

ABSTRACT

Title of Thesis:

“PUERTAS”: THE MEANING OF
GATEWAYS AND A DESIGN PROPOSAL
FOR THEIR INTERPRETATION IN CASCO
ANTIGUO, PANAMA

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“Puertas”, translated as portals or gateways, give residents and visitors the first visual images of the city. Their importance depends in the way they connect two areas, as well as in the way they give identity to the city as a whole. With the expansion of the city, the Historic District of Panama (Casco Antiguo) lost part of its defensive wall and its two original city entrances: Puerta de Tierra (Land Gateway) and Puerta de Mar (Water Gateway). When these elements were destroyed, the city lost part of its physical boundaries and part of its identity as a fortified colonial settlement. This thesis is a historical and design investigation into the role of city entrances and how their interpretation in Casco Antiguo can improve the visitor’s experience. The reinterpretation of these entrances will also mark the boundaries of the Historic District that function as meaningful links between Casco Antiguo and its surrounding areas.

“PUERTAS”: GATEWAYS MEANING AND A DESIGN PROPOSAL FOR THEIR
INTERPRETATION IN CASCO ANTIGUO, PANAMA

By
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2012

DEDICATION

To my daughter, Aby; you are a fountain of joy; let your light shine to the world...

Para mi hija, Aby; eres una fuente de alegría; deja que tu luz brille en el mundo...

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Hildegard Vasquez and Daniel Young, I learn with you the importance of preserving, our historic town, Casco Antiguo.

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I. INTRODUCTION

The fortification of Casco Antiguo is one of several military constructions that were built in Panama by the Spanish to protect their territories from the attacks of pirates. Its Puertas controlled access from the inside to the outside and from the outside to the inside. The puertas were more than military structures; they were symbols of power and domain; places that provided an identity to the city.

To develop a proposal for the recovery of the Puertas of Casco Antiguo is a very complex topic because it needs to satisfy two different poles. One is the need of a contemporary city and the other is the memory of the historic city. The conjunction of these two poles is going to be a key factor that will guide the design proposal of this project.

To achieve this goal the research has been conducted in four steps. The first step was to develop a theoretical framework for the importance of the Puertas as elements in the cities. The second task was to study the original configuration of the Casco Antiguo and the evolution of Panama City. The third endeavor was to analyze the current condition of Casco Antiguo and establish the limitations and potentials of the site. Finally, these investigations have led to my design proposals for three puertas for Casco Antiguo.

II. GOALS & OBJECTIVES

Justification of the Project

With the expansion of the city, the Historic District of Panama (Casco Antiguo) lost part of its defensive wall and its two original city entrances: Puerta de Tierra (Entrance to Land) and Puerta de Mar (Entrance to Sea). When these elements were destroyed, the Historic District lost part of its physical boundaries and part of its identity as a fortified colonial settlement. Today, also as a result of the expansion of the city, Casco Antiguo may experience another major level of disturbance, the construction of the Coastal Beltway (a high speed road that has been surrounding Panama Bay). This may negatively affect the character of Casco Antiguo or it can be used as an opportunity to integrate it with the new city.

Goal

Based on a historic study of Casco Antiguo and an analysis of its current condition, the goal of this thesis is to develop a design proposal for the interpretation of Puertas in Casco Antiguo's city fabric.

Research Objectives

- Define the concept of Puerta in the city.
- Based on its historical character and iconic presence, establish and argue for the revival of Puerta.
- Based on Puerta's typology:
 - Identify their relationship with circulation systems

- Analyze its spatial interaction with its context
- Identify its visual components
- Using a chronology of historical maps, the historical functions of city entrances in Casco Antiguo were analyzed as were the relationship to the city context, and the changes over time.
- Analyzed the character of the surrounding communities of Casco Antiguo and how the city entrance relates to them.
- Based on the research results develop design criteria for the project.
- Identified site constraints and potentials
- Based on a chronological analysis of historical maps, analyze the historical functions of city entrances in Casco Antiguo and how they, in relationship with the city context, have been changed over time.
- Analyzed the character of the surrounding communities of Casco Antiguo and how the historic city entrances relate to them.
- Based on the research results, develop design criteria for the project.
- Identify site constraints and potentials.

Design Objectives

- Respond to the scale and character of the sites.
- Propose design elements that support and enhance the presence of the city entrance.
- Propose three design solutions for the reinterpretation of city entrances to Casco Antiguo that connect it to the surrounding neighborhood.

Deliverables

Design Phase

- Based on level of intervention; develop three possible design solutions for District Master Plan that show connectivity of the propose gateway with the Coastal Beltway and the District. This should include”
 - Plan view
 - Sections/elevations
- Develop three redefined city entrance proposals
 - Plan view
 - Section/elevation
 - Perspective

III. LITERATURE REVIEW

Puertas: Definition and Meaning

The Dictionary of La Real Academia Española defines ‘Puerta’ as “*an entrance to a city that was once an opening in a wall and now is a **place for access to that city***”. It comes from the Latin ‘porta’: "to pass through". In English language it is door, gateway or entrance.

According to Ivan Illich, in the classical world of the Western culture, the location of a *porta* was part of the ritual in creation of a town. In this ceremony “two white oxen are hitched to a bronze plow, the cow on the inside, drawing the plow counter clock wise, thus engraving the *templum* into the soil. The furrow creates a sacred circle. Crossing this furrow is a sacrilege. To keep the circle open, the plowman lifts the plow when he reaches the spots where the city gate will be under civil law. At the *porta*, *domi* (refer to the in-dwelling space) and *foras* (refers to whatever lies beyond the threshold) meet; the door can swing open or closed.” (Illich 1985, 13-14) It shares the symbolism of the threshold the communication between one world and another. Emil Benveniste compares the “threshold” (which is perceived as an invisible reality) and the “door” that it lies between “outside” and “inside”, he concludes that these two meanings are complementary. “*But the door or gate loses its meaning when it ceases to be the point of encounter between two worlds.*” (Illich 1985, 20)

Thomas Thiss-Evensen describe that in it *“relays the experience of entering and in this lays an existential description of transition itself – the distance between qualitatively difference places-between inside and outside.”*

For many visitors, the Puerta is the first legible image of a city that welcomes them and orients them in the physical environment. For many residents, a Puerta is a symbol, a reflection of a particular historic period or event. In some walled cities the wall has been demolish but the gateway remains; in other scenarios a gateway has been erected as celebratory triumphal arches along roadways or at the water’s edge to demarcate entry into their domain, or to welcome dignitaries and their processions.

Typologies of Historic Puertas in Cities

“The world ‘type’ represents not so much the image of a thing to be copied or perfectly imitated as the idea of an element that must itself serve as a rule for the model... The model, understood in terms of the practical execution of art, is according to which one can conceive works that do not resemble one another at all. Everything is precise and given in the model; everything is more or less vague in the type. Thus we see that the imitation of types involves nothing that feelings or spirit cannot recognize...” Quaternere de Quincy (Aldo Rossi 1984)

The development of typologies in this study is not to propose designs that imitate other Puertas, but to understand how they interact with the surrounding areas and how the configuration of the space can give different qualities to the perception of Puertas. Lynch establishes that *“Nothing is experience by itself, but always in relation to its surroundings...”* Based on this, three types of Puertas have been established in relationship with its physical environment: Puertas in the Limits, Puertas in Juxtaposition, and Iconic Puertas.

It is also interesting to observe in the typology study how the pedestrian and vehicular circulation interacts with the object of a Puerta. If the Puerta is small in scale its access may be limited to the pedestrian or to slow car circulation. If the Puerta is monumental, usually it aligned with important vehicular roads, but not necessary with vehicular traffic that passes through it or many times surround it.

1. Puertas in the Limits: Walls

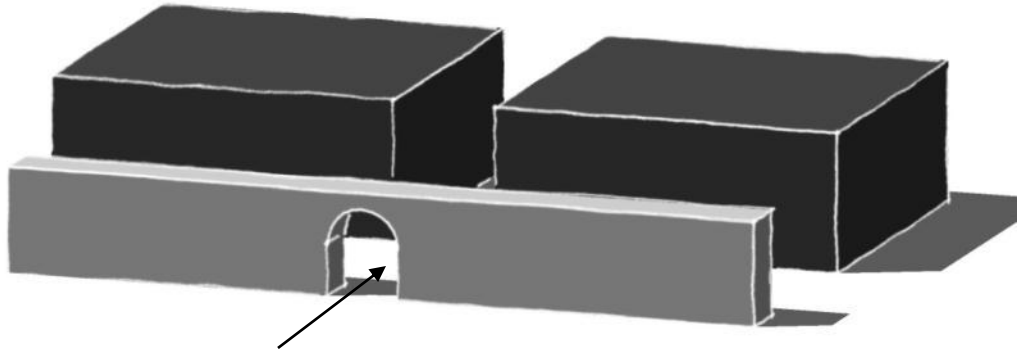


Figure 1 Diagram of Puertas in the Limits. source: Author

Puertas in fortified cities exist in relationship with the wall. The wall was the impenetrable limit with the purpose of protection or isolation. (See figure 1) The Puerta was the link and a place of exchange from the inside to the outside. There was an active defensive purpose in this typology.

An example of this is Puerta de Tierra de Cartagena, Colombia, known as the “Gate Bridge”. Jorge Sandoval’s argument is that it would be impossible to talk about the city of Cartagena de Indias without mentioning the Gate Bridge, as it is and as it has been the main strategic reference point for residents and visitors, and the national and international emblem of Cartagena. The Gate Bridge and the plazas and the park land that surround it clearly articulate the meaning of “puerta” to include the object as well as the landscape space that frame it.

2. Puertas in Juxtaposition

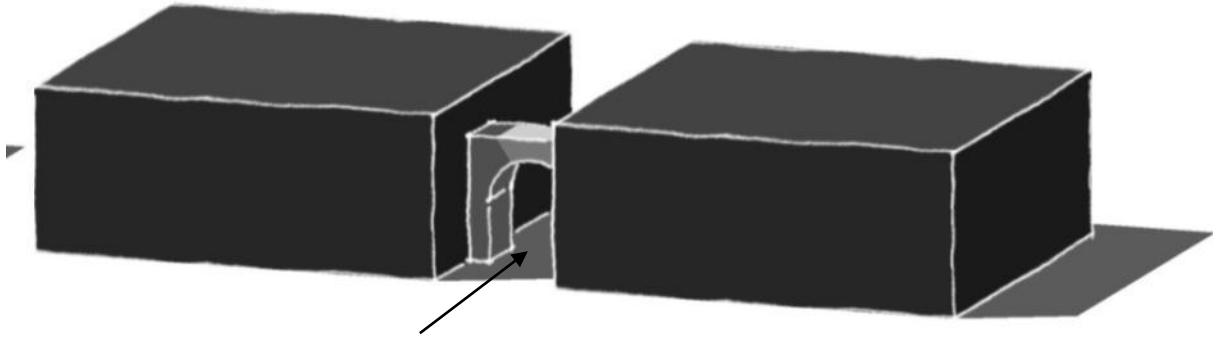


Figure 2 Diagram Puertas in Juxtaposition source: Author

In this typology the image of the Puerta is integrated with other built environment. (See figure 2) Usually this type of Puerta evolved from the walled city in peace times or when the military strategies for the protection of cities changed. The façade that met the outside is more vulnerable. Scale, symmetry and the position of the gate makes a significance difference in the way this space is experienced. For example, notice the feeling of enclosure and mystery of the Puerta of Aceite in Sevilla. This puerta has a human scale in an asymmetrical position to a curvilinear road. People pass through it to discover the space behind it. Another example is gate to Rua August in Lisbon. This puerta is monumental. It is aligned with a straight street and there is a strong symmetry in the composition of the place.

In conclusion the perception that of this type of puerta varies in relationship with, scale, form and views.

Iconic Puertas:

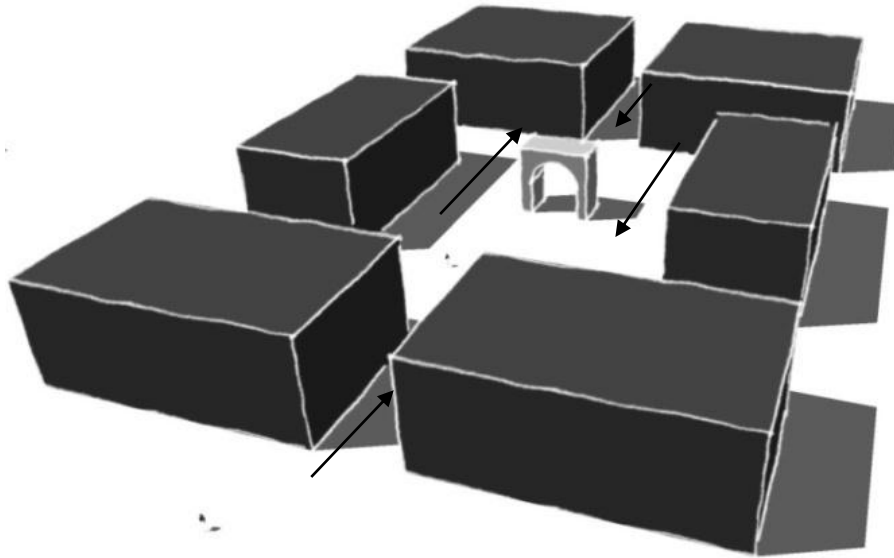


Figure 3 Iconic Puertas source: Author

There is no military role in this typology. This type of Puertas can be found isolated from historical context and standing alone as an icon. (See figure 3) They are landmarks in the city with a monumental scale and their importance belongs in the meaning they convey. They function as the nucleus of plazas and public spaces. An example of this is the Grande Arch of la Defense. A great national design competition was launched in 1982 to design a 20th-century version of the Arc de Triomphe. Grande Arch of la Defense is a monument to humanity and humanitarian ideals rather than military victories. It is located in the historic district and aligns with one of the most important axial boulevards of Paris.

