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BARCELONA URBAN SHAPE: A Proto type as a measurement of the Cèrda block on the metropolitan scenario

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ABSTRACT

ABSRACT

"Geometry if fundamental to understanding architecture." Santiago Calatrava

For a city that serves as a model for development, Barcelona's redevelopment plans creates opportunities that nurtures the design process into finding solutions for various demographic, social and urban issues. The model for relative development, must be related directly to the functions of public spaces. These public spaces must somehow translate themselves into three (3) dimensional spaces. In this transformation, the concept of figures/abstract figures are achieved through solid-void theory which is counterpart to figure-ground theory. These can be defined or made finite by ways of points, lines, column's walls, earth movements and so on. This paper aims at shedding light on the possibilities of geometry and its embedded characteristics in the urban environment, by describing the concept of triangular space compositions dwells on the concept of moving through negative spaces and inhabiting positive spaces, categorizing the public space and defining the micro scale territory.

Keywords: Positive space, Negative space, Triangular compositions, abstract figures, solid-void, figure-ground.

Introduction

Effective transformations of cities are reliant on various factors all subject to careful and meticulous planning and consideration. These all come together to create a proposal that ultimately transforms the environment into what is known as urban re-development. The situations of redevelopment of urban space could be argued in depth towards requalification, rather that redevelopment. This is because re development consists mainly of an entire district, or city, whereas requalification provides new emphasis on the qualities that could be exploited to enhance the quality of the urban environment. This could be seen by the enormous efforts the municipality of Barcelona has made in recent years to provide various forms of urban development and requalification of the core city center's geographically by creating proposals that emphasize either social change or infrastructural and architectural figures that will put Barcelona further on the international map as a model of urbanization**." it's no longer a matter of building alone, of erecting more buildings. The goal is to improve the urban model of Barcelona, that is, make the most of the density and diversity to strengthen our neighborhoods or create new ones through the execution of various projects that make our city more sensitive to the Mediterranean culture. For this reason, in addition to the new projects that we can all see, we have also embarked on an ambitious restoration program that proposes specific actions involving the city's most traditional areas."(note BCN docs).** Therefore urban redevelopment should focus its future concerns on how to re-vitalize and re – qualify their respective areas by specifying the purpose of development. The techniques should vary based on the research indices which would lead to more profitable and choices and proposals.

CHAPTER 1

Characteristics of Urban Spaces

"It would be extremely difficult to represent a medieval urban layout(for example, Siena's Piazza de Campo) using T-squares, compasses, and drafting machines. These tools are good only for boxy architecture, which can easily be represented in perspective." Bruno Zevi

Genius loci (genius of place) characterizes the urban environment. This quality describes places that are deeply memorable for their architectural and experimental qualities. The effect of special identity reflects the purpose and usefulness of the space. Spaces are called negative if it is unshaped after the placement of figures, while it is positive space if it has a shape after the placement of figures. Figure here being an object, a form and element responsible for creating spaces. The ground is alternatively called a residual space. The sequence of urban paces and their arrangement of buildings and ancillary facilities creates meaningful positive spaces, eventually the identification characterized by the genius loci. It is my opinion that Urban Spaces are responsible for the development of a community, and each community is characterized by the urban spaces within.

Architectural Historian Vincent Scully argues that "modern architecture and planning prevalent in the middle years of this century by merely accommodating the automobile were unable to provide for a community" he states: "....architecture is fundamentally a matter not of individual buildings but of the shaping of community, and that, as in Paris, Uruk, or Siena, is done by law." His statement justifies the amount of resources put by the Municipality of the city of Barcelona, for finding new ways to create an environment that caters to the needs of its inhabitants. Putting Barcelona on the International map as an ideal model city. Pevsner too had his views on the socially responsible would face up to the social responsibilities of the mass society, he states: "The warmth and directness with which ages of craft and a more personal relationship between architects and client endowed buildings of the past may have gone for good. The architect, to represent the century of ours, must be colder, cold to keep in command of mechanical production, cold to design for the satisfaction of anonymous clients".

Lewis Mumford's "THE CITY IN HISTORY", Mumford reviews the evolution of the city as a social and functional phenomenon from antiquity to the modern era. He narrates how for the first time in human history, man was brought together to live collectively with one another within walls, through quicken methods of communication and co-operation. The temple/Church usually being the first edifice to emerge and then the citadel and the bounding wall. After this order had been established the development of the city growth or took its direction towards different strides, where human work groups were organized as in early Mesopotamia and Egypt. However, he goes on the say: "But against these improvements we must set the darker contributions of civilization: war, slavery, vocation over-specialization, and in many places, a persistent orientation towards death. These institutions and activities, forming a "negative symbiosis", have accompanied the city through most of its history, and remain today in markedly brutal form, without their original religious sanctions, as the greatest threat to further human development. Bothe the positive and the negative aspects of the ancient city has been handed on, in some degree, to every later urban structure. Through its connection of the physical and cultural power, the city heightened the tempo of the human intercourse and translated its products into forms that could easily be stored and reproduced. Through its monuments, written records, and orderly habits of association, the city enlarged the scope of all human activities, extending them backwards and forwards in time. By means of storage facilities (buildings, vaults, archives, monuments, tablets, books), the city became capable of transmitting a complex culture from generation to generation, for it marshaled together not only the physical means, but the human agents needed to pass on and enlarge this heritage. The remains of the greatest the cities gifts. As compared with the complex human order of the city, our present ingenious electronic mechanisms for storing and transmitting information are crude ad limited."

In the final chapter of his book, CITY, William H. Whyte presents a case for reinvigorating the core of the modern American city based on many years or researching, by archival analysis and direct observation, the streets of New York and other cities. He has concluded that the Agora (Greek work for Meeting place) of ancient Greece should be used in model designing the successful urban center. His primary focus throughout the book is how urban spaces promote the social health oh their inhabitants – from the views of both function and safety and also encourage conversation, public discourse, and social change. He is particularly fascinated with the street corner, a place that is incomparable for bargaining, saying goodbye, and a host of other informal, unplanned human activities.

He states that the declination of the importance of the city center in American, and how the continuous shift away from the center towards the suburbs as a consequence of weakening the center. He said ".. you see a mishmash of separate centers, without focus or coherence,........it is hard to see how it can do anything but worsen." This phenomenon has led scholars towards analyzing the effects this movement from the urban sprawl towards the suburbs or annexing cities affect the productivity and social aspects of the urban environment. It tends to provide highly rated level of life functions with regards to the urban infrastructure and social amenities, while neglecting the quality of life of the inhabitants of the city. Hence the inhabitants of the annexing districts or suburbs tend to enjoy a better life that the inhabitants of the city center. This lays emphasis to Whyte's concern about the continuous decline of the relevance of the city; becoming no more than a mishmash of activities and not holding any pure respectable function as it should have. The city center should be characterized by a series of agora's, located within the hierarchy of the city. It should have its focal point from which the life and perception of the people are influenced by, these elements would create a system where not only the urban environment would have a tentative shape for a model city, but also provide for a more united and understanding "community".

Kevin Lynch's **"THE WASTE OF PLACE"** writes about waste as a pervasive process in human society. He writes that "great wasting are echoed in the human settlement" and notes the many different forms of waste. He notes the role of the building wrecker and the growth of the modern demolition industry, the recycling of building materials and the salvage business, and the attraction of vandals to "impersonal" public or institutional property. He concludes that wasting is "a feature of the underlying flux that carries us along, the everlasting impermanence of things. There is a short term wasting of objects, and a long term wasting of place."

The urban environment quantifies the life that it accommodates, thereby making the components of its functions very important to the total system that it should provide. However, architecture has always tried either knowingly or unknowingly to provide for the human race by addressing cultural and social problems albeit in various styles and disciplines, but the human life cannot be catered for without understanding the social implications. Antoine de Saint-Exupéry writes:

> One cannot build life from refrigerators, politics, credit statements and crossword puzzles. That is impossible. Nor can one exist for any length of time without poetry, without color, without love.

This could be simply explained that the provision of urban infrastructure cannot be predicated only on the tangible things that we see and find, but the characteristics of the people to whom the shape of the urban environment or space is provided.

Characteristics of Spatial Composition

"The use of building compositions often shape the texture of the residual space. Buildings today are created by ignoring the consequences of the effect its shape has on the outdoor space and its implications of its outdoor functions. These often create outdoor negative spaces because the composition is not arranged to lend a particular shape to the outdoor environment. These traits are mostly predominant in the sub urban parts of the city, where the characteristics of the figures of the urban environment take a free standing objects in space". Urban buildings are designed under opposite assumptions: buildings shapes can be secondary to the shape of public space to the extent that some urban buildings(figures) are almost literally "deformed" so that plazas, courtyards and squares that abut them may be given positive shapes. Influencing the outcome of the general description of the urban composition.

Most architectural forms can be classified as additive, subtractive shaped or abstract.
  i.   Additive forms appear to have been assembled from individual pieces.
  ii.   Subtractive forms appear to have been carved or cut from a previously whole form
  iii.   Shaped forms appear to have been formed from a plastic material through directly applied force.
  iv.   Abstract forms are of uncertain origin.

These Architectural forms created by architect, planners and designers sometimes seem to be completely out of touch with the people and with each other. Invariably, they should all be serving together in harmony. "Architects and Planners certainly have done things which "the people" most certainly did not want, and the people themselves don't seem to be able to say what they would like if they could have it…." It has become evident that the spatial composition of any environment bothers deeply on the identifiable architectural styles being used in the community/urban spaces. These collectively place the design elements under the spot light of urban critics and social researchers, raising intellectual arguments that tend to dwell on either individualistic attacks or rather criticisms on the type of architectural style used to compromise the spatial composition of the environment.

