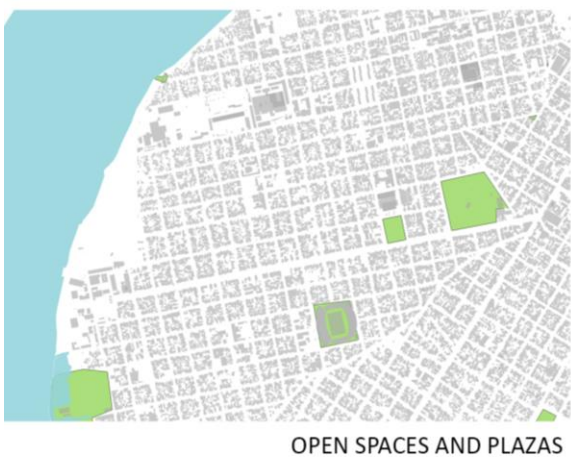
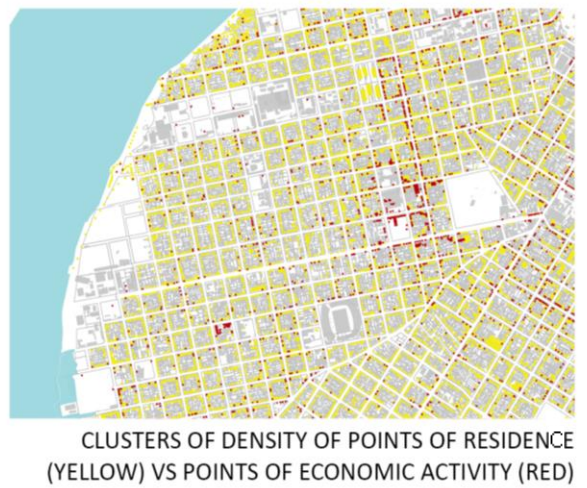
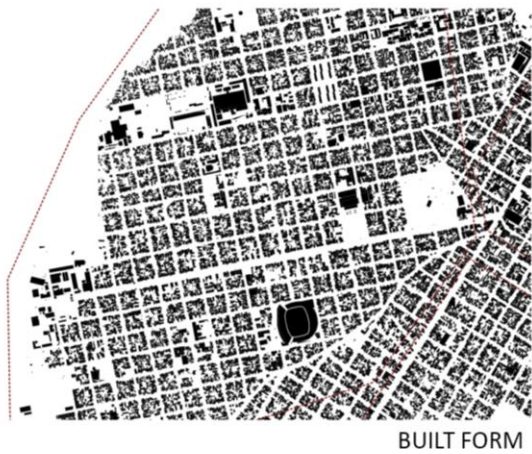
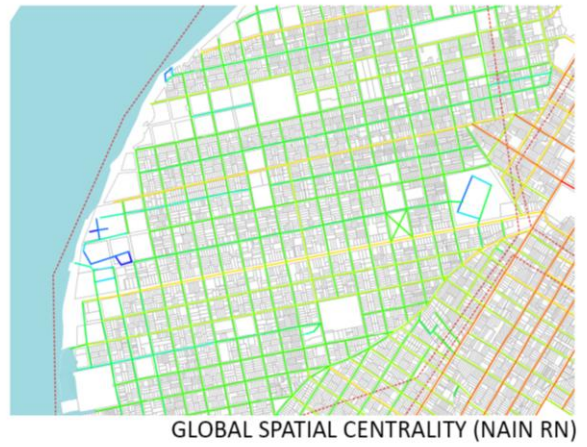


Fig. 76. Fig. 52. Observation of main urban memory layers present on Sajonia.

n°	Areas	Local integration	Global Integration	Economic activity points	Residence points	Heritage buildings	Important buildings	Open spaces	Built form
3	Sajonia	1,73698	0,97250	1585	8311	26	6	5	Open

Table 15. Summary of memory elements in Sajonia.

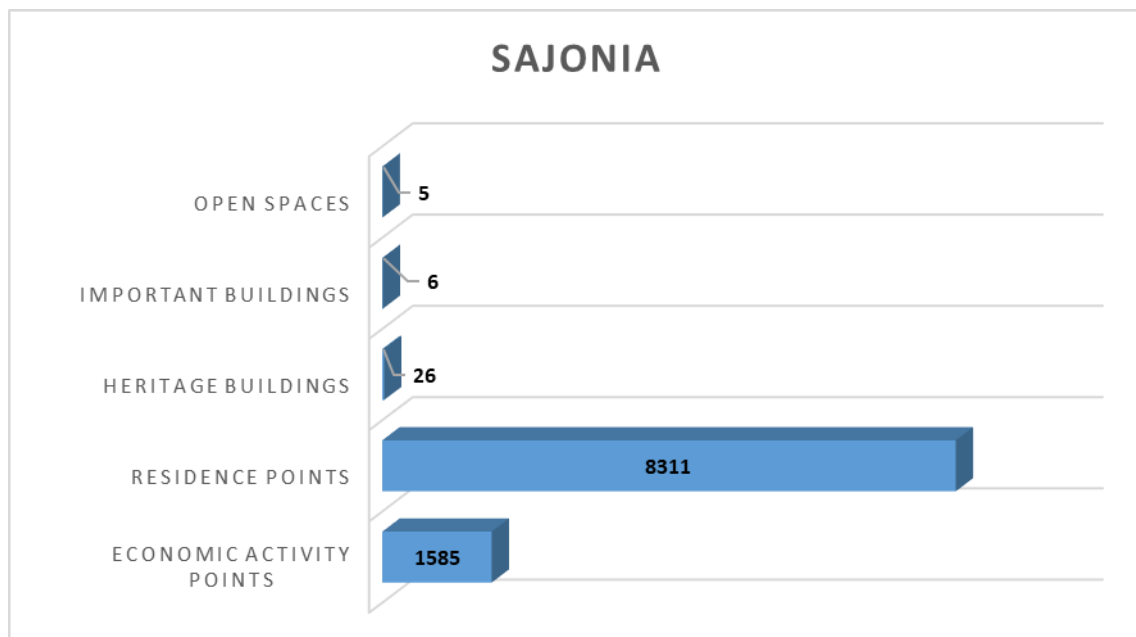


Fig. 77. Chart showing proportions of memory elements in Sajonia.

A series of density maps shows an in-depth concentration of memory elements in Sajonia, to identify places with high concentration of elements.

DENSITY MAPS
Points per Segment- MAIN and SOFT URBAN ME-
MORY LAYERS
Sajonia



Fig. 78. Density maps showing concentrations of main urban memory layers across Sajonia.

The biggest football field is found in Sajonia, as well as an important cluster of public spaces in Carlos A. Lopez Avenue.

Its main avenue is "Carlos Antonio López" that passes through the front of the López Park and has some points of special interest such as the Palace of Justice, the Church of the Holy Cross and the national football stadium, conforming the main public cluster defined by the concentrations of urban elements (fig. 75).



Fig. 79. Cluster of public space and primary buildings in Sajonia: Carlos A. López Avenue

5.2.4. Market N°4

The Market N ° 4 is a populous commercial area for groceries, clothing stores, and national and international food; it is found in the Pettirossi neighbourhood, although due to its expansion, it also covers part of the San Roque, Ciudad Nueva and Pinozá neighbourhoods.

In pop culture, the Paraguayan blockbuster *7 Cajas*, by directors Maneglia and Schémbori, was filmed in the area, which gave it distinctive recognition.



Fig. 80. The vibrant Market n°4. Photo available at <https://www.launion.com.py/wp-content/uploads/2017/07/asi-luce-el-mercado-4-en-visperas-de-navidad-locales-en-la-calle-y-clientes-expuestos-a-accidentes-de-transito-_762_573_1306539.jpg>.



Fig. 81. Scene from the multi-award winning Paraguayan film “7 boxes”. It positioned the Market in the popular urban image culture of Asuncion. Directed by Maneglia and Schémbori (2012).

