

The meaning of open space in its physical, cultural, and social context in Santiago, Chile

by

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## TABLE OF CONTENTS

LIST OF FIGURES	v
LIST OF TABLES	viii
ACKNOWLEDGMENTS	ix
ABSTRACT	x
GENERAL INTRODUCTION	1
Introduction	1
Thesis Organization	5
PART I. THEORETICAL FRAME	
Introduction	7
Literature review	9
Summary	21
Typologies of Open Space	22
I. Open Space as Center	22
II. Open Space as Public Space	32
III. Open Space as Green Space	42
IV. Open Space as Edge	70
Historic Interpretation of Open Space in Santiago, Chile	84
A. Initial Cuadricula	86
B. Spatial Geometry	89
C. Growth	94
Geography and Identity	112

## PART II. ANALYSIS APPLICATION

## MATERIALS AND METHODS

Introduction	120
Assumptions	121
Information and material requirements	122
Data and analysis	123
Determination of typologies	124
Limiting considerations	124

## CASE STUDY APPLICATION OF THE THEORETICAL FRAMEWORK

Introduction	125
La Florida and surrounding area	126
Downtown Santiago	132
Providencia and surrounding area	138
Alternative of Open space pole of Development	146

GENERAL CONCLUSIONS	148
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REFERENCES	154
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APPENDIX	162
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## LIST OF FIGURES

Figure 1. Kinds of human-environmental relations; (Gísli Pálsson p. 67)	15
Figure 2. Reciprocal system between nature and artifice; (drawing diagram, M. Arriagada)	19
Figure 3: Urban open space; (drawing diagram, M. Arriagada)	20
Figure 4: Center attraction forces; (drawing diagram, M. Arriagada)	22
Figure 5: Stonehenge, Wiltshire in England and Eastern Island, Chile ; (Geoffrey & Jellicoe photo, p. 17, and Editorial Photographic Huber y Cia. Ltda, Santiago Chile, 1998)	23
Figure 6: Teotihuacan; (Kevin Lynch 1994. <i>Good City Form</i> , p. 11 )	24
Figure 7: Gizeh; (Geoffrey & Jellicoe photo, p. 108)	25
Figure 8: Symbolic center; (drawing diagram, M. Arriagada)	26
Figure 9: Versailles 1746; (Newton photo, p.175)	27
Figure 10: Lower Manhattan; (sketch, M. Arriagada based on <i>Cities, then &amp; Now</i> , p.137)	28
Figure 11: Social, economic, physical, and temporal changes in centers; (drawing diagram, M. Arriagada).	30
Figure 12: Shape of the center; (drawing diagram, M. Arriagada)	30
Figure 13: Hispanic Plaza; 1563, Mendoza, Mexico; (Kostof, p.25)	34
Figure 14: Public space; (drawing diagram, M. Arriagada)	34
Figure 15: Piazza del Campo, Siena ,Italy; (drawing diagram, M. Arriagada)	35
Figure 16: Public civic space; (drawing diagram, M. Arriagada)	36
Figure 17: Domain of space; (drawing diagram, M. Arriagada)	39
Figure 18: Plaza de Armas, Santiago, Chile; (M. Arriagada, 2001)	40
Figure 19: Green-Park space association;	42
Figure 20: Types of green space (Based in Condon, 1998. "The designed landscape space types")	44
Figure 21: Boston plan design; ( <a href="http://www.libraries.mit.edu">www.libraries.mit.edu</a> )	45
Figure 22: Views of Parque Forestal, Santiago, Chile; (Photos Parque Forestal, Calquin 2001)	50
Figure 23: Santiago Green Areas	51
Figure 24: San Cristobal Hill; (Photos Parque Forestal, Calquin 2001)	52
Figure 25: Views of Intercomunal Parks; ( <a href="http://www.chilenet.cl">www.chilenet.cl</a> )	53
Figure 26: Los Leones, Golf club, Las condes, Santiago, Chile; ( <a href="http://www.members3.clubphoto.com">www.members3.clubphoto.com</a> .)	58
Figure 27: Front of General Cemetery; ( <a href="http://www.netline.cl">www.netline.cl</a> )	60

Figure 28(a): Types of mausoleums in Cementerio General, Santiago, Chile; ( <a href="http://www.netline.cl">www.netline.cl</a> )	60
Figure 28(b): Views of Cementerio General, Santiago, Chile; ( <a href="http://www.cementerios.cl">www.cementerios.cl</a> )	61
Figure 29: El Parque del Recuerdo. Santiago, Chile; ( <a href="http://www.cementerios.cl">www.cementerios.cl</a> )	61
Figure 30: El Parque del Recuerdo, Master Plan. Santiago, Chile; ( <a href="http://www.cementerios.cl">www.cementerios.cl</a> )	62
Figure 31: Fences; (sketch, M. Arriagada)	63
Figure 32: Condominiums; (Vivienda y Decoracion, October 1998)	67
Figure 33: La Florida aerial view; ( <a href="http://laflorida.cl">laflorida.cl</a> )	72
Figure 34: Types of human edges; (sketch, M. Arriagada)	74
Figure 35: Santiago aerial view; (SAF. Servicio Aéreo Fotogramétrico de Chile)	75
Figure 36: Mapocho river; ( <a href="http://www.netline.cl">www.netline.cl</a> )	76
Figure 37: Plan of Santiago (1970-1991); ( <a href="http://www.u.chile.cl">www.u.chile.cl</a> )	77
Figure 38: Parcel of pleasure in exurbs. Peñalolen, Santiago, Chile; (Vivienda y Decoracion, October 1998)	79
Figure 39: Residential Maipu area views; ( <a href="http://www.urbanismo.8.com">www.urbanismo.8.com</a> )	79
Figure 40: Metropolitan Regulatory Plan of Santiago; (MINVU 1994-2024)	81
Figure 41: Cuadrícula of Santiago;	86
Figure 42 a & b: The cuadrícula and the triangle part of the shape of the downtown Santiago;	87
Figure 43: Evolution of Plaza de Armas of Santiago; ( <a href="http://siglo20.tercera.cl">http://siglo20.tercera.cl</a> )	87
Figure 44: Sao Paulo, Brazil Historic, triangle views; (Violich 1944)	89
Figure 45: Fortification of Lima, 1867, Peru; (Galantay, 1956)	91
Figure 46: Triangles in the Metropolitan Region; (SAF. Servicio Aéreo Fotogramétrico de Chile)	92
Figure 47: Metropolitan Region, Indigenous settlement in XVI, Century; (Sketch, M. Arriagada, bases in León Echaíz)	96
Figure 48: Plaza de Armas 1541-1571; (ARQ 39, p. 47)	97
Figure 49: Plaza de Armas 1541-1571; ( <a href="http://siglo20.tercera.cl">http://siglo20.tercera.cl</a> )	97
Figure 50: Colonial Santiago 1500; (Plan M. Arriagada)	98
Figure 51: Plaza de Armas 1741-1891; (ARQ 39, p. 47)	99
Figure 52: Santiago 1700; (Plan M. Arriagada)	100
Figure 53: Plaza de Armas 1841-1891; (ARQ 39, p. 47)	101
Figure 54: Santiago 1800; (Plan M. Arriagada)	102
Figure 55: 1872 Santiago Plan; ( <a href="http://www.urbanismo.8.com">www.urbanismo.8.com</a> )	103
Figure 56: Cerro Santa Lucía; ( <a href="http://www.urbanismo.8.com">www.urbanismo.8.com</a> )	103

Figure 57: Parque Cousiño; (www.urbanismo.8.com)	104
Figure 58: Club Hípico; (www.urbanismo.8.com)	104
Figure 59: Alameda de las Delicias; (Santiago Poniente y Desarrollo Urbano. Municipality of Santiago, p.35).	105
Figure 60: 1894, Manuel Concha Transformation Plan; (www.urbanismo.8.com)	106
Figure 61: 1912, Parliamentary Transformation Plan; (www.urbanismo.8.com)	106
Figure 62: 1912, Carvajal Miranda Lineal; (www.urbanismo.8.com)	107
Figure 63: 1912, Carvajal Miranda Transformation plan ; (www.urbanismo.8.com )	107
Figure 64: 1913, Ernest Coxhead Transformation Plan; (www.urbanismo.8.com)	108
Figure 65: 1924, Carlos Pinto Durán Transformation Plan; (www.urbanismo.8.com)	109
Figure 66: Karl Brunner Transformation Plan; (www.urbanismo.8.com)	109
Figure 67: Green valley in Chile; (sketch, M. Arriagada)	113
Figure 68: Temple of the Sun in Cuzco, after Pachacuti y Amqui; (Isbell 1978, p.208)	114
Figure 69: Landscapes of metaphor; (Douglas Porteous Interpretation pp. 88-104)	115
Figure 70: Community Structure; (Isbell 1978, p.193)	116
Figure 71: Social and territorial inequities in the Metropolitan Region;	123
Figure 72: Santiago South topographic map; (Instituto Geográfico Militar de Chile)	127
Figure 73: Santiago South sector aerial photography; (SAF. Servicio Aéreo Fotogramétrico de Chile)	128
Figure 74: Quadrant c, La Florida public space; (Instituto Geográfico Militar de Chile)	131
Figure 75: Santiago Central topographic map; (Instituto Geográfico Militar de Chile)	133
Figure 76: Santiago Central sector aerial photography; (SAF. Servicio Aéreo Fotogramétrico de Chile)	134
Figure 77: Quadrant b, Santiago green space; (Instituto Geográfico Militar de Chile)	137
Figure 78: Santiago Northeast topographic map; (Instituto Geográfico Militar de Chile)	139
Figure 79: Santiago Northeast sector aerial photography; (SAF. Servicio Aéreo Fotogramétrico de Chile)	140
Figure 80: Quadrant d, Northeastern public space; (Instituto Geográfico Militar de Chile)	143
Figure 81: Diagram of Open space pole of Development	146
Figure 82: Alternatives use	147

## LIST OF TABLES

Table 1: Key types of commemorative, memorial, and political sites; (Paul Gough, p.216).	37
Table 2: Classification for recreational areas; (Hubbard, 1914)	46
Table 3: Typology of Parks; (Stuart, 1973 p. 89. Drawing diagram, M. Arriagada)	47
Table 3: Typology of Parks; (continued)	48
Table 3: Typology of Parks; (continued)	49
Table 4: Types of Greenways; (R. L. Viles and D.J. Rosier , p. 18; diagram, M. Arriagada)	55
Table 4: Types of Greenways; (continued)	56
Table 5: Residential yards: Social class and function; (Kenneth Helphand)	66
Table 6: Forces for and characteristics of obsolescence and obsolescence by landscape domain; (Wood & Handley 2000, p.49).	73
Table 7: Quadrant a and b, first case study; (M. Arriagada)	129
Table 8: Quadrant c and d, first case study; (M. Arriagada)	130
Table 9: Quadrant a and b, second case study; (M. Arriagada)	135
Table 10: Quadrant c and d, second case study; (M. Arriagada)	136
Table 11: Quadrant a and b, third case study; (M. Arriagada)	141
Table 12: Quadrant c and d, third case study; (M. Arriagada)	142
Table 13: Summary comparison table between cases studies (M. Arriagada)	144
Table 13: (Continued) (M. Arriagada)	145
Table 14: System models of open space (M. Arriagada)	162
Table 14: continued (M. Arriagada)	163
Table 14: continued (M. Arriagada)	164

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## ABSTRACT

The city of Santiago, Capital of Chile, is in an expansion process. Between 1986 and 1997, the metropolitan region area has incorporated 6,700 hectares of land. Consequently, the occupation of the land has increased 1.22 % per year. This phenomenon does not occur only in Santiago. Many cities in the world have experienced an extension of their city perimeters and the creation of new suburbs in the periphery. This has generated a variety of secondary problems such as environmental contamination, poverty, and population congestion, especially in undeveloped countries where new houses are built on new lands, but the existing poor neighborhoods are not improving their urban and social conditions. On the other hand, modern life has dictated that people depend on their car, decreasing pedestrian connections between the private space and public space. The consequence is a notable decrease in the amount of open space. For a long time, open space has been the residual space, the urban space displaced by the construction of buildings and roads or those neglected vacant lands, all which deteriorate the visual and social quality of the city. To identify an open space typology, it is necessary to determine what its function is in the city. For this reason, this thesis has described, analyzed, and defined an open space typology using the center, public space, green space, and the edge as categories, with the intention of creating a theoretical framework of spatial analysis application. To test the application of the framework, three case studies located in the city of Santiago were selected by their social economic status and location. The methodological approach establishes a matrix quadrant, which permits a comparison of data and classification of urban qualities and open space. In this interpretation, the author attempts to examine the differences, the similarities, and the comparisons among these typologies offer the potential for discovering implicit social qualities, which characterize open spaces as representational places of cultural behavior. The identification of these patterns in the city is an important element in the assimilation of a national identity expressed throughout region, which has manifestations in culture, human identity, and the form of the city.

## GENERAL INTRODUCTION

The city of Santiago, Capital of Chile, is in an expansion process. The metropolitan region area has incorporated 6,700 hectares of land between 1986 and 1997 (CONAMA CHILE, 1999).<sup>1</sup> Consequently, the occupation of the land has increased by 1.22 % per year. This phenomenon does not occur only in Santiago. Many cities in the world have experienced an extension of their city perimeters and the creation of new suburbs on the periphery. This has generated a variety of secondary problems such as, contamination, poverty, and population congestion, especially in undeveloped countries where new houses are built on new lands, but the existing poor neighborhoods are not improving their urban and social conditions. Additionally the adoption of an extreme, modern, functional life has resulted in people becoming dependent on a car-based lifestyle decreasing the pedestrian connection between private space and public space. One of the consequences of this is a notable decrease in the amount of open space.<sup>2</sup>

In his 1944 book, *Cities of Latin America. Housing and Planning to the South* Francis Violich described various urban problems and compared city planning frameworks among Peru, Colombia, Ecuador, Argentina, Uruguay, Bolivia, Brazil, and Chile. At that time, this French architect understood the importance of recognizing cultural traditions and identity as expressed through the form of their cities. It seems that Latin American cities are not resolving their city problems and many issues described in his book still are present today. In the intervening years, Santiago's ecological problems have increased essentially because of car and industrial contamination and excessive densification. In addition, the geographical location of the city in a valley has not favored the solution of dispersing its contamination problems.

In most cases, development plans are part of government programs to improve neighborhoods and urban issues. Nonetheless, in Chile in the past, the demand for housing and the lack of resources have encouraged approaches to these issues creating flexible

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<sup>1</sup> CONAMA: Chilean National Commission of Environment *Development strategy of Santiago Metropolitan Region 2000-2006*, p.111.

<sup>2</sup> Open space meaning as the center, public space, green space and edge space typologies to be defined in the literature review following this section.

zoning regulations which generate increased density. Additionally, development plans are conceptualized without contemplating other spatial aspects of the city that are considered meaningful produced by lack of information and coordination between private and public organisms. In spite of everything, the Chilean government has a strategic vision for the metropolitan region of Santiago between 2000-2006, which focuses on a plan of action, the aim of which is to consolidate the national and regional identity, as a basis for new progress. This vision focuses on the following points:

- Citizen, Equal Opportunities and Human security
- Territorial and Infrastructure Organization, Environment and Quality of Life
- Increased production and Economic Development
- Institutional Modernization: Local and Regional Vision
- Identities and Regional Culture (MIDEPLAN, 2000).<sup>3</sup>

As a way to incorporate tradition and identity, Santiago needs a constant evaluation and analysis of its urban structure and land uses. Urban analysis of a city is one of the most critical elements in the design of urban development. Urban design needs two components: theory and practical design. The theory is an abstraction of the concepts that are significant for the urban form. On the other hand, the design is the application of the theory, which creates a methodology for improvement of urban development and land use. In different dimensions, both create the city structure, tradition, history, and evolution in modern planning design. (Gordon, 1980)

The analysis of the capital of Chile is nothing new. Many Chilean planners and architects have analyzed the city, from many diverse perspectives. In the past, the contribution of the first Regulatory Plan of Santiago Center by the Austrian architect Karl Brunner in 1930 generated a mandatory plan for the design of the present city. Brunner gave to the Chilean planners his vision of public space as civic center incorporated in the city.<sup>4</sup> Later, during 1999, the Municipality of Santiago and the Atelier Parisien D' Urbanisme refined the study of urban development in West Santiago creating a review of the history,

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<sup>3</sup> MIDEPLAN: Ministry of Planification and Cooperation. Development strategy of Santiago Metropolitan Region 2000-2006, p. 30

<sup>4</sup> Dirección de Obras Municipales de Santiago y Atelier Parisien d' Urbanisme. Santiago Poniente Desarrollo Urbano y Patrimonio. Santiago, 2000,p. 39

analysis of existing conditions, and design recommendations for the improvement of historical neighborhoods.

The actual tendency in urban analysis is to focus on particular concepts, such as the relationship between Santiago and water stated in the article "Santiago y El Agua: Irrupciones y Ausencias" by Humberto Eliash and Manuel Moreno, which was published in the *Journal of the School of Architecture* at the Catholic University of Chile, ARQ 43.<sup>5</sup> In this article, the authors characterized the structure of the city through the relationship between the river and the grid shape, the lack and the presence of water, and the influence of water on the land depending of its geographical situation.

Therefore, to complement other exiting analysis, I propose to add another approach to evaluation and design: open space visualization in the city. For a long time, open space has been considered residual space, the urban space displaced or left over by the construction of buildings and roads or those neglected or leftover vacant lands, all which deteriorate the visual and social quality of the city.<sup>6</sup>

As a citizen of Santiago, I cannot remain detached and watch this city's growth, with indifference, growth, which in many ways has been deteriorating the quality of life and health of its inhabitants. This investigation includes an exploration of ideas, recommendations, concepts, and analysis of open space, which was generated by the study of typologies of open space proposed by Condon, 1988, Van Pelt, 1993, Jellicoe, 1996, Kostof, 1992, Stuart, 1973, Porteous 1973, Sturm 2000, and by the analysis of urban patterns in the capital of Chile. The objectives of this investigation are:

1. to determine how considerations for open space have figured (or not figured) into the process of urban expansion or growth of Santiago
2. to briefly assess how the lack of open space planning may have affected social conditions

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<sup>5</sup> Eliash, Humberto and Manuel Moreno "Santiago and the Water, Irruption and Absences". *Arq 43 Chile. El Agua*. Santiago: Escuela de Arquitectura Universidad Católica de Chile, 1999, pp. 38-51

<sup>6</sup> Meyer, Elizabeth. "The Expanded Field of Landscape Architecture," in *Ecological Design and Planning* by George F. Thompson and Frederick Steiner, New York: John Wiley and Sons, 1996, pp.45-79

3. to infer some general design characteristics, which could be applied to newly developed areas based on historic forms and patterns of open space through a description of the required conditions that these spaces need, including historical and geometrical readings of the city,
4. to provide a basis for more detailed design recommendations; the analysis of the three case studies could be considered an exploratory method, which through recommendations includes a set of enhancing strategies to increase the design of different types of open spaces in new urban developments

In my opinion, the strategy of the modernization of an administrative and political structure of the city depends principally on the economic variables. However, the planners in Santiago must also project into future mega-projects of urban intervention a recognition of Santiago's citizens---- the inclusion of their contexts and their own enriching symbols----- which could generate cultural patterns and new codes for this metropolitan region that is seeking greater identity. Therefore, I consider it imperative to consolidate the open space within the urban space in a harmonious way because these spaces have the potential to represent the soul of the people.

With the increase of technologies and new materials for buildings, people have a greater variety and number of interior spaces, such as the mall, replacing the old plaza or park. Open space must be visualized as an active participant in the coexistence between housing patterns and urban space. Open space still has a role to play in its characterization as the "lungs" of the city.<sup>7</sup> Open space must persist and must create new interactions with society as an answer to the dream of a balanced ecological life and perhaps a less "industrialized" life for the next generations.

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<sup>7</sup> Spirn, Anne. *The Granite Garden: Urban Nature and Human Design*. New York: Basic books, 1984, pp. 41-61.

## Thesis Organization

This thesis is organized in two fundamental sections. The first part, which includes the Literature Review, is called the *Theoretical Frame*. It includes the major concepts necessary to understand the evaluation, description, conception, and the significance of open space in Chile and its actual design development. In the section *Typologies of Open Space* I analyze in detail the concepts and descriptions for open space as center, public, green and edge open space in a general context and within the city of Santiago in particular. The first section also includes the *Historical Interpretation of Open Space in Santiago* focused on the analysis of the city shape and the history of open space in Santiago, Chile. This overview is focused on the structural historical *cuadricula*<sup>8</sup>, spatial geometry, growth, and historical plans about ideas developed by visionary people for this city in different time periods.

The second section *Spatial Analysis and Theoretical Applications* summarizes the application of the initial section and includes two chapters. The first chapter is, *Materials and Methods*, which identifies the assumptions and procedures to determinate the typologies used to analyze the three case studies: La Florida, Providencia and the Downtown Santiago areas of the metropolitan region. These three case studies areas are particularly distinctive because of their urban pattern distribution, geometry, urban use, density, and social status classification. The second chapter, *Results and Discussion* analyzes the case studies through a matrix quadrant analysis of investigation. The results of this matrix quadrant generate comparisons between existing alternative systems of open space and a newly proposed alternative for developments in this region.

Finally, the chapter *Conclusions* develops personal general interpretative conclusions and design recommendations. The conclusions are elaborated by taking into consideration the existing systems of open space, the analysis of three case studies, and the following quality aspects such as, social interaction, cultural patterns, and the history of open space in Chile.

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<sup>8</sup> *Cuadricula* is the Spanish term used to define a grid.

# PART I

## THEORETICAL FRAME



Alameda de las Delicias, 1800, Santiago, Chile

## INTRODUCTION

Open space typologies are determined by or based on the function of open space in the city. A holistic approach recommends that open space should be categorized as a regenerative space with the following land function characteristics: ecological, economic and socio-psychological (Montag, 1973). Ecological characteristics have the purpose of protecting the environment. Economic characteristics involve profitability or monetary values ascribed or expressed in the incorporation of nature in land uses. Socio-psychological characteristics include aspects that society needs to develop healthy citizen life including a valued mental image. The last characteristic is perhaps most difficult to achieve because it involves the identification of the citizens with their space as a collective entity.

In order to support this assertion I need to define, describe and analyze with the intention of creating a theoretical framework of spatial analysis. This first section discusses typologies of open space in Santiago, and in the general context produced in other cities of the world because my intention is to define the typologies in a conceptual form considering historic aspects.<sup>9</sup> Resulting in a typology based on open space as center, as open space, as green space and as edge, this part also contains an historic overview of Santiago and a vision perspective about *Geography and Identity*.

The purpose of these interpretations is to distinguish the differences, similarities, and comparisons among these typological examples. It is possible through their functions to discover implicit social qualities which characterize them as spaces of representation and expressions of cultural behavior, history, and identity.<sup>10</sup>

In summary, open space image in Santiago is complex and diverse. It is possible to find many parks with essentially linear shapes, accomodating pedestrian circulation. These spaces could be considered as the highest interpretation of open space. Their designs respond to a more aesthetic and social function generated by a holistic urban network structure, which in a harmonious way could privilege the relationship between park and city

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<sup>9</sup> Stearns, Forest and Tom Montag. *The Urban Ecosystem: A Holistic Approach*. Pennsylvania: Halsted Press, 1973, pp. 41-67

<sup>10</sup> Lynch, Kevin. *Site Planning*. Cambridge: MIT press, 1962, pp. 9-25.

connecting use and urban pattern. The existing recreational spaces of Santiago are delimited by the city's spatial figure, and they respond to natural and geographical features, such as hills, existing forests, or large regional protected areas.

In the metropolitan center, the land destined for recreational parks does not have the possibility of growth, and most lands suitable for open space in Santiago are residual spaces in the periphery. The regional areas that have some relation or impact on the urban pattern and quality zone are very distant from the urban area, a distinctive difference in comparison with American cities, where recreational areas require a long extension of land.

The recreational open space areas considered are of radical importance when the design of these spaces involves important ecological aspects, which affect the quality of life in the cities. American cities generally use open space, and use the design of greenways as network spaces, which articulates nature and public with the private or the urban, as a structural element in the composition of the city. In addition, greenways also are often considered as linear urban pattern elements, producing an interaction of relationships between park, and city urban structure (Alexander, Ishikawa, 1977).

Most of these interpretations of open space are focused on the relationship between people and open space, and the connection of these spaces with a collective image, history, and cultural symbols of the society (Oliver, 1975). In the identification of these types of open space in a city, landscape designers need to contemplate not only the functional aspects of the design, but also other aspects such as: ecological principles, social influences, urban transportation (traffic flow and access), economic structure of the society, and other parameters of neighborhood or city analysis as well (Lynch, 1962).

## LITERATURE REVIEW

### Conceptualization of Open Space in Western Civilization

The major characteristic of open space in the Western Civilization is the conceptualization of open space as an essential component of urban planning with recreational and designed aesthetic green space in central areas of cities such as, Chicago, Boston, Minneapolis, and New York.<sup>11</sup> This view of open space has resulted in a functional, social and cultural role for urban open space, which has a direct relationship with the wealth and economic development influencing psychological and socio-cultural qualities in societies. The design of open space has taken different tendencies and perspectives such as urban, ecological, functional, aesthetic artistic and recreational changing the meaning and design of open space continuously.<sup>12</sup> Additionally, both the profession of landscape design and Landscape Architecture programs in schools have a role to play actively participating in the planning of cities, and in the creation of environmental community open space.

### Conceptualization of Open Space in Latin America

The view of open space in Latin America has been influenced by western tendencies, but it has not positioned itself to be a major force because fragile economies and political changes have not permitted the necessary impulse for a better design of open space. However from the historic perspective the public space as the 'plaza' has been the most active open space present in the communities, creating a space with a stronger social function.<sup>13</sup> Previously, as part the acculturation process envisioned by Spanish Conquerors, open space was the central and ritual space, and today the plaza answers to centers forces and generates economic, social, and physical interactions necessary in the Hispanic

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<sup>11</sup> Francis, Mark, Cashdan Lisa and Lynn Paxson. *Community Open Spaces: Greening Neighborhoods through Community Action and Land Conservation*. Washington, DC: Island Press, 1984, pp. 5-7.

<sup>12</sup> Lynch, Kevin. *A theory of Good City Form*. Cambridge: MIT press, 1981, pp. 5-36.

culture(s). In the studies of plazas in Costa Rica, Low (1999) argues that the state as institution has abandoned open space. This condition is repeated in many countries with the result that urban open space often acquires a negative perception often associated with fear, social insecurity, and neglect. This perception is one of the essential points of this investigation.

## I. Interpretation of Open Space as Empty Space

Empty space is the first interpretation of open space. Gary MacDonogh asserts in his book *The Cultural Meaning of Urban Space* that emptiness has a strong relationship with openness. He argues that empty space produces conflict between the jurisdiction of spaces influenced by social structures and changes. He describes four categories, which illustrate the concept of emptiness:

1. spaces designed that are empty of meaning, and for their content value has been altered by historical changes
2. residual spaces, which attract poverty, unhealthiness and carelessness
3. created empty space e.g. square plaza
4. empty land, spaces which are abandoned and between urban and rural patterns <sup>14</sup>

On the other hand, Christopher Alexander in his book, *A Pattern Language* describes two types of outdoor space: "negative and positive space." Negative space is the residual space produced by city urban structures and buildings. Positive space is created when the open space itself has a regular shape or recognized geometry.

People feel comfortable in spaces, which are "positive" and use these spaces; people feel relatively uncomfortable in spaces, which are "negative" and such spaces tend to remain unused (Alexander 1977, pp. 519).

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<sup>13</sup> Low, Setha. *Theorizing the City. The New Urban Anthropology Reader*. New Jersey: Rutgers University Press, 1999, pp. 111-137.

<sup>14</sup> Rotenberg & MacDonogh. *The Cultural Meaning of Urban Space*. Connecticut: Bergin & Garvey Press, 1993, pp. 4-15.

Elizabeth Meyer asserts that spatial landscapes and outdoor space must be seen as an articulated and hierarchical space. Articulated spaces are those where the connections between vegetative subdivisions and constructed spaces are established through an ordered design which creates spatiality. In addition she asserts that landscape, nature and women have in common that they have been all displaced to the outside, the edges, or the margin, especially when the architecture has taken the cultural role and not the conceptualization of the ground as a site, or as the space of cultural and man-kind interactions.<sup>15</sup> Architecture designs physical structures upon the land, an essential contradiction with the view of the landscape as the ecological, social and physical site.

## II. Interpretation of Open Space as Social Space of Spatial Experience

Interpreting open space as social space involves in part individual and social spatial experiences. This interpretation requires first differentiating private territory from public territory. Anne Buttimer in her book, *The Human Experience of Space and Place* postulates five levels of analysis to identify social space.

1. Sociological level: this is the analysis of the social status level in the society.
2. Interaction level: this analysis of spaces is influenced by social behavior.
3. Symbolic level: this analysis produces the identification between territory and images.
4. Affective level: this analysis involves patterns produced by the citizen when he identifies his territory. This level involves the subjective experience, which derives from individual appreciation and the objective experience, which establishes the social connection with the space.
5. Morphological level: this is the analysis of the shape (Buttimer & Seamon 1980, p.25, 26).

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<sup>15</sup> Meyer, Elizabeth. "The Expanded Field of Landscape Architecture," in *Ecological Design and Planning* by George F. Thompson and Frederick Steiner, New York: John Wiley and Sons, 1996, pp.45-79.

Setha M. Low in the book *Theorizing the city: The New Urban Anthropology Reader*, links social interactions and space through a concept called spatialization. This term describes an analysis of the content and form of the patterns produced between social relationships and practical or functional use.<sup>16</sup>

### III. Interpretation of Open Space as Abstract Space of Spatial Practice

The interpretation of open space as the space of abstraction or as one aspect of spatial practice is based on the analysis of Lefebvre's theories in the book *The Production of Public Space* edited by Andrew Light and Jonathan Smith.<sup>17</sup> In it they identify the term *abstract space* as the environment or that space where architects, urban, planners, and developers work. The abstract analysis of the meaning of space has had different positions and contradictions within history. Light and Smith assert that Henri Lefebvre considered the perception of space from a three-dimensional perspective; that is, three terms, three levels, and three forms. Lefebvre's theory considers that it is impossible to disconnect these three formal dimensions and only see it as an abstract space:

Yet Lefebvre also comprehends existing social space as a concrete universal containing three terms (spatial practice, representation of spaces, and spaces of representation) three levels (perceived, conceived, lived), and three forms of space (absolute, historical, abstract) that particularize themselves with specific contents at different time periods (Light & Smith 1998, p.29).

Spatial practice refers to the relationship between humans, and with their contact with the surrounding context. Representations of space are geometrical structures such as grid, curve, axis, etc. Spaces of representation use human imagination, which means that a person transforms an image into a physical representation.

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<sup>16</sup> Low, Setha. " Spatializing Culture: The Social Production and Social Construction of Public Space in Costa Rica", *Theorizing the City. The New Urban Anthropology Reader*. New Jersey: Rutgers University Press, 1999,p.115

<sup>17</sup> Light, Andrew, Jonathan Smith. *The Production of Public Space*. New York: Rowman and Littlefield Publishers Inc, 1988,p. 25

Spatial practice presupposes spaces of representation, such as parks and gardens. The most prosaic representation of space (such as the grid or the curve) manifest geometric and religious concepts that serve in part to explain their power (Light & Smith 1998, p. 29).

### III. Interpretation of Open Space as the Urban Ecosystem

The city as the urban ecosystem is the view of Ann Spirn and Ian McHarg. Spirn visualizes parks and buildings as one body, and envisions ecological alterations influencing the balance of the body. In this way, the design of green open space should be contemplated as a closed cycle energy system.<sup>18</sup>

Green open space design implies a more cost of energy and investment because they are spaces that need maintenance and care. However, at the same time the green space is the one of the only spaces in the city which are able to prevent, balance or mitigate and control contamination, help create biological diversity, all while potentially adding pleasure to human life. Spirn discusses three aspects that are necessary to contemplate in populous urban cities: air quality, enhancing comfort and conserving energy.

She proposes the following principal strategies for the improvement of these conditions: locate and analyze the conditions which generate contamination in the city; create alternatives for improvement through new transportation systems and sources of energy; encourage a large scale of tree planting and parks as the space of microclimate, enhanced air quality, and ventilation in the city; and provide open space away from arterial streets or pollution centers.

On the other hand, Ian McHarg visualizes or interprets open space as the "*Nature in the metropolis.*"<sup>19</sup>

The ecological method would suggest that the lands reserved for open space in the metropolitan region be derived from natural-process lands, intrinsically suitable for 'green' purposes: that is the place of nature in the metropolis. (McHarg 1992 p.56)

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<sup>18</sup> Spirn, Anne. *The Granite Garden: Urban Nature and Human Design*. New York: Basic books, 1984 ,pp. 62-87

<sup>19</sup> McHarg, Ian. *Design with Nature*. New York: John Wiley & Sons, 1992, p. 56.