"The irrepressible urge of critics to classify contemporary movements which are still in a state of flux by putting each neatly into a coffin with a style label on it…What we looked for was a new approach, not a new style"
This was the response of Walter Gropius in 1956 when asked with the question What constitutes a Style? Charles Moore stated in his book "Moore is More" that Whether we like it or not, the spaces and shapes of buildings contain certain psychic qualities. We perceive these and they assist the human memory in recon structuring connections in time and **space**." As mentioned above, among the four(4) points in which architecture could be classified as either additive, subtractive, shaped and abstract, Moore's comment falls under buildings taking an abstractive form from an earlier known origin. Likewise, in the Journal of Architectural Education, Peter McCleary discusses major technological factors that will affect the ways people view and respond to architectural form: transparency and opacity; amplification and reduction; and appropriateness to and appropriation of context. He challenges the designer to explore how "the dialectical relationships between builders and their environments lead to a special kind of knowledge which comes from their use of technical equipment, processes, and theories." To my understanding , McCleary's statement also sheds light on how the developing world of technology plays and important role in shaping the form of the built environment, either through immediate environmental effects through technology or the consideration of these technologies while the designer/architect conceptualizes and creates the space for which the anonymous users would inhabit. "..new concepts of technology will generate new perceptions that might lead to new concepts of architectural space and time which will demand a new language of architecture", these are all statements which tend to point towards the very many factors that characterize the urban space, and how they could be created and manipulated to eventually meet an architectural style or respond to various research indices that should provide social intervention for the urban community.

Characterizing Spaces depends a lot on the approach the designer or the architect employs. These approach explore the elements of spatial composition, and they should be taking into account while making urban interventions for the environment/community the project or proposals are targeted at serving." This is because the significance of technology has returned to the discourse on the purpose and meaning of architecture. In the intern a new concept of technology has risen, one that does not limit itself to building materials and processes, but defines technology more broadly as the understanding (skill and knowledge) of the dialectical relationship between humans and their environments (natural and built) in the production of a new superimposed built environment."

McCleary goes further by making a challenging statement "… neither the pre-modern architect as a master builder, not the Modernist coordinator of production, nor the fragmented perception of the Post-Modernist, have yielded a concept of technology useful to both designing and building. In his paper, he stated three(3) characteristics namely;
1.Transperancey and Opacity
2. Amplification and Reduction
3. Appropriateness-to and Appropriation-of Context, "… our perception is a function of transparency and opacity, amplification and reduction, and appropriateness and appropriation. Other characteristics which could be explored in the future are: extensions, transformations of experience deconstruction and reformulation of **space** and **time**…"

This kind of statement is what inspires my documentation of these urban studies in acknowledgment that the characteristics of spatial composition remains not only in the realms of geometry alone, but alone in the realms of technological advancement and we as architects, designers and planners must find ways and means of adapting such technological development to ensure a collective use of both primitive design skills and processes with the complex strategies of the advancing technological world.

> *"Can there be a space, like sound, not limited by the experience of the human body and where the logic of the building materiality and its processes of construction are theoretically irrelevant? Such a space would yield a new language of architecture not influenced by building construction; an architecture where composition is everything and construction is almost nothing….."*

Spatial composition could also be considered through behavioral patterns experienced at the level of the individual senses. Social processes have given fundamental definitions that are shaped by **"architectural space."** This was aided by researcher **Edward Hall** who advised architects early on, on how humans interpret overt visual patterns of space(what someone sees) and the mental images of place that each person assimilates throughout a lifetime(how someone sees).
He goes on to say in his book "THE ANTHROPOLOGY OF SPACE: AN ORGANIZING MODEL" that ….."because territoriality if fixed, I have termed this type of space on the proxemics level Fixed Features Space.

FIXED-FEATURE SPACE

Proxemics is a term used to define the interrelated observations and theories of man's use of space.
Buildings are a part of the fixed-featured space, but they are also grouped together in characteristic ways as well as being divided internally according culturally determined designs. Architects and designers are traditionally occupied with the visual patterns of structures, which is why we tend to focus more on the outward appearance of out deigns while neglecting the inward perception the building gives on the anonymous users. Hall states that the problem facing us today in designing and rebuilding our cities is understanding the needs of large numbers of people. We are building huge apartment houses ad mammoth offices without understanding the needs of the inhabitants .

SEMI-FEATURED SPACE

A young physician called Humphry Osmond noticed that some spaces, like railway waiting rooms, tend to keep people apart. This is probably not due to the fact that the individuals in the waiting room are total strangers but he classified such spaces as **Sociofugal spaces** while other places like tables at a French side walk café tend to bring people together, he called this space a **Sociopetal space**. A case study was under taking I the hospital which he worked in and the cafeteria was selected as a location for an experiment which would aim at understanding the reasons why human interact differently under certain furniture arrangements. The table below shows the varying possibilities.
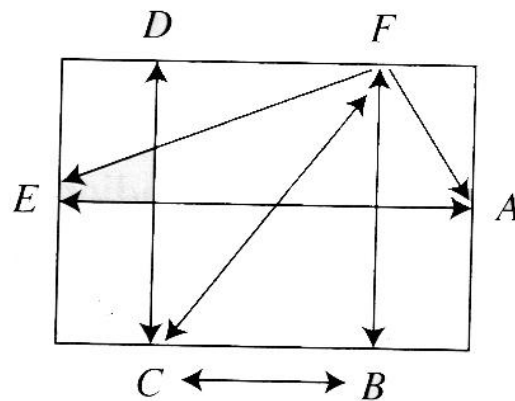
(Source: pp. 326, Classical Readings in Architecture)

F-A Across the corner
C-B Side by Side
C-D Across the table
E-A From one end to the other
E-F Diagonally the length of the table
C-F Diagonally across the table

After fifty(50) observational sessions, the F-A conversations were twice as frequent as the C-B, which in turn was three(3) times as frequent as the C-D, while no kind of conversations where observed in the other positions. In other words, face to face configurations tend to produce more **Sociofugal Spaces** while angled or corner configurations tend to produce more **Sociopetal Spaces.**

INFORMAL SPACE

Spatial experience is very important for the individual, because it includes the distances maintained in encounters with other individuals. The distance between individuals are unconsciously maintained without the consciousness of the individual in question. Hall calls this informal space because it is unstated, not because it lacks form or has no importance, but that informal space pattern have very distinct boundaries, and such deep if unvoiced, significance that they form an essential part of the culture.

CONCLUSION

Ariola and Fiol Architects described in the paper "The Public realm" that: "….the beginning of a design always consists in getting to know a "place". The project evolves from the place itself, which is not merely the backdrop, limiting and hindering the design. In our analysis of a place, meaning the site and the people, we uncover guidelines determining the design.
Our first visit to a place is very significant. We experience its atmosphere with all our senses. Not only the architecture of the place becomes clear to us, but also its other distinguishing features: how it is used, which points, lines and levels evolve from its uses, the automobile traffic, pedestrian routes, open-air events, and gathering places. We also observe the surroundings of the place: its topography, the course of streets, the height of the buildings, the density, history and life styles of the neighborhoods." This known fact about reconnaissance cannot be abandoned in the quest for designing a more conscious habitat for the urban environment. It is one of many characteristics of the urban space that carries the shape of the city, the soul and the patterns of the city.

They summarized by saying that a city expects them to create "a new public space that is easy to find on the map and often sought out by neighbors and visitors alike." Without neglecting the environment, it is also important to consider the landscaping of the design site, the environment as stated from the references above about the various urban characteristics, compositions and development, should take into account all manners of approach in order to make the most suitable urban development. " The gap between the infrastructure project and landscape design, between engineering works and quality of urban space, is a fact. The causes of poor integration are different, between these the indifference of the spaces of mobility with regard to nature and the stratification of places, the poverty figurative of many design solutions, the concept of a space transport as an element strictly monofunctional that usually does not integrate different uses and activities, as a purely technical solution to the shape of the city, almost never designed as an element of the regeneration of landscape, but as an exclusive place of movement and crossing. The infrastructure project is combined with the search for a new spatial quality, when the technical and morphological solutions conceive infrastructure not as an isolated element, foreign or superimposed on the context, but as part of the process of construction-regeneration of the landscape.
In particular, the project for the rehabilitation and re-functionalization of linear infrastructures can become an opportunity to re-establish significant relations/interactions between parts of the city and territory, for the redevelopment and enhancement of places where the cultural and historical heritage and the landscape are a substantial source. The theme of inclusion of linear infrastructure in the landscape is declined in the following paragraphs by examining some experiences already implemented or being planned, extreme cases chosen according to their symbolism and the specific context, to assess the application and testing of innovative architectural designs and new planning proposals in areas which, although are confronted with problems related to lack of infrastructure and needs in the functional reorganization, appear to be highly stratified and places with substantial value and identity. The aim is to bring out the complexity of the search for design solutions for infrastructure that intersect very different situations and contexts (relations between "linear system", "figures" and "sections") where it is necessary to put together technical and constructive solutions with historical and/or morphological singularity, or infrastructure that represent and express themselves (also with the architectural choices) the context through enhancing the landscape, or infrastructure where is dominant the issue "perceptual", the dynamic component or dimension of time, etc. (**Traces in the Landscape. Re-interpreting the Linear Infrastructure,** Research Project on Centro Città d'Acqua, Venezia, by **Oriana Giovinazzi, Gianvito Giovinazzi)**

CHAPTER 2

BARCELONA: PHASES OF GROWTH AND TRANSFORMATIONS

Barcelona is now widely recognized as one of the most successful cities in the world, internationally acclaimed for its innovative urban planning. It has survived the economic, environmental and social changes of the last decades through focusing upon the provision of knowledge-based and information services to place itself in the forefront of a new urban wave, in which city planning provides high-quality opportunities for people to live and work. In short, Barcelona has been transformed into a city that provides a highly impressive urban environment to all who visit it.