Puertas: Evolution

It is important to distinguish that a “Puerta” is a **place** that varies its architectural form and space even though we usually recognize it as a gate, as we did in the previous section, its physical expression may change over time, space and culture. Tadani attributes the origin of Puertas as unique places in ancient cities entered through fortified gates. In medieval cities, Lewis Mumford describes them as “the meeting places of two worlds the urban and the rural, the insider and the outsider” (Mumford 1961, 304). In historic cities, the media of transportation was by foot or by horse and this shaped the experience of arrival very differently than one made by car or train. Tadani says that with the advent of trains, the gateway experience was transformed to an enclosed station building that was a welcoming threshold, often a grand civic space that was the pride of the city, such as Union Station in Washington, DC.

Another method of arrival is by water. In many cities this arrival was as important as the arrival from land. Puertas were also built on the water’s edge to welcome visitors to its shore. Sometimes the geographical form of the harbor served as a gateway that made a strong first impression of the city. An example of this is Gateway of India in Mumbai, built in early 20th century to commemorate the visit of King George V and Queen Mary to India.

Automobile highways transformed the arrival experience. Now there are so many roads and so many access points, nevertheless, cities have boulevards, parkway and other “great streets” that celebrate the entry of visitors to their cities. An example

of this can be La Rambla that bisects and marks the beginning of the Gothic Quarter in Barcelona.

Finally, an interesting approach is the “Gateway Park” in Taichung, Taiwan. It was limited not by a wall, but by an airport. A design competition looked for solutions where the airport transforms into a park that can function as the linkage space between two neighborhoods of the city.

Le Corbusier said that “towns are born, and grow throughout the ages; they deform under the assault of life” (Corbusier 1947). This statement can also be applied to gateways. They change and deform over time as do cities. Originally gateways were an opening in the wall where people entered the city, but over time when the walls were demolished the city defined new boundaries and new places and ways of arrival. It can be concluded that through time, the location, function and shape of gateways have been influenced by two factors: transportation networks (urban movement) and the expansion of the city (physical boundaries, due to changing demographics). (See figure 4)

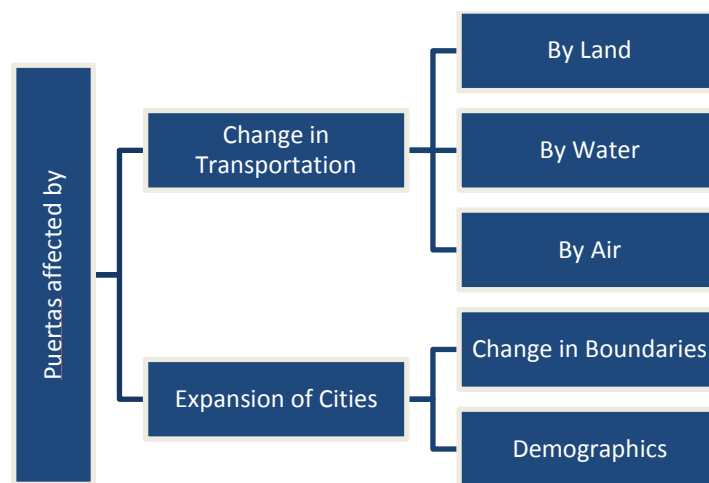


Figure 4 Factors affecting Puertas source: author

Analysis of Puertas in the City

As previously mentioned, in this century cities have many options of arrival: by foot, boat, train, car, and airplane. Each of these transportation modes implies different, speeds, roads, experience. We have many options, but it seems that the act of entering and welcoming visitors to cities has lost its important. This fact raises the question if Puertas are necessary in the cities?

In his book “The Concise Townscape”, Cullen mention that the “Human is aware of its position in the environment” there are unspoken words that people utter to themselves when they move “I am inside IT”, “I am entering IT”, “I am in the middle of IT”. Puerta is that place where people say “I am entering IT”. Without that experience, people move from being outside IT to be in the middle of IT. Compare the experience of visitor entering Washington, DC by car from the Arlington Memorial Bridge and entering by car from New York Avenue. Memorial Bridge functions as a Puerta. Visitors know (without the necessity signage) that they are entering the city. If they are travelling along New York Avenue, they read the sign “Welcome to Washington, DC”, but there is not a clear image that supports that message until they see the Capitol.

Kevin Lynch says that “the urban landscape, among its many roles, is also something to be seen, to be remembered, and to be delight in” (Lynch 1992), if this is still true and if Puertas are important legible images of the city, then there is still hope for their revival in the urban landscape.

IV. AREA OF STUDY: CONTEXT & HISTORY

Location



Figure 5 Panama Country in the Continent
source: author

Panama is only 30 miles [50km] wide at its narrowest point and is the narrowest part of the Americas. (Britannica Online Encyclopedia n.d.) The country from colonial times has been a place of transit, a connection between the Atlantic and the Pacific. (See figure 5) This is why the country grew with two major cities:

Colon City by the Atlantic Ocean and

Panama City by the Pacific. (See figure 6)

Casco Antiguo is located in Panama City. To the south is the entrance of the Panama Canal, and the new City has grown in the North. To the northeast is the neighborhood of Santa Ana and in the southeast is the neighborhood of el Chorillo. Both first developed in the colonial period, known as el Arrabal, the area outside the fortified city. (See figure 7)

In terms of the climate, Panama has an eight-month rainy season and a four-month dry season. It has a tropical climate with an average temperature of 80 degrees (27°C) and an annual rainfall of 105 inches (2,600mm). It therefore has the ideal conditions for the growth of rainforest, similar to the conditions along the Amazon River in Brazil. (Autoridad del Canal de Panamá n.d.)

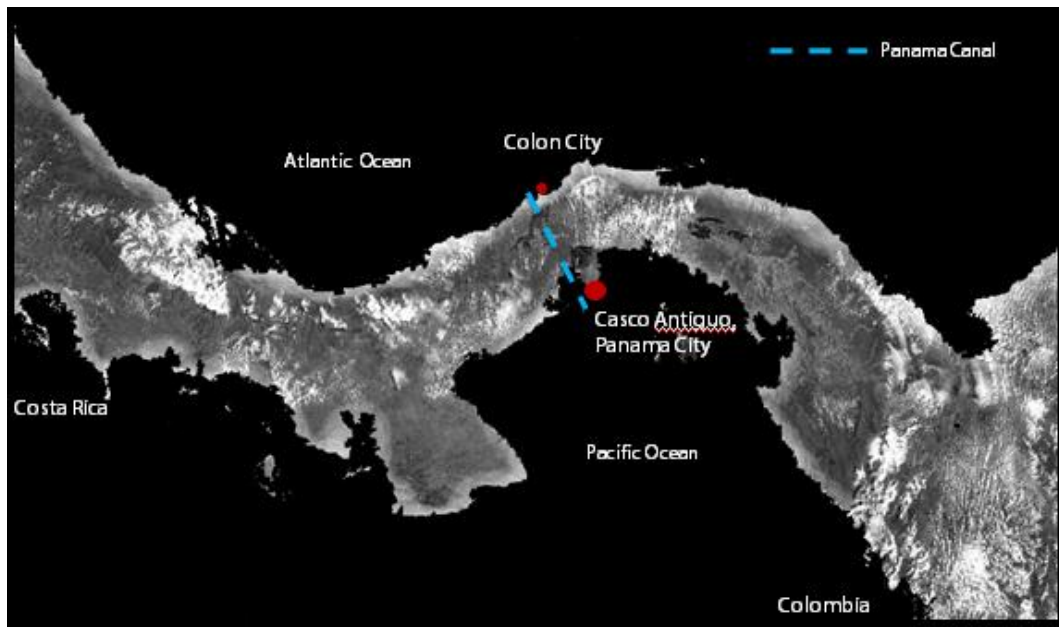


Figure 6 Panama City in the Context of the Country source: Author



Figure 7 Casco Antiguo in the Context of Panama City source: Author

Historic Background and Urban Expansion of Casco Antiguo

Colonial Period (1519-1821)

The first location of Panama City was the result of the Spaniards' continuous search for a route from the east to west coast. The decisive step was the discovery of the South Sea (Pacific Ocean) by Vasco Nunez de Balboa in 1513. After this, Pedrarias Davila decided to move its headquarters to the Isthmus on the Pacific coast. In 1519 he founded what we now call Panama Viejo, the first Spanish settlement on the Pacific. From there most of the expeditions to conquer South and Central America departed (Oficina de la Restauracion y Puesta en Valor del Conjunto Monumental Historico del Casco Antiguo de la Ciudad de Panama 2001, 1). Panama Viejo was sacked and burnt in 1671 by the pirate Henry Morgan (Suman 2008). As a result, the Spanish considered creating a new city, one healthier and better protected, one that could resist attacks from the sea (Rosales 1996). In November of 1671 Antonio Fernandez de Cordoba and Mendoza recommended moving the city to "sitio del ancon,"¹ a small peninsula about eight kilometers to the southwest. Because this site was surrounded by rocks, it would be more difficult for hostile ships to approach.

The new Panama City, currently Casco Antiguo, was founded in 1673. As a defensive measure against pirates' attacks a wall that surrounds the entire city was finished in 1675. This wall divided the people of the inside "los de adentro" from the people of the outside "los arrabaleros".

The population of Old Panama (about 8,000 persons) could not be accommodated completely within the fortified area of the new city. For this reason, an area outside the wall developed where colored people lived. This area, called the

Arrabal, followed Calle Real (today Central Avenue) which led to the rural outskirts. From historic maps however, it is known that the area existed from the outset as shown by a map dated 1716. The outer walled area was practically the same size as the inner walled area, and according to historical maps, it remained relatively unchanged until the end of the colonial period. (See figure 8) This whole area began not where the wall ended, but after an open, more or less empty expanse called “La Explanada” that remains empty for defense purpose, that was once used for agriculture. (Spadafora 2001, 29)

As time passed, military technology and the geopolitical scenario changed. The city of Panama developed a commercial role and was no longer attacked by British pirates (Lam Giner 2000). Nevertheless at the beginning of the eighteenth century, its development was affected by several factors. The first factor was a progressive decay of the Spanish Empire. The second were the changes in the commercial routes between Spain and South America. Finally, the city was affected by three major fires in 1737, 1756 and 1781 that accelerated its decay (Oficina de la Restauracion y Puesta en Valor del Conjunto Monumental Historic del Casco Antiguo de la Ciudad de Panama 2001, 5). In the first years of the nineteenth century the independence movements began in the Hispanic Americas. On November 28, 1821, Panama became independent of Spain and joined the Gran Colombia receiving the name of “The Isthmus Department”.



Figure 8 Panama City 1716 Urban footprint source: Author based on map of Juan Herrera and Sotomayor

Department Period (1821-1903)

The separation of Spain and the union with Gran Colombia did not bring changes to the configuration of the city. At the middle of the nineteenth century, the city still had a clear division between the inner walled area and the outer area “El Arrabal”.

The condition of the city between 1821 and the middle of the century is unclear. There is a report that Mariano Arosemena presented in 1836 as Political Chief of the Canton of Panama reporting the existence of 200 tiled houses counted in the parish of San Felipe, compared to the 352 in Santa Ana (in El Arrabal) where there were also 83 "straw houses". According to Eduardo Tejeira, population data from the period is not reliable. In 1843 there were supposedly only 4,897 inhabitants, and according to this census, more than half the population lived in Santa Ana. (Spadafora 2001)

The city experienced a new revival in 1846 due to the development of a port of transit and transfer and the discovery of gold in California. Panama was considered an important route for the Pacific North Americas. This caused an increase in the number of travelers and thus a rapid growth of commercial activities. The population in 1856 was around 10,000 residents. In order to meet the demand for land in the city for the growing upper class, the demolition of part of the wall was permitted by Law Decree of 11 October 1856. The land in front of the wall practically disappeared, as well as the moat (*foso*) and the ravine (*revellin*) (Oficina de la Restauracion y Puesta en Valor del Conjunto Monumental Historic del Casco Antiguo de la Ciudad de Panama 2001). The urban fabric expanded and adapted connecting with the outer wall

area of “El Arrabal”. With time this whole area, a large part of which was acquired by the Panama Railroad Company, was developed thus easing the barrier between the old inner walled precinct and the area outside the walls (Spadafora 2001, 36).