By natural- process lands, he means areas suitable or adequate for conservation, preservation of nature contained in the city associated with its intrinsic value (ecological, functional, historic, etc). He also asserts that open space created in the city must correspond to a positive 'pattern of development' based on a deeper analysis of existing cities conditions and problems.

#### IV. Interpretation of Landscape as Binary, Natural, and Cultural Landscape

D.W. Meinig describes the visualization of landscape meaning and the field of landscape architecture in "The beholding Eye: Ten versions of the Same Scene". He visualizes that there are many considerations in the definition of the landscape and the division between natural and culture is only one of the faces of the paradigm.<sup>20</sup>

Elizabeth Meyer asserted that the landscape architecture field must understand "nature" and "culture" as a binary system, as if they were separate domains. The binary system identifies hierarchical relationship between hard building (culture) and plant life (nature). She uses the concepts of invisible minimal garden or garden without walls as an answer to the created division tendencies between man and nature of historians, architects, and feminists. Additionally, Meyer said open space design must serve a function and not only visualize it only as an aesthetic space. The same vision is established by Gísli Pálsson that argues that the view of nature by people has taken two different and opposite paradigm directions: orientalism and paternalism. Orientalism has the meaning of domination over

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<sup>20</sup> Meinig, D.W. *The Interpretation of Ordinary landscapes*. New York: Oxford University Press, 1979, pp. 33-48.

Meinig classification of landscape field meaning:

1. Landscape as Nature: man apart from (and despoiler of) nature.
2. Landscape as Habitat: the home of the man
3. Landscape as Artifact: man dominating nature.
4. Landscape as System: nature and man part as the system (cycle).
5. Landscape as Problem: landscape is a design problem.
6. Landscape as Wealth: land is the primarily form of capital and familial inheritance.
7. Landscape as Ideology: landscape as the symbol of values and culture.
8. Landscape as History: landscape revealing the past
9. Landscape as Place: landscape meaning as unique and particular human experience.
10. Landscape as Aesthetic: Landscape transformed as an artistic medium.

nature. Paternalism has the meaning of protection of nature and finally communalism is the dialogue between both (figure 1).<sup>21</sup>

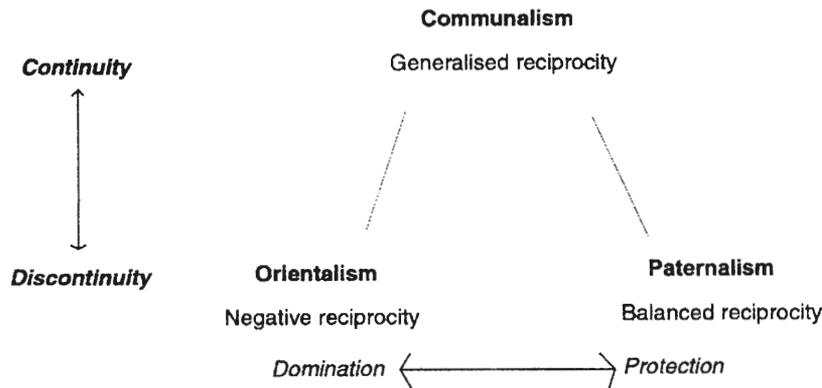


Figure 1. Kinds of human-environmental relations

Source: Gísli Pálsson p. 67

Nature also has symbolic or associative meaning and often evokes a cultural meaning, calling upon *conservation*, *peace*, and *serenity*.<sup>22</sup> Contemporarily, we associate nature with two important qualities: originality and wilderness. Examples of this are forests, seas, valleys, deserts, and other places, which are associated by people as serving as a tourist function and having recreational use. In addition, these spaces are visually part of a "natural harmonic composition." History shows nature as being a place for inspiration for many people and, in some cultures, it has evoked fear and danger. The visual and the aesthetic character of nature, is a force, which includes an intense movement and feeling. *Natural landscape* is the answer to the natural heritage of each country and generally, these areas correspond to protected natural areas.<sup>23</sup> Additionally, these natural spaces have a strong

<sup>21</sup> Descola, Philippe and Gísli Pálsson. "Human-Environmental Relations: Orientalism, Paternalism, and Communalism", *Nature and Society. Anthropological Perspectives*. London: Routledge Press, 1996, pp. 67-79

<sup>22</sup> Anne Buttimer defines 4 types of nature:

1. Nature as appropriate form: nature as symbol
  2. Nature as organism: nature as a body
  3. Nature as machine: water circulation as a system
  4. Nature as theater of events: floods, hurricanes, earthquakes unique extraordinary events
- Buttimer, Anne. "Nature, Water Symbols, and the Human Quest for Wholeness", *Dwelling, Place and Environment towards a Phenomenology of Person and World* by Seamon, David and Robert Mugerauer. Boston: Martinus Nijhoff Publishers, 1985, pp. 268-273

<sup>23</sup> Rowntree, Lester. *Concepts in Human Geography*. Lanham: Rowman & Littlefield, 1996, p. 147.

resource of life and an extensive dimension, characterized by a physical condition unable to be contained. Over time the concept of nature has evoked and taken on different meanings at different times. Broadly, we can categorize this in three major sections:

1. physical ( physics and mathematics),
2. power (Greeks and Romans beliefs of nature as symbols of superstition and religion), and
3. social (human dependence and necessity of the environment, considered the element link in the social structure) (Grange 1985, p.78).<sup>24</sup>

This interpretation of open space is important because in the singularity of both concepts it is possible to categorize and classify the differences in the field of landscape architecture. From Lesley Head's book *Cultural Landscapes and Environmental Change*, I extract two important approaches: using the knowledge of the past, and establishing the difference between *natural landscape* and *cultural landscape* (Head 2000, pp. 3-49).

To complement the approaches of Lesley Head who defines *cultural landscape* as the physical expression of culture in the landscape, the author Lester Rowntree, includes in the book *The Cultural Landscape Concept in the Human Geography (1996)*, the following theme categories of cultural landscape:

1. landscape as ecological artifact, which is the abstract physical space used to design
2. landscape as evidence for origins and diffusion that involves history and land use change
3. landscape as material culture; the medium to recognize visual patterns
4. urban landscapes, spaces created for people as malls and plazas
5. art, literature, and landscape meaning, which define the anthropocentric vision and sights about landscapes
6. landscape as visual resource (equating environmental quality with visual attributes)

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<sup>24</sup> Grange, Joseph. "Place, body and situation" , *Dwelling, Place and Environment towards a Phenomenology of Person and World* by Seamon, David and Robert Mugerauer. Boston: Martinus Nijhoff Publishers, 1985,p. 78

7. landscape as ideology; the theorization about landscape
8. landscape 's role in the production and maintenance of social categories; a cultural role in the identity and production of social structure
9. landscape as text; symbols and signs; the analytical reading of the essence of the landscape <sup>25</sup>

Culture has been visualized as the opposition of nature (Coates 1998, p.1, 2) because it means destruction and abuse of power.<sup>26</sup> Culture is associated with an anthropocentric desire to control all that we have has led us to create artificial spaces. We recreate in idyllic spaces such as parks and golf courses, call them "nature," and imagine that we are with nature and part of it. They could be considered as artificial spaces. Therefore, artificial space in the urban space is a representation of culture, social behavior, and relationships produced by society influencing the shape of the city and these spaces. With this perspective, it is possible to add a characteristic that 'artificiality' represents the cultural landscape.

UNESCO, (United Nations Educational, Scientific, and Cultural Organization) concerned with the protection of World Cultural and Natural Heritage, defines the following characteristics for the term *cultural landscape*: "cultural landscapes are spaces that represent the identity of a region, and landscape which represent the relationship between humans and environment" (Head 2000).

In addition, this international organization categorizes the cultural landscape in three categories:

1. Landscape designed and created intentionally by man: this includes an aesthetic reason and symbolic meaning
2. Organically evolved landscape: this is the cyclical vision of landscape and its evolution affected by changes

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<sup>25</sup> Rowntree, Lester. *Concepts in Human Geography*. Lanham: Rowman & Littlefield, 1996, p. 147.

<sup>26</sup> "Culture can be seen as the opposite of nature if we understand the creation of material culture as creating or modifying naturally existing space for human use. This is always change, and change always it is destructive at same level. Some change is of course, sometimes more destructive than others" (Paxson, 2001).

3. Associative cultural landscape: this is the social interaction produced by associative artistic, religious, or cultural meaning (Head 2000, p.85)<sup>27</sup>

To understand the concept of nature applied in the study of open space and landscapes in urban spaces, I choose to interpret the existence of two different categories of open space: artificial and natural open space. I consider the artificial open space as a place created by the people within the city, as urban spaces which can be considered synonymous with material culture. In contrast, the natural open space follows a natural cycle that grows without the intervention of human action, but it is impacted by cultural landscapes created by humans. This differentiation suggests that the design of landscape in the city is necessary from a social, ecological and aesthetic perspective, and the lack of these urban landscapes in the city generates problems.

From the perspective of the city viewer, "natural" means outside the city. However, few spaces outside of the city have not experienced human intervention. Thus, the degrees of artificiality could be defined as degrees of transformation, intervention, and intention.

Less intervention and transformation implies spaces that are more natural. By contrast, more transformation involves less natural spaces as with many recreational spaces in the city. These considerations about the degrees of artificiality could be understood as not the final product image or representation, but as how much intervention and design the space had experienced.

In addition, the definition of artificiality in some ways clarifies that there is a design involved (positive or negative) as continuum, resolving issues such as environment, ecology, social function, culture, concept, and context. People constantly deny the artificiality when almost modern life has been based in artificial images, and artificial spaces, etc. Today artificial nature represents our culture, which we usually design and live within (figure 2).

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<sup>27</sup> Head, Lesley. *Cultural Landscapes and Environmental Change*. New York: Oxford University Press, 2000, p. 85.

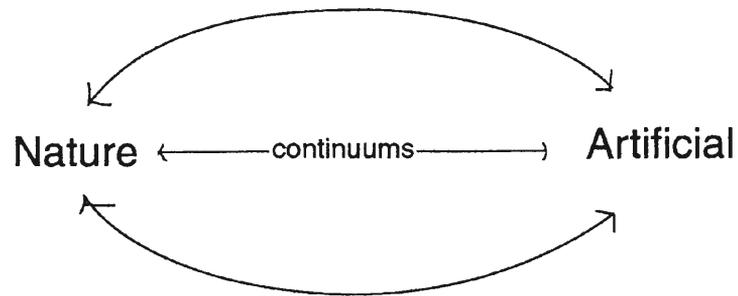


Figure 2. Reciprocal system between nature and artifice

On the other hand, Albert Borgmann argues that the concepts of artificiality must to be seen in different degrees of reality, and from the differences between the modern and postmodern movements.<sup>28</sup>

Accordingly, we can now say that today the critical and crucial distinction for nature and humans is not between natural and artificial but between the real and hyperreal (Soulé & Lease 1995, p.39).

Borgmann argues that the concept of hyperreal refers to abstracting the essence of the place to create artificial spaces which represent 'real' spaces. While, 'real' designates those original spaces, which are natural collective images.

However, the degrees of artificiality must consider the vision of artificial spaces. Kim Dovey argues in the article "The Quest for Authenticity and the Replication of Environment Meaning" that artificial spaces are lacking in depth. He considers that the term depth includes spatial and historical connotations (Seamon & Mugerauer, 1985).<sup>29</sup> In addition, he concludes that artificial spaces are spaces of deception. The deception is produced when a person confronts a space that is not real and not original to nature, but purports to be. He seeks for the real meaning and uses the example of artificial materials imitating natural or cultural shared images with the idea of replicating the original--- In

<sup>28</sup> Borgmann, Albert. "The Nature of Reality and the Reality of Nature", *Reinventing Nature?: Responses to Postmodern Deconstruction* by Soulé, Michael and Gary Lease. Washington, D.C.: Island Press, 1995, pp. 31-45

<sup>29</sup> Dovey, Kim. "The Quest for Authenticity and the Replication of Environmental Meaning", *Dwelling, Place and Environment towards a Phenomenology of Person and World* by Seamon, David and Robert Mugerauer. Boston: Martinus Nijhoff Publishers, 1985, pp. 33-49

other words, when a space is representing nature rather than being natural. Donna Haraway, on the other hand, argues that nature is composed by two elements: context and structure.<sup>30</sup> She uses cultural context in reference to the understanding of nature and the content and structure of nature which involves the physical perception about nature (Lease 1995).<sup>31</sup> In many cases, artificial spaces often are lacking in context, which is the indicator that defines the meaning of the landscape.

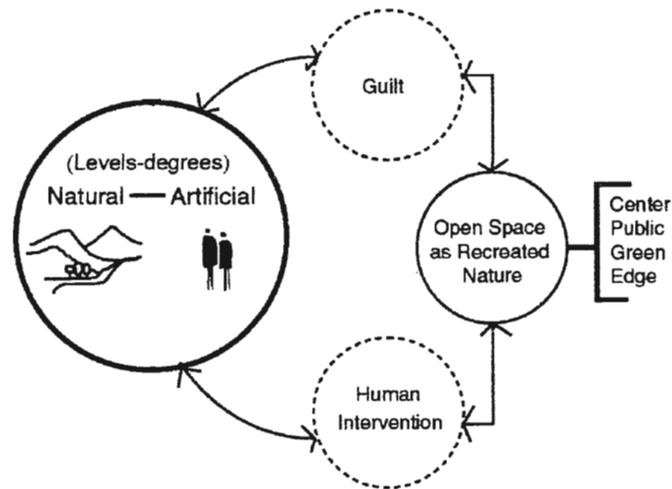


Figure 3. Urban open space

In summary, two condition---- guilt and human intervention---- characterize the artificial open space. Guilt refers to the human necessity to imitate nature. Human intervention means an intentional action to recreate nature. Figure 3 represents the contemporary duality between existing nature or natural open space, and nature created or artificial open space creating levels or degrees of artificial and natural. These conditions generate recreated open spaces in the city, which could be broadly classified as the *center*, *public space*, *green space*, and *as the edge*. These typologies are analyzed as a continuum, creating the essential theoretical framework of analysis that will be applied in the case studies.

<sup>30</sup> Haraway, Donna. *Simians, Cyborgs, and Women: The Reinvention of Nature*. London, Free Association Books, 1991.

<sup>31</sup> Lease, Gary. "Nature under Fire", *Reinventing Nature?: Responses to Postmodern Deconstruction* by Soulé, Michael and Gary Lease. Washington, D.C.: Island Press, 1995, p. 9.

### **Summary main ideas:**

- Open space will be categorized as a regenerative space with the following land function characteristics: ecological, economic and socio-psychological (Montag, 1973).
- American towns privilege the design of green recreational open spaces as public spaces.
- Latin America in contrast visualizes the open space as public social space and the green space as passive space. In the last years open public space has disappeared as result of the growth of the city, population increase, and government action.
- The open space could be defined as the empty space. There are two types of outdoor space: "negative" and "positive" space. Negative space is the residual space produced by city urban structures and buildings. Positive space is created when the open space itself has a regular shape or recognized geometry (Alexander, 1971).
- Open space is the social space of spatial experience, which involves sociological, interactive, symbolic, affective, and morphological levels.
- The design of open space must be visualized as a three dimensional space: spatial practice (context), representations of space (form), and spaces of representation (physical image).
- Open space needs assessment must consider levels of hierarchical spaces produced by vegetation. The design of green open space should be contemplated as a closed energy cycle system because it is able to prevent and control contamination, create biological diversity, and give pleasure to humans (Spirn, 1993).
- Accommodating natural process means to identify areas suitable or adequate for conservation, preservation of nature contained in the city on the basis of intrinsic value (ecological, functional, historic, etc) (McHarg, 1992).
- Open space in the city is a binary system that includes nature and culture as polarities of a continuum (Ecology and function). ( Meyer, 1996)
- Created open spaces as center, public, green, and edge must be seen through degrees of natural and artificial interventions and transformations.

## Typologies of Open Space

This section describes broadly four typologies of open space considering the meaningful basis of this investigation.

- I. Open space as center
- II. Open space as public space
- III. Open space as green space
- IV. Open space as edge space

### I. Open Space as Center

The first typology is *open space as center*.<sup>32</sup> In the literature review, open space was defined as related to the concepts of artificial and natural. *Open space, as center* is primarily a designation of cultural landscape.

As mentioned before, I suggest that the major plaza in Santiago has had the meaning of center and public space because it has been the principal empty or unbuilt space created in the city. To understand the concept of *center* it is necessary to determine or define its general cultural and historic significance.

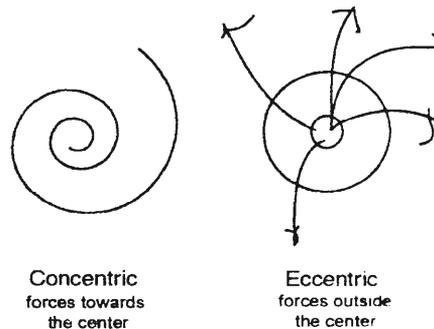


Figure 4. Center attraction forces

<sup>32</sup> Kevin Lynch categorize 6 types of centers:

1. Patterns of centers: One dominant center surrounded by subordinated sub-centers.
2. Specialized and all-purpose centers: Specific activities concentrated in one space.
3. Linear centers: centers around highways
4. Neighborhood centers: Centers which support economic activities for neighborhood residents.
5. The shopping centers: Model centers destined to commercial use
6. Mobile centers: Not permanent centers capable to move around different areas such as mobile libraries, clinics, etc.

Lynch, Kevin. *A Theory of Good City Form*. Cambridge: MIT press, 1994, pp. 389-400

The word center implies more than geometry and architecture because *center* is associated with a symbolic element. The word center is associated with an image, which represents authority and force. Visualize a tension diagram, and open space as center is the point that attracts all the stress, generating concentric forces on the city, or the point where all the energy is liberated generating eccentric forces (figure 4).

*Center* is visualized and is associated with circular geometry, and historically it is associated with a figurative structure of power. A circle is the basic representation of center because its geometry is perfect. The circular shape is repeated in the majority of the cities in the world, and people seeking for the center in themselves to maintain their system in equilibrium.<sup>33</sup>

Initially, open space was representative of the whole (Buttimer1995, p. 261).<sup>34</sup> People manipulated and created new habitable spaces on specific pieces of soil. In the design process, space represented an image that connected the person with the context, and through it, the people sought an identity. As example, Incas used the *center* as symbolic space for their aboriginal pueblos. It was the ritual meeting space and for some groups the sacrifice point.

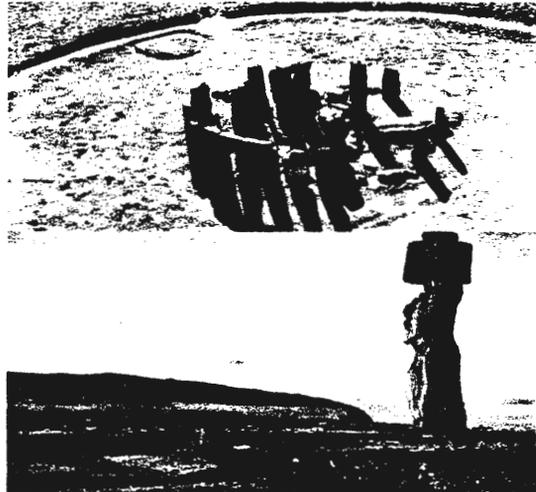


Figure 5. Stonehenge, Wiltshire in England and Eastern Island, Chile  
Source: Geoffrey & Jellicoe 1995,p. 16, and Editorial Photographic Huber y Cia. 1998. Santiago Chile

"Always looking towards their territory, Moais protected it with the force of their look, from where the MANA (mystical Force) flows"(Hurber, 1998).

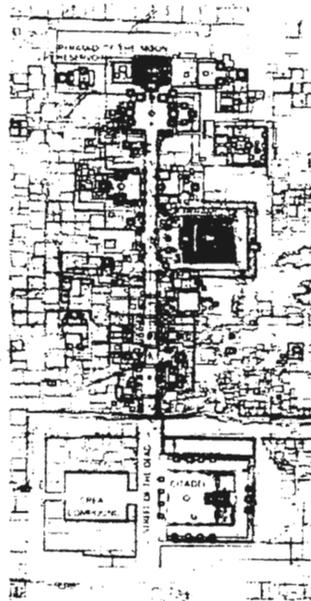
<sup>33</sup> Bortoft, Henry assesses the term "hermeneutical circle" which is the reciprocal relationship of the whole and the parts. "Counterfeit and Authentic Wholes: Finding a Means for Dwelling in Nature", *Dwelling, Place and Environment towards a Phenomenology of Person and World* by Seamon, David and Robert Mugerauer. Boston: Martinus Nijhoff Publishers, 1985, p. 285

<sup>34</sup> Buttimer, Anne. "Nature, Water Symbols, and the Human Quest for Wholeness", *Dwelling, Place and Environment towards a Phenomenology of Person and World* by Seamon, David and Robert Mugerauer. Boston: Martinus Nijhoff Publishers, 1985, pp. 259-280

Figure 5 presents two examples of symbolization of context. The top picture shows the "stones of sacrifice" of Stonehenge, Wiltshire in England. This structure followed a circular geometry. The bottom picture shows the Moais of Easter Island in Chile where the back of the statues faces the sea.<sup>35</sup> In this case monumental statues give to this context the meaning of ritual and consecrated space surrounding the center as elements of protection.

Nature as rivers, mountains, or sea often surrounded these centers, and gave the centers scenic qualities. Even in those that were centered within built or man-altered areas their were framed or other available 'views' or nature scenic qualities. To transform the context of a space was the most relevant characteristic applied in architecture for the men of old civilizations, because in this transformation they converted nature into symbols that represented their beliefs and religions.

In Mesopotamia, Egypt, Asia, and Latin America, the Mayas and the Inca Civilization are recognized ancient cultures that emphasized the scenic values and the metaphysical power of nature through the infinity concept, life after life, reincarnation, and the seeking of eternity.<sup>36</sup> In Mexico, the Teotihuacan design (Cr. Ad. 100-750) (figure 6) is shown as an example, in that its monuments, which are based in basic



**Figure 6. Teotihuacan**

\* Source: Lynch 1994, p. 11.

<sup>35</sup> Jellicoe Geoffrey and Susan. *The Landscape of Man: Shaping the Environment from Prehistory to the Present Day*. New York: Thames and Hudson, 1995, p.16.

<sup>36</sup> Hamlyn. *The Art of the Aztecs*. London: Octopus publishing Group, 1999.

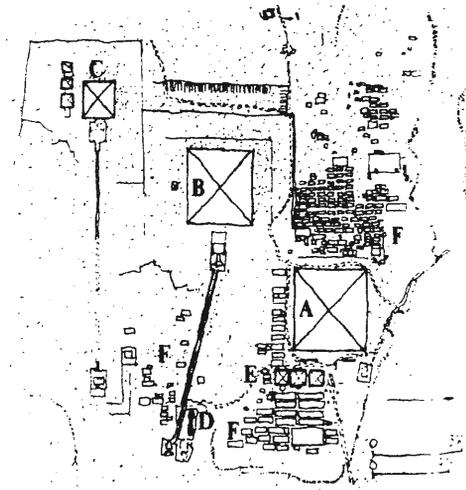
geometrical structures, are located along a path that has a central axial conformation.<sup>37</sup> In the Teotihuacan plan, the view of the path is toward the Sun Pyramid, and its function was to observe the relationship between the position of the earth and the sun. In this case, the center was transformed into an axial connector of areas. The built elements were situated following a human spatial interpretation of the cosmos and society. Therefore, the architecture took on an awesome sculptural character because it begins to acquire a central meaning of power, which was full of religious symbolism and codes as an answer to the unknown mythological nature.

Other examples are the Pyramids at Gizeh in Egypt "where the general plan shows how the pyramids are related asymmetrically one to another, and their orientation is in relationship to the cosmos and the cardinal points."<sup>38</sup> Figure 7 shows the plan of the pyramids, in addition, the cemeteries are protected by these structures.

People use symbols in a manner to identify the landscape and to take possession of created center spaces which contain a physical and imaginary interpretation. A symbol is an appropriation and simplification of elements found in the context.

Interpretation of figure 8 shows the concept of the center in the ancient world.

It was a space, which has the representation of four important symbolic elements of society and culture, geography or



159 GIZEH

A Pyramid of Cheops B Pyramid of Chephren  
C Pyramid of Mycerinus D Great Sphinx  
E Pyramids of the three queens of Cheops  
F Cemeteries

Figure 7. Gizeh

\*Source: Geoffrey & Jellicoe 1995, p.100

<sup>37</sup> Lynch, Kevin. *A theory of Good City Form*. Cambridge: MIT press, 1994, p.11.

<sup>38</sup> Jellicoe Geoffrey and Susan. *The Landscape of Man. Shaping the Environment from Prehistory to the Present Day*. New York: Thames and Hudson, 1995, p. 100.

nature, religion, and cosmos. These elements have been the base for many modern cultures. In figure 6, the center is surrounded by a context, that is an unknown variable because it depends on each place and culture. The context determinates the shape, size, and content of the center. In addition, in the diagram, the center is represented as a circle, which is only a representative geometry of the meaning. The actual 'center' can acquire many shapes and states of form depending of the context.<sup>39</sup>

There is a fundamental difference between the product of the architect as form-giver and symbol-giver and the symbolic elements that exist within the shelter of a vernacular society. The architect determines the forms that seems appropriate to the needs of a particular building or building complex within a society, while in the case of an indigenous society, the form of its dwellings is symbolic of its self-image (Oliver 1980, p.12).

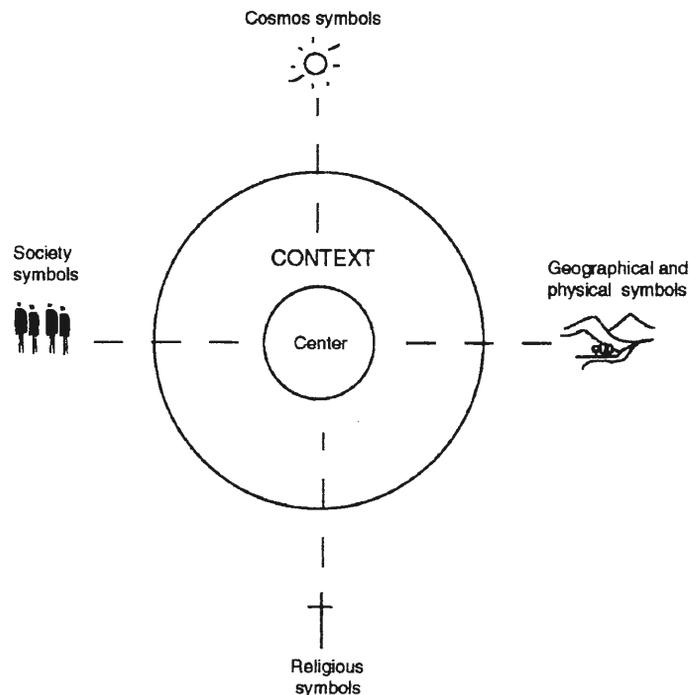


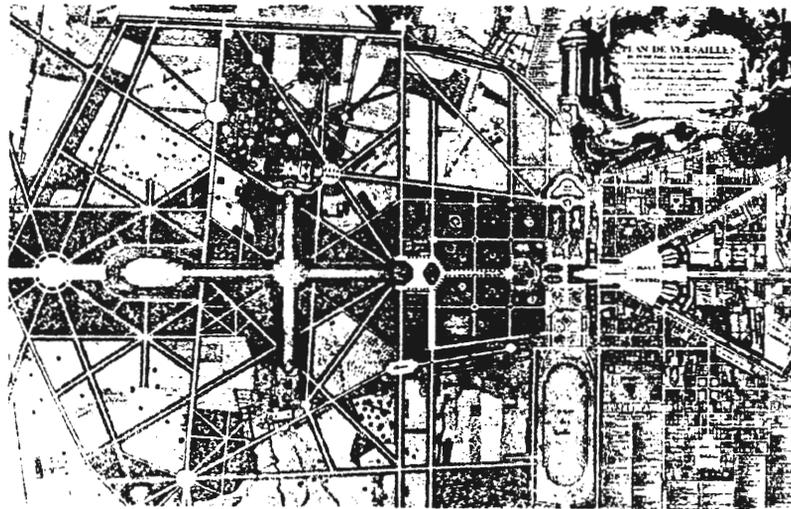
Figure 8. Symbolic center

On the other hand, Western Civilization, specifically in the Mediterranean Greek Culture and the Roman Empire, were the first civilizations that developed the idea of the city. This concept grew out of their political rules as applied to their daily life. Center as

<sup>39</sup> Lynch, Kevin. *A Theory of Good City Form*. Cambridge: MIT press, 1994, p. 314

open space reflected the relationship between gods and humans, where immortal gods were owners of the Acropolis and the humans were the periphery.<sup>40</sup>

During the evolution of ancient Greece and other occidental cities, the impact produced by the Christian religion and the renaissance period changed the relationship of man and god. This influenced the configuration of the city and gave 'center' a new meaning. The center becomes directed towards men versus gods and especially to man as individual versus as a social group. This change altered existing spatial conceptions, and converted of to an abstract space where the lines, dimensions, and proportions created a new order expressed again through a linear axuality in the landscape and focusing on architecture. As an example, The Versailles Plan was the culmination of the work of Le Notre, and the strongest axuality in his design represented the infinity of perspectives towards the palace. The whole composition was organized in the sight line, combining other gardens and spaces drawing the Versailles Palace as center (figure 9).<sup>41</sup>



**Figure 9. Versailles 1746**

\* Source: Newton.1971, p. 175

<sup>40</sup> Van Pelt, Robert and Carroll Westfall. *Architectural Principles in the Age of Historicism*. New Haven and London: Yale University Press, 1990, pp.170, 171

<sup>41</sup> Newton, Norman. *Design on the Land. The Development of Landscape Architecture*. Cambridge: The Belknap Press, 1971, p.175.

Architecture is often considered an instrument of possession, control, and projection of people over landscape. Especially in western cultures, often the demonstration of political power and control image over hard-working people, nature, and land has been expressed through monumental constructions with extraordinary geometry and meticulous perfection.

Modern cities have based their design on history. The center as the place or the church has been replaced with the center as political, civic, market, and economic area. The downtown shows verticality in its buildings and horizontality in urban open spaces, such as parks and plazas both interacting and creating whole image.<sup>42</sup>

This image as an economic center is the visual heart of the city, which means skylines, towers, spires, energy, business, market, activities, noise. This is in contrast, to the periphery that represents the home and the daily life. When I drew this sketch of Lower Manhattan I never imagined that on 11<sup>th</sup> of September of 2001 the towers of the World Trade Center would be converted from the symbol of financial power into the central symbol of destruction by terrorism (figure 10).



Figure 10. Lower Manhattan

The dichotomy between the periphery and the center has been a modern problem because often one of them is stronger and increasingly diminishes the other. The cities are growing continuously, creating many centers, incorporating new neighborhoods, and

<sup>42</sup> Antoniou, Jim. *Cities Then & Now*. New Jersey: Chartwell Books, 1999, p.157

segregating others physically or socially on the periphery. The periphery has been conceptualized as a dependent element of the center, and for this reason, it is not a protected area. The force of the center represses the periphery, taking a contextual meaning value for itself.

It is the meaning for periphery: a sum of divided neighborhoods that do not have a common image. *Periphery represents a combination between natural and collective amnesia because generally it is a space absent of historic signification.* The periphery creates a mass of dispersed volumes connected by roads through the automobile. Urban designs have not found a successful solution, when they needed to solve the problems generated by the periphery. In most of the cities, the periphery represents the contrast between poverty and richness, in all its expression.

"The centripetal movement towards the city-center was replaced by a dialect between center and periphery, which acknowledged the reality of relationship between city and countryside"(Jan Van Pelt & Westfall 1993, p. 171).

Centers acquire each day an impersonal, decentralized, and individual character. The importance of the function and the privilege of the easy life have focused on image and status as principal parts of daily life.

Today, the mall at the periphery represents the center.<sup>43</sup> The change of cultural elements, globalization, and the media carry us to use the same patterns for all people. One box of consumerism has produced the most revolutionary impact on the habits of people and changed life to a focus on an artificial landscape of stores and clothes. The mall defined as a new functional center has an axial design imitating main streets of downtown's and towns. It is also, from an abstract perspective, another "center" space that takes on some the same functions of the old historic parks and plazas, by replacing nature with artificial objects (figure 11).

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<sup>43</sup> Lynch, Kevin. *A Theory of Good City Form*. Cambridge: MIT press, 1994. pp. 389-399

The principal image is of complex network, full of incidents and surprises, intimate and protected in scale, intrinsically connected into itself. There is not outside, no facade. Everything is inside. The prototypes for this solid maze may be found in connected subways, large institutional complexes, and enclosed shopping malls Lynch, Kevin. *A Theory of Good City Form*. Cambridge: MIT press, 1994, p. 409.

As a conclusion, the sense or the meaning of the center answers to the temporal events and the social historical changes. In other words, the associative meaning is not altered, only the physical structures that contain the symbolic center.