MAIN URBAN MEMORY LAYERS

Market nº4

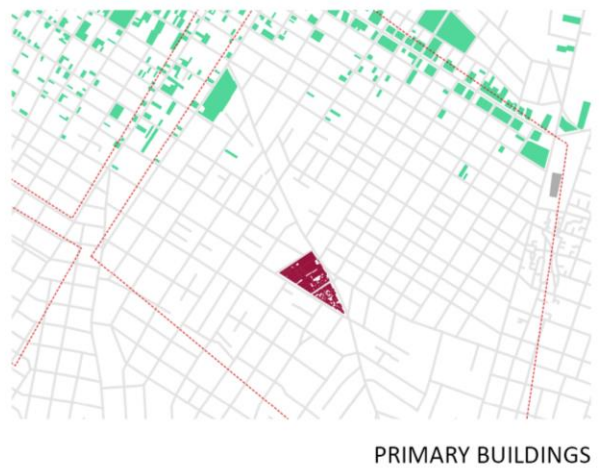
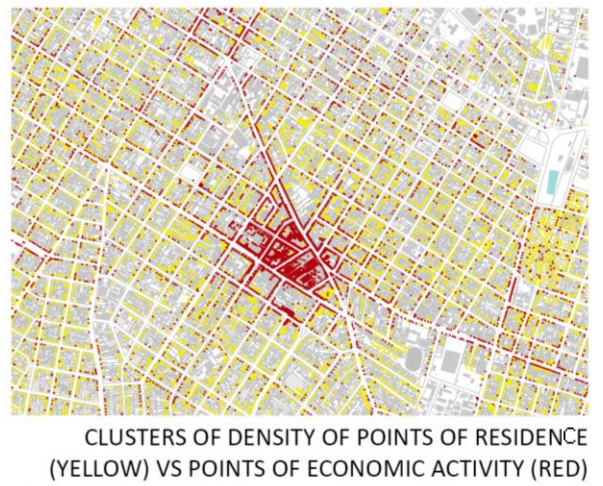
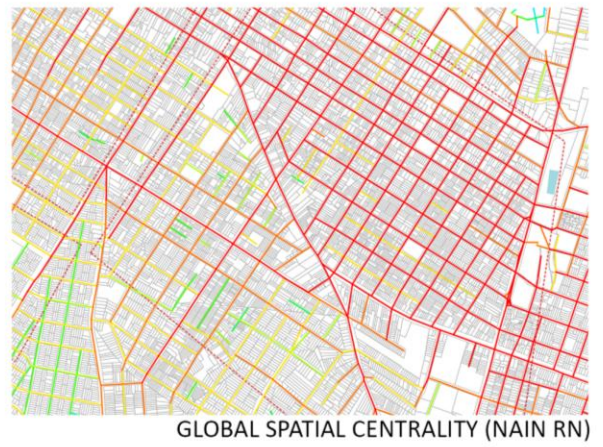
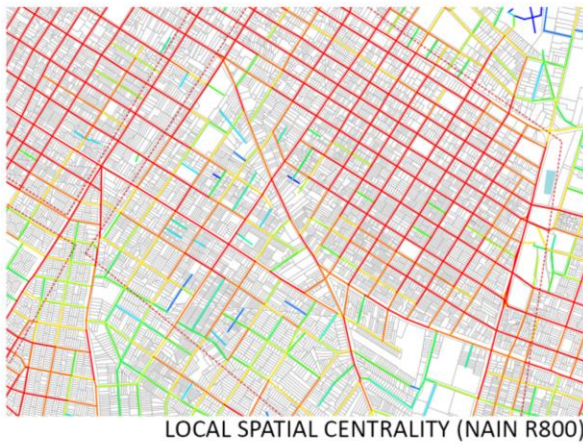


Fig. 82. Fig. 52. Observation of main urban memory layers present on Market 4.

n°	Areas	Local integration	Global Integration	Economic activity points	Residence points	Heritage buildings	Important buildings	Open spaces	Built form
4	Mercado 4	1,60109	1,1715	6305	8481	123	1	8	Compact

Table 16. Summary of memory elements in Market 4.

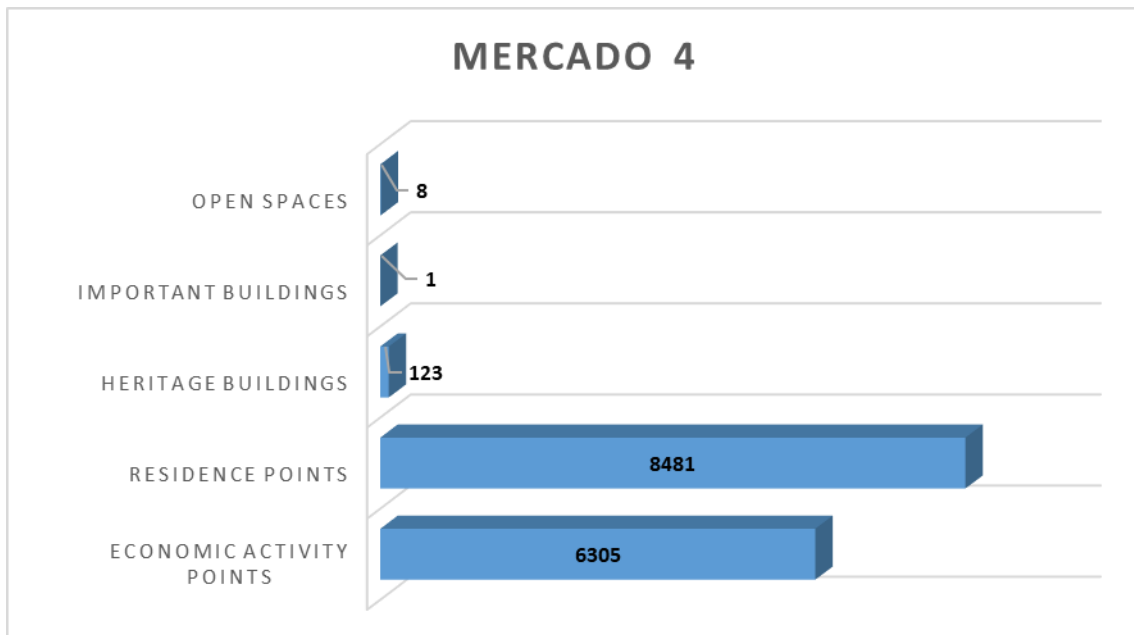


Fig. 83. Chart showing proportions of memory elements in Market 4.

A series of density maps shows an in-depth concentration of memory elements in Market 4, to identify places with high concentration of elements.

DENSITY MAPS
Points per Segment- MAIN and SOFT URBAN ME-
MORY LAYERS
Market 4



Fig. 84. Fig. 53. Density maps showing concentrations of main urban memory layers across Market 4.

5.2.5. Chacarita

In the heart of Asunción, facing the Paraguay River bay, is the Chacarita neighbourhood. It began to form since the first half of the 18th century (Cristaldo and Britez, 2018) as a result of an informal occupation of land in the north coast of the Paraguay River.



Fig. 85. View of Chacarita to the rest of the city. Available at <[https://www.lanacion.com.py/resizer/X_oEhpu5gjCKLt-QUq2FLM__4nw=/1016x0/smart/filters:format\(jpg\):quality\(70\)/arc-anglerfish-arc2-prod-lanacionpy.s3.amazonaws.com/public/45UFY2Y6OBGRRDROLDBD4WXCPQ.JPG](https://www.lanacion.com.py/resizer/X_oEhpu5gjCKLt-QUq2FLM__4nw=/1016x0/smart/filters:format(jpg):quality(70)/arc-anglerfish-arc2-prod-lanacionpy.s3.amazonaws.com/public/45UFY2Y6OBGRRDROLDBD4WXCPQ.JPG)>.

The neighbourhood is located on a hillside. Its particularity does not lie in the solidity of its constructions or in the character of its architecture but in its built form and its location within the system (right in front of the Historic Centre): in addition to its rich history, linked to the ups and downs of the river floods.



Fig. 86. Chacarita and the river. Available at <<https://i1.trekearth.com/photos/13422/asu27.jpg>>.

MAIN URBAN MEMORY LAYERS

Chacarita



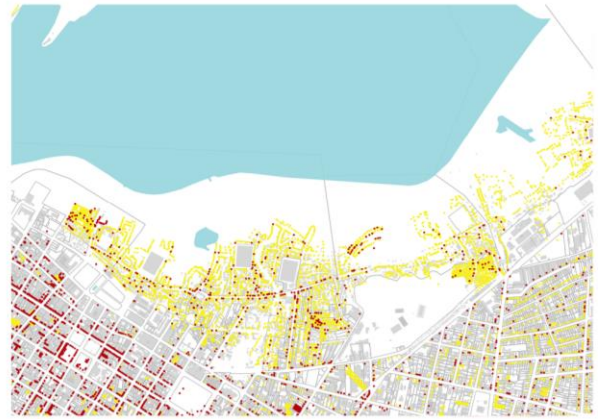
LOCAL SPATIAL CENTRALITY (NAIN R800)



GLOBAL SPATIAL CENTRALITY (NAIN RN)



BUILT FORM



CLUSTERS OF DENSITY OF POINTS OF RESIDENCE (YELLOW) VS POINTS OF ECONOMIC ACTIVITY (RED)



OPEN SPACES AND PLAZAS



PRIMARY BUILDINGS

Fig. 87. Fig. 52. Observation of main urban memory layers present on Chacarita.

n°	Areas	Local integration	Global Integration	Economic activity points	Residence points	Heritage buildings	Important buildings	Open spaces	Built form
5	Chacarita	0,91602	0,92243	584	4947	69	0	14	Open organic

Table 17. Summary of memory elements in Chacarita..

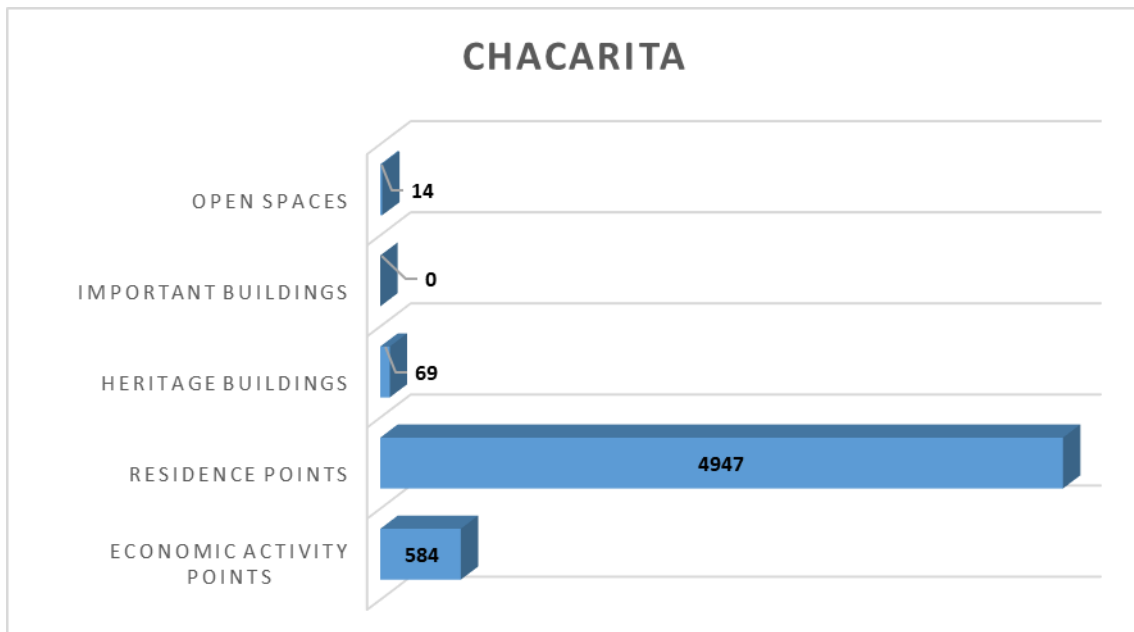


Fig. 88. Chart showing proportions of memory elements in Chacarita.