The foundation for Barcelona's transformation has been the city's *Eixample* district, a garden city expansion of 520 street blocks planned as long ago as 1859. Its high quality architecture, egalitarian design and ease of access have stood the test of time and it provides the model for modern city developments today.

The modern transformation of Barcelona began with preparations for the 1992 Olympics. Faced with serious problems of urban decay in both inner and peripheral districts, planners took a holistic approach and used the Games as a vehicle for city-wide reforms. Olympic facilities were spread over four neglected urban areas, with the Olympic Village, developed on abandoned industrial land close to the coast, the best known feature of this period. The construction of six artificial beaches either side of the Olympic Port has had the most impact and for the first time in its history, Barcelona has been able to turn and face the sea with pride.

At the same time, a radical transformation of inner city districts began, with a policy of improving the social capital and mopping-up the marginal inhabitants who had given the city a reputation for serious crime.

Barcelona is now undergoing a third wave of transformation. A high technology zone (22@), redevelopment of placa de las glories, area sagrera, hyper-community (Diagonal Mar), the Universal Forum of Cultures 2004 and a new container port and logistics park are the key developments, all constructed on coastal Brownfield and reclaimed land. Inner city and peripheral reforms are continuing and attention, a century on, is being refocused on the Eixample. Many of the residential blocks which have lost their interior open space to industrial development are seeing a gradual return of communal gardens.

HISTORY OF THE GROWTH OF THE METROPOLITAN AREA OF BARCELONA

The structural pattern of any given area is conditioned by the predominating transport system. For example, the railway, a means of transport limited by movement from and to a specific point within a given network, creates nodes. On the other hand, the motor car with its independent character, freedom from any time restrictions, use of routes adapted to the topography and with its tendency towards high speed, provokes a random and wholesale occupation of road accessible land.
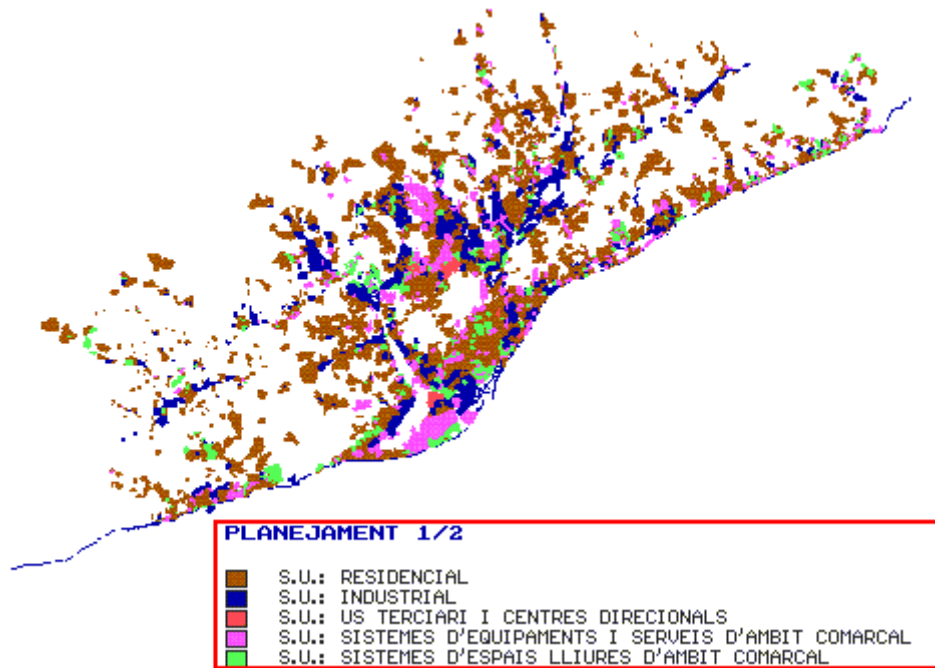
Planning of land fit for development in the Metropolitan region

(Source: Barcelona Metropolitan land Plan "Pla Territorial Metropolità de

Barcelona")

The demographic change in Barcelona (1986-2004), Metropolitan Region of Barcelona (164 municipalities in an area of some 3,239 Km2) is:

1986: 4.23 million inhabitants

2004: 4.67 million inhabitants

Overall increase of 444,121 inhabitants 1986-2004

Decrease of 165,232 inhabitants in the central area

Increase of 609,353 inhabitants in the outer area

By 1957, 10 000 hectares of Metropolitan Barcelona had been developed, a figure which had grown to about 20 000 by 1972. Thus in fifteen years as much land was developed as had been in the entire previous history of the region. The 1960s represent the period of the opening up of Spain, a time of economic growth, escalating tourism, large population migration, housing developments, second homes and of course the Seat 600. A movement towards the rest of the western world was evident during this period. The really explosive period of expansion took place during the following 15 years. Between 1972 and 1986, 20 000 hectares had been built on doubling that of the previous 15 years and once again doubling the area developed in the whole of the region's history. By 1986, 40.000 hectares of the Metropolitan area had been built on.

Through the application of the 1976 General Metropolitan Plan a degree of control over growth was imposed, leaving the major area of expansion in this period to the 27 municipalities on the outskirts of Barcelona. During this period car ownership was becoming a common denominator.
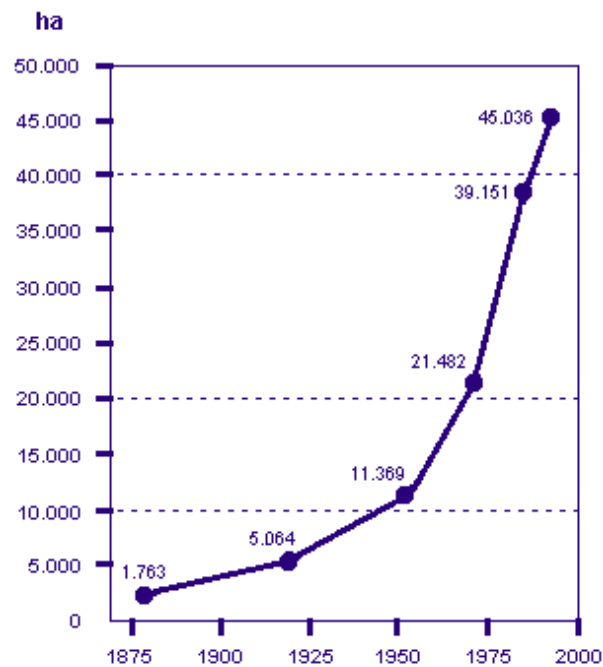
Source: Albert Serratosa, "Els Espais oberts en el planejament metropolità:

realitats i propostes

In 1989, 143 of Metropolitan Barcelona's 162 municipalities had some kind of town planning aimed at regulating their development. The planning logic was ambitious: in each case seeking a position of competition where economic logic reigned supreme over all over considerations in land development. Space became an essential component of consumer growth and therefore of business, disregarding the correlation between urban growth and population growth, which in the past had been respected.
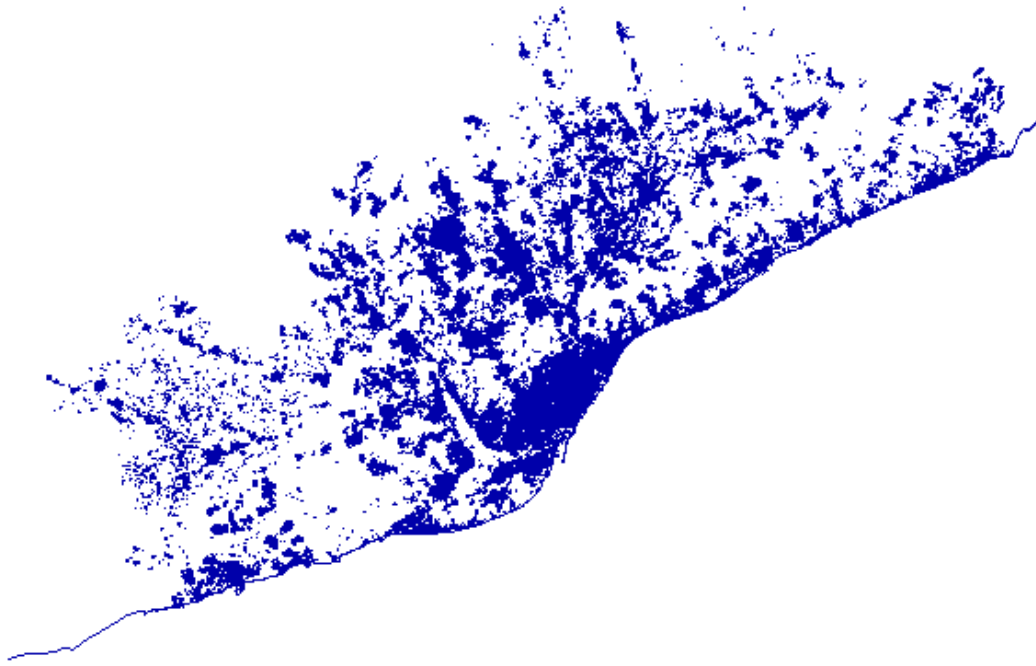
Urban systems of the Barcelona Metropolitan, 1992

(Source: Barcelona Metropolitan land Plan)

By developing the flat land, the fertile stretches and the river basins, the urban sprawl spreads out in a chaotic manner; a housing estate here, a block of flats there, following the course of a river an industrial estate, beyond that the shopping centre with its immense parking area, etc, etc,. Such is the vision greeting travelers approaching Barcelona at a distance of about 40 km.