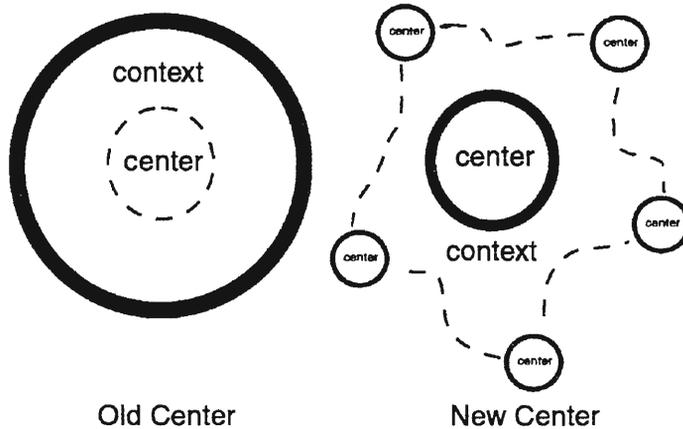


Figure 11. Social, economic, physical, and temporal changes in centers.

The center associates people, context, and history. In summary, the shape of the center has taking important forms. The circle (hermeneutical center), the axial shape which often finished in endpoints, usually buildings (palaces or institutional buildings, and skyscrapers). The interior center following the axial interior design replicating the movement of the old streets (figure12).

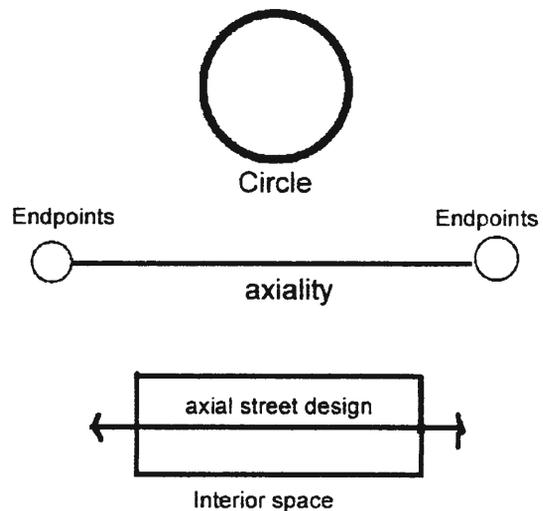


Figure 12. Shape of the center

## Summary

- *Center* is associated with a symbolic element, an image, which represents authority and force.
- *Center* is surrounded by a context, that is an unknown variable because it depends on each place and culture. The context determinates the shape, size, and content of the *center*.
- Periphery represents a combination between natural and collective amnesia because generally it is a space absent of historic signification.
- The image as an economic *center* is the visual heart of the city in the modern city.
- *Center* answers to the temporal events and the social historical changes. In other words, the associative meaning is not altered, only the physical structures that contain the symbolic center.

## II. Open Space as Public Space

This second typology definition seeks to join a sense of public space with the exterior regional context landscape. As opposed to the United States where streets, plazas, parks, etc are still to be thought of as public areas and interior space as a secondary space, planners in Santiago have visualized public space as primarily interior, built spaces or public buildings, such as museums, libraries, and the church. Based in the language of architecture, public buildings are considered public spaces. However, it seems that this vision focuses on interior spaces and it has produced a lack of open public spaces designed for outside use by the 'public' or citizens.

This premise about public space is discussed for John Gulick in the "'Disappearance of Public Space": An Ecological Marxist and Lefebvrian Approach". He argues that public property centers (refers to public state properties and buildings) are disappearing by the closure or sale of public property. (Gulik 1998, p.136).<sup>44</sup> Gulick's view makes sense only if the state is the instrument which generates public spaces; and the private realm is the instrument which diminishes public space.

Santiago is a city in which open space has been designed primarily for use as a center and public space in the form of the plaza.<sup>45</sup> The plaza has taken on the functions of absorbing historic cultural characteristics and creating an architectonic context. The plaza as public space has been a historic urban element with Hispanic influences that remain in the city without many alterations (Low, 1999).<sup>46</sup> Although this space is sustained through social actions, the physical proportion of this space is insufficient to generate aesthetic, ecological, and psychological-social values that a large extension of recreational area can produce in the improvement of a neighborhood or city sector (Light and Smith, 1998).

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<sup>44</sup> Gulick, John. "The "Disappearance of Public Space": An Ecological Marxist and Lefebvrian Approach", *The Production of Public Space* by Light, Andrew, Jonathan Smith. New York: Rowman and Littlefield Publishers Inc, 1988, p.136

<sup>45</sup> The plaza is a public space because its form answers to social functions destined to public gathering and contemplation.

<sup>46</sup> Low, Setha. " Spatializing Culture: The Social Production and Social Construction of Public Space in Costa Rica", *Theorizing the City. The New Urban Anthropology Reader*. New Jersey: Rutgers University Press, 1999, p.115

To understand the Chilean concept of public space Sergio León Balza, author of the article "Conceptos sobre el Espacio Público, Gestión de Proyectos y Lógica social; Reflexiones sobre la Experiencia Chilena" *EURE* vol. 24 No 71, March 1998, analyzes the current law-code normative: *General Law of Constructions and Urbanism*.<sup>47</sup> He criticizes the fact that 'the common good' becomes the definition for public spaces. In the chapter of *National Good of Public Use*, public space is considered as utilitarian public space, which includes plazas, parks, streets, institutions such as schools, hospitals, and public habiliments.<sup>48</sup>

In addition, the *General Law of Constructions and Urbanism* dictated that any new development or subdivision must give freely a quantity of land destined to become green areas, circulation roads, and urban space. The size of this land is dependent upon the number of inhabitants per hectares. However, the law does not specify its function and correlation with construction. Sergio Balza also stipulates the following fundamental functions of public space.

1. Space of recreation: spaces dedicated to play, sports, and activities outside.
2. Space that structures the shape of the city; spaces that are landmarks in the place.
3. Aesthetic space: spaces that give pleasure and beauty in the city.
4. Contemplative space: spaces that diminish the visual contamination produced by density.
5. Spaces for views: spaces with tourism and historical values.
6. Social and cultural space: spaces such as historical plazas, which have a social role in the Chilean structure.
7. Educational Space: spaces that are dedicated to education and can be linked with extension programs of schools and universities.
8. Ecological space: spaces destined to preserve biodiversity.(Balza, 1998)

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<sup>47</sup> Balza, Sergio. "Concepts about public space, generation of projects and social logic: Reflections about Chilean Experience", *EURE* vol 24 No71, 1998.

<sup>48</sup> Ministerio de Urbanismo y Construcciones. *Ordenanza General de Urbanismo y Construcciones*. Art. 2.2.5, 1997.

In the Chilean historic context, the major public spaces have been designed as plazas. Setha M. Low in the book, *Theorizing the City* establishes two different approaches to define the Hispanic plaza as public space in response to her studies of social behavior of plazas in Costa Rica.

"These plazas were also socially constructed through contested patterns of use and attribute meaning" (Low 1999, p.119).

Her vision means that the plaza is not only a plaza because of its shape, or other physical qualities or uses but also because of its social significance.

Public space is based on the concept about the collective or people as a communal body and the *polis*. It belongs to all the citizens, and these spaces are destined for all people who wish to be part of the collectivity. Figure 13 shows the typical layout of the historic Hispanic Plaza. The center is surrounded by institutional buildings, such as the church, the hospital, and government buildings.<sup>49</sup>

To understand the concept of public space, first we need to distinguish urban space from public space. In my opinion, we cannot call all the spaces that are not personal, private, or individual public space.

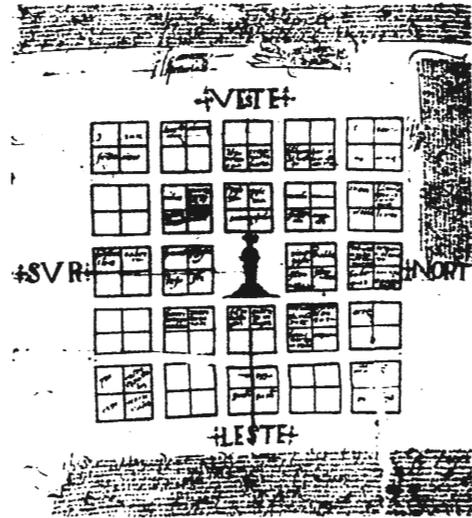


Figure 13. Hispanic plaza 1563, Mendoza, Mexico

\* Source: Kostof, 1999, p. 25

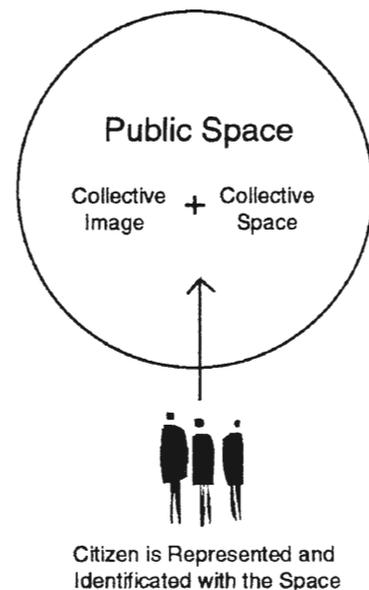


Figure 14. Public space

<sup>49</sup> Kostof, Spiro. *The City Assembled: The Elements of Urban Form through History*. Boston: Little Brown, 1999, p.25.

**Public space** is formed by the relationship between people and the necessity of the creation of a collective image. A street and its urban context support public spaces because they are connecting, are enriching or impoverishing it, as adjectives to nouns. However, in my interpretation, a street or other urban space is public space, only when the citizen identifies with it as public. In summary, public space is mass identification with urbanity because it represents the same image for a considerable number of people (figure 14).<sup>50</sup>

*I remember in my childhood, when my friends, brothers, and I played in a plaza that was close to our neighborhood. This plaza had a green square shaped space and it was isolated from the central urban pattern behind the main railroad a space disconnected from other urban spaces, where people and children find a bypass or passive place. The plaza was an ordinary public space, but at the same time, it was singular and unique, differentiated in our minds from other public urban spaces. I cannot remember any other place that was useful and meaningful to all us. Although the street and sidewalk are spaces that are identified in my memory, it seems that controlled or bounded spaces are more representative of public than those urban spaces that are not limited.*

Similar to puzzle pieces, people have created an extensive grid of artifacts and objects that should be connected and should work together. However, as in the case of a finished puzzle, we only see one picture; we do not see and we do not



Figure 15. Piazza del Campo  
Siena Italy

<sup>50</sup> Kilian, Ted defines in two terms the public space: public space as a site of contact and public space as the site of representation. Public space as a site of contact are spaces of communication ""Good "public spaces are then those that assemble rather than disperse, integrate rather than separate, invite rather than repel". The other definition as the public space as the site of representation is defined as an active space part of the public political space.

describe each individual separate piece. Public spaces work in the same way, with the difference that citizens are part of them. For this reason, the relationship between man and the space is very important.

Social meaning involves and characterizes public space, as a plural space, of memories and experiences. The function can define the space as public or private, but it cannot define its quality.

Public spaces are often associated and are assimilated with the space of exchange, favorite space, or that space joined with entertainment. In classical Rome and Greece, the forum and the agora are often represented as central public spaces for debate and public discussion. For Chileans, the most important public centers were and still are the market and the Cathedrals with their associative front court or plaza developed during medieval period (figure 15).<sup>51</sup>

In Latin America, and in other principal cities with Hispanic influences the major public space has been the plaza.<sup>52</sup> There are many examples of spaces created in history with the

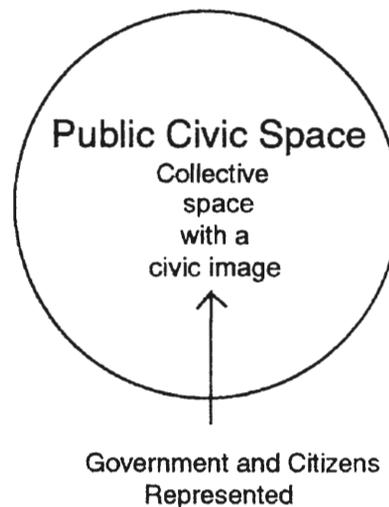


Figure 16. Public civic space

<sup>51</sup> "The *agora* evolved into a formal area mainly in the use of its open space".... "The fundamental expression of this synoecism was the creation of *the Forum*, which came to be the Greek agora writ large, a place where men met and political and commercial life centered"  
Vance, James. "The Gods Look Down: The Classical City", *This Scene of Man: The Role and Structure of the City in the Geography of Western Civilization*. New York: Harper's College Press, 1977, pp.39-73.

<sup>52</sup> Setha Low distinguished urban historic influences in the shape and form of the plaza:  
*Italian Influences:* Greek, Romans, and the Renaissance planning ideals (grid urban town).  
*French Influence:* French's bastide (central open space and church together).  
*Other European Influences:* Dutch and Germans towns and rectangular market (square town with a central open space with four small plazas in each quarter).  
*Spanish Influences:* " Law of the Indies"  
*Aztec:* Tenochtitlán in Mexico (plaza central within an axial design).  
" Cultural Meaning of the Plaza: The History of the Spanish-American Gridplan-Plaza Urban Design", *The Cultural Meaning of Urban Space* by Rotenberg & MacDonogh. Connecticut: Bergin & Garvey Press, 1993. University Press, 1999, pp.75-93.

objective of expressing the soul of people. We may differentiate public space from civic public space, with civic public space as the collective shape that represents the government and the citizens (figure 16).

Architecture also expresses a civic political space. As an example the symmetrical compositions, monumental columns, classical ornaments, imposing stairways, large arched opening, grandiose arrangements, use of brick and stone, and the use of the aesthetic principles of the Beaux Arts were based on an interpretation of the Greek Democracy and in the Roman Republic. Throughout history and architecture, civility and civic political space have been well represented.<sup>53</sup>

Paul Gough in his article "From Heroes' Groves to Parks of Peace: Landscapes of Remembrance, Protest and Peace" established and defined the following types of public spaces: commemoratives, memorials, and political sites.<sup>54</sup>

**Table 1. Key types of commemorative, memorial, and political sites.** (Gough 1999, p.216) (civic public spaces)

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***Battlefield sites***

Former battlefield--- a preserved environment marked with memorials and monuments, the focus for ritual remembrance at designed anniversaries.

Military cemetery--- a burial place near or on the site of former conflict, which often serves as the focus for remembrance ceremonies.

***Memorial sites***

Garden of remembrance--- a public space designed and designated as a focal point for specific memory; some gardens have been located over the site of a particular tragedy.

Monumental site--- a war memorial or building of remembrance, and the public space surrounding it, which may be laid out in a semi-formal design such as an avenue or square; may also include temporary installations of flowers, wreaths to accompany annual rituals of remembrance.

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<sup>53</sup> Vance, James. "The Gods Look Down: The Classical City", *This Scene of Man: The Role and Structure of the City in the Geography of Western Civilization*. New York: Harper's College Press, 1977, pp.39-73

<sup>54</sup> Gough, Paul. "From Heroes' Groves to parks of Peace: Landscapes of Remembrance, Protest and Peace", *Landscape Research*, Vol. 25, No 2, 2000, pp. 213-228.

*Parallel sites*

Trans-global site--- 'twinned' gardens or parks in different countries (often on different continents), established to promote peaceful causes between former adversaries.

Trans-border site--- cross-frontier site declared a de-militarized buffer zone to promote exchange and de-fuse political differences; often located within an ecologically sensitive area of unique bio-diversity.

*Political sites*

Peace garden--- a designated public space that is planted, decorated and dedicated to the promotion of peace.

Peace route--- a pilgrimage route or heritage trail that links a network of commemorative sites and memorials.

Peace camp--- an unofficial, often informal and transitory site located close to a militarized, politicized or commercial development site.

Peace events--- festivals, marches and other gathering campaigning for peace which may results in temporary installations and semi-permanent interventions (Gough 1999, p.216).

From a social perspective, the definition of public space as social phenomena often involves the word bourgeois. Based on the work of Habermas (among others) Harold Mah in the article "Phantasies of the Public Sphere: Rethinking the Habermas of Historians." determines that the public sphere, as representation, was born with the bourgeois social class.<sup>55</sup> He examines spatialized concepts and he identifies public sphere, as a space or domain of free expression, arguing that this sphere must to be accessible to any social group. Historically the bourgeois class has been defined as a class of democracy and today this class continues to be the one which creates or controls political structures in most western countries.

The *control of space* is another point to consider. If we visualize the city, we can see many patterns of spatial fragmentation that represent different social groups. Each group wishes to have control of the space. This has been the expression of power, which through

history is associated with currency. In history, the aristocracy ruled over the plebeians, and today, politics is influenced by public opinion. In addition to the social control produced by groups there is a physical control, which establishes the person as a subject within its context. Some of these reasons determine the existence of "private public spaces", associated with control, and establishing domain among groups.

When the public sphere is recognized as a unified entity, it is rhetorically personified, referred to as if it were a person, a single subjectivity, in unitary possession of reason, will, feelings, intentionally, and agency. The singleness of the spatialized public sphere assumes the form of a single collective subject (Mah 2000, p.167).

People can collectively establish physical and virtual limits to define these public spaces. As Alexander notes people need physical and virtual limits to feel comfortable.

Figure 17 shows that boundaries are the major way to control spaces and their uses. A space well delimited is capable of offering citizen control and identification with its context. In addition, boundaries can be produced by the visual spatial sense generated by a context as in the example of buildings surrounding the Plaza of Armas in Chile (figure 18).

In contrast, the unlimited or undefined boundary produces effects of lack of control, generating a space without limits, absent of historical meaning, and a collective image that can be defined as general urban spaces.<sup>56</sup>

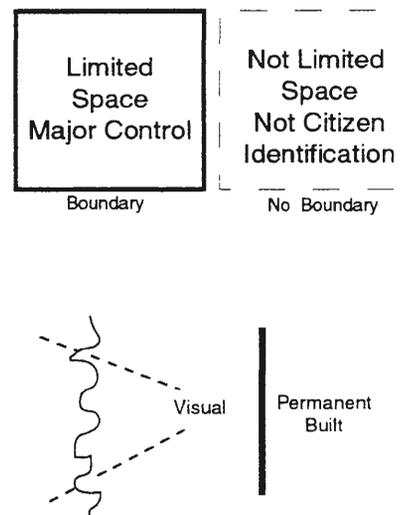


Figure 17. Domain of space

<sup>55</sup> Mah, Harold. "Phantasies of the Public Sphere; Rethinking the Habermas of Historians" *The Journal of Modern History* No 72, 2000, pp.153-182.

<sup>56</sup> Alexander, Christopher, Sara Ishikawa, Murray Silverstein, Max Jacobson, Ingrid Fiksdahl and King Shlomo Angel. *A Pattern Language: Towns, Building, Construction*. New York: Oxford University Press, 1977, p.311

"A town needs public squares; they are the largest, most public rooms, that the town has. But when they are too large, they look and feel deserted."



Figure 18. Plaza de Armas, Santiago, Chile

In conclusion, the public sense is a social distinctive quality produced by activities and functions established by collective citizens' behavior. These actions acquire a collective character when people associate a remarkable space with a public sense, and this quality can be present in all the typologies of open space. Additionally, public civic space can be recognized from the other typologies of open space, which often acquires a regular positive shape supporting institutional buildings with a social and civic function.<sup>57</sup>

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<sup>57</sup> Meta-space consists in all areas of human interaction where dimensions of private and public space intersect or overlap, erasing actual though not ideological boundaries that separate life into public and private spheres .... Ideology masks the heterogeneity of participants and the blurring of what are asserted to be rigid boundaries between public and private that characterize life in these meta-spaces. That life is what I call "civil life," that is, the public life of the private individual.  
Tétreault, Mary Ann. "Formal Politics, Meta-Space, and the Construction of Civic Life", *The Production of Public Space* by Light, Andrew, Jonathan Smith. New York: Rowman and Littlefield Publishers Inc, 1988, p.85.

## Summary

- Santiago has visualized *public space* as public buildings.
- In Santiago, *public space* is not associated with landscape context.
- The plaza as *public space* has been as historic urban element with Hispanic influences that remains in the city without many alterations. In the Chilean historic context, the major *public space* has been designed as plazas. The plaza is an urban space with a culturally attributed meaning (Low, 1993).
- *Public spaces* are positive spaces (Alexander, 1971).
- *Public space* represents a collective image and mass identification; it is the site of contact and the site of representation (Kilian, 1993).
- Civic *public space* is the space where government, citizen, and civic life are represented as political sites.
- *Public spaces* are controlled spaces as shape and 'meta' spaces (spaces that trespass the private barrier) (Tétreault, 1993).
- *Public spaces* include plazas, promenades, memorial, and political sites.

### III. Open Space as "Green" Space

The next typology is recognized as green space. This typology is often a public space with an aesthetic value because of its image as living space. This definition looks to unite the mental image of the "green" color, which is associated with nature or existing "green" spaces, and growth, and quality of life present in plants. This term has the most direct relation with the field of landscape and idealized nature.

Green is the color of freshness and renewal, and has been in Western culture since the earliest of times. The word "green" comes from the Old English *grene*, in turn from *grene* in Old Frisian and various related Germanic languages. Reappearing in springtime, after the dull, seemingly colorless winter, it became a symbol of fertility and growth, of abundance and external life. The color green represents harmony, nature and radiates a feeling of fullness. When thoughts of nature come to mind, green, being the color of grass, trees and plants, 99 % of the time is the dominant color of one's mental images (Funderbuk, 2000).



Figure 19. Green-Park space association  
Parque Lo Varas, Santiago, Chile

Figure 19 shows how human senses can connect almost instantly the color "green" with the image of a park. This image that associated the link of the color "green" with pleasure is present in ourselves, especially in private property where people care about nature and build gardens and plots with flowers and grasses.

The actual visualization of nature influenced by modernist tendencies has influenced humans to reinterpret nature in urban spaces. Green also generates a visual aesthetic pleasure in the mind because as nature, "green" spaces change both more rapidly and more periodically than buildings. In other words, "green" spaces are not static in time, colors and growth are physical changes in the physiognomy of "green" spaces.

The familiarity of the grass-tree-park concept is the most representative picture of "green" space; the power of nature included in a piece of land. However, "green" space has deeper meaning. Man needs to create these spaces to feel that we are near nature, closer to the beginning of natural concepts, and far away from buildings, streets, and cities.

"Green" spaces that are artificially created may be considered as an expression of guilt because through these spaces, we seek to recreate nature that we lost.

There are moments in our lives when we dedicate a kind of love and tender respect to nature in plants, minerals, animals and landscapes; as well as to human nature in children, in the customs of country folk and the primitive world, simply because it is nature (Capon 1999, p. 47).

The guilt is condemning us to not forget that we were born and that we are part of nature.<sup>58</sup> To build and recreate "green" spaces as a park is one way of expressing our apology to our environment that has been drastically altered in cities. Its aesthetic and healthy function as the "Lungs of the City," has been the goal of landscape architects and environmentalists because they are calling to begin restoration and preservation of "green" spaces.<sup>59</sup>

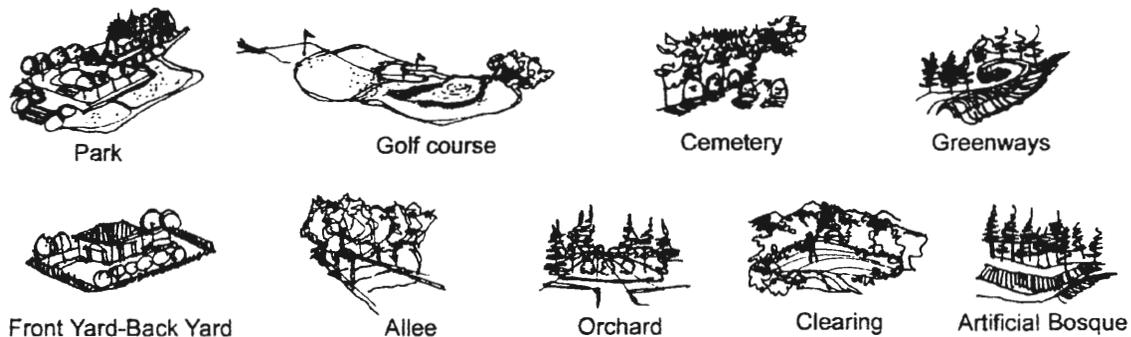
"Green" space as open space also has an urban meaning. Urban space is a characteristic of city life. The parks are considered urban because they are a part of and belong to the cities. Other factors are intention and intervention, human acts and forms that express power and control. Patrick Condon in "The Designed Landscape Space Types" in the book *A Designed Landscape Space Typology* (1998), describes the typologies of landscape spaces, of which six types, in my opinion, define "green" spaces:

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<sup>58</sup> Coates, Peter. *Nature: Western Attitude since Ancient Times*. Berkeley: University of California Press, 1998. pp. 154, 155

<sup>59</sup> Spirn, Anne W. "Polemical landscapes." *The language of landscape*. London: Yale University Press, 1996, p. 4.

- 1) The Orchard: a dialectic landscape where the plant's fruiting material and participation in the cultivation process remains only as human order.
- 2) The Clearing: the most real space where human takes possession of nature and proposes order.
- 3) The Bosque: the existent forest and those artificially created for humans to provide an oasis of connection between nature and humans.
- 4) The Allee: an axis in landscape creating infinity and movement through the trees.
- 5) The Back yard: the space that mitigates the transition between private spaces, and the site of the gardens.
- 6) The Front yard: the landscaped space that separates private from urban space (Condon 1998, p. 249).<sup>60</sup>



**Figure 20. Types of green space**  
(Based on "The designed Landscape Space Types", Condon 1998)

From the anterior classification is possible broadly classifying green space in five major types (figure 20).

- Park
- Greenbelt
- Golf Course

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"The city is a granite garden, composed of many smaller gardens, set in a garden world. Parts of the granite garden are cultivated intensively, but the greater part is unrecognized and neglected."  
<sup>60</sup> Condon, Patrick. "The Designed Landscape Space Types," in *A Designed Landscape Space Typology*. Minneapolis: University of Minnesota Press, 1988, pp. 249-257.

- Cemetery
- Yard

### III A. "The Park"

The *park* is the result of two movements: the picturesque movement of the heritage of English landscape, and the ideals of the City Beautiful Movement. They strongly influenced the world of landscape, design and planning principally in the United States.<sup>61</sup>

The picturesque movement in England represented ideals of seeing space as an inalterable object without motion, with an awesome and sublime character. This characteristic defined beauty in landscape for a significant time period. In the United States landscape, the movement took on a more recreational quality. Without doubt, the contribution of Frederick Law Olmsted in the creation of public "green" are still influencing current landscape.<sup>62</sup>

The bucolic image of *Park* is associated with the country or pastoral life, playground, children, and families. Boston and Chicago in 1893 were examples of attempts for a major city organization, to put all the recreational areas into a single concept (figure 21).

However, as early as 1914, Henry Vincent Hubbard published a proposal for classifying open space. The suggested a base of classification for playgrounds and recreation



Figure 21. Boston plan design

\* Source: libraries. mit. edu

<sup>61</sup> Newton, Norman. *Design on the Land. The Development of Landscape Architecture*. Cambridge: The Belknap Press. The city Beautiful Movement and City Planning, 1971, p. 626.

<sup>62</sup> Rosenzweig, Roy. *The Park and the People: a History of Central Park*. Lincoln, Neb: University of Nebraska Press, 1992.

facilities for parks and public green spaces in the paper entitled "The Size and Distribution of Playgrounds and Similar Recreation Facilities in American Cities." <sup>63</sup>

**Table 2. Classification for recreational areas.** (Hubbard, 1914. "The Size and Distribution of Playgrounds and Similar Recreation Facilities in American Cities."

- 
- (1) The "Reservation", a municipal holding of country land...but not yet developed for intensive recreational use...
  - (2) The large park, or "country park"... being the nearest thing to unspoiled country that most of the city dwellers can commonly take time to enjoy... fitted to receive large crowds and not be destroyed by them...
  - (3) The small park, or "intown park," more accessible but less extensive...
  - (4) The playfield, for active play of adults and young people over twelve, in games taking considerable space, like baseball, football, tennis, track athletics, etc., under supervision.
  - (5) The boy's outdoor gymnasium, or restricted playfield, for very intensive use by boys over twelve, with apparatus, such as parallel bars, ladders, etc., and a supervisor.
  - (6) The girl's outdoor gymnasium, with giant strides, swings, etc., and a supervisor.
  - (7) The children's playgrounds, for boys and girls under twelve, with sand pits, baby hammocks, etc., and a woman teacher in charge
  - (8) Special facilities depending upon local opportunities, such as swimming pools, wading pools, skating ponds, facilities for bathing in lake, river, or ocean.
- 

His vision was focused essentially on the relationship between people and their use of the *park*. He considered people as an active component of these spaces because he saw "green" spaces as an entertainment place for all citizens. Kevin Lynch additionally differentiates two types of these open spaces: *playgrounds and playfields*. Playgrounds are those open spaces destined for children attached to the elementary school and in proximity

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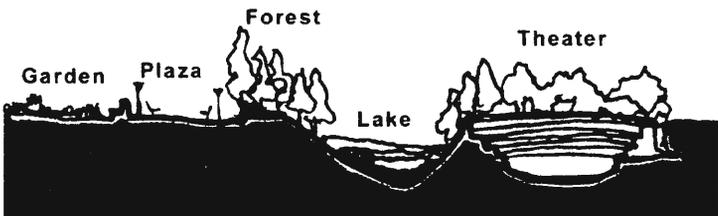
<sup>63</sup> Hubbard, Henry. "The Size and Distribution of Playgrounds and Similar Recreation Facilities in American Cities", *Landscape Architecture*, 4 July 1914, pp. 133-135.

with houses. Playfields are those open spaces destined for older children and adults attached to high schools, which involves a major size and specific sports activities (Lynch 1994, p. 444).

Jere Stuart in the book *Urban Green: City Parks of the Western World*, defines urban green space with two concepts: park and square. The *Park* concept is a space associated with relaxation, recreation, and pleasure. The square is a social urban space of activities (Stuart 1973, p.56) and quality condition assimilated with the public space.<sup>64</sup>

In addition, he asserts that the best classification of *parks* in the American Cities is based on shape and parameters of design useful to applying in table 3.

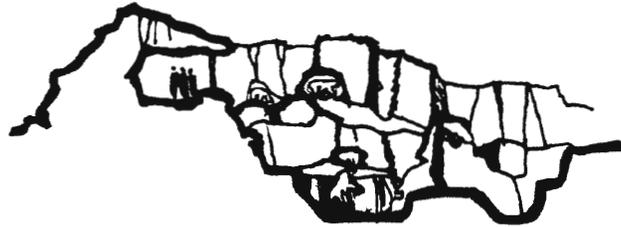
**Table 3. Typology of Parks (Stuart, 1973, and Lynch, 1994)**

<b>Types of Parks</b>	
<b>Primary park:</b> This is a <i>park</i> built in a major portion of land up to 500 acres. It is characterized by the inclusion of many recreational and cultural spaces (Stuart).	
<b>Secondary park:</b> This is a <i>park</i> up to 40 acres and it belongs to neighborhoods with a high density in population.	

<sup>64</sup> Stuart, Jere. *Urban Green, City Parks of the Western World*. Pomona: California State Polytechnic University, 1973, p.56.

**Table 3. Continued (Stuart, 1973)**

**Specialized Park:** This is a *park*, which meets special functional needs or special functions such as zoos, arboretum, and sports. These spaces must be placed in a central location.

**Zoo**

**Commons:** This is a *park*, which belongs to the downtown city. Usually this type is situated in a central location accessible to all people.

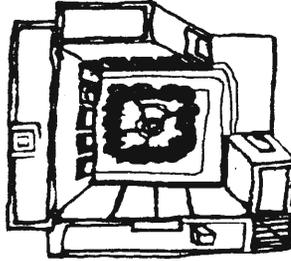


**Amusement park:** This is often a private owned *park* focused on entertainment. It is an artificial open space that represents modernism (e.g., Disneyland).

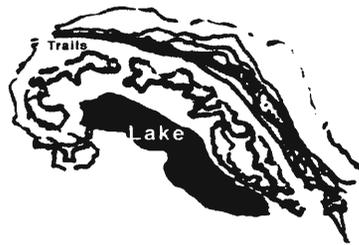
**Amusement Park**

**Table 3. Continued (Stuart, 1973)**

**Green square:** This is an enclosed open space in the city, which is surrounded by buildings. Its characteristic is its regular shape. The dimension is up to a one-half block, but it can have a dimension of several acres.



**Corridor parks:** This is a park which is the connector or separator of urban spaces. This is an urban element capable of organizing the structure of the city and its design.