With the creation of the trans-isthmus railway in 1855, the first transportation link between the two oceans, the period of prosperity of the city increased. These, together with the start of the French Canal construction, are factors of change in the physiognomy of the city, which acquired a different character. Buildings in a French style were mixed with the first Spanish colonial architecture. (See figure 9-10)



**Figure 9 Panama City 1895 Urban footprint, based on map of Compagnie Nouvelle du Canal de Panama
by: Author**



**Figure 10 Panama City 1895 Infill footprint, based on map of Compagnie Nouvelle du Canal de Panama
by: Author**

Republican Period (1903-Current)

In 1903 the Republic of Panama was born. This along with the failure of the French channel in 1889 opened the door for the U.S. government to develop the Interoceanic Canal. Panama City benefited from this with a sanitation campaign developed by the North Americans to overcome yellow fever, an endemic disease in the tropics. The United States built the city's water and sewage system (1905), installed street lighting in 1906, and replaced the existing boulder pavement from the Spanish colonial era with ferruginous brick. Furthermore, a tram network was implemented that ran throughout the city.

At this time, buildings were constructed for the most important governmental, judicial, educational and cultural institutions of the Republic. These neo-Renaissance buildings designed by architects such as Genaro Ruggieri brought another architectural style to the city.

The city continued to grow. The population in the capital tripled between 1904 and 1914, totaling about 60,000 inhabitants, mainly immigrant workers. The city experienced immigration by different ethnic groups: 8,200 Spanish, 2,000 Italians, 1,100 Greeks, 1,500 Colombians and more than 30,000 Antilleans. The affluent social classes still maintained a high demand for houses in the historic district in what used to be the inner wall area and the lower-income population still was concentrated in the outer wall areas. New neighborhoods were developed for immigrant workers such as neighborhoods of el Chorillo, el Maranon and Calidonia. These were large areas of wooden tenement houses located to the west and north of

the historic center. Some of them were close to the train station so the people could easily get to work. (See figure 11-12)



Figure 11 Panama City 1915 Urban Footprint source: Author based on map of Compagnie DNPH



Figure 12 Panama City 1915 Infill Footprint source: Author based on map of Compagnie DNPH collection

The North Americans developed an adjacent city in the “Panama Canal Zone”: a North American territory which covered about 553 square miles. The southeastern border of this zone coincided with one side of Casco Antiguo between el Chorrillo and the slopes of Ancon Hill. The Canal Zone existed until 1979 and was a separate country influencing life in Panama. These areas were gradually reverted to the territory of Panama from October 1st of 1979 until December 31 of 1999, in view of Article I of the Panama Canal Treaty.

The initial limits of the Canal Zone completely cut off Panama City from the rest of the country. In 1915, however, a corridor was opened allowing a fan-shaped expansion towards the north and northeast. In 1920, migratory flow of the upper classes, which lived in Casco Antiguo to other places in the north of the city, began neighborhoods including La Exposicion, Bella Vista and San Francisco. The city could therefore grow but Casco Antiguo remained on the periphery. (See figure 13-14) Buildings in the historic city were abandoned and others were transformed into apartment buildings. The city grew but Casco Antiguo began another period of decay (Spadafora 2001).

A two-decade-long movement to protect the architectural heritage of the neighborhood culminated in 1997 with the designation of Casco Antiguo as a United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Heritage Site, as specified by the 1972 World Heritage Convention. Historic preservation legislation, the UNESCO declaration, and new legislation promoting

restoration through economic and fiscal incentives jump started a process of restoration (Suman 2008).



Figure 13 Panama City 2011 Urban Footprint source: Author

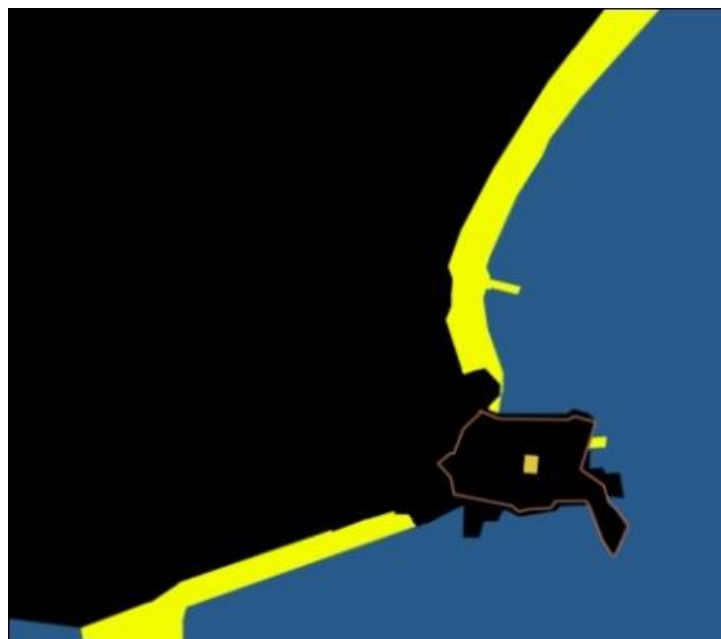


Figure 14 Panama City Infill Land from 1915 to 2011 source: Author

Currently the infill project of the Coastal Beltway may change the cultural landscape of Casco Antiguo by proposing more infill and surrounding it with a road. (See figure 15). This may put in dangerous the condition of Casco Antiguo as a World Heritage Site. One of the biggest challenges of this thesis project is to define how this may happen without compromising the historic character of Casco Antiguo or neglecting the current need of the New City, Paitilla (south) to connect to the proposal for New Amador (north).



Figure 15 Panama City Infill Proposal 2012 source: Author based on Coastal Beltway Proposal

Reflection on Historic Background and Expansion of the City

1. The Value of the Landscape of the Historic Site

It is interesting to notice how the landscape has played a key factor in the placement of the city. The rocks, the water, the mountains were all considered when the Spaniards were planning the city. Casco Antiguo not only derives its value as a historic city from its architectural heritage. The rocks and the water also testify to its history. The character of Casco Antiguo therefore also derives from its relationship with the natural environment.

2. Factors that Influence Urban Footprint of the City

Panama's city has time periods of prosperity and decay. This clearly is reflected in its urban fabric. When the city is living a cycle of prosperity its urban footprint expands. But what are the factors that influence this trend? It seems that access to the sea, the topography, the city's political boundaries and the resulting "geographic tension" between Pacific City (Panama) and the Atlantic City (Colon) have influenced this trend. Access to the sea meant access to food ("Panama" means in the indigenous dialect abundant of fish). Maritime commerce rapidly evolved in Panama City which developed into a crossroad of the oceans and complemented maritime commerce in Colon. The topography seems to have been a natural constraint of urban growth, especially in, Ancon Hill, a steep 654 foot hill, the highest point in Panama City.

The Urban Configuration of Casco Antiguo

The urban complex of Casco Antiguo is relatively small with only 20 hectares, which is three times less than the original city, Panama Viejo. An orthogonal grid layout was imposed on the walled sector. This is a subtle variant of the classic Spanish American checkerboard: the blocks are of different sizes and access to the main Plaza was mainly through a road align with the center of the plaza and not from the sides. The streets are also of varying widths. Central Avenue, for example, measures between eight and ten meters in San Felipe, while dark Chiriqui Street measures only four. The grid follows the four cardinal points with only a slight deviation, and the geometric center is the Main Plaza (Plaza Mayor). According to Castellero, the great axial cross of the city is a clear evocation of *cardo maximo* y el *decumanus maximo* of the Roman Castro (Castillero Calvo 1999). The east-west axis was connected with Puerta de Tierra (Land Gateway) and this road called Calle Real (today Avenue Central) connected the city with the outer wall area. (See figure 16) According to Castellero, this was the main ceremonial road for civic and religious events (Spadafora 2001). The north and south main axis connects the city with Puerta de Mar (Water Gateway). This was the connection to considerable commercial activities. A clear hierarchy was expressed in the built environment. Plaza Mayor was the core and the most important buildings were located close to it. From there, there was a descending hierarchy of buildings and residents (Castillero Calvo 1999, 87). This means that the buildings with long lasting materials and higher architectonic value were located around the plaza.

Another analysis of the urban configuration of Casco Antiguo was developed by Eduardo Tejeira. He argued that the Laws of the Indiesⁱⁱ of 1573 did not influence new Panama's layout and that other sources may have been influential, such as the ideal cities designed by Pietro Cataneo and illustrated in his Quattro Primi Libri di Architettura of 1554, and la Valletta in Malta, a fortified city built after 1566. Tejeira notes that La Valletta has an orthogonal layout (which is not a checkerboard). The longitudinal thoroughfare and the fortifications followed the topography. These urban designs were developed more than a century prior to the foundation of New Panama, but they inspired various generations of military engineers throughout Europe.



Figure 16 Map of Casco Antiguo 1688 by Fernando de Saavedra original located in Museo de Historia de Panama

The City's Wall

As mentioned previously, the defense of the city was a key factor in Casco Antiguo. Its foundation was based upon concepts of military architecture. The new city was confined within a protective wall. Artillery stands and watch towers along the solid bastions facilitated the city's defense. Three northern, southern and eastern sides of the city faced the sea and the fourth faced west towards the land.

The city wall, of which three fronts facing the sea still survive partly today, is between six and twelve meters high. It was crowned with parapet walks for guards and artillery. The wall facing inland is largely demolished today. It had three bastions: Mano de Tigre (Tiger's Paw) in the centre and Barlovento and San José at the north and south ends respectively. These latter two (in reality half bastions) were irregular. Tiger's Paw, however, had the classical shape of a diamond point. One entrance, "Puerta de Tierra" (Inland Gateway), survived until the middle of the nineteenth century.

Castillero argues that the wall not only functioned as a defensive structure against pirates, but that it was also a division and a protection from the colored and poor people of "El Arrabal". He describes Casco Antiguo as an elitist city. The people of El Arrabal were allowed to be inside the city, but they had no access to it when Puerta de Tierra was closed at night.

Puertas and Postigos

There is a hierarchical difference between Postigos and Puertas in the city. Postigo could be simple vaulted openings in the walls without further elaboration or architectural ornament, and they served as easy access to the inner city. Puertas on the other hand, were the great route of entry to the walled city and had some decoration such as medallions with coats of arms in the tympanum, columns, tile roof gable, belfries or turrets. Sometimes they were lined with pieces of artillery.

On the map "Ground and Prospect of the City of Panama and its Fortification" created by Fernando Saavedra in 1688, two Puertas and four Postigos can be clearly seen. (See figure 17) Other sources documented the presence of a fifth Postigo called Postigo de San Francisco, but it is not present in this map. Originally, the city had no Postigo. The engineer Bernando de Ceballos y Arce opened several postigos as exits to facilitate the city's connection with the sea. On Saavedra's map, all postigos were located in relationship with the water, and Puerta de Tierra was the only gateway to the land.

Castillero associates the Puertas and Postigo of Panama with religious activities (Castillero Calvo 1999). He describes that citizens placed statues of the Christian saints inside the Puertas and Postigos, as is still seen in the famous Postigo de Aceite in Sevilla. This may have occurred in the Postigo of San Juan de Dios and of San Francisco. The parishioners would have maintained luminaries that they placed at the foot of the saints and would have adorned them with flowers. Thus, citizens would not forget their religious duties and their heavenly protectors when entering or leaving the city.