A series of density maps shows an in-depth concentration of memory elements in Chacarita, to identify places with high concentration of elements.

DENSITY MAPS
Points per Segment- MAIN and SOFT URBAN ME-
MORY LAYERS
Chacarita

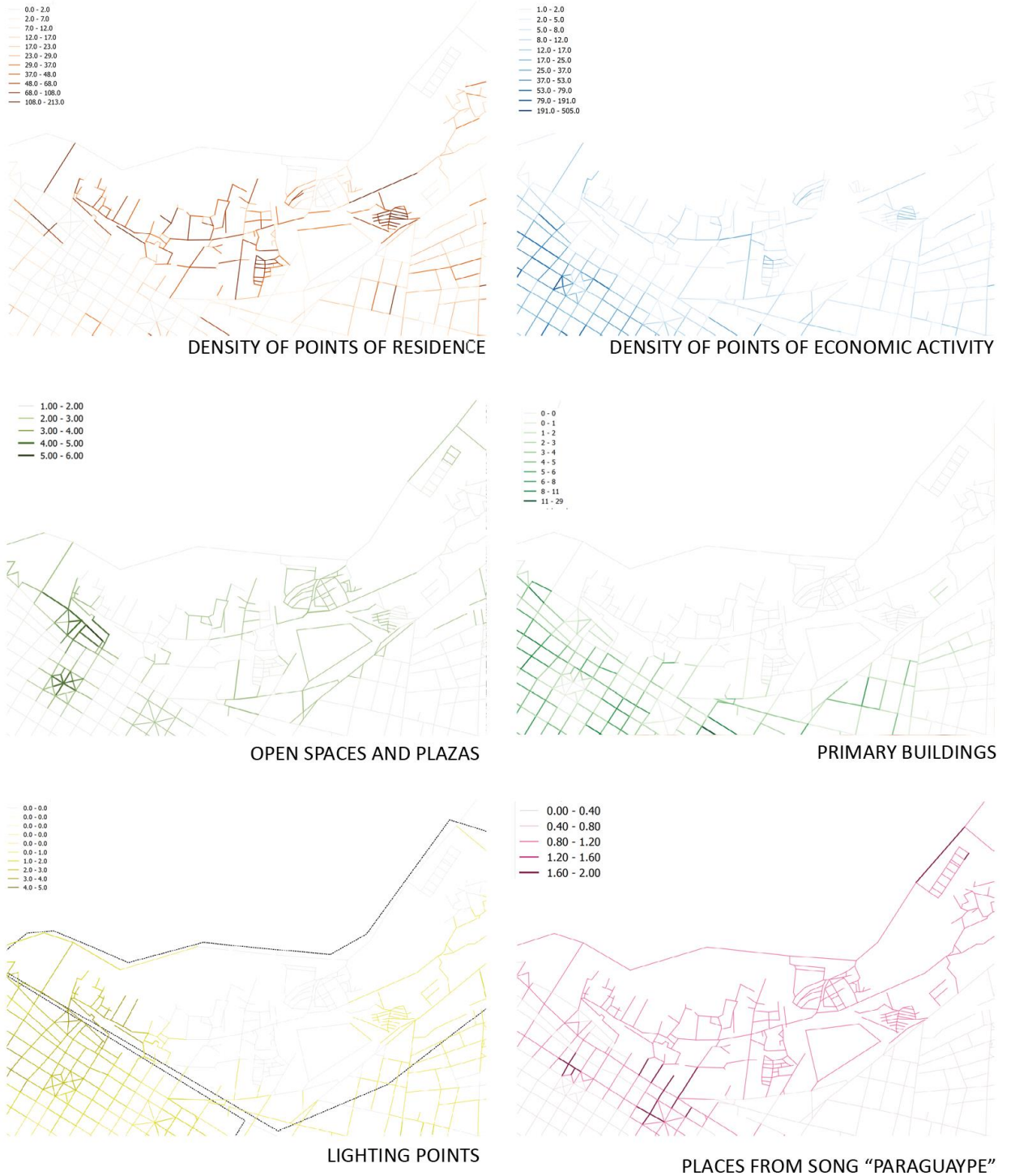


Fig. 89. Density maps showing concentrations of main urban memory layers across Chacarita.

5.2.6. Villa Morra

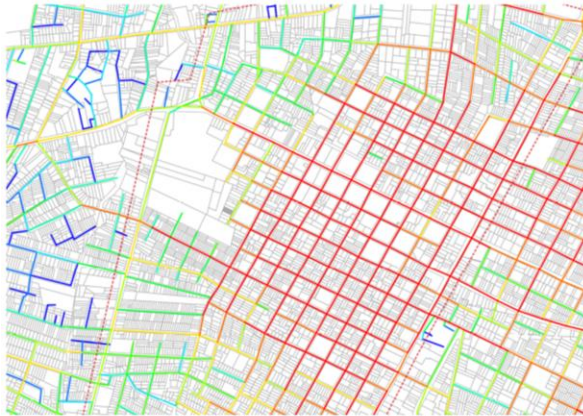
Villa Morra is one of the most traditional areas, being the first eastern centre of villas settlements, changing the direction of growth of the city from the South to the East. Already in the late 50s, it went from being a neighbourhood of romantic residences with the charm of the Asuncion suburbs to begin to be seen in its spaces, the first modern chalets in the 60s. That aspect continued its move, showing a new face with high rise and commercial buildings.



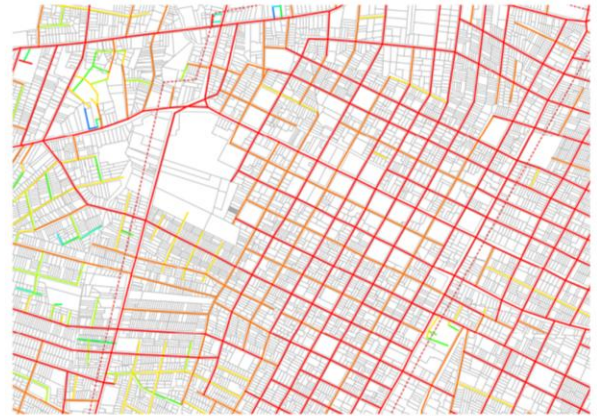
Fig. 90. Current view of Villa Morra. Available at <<https://embassyvisa.com/wp-content/uploads/2017/01/Barrio-Villa-Morra-Asuncion-Paraguay.-1024x426.jpg>>.

MAIN URBAN MEMORY LAYERS

Villa Morra



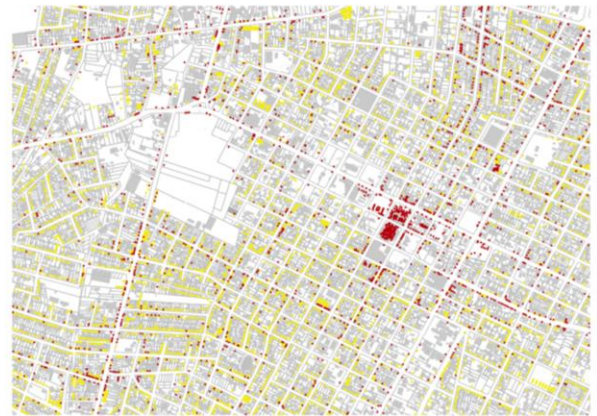
LOCAL SPATIAL CENTRALITY (NAIN R800)



GLOBAL SPATIAL CENTRALITY (NAIN RN)



BUILT FORM



CLUSTERS OF DENSITY OF POINTS OF RESIDENCE (YELLOW) VS POINTS OF ECONOMIC ACTIVITY (RED)



OPEN SPACES AND PLAZAS



PRIMARY BUILDINGS

Fig. 91. Fig. 52. Observation of main urban memory layers present on Villa Morra.

n°	Areas	Local integration	Global Integration	Economic activity points	Residence points	Heritage buildings	Important buildings	Open spaces	Built form
6	Villa Morra	1,54103	1,18933	1807	3815	19	1	6	Open

Table 18. Summary of memory elements in Villa Morra.