**Super parks or the regional park:** Stuart defines two concepts for this park: the green corridor and the "lung." These are macro-regional spaces founded outside of the perimeter of the city, which are following nature, such as ridges, forests, mountains, etc. The size of the park should be upon 600 acres and it should contain a stream or lake. "Users should be within a half hour to an hour of such as park, whether by car, bus, foot, or cycle." (Lynch 1994, p.442)



The *park* continues to be a green representative space of modern cities. *Central Park* in New York and *Forestal Park* in Chile are two examples of a visionary idea that today serve their urban areas as breathing, restful, and recreation place for the people and remaining wildlife.<sup>65</sup> *Forestal Park* (Parque Forestal) is one of most famous areas in Santiago not because of its physical dimension, but because of the urban character that it plays in the citizen's life.

The *Forestal Park*, *Los Reyes Park* (Parque Los Reyes), and *Bustamante Park* (Parque Bustamante) have a linear configuration.<sup>66</sup> They form the natural boundaries or communal limits of the city. Their linear shape permits a direct centralized pedestrian circulation accompanied by landscape equipment as playgrounds, sculptures, and fountains (figure 22).



Figure 22. Forestal Park

The concept of *park* has been used most frequently in Chilean cities to support determinate areas around buildings that have a cultural historic meaning (the object building set apart on green plane). This type of design could be considered as a specialized *park*, following the definitions of Jere Stuart.

My question is whether the people consider these spaces 'parks'. Their characteristics seem to relate more to the interior buildings or museums offering entertainment, but the space surrounding these buildings is labeled as a *park*.

<sup>65</sup> Spiri, Anne. "Urban Plants: Struggle for Survival", *The Granite Garden: Urban Nature and Human Design*. New York: Basic books, 1984, pp. 171-172

<sup>66</sup> Kevin Lynch defines '*linear parks*' as :

Open space designed for movement. A river or a stream provides a very natural setting for such a park, and so frequently find river parks in cities. With the stream as the central feature, paths along its banks, and trees and shrubs masking the urban development along the edge. *A Theory of Good City Form*. Cambridge: MIT press, 1994, p. 443.

## Map Downtown Santiago

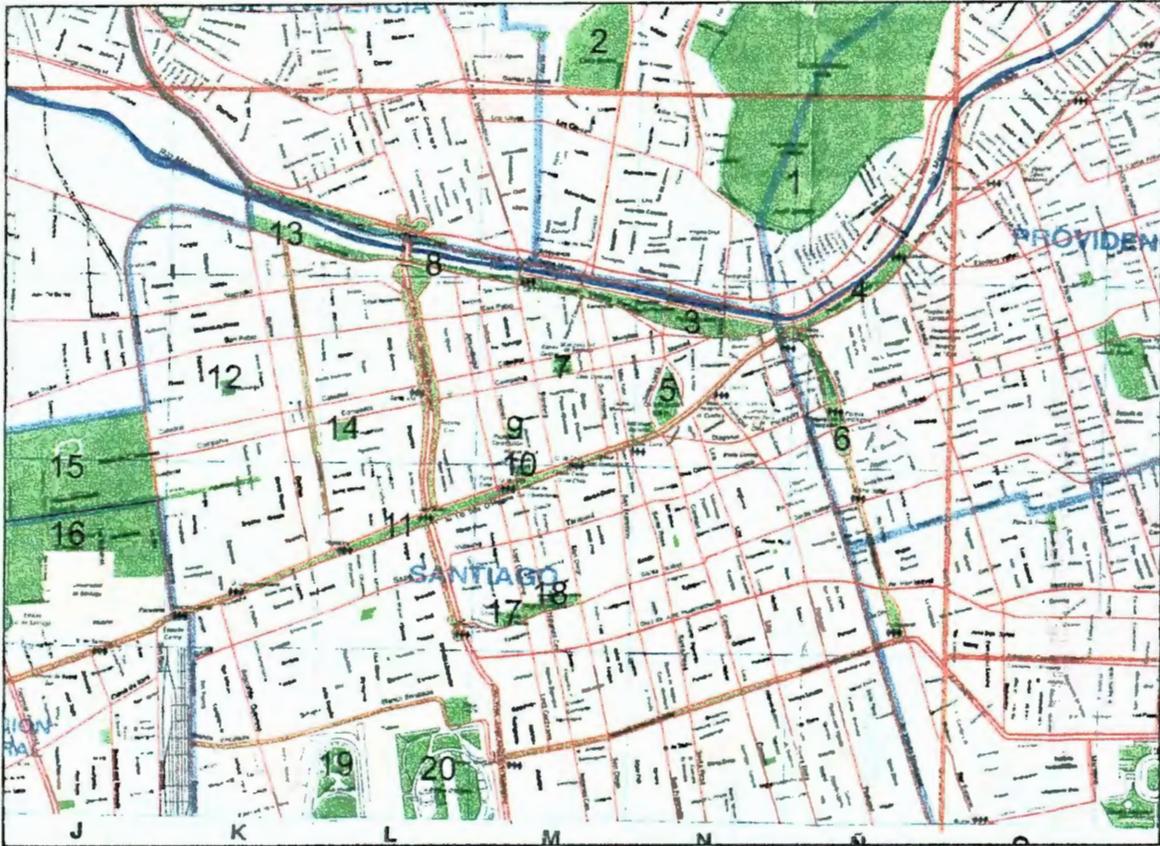


Figure 23. Santiago green areas

- |   |   |
|---|---|
| 1. San Cristobal Hill (Cerro San Cristóbal)       | 15. Railroad Museum (Museo Ferroviario)             |
| 2. Blanco Hill (Cerro Blanco)                     | 16. Quinta Normal Park (Parque Quinta Normal)       |
| 3. Forestal Park (Parque Forestal)                | 17. Heras Park (Parque las heras)                   |
| 4. Big Britain Park (Parque Gran Bretaña)         | 18. Diego de Almagro Park (Parque Diego de Almagro) |
| 5. Santa Lucía Hill (Cerro Santa Lucía)           | 19. Club Hipico                                     |
| 6. Bustamante Park (Parque Bustamante)            | 20. Parque O'Higgins ( O'Higgins Park)              |
| 7. Plaza of Armas (Plaza de Armas)                |   |
| 8. Los Reyes Park (Parque los Reyes)              |   |
| 9. Constitution Plaza ( Plaza de la Constitución) |   |
| 10. Liberty Plaza (Plaza de la Libertad)          |   |
| 11. Libertadores Plaza ( Plaza los Libertadores)  |   |
| 12. Yungay Plaza (Plaza Yungay)                   |   |
| 13. Balmaceda Park (Parque Balmaceda)             |   |
| 14. Brasil Park (Plaza Brasil)                    |   |

The city of Santiago has a large recreational area called *Metropolitan park* that could be considered a primary *park* and also incorporates specialized areas, such as the *Metropolitan Zoo*. The *Metropolitan park* features the *San Cristóbal* hill, an existing natural promontory from which the public can appreciate views of the city (figure 24).

In addition, the communal district of Santiago has the *Quinta Normal*. This area offers attractions such as a botanical garden and a train museum. *O'Higgins Park* contains an amusement *park* and other recreational sport areas such as tennis courts, car and bicycle circuits, a stadium, and swimming pools.



Figure 24. San Cristóbal Hill

The rest of Santiago's districts share diverse types of small *parks*.<sup>67</sup> Some districts have *Intercommunal parks* that serve two districts. These parks have the function of a secondary park with the scale of a neighborhood park (figure 25). Poor districts also often contain areas labeled as *parks* that are actually empty spaces because of the lack of economic resources. In addition, it is common to find precarious soccer courts and equipment installations in these areas, that on Sundays and Saturdays are full of players and spectators.

<sup>67</sup> Large size area designated for park: San Cristobal Hill similar to the secondary park (Stuart classification)  
Medium and low size area designated for park: *Intercommunal Park and Districts Parks* similar to commons park (Stuart classification)

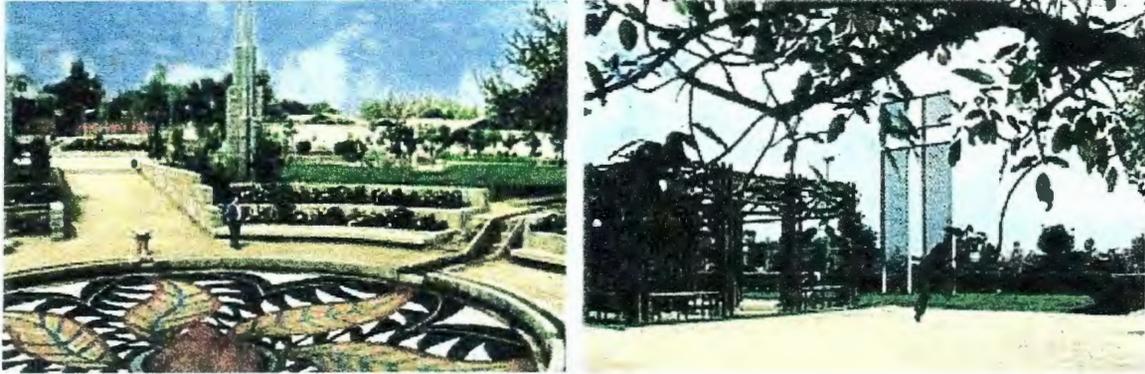


Figure 25. Views of Intercommunal Parks  
 Right: Parque por la Paz (Park for the peace), Left: Parque la Bandera (The flag Park)\* Source: chilenet. cl

Although the Santiago Metropolitan region has 23 designated *park* facilities, since 1992 Santiago has created 14 *park* facilities focused in peripheral districts. However, this number is not all that impressive. Green space quantity is low, in consideration of the five million people who live in Santiago.<sup>68</sup> The city of Ames, Iowa in the United States has 32 *parks* (existing and proposed) to serve fifty thousand people.<sup>69</sup>

### III B. "Greenways (Greenbelt)"

Greenways is the term for ecological spaces that imbue a linear park with a compound function, and usually are the most ecological of green spaces.<sup>70</sup> They can provide access to recreation while protecting and enhancing nature and cultural resources.<sup>71</sup>

<sup>68</sup> Alexander, Christopher, Sara Ishikawa, Murray Silverstein, Max Jacobson, Ingrid Fiksdahl and King Shlomo Angel. *A Pattern Language: Towns, Building, Construction*. New York: Oxford University Press, 1977, p.305.

"People need green open places to go to; when they are close they use them. But if the greens are more than three minutes away, the distance overwhelms the need.

<sup>69</sup> RM. Plan Group. *Land Use Policy Plan*. City of Ames, Iowa. August 29, 1997, p. 97.

<sup>70</sup> Smith, D.S., Hellmund P.C. 1993. *Ecology of Greenways: Design and Function of Linear Conservation Areas*. Minneapolis: University of Minnesota Press.

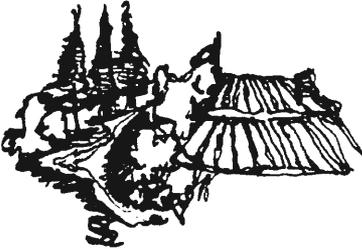
<sup>71</sup> Smith, D.S., 1993. *An Overview of Greenways: their History, Ecological context, and Specific Functions*. Minneapolis: University of Minnesota Press.

Santiago, Chile is a city which has evolved with a lack of these connector spaces. Although they are present in the natural sense, close to streams and rivers, they have not been adapted as a framework of landscape structure for this city.

The ideology of greenways is tied to the ideology of corridors, their characteristics, environmental, economic and social benefits. The corridor concept involves two types of corridors: natural-rivers, shorelines, ridge tops- and man made-railroads, canals, roads, utility lines. In all cases, the characteristics of the landscape elements are that they are longer than they are wide and they are unifying features within landscape. Corridors are "unifying" in that they connect items of the same kind, whether those items be vegetation, soil, animal species, or historically significant buildings (Sturm 2000, p.5).<sup>72</sup>

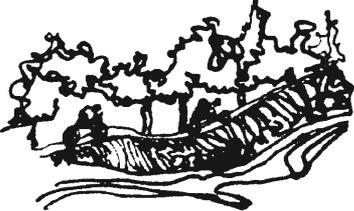
The article "How to Use Roads in the Creation of Greenways: Case Studies in Three New Zealand Landscapes" by R. L. Viles and D.J. Rosier describe in essence the function of this spatial network element, and includes the following classification for greenways typologies, gleaned from diverse authors, in table 4.

**Table 4. Greenways Typologies (R. L. Viles and D.J. Rosier, p. 18)**

Diagrams	Characteristics and functions of Greenways
<p data-bbox="227 457 417 482">Ecological Greenways</p> 	<p data-bbox="563 363 987 431">Ecological greenways (e.g. Smith and Hellmund, 1993).</p> <p data-bbox="563 472 1022 502"><b>Type of corridor:</b> Line, strip, stream</p> <p data-bbox="563 543 1345 782">Follows natural corridors (e.g. rivers, streams, ridgelines); often in rural areas; high ecological and aesthetic values; provides for biodiversity maintenance /enhancement through protection, creation, linkage and management of habitat; enable nature studies, reaction, such as hiking; often partial or total exclusion of public access; includes: ridgetop corridors, upland corridors, ecoways, blueways, wildlife corridors.</p>
<p data-bbox="227 874 394 899">Riparian Greenways</p> 	<p data-bbox="563 833 1336 901">Riparian greenways ( e.g. Binford and Buchenau, 1993; Smith and Hellmund ,1993; Baschak and Brown, 1995)</p> <p data-bbox="563 942 887 972"><b>Type of corridor:</b> stream</p> <p data-bbox="563 1013 1345 1222">Follows natural corridors (e.g. floodplains, stream corridors, groundwater recharge/ discharge areas, wetlands); rural and urban environments; high aesthetic and ecological values; often emphasizes conservation (i.e. protection of habitat), and/or recreation; usually general access; include: urban riverside greenways, rundown waterfronts, blueways.</p>
<p data-bbox="247 1273 486 1297">Urban Buffer Greenways</p> 	<p data-bbox="563 1304 863 1371">Urban buffer greenways ( e.g. Taylor et al, 1995)</p> <p data-bbox="563 1412 856 1443"><b>Type of corridor:</b> strip,</p> <p data-bbox="563 1483 1361 1651">Follows natural corridors (e.g. rivers) or cultural corridors ( e.g. urban boundaries); between urban and rural environments; high aesthetic and ecological values; general public access; development control and urban containment; includes: greenbelts, parkways</p>

<sup>72</sup> Flink, Charles and Robert M. Searn. *Greenways: A guide to Planing, Design Development*. Washington, Dc: Island Press, 1993, p. 5

Table 4. Continued (R. L. Viles and D.J. Rosier, p. 18)

Diagrams	Characteristics and functions of Greenways
<p data-bbox="274 380 468 404">Greenway Network</p> 	<p data-bbox="566 384 971 451">Greenway network (e.g. Little, 1990; Burley, 1995)</p> <p data-bbox="566 492 1028 527">Type of corridor: Line, strip, stream</p> <p data-bbox="566 564 1341 737">Often follows natural corridors (e.g. such as valleys, ridges); or cultural corridors (e.g. an assemblage of greenways and open spaces of different kinds to create local or regional infrastructure); cross elevation gradients for linkage of entire system; can include all the above.</p>
<p data-bbox="227 854 478 878">Recreational Greenways</p> 	<p data-bbox="566 778 925 846">Recreational Greenways (e.g. Gobster, Turner, 1995)</p> <p data-bbox="566 887 1037 921">Type of corridor: Line, strip, stream.</p> <p data-bbox="566 958 1321 1167">Follows natural and cultural corridors; rural and urban environments; general public access; high aesthetic values; includes: long distance paths, trails for walking, cycling, organized sports; may be linear urban parks, along riversides, canals, towpaths, railroad right-of-ways; bikeways, skyways, paveways, glazeways, parkways, blueways.</p>
<p data-bbox="206 1279 529 1304">Scenic, Historic, Cultural Greenways</p> 	<p data-bbox="566 1275 1275 1342">Scenic, historic, cultural greenways (e.g. Bischoff, 1995; Little, 1990; Kent and Elliot, 1995)</p> <p data-bbox="566 1383 1028 1418">Type of corridor: Line, strip, stream</p> <p data-bbox="566 1455 1379 1592">Usually follows cultural corridors (e.g. roads, highways) or natural corridors (e.g. waterways); rural and urban environments; link cultural and historic values; high aesthetic, cultural, historic values; general public access.</p>

This classification, defining the concept of greenways, involves using many categories or types. One question about greenways relevant for this work is whether or not greenways are considered "artificial nature" as defined previously in the literature review.

R. L. Viles and D.J. Rosier in their greenway typology include two basic types:

1. Those that follow natural corridors, such as rivers, streams, and riversides, and
2. Those that follow cultural corridors, such as roads, railroads, and highways.

In either case, it is important to understand greenways as a corridor for wildlife and nature, with one of their primary functions being the protection of the ecological environment. More importantly to this work in the city, consider the use of these spatial elements. They are created and designed to resolve some issues and conditions at the edge, to support or accentuate the ecological diversity while providing spaces for recreation.

Greenways can act as a filter or a barrier to industrial sites and the growth of cities. The Greenway concept was born with the Open Space Movement in the 1960s. The 1999 Mecklenburg County (North Carolina) Greenway Master plan, was and is today the best example of the application of this idea because the open space design is part of the entire city.<sup>73</sup> Its corridor - based design combats the fragmentation of habitats; this means it enhances biological succession while offering protection against natural phenomena like fire and floods.

### III C. "The Golf Course"

Another green space type is the golf course. Golf is an ancient sport, which was exported to with the colonies of Great Britain with a specific functional quality, a space dedicated to the sport (Sturm, 2000).<sup>74</sup>

The golf course, contrary to the park, is a space with very specific design qualities (figure 26). It requires an idealized topography with high visual impact, using a green grass carpet, water, sand, and mounds edged with a forest belt. The first professionally designed golf course in America was the Shinnecock Hills Golf Club in Southampton, New York in 1891.<sup>75</sup> Brian Sturm considers that Golf courses are an evolution of green space, and

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<sup>73</sup> Sturm, Brian. "Green Fringes grace the Periphery", *The Evolution of Urban Landscape in Charlotte North Carolina*, 1890-1990. Thesis. Department of History. University of North Carolina, p.1

<sup>74</sup> Sturm, Brian. "Golf and the Charlotte Landscape", *The Evolution of Urban Landscape in Charlotte North Carolina*, 1890-1990. Thesis. Department of History. University of North Carolina, p.1

<sup>75</sup> Sturm, Brian. *The Evolution of Urban Landscape in Charlotte North Carolina, 1890-1990*. Thesis. Department of History. University of North Carolina, 2000.

private gardens for two principal reasons. The first reason is that they limit the function of the park, and the second reason is that the investment is private. Their aesthetic values are very important in the urban context because they support the visual quality of neighborhoods and districts. Originally, the design and use of these spaces were considered to be primarily for the elite. In essence, they represent an artificial space which satisfies the recreational tastes of the wealthy. In many countries, this sport and its environment have the same meaning. If we come back to the concept of the bourgeois, the search for social status causes people to create selective abstract spaces to satiate the necessities of their social group.<sup>76</sup>



Figure 26. Los Leones, Golf Club, Las Condes, Santiago, Chile

\*Source: [www.calquin.cl](http://www.calquin.cl)

In the United States, golf courses are distinct open spaces. They are either private or open to the public. It is very common to find these spaces in the perimeter of cities, acting as intermediate space between the cities and new suburbs. Golf courses also help to protect areas for development, and they incorporate new visual values in the design of the landscape.

Golf in Chile is an elitist sport and that represents status and private space designated for private companies, organizations, or clubs. One recognized place offering this sport is Club Los Leones located in the eastside of Santiago. It does not influence community open space in Santiago because of its private characteristics. However, this space could enrich environmental condition of neighborhoods and city structure.

<sup>76</sup> Mah, Harold. "Phantasies of the Public Sphere; Rethinking the Habermas of Historians", *The Journal of Modern History* No 72, 2000, p.164.

### III D. "The Cemetery"

Another green space type is the cemetery. The cemetery is a dimensional space of transition where people return to earth and nature. The cemetery is a design created as a public space representing the image of death. However, at the same time, there is a private relationship between humans and environment expressed in the symbolism of these spaces representing the dynamic cycle of life. The addition of the cemetery in the language of green spaces is not easy, but it is the stronger personal connection that we have with nature.<sup>77</sup>

The world of the dead is the world of nature; the spatiality of the cemetery is identical to the primordial spatiality of nature. The space of nature is vertical: it derives from the contrast of the solid mass of the earth to the space of air above. Mass and space meet at the surface of the earth (Van Pelt & Westfall 1993, p.188)...When people die, their bodies become part of nature. The living *ex-sist*, stand out; the dead fall back to the surface of the earth We surrender our dead to the spatiality of nature when we bury them horizontally in the mass of the earth. For the dead there is no horizon. (Van Pelt & Westfall 1993, p. 189)

There are three major typologies of cemetery:

1. The church burial yard: a representation of the historical cemetery where churchyard or consecrated space was designated for this function.
2. The municipal cemetery: a public state place destined for the public and community, which includes a family burial plot that can be private or familiar space.
3. Commercial memorial park: the current private investment space which shows American influences, where the place has the function of cemetery, but visually represents a park; also includes a burial plot for private and familial use.

There are two typological examples that can be found in Santiago: the municipal cemetery and the commercial memorial park. The last type has changed the face of cemeteries in Chile.

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<sup>77</sup> Van Pelt, Robert and Carroll Westfall. *Architectural Principles in the Age of Historicism*. New Haven and London: Yale University Press, 1991, pp. 181-183.

The first municipal cemetery in Santiago was the *General Cemetery* (Cementerio general, figure 27). This historic cemetery is recognized as a necropolis, and as a site of national and cultural Chilean patrimony. Most of the nation's people have been put to rest in this cemetery. Oscar Hahn defines it as a space of Chilean memory. National artists and numerous architects have contributed to the aesthetics of this space, which is impressive to the visitor because of its extraordinary symbolic significance and the architectural style of its mausoleums and pantheons.



Figure 27. Front of General Cemetery

\*Source: [www.netline.cl](http://www.netline.cl)

In addition, this cemetery also allows for the differentiation of various inhabitants social status through the architecture of the mausoleums. They represent family history and time periods. The diversity in architecture of the mausoleums shown in figure 28(a) and 28(b) finds its expression here: Egyptian, Aztec, Gothic, and other stylistic structures seeking for eternity that people do not have.



Figure 28(a). Types of mausoleums in Cementerio General (General Cemetery), Santiago, Chile

\*Source: [www.netline.cl](http://www.netline.cl)

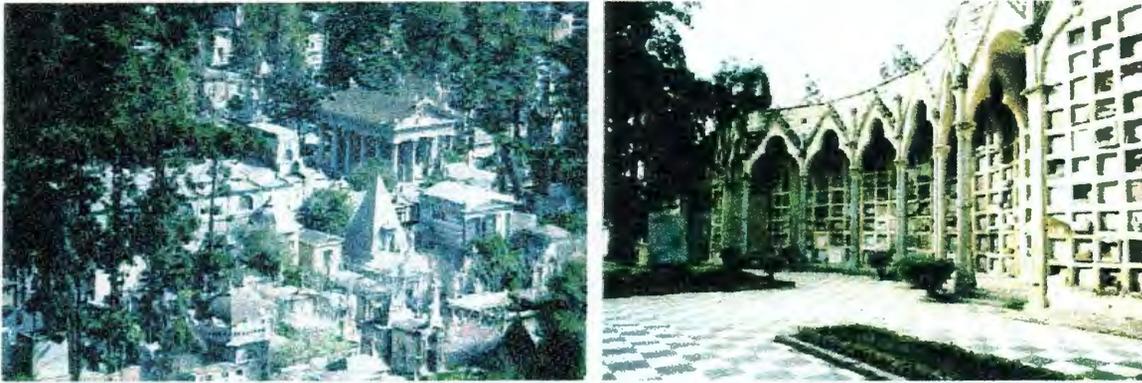


Figure 28(b). Views of Cementerio General (General Cemetery), Santiago, Chile

\*Source: [www.netline.cl](http://www.netline.cl)

The second type is the commercial memorial park cemetery. With the influence of American cemeteries, a new perspective more visually pleasing was acquired in the language of modern cemeteries and their appearance. This cemetery type contains extensive green space with gardens and ornamental flowers. Historical memory is something that this type of park cemetery does not have because all people are represented at the same level with the image of nature and green space.

Figure 29 shows pictures with views of El Parque de Recuerdo memorial cemetery. The image of nature as a space to rest, which is also very peaceful for the eyes, is clear. There are no mausoleums, or other types of symbolic headstones or objects, which identify social condition and personal importance; there is only green grass and plaques in the ground.



Figure 29. El Parque del Recuerdo (The Remembered Park Cemetery), Santiago, Chile

\*Source: [www.cementerios.cl](http://www.cementerios.cl)

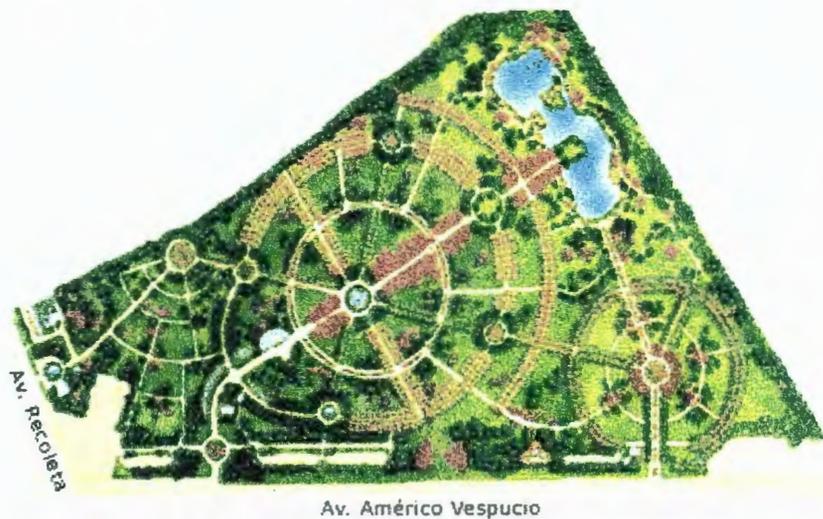


Figure 30. El Parque del Recuerdo (The Park of Memories), Master Plan Santiago, Chile.  
\*Source: [www.cemeteries.cl](http://www.cemeteries.cl)

Figure 30 shows the master plan of the El Parque del Recuerdo cemetery. The graves are organized around the central circle. Each section has a circular plaza that connects the radial axis with the entry and parking lots. El Parque del Recuerdo memorial park was the first of the typology of commercial memorial park in Chile. During the last twenty years, this idea has been accepted by the population, and around Santiago, many other cemeteries have been designed following the same criteria.

### III E. "Yards"

The last type of open space represented as green space is yard spaces. While they are generally smaller and private in comparison to other space types we have discussed, they do play an important role in urban neighborhoods or suburban space.<sup>78</sup>

The front yard is the space of transition and a presentation of the facade. More specifically, in Chile, this is a space where the fence is the boundary that indicates the private property. The *General Law and Ordinance for General Constructions* in Chile

<sup>78</sup> Francis, Mark, Cashdan Lisa and Lynn Paxson. "An Evaluation of Ten New York City Community Open-Space Projects", *Community Open Spaces: Greening Neighborhoods through Community Action and Land Conservation*. Washington, DC: Island Press, 1984, p.53-180.

requires 3 meters or 7.5 feet of garden before the construction line. The fence mediates between public and private domains, and it serves both security, and aesthetic functions within neighborhoods.

"If a garden is too close to the street, people will not use it because it is not private enough. But if is too far from the street, then it won't be used either, because it is too isolated" (Alexander 1971, p.545).

The fence is the common facade of the streets. The fence differentiates social status in urban sectors of the capital, varying in textures, heights, dimensions, and materials.

Figure 31 shows most current typologies of fences found in the streets of Santiago:

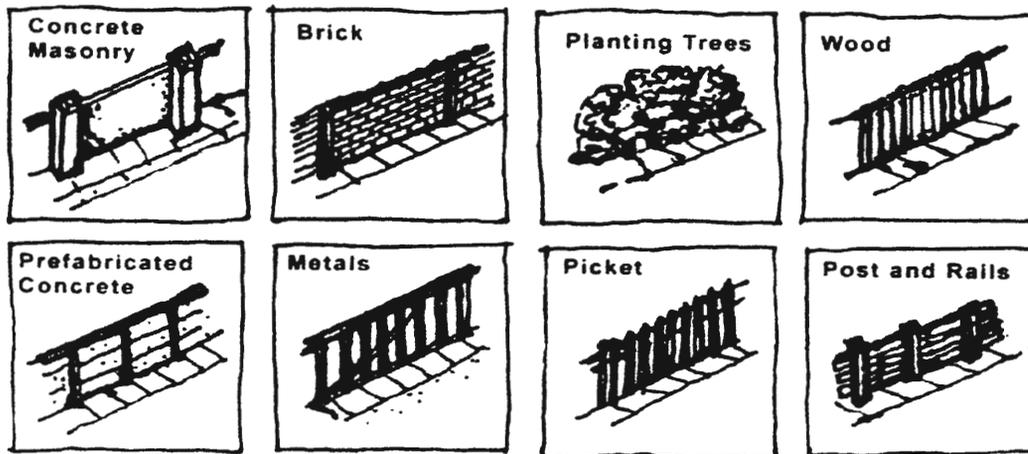


Figure 31. Fences typologies

In contrast, front yards in the United States often incorporate flowers and shrubs combined with grass plots. Visually these elements are incorporated in urban spaces as one. Generally the front yard is small and combines with hard paths and other surface textures.<sup>79</sup>

The front yard is often designed for the pleasure of the community while the back yard may be more individually or personally designed for the pleasure of the owners. Finally, yards also serve as support spaces for wildlife.<sup>80</sup>

<sup>79</sup> Girling Cynthia and Kenneth I. Helphand . 1994. *Yard-Street-Park. The Design of Suburban Open Space*. New York: Wiley & Sons, Inc: 111p.29

<sup>80</sup> Alexander classified gardens in the following categories:

1. Front yard: decorative place.
2. Back yard: enclosed, isolated, and "world of the family."
3. Half hidden garden: a garden located half in front and half in back of the site.

Cynthia L. Girling and Kenneth I. Helphand, in the book *Yard Street Park*, established a comparative table of residential yard typology. This encompasses the purpose of the yard depending on social classification and function: lower income, middle income, and upper income. This book also describes almost in entirety the diverse aspects that these green spaces serve. They discuss that the house is the symbol of family identity, and that yards provide an important way for housing occupants to psychologically control their space. However, they also note that both front and back yards are part of the community open space. They are a representation in part of culture and community.<sup>81</sup>

High-income residential properties are often characterized by large lot sizes. Front yards have aesthetic functions as well as the visual presentation of the garden and the house. These yards are usually design by professional landscape designers. By contrast, the back yard is a functional space with more individualistic qualities. It is often a wider or a deeper space, which offers alternatives for recreation and entertainment for the owners. It may include a swimming pool, tennis court, barbecue, or other exterior landscape accessories.

The low-income status condition, in contrast, typically is characterized by small lot sizes. The front yard is aesthetic and utilitarian. The backyard may be deeper, but typically

- 
4. Terraced slope: a garden, which prevents erosion, using terraces following contour lines.
  5. Fruit Trees: an orchard garden.
  6. Tree places: a social space with the function of alley using shapes as umbrella, pairs, grove or avenue.
  7. Garden growing wild: a balance garden between wilderness and cultivation.
  8. Garden wall: a garden that uses high walls and dense planting.
  9. Trellised walk: a path designed garden.
  10. Greenhouse: a conservatory garden.
  11. Garden seat: a private enclosure with a comfortable seat.
  12. Vegetable garden: a garden destined to growing vegetables.
  13. A roof garden: a garden created in housing levels.
- Alexander, Christopher, Sara Ishikawa, Murray Silverstein, Max Jacobson, Ingrid Fiksdahl and King Shlomo Angel. *A Pattern Language: Towns, Building, Construction*. New York: Oxford University Press, 1977, p.789-821

<sup>81</sup> Robert Rotenberg argues gardens are spaces of dominance used for private houses and municipalities in Vienna. Additionally political history has influenced the styles of gardens. He defines these types of meaning gardens as gardens of discovery.  
 "There are Baroque "gardens of order," Romantic "gardens of liberty," Biedermeier "gardens of domesticity," Victorian "gardens of pleasure," turn-of-the-century "garden of reform," "labor movement-based "gardens of refuge," "right-wing "gardens of reaction," and postwar "gardens of renewal."  
 Rotenberg, Robert. "Landscape and Power in Vienna: Gardens of Discovery", *Theorizing the City. The New Urban Anthropology Reader*. New Jersey: Rutgers University Press, 1999, p.115.

has not been "designed" by anyone. Its function is multiple and diverse; sometimes it is possible find a vegetable garden or temporal uses and equipment. It can serve different functions depending upon the number of residents and the climate where it is located. The back yard, especially in impoverished sectors, is used for auxiliary constructions as a consequence of a small lot and house. The lack of space in the private property increases the use of urban and public space, especially streets. For this reason, open space is not only a social necessity it is also a spatial necessity for marginal people.