Obviously there is loss of open space, not only a result of the low density of the developments (in many cases less than that of old established villages), but also a result of the large areas of "no-man's-land" left between one development and another. These neglected expanses are often strewn with urban waste and general debris, representing for the vast majority of the population highly undesirable spaces.

BARCELONA CITY URBAN CONTEXT

The foundation for Barcelona's transformation has been the city's Eixample district, a series of 520 street blocks planned on a grid with major boulevards cutting through the pattern at 45 degree angles. The visionary urban planner Ildefons Cerdá worked on the design for twenty years and has been an example to planners ever since the1860 plan was implemented. Its high quality architecture, attention to community green space on large and small scales, and ease of access have stood the test of time and still provide

a city that people from around the world love to visit.

At the beginning of the go's, the City of Barcelona set up an ambitious programme of urban projects, aiming at the enhancement of living conditions and at the consolidation of the existing urban fabric in all neighborhood's. Under the leadership of Orial Bohigas, a first phase was carried out till 1984; then the

programme went on, with most projects completed in 1987. Bohigas (1983, 1985) elaborated a solid conceptual framework for a global urban strategy.

At the end of the Franco Regime, the population of Barcelona had stabilized.

Previously, two decades of growth had resulted in the too quick building by developers and land speculators of a series of modern peripheries around the traditional consolidated neighborhoods. In the historical center, as in many of the older neighborhoods, the major problem was the aging of important parts of the urban fabric. In some parts of the city, there was also a decay of former industrial areas.

The traditional center, as compared with that of some European cities of the same size, had suffered fewer significant negative impacts of modernization. The residential density had not decreased; the commercial viability had been preserved. The downtown still sustained most functional and symbolic elements of centrality; it enjoyed the pattern of a livable neighborhood, while successfully accommodating the tertiary activities. Thus the most obvious problems in Barcelona were neither related to a loss of population, nor to an overall restructuring of the city. They arose rather from the very density of an aging urban fabric, together with the lack of public facilities and open spaces in traditional as well as peripheral neighborhoods. They were problems of consolidation, not of growth or decline.

Aerial view of Barcelona city form the Montjuic

MORDERN EXPANSION OF THE CERDA

Ildefons Cerdà produced the first real treatise on urbanism. His General Theory of Urbanization (1867) and its application to the Proposal for the Reform and Extension of Barcelona embody his comprehensive approach for industrial cities, which rested on five pillars: technical, legal, economic, administrative, and political. Cerdà addressed both the reform of the old inner city and its extension to include new areas: there was a close link between transforming a city and extending it. But he also considered the essential requirements of the new industrial city: "Today everything is movement, everything is expansion, and everything is communicativeness".

For this reason, urbanization was to be based on mobility and networks. Rather than imposing a specific urban form, he offered a set of parameters to articulate an urban fabric based on complexity and to enable urbanization based on freedom. This is best summed up in his maxim, "Ruralize the urban, urbanize the rural," where ruralized urbanization represents individual independence harmonized with enjoyment of social life. Cerdà's General Theory is a paradigmatic instance of the break with utopian approaches and the implementation of modern urbanism as a discipline. "Nothing can or should be offered the present generation, with its spirit of practical positivism, if after thorough reasoning it fails to satisfy all the necessary conditions for immediate, rapid implementation. The famous planners and utopians of the sixteenth, seventeenth, and even the eighteenth centuries would quite rightly be a laughing stock in our own time." (Pensamiento económico, 1860).
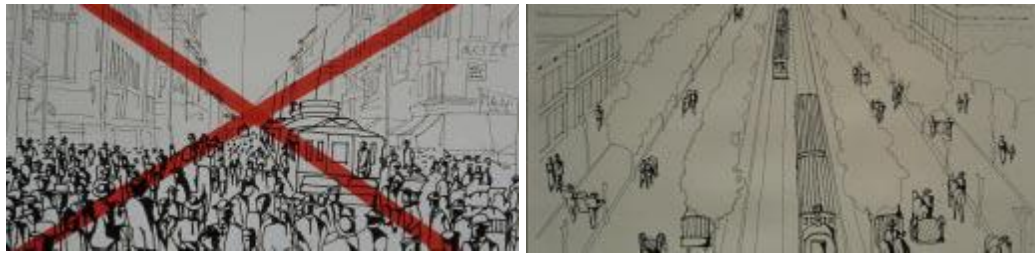
The central ideas in Cerdà's work are reflected in the following principles:

Independence of the individual within the home

Independence of the home within the suburbs

Independence of different kinds of movement on urban roadways

"Ruralize the urban, urbanize the rural"

Cerdà felt that the main objective was to achieve "the harmony that reigns in ruralized urbanization between independence of the family and enjoyment of sociability" (Teoría General de la Urbanización, 1867). He put his ideas to work in his Proposal for the Reform and Extension of Barcelona. He proposed an integrated view of urbanism relying on five bases: technical, legal, economic, administrative, and political. He even stated: "It seems impossible that there might be a professional whose heart does not tremble at drawing the first lines of the plan for a city, knowing as he must that these lines determine the material and moral future of countless families .

" With his comprehensive, integrative approach to urbanism, not only did he design the overall layout; he also defined the rights and duties of landowners and of the government, as the legal basis of the city; established rules and mechanisms for financing urbanization work and sharing out the burden and the profit, as its economic basis; drew up building ordinances following a set of general administrative principles; and his principle for political action was to harmonize the desirable with the achievable, allowing trade-offs as a form of transition to the ideal.

The industrial revolution began to hasten change in the fabric of European cities by the mid-19th century. Barcelona's unique situation at the time goes a long way to explaining Ildefons Cerdà and his work. In 1714, the walled medieval city of Barcelona was declared a military post. Building outside the walls was banned, so when factories began to use steam power they still had to be built inside the medieval fabric of the city (1832). Until 1854, population density grew to extremely high rates.

Real estate prices thus increased to levels that were unbearable for the working class, and a number of strikes ensued (1855), which were even noted by Engels himself. Faced with this untenable situation, the city's earliest urban planning demands were voiced in ¡Abajo las murallas! (Down with the Walls) by the hygienist P. Monlau (1841); they never ceased until the military enclosure was torn down (1854).

Cerdà used this new technical and urban-design experience and also looked back to the Spanish town-founding tradition, which emerged with the Christian Re-conquest of the Iberian Peninsula from Muslim rule, was adapted to town foundations in Latin America and actually became regulated

in Philip II's Ley de Indias (1573). Havana and Buenos Aires were among the cities that served as references for his future designs, in which he placed new "transcendental" (i.e. continent-wide) communication axes.

Barcelona before Cerda expansion

The Extension became a metropolitan proposal, as it was to connect the surrounding towns to the city and increase available land tenfold. To begin with, Cerdà designed a great perimeter drainage sewer (ramblar colector) to intercept the streams that ran through the Extension area so as to avert flooding.In his Preliminary Proposal for the Extension, Cerdà designed a network of 35-metre-wide streets following the principle that different forms of locomotion should move independently. His street cross-section provided separate "lanes" for plain pedestrians, load-carrying pedestrians, carriages, and railways.He also designed service alleys under which to run a service conduit, linked to adjacent buildings, grouping sewage, water, and gas pipes as well as telegraph lines.

Cerdà designed eight types of model housing – four for the bourgeoisie and four for the working class. In his view, the ideal home was a 20 x 20 meter (62 feet by 62 feet) detached house with a palace like structure; he took this ideal, superimposed it and juxtaposed it, and came up with smaller bourgeois housing units down to his fourth-order terraced housing, which was to become the standard for housing blocks in his 1859 proposal.

Worker housing was designed in the shape of galleries built around a central courtyard; there were three different types of unit for different-sized families and a fourth type for single workers. He arrived at this minimal housing unit by meeting construction and hygiene requirements and keeping the cost affordable for workers.

Cerdà grouped his city blocks, (as opposed to housing blocks) by combining different types of bourgeois and working-class housing in various arrays. He looked to city blocks in New York, London, and Edinburgh, especially London which had examples that were closest to the ideas he was developing at

this early stage.The roadway structure of this early project has not been accurately identified. However, a number of scenarios have been worked out to provide perspective views of the garden-city-like urban fabric initially designed by Cerdà for the Barcelona Extension.