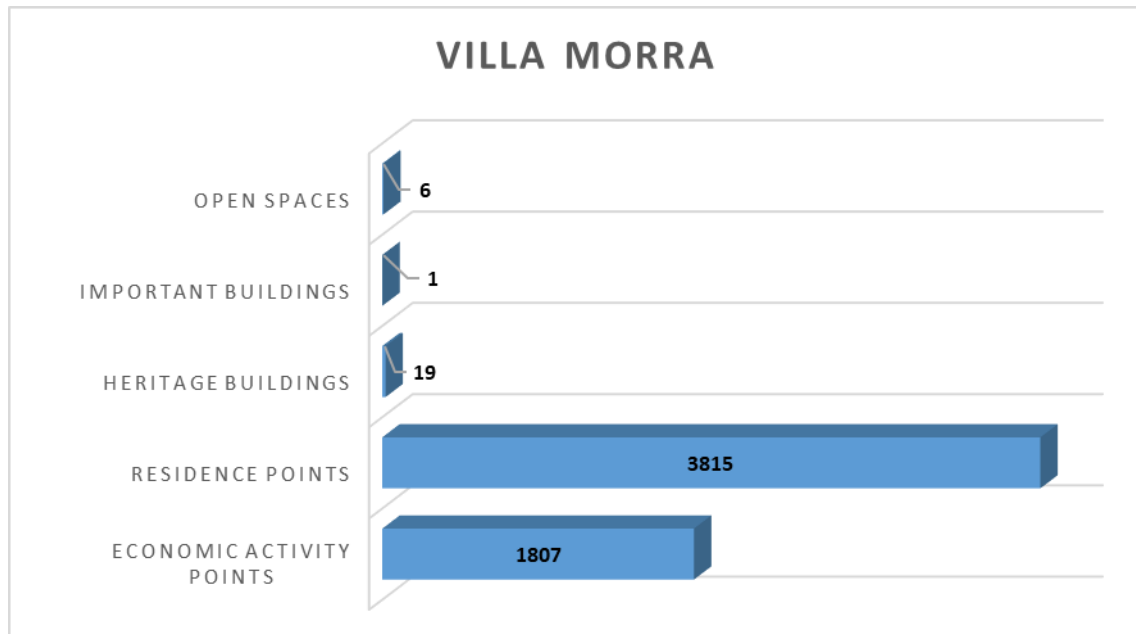
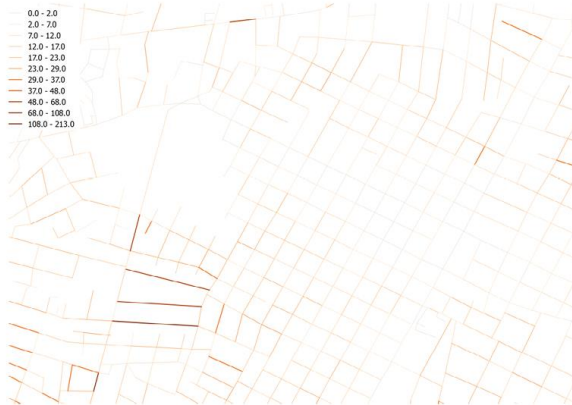


Fig. 92. Chart showing proportions of memory elements in Villa Morra.

A series of density maps shows an in-depth concentration of memory elements in Morra, to identify places with high concentration of elements.

DENSITY MAPS
Points per Segment- MAIN and SOFT URBAN ME-
MORY LAYERS
Villa Morra



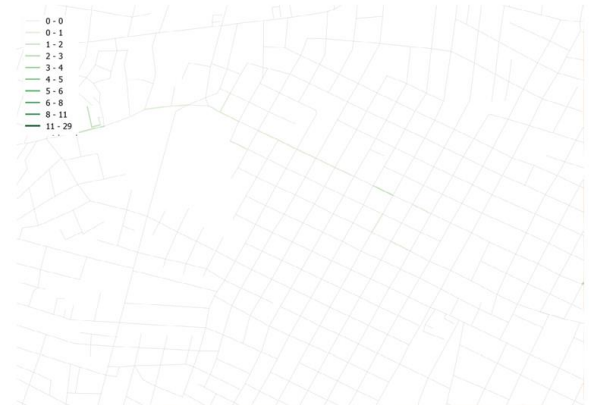
DENSITY OF POINTS OF RESIDENCE



DENSITY OF POINTS OF ECONOMIC ACTIVITY



OPEN SPACES AND PLAZAS



PRIMARY BUILDINGS



LIGHTING POINTS



PLACES FROM SONG "PARAGUAYPE"

Fig. 93. Density maps showing concentrations of main urban memory layers across Villa Morra.

An important cluster of public spaces defined by concentration of elements (fig. 90) is found in the neighbourhood, containing the most important cemetery in the city with one of the oldest churches; the Recoleta. In addition to this, the first shopping centres were installed here.



Fig. 94. Cluster of public space and primary buildings in Villa Morra: Mariscal López Avenue.

5.3. Summary of layers of collective memory across 6 main areas

To conclude this chapter, a crossed analysis and summary of the memory elements is presented in the charts and tables below, to describe the urban character on each area.

n°	Areas	Av Local integration	Av Global Integration	Economic activity points	Residence points	Heritage buildings	Important buildings	Open spaces	Built form
1	Historic Centre	1,84933	1,13713	5226	6398	1112	200	13	Compact
2	Obrero	1,76447	1,04984	1553	6682	4	5	13	Open
3	Sajonia	1,73698	0,97250	1585	8311	26	6	5	Open
4	Market 4	1,60109	1,17150	6305	8481	123	1	8	Compact
5	Chacarita	0,91602	0,92243	584	4947	69	0	14	Open organic
6	Villa Morra	1,54103	1,18933	1807	3815	19	1	6	Open

Table 19. Summary of memory elements (count and descriptive) in six study areas.

The local integration values sit high across the areas, with the lowest being the Chacarita.

The Global integration is high on all areas excepting Chacarita and Sajonia.

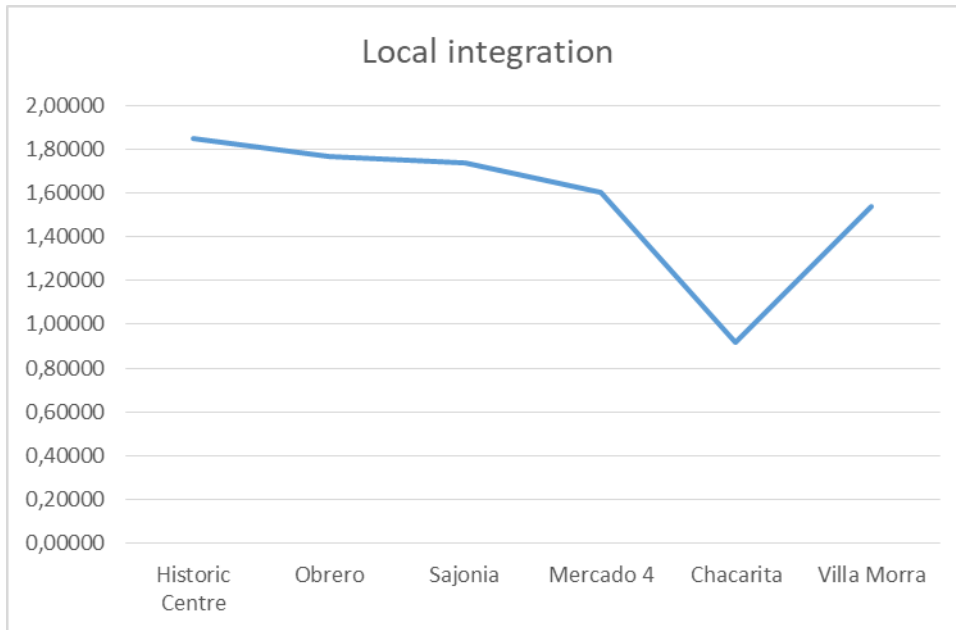


Fig. 95. Chart showing variation of local integration across the 6 study areas.

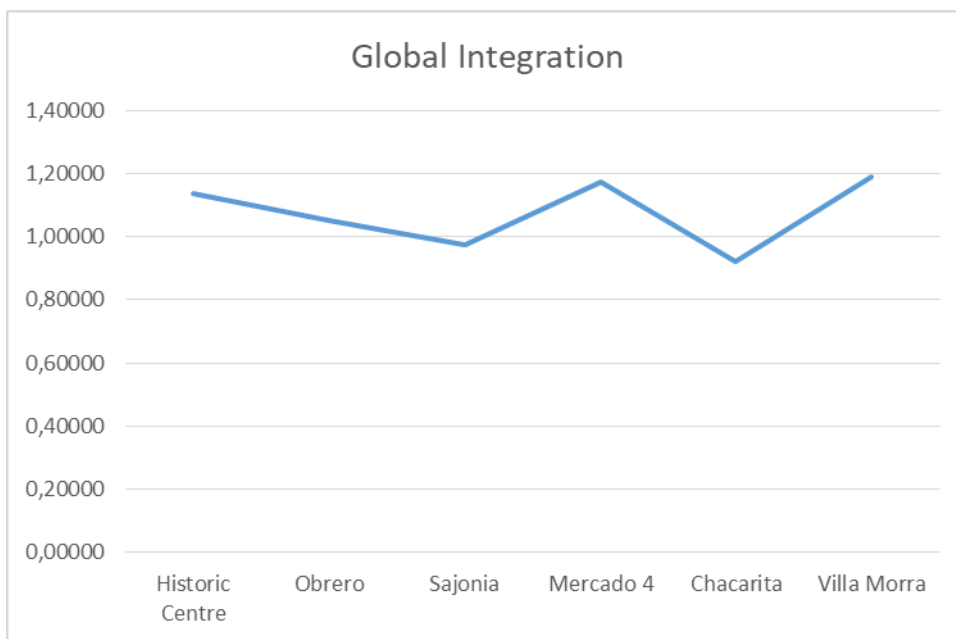


Fig. 96. Chart showing variation of global integration across the 6 study areas.

The Economic activity concentrates on the Historic Centre and Market 4; the residence densities concentrate on Obrero and Market 4.