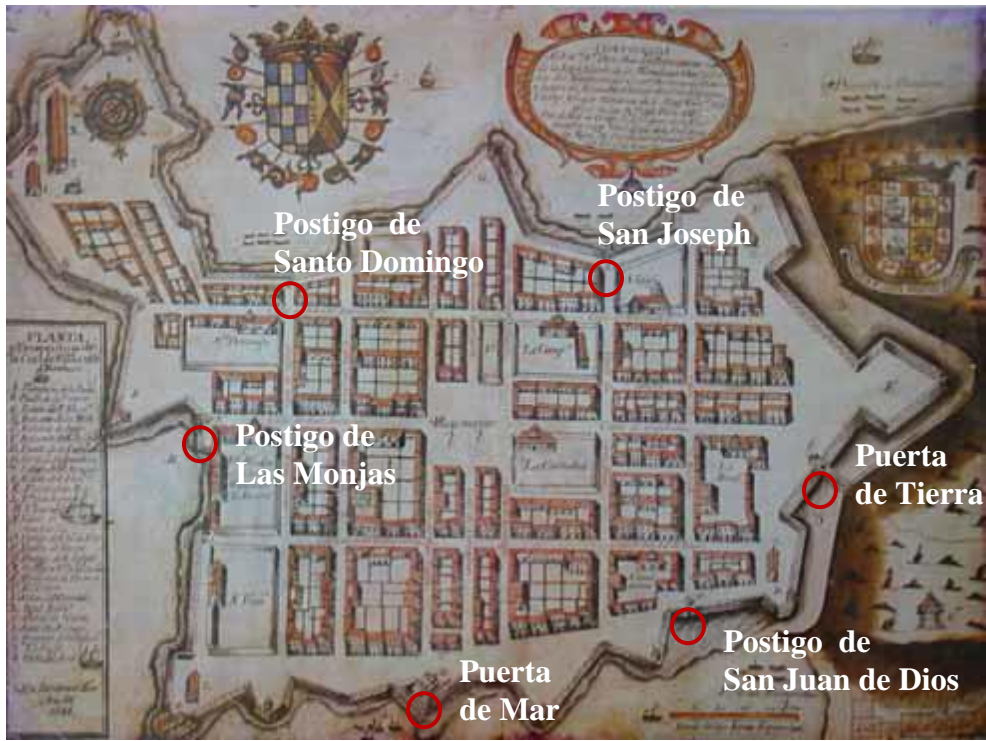


Figure 17 Map of Casco Antiguo 1688 by Fernando de Saavedra with Postigos and Puertas

Puerta de Tierra

The best drawing of Puerta de Tierra is the one of the engineer Nicolas Rodrigues in 1747. The Puerta de Tierra had three tier Baroque façade with windows, flanked by two booths and a central dome. The entire door was stone and the walls were masonry. It had a wooden draw bridge with a tiled gable roof. The façade had two pairs of Tuscan columns. Over the door was the eardrum broken pediment with a coat of arms. Another element of the gateway was the bell on top of the facade. This served to announce the changing of the guard, and opening or closing of the door. A bridge went over the perimeter ditch or fosse and the road that continued to Santa Ana. It was not straight, but somewhat crooked, perhaps because at the beginning it had to go round the ravelin (triangular area across the bridge). In any case, it did not coincide exactly with present-day Central Avenue (Spadafora 2001).

Another image that helps to visualize the original Puerta de Tierra is the oil painting of William Leblanc of 1856. The gateway was already deteriorated but still had the columns, pediment, coat of arms and the gable with its bell, while the wooden bridge has become a stone bridge. The pinnacles or acroteria have disappeared, as well as the wall, which is already almost completely demolished. This allowed views of the door of the church of La Merced and on the right, paths to homes with balconies and roof tiles.

The coat of arms is the only emblematic element. In Leblanc's painting it cannot be seen well, but it is speculated that when the gate was built in 1747 the royal coat of arms was added. Dr. Castellero argues that when in 1821 the country became independent from Spain, the coat of arms was removed because leaving it there would

have been an act of negligence, inconsistent with the meaning of independence for the Hispanic American countries.

Puerta de Tierra was located under Arias Feraud Mansion, today the Mayor's Reception Hall. Archaeological work carried out by Beatriz Rovira in 1981 when the house was restored revealed some remains, today partly visible behind an acrylic cover. (See figure 18)



Figure 18 Major Reception Hall Under it is the archeological remains of Puerta de Tierra

Puerta de Mar

There is little evidence about the original design of Puerta de Mar. The best evidence that it has been found is on the Plan Perspective of Fernando Saavedra, 1688. (See figure 19) This recorded shows Puerta de Mar as a solid stone building with shutters that can be accessed from the shore by a trapezoidal staircase of four steps. Above the doorway stands a Baroque facade of three levels with windows, flanked at the highest level with two watchtowers and a central view point. The gate is of carved stone with ashlar stone walls. The position of the gate is slanted to the left side, as viewed from the front of the wall, as Vitruvius advised in the (I, V) book devoted to the "Construction of walls and towers" in the Ten Books on Architecture. That way, the enemy attack is more difficult. (Castillero Calvo 1999, 55)

The Customs and Puerta de Mar symbolized the basic functions of the city. The Street Workshop and the street Puerta de Mar were the most active commercially. Even though its maritime role, Puerta de Mar was not the main port of Panama. There is no evidence of when Puerta de Mar was demolished, but when it lost its original function, the Government of the State decided to give it another use. It authorized the construction of private properties in this area and the Custom building was sold. Nevertheless, in 1870 the ramp from the old gate to the sea continued to be used for disembarking passengers as evidenced by a photograph of the Selfridge expedition for an Interoceanic canal that is preserved in the National Archives in Washington.

The Customs building changed its function and since 1885 it became the President's House. This brought significance change in the character of this street.

Currently, in the position of Puerta de Mar is in a building that belongs to the government and even though there was a project to demolish it, it is still used by the Special Presidential Police.

Currently in this area there is an infill project as an extension of the Coastal Beltway. (See figure 20) This is an area of 2.9 hectares which would include a roadway, parking areas, a square, park, bikeway and pedestrian path.



Figure 19 Original Puerta de Mar Source: Map by Fernando Saavedra



Figure 20 Current location of Puerta de Mar Source: author

Reflections on Historic Puertas

Based on the study of Casco Antiguo original Puertas the following aspects listed above will serve as design guidelines for this thesis proposal.

1. Relationship of Puertas with the main axes

As it was learn from the history of the site, the historic Puertas of Casco Antiguo where located in direct relationship with the two main access of the town. So, the new Gateway of Casco Antiguo needs to preserve this relationship. The question is which are the new main arteries of Casco Antiguo?

2. Symbolism

The coat of arms is the element identified emblematic. The saints in the gate were also a reflection of the belief of the people of that time. Both of these are way of expression of the culture of that time. So it will be important that the design of the new Puertas will also be a place for the expression of values and belief of the society.

3. Legibility & Way Finding

The forms of the historic gates were “legible” in the space of the city. This important in the way the people move and orient around the city. Legibility aspect is the combination between position (views and spatial relationships) and form (scale, materials and style). These aspects are important need to be included in the design of the new gateways. It is also important to point that form of the Puerta is not limited to a gate. The gate form in the original Puerta

was a reflection of the structural fact of having a hole in a wall, without the presence of the wall there is no necessity of the gate shape.

4. Divider or Connection

Depending on the circumstances, the historic Puertas function as a divider or a connection, and open Puerta or a close Puerta. For the purpose of this study, Puerta is examined as a connection. Even though, it was closed at night, when we compare this space with the wall, the wall was the division and the Puerta was the connection.

5. Relationship with the Environment

There is not significant presence of green area inside the wall city and the “explanada” was lost over time (the open green area, in front of puerta de Tierra). They may not be a way to recover this connection, but what will be interesting to examine is the relationship between the other Postigos and Puerta de Mar with the sea. They may still be the link to Casco Antiguo with the natural environment (water, rocks and vegetation).

V. CURRENT CONDITION OF SITE

This chapter of Current Condition of Casco Antiguo will be analysis in three aspects: Socio Economics, Natural Environment and Built Enviroment with the purpose of identify the most relevant constraints and potential that needs to be taken into consideration for the design proposal.

Socio-Economic

Today, the Republic of Panama shows expansion indicators in relationship to the economy. In 2010, the percentage of gross domestic product was more than double that of 2009 reaching 7.8%, more than 20,800 million dollars, while in May of 2011, according to the Ministry of Economy and Finance, GDP growth would rose to 10.5%.

The unemployment rate fell from 5.2% in 2009 to 4.7% in 2010, but inflation rose 2.4%to 3.5% between those years, a trend continued for the first five months of 2011, when it rose to 4.2%.

Within the national context, and especially the urban districts of Panama, Arraiján, San Miguelito and La Chorrera, growth indicators show the behavior of the economy. Nevertheless, it should be noted that nearly four in ten people who receive income from economic activity they perform, belong to the informal sphere. (The Louis Berger Group 2011, 8-2)

Regarding education, according to the Living Standards Survey 2008, one in ten people categorized as poor in the country have no schooling, while five out of ten have an education that goes beyond Elementary School. Among the extreme poor,

two out of ten have no education and only six in ten have reached Elementary School. (The Louis Berger Group 2011, 8-2)

The neighborhoods of San Felipe, Santa Ana and El Chorrillo, are in the study area. (See figure 21) They have social and economic indicators that still reflect poor conditions. In San Felipe, the resident populations classified as poor have declined. In El Chorrillo and Santa Ana, education data, public safety and income levels still show the prevalence of poverty.

Today, Casco Antiguo is part of the “popular” neighborhood San Felipe. It has 3,262 residents and 1,053 houses. Within the current UNESCO World Heritage Site boundaries there are just over 800 buildings. In the late 80’s and 90’s, San Felipe was a place with a majority of low income residents, active street life and cultural diversity (Suman 2008). As a poor neighborhood, San Felipe, had crime, delinquency, and educational problems. This scenario began changing in 1997 when Casco Antiguo was declared a World Heritage Site. A revitalization plan was developed bringing with it new use and users. This process has been taking place at a very slow rate giving opportunities for new social groups to interact and co-exist with original residents. Investors have identified this as prime for artists, musicians and retired people, some of them have made Casco Antiguo their second home. Today, the price per square meter of restored residences in the historic district is among the highest in Panama City. (Tejeira 2001, 58, 76) In the other hand, the government values this social diversity and is incorporating policies that promote a ‘sustainable society’ where low income residents are involved in the development of the area (Espino 2009, 29).

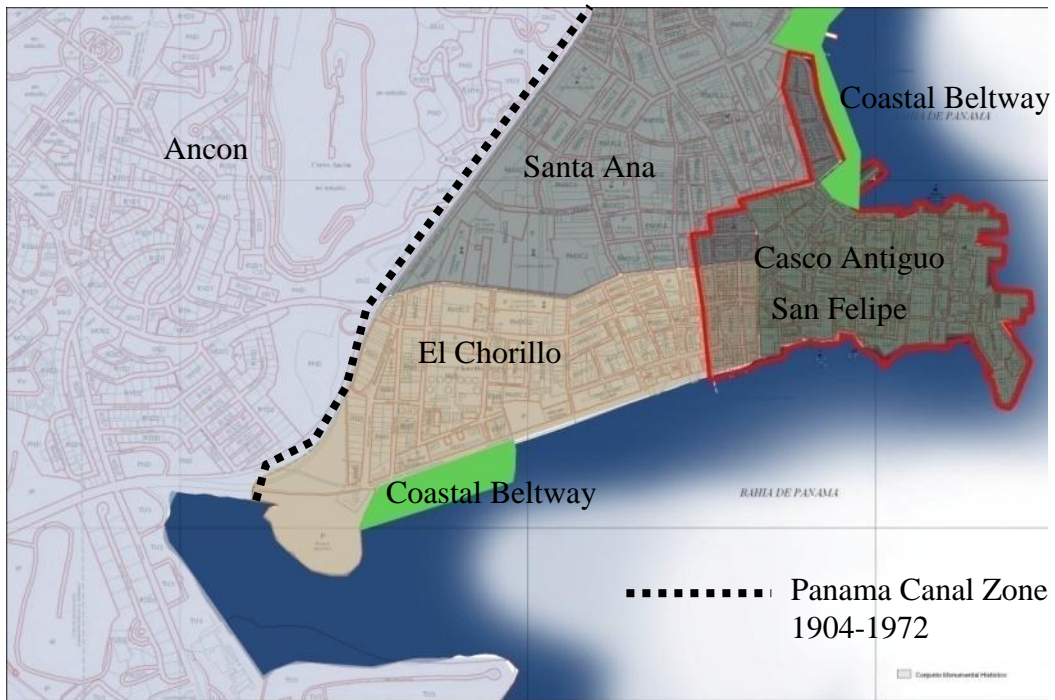


Figure 21 Neighborhoods Source: Author

Land Use

Casco Antiguo is a place for living, for working and for visiting. This is reflected in his land use. (See figure 22) As a neighborhood, Casco Antiguo (CA) has to satisfy the necessities of its residents: education, health, food and housing. In relationship with education, there are seventh elementary schools, one daycare, but there is no high school inside its boundary. The most important high school in the area, The National Institute, is at 500 meters from CA boundaries. There is a Health Center in Casco Antiguo. It offers medical services as gynecology, pediatrics and psychiatry, free or at a very low cost. There is no major grocery store inside Casco Antiguo, but instead there are local stores and markets that provide for food necessities. There is 37% of mix use and 7% of commercial use in the District. The majority of commercial and mix use areas are located to the north-west part. (See figure 22) Also, in the map of Land Use it can be appreciated that there is 13% between unoccupied buildings and waste land and the majority is located to south part of the District. (Oficina de la Restauracion y Puesta en Valor del Conjunto Monumental Historic del Casco Antiguo de la Ciudad de Panama 2001, 76)

An important source of work in Casco Antiguo is Government Institutions. There is 6% of the land use in CA is institutional, including the Presidential Palace. This made CA a node for political activity of the nation. This has also affected the volume of people in the Historic District.