Plan Cerda 1863

Cerdà's plan consisted of an open, egalitarian grid-based city, the opposite of a radial scheme. The basic roadway structure consisted of 20-metre-wide streets for the urban grid, plus a number of 50- meter-wide "transcendental ways" (as he called them), or main thoroughfares to link the city to the outside

world and to give structure to the overall plan. The underlying theoretical model is borne out by analysis of the plan: there was an equitable distribution

of services and public facilities consisting of a total 60 x 20 city block arrangement divided into 3 sectors (20 x 20 city blocks each), 12 districts (10 x 10 city blocks) and 48 "neighborhoods" (5 x 5 city blocks). There was to be a community centre for each "neighborhood," a market for each district, a suburban park for every two districts, and a hospital for every sector.
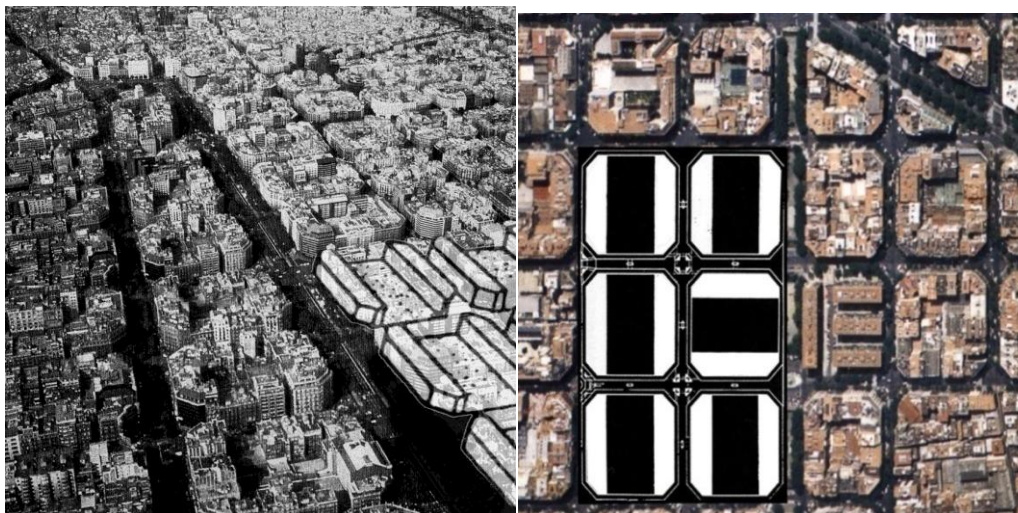
The city block arrangement consisted of two blocks of housing. Housing units were based on the fourth order bourgeois housing developed in 1855, which ensured good ventilation and sun lighting. Cerdà worked out the size of the street block using an equation that included the following variables: street

width, façade length, building depth, certain features of the 1855 housing unit, and number of square meters per resident.

These modular requirements were then turned into a number of arrangements in which the two equal length housing blocks on a city block were parallel, in an L-shape or in a T-shape. These arrangements allowed for a public garden to be set up on every city block, as well as private gardens for ground floor apartments. This is what Cerdà termed the vía-intervías (the way-interways), and it was the way to follow his maxim, "Ruralize the urban," parallel to "urbanizing the rural."

OLYMPIC TRANSFORMATIONS

The major catalyst of the modern transformation of Barcelona in the eighties to the present was the 1992 Olympics. With the end of a long dictatorship known as Franquismo, the city took advantage of its new found democracy as the Urban Social Movement began. Faced with serious problems of urban decay in both inner and peripheral districts, planners used the Games to gain enough funding to complete an amount of reconstruction that would take any city decades to accomplish.
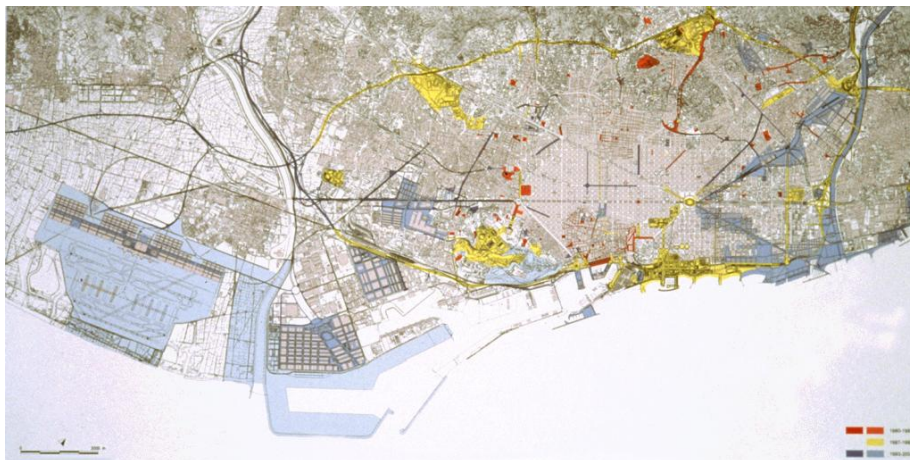
Barcelona map – Developments during the Olympics

Olympic facilities were built on neglected urban areas, with the Olympic Village, developed on brown fields close to the coast. The rail lines that cut and divided the city from the sea were opened and for the first time in its history, Barcelona has been able to turn and face the sea with pride. Six artificial beaches were created to handle the capacity of tourists that would be in the city for the upcoming Games. This change was championed by one planner in particular, Oriol Bohigas, who used the Games as a springboard to built more than two hundred parks, plazas, schools, and other public facilities in Barcelona. Most of these amenities were inserted into derelict areas where crime was high. In one area in particular, El Rival, buildings were retrofitted

to house a modern museum, police station, and other amenities.

In a period of great economic and cultural recovery, Barcelona took advantages of the Olympic Manifestation to reorganize its image and to promote The Spain into European Community. In those years the image of the city however renewed, both in the heart of the city and in the suburbs.

The areas at the border of the sea were marked by the transformation linked to the Olympic Games.

The year 1986 was an important year for two reasons: first, Barcelona was chosen as host of these games and second Spain entered the European Community, with the possibility to obtain European Funds for development, rimed to financing above all the urban project on a large scale. "Some areas were thus redesigned (Montjouic, Vall Hebron, the coastline of Barceloneta, the village of poble Nou....); they were radically rethought to offer new facilities, but also to satisfy the long-standing needs of the citizens. Witness, in particular, the road and transport systems designed for the deadline of 1992, above all the ringroads (Las Rondas)" *(da: Antonio Pizza, 'Barcellona critica. Gli scenari dell'attualità'., in: Critical area, 2007).*

In the period between 1980 (after the death of Franco in 1975), was characterized by the design of circumscribed projects, that prioritized (with the leading of Oriol Bohigas, who was appointed as council chairman for town planning in Barcelona) architectural design rather than a more general project (140 projects concerning squares, streets, gardens and little parks – almost all empty areas). The period between 1987 and 1992, the program about new centralities was created, with the objective to promote an urban regeneration of suburbs. After the first step, the second step resulted in lead to great urban themes. In

particular the projects now concern sports facilities, their services and, at lastly, transport infrastructures, over all road network.

The creation or rehabilitation of public spaces was clearly intended to be the basis for the balancing and strengthening of the various parts of the city, the urban form of which was highly heterogeneous. The underlying philosophy of the urban strategy was to foster the social and physical identity of each neighborhood, as well as to reintegrate the fragmented parts of the city. In this perspective, public space - considered as a condenser of social life and a regenerator of the overall urban context - was given the major restructuring role.Thus, the reconstruction of the city was conceived as a reconstruction "from below", piece after piece, and not "from above", within the framework of an all including general plan, that would not have taken into account the genius loci, the variety of the urban fabric of each fragment, its proper activities and social atmosphere. The broad range of open space typologies that were used in the projects responds to very specific local contexts and social needs.


Barcelona beach developments

In the traditional neighborhoods that had developed around the urban nuclei of the 19th Century, such as Gracia, Sarria, Sant Andreu, that actually form a belt at the limits of the Cerda Extension, several existing small squares have been rebuilt. They had often been neglected and many of them were used as parking lots. The squares of Gracia deserve a special mention for their careful and contemporary design. Other small squares have been created in the dense old fabric of some neighborhoods.

Plaga de las Navas, for instance, substitutes to an old intersection of little streets formerly used as parking lot; it now stands as a nice oasis built on three levels, including a promenade, a triangular esplanade and a sunken space for children's play. Plaga de la Merci: was created on the site of an old shabby block, which was torn down to give way to a more formal square ("place-salon") facing the facade of a church. Plaga de la Sedeta is another good example of a well-designed new small square, created in the semi-open interior of a block, the corner of which has been rehabilitated; this former school building was recycled as a civic centre for the neighborhood. In recently built peripheries, larger squares have succeeded in "dignifying" and giving a new sense of urbanity to formerly desolated surroundings of dull high modern housing slabs.

In the middle of one such surroundings, Plaga de la Palmera, divided by

a huge wall-sculpture by Serra, various types of spaces for promenade, rest, contemplation and active games are offered. Plaga Soller also combines a "place-salon", an elevated promenade that defines three of its limits, and a garden including trees, alleys, running water and a basin with a well-integrated modem sculpture.