Based on the residential yard typology reviewed in table 5 (Yard Street Park p. 29) as an instrument of classification, it is possible to distinguish the differences principally between front yard and back yard of the upper, medium, and low income groups in the United States. These also can highlight similarities and differences between high-income and low-income groups or social status in Chile <sup>82</sup> (see table 5).

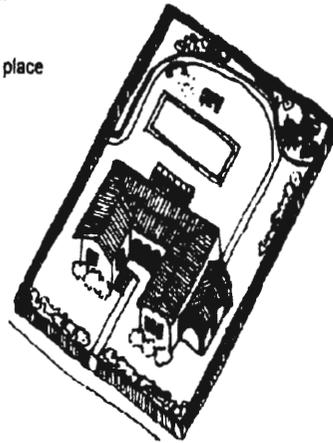
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<sup>82</sup> The classification of social status high-medium-low depends of annual income for each family. INE: Instituto Nacional de Estadísticas de Chile (National Institute of Statistics of Chile). <http://www.ine.cl>

Table 5. Residential yards: Social class and function (Kenneth Helphand).

RESIDENTIAL YARD TYPOLOGY							
Social Class	Planting	Work	Household Activity	Social Activity	Symbols, Artifacts	Car	Boundary
Lower Income Let Multi-purpose areas	<input type="checkbox"/> Subsistence <input type="checkbox"/> Farming <input type="checkbox"/> Farmyard <input type="checkbox"/> Utilitarian	<input type="checkbox"/> Landscape as a work place <input type="checkbox"/> Agricultural work <input type="checkbox"/> Automotive work	<input type="checkbox"/> Functional <input type="checkbox"/> Outdoor housework, e.g., clothes drying	<input type="checkbox"/> Informal unstructured activity <input type="checkbox"/> Play all over <input type="checkbox"/> Makeshift equipment <input type="checkbox"/> Inflatable pool Drooping in	<input type="checkbox"/> Uncensored, not "designed" <input type="checkbox"/> Vernacular expression <input type="checkbox"/> "Designed" by individual	<input type="checkbox"/> Ubiquitous <input type="checkbox"/> Worked on, yard as supply area <input type="checkbox"/> Designated area <input type="checkbox"/> Designated area <input type="checkbox"/> Carport, driveway	<input type="checkbox"/> Functional fencing <input type="checkbox"/> Chain link <input type="checkbox"/> > Visibility
Middle Income Suburban Let Developments Designated areas	<input type="checkbox"/> Backyard vegetable garden <input type="checkbox"/> Front yard public garden	<input type="checkbox"/> "Home work not essential <input type="checkbox"/> "Work" as recreation <input type="checkbox"/> Household work inside <input type="checkbox"/> Do-it-yourself <input type="checkbox"/> Hobbies	<input type="checkbox"/> Indoor housework <input type="checkbox"/> Garden work	<input type="checkbox"/> Play areas structured <input type="checkbox"/> Purchased play equipment sets <input type="checkbox"/> Outdoor furniture/party equipment <input type="checkbox"/> Above ground pool	<input type="checkbox"/> Conscious symbolism <input type="checkbox"/> Status symbols <input type="checkbox"/> User designed <input type="checkbox"/> No gardener, cut your own grass	<input type="checkbox"/> 1-car garage <input type="checkbox"/> Multi-purpose driveway <input type="checkbox"/> 2-car garage, electric garage door opener <input type="checkbox"/> Single purpose driveway	<input type="checkbox"/> Wooden fences <input type="checkbox"/> Hedges
Middle Income Suburban Let Developments Designated areas	<input type="checkbox"/> Specialized gardens (flower gardens, rose gardens) <input type="checkbox"/> Gardener's aesthetic <input type="checkbox"/> Greenhouse <input type="checkbox"/> Gentleman farmer <input type="checkbox"/> Hobby farm	<input type="checkbox"/> Little work by owner <input type="checkbox"/> Garden staff	<input type="checkbox"/> Visual predominates <input type="checkbox"/> Supervision of others	<input type="checkbox"/> Formal structured activity Segregated "courts", "fields" <input type="checkbox"/> Pools <input type="checkbox"/> Garden buildings <input type="checkbox"/> Invitations	<input type="checkbox"/> Professional design <input type="checkbox"/> Professional maintenance <input type="checkbox"/> Gardener	<input type="checkbox"/> 3-car garage <input type="checkbox"/> Heated garage <input type="checkbox"/> Garage building <input type="checkbox"/> Entry drive <input type="checkbox"/> Chauffeur	<input type="checkbox"/> Security system <input type="checkbox"/> House hidden from street <input type="checkbox"/> < Visibility

Landscape design  
 Equipment  
 Pool  
 Trails  
 Barbecue place  
 Garage  
 Others



Utilitarian landscape design  
 Minimal patio design  
 Temporal equipment



A new trend is the replacement of the individual house with condominiums, in response to the proliferation of new suburbs and higher densities in land uses.

The condominium has taken the place of the isolated house replacing the back yard and front yard with common spaces with playgrounds, swimming pools, gardens, gyms, parking lots, and

security. The common yard is a landscape physically planned, and its design is both aesthetic and functional.



**Figure 32. Condominiums**

\* Source Vivienda y Decoracion, October 1998

The yard symbolizes or represents private and collective property at the same time. Figure 32 shows an example of condominium design. View from the apartments focuses on the common space and interior yard. Buildings protect these spaces; in addition, the owners have visual control of them. This new type of housing community locks the owners into accepting a preconceived landscape design as an individual personal image.

The lack of an exterior space of control and intervention, formerly provided by front yard and back yard, is sometimes mitigated in the design of apartments with balconies, which through time acquire the individual and ornamental character that permits the owners find personal expression on the outside.

## Summary

- This definition looks to unite the mental image of the "green" color, which is associated with nature or existing "green" spaces, growth, and quality of life present in plants.
- "Green" spaces that are artificially created may be considered as an expression of guilt because through these spaces, we seek to recreate nature that we lost. The familiarity of

the grass-tree-park concept is the most representative picture of "green"space; the power of nature included in a piece of land.

- Parks in modern cities serve their urban areas as breathing, restful, and recreation place for the people and remaining wildlife as "lungs of the city."
- Greenway typology includes two basic types: those that follow natural corridors, such as rivers, streams, and riversides, and those that follow cultural corridors, such as roads, railroads, and highways. (R. L. Viles and D.J. Rosier)
- Greenways is the term the most ecological of green spaces. They provide access to recreation , protect, and enhance natural resources.
- The golf course, contrary to the park, is a space with very specific design qualities which requires an idealized topography with high visual impact, using a green grass carpet, water, sand, and mounds edged with a forest belt. In essence, they represent an artificial space which satisfies the recreational tastes of the wealthy.
- Golf courses also help to protect areas for development, and they incorporate new visual values in the design of the landscape.
- The cemetery is a design created as a public space representing the image of death. However, at the same time, there is a private relationship between humans and environment expressed in the symbolism of these spaces representing the dynamic cycle of life.
- There are two typological examples that can be found in Santiago: the municipal cemetery and the commercial memorial park.
- The first type is the municipal cemetery recognized as a necropolis, and as a site of national and cultural Chilean patrimony.
- The second type is the commercial memorial park cemetery. This cemetery type contains extensive green space with gardens and ornamental flowers and people are represented at the same level with the image of nature and green space.
- The front yard is often designed for the pleasure of the community while the back yard is designed for the pleasure of the owners.

- High-income residential properties are often characterized by large lot sizes. Front yards have aesthetic functions, they are the visual presentation of the garden, and the house. These yards are designed by professional landscape designers.
- The low-income status condition is characterized by small lot sizes. The front yard is aesthetic and utilitarian. The backyard may be deeper, but not designed.
- The yard symbolizes or represents private and collective property at the same time in condominiums. This new type of housing community locks the owners into accepting a preconceived landscape design as an individual personal image.

## IV. Open Space as Edge

The intent of this section is to explore:

1. Edges between the city and the suburbs, or exurbs, and
2. The countryside or wilderness and between the unbuilt and the built.

Edge as open space is the residual space or frontier space. They are spaces that limit or separate the inner from the outer. In Santiago, there are an important number of empty spaces or vacant land that are the products of urbanization. They are recognized in the city by their irregular shape, and usually these empty spaces are dangerous for the population because they are linked with delinquents and violence.

*Edge open space could be considered as the most important landscape intervention dedicated to recuperate land, improve, and protect the life of neighborhoods, and people in the community in those poverty areas.*<sup>83</sup> The understanding of the edge as a concept involves two aspects: ecological and urban.

From the ecological perspective, an edge is defined as a division between two identities. The characteristics of each identity is distinct; this implies that visually there is no common element between them. The book *Landscape Ecological Principles in Landscape Architecture and Landscape Planning* describes the following qualities of edge structures:

1. *Edge structural diversity*: a natural structural boundary that permits developing diverse scales of biodiversity vertically and horizontally, that means in all the dimensions. To achieve a successfully edge, it must be equally positive and equally negative in the design creating conditions for an ecological balance.
2. *Edge width*: edges are wider in those areas with wind and sun.
3. *Administrative and natural ecological boundary*: an edge area is produced between these two boundaries. If this area is wider, it acts as a buffer, and the result is a major protection of reserve areas.

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<sup>83</sup> Vacant lands enormously impact neighborhood quality. Francis, Mark, Cashdan Lisa and Lynn Paxson. "An Evaluation of Ten New York City Community Open-Space Projects ", *Community Open Spaces: Greening Neighborhoods through Community Action and Land Conservation*. Washington, DC: Island Press, 1984, p.2-3.

4. *Edge as filter*: areas that are in the middle and act as filters between two different patterns.
5. *Edge abruptness*: this edge structure is created when the division between two patterns is radical and straight producing movement along it.
6. *Natural and human edges*: this edge structure is produced when both edges are meeting. Humans produce hard edges and nature produces complex and soft edges(Dramstad, Olson, and Forman 1996).<sup>84</sup>

From the urban perspective, it is possible to categorize the meaning of the edge as physical and mental edges. The edge is a physical condition when it involves an impedance factor, generating a boundary. This condition is important to identify in the city when the pattern structure changes abruptly for many diverse aspects, such as density, typology, texture, shape, or geography or for some physical feature that creates a boundary such as large body of water, high mountains, a deep ravine, etc. On the other hand, the edge is also a psychological condition when human senses associate patterns with the psychological meaning of limit, for example:

- Singular uses, such cemeteries or industrial sites, or
- Segregated areas, such as poor districts or different ethnic groups cultural.<sup>85</sup>

Edge from the city perspective can be defined as the periphery.<sup>86</sup> The periphery is not a protected nucleus dependent at some level on its relationship to the center for its meaning and context, its value. The periphery often represents a combination between natural and collective amnesia because in undeveloped countries it is a space with an absence of historic signification. Peripheries of current urban areas often create a mass of dispersed volumes connected by roads or traveled through by automobiles. Open space as edge condition is produced essentially at the periphery, or at areas of shift, or changes meaning of the edge as both a physical and a conceptual condition. Although some edges conditions may include physical structures, man associates them with mental boundaries in

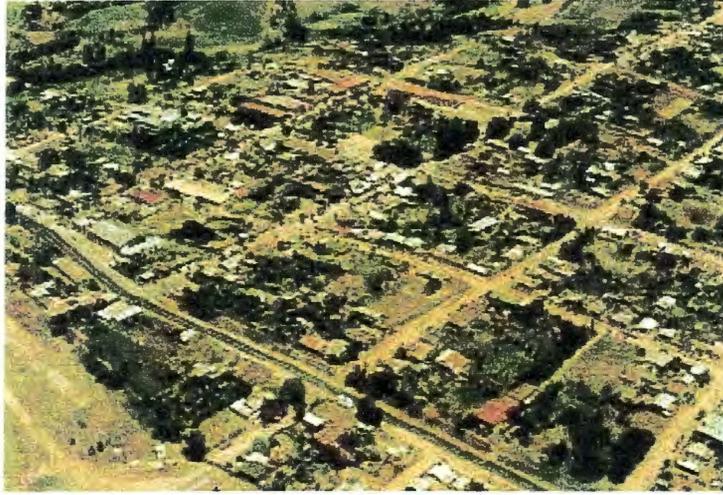
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<sup>84</sup> Dramstad, Wenche, James Olson and Richard T.T. Forman. *Landscape Ecology Principles in Landscape Architecture and Land Use Planning*. Washington DC: Island Press, 1996, p.27-33

<sup>85</sup> Lynch, Kevin. "The Image of the City", *The City Image and its Elements*. Cambridge: MIT press, 1960, p.63.

<sup>86</sup> Munizaga, Gustavo. *Diseño Urbano, Teoría y Método*. Santiago: Ediciones Universidad Católica de Chile, 1992, p.124.

the city. They are distant spaces in the city, or they are clearly separated from the urban pattern structure (figure 33).



**Figure 33. La Florida aerial view**

Robert Wood and John Handley in their article "Landscape Dynamics and the Management of Change", argue that the concepts of obsolescence and dysfunction are applicable to landscape planning, and I consider that they could also be applied in the analysis of edge condition open space.<sup>87</sup>

The authors define obsolescence as the changes produced by loss of the primary function. Dysfunction, according to the authors, is produced by the decline of the character of the land through other functional characteristics such as urbanization.

Table 6 presents Wood and Handley's examples of these two concepts for five relevant landscape domain types. Edge as concept fits here because landscape is continuously changing in the city through forces generated by the economy and mobility patterns of populations. This applies especially in urban fringe domains, which is seen by both concepts as a degraded landscape. Additionally, the dysfunction is intimately linked with the loss of ecological biodiversity, and habitat fragmentation.

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<sup>87</sup> Wood, Robert and John Handley. "Landscape Dynamics and the Management of Change," *Landscape Research*, Vol. 26, No 1, 45-54, 2001.

**Table 6.** Forces for and characteristics of obsolescence and dysfunction by landscape domain. Landscape dynamics and the management of change. (Wood & Handley 2000, p.49)

<b>Obsolescence (loss of function)</b>		
<b>Landscape Domain</b>	<b>Force(s)</b>	<b>Characteristic(s)</b>
Coast	<ul style="list-style-type: none"> <li>• Deindustrialization</li> <li>• Changing tourism markets</li> </ul>	<ul style="list-style-type: none"> <li>• Redundant port facilities</li> <li>• Declining coastal towns</li> </ul>
Urban core	<ul style="list-style-type: none"> <li>• Deindustrialization</li> </ul>	<ul style="list-style-type: none"> <li>• Derelict and contaminated land</li> </ul>
Urban fringe	<ul style="list-style-type: none"> <li>• Agricultural decline</li> <li>• Poor land management</li> </ul>	<ul style="list-style-type: none"> <li>• Poor visual quality</li> <li>• Cycle of neglect and decline</li> </ul>
Rural lowland	<ul style="list-style-type: none"> <li>• Agricultural change</li> <li>• Decline of woodland management</li> <li>• Hedgerow removal</li> <li>• Pond filling</li> </ul>	<ul style="list-style-type: none"> <li>• Field structure and boundary decay</li> <li>• Loss of visual quality</li> </ul>
Rural upland	<ul style="list-style-type: none"> <li>• Agricultural change</li> </ul>	<ul style="list-style-type: none"> <li>• Field structure and boundary decay</li> <li>• Loss of visual quality</li> </ul>
<b>Dysfunction (mismatch)</b>		
<b>Landscape Domain</b>	<b>Force(s)</b>	<b>Characteristic(s)</b>
Coast	<ul style="list-style-type: none"> <li>• Urbanization</li> <li>• Recreation</li> <li>• Pollution</li> <li>• Mineral extraction</li> <li>• Climate change (sea-level rise)</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of wetlands</li> <li>• Dune system degradation</li> <li>• Habitat modification by sea defense construction</li> <li>• Decline of visual quality</li> </ul>
Urban core	<ul style="list-style-type: none"> <li>• Intensification</li> </ul>	<ul style="list-style-type: none"> <li>• Remnant habitat loss</li> </ul>
Urban fringe	<ul style="list-style-type: none"> <li>• Development pressures</li> <li>• Resource use</li> </ul>	<ul style="list-style-type: none"> <li>• Degraded landscape character</li> </ul>
Rural lowland	<ul style="list-style-type: none"> <li>• Urbanization</li> <li>• Road building</li> <li>• Mineral extraction</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction to biodiversity</li> <li>• Habitat loss and fragmentation</li> </ul>
Rural upland	<ul style="list-style-type: none"> <li>• Recreation/tourism</li> <li>• Wetland drainage</li> <li>• Commercial afforestation</li> <li>• Mineral extraction</li> <li>• Overgrazing/ undergrazing</li> </ul>	<ul style="list-style-type: none"> <li>• Biodiversity change</li> <li>• Habitat loss and fragmentation</li> <li>• Decline of visual quality</li> <li>• Accelerated soil erosion</li> </ul>

In view of the above, I want to return to the concepts of artificial and natural defined in the literature review and consider the same meaning applied to the concepts of natural and human edges (Dramstad, Olson, Forman, 2000).

Natural edges are those spaces found near geographic features, such as rivers, mountains, seas, and forests, where they become natural limits to developments. In contrast, human edges are boundary areas including spaces of human action or intervention on the land, such as agriculture, housing development, and industrial sites. A basic classification of human edges as open space in the city can be broken into four instances, types, categories, examples (figure 34).

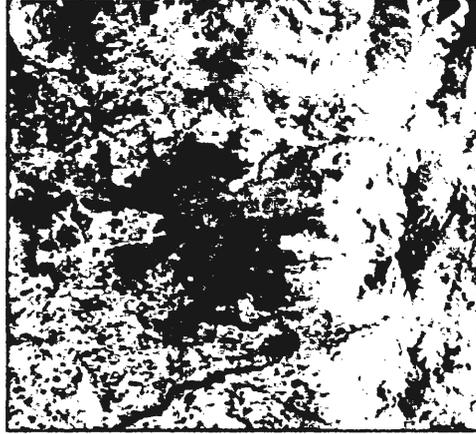


**Figure 34. Types of Human Edges**

1. The boundary produced by the city meeting natural and geographic features.
2. The limit between urban and rural patterns in the periphery.
3. The edge produced by artificial or urban features, such as highways, roads, streets, and buildings (These elements can limit, and can identify neighborhoods to give them qualities and to separate them from the rest.)
4. Land use-zoning edges, which define, and identify, uses in the city, especially in American cities.

#### IV A. The Boundary Produced by the City Meeting Natural and Geographic Features: Urban Edge Vs Natural

This edge condition essentially depends on geography, topography, climate, and wildlife habitats. In many cases, this condition is the result of urban development in contact with natural features that commonly are part of dangerous restrictive areas close to natural boundaries, such as riversides or mountains. These are high-risk zones declared dangerous for any urban establishment because they are likely to produce natural and ecological disasters, such as flooding, slide land hazards, or fire, etc.



**Figure 35. Santiago aerial view**

As an example, Santiago is a city located and influenced by the Andes Cordillera (figure 35). This natural edge, is not only a major visual edge, but it also generates the major hydrologic source of the country. On the other hand, 80 percent of the total land of Chile has slopes over 5 percent. Therefore, this physical feature influenced the Regulatory Metropolitan Plan of the city establishing and protecting areas from urban developments in mountains, gulches, depressions, and basins.

Ignacio Santa María, Director of the Reformulation Project for the Regulatory Plan of Santiago developed and elaborated a study for the Puente Alto district, which determined the following factors that should be taken into consideration regarding possible physical natural disasters.<sup>88</sup>

<sup>88</sup> El Plan Tridimensional del Ordenamiento Territorial y la Región Metropolitana de Santiago 1960-2000: Diagnóstico, Análisis y Propuestas, Informe Técnico de la Secretaría Regional Ministerial de Planificación y Coordinación de la Región Metropolitana, MIDEPLAN.

1. Flood sediment
2. Flood
3. Land slides

His simple recommendations to avoid the risk in these areas are the following:

1. Avoid urbanization in those areas with high risk
2. Establish and maintain green spaces to control erosion and to protect built up development.<sup>89</sup>



**Figure 36. Mapocho River**

Additionally, the Mapocho River has been the most dangerous natural feature that functions as an edge or limit for the city. Natural features are not always controllable by human intervention, and built developments are often damaged by the power of floodwaters and associated debris.<sup>90</sup> Generally, after such a natural disaster people consider a protection plan and the design of edges includes strategies to prevent new problems (figure 36).

Erosion is the condition that accelerated the damage of natural edges, but constructed erosion control can inhibit further erosion better than "natural" landscape structure might. Ecologically and physically, it is necessary to maintain the state of natural of areas, such as

<sup>89</sup> Oteiza, Emiliano. "Riesgos y Vulnerabilidad del Piedemonte Puentealtino: Tres Hipotesis de Trabajo", *Revista de Urbanismo* No2, March 2000 ([www.uchile.cl/facultades/arquitectura/urbanismo/revurbanismo/n2/6.html](http://www.uchile.cl/facultades/arquitectura/urbanismo/revurbanismo/n2/6.html))

<sup>90</sup> Owen, Oliver and Chiras & Reganold. "Managing Water Resources Sustainably", *Natural Resource Conservation*. New Jersey: Prentice-Hall, Inc, 1998, pp. 175-195

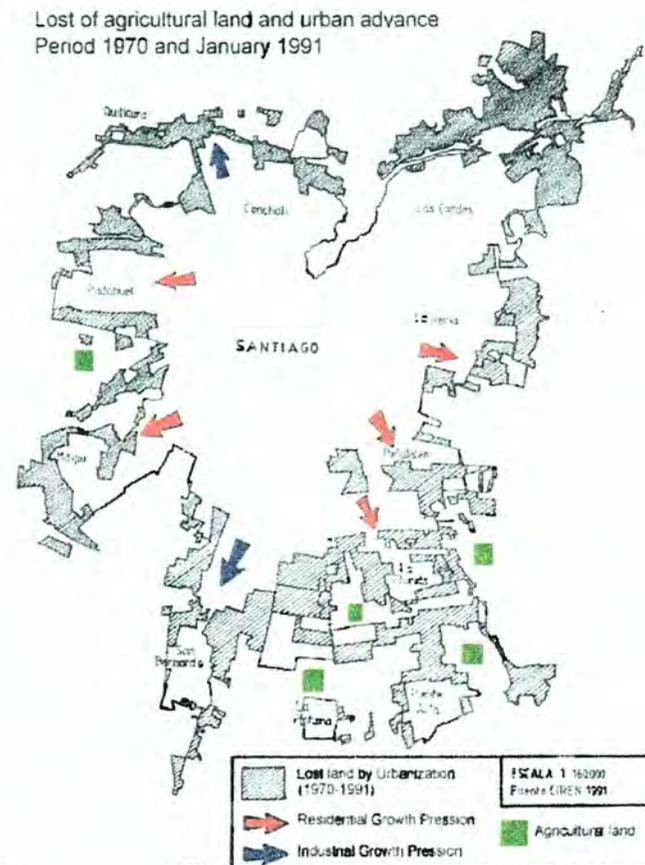
wetlands, forest, and riparian areas around these features, avoiding new urban developments and the pollution of the environment.<sup>91</sup>

#### IV B. The Limit between Urban and Rural Patterns in the Periphery: Urban Edge Vs Rural Edge.

At the perimeter of cities, it is common to find two adjoining patterns: agricultural land and urban development.

Figure 37 is an illustration of the Mandatory Plan of Santiago showing the city perimeter. The shaded areas indicate those formerly rural areas that have become urban developments and industrial sites between 1970-1991. The Metropolitan Region is located in the more fertile region because of the valley, which contains 80 percent of the total agriculture production of the country.<sup>92</sup>

New suburbs are continuously taking over formerly agricultural pieces of land, and extending the city's perimeter, but in the process, agricultural land diminishes or is lost. Rural areas are changing their character through this growth in built



**Figure 37. Plan of Santiago (1970-1991)**

<sup>91</sup> Spirn, Anne. "Improving Air Quality, Enhancing Comfort, and Conserving Energy", *The Granite Garden: Urban Nature and Human Design*. New York: Basic books, 1984, pp. 62-87.

<sup>92</sup> Armijo, Gladys. La Urbanización del Campo Metropolitano: Crisis y Desaparición del Hábitat Rural", *Revista de Urbanismo* No 3, August 2000.  
[www.uchile.cl/facultades/arquitectura/urbanismo/revurbanismo/n3/html](http://www.uchile.cl/facultades/arquitectura/urbanismo/revurbanismo/n3/html)

development. The process of industrialization has revolutionized production in agriculture, and at the same time, it is replacing agriculture with other productive activities that are profitable and have a low production cost. The visual quality of these lands is changing, and they often become deteriorated and neglected, especially in undeveloped countries where agricultural land is associated with poverty and subsistence. Artemio Baigorri in the article "Agricultura, Produccion del Medio Ambiente y Ordenacion del Espacio Rural" (Agriculture, Environment Production and Rural Space Order) argues that the change from rural to urban has been produced by these factors:

1. Rural exodus: historic process where the peasant people migrate to the city seeking a better style of life. The exodus is a spatial process, affected by diverse scales of migration.
2. Geophagy: in the process of the extension the city, fertile land is devoured through urban development and speculation of land costs.
3. The homogenization of the landscape with the loss of cultural and historical identity, heedless destruction of biodiversity, wildlife, environment, which produces repetitive schemes of rural farms and suburban sprawl and a loss of the natural context.
4. The loss of political power by peasant people: political power in the modern world has been acquired by the industrial and the financial classes because agriculture production is not an economically profitable business (Baigorri, 2000).<sup>93</sup>

The edge, as an area, is discontinued and the boundaries that it generates are influenced by market and land use zoning. Natural boundaries are ignored as market and zoning forces allow the urban elite to create not only ecological problems but to displace the poorer farming population into ever poorer lands for agriculture, or to migrate to central cities and other labor opportunities.

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<sup>93</sup> Baigorri, Artemio. *La Urbanización del Mundo Campesino*, Documentación Social, No 51, 1983, pp.143-148.

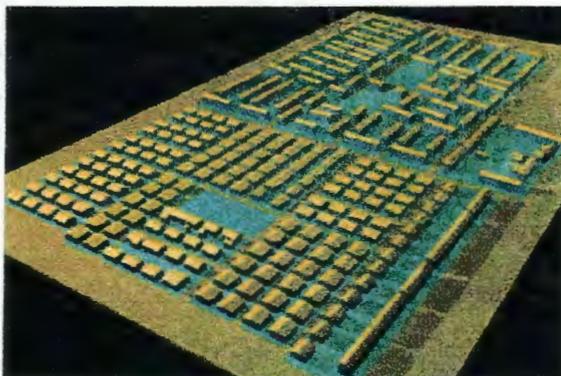
New "parcels of pleasure" are created based on an ideal of a life less contaminated, far from existing 'urban life'. Figure 34 presents a magazine advertisement in which the title advises "If Santiago suffocates you, read this advertisement and breathe" (figure 38).<sup>94</sup>



**Figure 38. Parcel of pleasure in exurbs. Peñalolen, Santiago, Chile**

\*Source *Vivienda y Decoracion*, October 1998

On the other hand, in the past several years, the periphery of Santiago has developed as the by-product of laws, market forces, and zoning. The expansive tall building construction strategy, an attempt to resolve the housing problem for impoverished people, has accelerated economic development, but it has also had devastating results (figure 39).



**Figure 39. Residential Maipu area views**

\* Source Mawromatis

<sup>94</sup> Spiro, Anne. "City and Nature", *The Granite Garden: Urban Nature and Human Design*. New York: Basic books, 1984, p. 29.

Constantino Mawromatis in the article "El divorcio entre los Instrumentos de Planificación y la Morfología Urbana en el Perímetro Metropolitano de Santiago, Chile",<sup>95</sup> asserts that the physical environment produced by the present planning and laws has contributed to the generation of new urban developments which are excluding public space. She defines them as monotonous, not contextual, and not articulated urban areas. Mawromatis defines three factors responsible for these issues:

1. Zoning
2. The absence of urban and architectonic hierarchy as a regulatory condition in Communal Laws.
3. The absence of typological classification of urban grid and public space (Mawromatis 2000, p. 3)

The third factor in Mawromatis' three factors is critical. The typological classification is one way to recognize the identity of the place through the recognition of the public space. Thus, through geometry and hierarchy, it is possible to generate useful public spaces, and give identity to places with an absence of historical meaning.

#### IV C. The Edge Produced by Artificial or Urban Features

The edge areas produced within the city depend on many aspects, such as social interaction, neighborhood density, economics, population dynamics, and transportation. These areas are influenced by the mobility of people from work areas to living areas, which are usually separated through zoning as well by the dynamics of the city and as they change across different time periods.

This interaction produces patterns that segregate areas, creating vacant lands with declining visual quality. Some urban features that produce urban edge areas are the following:

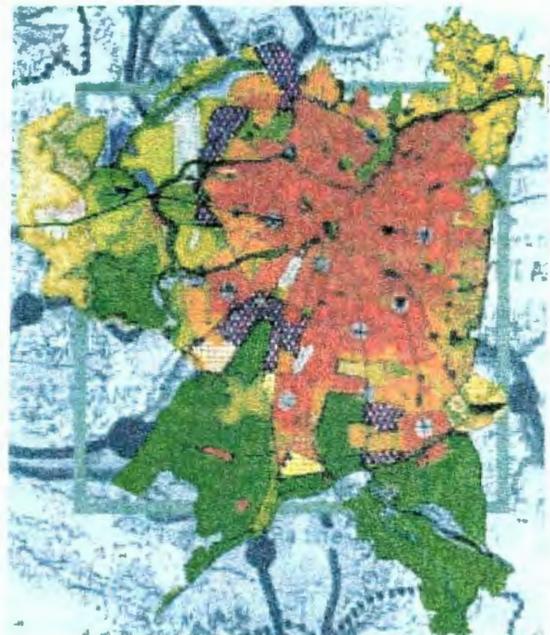
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<sup>95</sup> Mawromatis, Constantino. "The divorce between the planning instruments and urban morphology in the Metropolitan Perimeter of Santiago, Chile", *Revista de Urbanismo* No2, March 2000. ([www.uchile.cl/facultades/arquitectura/urbanismo/revurbanismo/n2/6.html](http://www.uchile.cl/facultades/arquitectura/urbanismo/revurbanismo/n2/6.html))

1. Edges produced by physical boundary. Transportation, with its traffic infrastructure, is the most pervasive urban edge found in most cities, such as streets, highways, railroads, and airports. Generally, these urban structures are major aspects of the city, and their physical dimension may determine edge areas.
2. Edges produced by a mental-sense boundary such as cemeteries, public hospitals, or large institutions.
3. Edges produced by visual boundary: those areas associated with deteriorated lands and contamination such as industrial sites, chemical and nuclear plants, and manufactories. Those areas that are marginal urban developments that offer visual decline and low quality of human life influenced by socioeconomic factors, such as impoverished neighborhoods. These are spaces often displaced to periphery sites, or they are spaces established outside of the perimeter of the city.<sup>96</sup>

#### IV D. Land Use Zoning Edge

Land use zoning delimits and restricts areas and produces limits and boundaries. A political and administrative boundary also delimits and creates various perimeters or edges. Generally, zoning land uses in the perimeter of the city include industrial areas, impoverished neighborhoods, agricultural lands, and new suburban areas. In Santiago, *The Regulatory Plan for the Metropolitan Region* has been the more important instrument of zoning and planning of the city, but at the same time it is a segregation



**Figure 40. Metropolitan Regulatory Plan of Santiago MINVU 1994-2024**

\*Source CHILE – MINVU, Secretaría Ministerial de Vivienda y Urbanismo Región Metropolitana. Plan Regulador Metropolitano de Santiago 1994

<sup>96</sup> Tjallingii, Sybrand. "Ecology on the Edge: Landscape and Ecology between Town and Country", *Landscape and Urban Planning* No 48, 2000. pp. 103-119.

mechanism (figure 40). The plan has produced a slower process of extension of the city, but sprawl is continuing.

Currently most edge conditions of cities are hazardous and continuously expanding, because they do not have horizontal and vertical spatial elements, which help to create or indicate their limits. The edge condition should provide for the control of growth and should also have a filter function, in a way that environmentally could prevent or mitigate the existing problems generated by sprawl, transportation, contamination, and city infrastructure.

Especially in Chile, the edge could be contemplated as a protected open space or it could make use of corridors as an effective way to prevent erosion, increase ecological biodiversity, and form a barrier for a growing city. In addition, this could offer an alternative to improve the management and division of administrative areas creating new spaces for recreation areas absent in the city's center, and in addition, protect agricultural land and biodiversity in natural edges. The use of greenways considered as linear networks would make possible the prevention of ecological fragmentation in unbuilt areas and improvement of aesthetic visual quality of the land.<sup>97</sup>

## Summary:

- The edge open space is recognized as residual and neglected space that usually acquires a negative condition. The shape of the edge space is recognized by the residual space generated by urban infrastructure. Additionally the edge has a socially negative character, especially in impoverished neighborhoods. The edge condition is suitable to produce major interventions in the city and produce shape, visual and social positive changes in urban spaces.<sup>98</sup>

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<sup>97</sup> Garreau, J. *Edge Cities: Life in the New Frontier*. New York: Doubleday Books, 1991

<sup>98</sup> *Negative and positive space.*

Negative space will consider spaces that are fragmented shapes, without clear organization, which also generates social, visual, physical negative conditions in a place.