As a place to visit Casco Antiguo has several historic ruins, buildings and plazas that bring people to it, almost all of it is place to visit. This allows the opportunity for several, boutiques restaurants and cafes in the area.

Many of Casco Antiguos roles overlap and there is a variety of land use. This made it a very complex place with several necessities but also a rich environment for all the people that relates to it.

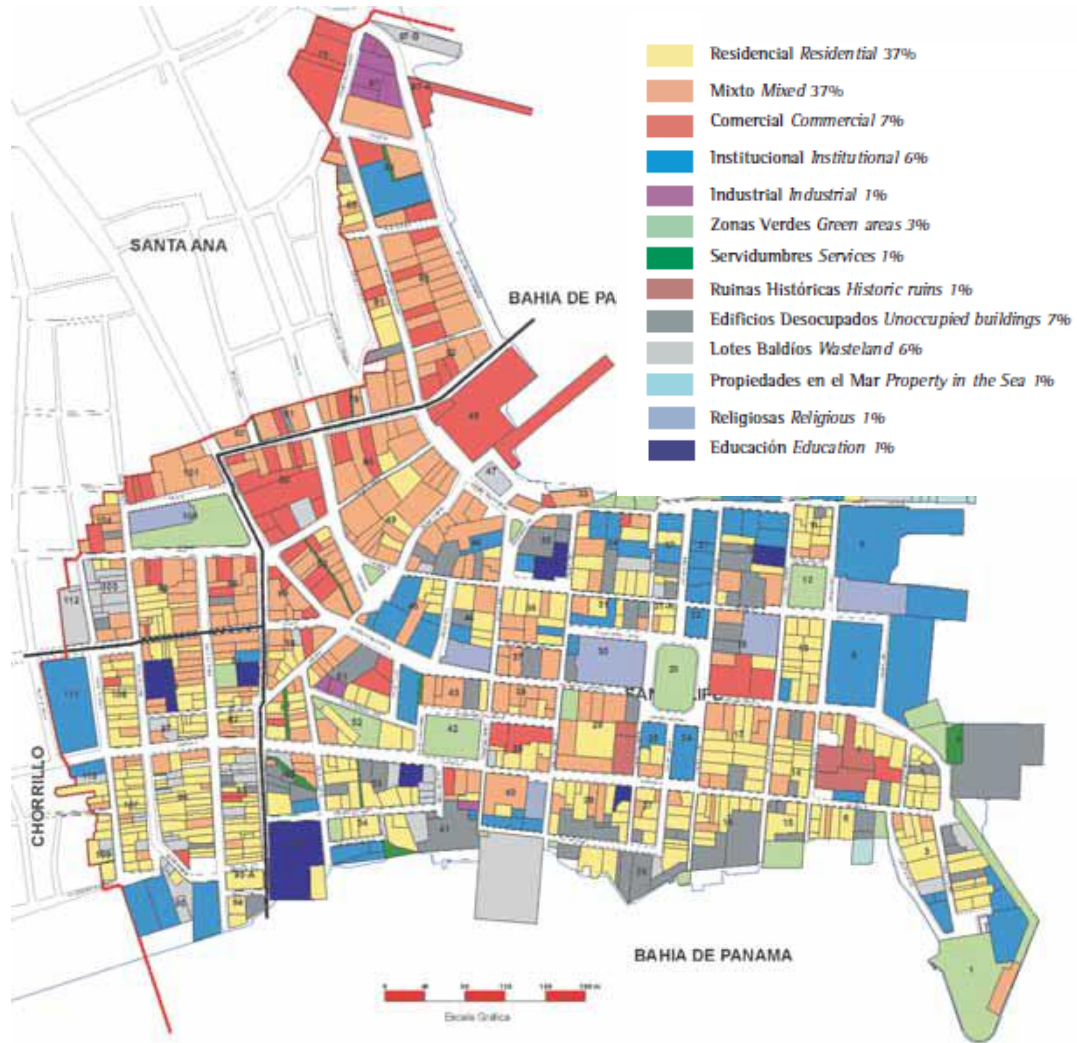


Figure 22 Casco Antiguo Land Use source: Spadafora

The Natural Environment

Land

Casco Antiguo's peninsular position, surrounded by rocks was key factors that Spanish considered for selections of this site. These rocks were considered a natural defense against a pirate's attack by water. Dr. Castellero established that the land was originally elevated, but was leveled by the Spanish when they built the city. Almost the entire inwall city is the same elevation. The inwall city is between 10 to 20 feet (estimate) above the beach. El Arrabal is elevated from the in wall city, something that use to be considered a military disadvantaged for the Spanish.

Behind the Arrabal is Ancon Hill, the highest point in the city that was used from the Spanish period for a military defense and from 1904, was the boundaries of the Panama Canal Zone. Its topography and being inside the Panama Canal Zone were factors that constrained the growth of Panama City. (See figure 23 and 24)

Soils

The Isthmus of Panama is located in a microplate tectonics known as Panama Microplate. It is surrounded by four major tectonic plates: the Caribbean Plate to the north and northwest, the Nazca Plate to the south, the Cocos Plate southwest, and South American Plate to the east. Geological investigations of the city Panama show that the part of Casco Antiguo area is the geological formation of La Boca or Panama microplate. The geological formation La Boca, a volcanic sedimentary formation, is composed of sand stone, siltstone, limestone, lignite, agglomerates and tuffs of Miocene Bottom. (The Louis Berger Group 2011, 220)



Figure 24 View of Natural Environment in Casco Antiguo source: Graphic enhancement of Google Earth Terrain by author

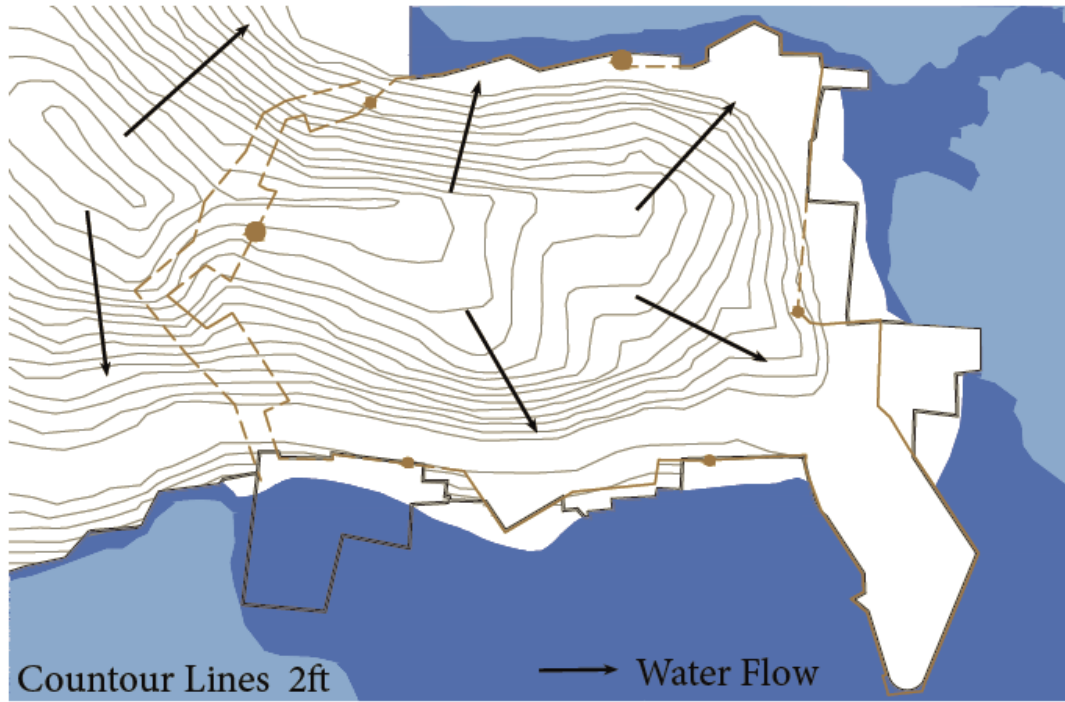


Figure 23 Casco Antiguo Topography source: Author based on Google Terrain

Water

Recreation

The relationship of Casco Antiguo with the Pacific Ocean is what has defined it as a port city (the Pacific Terminal) in the isthmian route and in the interregional commerce from the colonial period. Today, there is no evidence of past uses of port activities or even just the beach.

Puerta the Mar and the four Postigos that use to connect Casco Antiguo with the beach and with Panama Bay have disappeared. A traveler in 1859 reported his experience in the city and how he passed Postigo de las Monjas to go to the beach. It was like going to a different environment. He was able to described how he explored between the rocks (he called them coral reefs) finding crabs, shells and other types of crustaceans. He described this experience as a very pleasant time of exploration. (Alfaro 1930, 13)

Today, the quality of the water of many rivers and the bay in Panama City is polluted. Since 2001, the government began the Panama's City and Bay Sanitation Project with the objective of improve the health and environmental conditions of the city, by reducing pollution in rivers, streams, lakes, beaches and coastal areas of the Bay of Panama. The hope for the future is that beach areas can again be used as for recreational purposes.

Water & Business

Because of its shallow waters Casco Antiguo was not an ideal port. Big ships arrived at the Naos Island one kilometer away from Puerta de Mar and the merchandise was then transferred in small ships to the city. Currently these types of activities take

place through the Panama Canal and within the adjacent areas of the Port of Balboa and the Free Zone in Colon.

The sea food market has always been very prosperous. There is a very important community of fishermen in the El Terraplen. This local contribute to the character to the entire area.

Fresh Water

There was no river inside the boundaries of Casco Antiguo. This limited of the city because it did not have ready access to fresh water. The residents collected water in cisterns and wells. This rain water was used for animals and people (Castillero Calvo 1999, 172). Drinking water was collected in el Chorillo and sold in the city. In 1903, the cisterns and wells were closed and the first piped water system was built.

Tides

The tides in Panama are not only due to astronomical causes, but also are strongly influenced by the isthmus condition of the country, the prevailing winds and other factors that cause the tides to be higher on the west coast. According to the Station of Balboa under the Panama Canal Administration, the high tide is 18.5 feet and the low tide is 1.9 feet.

Sea Level Rise

Sea levels are rising along the coast of Panama and around the planet. The Research IPCC (Intergovernmental Panel of Climate Change) reports that due to overall temperature increases caused by the greenhouse effect, the average sea level

will continue to rise to a value estimated between 20 cm and 1 m, affecting areas coast, such as the City of Panama.



Figure 25 High Tide in Casco Antiguo source: Estudio de Impacto Ambiental MOP



Figure 26 Low Tide in Casco Antiguo source: Estudio de Impacto Ambiental MOP

Vegetation

There is not a major green infrastructure in Casco Antiguo, if we considered the entire square as green spaces it is just 3%. The closest larger park is Ancon Hill which is two kilometers from the Historic District. The Coastal Beltway provides areas for recreational activities close to the site. This thesis had classified Casco Antiguo's vegetation in three types: mangrove, trees and pocket vegetated areas.

Mangrove

In Casco Antiguo, there is an area of approximately 5,990 square meters of mangroves adjacent to the Avenue of the Poets, dominated by the species *Lagunculariaracemosa* or white mangrove. This mangrove is located in the abandon Power and Light area of the Old Town, and can be considered a highly fragile ecosystem due to its scarcity. The Power and Light Industry building was built by Americans in 1904. (See figure 27)

Trees

Most trees are in plazas. An inventory conducted in 2011 by the Ministry of Public Works (MOP) show the more dominant species present in Casco Antiguo. To be Ficus (*Ficussp.*), the flame tree (*Delonixregia*), oaks (*Tabebuiarosea*), guayaca (*Tabebuiaaguayacan*), almendro (*TerminaliaCatappa*) and Palma Real (*RoystoneaRegia*) the result identify 57 tree species, both native and exotic, were not endemic to the area. (See figure 28)

Pocket Vegetated Areas

Because most streets are narrow, there are few street trees. Many homes have private balconies and interior patios which fulfill an important need for gardens in the

neighborhood. A common shrub found in balconies is the veranera (*Bougainvillea* spp.) and helechos (*Nephrolepis* spp.) (See figure 29)



Figure 27 Mangrove in Casco Antiguo source: Estudio de Impacto Ambiental MOP



Figure 28 Tree the flame tree (*Delonix regia*)



Figure 29 Pocket Vegetated Areas

The Built Environment

Buildings

The architecture corresponds to different periods of time and styles. The buildings show Spanish, French and Caribbean influence and reflecting the different epochs when they arrived on the Panamanian isthmus. The similarities in heights, projecting balconies, large windows, and arches, are elements that characterize the buildings of the Casco Antiguo and bring to the District a coherent spatial language.

The fact that the majority of buildings in CA are two and three story heights with narrow streets gives to it a very defining scale. Understand this is key for a successful design.