The design of the square has created its own unity and formal coherence that enhances the very heterogeneous surroundings and offers to the users a very much needed diversified open space. On a larger urban scale, one must mention the Plaga de 10s PaYsos Catalans – much discussed in many architectural reviews - located in front of the Sants railway station. Here again, the surroundings were very difficult to cope with. The site was a kind of cul-de-sac, bordered by traffic roads and very disparate buildings out of scale. The project, using high modern metallic structures to "sculpt" a self-sustaining space, has largely been recognized as one of the strongest and most innovative proposals canied out in Barcelona.
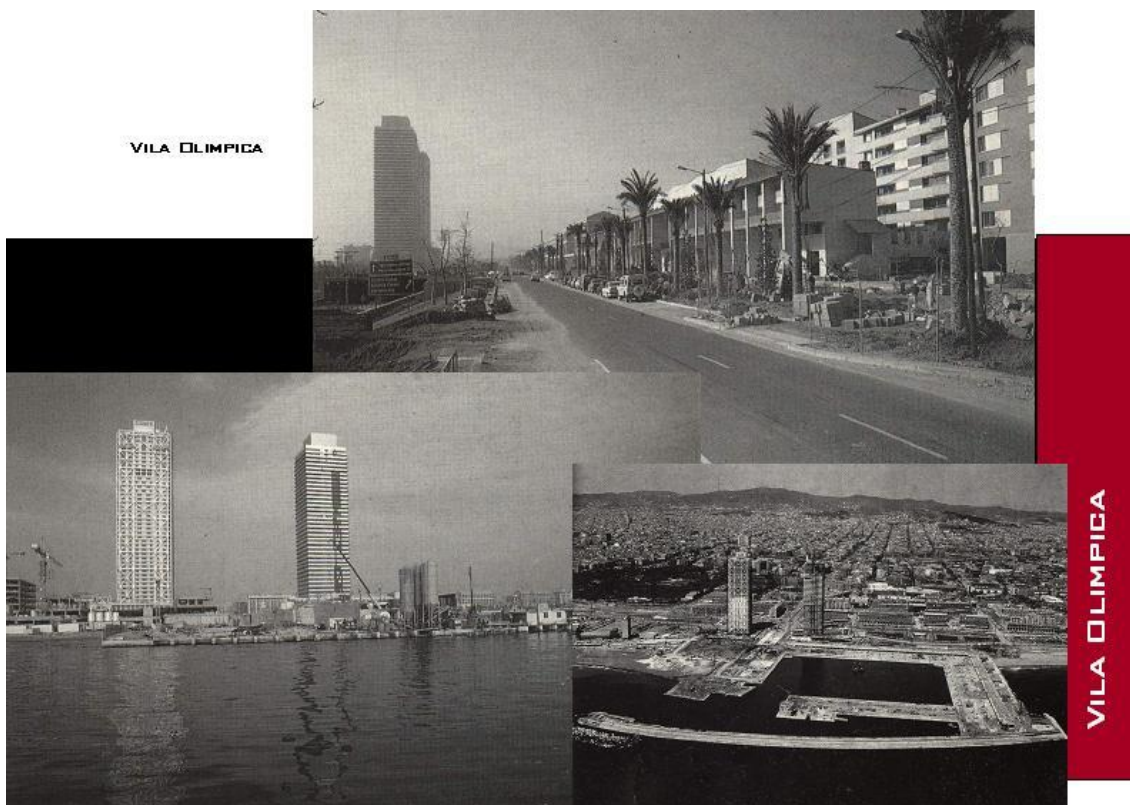
While many squares have been given a role of place definer and have often been designed as paved ("hard") places, even when they are bordered by trees, the urban gardens and the parks introduce the green in the city. It should be underlined here that several new parks have been located on former industrial or railway land.

This is the case for the parks of Espanya Industrial, Clot and Pegaso. In the Pegaso and Clot cases, some parts respectively of the former industrial buildings and of the former railway station have been preserved - like pieces of a modem "archeology" - as reminders of the history of the site. In the Clot case, they even

became central elements in structuring the design of the park. In the Pegaso park, there is an interesting treatment of two side

limits; they have been built as an elevated passage ponctuated by brick structures, turning its back to the park and linking adjacent street here and there by stairs. In the northern part of the city, on the slope of one of the hills (tzirons) that surround the city, the park of Creueta del Coll plays with the particular topography to differentiate the space for various uses.

The revival of the somewhat forgotten type of the urban garden offers the opportunity to enjoy smaller scale green spaces in some dense parts of the city. In the Cerda Extension, where the very strict block pattern includes few squares, many interior parts of the blocks will be dedicated to small gardens. One of the first projects carried out, the Garde of Torre de las Aigues, has preserved the existing structure of the water tower.The revival of the somewhat forgotten type of the urban garden offers the opportunity to enjoy smaller scale green spaces in some dense parts of the city. In the Cerda Extension, where the very strict block pattern includes few squares, many interior parts of the blocks will be dedicated to small gardens. One of the first projects carried out, the Garde of Torre de las Aigues, has preserved the existing structure of the water tower.

In Barcelona, there is a strong tradition - that goes back to Cerda's planning - of a hierarchized street grid including a specific design for the section of the various types of ways. Among them, the urban boulevard has historically been largely used to make big traffic axes (such as the Diagonal, or the Gran Via) more attractive. The "rambla" is another typically Spanish type of promenade. Projects for new ramblas have been carried out in the periphery and now represent major points of interest in the city, while improving significantly the public social life in several neighbourhoods. Without any doubts, one of the most famous examples is the Via Julia. In the same district of Nou Barris, Rio de Janeiro Avenue has also been turned into a pleasant strolling place for people living in a rather dense settlement of high modem housing buildings.

In the northern part of Barcelona, on the other side of a series of hills, the Rambla del Camel plays the same role, while connecting the second ring road to the tunnel of La Rovira, which passes under the hills towards the centre of the city. Along the sea, the well-known Moll de la Fusta is a piece of the maritime ring road transformed into a spectacular urban promenade, divided into two main parts - a broad esplanade planted with palm trees along the shore and a surelevated part including an underground parking and a belvedere with little restaurants, where the traffic and the bus lanes share the space with the promenade.

CONTEMPORARY URBAN TRANSFORMATIONS

After the Olympic period, the new phase was to be characterized by an important event, the so-called 'Forum 2004', that will begin a crucial opportunity to think over the design of the external areas, in particular the end of the Diagonal and its relationship with the sea.

The approach was radically different from the way they had been defined in the previous years, because the relationship changed between the public and private sector that became the leader. In terms of space the main transformation was the change of the urban skyline. During this period many skyscrapers were constructed, over all along the Diagonal, where many famous foreign architects designed the most important buildings.
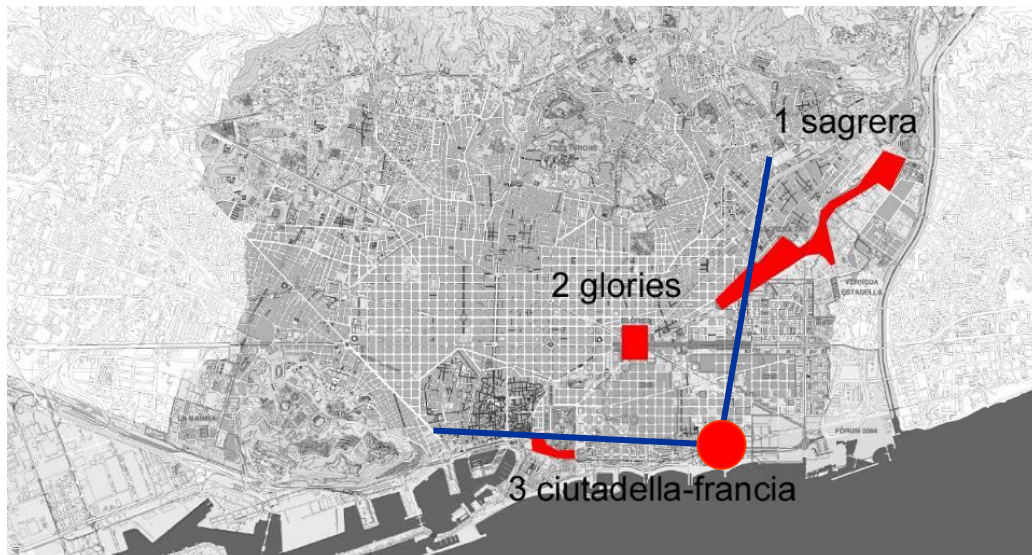
Barcelona transformation triangle

The transformation of the area of Forum 2004 belongs to a bigger transformation that includes other two other important areas, with very distinctive problems and characteristics: the area of The Sagrera, where (by the planning of F. O. Ghery) a new long linear park will be constructed with the new station of a high speed rail-way, the Las Glòries square (plaça de las Glòries), that has been waiting for a definitive solution and, finally, a big part from District 22@, that features the renovation of 120 blocks where industrial activities have been discontinued and converted to new us`es (the majority for residential housing).

All these three areas may actually guarantee that the north–eastern triangle will become the center and driving power of the new tertiary economy of Barcelona. Over all the area of Glorias, the place is a very important square in the city. In these years (from 1970 until nowadays) it has assumed various shapes, and in the Seventies it ended up as an intricate road junction for the traffic that left the city to enter the highway. "The Olympic project finally replaced this complex system with an elliptic roundabout that formed a large 'park and ride' around a small park.

Park Ciutadela

The area characterized for the designing experience, comprises the entire surface of the Park of the Ciutadela in order to push itself towards the sea, after passing the bundle of railroads directed towards "Estacio de Franca" neighbor and to involving an immense surface currently non-built, lacking a convincing urban designing comprised between the Barceloneta and the campus of the Universitat Pompeu Fabra.

Park Ciutadela – aerial view

The ambience of study introduces innumerable interest reasons shaping itself as a large urban void in which built up margins are defined from the most significant urban textures of the city of Barcelona and therefore a place of the differences where cohabits simultaneously multiple morphologic conditions.

Moreover, the opening to the sea through the non-built up area of the Parc de the Barceloneta releases other designing potentialities shaping the designing area which ideal connection to the greatest water margin of constituted from the Passeig Maretimo that in its section has radically modified the relation historically deposited themselves, in the time between the Catalan capital and its sea.