Positive space will consider spaces that are regular in shapes with clear composition, which generates positive influences in social behaviors, especially those in relationship with the sense of control.

- Those unbuilt or vacant spaces within the city are often empty of meaning and are considered edges.
- Edges are produced when the land changes its original function (obsolescence) or when the land has been product of an excessive urbanization (dysfunction) (Wood & Handley 2000)
- Nature and urban features create edges. These edges produce physical, social and mental meanings for inhabitants.
- Edge spaces fracture the spatial qualities of the city. The edge as an area is discontinuous; market forces, land use zoning, changes in the mobility patterns of inhabitants, and the exodus and migration of people generating urban edges all influence the generation of edge boundaries.
- Natural boundaries are ignored as market and zoning forces allow the urban elite to create not only ecological problems but to displace the poorer farming population onto less productive agricultural land (or causes them to migrate to central cities and other labor opportunities).

The following section introduces historic aspects of Santiago, which will focus on the following principal aspects: geometry, shape, and open space growth.

## Historic Interpretation of Santiago

The objective of this part of the literature review is to explain the historic context in which the city of Santiago is situated. Through history, it is possible to determine identity characteristics of Chilean Culture that are expressed in urban form.

The essential feature in the design of Santiago was colonization. The Spanish conquerors during the 1500-1700s left a distinctive mark in each of the cities that they created. This mark or footprint is easy to identify if we focus our attention on the initial point, the downtown, because it was the symbolic representation of military force, and the influence of authority over the indigenous populations of a land.<sup>99</sup>

The Law of the Indies was the intentional way of repressing and containing used to create a city.<sup>100</sup> This was a simple technique where a repetitive arrangement of life was imposed many times upon a new piece of land. We say it was repressive because in the first period, the cities had a military force, which protected and defended the city against the existing native population. However, after the independence of all American States in 1800s, the *cuadrícula* (like the "Jeffersonian Grid" in the United States) was the illustration of equality because all the blocks were the same, in proportion and dimension (Parenai 2000, p.19, 20).

The beginning of Spanish cities was inspired by Greek and Roman cities. They placed cities and manipulated the topography and geography to create a new nature. The medieval cities in Europe followed the Roman and Greek city characteristics, and even today, vestiges of their influences are extent around the world. Nevertheless, the *cuadrícula* does not have the mystic religious meaning of the grid used in some European cities; it simply responds to the rationality and functionality of square geometry.

The Law of the Indies was laid out with a ruler and rope because the city was divided in to regular squares, which allowed the city to extend very easily outside of its peripheral

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<sup>99</sup> Parroquia, Juan. *Los Quinientos Años de Santiago y el Segundo Milenio de la Aldea de Huechuraba*. Santiago: Universidad de Chile, Facultad de Arquitectura y Urbanismo, 1995.

<sup>100</sup> Vance, James. *This Scene of Man. The Role and Structure of the City in the Geography of Western Civilization*. New York: Harper's College Press, 1977, p. 20.

urban limits. Therefore, there is a strong relationship between the concept of *cuadricula* and geometry. These regular squares are known, by the name of *damero*. The *damero* structure permits a building, or any urban structure to be recognized and to be described in its specific spatial location.<sup>101</sup>

Therefore, the only elements that interrupt this monotonous geometry are geological and geographic features, such as mountains, rivers, and hills such as San Cristobal's hill and Santa Lucia's hill. For this reason, an aerial view of the city would show some of these elements isolated within this grid. It is also easy to distinguish the plaza with its regular square, or a park with its linear shape, or spaces on the edge delimited and contained by natural boundaries with the physical impossibility of growing.

Open space is recognized in this dense urban structure as empty, unbuilt space or vacant land. Consequently, within this grid the most important element was the major plaza. It was and is, the symbolic center of the city or central point of all social activities, the public space, green area, and empty space. Surrounding this area, institutional buildings are located generating the social and political activity. The modern city has experienced temporal changes vindicated by the law of constructions and regulatory plan consolidated the urban. However, the periphery acquires a desegregated structure, and dispersal physiognomy characteristics.

People, political institutions, committees, and planners influenced the extension of the actual city. Benjamín Vicuña Mackenna of Santiago, between 1872-1875, created a transformation plan for Santiago, improving the city conditions, especially in the periphery. Later, between 1929 and 1934, the universities and Chilean urbanists were greatly inspired by Karl Brunner, an Austrian architect. His ideas formed the basis for both the present city planning and education departments in Chilean universities. Brunner, in addition, inspired

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<sup>101</sup> Gustavo Munizaga defines three factors as elements of perception and communication in the urban semiotics:

The urban perception: The observation of shape and urban space

Configuration material and formal city process: Composition and syntax of the city.

Cultural interpretation and existential signification of the city process: Recognition of emotional and signification contents of the city.

Munizaga, Gustavo. *Diseño Urbano, Teoría y Método*. Santiago: Ediciones Universidad Católica de Chile, 1992, p. 173-174.

by his city Vienna established the importance of planning for public space in South America and applied his concepts in many cities, including Santiago, Bogotá, Panamá, and Buenos Aires. At the same time, the modernist vision of Le Corbusier had influence especially in the building design and housing density parameters.<sup>102</sup>

Therefore, three conditions of Spanish cities are important to recognize as determinants of the morphological characteristics and composition of current Chilean city structure:

- A. The initial *cuadricula* or *damero* of the grid composition,
- B. Spatial geometry
- C. Growth.<sup>103</sup>

### A. Initial *Cuadricula*

In the study of the cities, the recognition of geographic features has been an important environmental factor to create a town. The valley and the river were repetitive geographical features found in the landscape of the cities of South-America, and it is possible to find very similar figures for the initial downtown in many of these cities' arrangements during the history of the Colonial period.<sup>104</sup>

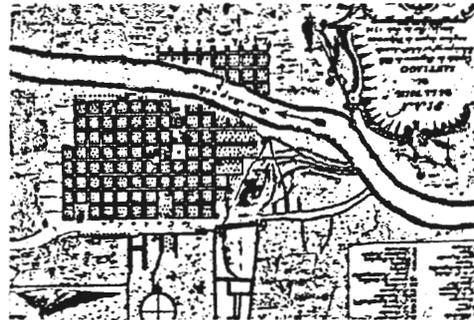


Figure 41. *Cuadricula* of Santiago downtown

For Pedro de Valdivia, the Spanish conqueror in 1541, there was a strategic advantage to establishing Santiago in a valley close to the mountains, with a center inscribed within *damero* oriented in a northerly direction, and with the river as an organizing axis for

<sup>102</sup> Gurovich, Alberto. "La Influencia de sus Lecciones en la Profesionalización del Urbanismo en Chile": *Revista de Arquitectura 8: Especial Karl Brunner*. Santiago: Facultad de Arquitectura y Urbanismo de la Universidad de Chile, 1996, pp.4-7.

<sup>103</sup> Violich, Francis. *Cities of Latin America*. New York: Reinhold Publishing Corporation, 1944, pp.87-132.

<sup>104</sup> Salas, Picón and Guillermo Feliú. "Chile Colonial: una Interpretación de Vicuña Mackena" *Imágenes de Chile*. Santiago: Editorial Nascimento, 1933, p.p.106-188.

everything else. Water was the vital natural resource for the inhabitants, but at the same time, the town was segregated and divided by the natural boundaries.<sup>105</sup> The Mapocho River and La Alameda (Avenida Libertador Bernardo O'Higgins) created a consolidated perimeter or frame around the downtown, while the mountains are physical boundaries and spatial elements that block the grid and give the city a stronger character (figure 41). Valdivia began with the establishment of the city center using the *damero* and the establishment of the plaza was the next step (figure 42 a and 42 b).

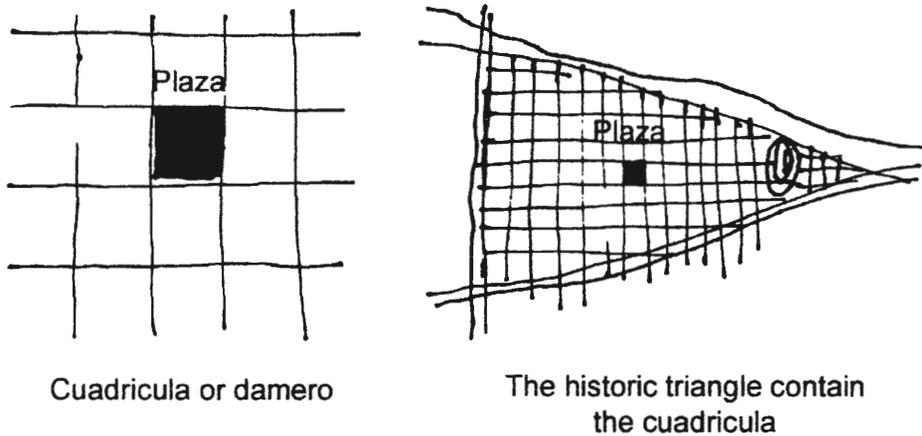


Figure 42 a & b. The cuadricula and the triangle part of the shape of Downtown Santiago

The Spanish Block, which formed the basis of the colonial plan, was 112 meters (about 336 feet) square, with a street width of thirteen meters (about 39 feet) (Violich 1944, p.28).

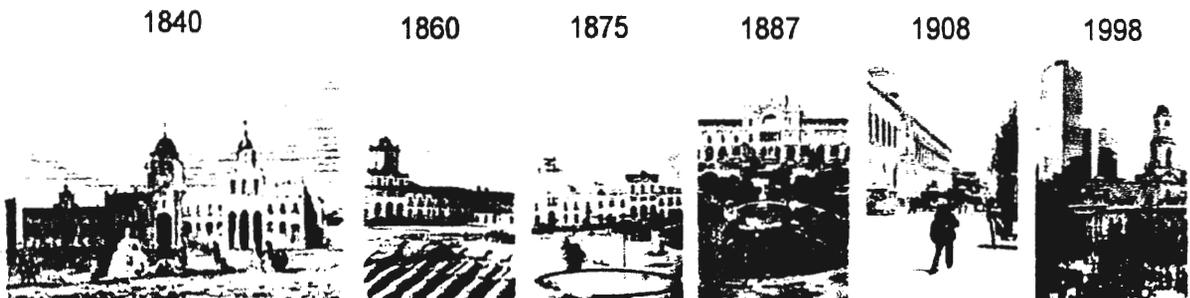


Figure 43. Evolution of major plaza of Santiago

<sup>105</sup> Munizaga, Gustavo. "Las Grandes etapas de la formación de Santiago", *Santiago Poniente Desarrollo Urbano y Patrimonio* Dirección de Obras Municipales de Santiago and Atelier Parisien d' Urbanisme. Santiago: Productora Gráfica Limitada, Santa Elena, Santiago, 2000, pp.28.

The perception of the plaza as a dominant identifiable control feature was the initial physical and rational point of design in part because it was in response to the 'law' (figure 43).

From the plaza the four principal streets are to diverge, one from the middle of each of its sides and two streets are to meet at each of its corners. The four corners of the plaza are to face the four cardinal points of the compass, because thus the streets diverging from the plaza will not be directly exposed to the four principal winds, which would cause much inconvenience (Vance 1977, p. 207).

The plaza as open space it is not only a physical element which creates an area where the architecture is the civic scenery that encloses it mitigating the visual influence or presence of modernity. The plaza also contains the historic and social memories of the city protecting the cultural identity from disappearing.<sup>106</sup>

The conquerors designed a plan that distinguished an institutional and civic center. The advantage of this plan was that its shape could offer the most efficient expansion of its perimeter, which from a modern perspective is approximately similar to modern planning. In addition, in the Colonial period the plan included considerations about open space as a greenbelt encircling the town with a protected edge of agricultural land. Ervin Galantay supplied this interesting description of Hispano-American towns based in the Law of the Indies.<sup>107</sup>

The Laws are unusually farsighted in providing for the growth of the town area: sufficient open space is to be reserved "to permit to expand in accordance with the original layout." A belt of unbuilt land had to be reserved, of an area 3 to 4 times than the town plot.

Beyond this "green belt," farm lots were staked out for commoners (peonierias) and for noblemen (caballerias). Great attention was lavished on the central square or plaza major, which has to be the true heart of the new community. As a place of assembly it was destined to remain empty and, because of its size, the framing buildings remain subordinated, rather than dominating the space (Galantay 1956, p.31, 32).

In the city of Santiago, we can identify many areas which follow the historic *damero* or *cuadrícula* arrangement. Spanish conquerors founded many towns and cities as agro-

<sup>106</sup> Salas said: the plaza of Armas is a center of full of animation. People and sales persons always surround the center pylon. Salas, Picón and Guillermo Feliú. "Chile Colonial: una Interpretación de Vicuña Mackena)" *Imágenes de Chile*. Santiago: Editorial Nascimento, 1933, p.17

<sup>107</sup> Galantay, Ervin. *New Towns: Antiquity to the Present*. New York: George Braziller, 1975, p.32.

military settlements, which had the function of establishing a colonial town and as expression a physical power in each dominated region (Galantay 1956).<sup>108</sup> Thus, those rural towns close to the Santiago's center through the growing process of the city were incorporated and were converted into communal districts within the urban perimeter, as districts of the metropolitan region such as Puente Alto, San Bernardo, Buin, or Maipo.

## B. Spatial Geometry

Carlos Bovill in the book *Fractal Geometry in Architecture and Design* analyzes fractal theory in Architecture and Design. He argues that patterns created for humans and nature have the tendency to be geometrical mathematical structures, which have rhythms and shapes always answering to the initially created figure.<sup>109</sup>

It is not my interest to analyze the principles of fractal geometry and apply them to the analysis of the city of Santiago. However, his work helps support the contention that is a central human process for spatial organization base on a mental design structure creating a physical connection easily with an identifiable or recognizable pattern.<sup>110</sup>

Old downtown Santiago is its urban origin, of the modern city with a recognizable, historic and cultural shape.

The geometry of downtown of Santiago is inscribed, and has a spatial figure contained by two boundaries: the Mapocho River and Alameda Avenue (La Cañada de San Lázaro, a domesticated arm of the Mapocho River) which create together the spatial figure of a triangle. This geometric conformation could be a



Figure 44. Sao Paulo, Brazil Historic, triangle views

\* Source Violich Cities of Latin America, 1944

<sup>108</sup> Lynch, Kevin. *A Theory of Good City Form*. Cambridge: MIT press, 1981, pp. 391.

<sup>109</sup> Bovill, Carl. *Fractal Geometry in Architecture and Design*. New York: Maple Press Company, 1996, p.3

shape resulting from random conditions existing in this place; however, the triangle generated by the disposition of the *cuadricula* has an intimate relationship with these historical natural features existent at that time. Additionally, in the study of the downtown geometry of South American cities, I found the same spatial figure repeated in other countries that also were created by Spanish conquerors where the Spanish fortification helped to generate this shape.

Francis Violich, in his book, *Cities of Latin America: Housing and Planning to the South* analyzes the cities of South America in 1944. Here he relates the life of the time to the conformation of the cities. The downtown of Sao Paulo City in Brazil is interesting because Violich drew two initial triangles as first points of the radial city structure, similar to the Chilean case (figure 44).<sup>111</sup>

The Spanish fortification had a very compact shape and figure. As an example, Lima, Perú had a distinctive wall system that limited the extension of the city. The result generated by this fortification was a distinctive landmark resembling a triangular shape. Moreover, the internal configuration of the fortification of Lima responds to the *damero* arrangement. The *damero* orients blocks perpendicular to the river and to the irregular agricultural pattern, near the limits of the fortification.<sup>112</sup> Although the fortification wall was not a repetitive condition for all the cities created by Spanish conquerors, this shape is distinguished physically when roads and highways later accompany the same initial structure of design as a vestige of the history (figure 45).

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<sup>110</sup> McHarg, Ian. *Design with Nature*. New York: John Wiley & Sons, 1992, p. 56.

<sup>111</sup> Violich describes: The inner "ringstrasse" will be a parked boulevard, varying from a hundred and twenty to a hundred and eighty feet in width, and encircling the Triangulo, the heart of the central business and financial districts, where high land costs prevented cutting straight through.

Violich, Francis. *Cities of Latin America*. New York: Reinhold Publishing Corporation, 1944, p. 87-112.

<sup>112</sup> Galantay, Ervin. *New Towns: Antiquity to the Present*. New York: George Braziller, 1975, p.32.

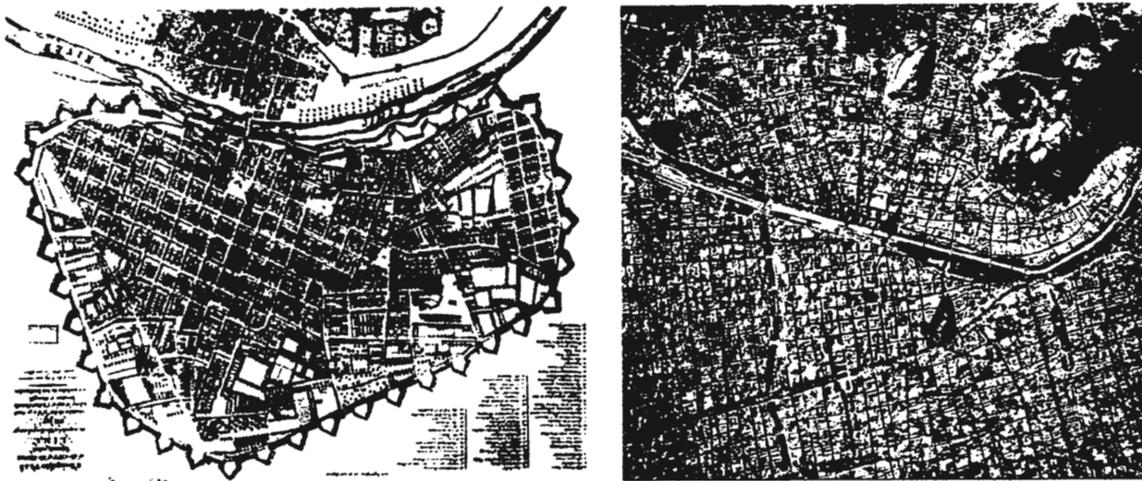


Figure 45. Fortification of  
Lima, 1687 Perú and aerial view of downtown Santiago  
Source Galantay, 1956

The downtown shape recognition is not only important from its historic perspective. It is a demonstration of a geometric shape of planning and design that has represented the political institutions and culture of Chile. In this triangle shape, almost all the relationships among urban land, agricultural land and geographic features were created. Urban plans developed during 1872-1950 planned the growth of the city designed in triangular tensions and belt rings.<sup>113</sup>

Moreover, it is possible to find similar patterns in other areas of the city of Santiago, which could respond to the situation, generated by the modern radial arrangement the city's extension using the downtown as the center of this configuration. Economic factors are also influencing the position of centers. However, these factors are interrelated; centers emerge only when the shape of the city permits this condition. The identification of these patterns in the city is an important element in the recognition of a national identity expressed through the shape of the city.

The triangle as shape generator that has a symbolic meaning and pattern, which tends to be replicated creating similar forms as over and over again. The angular geometry of the

<sup>113</sup> Figueroa, Jonas. "1929: La Ciudad Demostrativa": *Revista de Arquitectura* 8: *Especial Karl Brunner*. Santiago: Facultad de Arquitectura y Urbanismo de la Universidad de Chile, 1996, pp.4-7.

triangle creates similar tensions and conditions in other parts of Santiago City, with the difference that the major plaza is replaced by the 'mall'.

Consequently, in the analysis of these figures, it is possible to discover that there is a close affinity between geometry and its shape generating centers. New shopping mall areas, for example, are concentrated in triangular lands, such as Providencia, El Golf, Las Condes, or La Florida, new centers where the shape helps emphasize their center function (figure 46).<sup>114</sup>

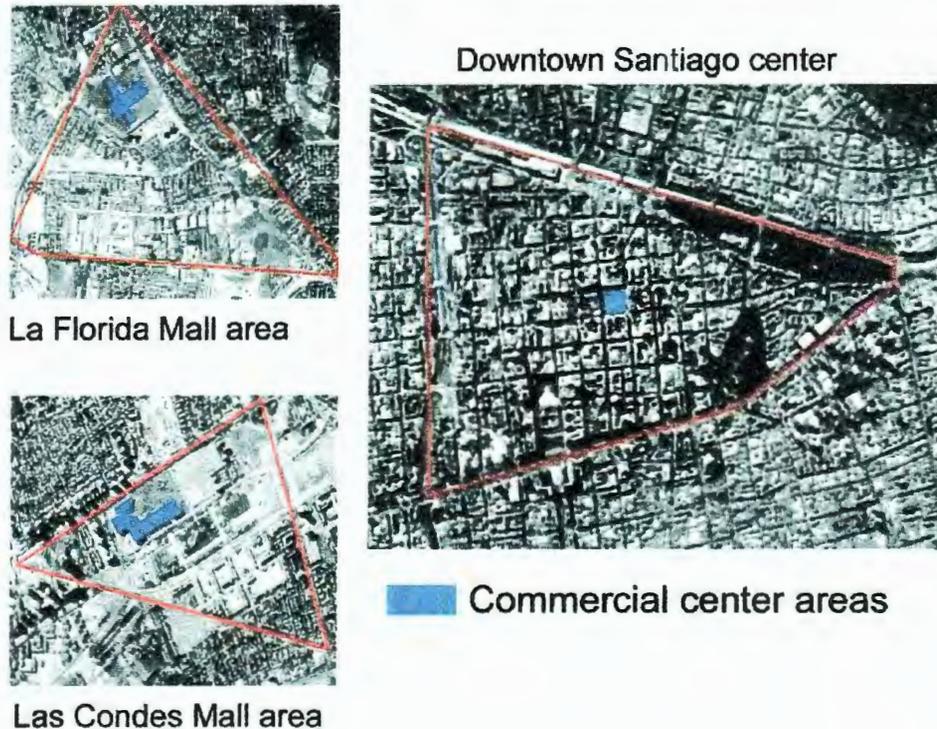


Figure 46. Triangles in the metropolitan region

In these photographs, the shape of the triangle is present, generating identifiable commercial and business regions of La Florida Mall economic center, and Las Condes Mall, as the diagrams are similar to the downtown of Santiago. By contrast, those areas in where the triangle is absent are areas unable to generate strong centers, such as the cases of Lo Prado, Pedro Aguirre Cerda, and others, districts which are characterized by poverty. The

<sup>114</sup> Vance shows similar case in East Oakland California in the United States. The Eastmont Mall built in a triangular terrain in 1960, or Peter Calthorpe Triangle Square project in Austin Texas, 1998

mall as the new center for these regions is located usually in the hypotenuse of the triangle, near to the principal highway.<sup>115</sup>

These areas cannot be reconciled with a regular geometry and they generally respond more to a residential character. Historically they were the peripheral pattern destined for cultivation known by the name "chacra." Chacra was the name given to the agricultural land that later belonged to noblemen owners of the countryside properties.

In Chile, the Indians, and other marginal groups were located on the other site of the Mapocho River, where they do not imitate the Hispano-roman urban cuadrícula; they substituted it with "irrational" roads and snaked paths, which until today characterizes the North riverside sector of Santiago (Laborde 1997, p. 96).<sup>116</sup>

In the residential areas streets, front yard, and back yard are all minimal in proportion and dimension, producing a dense pattern of houses. The disintegration of the square block near the perimeter of the city creates suburbs that do not respond to either the grid or cuadrícula, or to the existing landscape. This disintegration is produced by edges between parcels of rural and urban land, which were urbanized individually rather than as a unit, creating a fragmentation of urban spaces.

This recurrent condition is critical in many districts where the demand for houses has increased. This is the vestige of modernity and the city process. Today roads and cars are consuming the land and the design focuses on economic profitability without consideration for the creation of articulated spaces where open public unbuilt space and the construction of urban developments is in balance.<sup>117</sup>

This geometry of the colonial planning supports public space, and this is an additional value in the creation of big and small community neighborhoods, as well as regional and intercommunal areas. These areas can create sufficient sub-centers to provide all the opportunities that a large commercial downtown center offers in a nearby location. In

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<sup>115</sup> Ministry of Planification and Cooperation. *Development strategy of Santiago Metropolitan Region 2000-2006*. Santiago: MIDEPLAN, 2000, p. 31.

<sup>116</sup> Translation from Laborde, Miguel. "Yungay, un Punto Germinal de la Cultura Chilena", *Santiago Poniente Desarrollo Urbano y Patrimonio* Dirección de Obras Municipales de Santiago and Atelier Parisien d'Urbanisme. Santiago: Productora Gráfica Limitada, Santa Elena, Santiago, 2000, p.96.

<sup>117</sup> Spirn, Anne. "Urban Plants the Struggle for life", *The Granite Garden: Urban Nature and Human Design*. New York: Basic books, 1984, p.175.

conclusion, open space is part of the geometry, and can be an organizing element of the urban grid, as well as an important social and even economic cultural feature.<sup>118</sup>

The form of growth influenced by numerous aspects of the cities is a fundamental factor in the disintegration of the initial city cuadrícula pattern geometry in the periphery and the key factor in the resulting lack of open space. This condition is analyzed further in the next section.

### C. Growth<sup>119</sup>

This has been the most significant process that has generated most of the problems of the capital. To understand the growth of Santiago is necessary to conceptualize it from both the urban and historic viewpoints. From the urban perspective growth can be viewed as a process or phenomena. The electronic internet magazine "La Forma Urbis"<sup>120</sup> defines that the city of Santiago has suffered three types of sprawl:

1. **Growth over itself:** this phenomenon is an interior process where the neighborhoods in the city area are renovated; this changes the architecture, density, and visual dynamic of the areas of the city.
2. **Ring-wise growth:** this phenomenon is produced when the perimeter of the city extends, and takes over rural areas converting them into residential use.
3. **Linear growth:** this phenomenon is produced when transportation infrastructure generates corridors of development impelling a linear expansion originating new centers along the corridor.

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<sup>118</sup> Lynch, Kevin. "City Models and City Design" *A Theory of Good City Form*. Cambridge: MIT press, 1981, p.281.

<sup>119</sup> The next description of the historical periods presented in Chilean urbanism has been based in the following sources: *Revista de Arquitectura N 8*, (Karl Brunner special) published by the Universidad the Chile; *Santiago Poniente Desarrollo Urbano y Patrimonio* published by the Santiago Municipality; the electronic magazine *Urbanismo.8.com* dependant of Universidad of Chile; the magazine *Arq 39 Chile*, August 1998, edited by the Architecture School of Pontificia Universidad Católica de Chile; and Juan Parroquia author of the book *Los Quinientos Años de Santiago y El Segundo Milenio de la Aldea de Huechuraba*, published by Universidad de Chile, Santiago, Chile.

<sup>120</sup> [urbanismo.8m.com/artic1.htm](http://urbanismo.8m.com/artic1.htm)

The historic perspective analyzed by Miguel Saavedra Saenz in the book, *Santiago Poniente, Desarrollo y Patrimonio Urbano* defines four stages of growth of Santiago:<sup>121</sup>

1. *Foundation, the Colonial city* (1574-1836)
2. *Extension, the Republican City* (1820-1870)
3. *Territorial order, the Industrial city* (1870-1920)
4. *Growth: the Modern and the Current City* (1920-2000)

### C1. Foundation, the Colonial City (1574-1836)

This is the stage where the city was founded in 1541 for the conquerors. The city was placed in the Aconcagua valley, surrounded by mountains, and enclosed by Mapocho River, which generated the water resources necessary for agriculture production. The Conquerors superimposed the grid on indigenous villages and started the construction of the first settlement. This period was characterized by an unstable economy, political structure, and social organization. In addition, the city was re-constructed on diverse occasions because of earthquakes and floods, which devastated the city, producing poverty, illness, and neglect.

Before colonization, the Aconcagua Central Valley contained indigenous settlements, on villages. In the central location close to the Mapocho River, there were nine distinct indigenous settlements: Huelen, Coyo, Guaycoches, Vitacura, Apoquindo, Tobalaba, Ñuñohue, and Macul. These names are still in use for the current communal districts.<sup>122</sup> The indigenous population was at that time about 10 thousand inhabitants whose lifestyle was based on agriculture and pottery. Two large rivers crossed these 36 villages: Mapocho and Maipo, which still use these indigenous names. In addition, the Andes Cordillera was the scenic frame of these villages, supporting their beliefs and life (figure 47).

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<sup>121</sup> Saavedra, Miguel. "La Infraestructura, desde la Fundación hasta los fines de los Años Treinta", *Santiago Poniente Desarrollo Urbano y Patrimonio* Dirección de Obras Municipales de Santiago and Atelier Parisien d'Urbanisme. Santiago: Productora Gráfica Limitada, Santa Elena, Santiago, 2000, pp.43-55.



**Figure 47. Metropolitan Region, Indigenous Settlement in XVI, Century**  
 \*Based on the León Echaíz, 1975 and Juan Parroquia interpretation

With the arrival of Spanish Conquerors in 1541, the colonial process began. The Colonization produced the settlement and construction of cities and the elimination of the indigenous population through acculturation, assimilation, and ethnic fusion. In 1550, the population was 500 inhabitants.<sup>123</sup> Pedro de Valdivia records the city of Santiago with 112 metes blocks oriented in a northern direction and the Huelen Hills as a strategic protective natural feature against indigenous attack.

The Mapocho River and La Cañada de San Lázaro, (an artificial arm of the river), delimited the city. Adjacent to the city grid an agricultural region, the Monroy *chacra* was placed. The García Cáceres Cañada or canal into which all the sewer water ran delimited it. The west was bounded by the Quinta Normal, an other agricultural precinct. The plaza was the only open space created as public space.

<sup>122</sup> Parroquia, Juan. "Santiago de Nueva Extremadura: Su Construcción sobre el Antiguo Poblado de Huechuraba", *Los Quinientos Años de Santiago y el Segundo Milenio de la Aldea de Huechuraba*. Santiago: Universidad de Chile, Facultad de Arquitectura y Urbanismo, 1995, p.10

<sup>123</sup> Munizaga, Gustavo. "Las Grandes etapas de la formación de Santiago", *Santiago Poniente Desarrollo Urbano y Patrimonio* Dirección de Obras Municipales de Santiago and Atelier Parisien d' Urbanisme. Santiago: Productora Gráfica Limitada, Santa Elena, Santiago, 2000, pp.28-42

Figure 48 and 49 shows the major plaza, which was an empty space destined to function as a market. The river was not channeled, producing a precarious life condition with recurrent flooding of the Mapocho River and its man-made extension resulting in the destruction of the city. Surrounding the plaza, a few institutional buildings were constructed. The impoverished condition was visually exacerbated by the neglect of the Huelen hill and the riversides (figure 50).

The principal economic activity was agriculture dedicated to legumes and vegetables in the *chacras*. In addition, the production and storage of livestock created a colonial presence concentrated on the western edge of the city.

In, 1575, the construction of the first Cathedral and the San Francisco Convent began. However, three successive devastated and destroyed the city in 1575, 1647, and 1730.