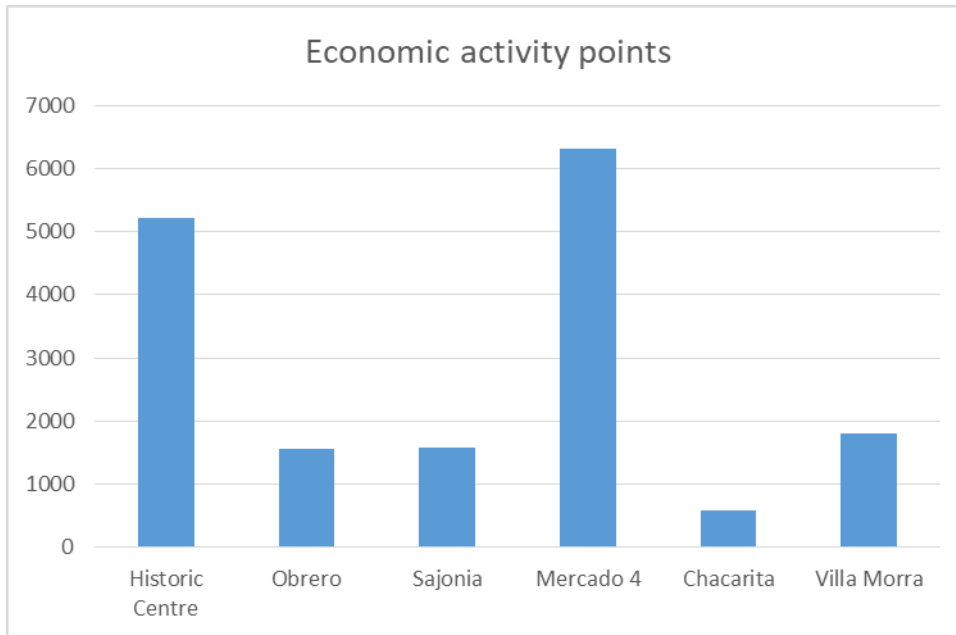


Fig. 97. Chart showing variation of economic activity points across the 6 study areas.

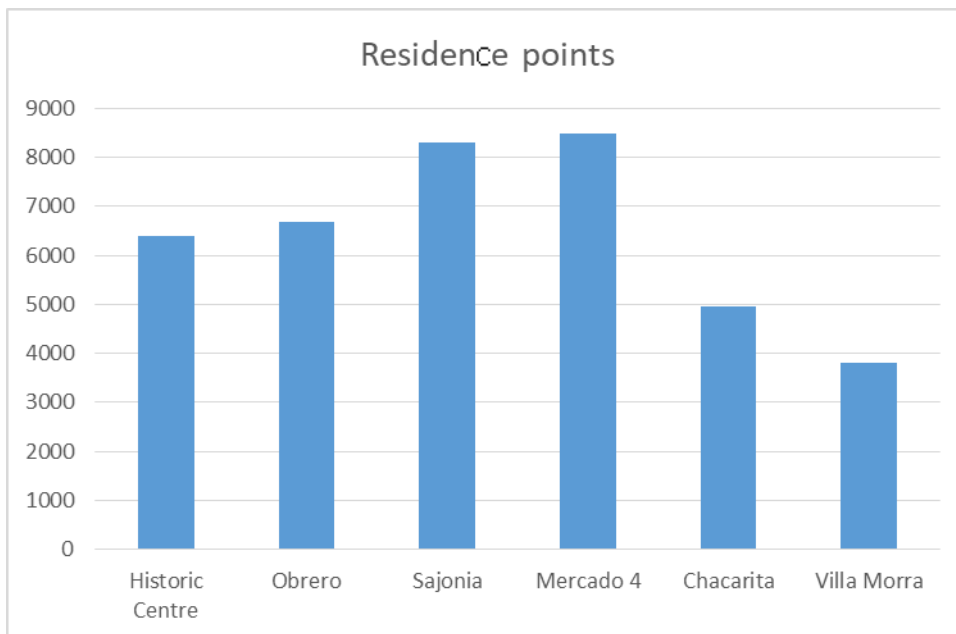


Fig. 98. Chart showing variation of residence points across the 6 study areas.

The Heritage and important buildings have a wide predominant presence on the Historic Centre.

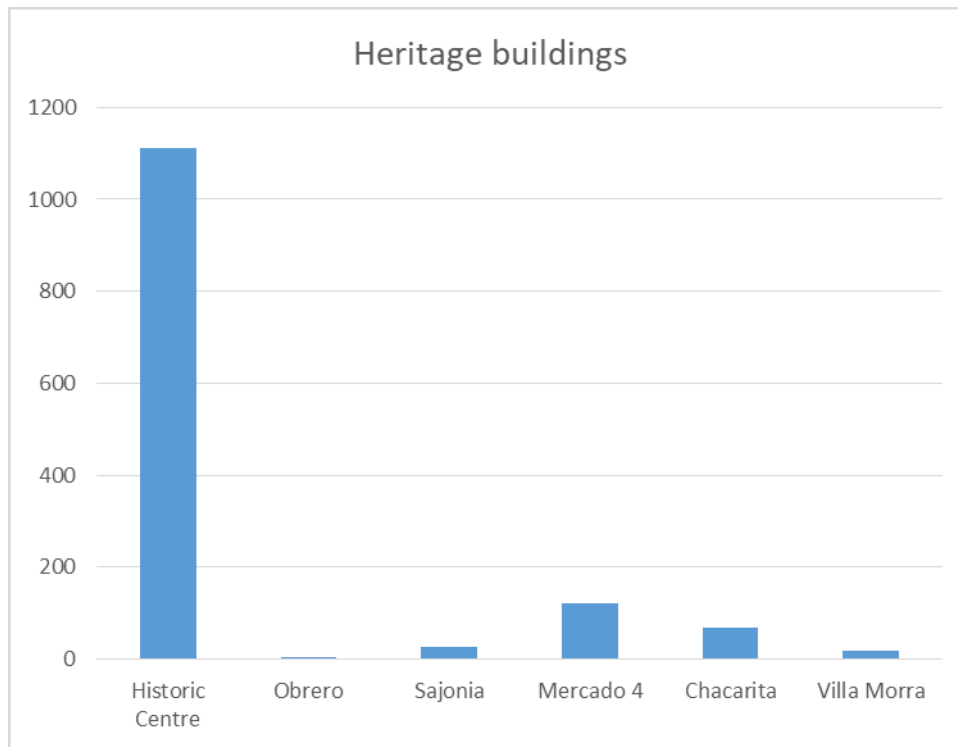


Fig. 99. Chart showing variation of Heritage Buildings across the 6 study areas.

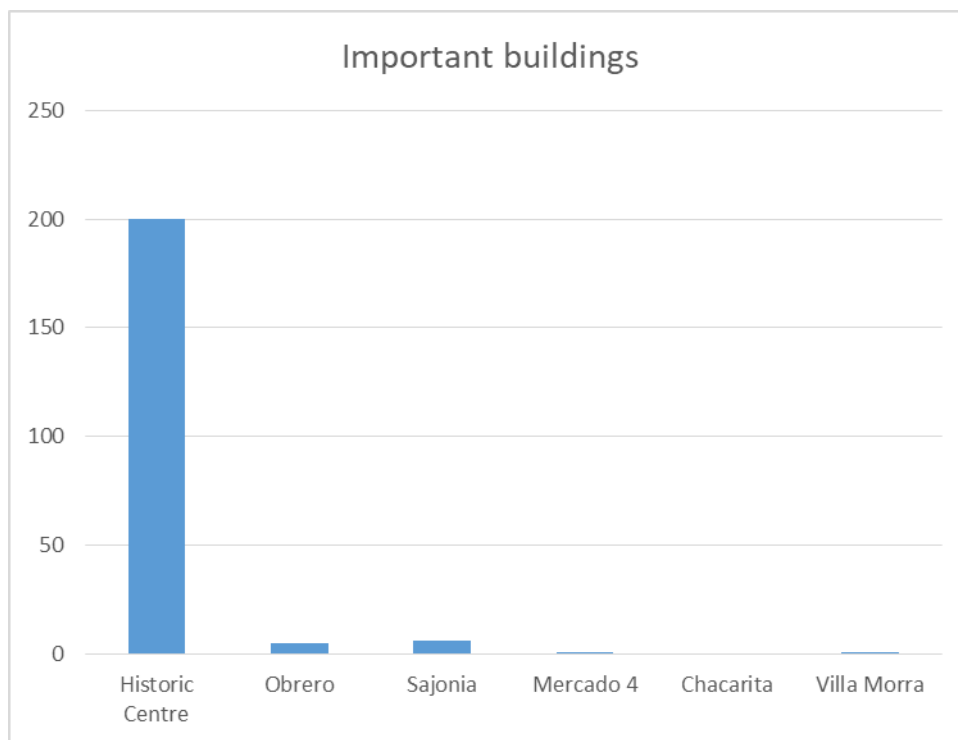


Fig. 100 Chart showing variation of urban important buildings across the 6 study areas.

The open spaces (fig. 98) scatter across the city, with higher concentrations of clusters on the Historic Centre, Chacarita and Obrero; nonetheless, the other areas contain plazas and small

scale spaces as well. The last chart (fig. 99) shows the variation of all elements across the six areas, revealing the character of each one.