A place of the connection and the differences where the dense texture of the gothic Barrio is confronted with the regular tracing of the Barceloneta; the measures of the blocks of the Plan Cerdà with the great fencings of the Olympic Villa; the unknown Catalan verticality of the tower of the Gas di Mirralles and Tagliabue with the testimonies of an industrial past of the evident area in the modernist lines of the water tower or in the iron skeleton of the gasometer and where the same tracing of the railroads direct towards the great Estacio de Franca follows the left print from the non-built fencing that encircled the fortified nucleus of the Ciutadela constructed in the first twenty years of the seventh century and now disappears.

The area, a place of interesting morphological complexity today is object of immense program of the urban renewal that puts in the center of the interest the transformation of the great green areas of the city and the reconversion of some significant infrastructural nodes.

Park Ciutadela - Layout

The Plan Director de la Ciutadela developed from the Catalan planners Enric Battle and Joan Roig, faces the topic of the general arrangement of the park and its immediate around leaving from the hypothesis of transfer of zoo of Barcelona in another ambit and abolition of the railway tracing between the Estacio de Franca and Carrer Wellington.

Placa de la Glories

It's still today an open and topical issue in Barcelona urban development.

In 1859 Cerda plan, Placa de les glories catalanes is supposed to become an important junction between three of the most important roads: Meridiana, Diagonal and Granvia. And also following urban plans (1934 plan macia by le Corbusier, for instance) confirmed it as a focal point in Barcelona.

Although, this happened because representative city developed to the west(Montjuic area was chosen for expo in 1929). The east part of the city (between Barrio gotico and besos river)vwas destined to procutive activities and popular districts.

In 1992 – during Olympic transformations – Barcelona municipality tried to give form and identity to placa glories with the so called tambor, a huge roundabout with a garden in the center.

But this urban design still existing, stressed fragmentation and it failed. For that reason nowadays a strong and important development is in progress.

In the last 15 years the background is completely changed: Barcelona rediscovered Diagonal Mar as far as forum 2004, Sagrera station which is going to become a new international gate.

Placa de les glories – Aerial view

Sagrera

Each new capital of the urban history in which the city signs itself, reinterpreting and producing new urban images, new ideas of city derived from the reworking of its genetic code, its DNA, it take in head of us to a morphogenetic process in which coexist in perfect equilibrium form, scales, urban ideas already future, and deep traces, history and archeology of the place. Walking in the history of Barcelona, we identify that till today each developing phase correspond an element that through archetypes show the history of the city, but moreover the history of the idea of the city.

New masterplan for the Sagrera area
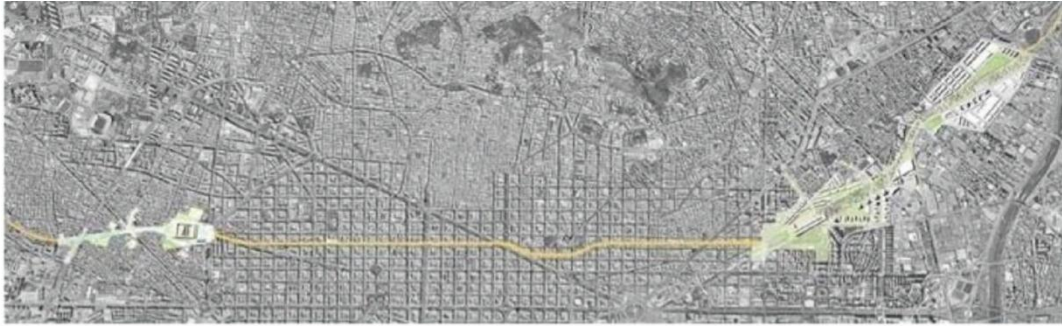
New high-velocity train connection

Thus we have a sequence of "urban image" that take us quickly from the foundation, interpretation of the geography and the original traces to the city of today apparently without solving the identity of contemporary archetypes.

In this process multiplicative scale and acceleration of the process (just think of the 900 cities since the beginning of the new millennium), the city has managed to make sense of always through structuring elements also became symbolic of the city itself. So it has been the forum for Catedral del Mar, on the Rambla and the Passeig de Grazia with all the magnificent works of Catalan modernism, so it was for the NCB Olympic and somehow it will be that of the Forum 2004.

Barcelona apparently responds to the contemporary through the great works of the world star system, but I think that it's an insufficient reading. Idea of urban development hardly consolidates without a structuring system that takes into account the new urban scale and new connective possibility the city itself. The answer could be the new place of encounter between the new infrastructure potential (high speed) and the place of the process of re-naturalization of the ideal characteristic of the contemporary city. Then ensure that the staking of decontextualized of the global star system is the soil in which to place the roots properly. This soil is well represented for instance from the section leading from the Paseo de la escullera to the Trinidad through the three strategic areas of Ciutadela, Glories and Sagrera.

The section shows the correct scale (we're talking about 15 km) of their natural potential or scenic in dealing with the waterfront of issues and linear park compared with the new poles of continental mobility, in particular the draft of the new port and the area Sagrera future station of AVE.

CONCLUSION

The great variety of projects one may cite relies however on some basic principles that account for the success of the Barcelona experiment.

All districts have been addressed in the programme, but the imbalance between less favored and better equipped neighborhoods has been corrected. Quality of urban life has been improved by public spaces but also by other public facilities (sometimes integrated into them), such as civic centers, school complexes including sporting facilities, and municipal buildings.

The mixed uses of public spaces are an important feature. Modern public spaces are supposed to meet the actual needs of inhabitants. Thus contemplation or symbolic representation is no longer here the main

functions of open spaces. Besides being places for rest or for strolling, they are also required to offer the possibility to practice sports or games, or to be places for gathering, for neighborhood events or feasts.

The symbolic dimension is not neglected, however; sculptures often confer monumentality to the public spaces. The streets, the most usual and most vivid space as far as daily movement and passage are concerned, has been granted special attention. In almost every way, a balance between vehicular and pedestrian traffic has been provided. A similar principle has led to include in the main traffic axes, such as the ring roads under construction, service lanes with adequate landscaping which will be linked properly to the urban and local fabric and the local street grid of the adjacent neighborhoods.

Finally, the projects foster at various scales the dialogue between public spaces and the surrounding built environment. Their design may help consolidate some weaker parts in the urban fabric. From a stylistic point of view, many projects mix some historic references with more contemporary schemes. The latter point raises the question of how far the projects carried out have been innovative and have developed a contemporary architectonic language. If they can easily be considered successful, as far as their use or the requalification of urban form is concerned, some criticism has however been expressed about their styles and their cultural significance.

CHAPTER 3

REQUALIFICATION OF THE URBAN CITY CENTER

The requalification of the urban city center carries attributes from several issues that affect the genius loci of the space. This provides the quality that he area needs to provide the spatial quality for re development. However, this study would describe re qualification of the city centers in several categories.

   i.   **Dispersed Urban Centers**: the re development of Barcelona by the municipalities proposals centers of three major zones in the city creating a strings of infrastructural and social connections. The dispersed locations however, create an added advantage by performing social functions in between each area of development. The areas of new centralities would form a new identity and enhance requalification.

   ii.   **Spatial Connections through urban transportation infrastructures:** The basic road network in the city of Barcelona is the type that absorbs almost all the inter-urban and urban movements of considerable distance by private vehicles. Accordingly, this network includes roads that allow the connection of:

   -the metropolitan environs with the city

   -access roads with the city's main points of attraction

   -the city's main points of attraction among each other.

   In order to define this ensemble of road of the basic networks, a detailed study has been made of the present surface traffic demand and the capacity of absorption of this traffic by the set of city roads. this study, was based on an analysis of the real intensity of the traffic circulating in several transverse and longitudinal section of the city of Barcelona.
   The local road networks are not necessary for general mobility and connectivity as they are susceptible to partitioning, according to their characteristics.

iii. **Hierarchy of Connections:** This contributes to the definition of public spaces and urban development because of the direct and indirect relationship with connecting spaces and district that possess identities. The urban developments are connected by 1st, 2nd and 3rd level connectivity roads, these all possess their characteristics that enhance the chance and qualities for re qualification and development.