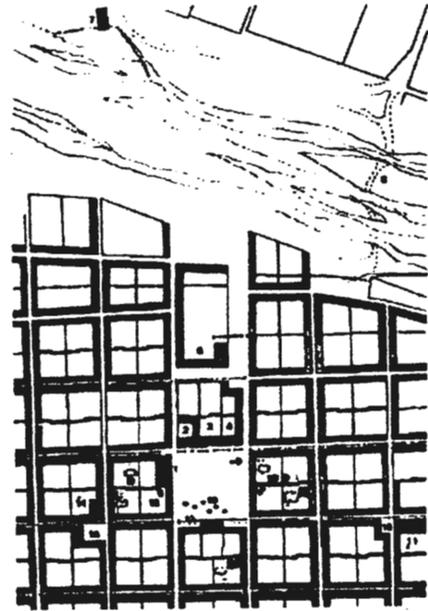


Figure 48. Plaza de Armas  
1541-1571  
\*Source ARQ.39



Figure 49. Plaza de Armas  
\*Source: siglo 20. tercera. cl

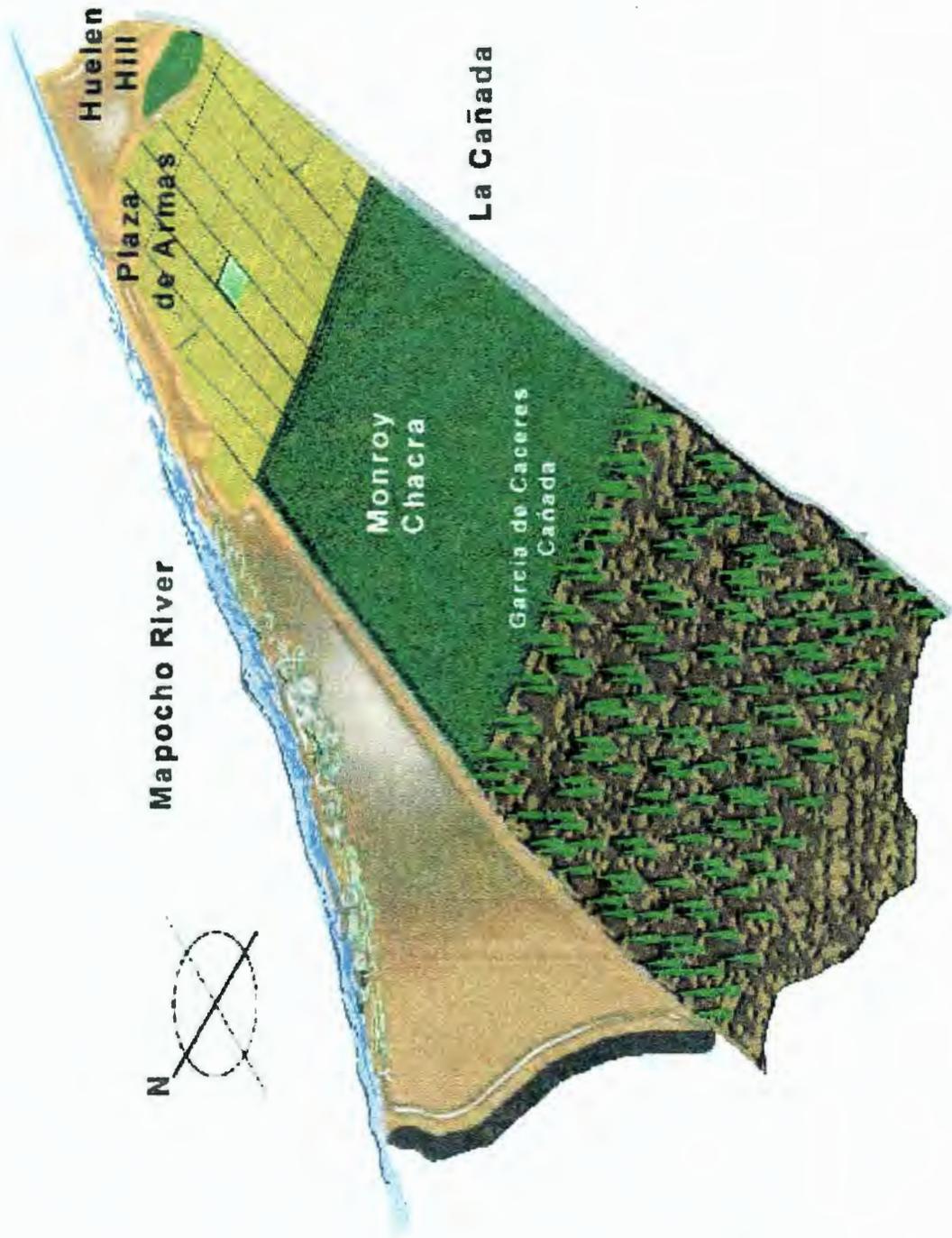


Figure 50. Colonial Santiago 1500

By 1750, Santiago had 24,318 inhabitants. In 1810, Santiago was a new Republic and the country declared its Independence from the Spanish reign. Later, in 1818, Santiago proclaimed itself as the capital of Chile. The city began its expansion and the incorporation of *chacras* close to the urban perimeter. These *chacras* belonged to noblemen and they were a property passed to consanguine descents for generations.

During the 1800, *chacras* were subdivided in lot sections to create residential neighborhoods. Later in 1792, the route to Valparaíso (Coast of Chile) was improved.

Figure 50 shows again the developed major plaza, or plaza de Armas. The plaza is designed and the block is perforated surrounding the plaza area acquired a greater density. Between 1767 and 1779, the Calicanto Bridge was built, the first bridge which crossed the Mapocho River. The bridge was inaugurated in 1782, but it was partially demolished in 1888 by a flood. In 1781, new edges for the Mapocho River were constructed, channeling and stabilizing it.

The Maipo River was not channeled until 1799 when the project was finally approved and eventually completed in 1820. This project had a major beneficial effect in the south of the city because the Maipo valley was transformed into a green plain ready for cultivation.

The major economic activity continued to be agriculture, but mining activities also took on important relevance in the economy in the following years (figure 51).<sup>124</sup>

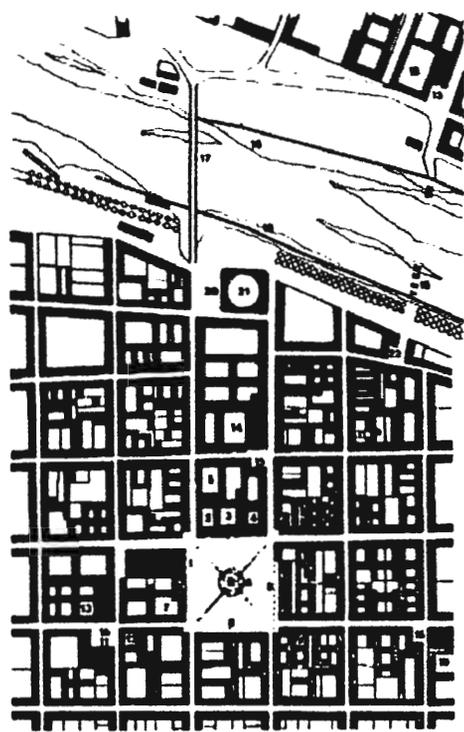


Figure 51. Plaza de Armas  
1741-1891  
\*Source ARQ 39

<sup>124</sup> Salas, Picón and Guillermo Feliú. "Mineros de Chile", *Imágenes de Chile*. Santiago: Editorial Nascimento, 1933, pp.261-275.

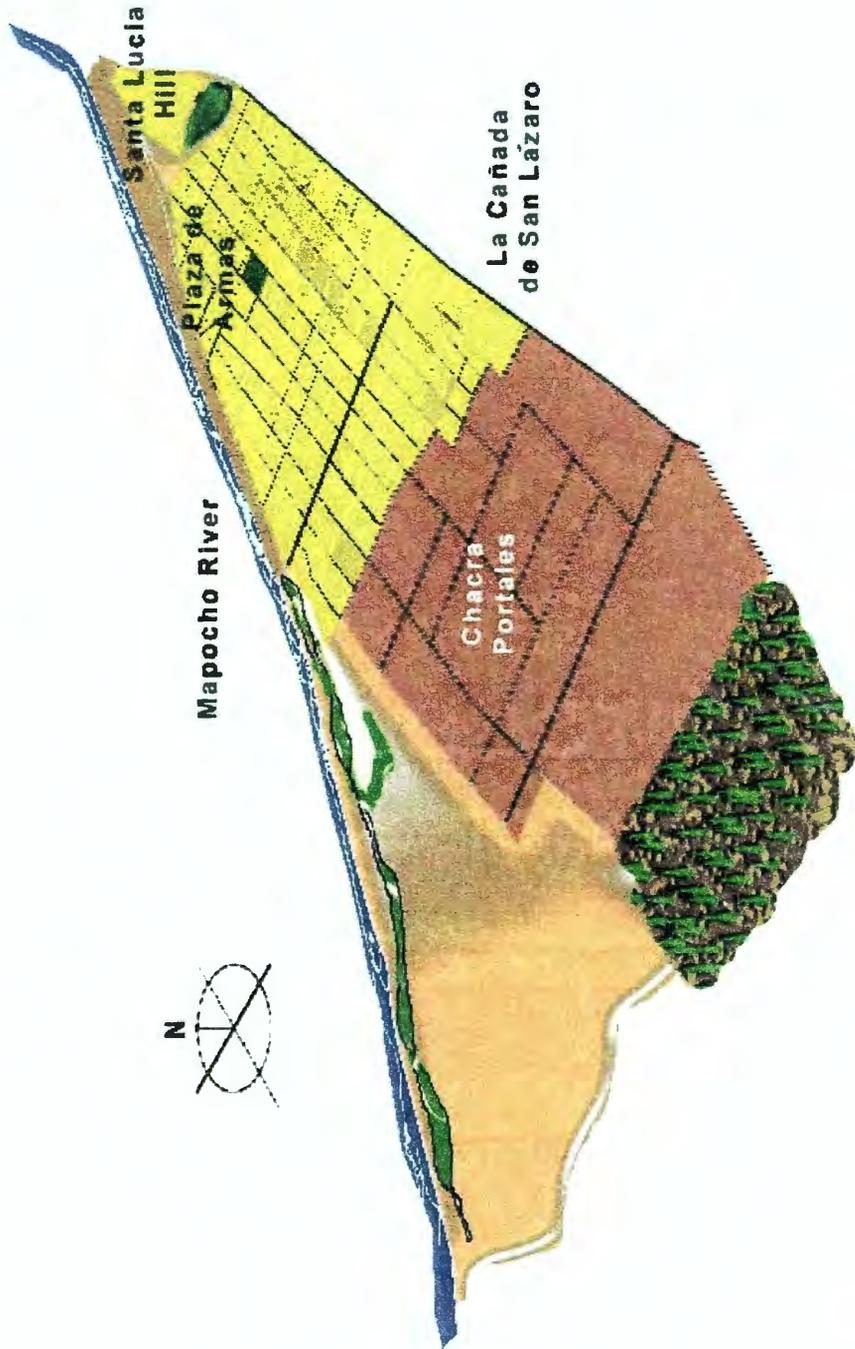


Figure 52. Santiago 1700

## C2. Extension: the Republican City (1820-1870)

This is the stage when the city planned and began the works for the edges (Tajamares) along the Mapocho River, initiated transportation projects, and began construction of infrastructure and public areas. (During this period the order of the city developed through the *cuadricula* extension and consolidation of urban spaces). The administrative and political structure was focused on a common project of amelioration and improvement of the quality of life of the inhabitants. By 1820 the population reached 46,000 inhabitants, and the city extended its periphery creating new neighborhoods as well as new problems.

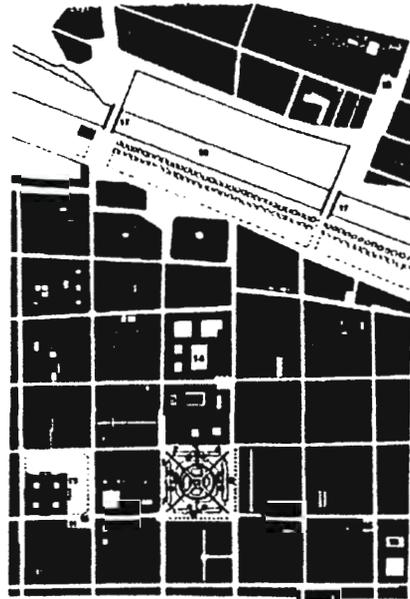


Figure 53. Plaza de Armas  
1841-1891

\*Source ARQ.39

These developments continued to use the structure of the blocks or *damero*, adapting it to the land depending on topography. In 1836, the Portales *chacra* was developed as an opulent residential area, replacing the *chacra* with the Yungay neighborhood, and creating the city's second important public open space, the *Yungay Plaza* built in 1850.<sup>125</sup> Yungay Plaza was physically adjacent to the *Quinta Normal* an open space, whose initial designation was for the creation of an experimental agricultural area, but later was designated for recreation. Figure 53 shows the evolution of the Plaza de Armas, which had a more distinctive shape because it utilized a circumferential geometric design. The surrounding blocks are compacted and dense, and the Mapocho River is channeled producing a physical order in the city (figure 54).<sup>126</sup>

During 1850, the city realized the need for major infrastructure and civil works. In 1865 the city contemplated or began the first railroad structure around the perimeter of the

<sup>125</sup> Mackenna, Benjamín Vicuña. *Historia Social de la Ciudad de Santiago desde su Fundación hasta Nuestros Días*. Valparaíso: El Mercurio, 1869.

<sup>126</sup> Von Bennowitz, Jorge. *Historia de los Servicios de Agua Potable y Alcantarillado en Chile*. Santiago: Facultad de Arquitectura y Urbanismo, Universidad de Chile, 1959.

city, and in this period opulent houses or palaces with French influence were built surrounding the Yungay Plaza.

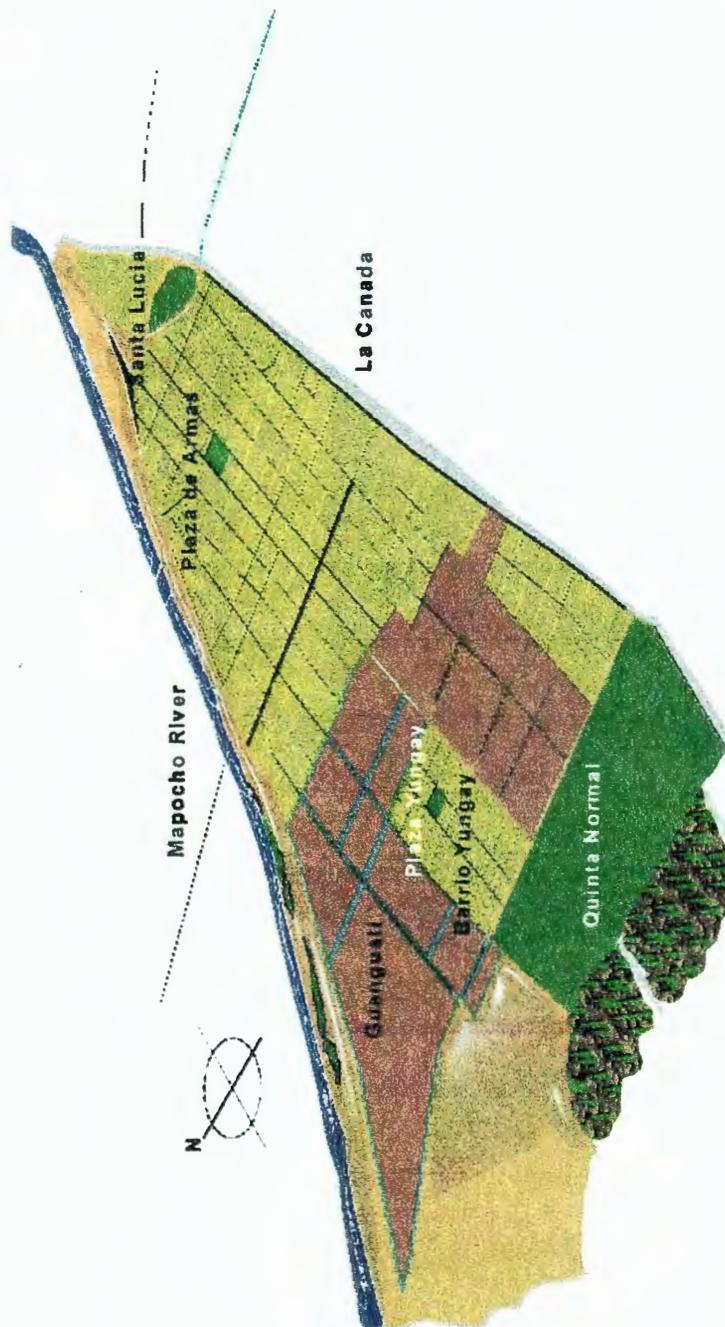


Figure 54. Santiago 1800

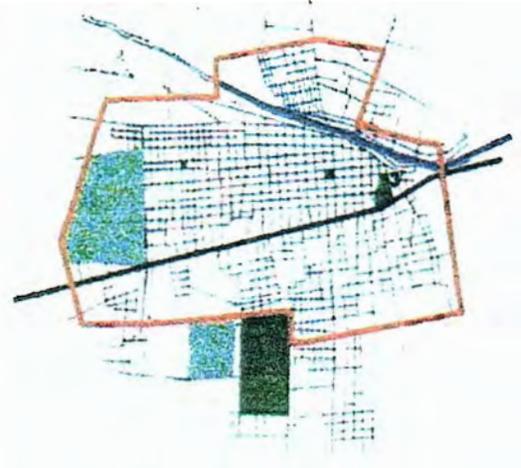
### C3. Territorial order: the industrial city (1870-1920)

This is the period where the city truly achieves its civic character; numerous public works were contemplated. Parks and public spaces were created, monuments and sculptures appeared, the streets were widened, public services ameliorated sewage and other sanitation problems, and urban transportation was developed as the city began its extension process towards a new periphery.

At this point, the city of Santiago had 130,000 inhabitants. Three major interventions were designed during this period. The belt or edge surrounding the periphery indicated a limit. Figure 55 shows the first plan elaborated by Benjamín Vicuña Mackenna. In 1872, Benjamín Vicuña Mackenna organized the city and began the works for a belt road which would connect the downtown with the perimeter of the city. This transformation improved the access to the peripheral locations.

The city also extended the construction of the Mapocho River channel, while incorporating public space through the creation of parks and plazas. During this period, the city was focused in the design of public space. A major transformation was accomplished when Huelén Hill was transformed into a park, called "Santa Lucía."

This park was a distinctive social space which incorporated sculptures,



**Figure 55. 1872 Santiago Plan**

\*Source Urbanismo.8.com



**Figure 56. Cerro Santa Lucía**

fountains, terraces, and walls. Mackenna's visionary ideas created a park that remains a landmark even today in the modern city of Santiago (figure 56).

Other public spaces were also built, such as the Cousiño Park (or O'Higgins Park) and the Quinta Normal de Agriculture Park.

The Cousiño Park, until 1873 was recognized as "La Pampilla." This name has historic meaning was the social space designated for recreation, and the celebration of patriotic costumes and military training as well.<sup>127</sup>

Luis Cousiño Squella, a man who was a member of one of the richest families in the country, gave the park to the city and he asked for Manuel Arana, a Spanish urbanist, and Gustavo Renner, a landscape architect to design this new park based on the design style of French parks. The park design proposed an artificial lake with an island, the planting of 60,000 different species of trees, and a network of roads (Domínguez 2001) (figure 57).

At the same time, a property contiguous to the Cousiño Park was allocated as the Horse Club, recognized as the *Marte Camp*. This club was founded in 1869 with the first horse's race. In this way, the park and the club were spaces of events and pleasure, for upper class society (figure 58). In addition, La Cañada de San Lázaro was transformed in "La



Figure 57. Parque Cousiño

\*Source Urbanismo.8.com, Postal Universelle, Museo Histórico Nacional

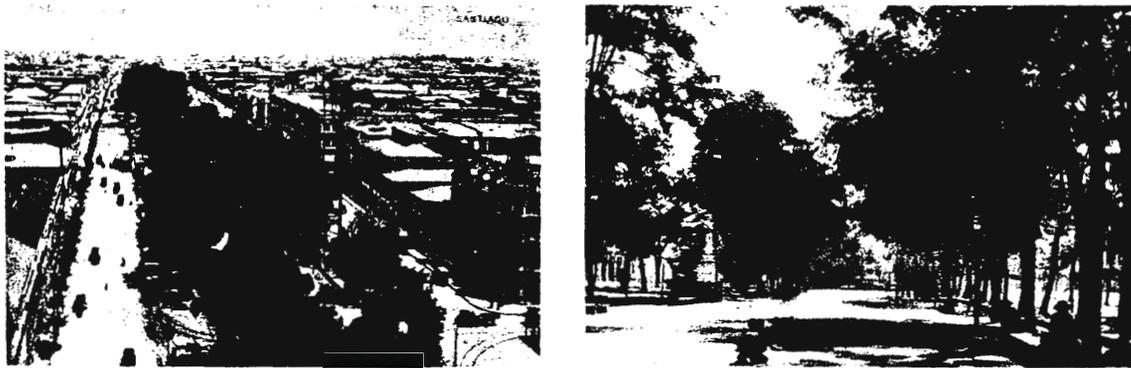


Figure 58. Club Hípico

\*Source Urbanismo.8.com. Santiago 1900, Museo Histórico Nacional

<sup>127</sup> Martín Domínguez. Parque Cousiño y Parque O'Higgins: Imagen Pasada, Presente y Futura de un Espacio Verde en la Metrópoli de Santiago, 2001.

"Alameda de las Delicias" where its design involved a linear pedestrian central park, which included statues and dense tree cover defined by two roads or avenues for carriages, cars, and horses. This design, which is similar to a boulevard, was recurrent in other parks of Santiago (figure 59).



**Figure 59. Alameda de las Delicias**

\*Source Santiago Poniente y Desarrollo Urbano. Municipality of Santiago

The channeled Mapocho River increased order in the city, by reclaiming land, which was neglected or affected by periodic flooding. The streets were paved with granite paving stones, and other materials. The city included street and park furniture, to achieve a civil urban life influenced by European styles and customs. Sanitary conditions improved, diminishing numerous illnesses. Mackenna also proclaimed the first law of construction, which directed the development architecture and building construction in the following years.

Vicuña Mackenna with his vision also began the work of transforming of San Cristobal Hill into a public space. The hill at that time presented itself as a large devastated landmark a because of both mineral extraction and quarrying of stones for the paving of the streets. Mackenna began process of reforestation of the hill to create a new public park.

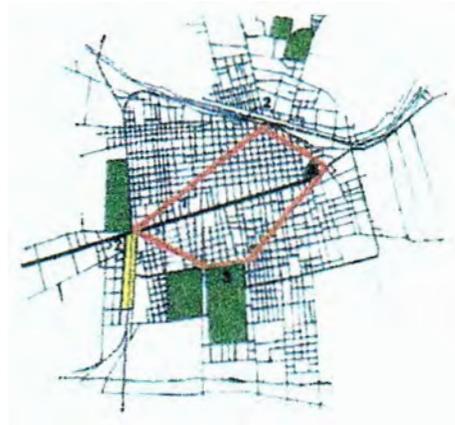
In 1888, President Balmaceda created the first Municipal Direction for Santiago. In 1891, Chile fought a civil war as well as various parliamentary revolutions. After the civil war was ended, the city continued growing, and by 1894 it had 255,000 inhabitants. This situation induced the Balmaceda government through Manuel H. Concha, who was Director of works in the Santiago Municipality, to design a second or revised master plan for the

transformation of the city. The objective of this plan, (figure 60), was to incorporate new public green areas, increase the dimension of streets, and open five diagonal avenues which connected new construction developments with the public center. These diagonals needed to join the railway stations, parks, and streets focusing on the mobility of the people and their access to work. However, the senate of Chile's parliament rejected the plan.

Until 1912, both the city and the country existed in precarious sanitary conditions. For these reasons, the government acted to solve and control these problems, and it prioritized the building of sewer and water channels around the city. At the same time, the migration of people began from rural towns and peripheral zones into the city, and social segregation defined the center as rich and the periphery as poor.

A commission of the Chilean parliament and the Municipal Direction of Works of Santiago proposed in 1912 to restore the values of Manuel Concha's 1894 plan to connect public space, and the peripheral areas with urban infrastructure through diagonals supported by radial arterials.

The railroad stations were considered nodes of attraction. The plan also increased land allocated for parks and plazas. This model incorporated influences of model cities at the time such as Paris, Buenos Aires, Lima, and cities in the United States (figure 61).



**Figure 60. 1894, Manuel Concha Transformation Plan**



**Figure 61. 1912, Parliamentary Transformation Plan**

In the same year, the Central Society of Architects asked Carvajal Miranda to propose another plan as an answer to the revived 1894 plan (figure 62). Carvajal Miranda followed the ideals of the Spaniard Arturo Soria y Mata, in the creation of linear garden cities. Carvajal Miranda proposed a new project which was focused on railroad infrastructure and the development of centers linking Santiago and San Bernardo. The project also proposed the construction of civic patrimonial buildings such as museums and railway stations.<sup>128</sup>



Figure 62. 1912, Carvajal Miranda Lineal City

This plan of transformation proposed eighteen diagonal avenues with a central north-south civic axis (figure 63). A beltway encircled the periphery at the limits of the growth and extension of the city. The effect of the design of the diagonals produced important central plazas neighborhoods, and the Mapocho River was contemplated as public space. Finally, Carvajal Miranda projected the extension of the city to include other existing towns 3 kilometers away from the downtown center.



Figure 63. 1912, Carvajal Miranda Transformation Plan

In 1913, an English architect, Ernest Coxhead, was asked by the Chilean Consul to propose a new plan for Santiago (figure 64). This project focused on the creation of a north-south axis where three pivotal sites along that axis: La Moneda Palace, the government headquarters, and Mapocho Station become the centers which could create areas or neighborhoods to complete the order or organization for the whole composition. In this proposal, Quinta Normal was transformed into a university campus. The project also contemplated new green areas and radial rings connected by angular avenues, although the

<sup>128</sup> Carvajal, Carlos. "La Transformación de Santiago." *Revista de Arquitectura y Arte Decorativo* No 6-7, 1920.

city and its residents were not prepared to implement these interventions at the time. The diagonal avenues were too radical then, but were later incorporated into the modern city plan.

After this very active period of master planning, the country faced a serious economic crisis produced by the closing of mining enterprises in the north of Chile and then, the First World War. Consequently, many additional workers migrated to Santiago initiating additional social, political, and economic problems for the city to deal with. After 1913, the government continued to create or develop diverse plans of transformation, many which included aspects of the earlier ideas, especially those that wanted to extend the civic central axis.



**Figure 64. 1913, Ernest Coxhead Transformation Plan**

In 1916, the son of Vicuña Mackenna, Alberto Mackenna Subercaseux, following the ideas of his father, developed interest in the creation of public parks. He succeeded in obtaining easement zones for public utilities; also, he understood to restore and conserve native forestland in his effort to increase the extent of the Metropolitan Park at San Cristóbal Hill.

#### C4. Growth: the Modern and the Current City (1920-2000)

Since 1920s the growth of Santiago could be seen as a consolidation of urban growth. The city has increased urban services, equipment, density, and residential development. On the other hand, in 1920, the First Pan-American Congress of architects was developed in Uruguay. In this Congress, the Chilean committee postulated the obligation the architect has in the development of the city based on analyzing the historic evolution of its shape, and the social, economic, and political implications involved in its function.

Later, Alberto Shade, a professor at the University de Chile, presented an interpretative plan of Santiago based on the ideas of diagonals, and a civic center supported by a north-south axis, but on a minor scale. His proposal also included a belt railroad around

the perimeter of the city. The final intervention proposed only five diagonals rather than the much greater number proposed in the early 1900s.

Later, in 1924, the journalist Carlos Pinto Durán presented a new transformation project to the Municipality of Santiago. His proposal included a proposed railroad belt, peripheral industrial areas, and a reinforced downtown center supported by the railroad (figure 65). This idea also included the creation of forests and recreation areas outside of the belt.

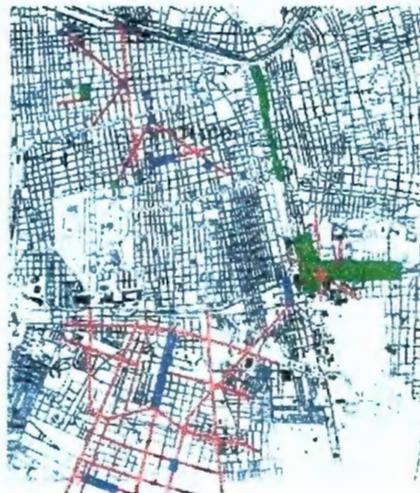
Until 1930, Santiago applied some of the ideas proposed in all the plans, but never applied them completely, principally due to the economic and political waves of instability which the country endured.

In 1929, the Viennese Architect Karl Brunner arrived in Santiago to serve as a State Technical Assessor of the of National Mayors Committee. His participation produced deeper changes in the planning perspectives of architecture schools and the Municipal Work Directions of the country. He promoted his ideas working through seminars and public interviews. Brunner developed the first regulatory plan for Santiago and participated in the creation of a general building and zoning law or regulations. His plan promoted building upon the typology and urban shape of existing neighborhoods.

Interest in public spaces was a central feature in his ideas. He created a social relationship with the city through these spaces, which should be provided at to all levels of



**Figure 65. 1924, Carlos Pinto Durán Transformation Plan**  
\*Source Urbanismo.8.com



**Figure 66. Karl Brunner Transformation Plan**  
\*Source Urbanismo.8.com

scales, similar to the ideas suggested by Jere Stuart in his classification of urban green spaces. Brunner's work also understood the amelioration of impoverished neighborhoods, creating a design invoking community spirit and participation.

Karl Brunner emphasized the conceptualization of the *cuadricula* as an element that was able to handle a hierarchy of civic spaces, public buildings, and public space. In this way, the city developed central spaces supported by diagonal axes capable of breaking the monotonous grid and creating vision and new lots, shares and forms.<sup>129</sup>

Figure 57 shows his master plan. The major interventions were in the creation of Bustamante Park (green linear areas in the picture), which was the essential element in connecting the south with the north. He wanted to create linear parks, which would connect the existing plazas to create a corridor scheme.

During the 1950s, the migration of rich families to the east of the city began, and with this process the city began to take on the form which we see today. In 1958, the city instituted the *Intercommunal Regulatory Plan* and law, which has regularized all urban renovation, buildings, and practices.

Over the next few years, the city experienced social and political changes that created segregation and overpopulation, eventually reaching 5,000,000 inhabitants. Today, the regulating plan of 1958 structures the city, which is organized and ordered through zoning areas. In the current city planing, there are no major interventions proposed as there were in the past, no intent to address ideals or goals not currently met. At the same time, the Architecture College has lost the intellectual capital necessary to sustain amelioration plans for the city, focusing on criticism of the existing city rather than on proposing the future of the city.

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<sup>129</sup> Brunner, Karl. *La Ciudad Moderna, su Estado Actual y Futura Formación*. Santiago: Imprenta La Tracción, 1932.

## Summary

This section focuses on the overview of historic open space conditions in the city of Santiago from the urban and spatial perspective. In addition, it also incorporates a historic vision about identity and geographic qualities, which has modified the characteristics of this city. Thus, in conclusion, it is possible to summarize the main ideas in the following points:

1. The triangle has been the historic pattern which represents the center, and in this shape was contained the plaza as the public space. The perception of the plaza is an image and a place system of social domain and identification.
2. There are pattern relationships between form and function. The triangle is the trace of the historical downtown of Santiago and the trace and place of modern centers in rich and poor peripheral areas.
3. The areas that cannot be reconciled with regular geometry generally respond to residential character or negatives spaces.
4. The green recreational areas were designed and planned through Santiago's history until 1950s. In the last twenty years, the modern Santiago has focused on habitation developments as an answer for individuality, economy, globalization, and market factors. This has generated a notable decrease of public green spaces especially in the periphery where the lack of coordination has not improved this situation.

## Geography and Identity

Identity is a personal and collective process, which involves the assimilation of tradition and memories. When an identity is recognized and accepted, it can acquire memory and a social role incorporating itself to the real world.<sup>130</sup> My interest in including the role of the identity in this interpretation comes about because there are no places without identity(s) (or identities).

Urban design always seeks the creation and design of spaces with an identity because when the collective distinguishes the designed space, this means that the design transcends a cultural barrier, transforming it into a value. The mall has been much criticized, but at the same time its shape reflects actual social behavior. The value itself is produced when the design reinterprets the social behavior, and it is an element capable of supporting an urban city.

Lester Rowntree in the book *The Cultural Landscape Concept in the Human Geography* (1996) defines landscape as material culture, in other words, landscape visualized as a system capable of generating multiple relationships among cultures, identities, and geographies. On the other hand, Douglas Porteous in the book *Landscapes of the Mind* discusses that the landscape of geography can be visualized as a bodyscape or landscape as body.<sup>131</sup>

"Hirsute or bare, the skin of the earth is supported by a framework of bones, muscle, and blood." (Porteous 1990, p.74)

He also asserts that geographers determine the geographic condition through the convention of naming where name functions as metaphor which associates human body with a geographic feature.

The Chilean identity has been the product of both indigenous settlement and Spanish colonization and their interaction. A large part of the country, including the Central Valley

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<sup>130</sup> Riveros, Maria Elena. Religión e Identidad del Pueblo Mapuche.  
[www.uchile.cl/facultades/filosofia/publicaciones/cyber/Cyber5/textos/riveros.html](http://www.uchile.cl/facultades/filosofia/publicaciones/cyber/Cyber5/textos/riveros.html)

<sup>131</sup> Porteous Douglas. *Landscape of the Mind. Worlds of Sense and Metaphor*. Toronto: University of Toronto Press, 1990

location, belonged to the Inca Empire, and by contrast, the south of Chile belonged to the Mapuches and other pueblos. The Mapuches battled against the Spanish Conquerors for five hundred years and even today, they fight for their rights in the Araucanía (South of Chile).

One of the major characteristics of the indigenous cultures of these areas are their relationships with the landscape. The respect for nature, considered as *mother earth*, which provides all the fruits necessary for life. It also has a religious meaning, an imprinted cultural symbol. Billie Jean Isbell in the book *To defend Ourselves: Ecology and Ritual in an Andean Village* describes and analyzes the life and culture of an Inca settlement in Peru, inhabited by the *Chuschi*. The *Chuschi* culture represents in most respects the beliefs and spatial patterns in force in the cities influenced by the Inca Empire. In addition, the Mapuche pueblo located in the south of Chile was based on similar patterns. The major difference was in the primary role of women in the clan structure. Additionally, similarly to the Incas, the Mapuches considered the mountain as an entity that acquires spiritual meaning with its volcanoes, texture, colors, and highest. Thus, again geography took on not only a physical value, but also a psychological or cultural value. Moreover, the Mapuches ascribed symbolism to colors in nature and represented them in their culture. Interestingly again is the conceptualization of the color green, which means abundance, earth, fertility and wealth repeating the color universal perception noted from western culture noted previously (figure 67).