Religious Architecture

During the colonial period, religious architecture in Casco Antiguo followed simple designs. (See figure 30) All existing colonial churches have a plain rectangular or Latin cross ground plan with a flat headwall and wooden roof originally supported by tall, wooden pillars. The walls were of rubble masonry; originally they were not even plastered. (Spadafora 2001, 110)

Institutional Architecture

The most important surviving public building from the colonial period is the Real Contaduría (Royal Accounts Office), currently the Presidency of the Republic (See figure 31). The origins of this building date back to the time the city was transferred in 1671-73. The majority of the Institutional buildings were design in the Republic Period.

Domestic Architecture

Architect Eduardo Tejeira summarized nineteenth and early twentieth century styles representative of the domestic architecture in Casco Antiguo in relationship with its period of construction. Currently, there are few examples of domestic architecture from the Colonial Period, but several examples that show the French influence and the Republic Period.



Figure 30 Example of Religious Architecture La Catedral Source: Luis Santamaria



Figure 31 Example of Institutional Building Source: Vanessa Spadafora

Public Spaces

There were two plazas in the original configuration of Casco Antiguo one inside the wall, The Main Plaza, and another outside the wall, Santa Ana Plaza. Over time, Plaza Bolivar and Plaza Herrera were added because of fires. Plaza of France used to be a jail in the Colonial Period and became a monument to French initiative of building the Canal. (See figure 32)

Another type of public spaces in Casco Antiguo is ruins. Like El Convento, the Santo Domingo has been restored and functions as a public space where jazz presentation and outdoor events take place.

Each public space is the reflection of a particular period of time when it was constructed. These areas witness political protest, celebrations and cultural events. During the day some of them provide shade and places to rest; at night the places become more active because of cafés.

Main Plaza

Originally the Main Plaza of Panama was square in shape. It was an empty space where, from time to time, festivals on horseback and bullfights were held. In the second half of the eighteenth century the plaza was made larger taking its definitive shape in 1878. At the end of the nineteenth century, work commenced to transform it into a park: trees were planted and paths, benches, bandstands and a fence were built. In 1906 it received the name of Independence Plaza although its usual name is Cathedral Plaza. The last remodeling was in the 1980s.

Santa Ana Plaza

This plaza emerged from the beginning of the city as a point of convergence outside the walls. During the nineteenth century, it was used as a market and as a place for fiestas on horseback and for bullfights. At the end of the century, trees were planted initiating its phase as a park. During the nineteenth and twentieth centuries, many popular uprisings were staged here.

Bolivar Plaza

This plaza emerged as a result of the "fuego chico"(tiny fire) in 1756. The wasted area began to be known as San Francisco Plaza. In 1926, when the centenary of the Amphictyonic Conference was held, sculptures in honor of Simon Bolivar were installed. This cluster consists of two works: the first "The Architect of Nations" is the work of the Spanish sculptor Mariano Benlliure. The second, entitled "Father of American Liberty", is the work of the Panamanian engineer and artist Julio Poyl6.

Herrera Square

This plaza emerged after the fire of 1781 which devastated the old convent of San José. As the houses were not rebuilt the cleared space took shape in this spot as a plaza which at the outset was known as Triumph Plaza, a focal point for festivals and bullfights. In 1887, it received the name of Herrera Plaza in honor of the Panamanian General Tomas Herrera. With the prohibition of bull fighting festivals in 1928, the plaza acquired its present day appearance. The equestrian sculpture was made by the French sculptor Augusto Denis.

Square of France

Originally this was the site of the parade ground of Chiriqui Point barracks with there was a well in the centre. In 1921-22 the space was transformed to make way for a new monumental complex in commemoration of the builders of the French canal. The plaza, the obelisk and the arches are based on the design of the architect Leonardo Villanueva Meyer. The history of the canal, written by Octavio Méndez Pereira, is displayed on plaques under the arches.

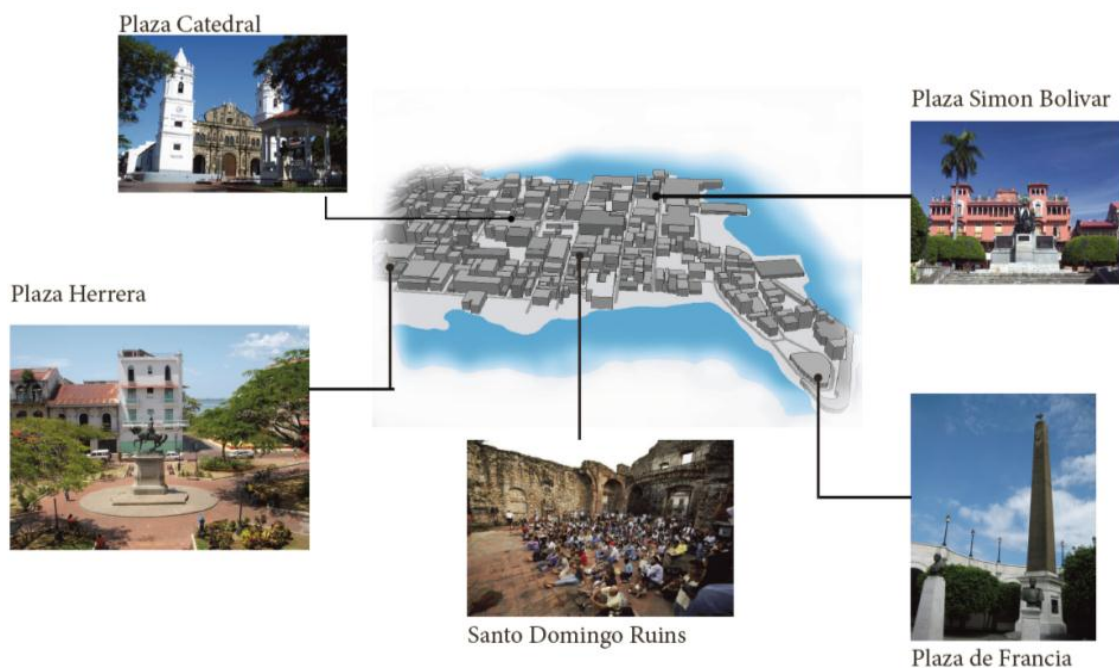


Figure 32 Public Spaces in Casco Antiguo source: Author

Transportation and Roads

Transportation is a big issue in Casco Antiguo and there have been many projects for improvement but the issues have not yet been resolved. Similar to other cities around the world, Panama is still a car oriented city and the exploration of different transportation system has proceeded slowly. (See figure 33)

Cars and Parking

Most of the streets in Casco Antiguo are one way. This is because the streets are very narrow. Some streets can be as narrow as four meters. There is a lack of parking lot spaces in the area and the presence of several government institutions in the area worsens make the problem. According to the architect Roberto Saavedra, there is a project to create a parking lot area outside limits of Casco Antiguo for government and a shuttle service will take them to their offices.

Pedestrians and Bikes

Inside the boundaries of the historic district there are no bike lanes, or exclusive pedestrian roads. Bikes lanes are present in the Coastal Beltway, but they don't extend through Casco Antiguo. The major pedestrian road in the city is a portion of Avenue Central. The pedestrian portion begins at Plaza Cinco de Mayo and ends in front of Plaza Santa Ana.

Public Transportation

There are no public transportation options inside Casco Antiguo. The closest bus stop is located in the boundaries of the Historic District in front of Plaza Santa

Ana. Buses (the size of a school bus or bigger) are prohibited inside the limits of the Historic District.

A metro system is under construction in the city of Panama. The closest metro station to Casco Antiguo will be on Plaza Cinco de Mayo, one mile away from Casco Antiguo.

A study is being conducted for the restoration of the old tram network of Casco Antiguo by Indra, but it has not been concluded. This historic tram began functioning from 1893 and lasted, without interruptions, until 1940. (Roy n.d.) For tourists there is the option of the “Tranvia Tour” operated by a private company. This shuttle creates a loop that includes the major landmarks of Casco Antiguo.

The Coastal Beltway

Other change that Casco Antiguo is facing is the construction of a new highway call ‘Cinta Costera’ (Coastal Beltway). This highway six months ago finishes its second phase in front of el Terraplen, a place that is inside the limits of the Historic District. In relationship with the phase, UNESCO report conducted in 2011 “noted the massiveness of the structure and its impact on the scale of the surroundings.”

The third phase will surrounds Casco Antiguo. This has brought a lot of controversy. The community protest, UNESCO did not approve the proposal and the government is still looking for ways to surround Casco Antiguo with a highway. The UNESCO mission “*considers that Phase 3 of the project would pose an even larger threat to the integrity of the property.*”

Two alternative where submitted to UNESCO the first ones surrounding the Historic District and the second one traversing the Historic District with a tunnel. The

mission considers that the first alternative “is unacceptable as it would transform the District’s traditional form and image on its coastline, an important part of the values for which warranted inscription on the World Heritage List.” The second alternative, besides being too expensive, “could entail risks to the structural stability of the old and deteriorated built heritage.” No studies on their physical, social or functional impacts and risks have been under taken at the present time. (UNESCO World Heritage Committe 2011, 268-273)

They further consider that on-going development of the Cinta Costera, in spite of the decisions made by the World Heritage Committee and the recommendations of reactive monitoring missions, constitutes a threat to the attributes that sustain the Outstanding Universal Value of the property. The World Heritage Centre and the Advisory Bodies consider that the World Heritage Committee might wish to include the property on the List of World Heritage in Danger in order to assist the State Party in addressing the significant threats to the property.



Figure 33 Existing Transportation System by author

Reflections on Current Condition

Based on the study of Casco Antiguo's current condition the following aspects listed above has been identify as the most relevant that needs to be taken into consideration for the design proposal.

1. Connection with Water

CA relates to the Pacific Ocean in a very particular way. It was planned to be accessible by water, but also protected from it. Currently, sea level rise is a high concern for the majority of coastal cities but for CA the wall that once protected against pirates attacks, today protected from the rising sea. The city is up the water is down. The challenge is how to design Puertas in a way that makes the beach accessible to people again?

2. Cultural and Social Diversity

Social diversity is a value; it is something that defines the character of the place. CA is not just a tourist destination, is also a neighborhood that convey people with different economic status. Sometimes poor people are perceived as a problem that needs to be solved. In many cases they are displace in the process of revitalization of a neighborhood. This is a very complex problem that to resolve it needs the collaboration of different professionals. Even though the answer may not be just the in hands of a designer it would be a significant contribution if more integrated design are explore: one that integrate all users, even the poor ones.

VI. DESIGN PROPOSAL

The proposal has been conducted in two scales: regional and site specific. The Regional design address problem of connectivity and the relationship between the gateways proposed. Three site designs have been proposed, two of them correspond to the original historic Puertas (Gateway to the Land and Gateway to the Sea), and the last one is proposed to address current connectivity to Casco Antiguo.

Master Plan Approach

As was mentioned before, the Master Plan proposal addressed connectivity issues concerning of the Coastal Beltway through Casco Antiguo and the relationship between the proposed gateways. There are three main objectives in this phase of design:

1. Protect the cultural landscape: The relationship between the historic wall, the rocks and the sea are part of Casco Antiguo culture and history. At this level of design it is important to define where the infill should stop to preserve of the cultural landscape.
2. Minimize vehicle intrusion: Casco Antiguo was planned in a time where cars were no present and the narrow streets do not have width to support major vehicle traffic. Vehicles are damaging the historic brick streets of Casco Antiguo and there is also conflict between pedestrian and vehicular traffics. These issues may diminish if vehicular traffic is reduced. Vehicle intrusion problems are why this proposal will develop strategies to invite visitors to change from a vehicular experience to a pedestrian experience in Casco Antiguo.

3. Reestablish a relationship between the Puertas and Pedestrian circulation:

The historic Puertas of Casco Antiguo were within the axial system of the historic district. A person will recognize that they are in the historic town when crossing the gateway, they will walk through the main street that will guide him to the heart of the town, Plaza Mayor (today, Plaza de la Catedral).

The design method for the Master Plan was to explore three schematic options to address connecting the Coastal Beltway with Casco Antiguo. The schematic options were developed according to “levels of intervention” (See figure 34). They vary in relationship with how they affect the existing built environment, vehicular circulation and the position of proposed gateways. (See figure 35) The Low Level of Intervention was selected because it best preserves the integrity of the historic district (See figure 36 and 37).