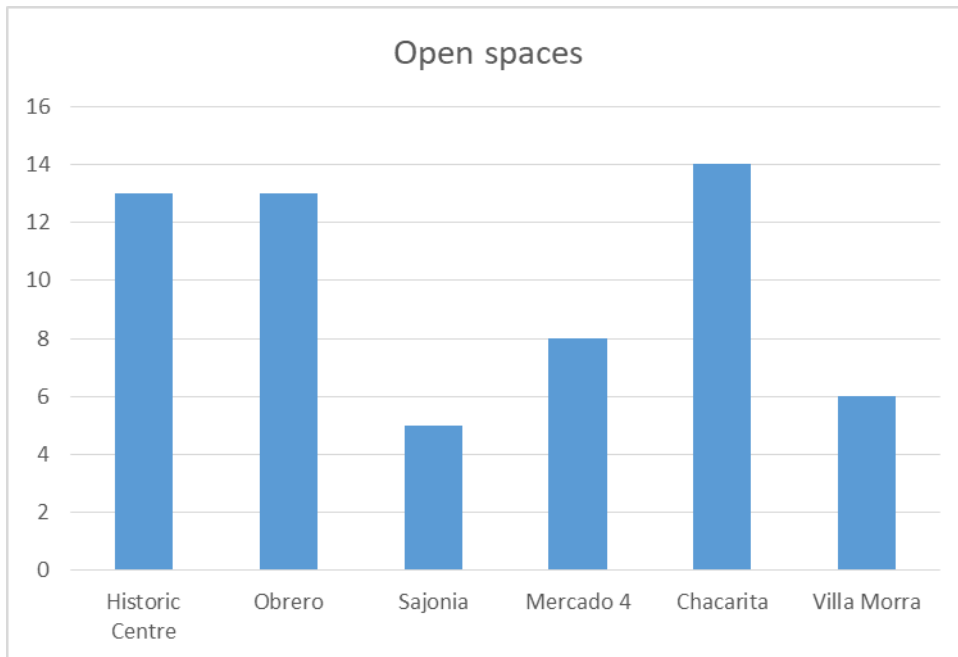


Fig. 101. Chart showing variation of open spaces and plazas across the 6 study areas.

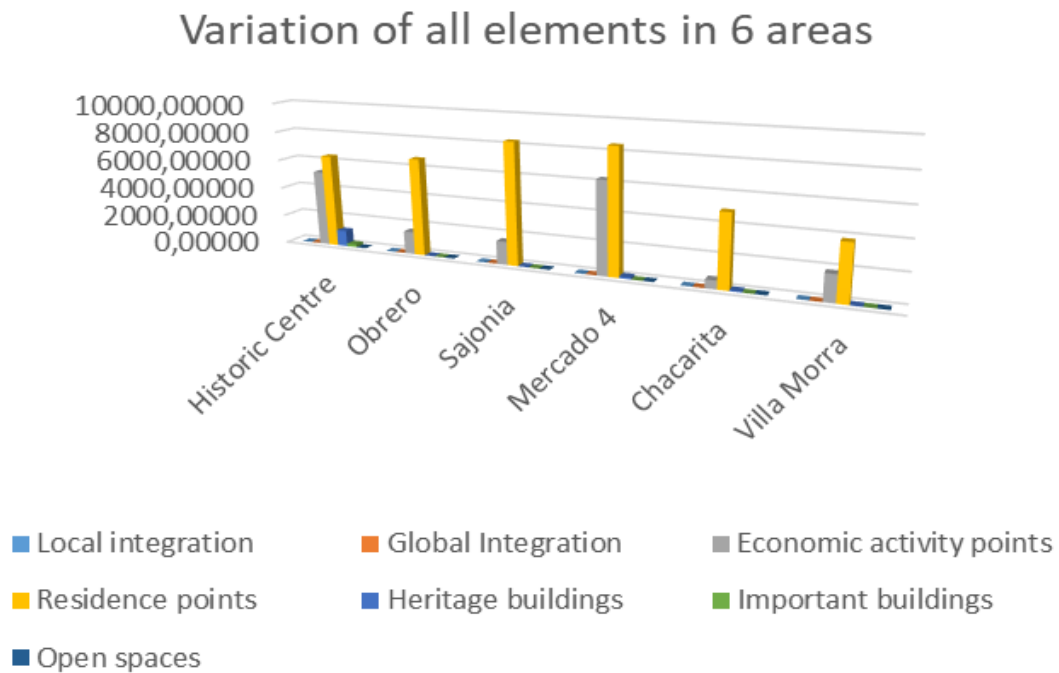


Fig. 102. Chart showing a summary of variation of urban memory layers across 6 areas.

CHAPTER 6. DISCUSSION AND CONCLUSION

6.1. The growth of the spatial structure in Asuncion: formation of urban areas of collective memory through time and across the city

The literature speaks of collective memory, not as a stationary concept but as a growing, multilayer complex of fabrics, aspects that we can recognise and that give character and sense to a place. For the first research question, the main proxy established in the literature review is the evolution of centralities. The growth of the spatial structure proved to explain the emergences of centres that had the potential for higher collective character, which is later confirmed by the model of urban memory elements in said areas.

We can see through the various analysis scales that from the intervention of Dr. Francia, the Historic Centre for its geometric regularity, as well as for its position as generator of the rest of the spatial structure that was added attached to it over time, begin thus to define a recognisable pattern of spatial growth.



Fig. 103. Integration radius 800 of all studied periods of Asuncion, in a diagram at same scale for structural comparison. Source: author.

The historic centre undoubtedly positions itself as the main centre and birthplace of the city's spatial structure. Interestingly enough, it maintains its importance in time in all maps, even after the drastic growth of the city in modern times, due to the regularity of its grid but arguably also because of the way the city has grown from this area by means of main arteries connecting this centre to the new ones, like Sajonia on the west and Villa Morra on the east (fig 101 and 102).

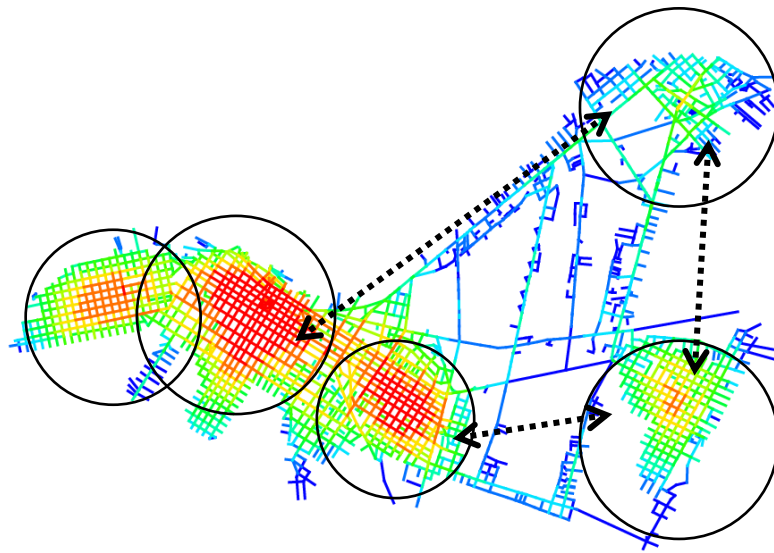


Fig. 104. . The model from the map of Criado (1910); arguably the best example of the growth process of the urban structure of Asuncion. Planned centres connected by skewering lines; then, the background network naturally appears filling the blank spaces in-between. Source: author.

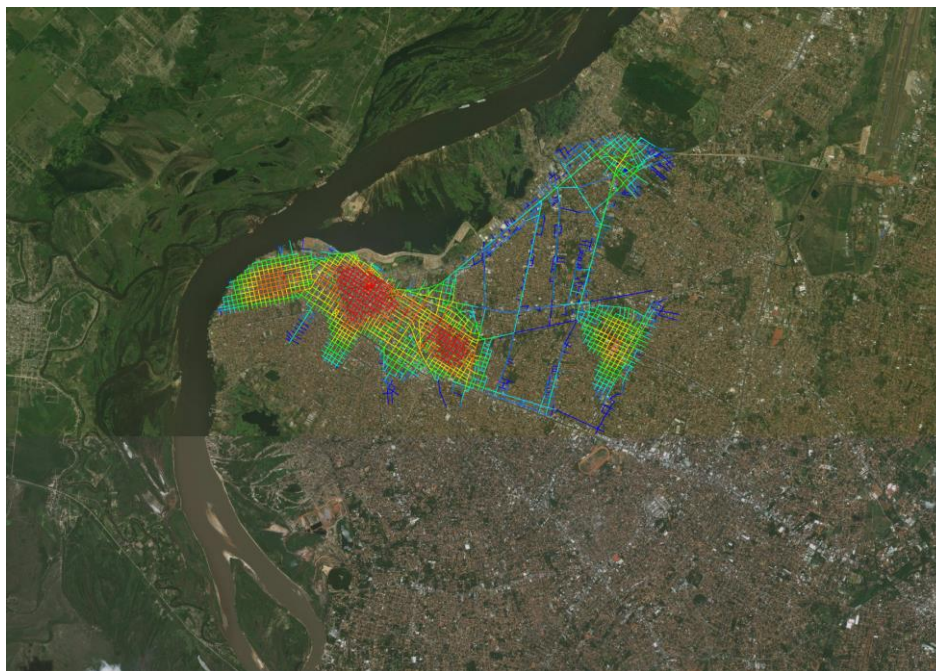


Fig. 105. The previous model superimposed with the aerial view of the current city. A logic of organic growth based on the emergences of central areas of orthogonal grid. Author.

The origins of historical centres in general in Latin America are based on orthogonal grids. The logic comes from the Indian laws (Rodríguez, 2005), and it is also proven to be one of the most efficient forms of land use planning. But what are its implications? Embedded in the "official" planning of Asunción, there is an important weight of this urban layout associated with order, with accuracy; however, there is a curious organic quality according to the growth of the city (based naturally on the movement, on the organic growth that occurs in practically all the cities of the world, even in those previously planned) that comes from a lack of praxis urban planning.

This organic growth creates a structure that has its own logic, in the case of Asunción, and could be provisionally considered as a criterion for cities in general whose centres originated from this simple grid: socio-economic needs and investments in accessibility - New streets and consequently laid out infrastructure- generate this growth, which in parts can replicate this original order of the grid, but which will grow and fill the gaps by means of tissue fragments, which can finally be presented as a background network to support these main roads. This would explain the results of the high integration values of these roads, as they are the main connecting or unifying system of the system, such as Eusebio Ayala, Mariscal Lopez or Spain) or generating in some cases new local centralities, according to their position in the system (as in the case of the streets surrounding Market 4). The multi-scale analyses of the current city helped revealing the emergence of these local centralities, consolidating the main six areas of study.