Barcelona Traffic Spider
(Source: Ajuntament de Barcelona)
*Basic Transport Network of the City of Barcelona*

1st Level Connectivity Roads

2nd Level Connectivity Roads
(Source: Ajuntament de Barcelona)
*Basic Transport Network of the City of Barcelona*

iv.   **Significance of Connectivity:** This is important because without urban connections, spatial development could not be possible especially when the systems implored involves figures creating residual spaces that shape the environment.

v.   **Large and Small Scale connectivity:** This relates to the significance of connectivity and how they come together to understand the role spatial functions have on an environment and how it effects the lifestyle and the quality of life of users of the space.
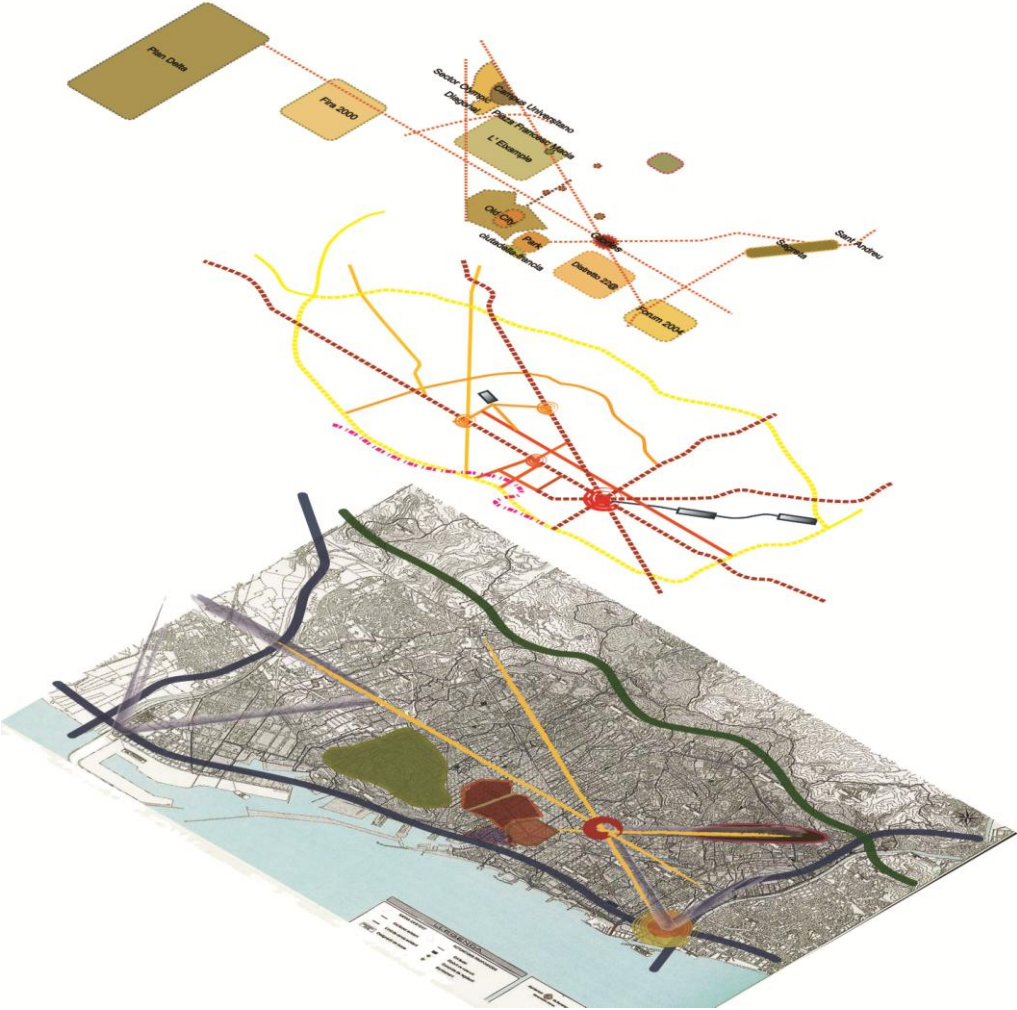
TRACES OF TRIANGULARITY

i.   ORIGINS OF CERDA TRIANGLES: The Eixample serves as a turning place for different central flows. Another identification for the usefulness of triangular geometry for urban developments.(expand further with Barcelona book)

ii.   COMPOSITIONS OF TRIANGLUAR PUBLIC SPACES: Triangular public spaces could be composed according to a system that identifies means of building functions and spatial distribution working in order with each other. They could be described as the Signified, Signifier and the Referent.

<p style="text-align:center">Signified</p>

<p style="text-align:center">Signifier   Referent</p>
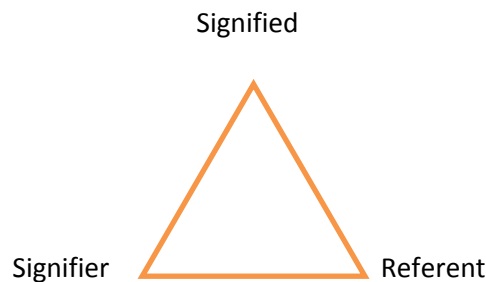
This concept could have been born by philosophers as Charles Sanders Peirce(1960) and Ferdinand de Saussure (1906-11) were concerned with the actual content of the message with how word and symbols carry different meanings, such as the word Architect, were in present terms could be coiled in context of science, politics, etc. They were both looking for ways to describe the general "Theory of Signs", a sign being anything that stands and reminds us of something else, which could be a word, a gesture or in architectural terms; a diagram, a drawing, a picture and most certainly and building or a collection of buildings within a district, area, or and environment.

From Geoffery Broadbent's book, he picks out areas about the research of the above mentioned philosophers that focus purely on architect and its relevance to the description of the three points of the triangle. He states: "First of all, it must be admitted that there are enormous problems of terminology and even disagreement between the founding fathers as to whether the field itself should be called Semiology(Saussure) or Semiotic (Pierce). So let me just pick out few general points which are obviously of relevance to architecture. Saussure, for instance, distinguishes between language and speech. A language, in his terms, is something we all share, including, as it does, the words in the dictionary ad a set of rules for stringing them together. But from the whole of the resources which language makes available, each of us prefers certain words; we also prefer certain ways of putting them together. Saussure attaches the term speech to those personal uses and there are obvious parallels in architecture: in the use an individual architect makes of the going style; the way he uses the components of a system, as in his speech he selects from the available "language."…….., One of Saussure's key concepts is at least 2,000 years old, for Vitruvius himself wrote: **"in all matters, but particularly architecture, there are those two points: the thing signified and that which gives its significance."** Saussure's key point is that the two are linked, inextricably, to form what he calls a "sign" that is, something which "stands for" something else, his signifier is that which conveys an idea; the sounds of a spoken word, the marks on a paper which form a written one, a drawing, a diagram, a television picture or even, and most certainly, a building. …."

In other words the word signified, is used to describe thought's, ideas, and concepts, while the signifiers is the thing that carriers the actions of the signified and the referent is the thing which it refers; the object or in this case a building, thus gave birth to the development of the "semiological triangle" one of the most

useful devices in probing the meaning of things. In this case I am using the triangle to make references to the development of the urban environment in terms that it would provide for a better analysis of the urban form and provide for a precise description of the architectural intentions of my proposed urban development. Summarizing this point from the aided interpretation of the semiological triangle, the three terms are simple put as follows;

Signifier= the spoken or written word, the diagram, drawing, picture, or whatever by which the ideas are being conveyed

Signified= the thoughts, ideas, concepts and so on which actually are being conveyed

<u>**Referent**</u>= the object, person or other kind of thing to which those concept refer.

It is Broadbent's conclusion that we can understand a lot more about our buildings if we think of them in these ways.

iii.   TRIANGLES FORMED ACROSS CONNECTIONS: This shows the various types of developments of either semi built up spaces and open space for public concourse through the city. This flow along the Diagonal Mar and the Meridiana (Second level connectivity roads) studied to be re interpreted for the development of spatial composition reflected in my project. For a city mostly notable for its imposing city blocks, it's a daunting task looking for a design system that does not follow the traces and morphology of the existing Cerdà blocks. However, hidden deep within the city fabric, simple triangular geometric forms are embedded within the DNA of Barcelona.
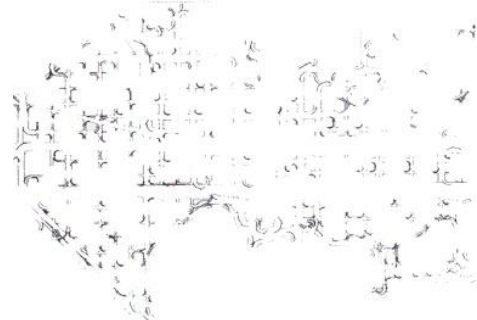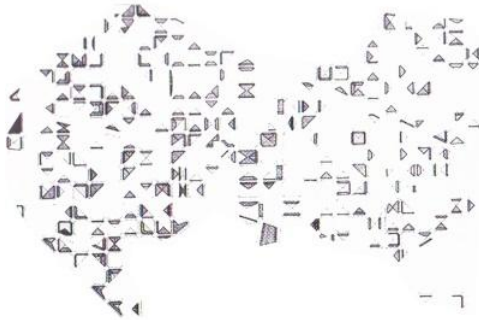

An appropriate utilization of triangular voids/empty spaces within the urban fabric. The Eixample as a turning place for different central flows. Another identification for the usefulness of triangular geometry for urban developments.
Source:(Barcelona; Evolution of The Compact City)

My concept was now born and backed by solid precedence from the past and the immediate present, being the Forum 2000 building designed by Herzog de Meuron.

iv.   TRIANGLES WITHIN CONNECTIONS AND LIMITS: Verification of the orthogonal streets & main axes in today's Eixample. Orthogonal crossings creating deliberate & non deliberate public/semipublic spaces.
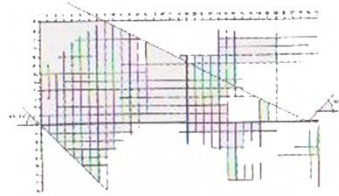
Verification of the orthogonal streets & main axes in today's Eixample. Orthogonal crossings creating deliberate & non deliberate public/semipublic spaces.

INTERPRETATIONS AND PROPOSTIONS

 Architecture is not architecture if it cannot be perceived. My intentions are to use all the discussions above to develop a system for my design in which everything works together as a compound of ideas, connected with each other to provide a rational solution for connecting two parts of the city.

(Analysis sheets)

(Urban Masterplan system map) with explainations)

(Masterplan)

(Architetural drawings with basic intent and description)

Details sheets and architectural material references for facades and architectural technology)

Summary

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