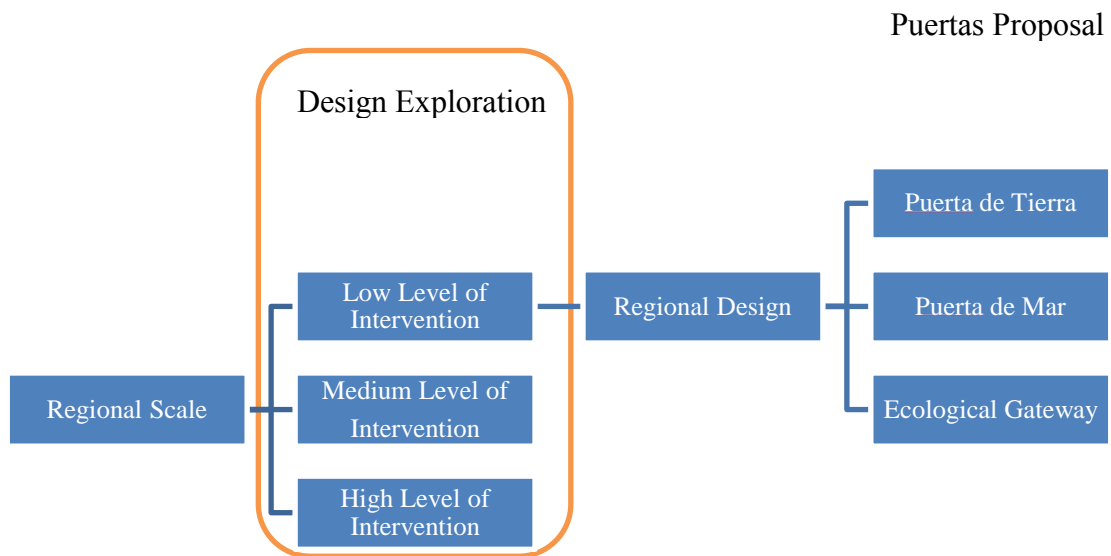


Figure 34 Diagram of Design Method source: by Author

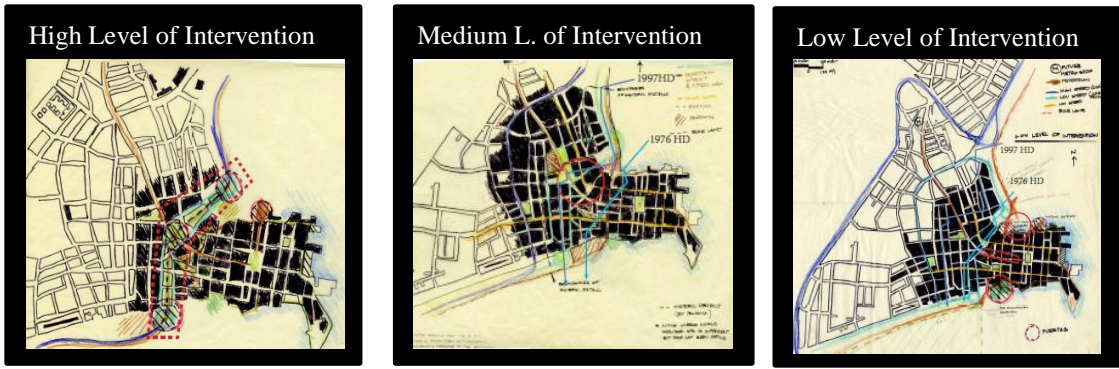


Figure 35 Schematic Design Exploration source: Author



Figure 36 Master Plan Proposal source: Author

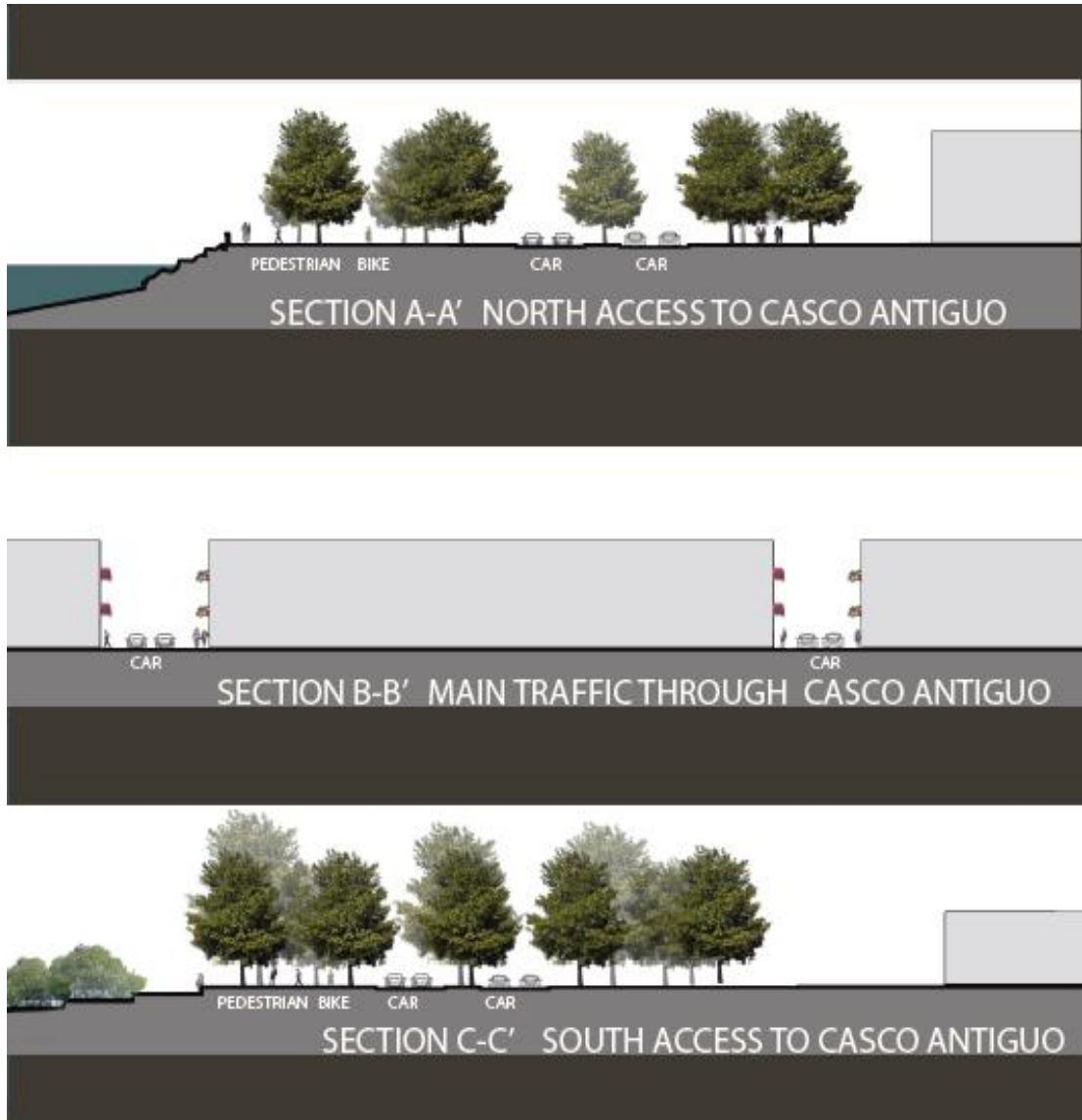


Figure 37 Section showing proposed connectivity of Coastal Beltway with Casco Antiquo source: Author

Puertas Proposal

The three site specific designs proposed are: Gateway to the Land, Gateway to the Sea and Ecological Gateway. They are connected with the two proposed pedestrian streets that reinforce the historic axis and improve the pedestrian experience in Casco Antiguo.

Gateway to the Land

Gateway to the Land, the historic “Puerta de Tierra”, was the only land connection between the fortified settlement and the neighborhood of El Arrabal. As was mentioned, in the Historic Research Chapter, the expansion of the city the wall resulted in the Puerta being demolished by Law Decree on October, 11 1856. Currently, the archeological remains of Puerta de Tierra have been excavated and are under the building of the Mayor's Reception Hall (See figure 38).

The challenge of this site is: how to reveal the presence of the historic gateway when there is no visual evidence in the public space. Some of the design principles used was that the design needed to be authentic and have an expression of its place, culture and time. For this purpose, several exploration models were used as a tool (see figure 38). The design approach for this site was to reveal the threshold of the historic wall in Avenida Central which is the closest public space near to the remains of the historic gateway (see figure 41). With this approach the visitor will have an element that clearly shows them the boundaries of the ones fortified settlement and help them orient through the Historic Town (see figure 40). This experience will be reinforced by facilitating a visitor center where the remains of archeological gateways will be exhibit for the public.