6.2. Urban memory layers: defining spatial centres of collective memory in Asunción.

For the second research question, it is argued that the collective urban memory also consist of the overlap of several particular areas with a defined character, these areas are in turn made up of a series of elements or layers that are modified and varied through said areas. There are components that are generalizable to any city, which will vary across these areas, and then there are specific features and elements only present on each one that distinguish them even further: these become the quality of each area. This quality then goes to define different typologies of the spatial or urban collective memory.

The overlapping elements of spatial collective memory showed an interesting located articulation of these elements across the selected areas (fig 103).

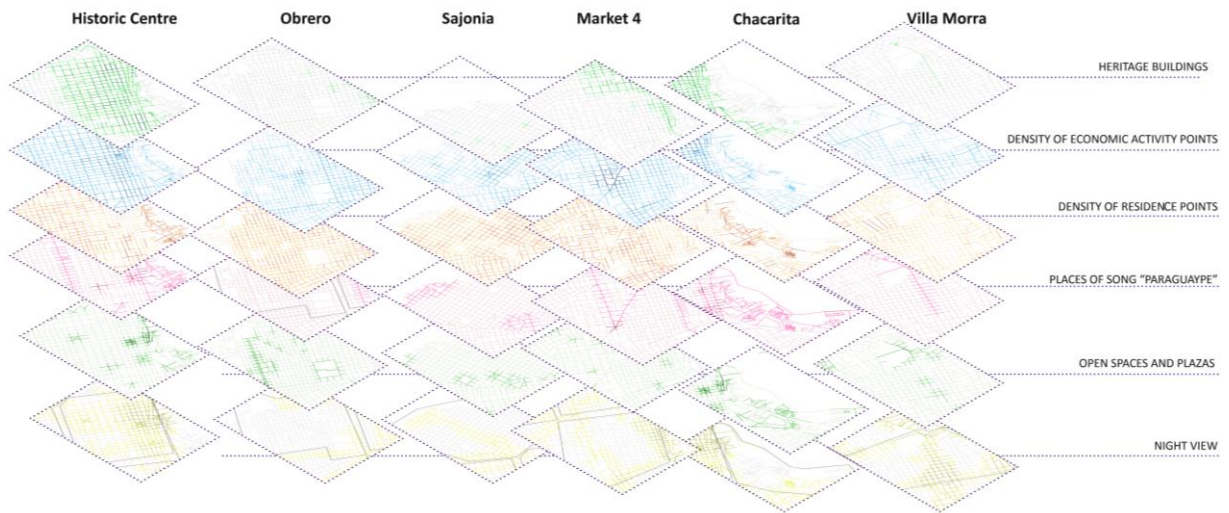


Fig. 106. The "palimpsest" of memory elements: a clustering overlap of the primary elements for each area in Asunción.

The analysis considered mainly layers of hard data (spatial centrality segment models, land use concentrations of economic activity, location of open spaces, morphology of street space and built form, and location of primary buildings) and softer data (places mentioned by folkloric songs, a policy plan for Asunción, the covers of buildings, lighting). This generates, in combination an emergence or "foreground" of the elements of collective memory that is useful to localise the conceptualised themes onto an analytical model.

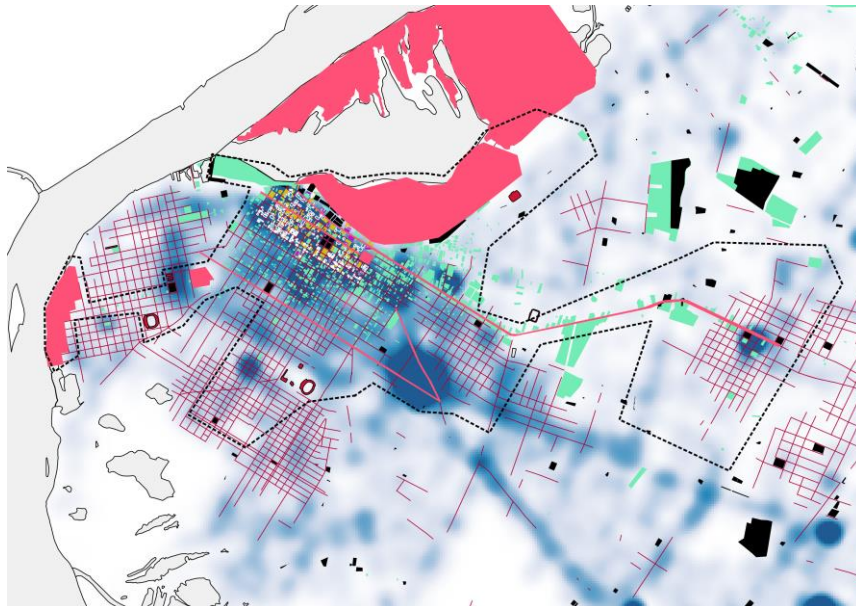


Fig. 107. The most important elements of spatial collective memory combined. The superimposed map generates an area of importance, where most elements are present.

There are a series of layers that are fairly related in the literature on the subject, but until now perhaps it has not been quantitatively systematized: Finding the relationship between these layers, and how they are concentrated and produced was vital to understand the proposed concepts.

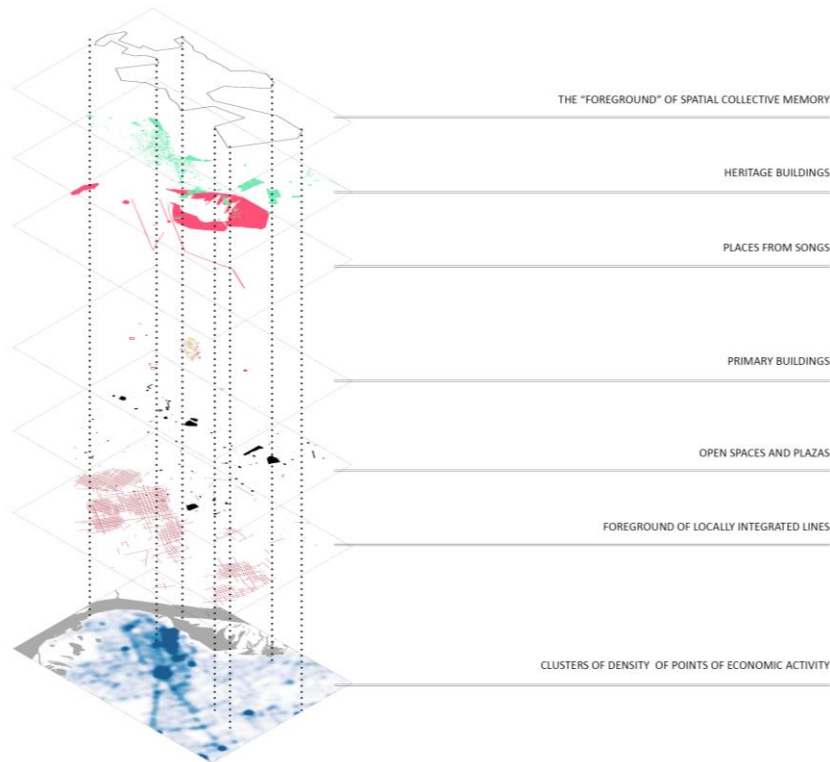


Fig. 108. The "palimpsest of elements" of collective memory that generates a foreground or area for the most important places of the city. Source> author.

A few possibilities for further exploration are presented next, as tentative summaries. One is an aggregated model of all elements, creating a data field of "Urban memory Value" for each segment to show the densities of the aggregated urban memory layers in one map (fig 106).

The other is a weighted model -by points of Heritage buildings or places mentioned in songs, as examples- as in fig 107. Both methods would need further investigation, as would an evaluation of each area by an index of the collective memory, explained on the next subchapter.

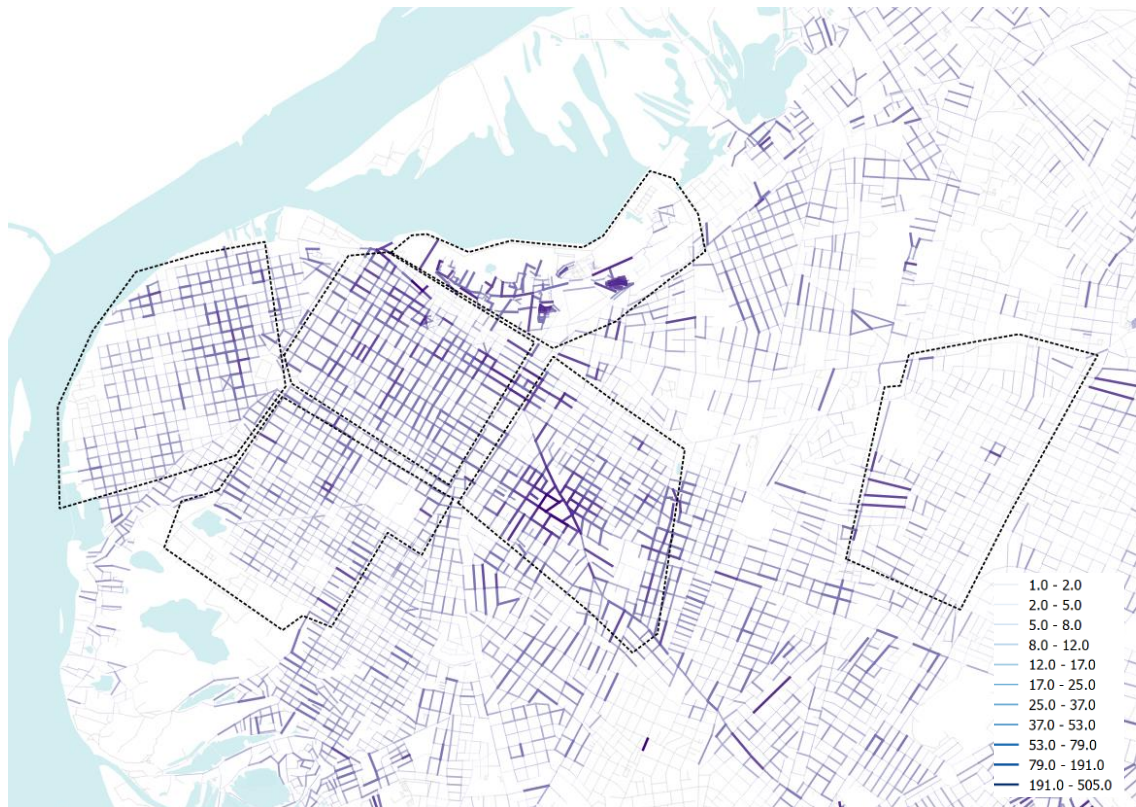


Fig. 109. A tentative model for densities of aggregated collective memory layers. Author.

Percentages	av NAINr 800m	av NAIN	Sum Residense points	Sum Economic activity points	Sum Heritage points	Sum Plazas	Sum Places from songs	Sum Lighting points	Urban memory Value
Historic									
Centre	15%	15%	2%	3%	18%	2%	3%	11%	19%
Obrero	14%	14%	3%	3%	9%	2%	5%	2%	15%
Sajonia	16%	15%	2%	5%	32%	3%	5%	2%	17%
Mercado 4	14%	15%	3%	3%	6%	3%	3%	6%	16%
Chacarita	13%	14%	1%	2%	1%	1%	4%	4%	12%
Villa Morra	14%	14%	2%	2%	1%	3%	4%	8%	14%
Other areas	13%	14%	86%	82%	34%	85%	76%	67%	8%

Table 20. A summary of elements by area and their aggregated urban value.

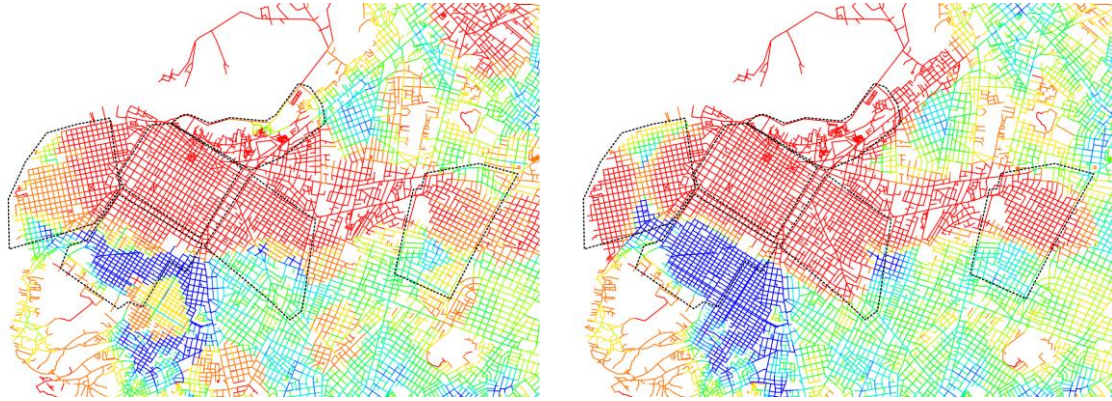


Fig. 110. Tentative models for Nain r800 weighted by points of Heritage buildings (left) and places from songs (right).

6.3. Towards an index of spatial collective memory

A simple index is put as an example of a method to asses each area according to the summary of elements present in them. This is a tentative method and should be subject of further investigation.

Index of spatial collective memory						
Urban Layers			Percentage	Points	Subtotals	Total
Spatial Centrality (100)	Historic centrality permanence		%	1-100	300	1000
	High Local Integration		%	1-100		
	High Global Integration		%	1-100		
Public space form (100)	Built form distinctivness		%	1-100	200	
	Location of plazas (global)		%	1-100		
Land use diversity (100)	Residence density		%	1-100	200	
	Economic activity density		%	1-100		
Primary elements (100)	Primary buildings	Heritage	%	1-100	300	
		Urban Importance	%	1-100		
	Cluster of plazas (local)		%	1-100		

Assessment of each area

Areas of study	Spatial Centrality (100)			Public space form (100)		Land use diversity (100)		Primary elements (100)			totals
	Historic centrality permanence	High Local Integration	High Global Integration	Built form distinctivness	Location of plazas (global)	Residence density	Economic activity density	Heritage Buildings	Urban Important buildings	Cluster of public space (local)	
1- Historic Centre	60	20	19	25	22	17	31	78	93	30	395
2- Barrio Obrero	2	19	16	10	22	17	9	5	2	20	122
3- Sajonia	10	18	15	10	8	22	9	2	3	20	117
4- Market n°4	10	17	18	20	14	22	37	9	1	5	153
5- Chacarita	10	10	14	30	24	13	3	5	0	5	114
6- Villa Morra	8	16	18	5	10	9	11	1	1	20	99
totals	100	100	100	100	100	100	100	100	100	100	1000

The idea of the index is to test “how much” of these elements is actually present in each area, so in accordance that these elements are important for the definition of collective memory, which area is more representative for the concept.

6.4. Limitations and new research lines to explore

The urban collective memory represents countless elements, layers that are distributed throughout the city and that vary in importance for different groups or social actors. Greater rigour would require precise studies on the heritage diversity present in Asunción, which, similar to other Latin American cities, presents a true palimpsest condition in which buildings from all periods of the city can be found on the same street. This was also possible as there were no official delimitations of a centre or fragments of the city with regulation of historical heritage; the delimitation of the well-known Historic Centre has always been blurred, impregnated in the memory of the Asuncenos but neglected by public policies. In recent years it has been revalued thanks to the CHA Plan, a comprehensive master plan that proposes its enhancement.

Undoubtedly there are many urban aspects that collaborate in the conformation of the collective memory that were not taken into account for this study of Asunción: an example could be the impact of the natural environment, such as the different tree species such as orange trees or lapachos, mentioned in songs and always present in romantic descriptions of Asunción, or the river and its influence on the banks of the city, barely mentioned in the ethnographic references of this research, the itinerant sellers of natural herbs used for traditional Paraguayan drinks such as “mate” and “tereré” that are scattered and encounter by Asuncenos daily throughout the city.

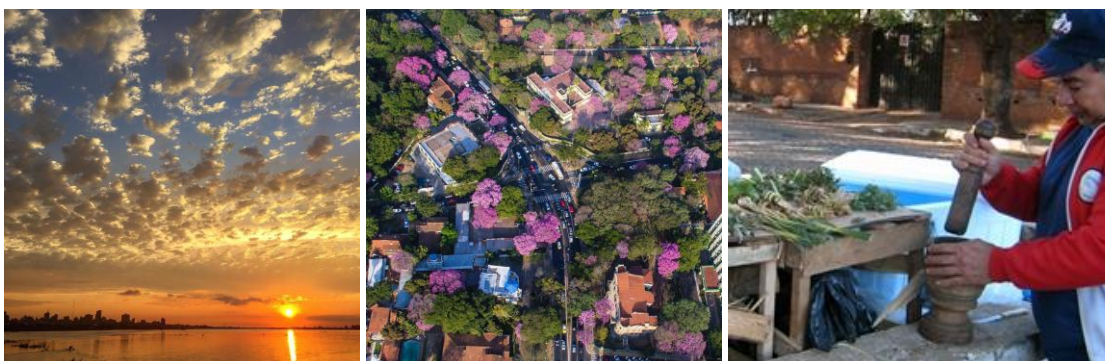


Fig. 111. Soft landscape and urban mobile elements that are difficult to allocate, but that are embedded in the historic tale of Asuncion (the sunsets over the river, the lapacho trees, the itinerant informal sellers of Paraguayan herbs). Source: Fotociclo archive, 2016. Available at <<https://medium.com/@fotociclo/en-fotos-el-2016-en-las-calles-de-asunci%C3%B3n-f65d3a165c48>>.

In fact, any layer that is considered relevant enough could be added to the model, to increase its specificity and better understand the fragments that are truly intrinsic to Asuncion. Within the time scope of this research it was intended only to start a process of constructing a basic but diverse model for the different aspects that make the urban collective memory.

6.5 Conclusions

The spatial growth process of Asuncion led to a specific logic of generation of patterns of centrality. The city is a combination of structures, with regular rectilinear grid centres arranged radially from the "centre" (not geometric but of origin), completed with certain pieces of fabric around these areas and the main roads; these two phenomena are consistent with the characteristics of the foreground and the background proposed by Hillier (2009).

Within the aspects of collective memory, the study shows that the spatial structure can tell us a lot about socio-economic phenomena how the city "came to be" and how it developed and grew; furthermore, which are the most important places for the evolution of the collective memory of its society.

There are several layers that collide to create the complex substrata of the spirit of place in Asuncion. The main six areas studied are the ones that represent more accurately the places without Asuncion would lose its character and spatial identity. There is a pattern for the spatial centrality and the different urban layers and localities, in the process that leads to the emergence of these areas; it could be concluded that urban memory takes place within the spatial logic of co-presence. In that, more to-movement generates more interaction and solidifies the social conditions for permanence. In Asuncion, the spatial clusters of different hard and softer layers generate the framework for the development of this character for the city, complementing each other.

These findings could be considered as a starting point to filling the gap in the analytical understanding of centres of collective memory, generating an approachable modelling method for city planning and further academic research.

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