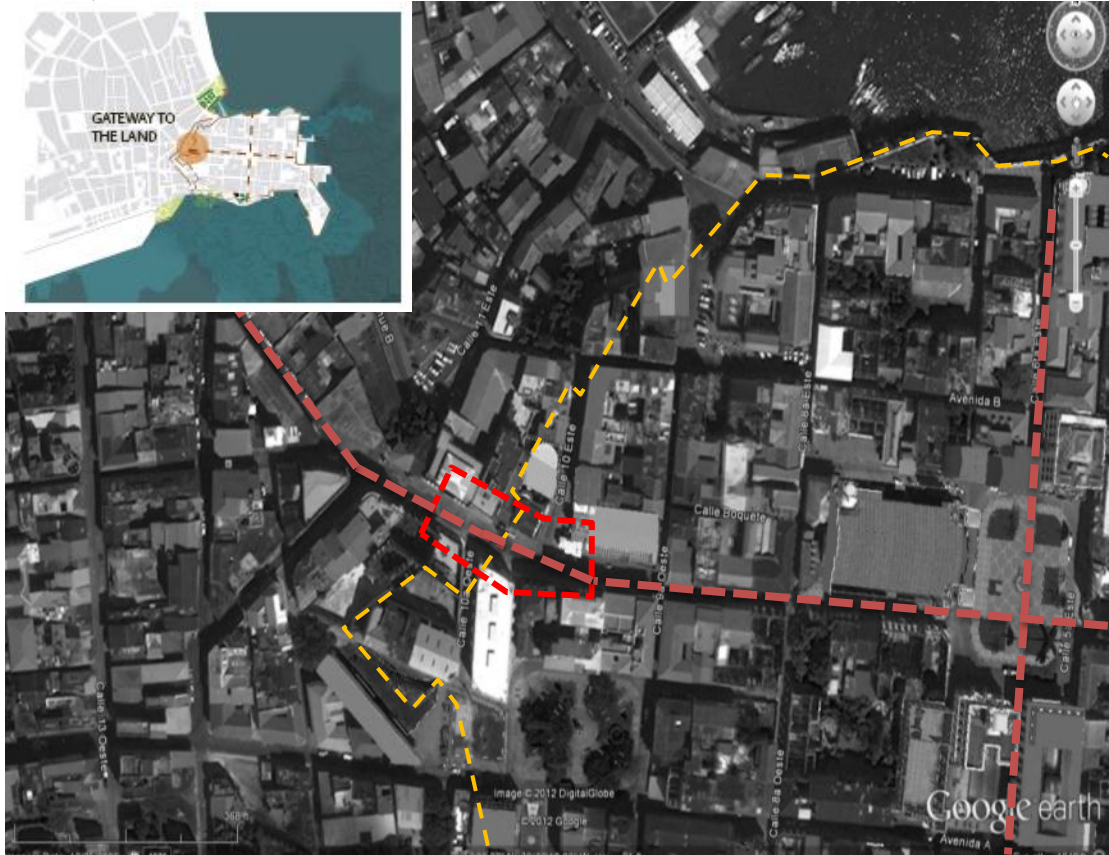


Figure 39 Context of Puerta de Tierra source: Annotation from of google

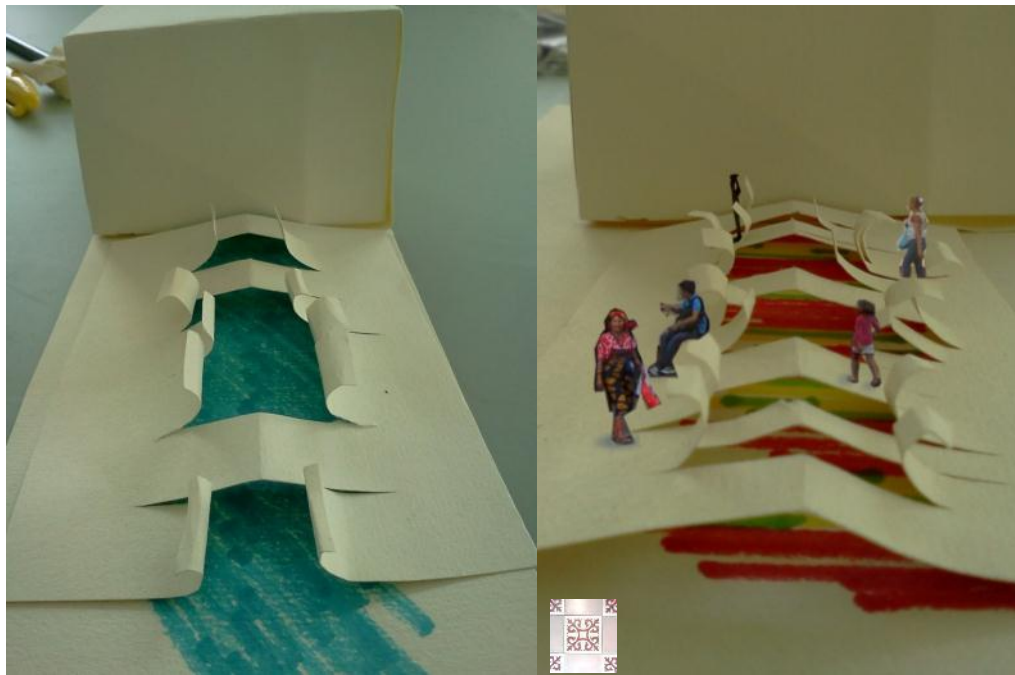


Figure 38 Models for Design Exploration

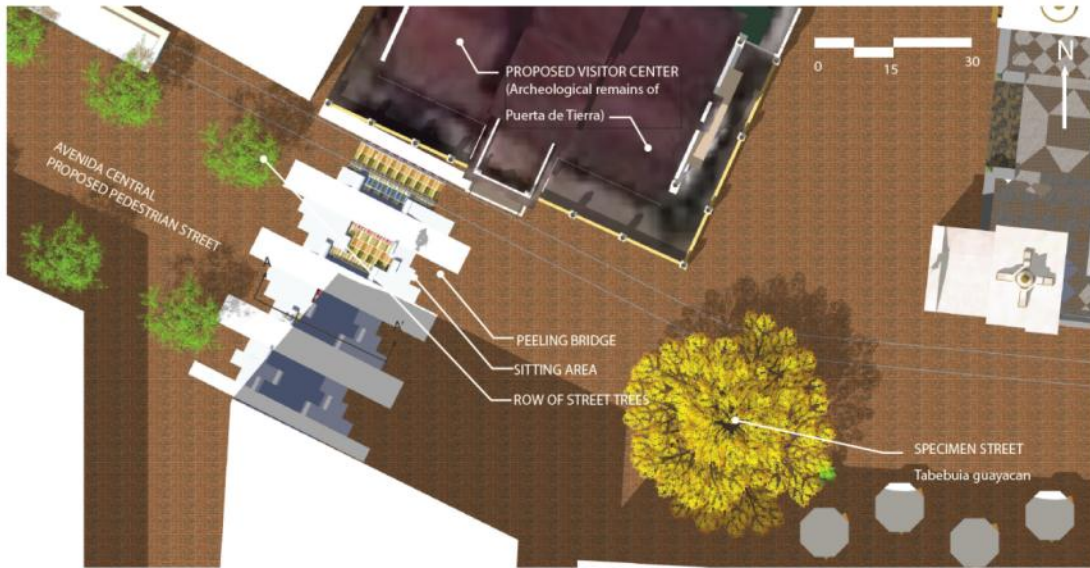


Figure 41 Plan View Puerta de Tierra source: Author



Figure 40 Perspective Puerta de Mar source: Author

Gateway to Sea

The Gateway to Sea is the historic “Puerta de Mar”. It was the main entry point from the sea. Original character of the area was very commercial and all activities related with merchandise transportation and trade. Typically, merchandise such as gold was coming from the Pacific Ocean, and then transported by land to Portobelo on the coast of the Atlantic Ocean to finally be shipped to Europe. The character today has changed from commercial to institutional business. The President’s House is the most important structure in the area (see figure 43). The proposed gateway covers a Presidential Security building the building can be demolished because of its lack of historic and aesthetic value.

The objective of this design is to bring to Panamanian’s memory of the historic gateway and to honor the relationship Casco Antiguo and Panama have with the sea (see figure 43). In the design proposal two columns with fountains, symbolize the Pacific and the Atlantic Ocean. Tides are also a significant connection of the land to the sea as can be seen in figure 44 and 45. The staircase between, the columns symbolizes the history of the country as “The Path between the Seas”ⁱⁱⁱ; Panama’s history has been shaped by its geography and location.

This proposal also includes a connection between Puerta de Mar and the Coastal Beltway. Several elements are proposed to enhance the pedestrian experience. Coming from the north, the visitor will have the opportunity to transition from a car experience to a pedestrian experience. Then they can visit the historic wall and arrive to Puerta de Mar. From Puerta de Mar, they can enter Casco Antiguo by walking

through 6th Street (one of the proposed pedestrian street) that will take to the heart of Casco Antiguo, Plaza Mayor. (See figure 42)



Figure 43 Existing Condition Puerta de Mar source: Author annotations based on Google Earth image



Figure 42 Plan View Puerta de Mar source: Author



Figure 44 Perspective Puerta de Mar in Low Tide source: Author



Figure 45 Perspective Puerta de Mar in High Tide source: Author

Ecological Gateway

This third gateway does not have a historic gateway precedent, but it arises from current connectivity necessities of Casco Antiguo. It is located at the south end of 6th Street where this project has proposed a pedestrian connection of Casco Antiguo with the Coastal Beltway. The most valuable condition that the site has is the presence of 5,990 square meters of mangroves. (See figure 46) The mangrove has growth in an area that is part of the Ruins of the Electric Power House. The fact that the property is in ruins, there has not been any major human intervention, and other natural factors, have favored the condition for the mangrove to grow in a spontaneous way.

The objective of this design is to highlight the value of mangrove and provide educational opportunities for nationals and visitors. The first important step was to define the infill limits for the Coastal Beltway and a buffer area around the existing mangrove for its preservation and protection. The minimum intervention was a key factor in the design, so the majority of the walking paths are proposed on top of an existing wall. (See figure 47)

Several observation shelters are proposed oriented to mangroves and others important views in the area. The Ecological Center with a plaza is an important educational element in the program, where the process of how mangrove helps to improve water qualities can be explained. (See figure 48 and 49)



Figure 46 Existing Condition Ecological Gateway source: Author annotations based on Google Earth image

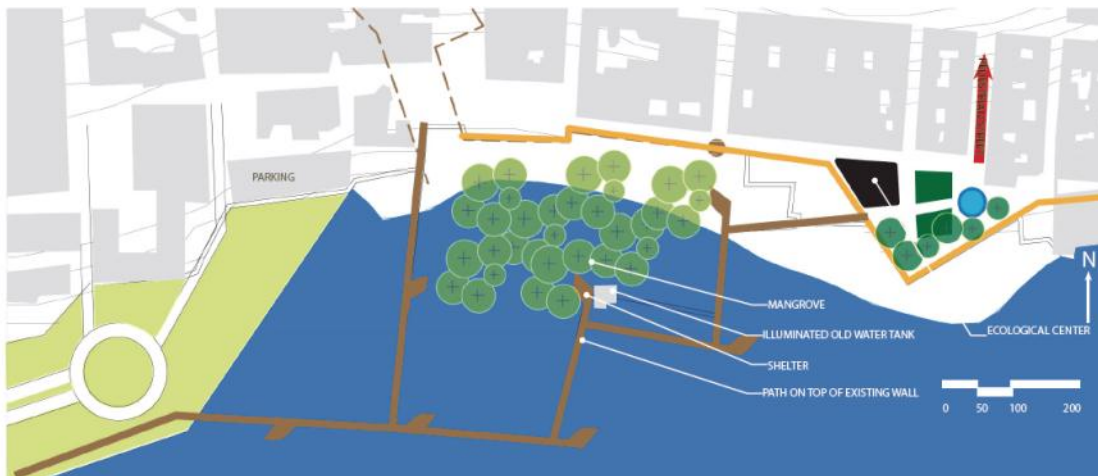


Figure 47 Plan View Ecological Gateway source: Author

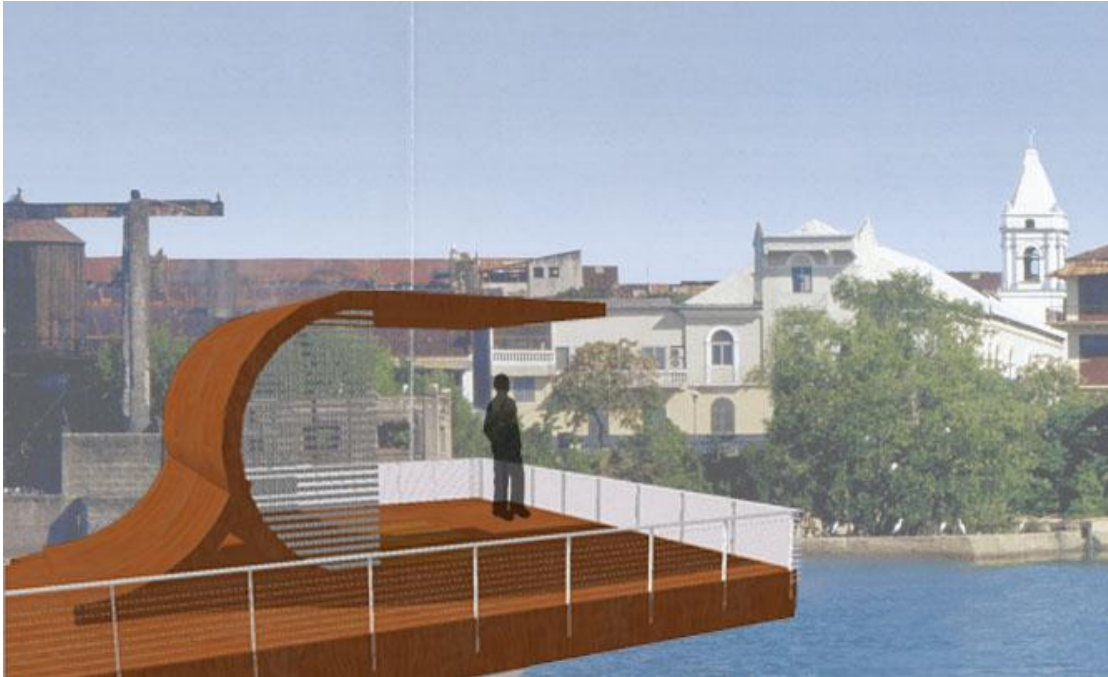


Figure 49 Perspective: Shelter looking at Mangrove source: Author

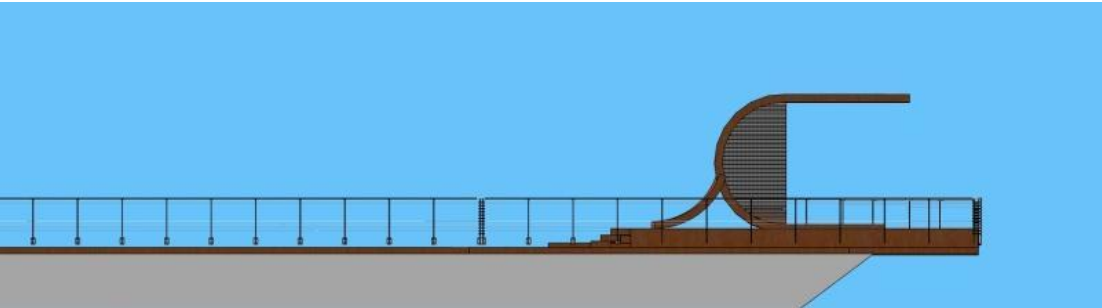


Figure 48 Section: Shelter looking at Mangrove source: Author

VII. CONCLUSION AND RECOMMENDATIONS

People often resist changes in their physical environment. They attach memories to places and when these places change, people often fear they are losing their memories. Today Casco Antiguo is facing a period of change, but it is not the first one. The Urban Configuration of the Historic District has the footprints of many periods in history; in some places, even the threshold of the historic wall has been taken away, making it difficult for visitors to understand the meaning and value of the place.

The Coastal Beltway is the project that currently is causing change and a lot of controversy. What if, instead of understanding it as a threat, designers and planners take advantage of this period of change to reveal the history and meaning of the Casco Antiguo? How can the Coastal Beltway project become an opportunity to reveal and celebrate the neglected history of Casco Antiguo and improve its environmental quality and living conditions?

This thesis project explores these possibilities and also attempts to uncover the reasons why making connections to the past in physical form are important. Casco Antiguo's identity and built heritage that has led it to become a World Heritage Site need to be preserved. However, it also needs to be made accessible to Panamanians and visitors. The best solution for this complex problem may not lie in one person's ideas but in the ideas developed by a multidisciplinary team that includes professionals, residents and visitors.

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ⁱ"Sitio del ancon" was named for the existence of two "ancones"(Greek term that means "elbow") two coves where ships can anchor. One of them is on the side of the peninsula itself, while the other was at the mouth of the Rio Grande unrecognizable today by the construction of the Panama Canal and the different fillings that were made in the Chorrillo, La Boca and Amador.

ⁱⁱThe Laws of the Indies was an the entire body of law promulgated by the Spanish crown during the 16th, 17th, and 18th centuries for the government of its kingdoms (colonies) outside Europe, chiefly in the Americas.

ⁱⁱⁱ *"The Path between Seas"* is a book by David McCullough that describes the history of the Panama Canal.