Figure 67. The green valley in Chile

Figure 68 presents the major elements involved in the Inca culture. The parallelism between masculine and feminine through nature symbols concluded with the terraces of storehouses symbolizing their dependence on the earth.

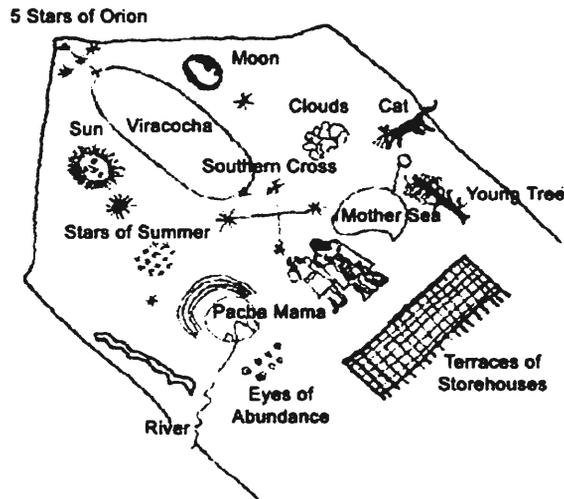


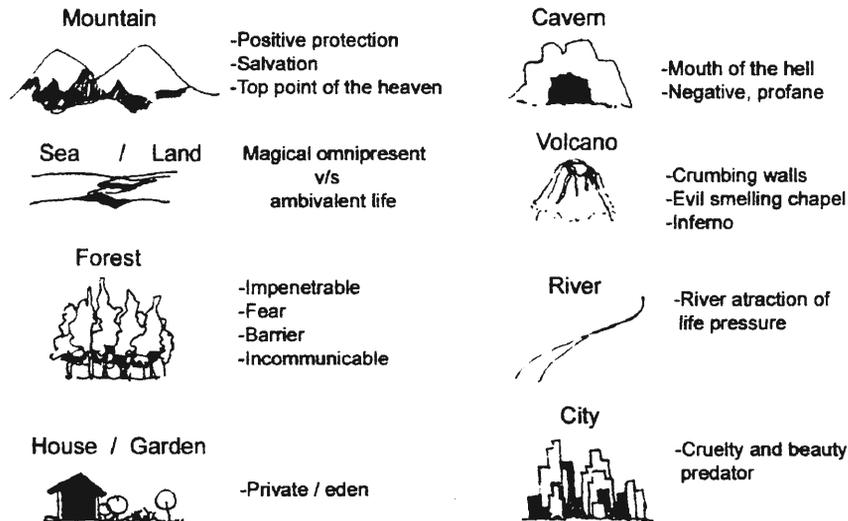
Figure 68. Temple of the Sun in Cuzco, after Pachacuti y Amqui

\*Source Isbell 1978, p.208

These are the common patterns, which define the identity of the indigenous culture.

1. The geographic pattern present in indigenous culture is the *mountain*. The Cordillera de los Andes is the defense, the control pattern, and the provider of life. The nature or earth mother (*Pacha Mama*) is present through the seasons of the year signaling the appropriate timing for the agricultural processes and harvest, so in this way nature is part of a cosmological order. The meaning of nature always has been represented through human metaphors and signs (figure 69).
2. The social pattern that defines the structure of this society is *marriage*. Marriage symbolizes regeneration and through the sexual complement, man and woman are generated into a new clan that will begin a new social order.
3. The cultural pattern is identified through the *name*. The name is the way a child acquires a role in society.
4. The religious pattern is the *ritual*. The ritual is the festive celebration, which contains symbolic representations of gods and humans.
5. The pattern languages are *graphics symbols*, representations with a cultural meaning.

6. The morphological pattern is the conception of a community or internal colonies expressed through the clan. The *community* is composed by hierarchical structures of clans.

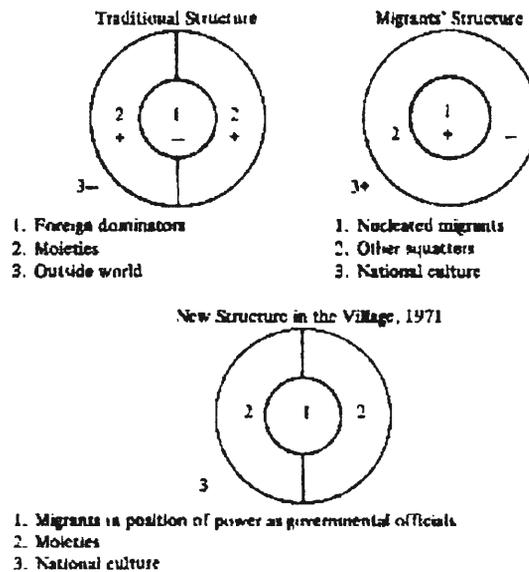


**Figure 69. Landscapes of metaphor based on Douglas Porteous interpretation**

Source: Porteous, 1973 pp.88-104.

Figure 70 clearly shows the dichotomy between the indigenous and the migrants. The acculturation process involved in the indigenous culture accepted the migrant structure and adapted its cultural elements, assimilating them into their culture. With the introduction of Spanish life, the image of the central community changed. The foreigners lived around the central plaza and the *comuneros* (community) or immigrants, outside.

This is a process, which today is repeated in modern life because outside cultural influences are part of a new global identity. The Spanish plaza then was considered as a superimposed object that was created by the immigrants. Later the plaza and the church merged as one component, which unified both religion and civic ritual.



**Figure 70. Community Structure**

\* Source Isbell 1978, p. 193

The image of the community is important not only as the traditional familiar clan but also it is as a sanguine condition of preservation of culture. The structure of the community called the village is based again on the concentric circle shape. The village also is divided in two classes, upper and lower. The rich people live close to the mountains and the poor in the periphery. The same pattern is repeated in the modern city of Santiago. Billie Jean Isbell establishes the following dichotomy:

Savage (sallqa) - civilized (taksa)

herding - agriculture

outside (savage) - inside (civilized)

Non-member (qala) - member (communero) (Isbell 1978 p.97)

To understand the factors that have determined the contemporary identity of the Chilean people it is necessary to understand the acculturation process which has been marked by three factors in modern Chilean history. First, the Spanish Colonization, which was the most important process of change produced by the arrival of the Spanish conquerors

and the elimination of most indigenous people. Consequently, their elimination meant the elimination of the concept of nature as caring. Secondly, political and social instability characteristic of particular historic periods impacted Chilean identity. People began to focus on individuality, with a loss of the collective identity and a concomitant loss of public space. The third factor affecting Chilean identity is the influence of globalization, which has been a process where the loss of identity has been marked by exterior commercial media, such as television, radio, and magazines. The United States revolutionized the image of consumerism and architecture. The concept mall replaced traditional exterior public spaces, as people chose international culture over regional culture.

Geographic or topological features qualities and climates have generated a strong regionalism. The topographic features limit the regions of Chile and they are subsidiaries of Santiago, region that handles the major political and economic decisions of the country.<sup>133</sup> This topographic condition has created a tendency to assimilate and identify places with geographic landmarks, i.e. the north with deserts, the south with volcanoes, the coast with the ocean, and the center with agriculture. Therefore, geography can be determining factor. A geographic location can personalize the culture and people.

In the case of Chile, the oceans and mountains are natural features, which are present in all the productive activities of the country, in the scenic views, entertainment, and in every day life. The landmarks are necessary to create a sense of place and if they do not exist, people create them. Unlike indigenous cultures, modern cultures often have destroyed the natural landmarks producing alternative cultural patterns and social parameters by creating artificial landmarks such as buildings, to produce the same effect socialization effects, and resulting tradition.

If this geographic awareness is present in the individual and in the collective, public spaces can create the same dependence. Thus, open space as public space, green space, edge,

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<sup>133</sup> Gustavo Munizaga defines four elements of the semiotic structure

1. The place: a significative geographic framework , the space which contains essences and spirit
2. The institution: social functional organization
3. The ritual: the significative activity, manifestations of a society.
4. The monument: the significant construction, the space that shelters behaviors and rituals.

Munizaga, Gustavo. *Diseño Urbano, Teoría y Método*. Santiago: Ediciones Universidad Católica de Chile, 1992, p. 174-175

or center can be greatly influenced by its geographical context, place generating the deterministic condition that in turn generates identity.

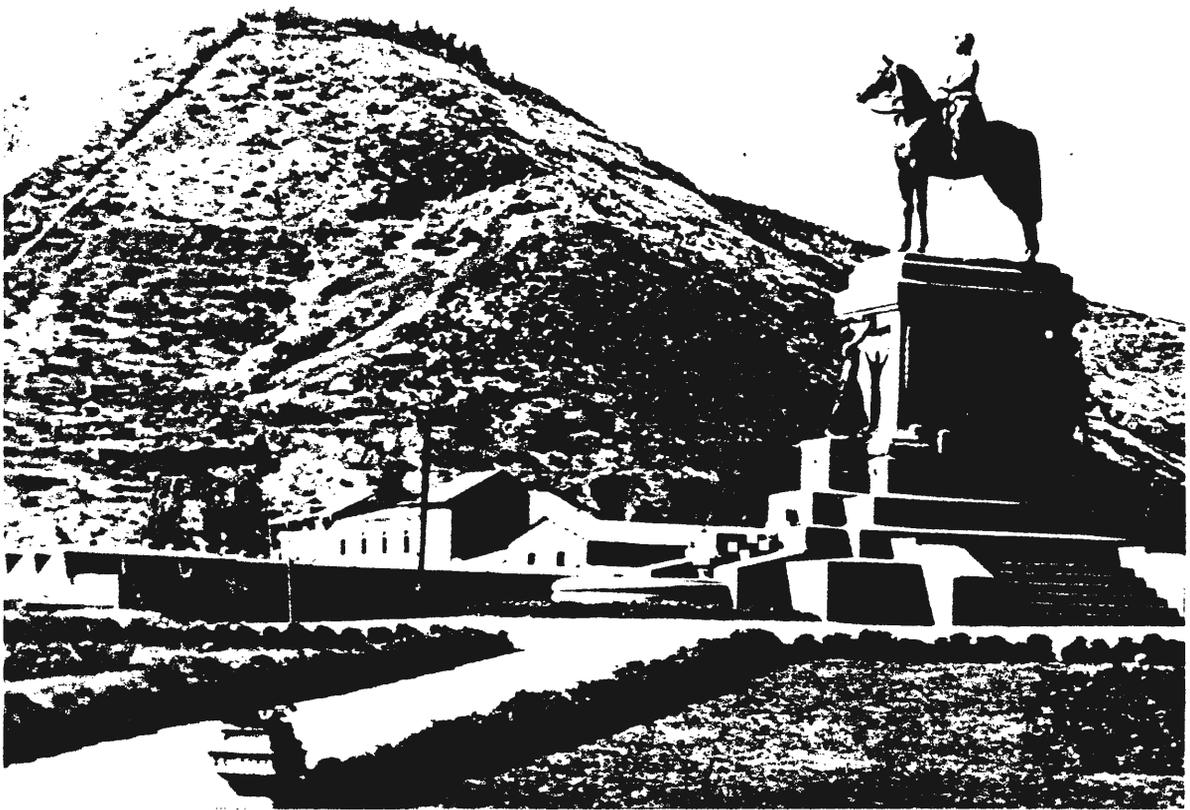
## Summary

Thus, in conclusion, it is possible to summarize the main ideas in the following points:

1. Geography is a deterministic condition, helping to create regionalism, divisions, and identity through formation of landmarks and its qualities.
2. The identity of Chilean social patterns is expressed the physical form of communities.
3. In the city, it is possible to find the most diverse structure of social class, spatial shape, and geographical condition.
4. The geographic pattern present in indigenous culture is the *mountain*
5. The social pattern that defines the structure of this society is *marriage*.
6. The cultural pattern is identified through the *name*.
7. The religious pattern is the *ritual*.
8. The pattern languages are *graphic symbols*.
9. The morphological pattern is the conception of a community or internal colonies.
10. Nature with its geography always will be a metaphorical element included in the design of landscape.
11. The plaza is a design representation of the phenomena of acculturation. The mall is a design representative of the phenomena of globalization. Both designs have been crossed cultural barriers transforming them in a human value.
12. There will always be a conflict between acculturation and preservation of culture if we understand the new as acculturation and the old as preserving culture. For this reason, the identity always is an important determinant factor which will influence the human behaviors and lifestyles.
13. Open space as public space, green space, edge, or center can be greatly influenced by its geographical place. This deterministic condition generates identity and dependence.

## PART II

### ANALYSIS APPLICATION



Cerro San Cristóbal and Plaza Italia, Santiago Chile, 1924

## MATERIALS AND METHODS

### INTRODUCTION

The central problem of this investigation is the assessment of open space in Santiago, which is assumed to be a negative condition, based on the debilitation of public space in the peripheral areas. The periphery contains open space, but it is not conceptualized as a relevant urban component, which can articulate order and a coherent structure. The identification of this problem involves personal interests and personal questions produced as the result of comparing the view of open space design in the United States to the visualization of open space design in the capital of Chile. In addition, the educational background of the landscape design school and an ecological perspective applied from actual design outcomes caused me to investigate existing theories with a view to explaining phenomenon. Therefore, as described in the thesis organization, the literature review is the basis of this research; it contains the concepts to be applied in the analysis of the case studies to derive the final recommendations.

The inquiry involved collecting, analyzing, and applying information gathered from personal observations of existing archival literature, web sites, books, photographs, mental maps, and conceptual diagrams; the inquiry included gathering comparative data, definitions, and a record of historical events to organize a structural framework of ideas and perceptions. This data will be used create or postulate a typology framework which will then be applied in the case studies.

The theoretical framework emphasizes the design and meaning of cultural or artificial landscapes, which are capable of representing landscape and cultural identity. In addition, the framework emphasizes typologies of open space influenced by human images. Using the framework described in the literature review, the three case studies will be undertaken using the following methodological approach indicated below based on the applications of R. L. Viles and D.J. Rosier noted earlier in this study.<sup>134</sup>

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<sup>134</sup> R.L. Viles, D.J. Rosier. *Landscape and Urban Planning* 55. pp 15-27, 2001

1. Assumptions
2. Information and material requirements
3. Data analysis
4. Determination of approach
5. Limiting Considerations

## Assumptions

The first part of the methodology of this investigation is to establish or state the following assumptions, which frame or shape the work. They are:

1. The assumption that open space in the city is cultural landscape. Open spaces express cultural, artistic, social and political time period connotations in their designs involving human responses and events. Open space design represents history (as Rotenberg's interpretation of the gardens of discovery, in Vienna).
2. The assumption that the design of open space should be positive space. Alexander establishes that public spaces should have positive shapes, which are able to influence other functional and social aspects of design. Through the form of open space it is possible to create spaces which are not the vacant lands resulting from urbanization or buildings construction. Elizabeth Meyer also establishes the conceptualization of the ground as landscape design and that open space shape must have hierarchy, patterns, and spatial structure, parameters also applied in architecture design.
3. The assumption that identity of spaces is determined by the patterns of open space. Historical patterns have influenced the design of public open space (plaza) and the creation of green areas surrounding geographic or topographic features has impacted the identity and culture of this region.
4. The assumption that open space is an instrument that controls and generates growth. Conservation of natural areas, the edge, and the green open space typologies are ecological and environmental alternatives to control the growth of the city.
5. The assumption that public open space is a social and cultural necessity. The increased densification of housing patterns and the reduction of the lot size in impoverished

districts in Santiago have resulted in the adaptive use of streets and urban space. Open space also must fulfill the social need for public space outside the private property (spaces of representation and spaces of contact).

## Information and Material Requirements

The second aspect of the method is based on the assumptions and determines the following parameters of identification.

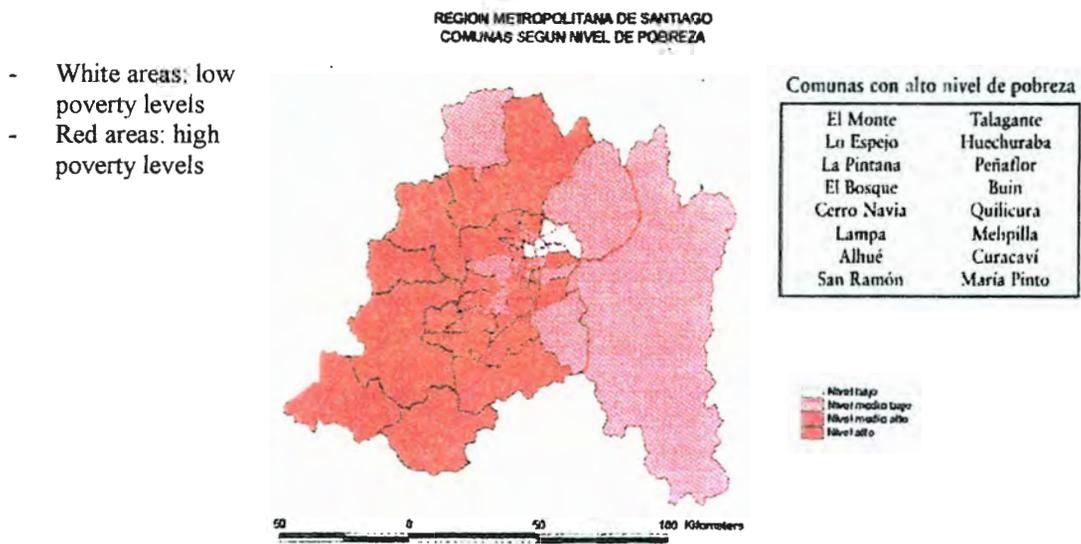
- Identify historical and sectional patterns through the analysis of aerial photographs, from a planner's perspective for the three case studies.
- Identify typologies and the shapes that open space acquire for the three case studies. This process involves spatial classification.
- Center open space recognized as the axis or pole of development.
- Public open space recognized as:
  1. Space of recreation: spaces dedicated to play, sports, and outside activities.
  2. Spaces with historical values
  3. Social and cultural space: spaces as historical plazas, which have a social role in the Chilean structure
- Green open space recognized as the green space valued aesthetically designated as pleasure and recreation.
- Edge open space is residual vacant or neglected space, which produces an impoverished image.
- Identify how social and economic conditions are altering the existing open space. This identification is established through the process of determining the relationship between spatial organization and composition of urban shape design and existing open spaces.
- Identify spatial necessities. This process recognizes the absence or presence of typologies generating neighborhood spatial necessities. Through identification it is possible to reformulate urban design and to create new alternatives of development.

## Data and Analysis

The data analysis applied for the three case studies in this investigation is divided in two sections.

- Theoretical data: The archival data is based on books, references, journal articles, magazines, internet web sites, and photographs.
- Cases studies: The cases studies were selected by their differences in location, social condition and spatial geometry based on the aerial photographs of Santiago (CD. SAF, Servicio Aerofotogramétrico de Chile, scale 1:20,000 meter), topographic maps (Instituto Geográfico Militar of Chile), and the *Estrategia de Desarrollo Región Metropolitana de Santiago 2000-2006*, elaborated by the Department of Regional ministry of Coordination and Planification, and National Institute of Statistics (www.INE.cl).<sup>135</sup>

### Disparidades sociales e inequidades territoriales



Fuente: elaborado en base a datos del IPS, en Diagnóstico Estratégico, Serplac RM. 1998.

**Figure 71. Social and territorial inequities in the metropolitan region**  
 \* Source: Development Strategy of Metropolitan region of Santiago 2000-2006, p.31.

<sup>135</sup> Development Strategy of Metropolitan region of Santiago 2000-2006

## Determination of typologies

The determination of the open space typologies and determination of variables and quality aspects applied in the three case studies was a process divided in four major steps:

- A. Assimilation of main points derived from the first framework part of this thesis.
- B. Analysis of existing conditions using aerial photography of the case studies.
- C. The aerial photographs were divided in four quadrants for analysis, observation, and comparison.
- D. Each a, b, c, d quadrant is analyzed in a matrix comparative of study, which contains a classification of variables considering the following aspects:
  - Geometry
  - Geography
  - Social condition: a know variable defined in the selection of the case study
  - Major pattern of development
  - Typologies of open space as center, public, green, and edge.
- E. Pole of development of open space alternative. Alternatives of open space connection and analysis of pre-existent conceptual models (Stuart, Calthorpe and others included as appendix)

## Limiting Considerations

Scale and place limiting considerations were important variables and they were managed through a general conceptualization of open space. The study contemplated a macro-scale of general inquiry. The analysis of cases studies developed general descriptions, recommendations, pole of development alternative, and conclusions. This work could be developed later at a more deeply detailed level, depending on the scale of the project area, economic resources, and supporting institution.

# **CASE STUDY APPLICATION OF THE THEORETICAL FRAMEWORK**

## **INTRODUCTION**

This chapter discusses the application of the concepts described in the literature review to the three case study sites. The three case studies sites, located in the city of Santiago, were selected based on their social economic status and location. The methodological approach establishes a matrix quadrant, which allows comparison by identifying certain aspects or qualities about each site based on the framework. Therefore, the case studies will consider geometry, geography, social condition, major pattern shape, and identify open spaces based on typology of open space as center, public, green, and edge. The cases study chosen the followings:

1. La Florida and surrounding area
2. Downtown Santiago
3. Providencia and surrounding area

The open space typologies where identified in the case studies following these definition as criteria for all three cases studies:

- Center open space: those zones with major attractive development and economic business areas (presence of mall, skyscrapers, commercial, and services areas).
- Public open space: those areas designated as plazas, centers of housing developments, recognized by regular shape (often square); areas that are designated as for public gathering such as stadiums and sports areas; areas designated for public civic space close to institutional buildings.
- Green open space: those governmental areas designated as recreational areas; areas that are contained in neighborhoods created as community green spaces; green areas designated as aesthetic resources without a broader functional use, such as areas of grass and trees in front of fences on private property, or areas of grass and trees dividing the pavements of streets, roads, and highways.

- Edge open space: those areas of neglected, residual or leftover spaces produced by edges spaces between residential areas (including suburbs) and the central urban core; edges produced by urban infrastructure; areas that are irregular or vacant lots close to industrial areas; areas that are edges between urban and rural land; undeveloped areas close to natural features.

### First case study: La Florida and Surrounding Area

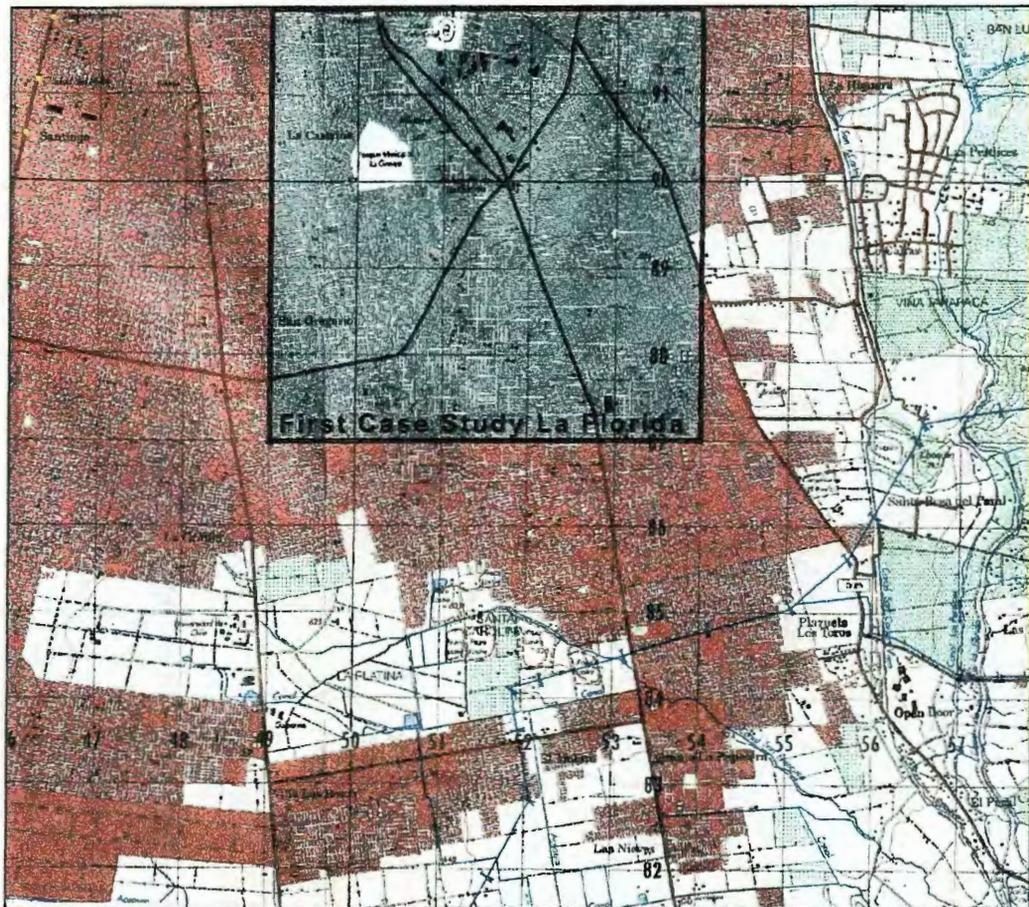
The first case study analyzes an area which incorporates two communes or district regions of Santiago: La Florida and La Granja. La Granja is an impoverished district and La Florida shares with La Granja a diverse neighborhood and social economic status. The principal natural limit is the mountains to east, and at the edge, the land use mixes agricultural and housing patterns with more expensive neighborhoods, bigger lots, and less density. La Florida is the community containing the major population of Santiago. However this region is not consolidated as a work center; therefore, the major daily transportation patterns lead to and from other areas of Santiago.

Thanks to two big interventions, La Florida has generated an interesting urban development. The first intervention was a mall, which is shown in figure 61 as the center of the square gray area. The mall produced an increase in urban development and growth because it established a new pole of development. The second intervention was the addition of a new metro stop, which has its terminal in the mall.

These major interventions generated an increase in land values, and an increase in building density, changing the face of this district. The predominant housing pattern structure is recognized as a medium low status housing for the working class, with small lots which include open spaces which could be described as vacant, residual, minimal, and neglected. The predominant pattern of houses is interrupted by these minimal empty spaces with a notorious lack of streetscape and landscape design. On the other hand, there is a large intercommunal park, which is shared by both La Granja and La Florida. However, in this high-density area, the population does not have efficient or expedited access because it is an isolated space disconnected from principal roads. For these reasons, this first case study is a

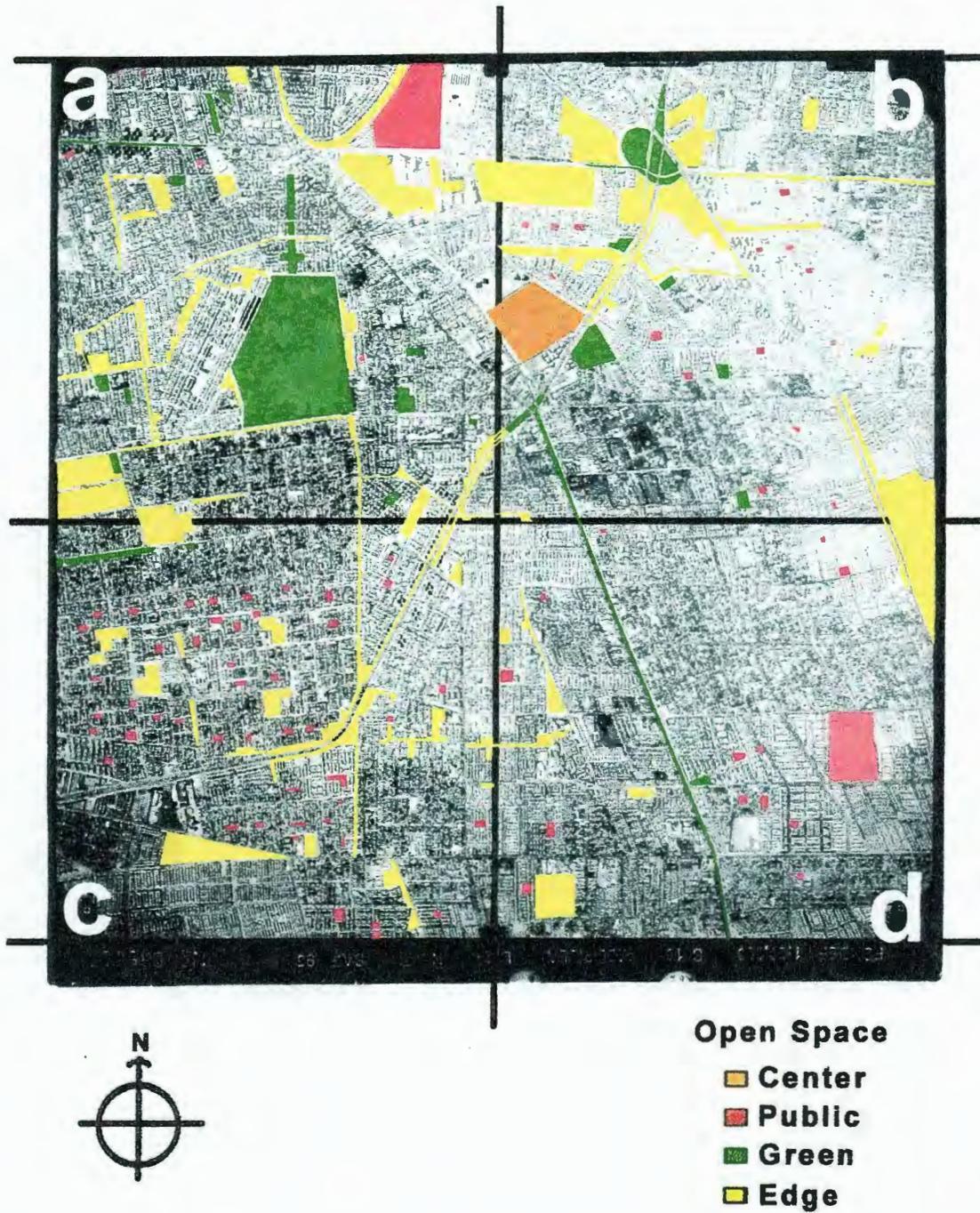
good example for analysis because in this area many social and economic interactions could improve this new economic impulse produced by the mall and transportation if a coherent plan emphasized the amelioration of the edge condition as a connector network corridor of center, public and green open space.

### First case study



**Figure 72. Santiago topographic map**  
 \* Source: Instituto Geográfico Militar de Chile

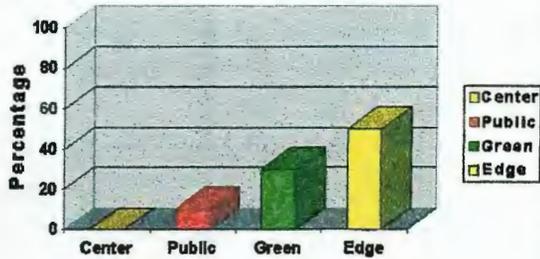
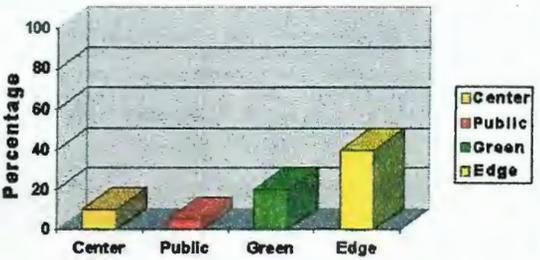
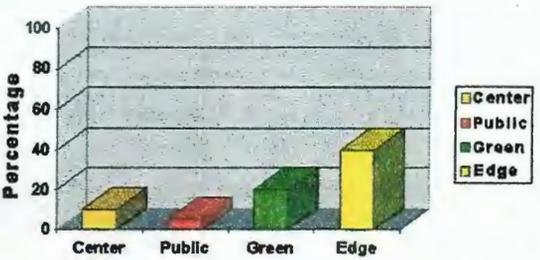
## Section la Florida and surrounding areas



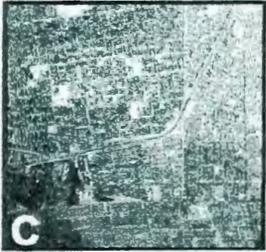
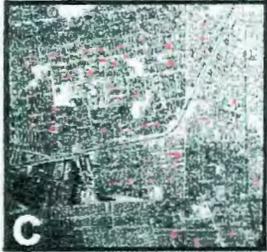
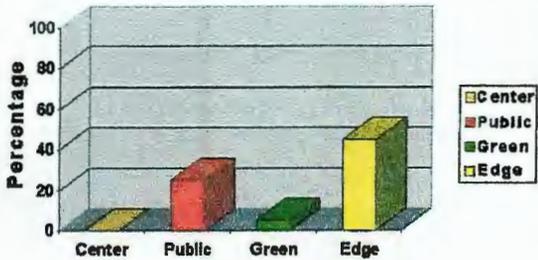
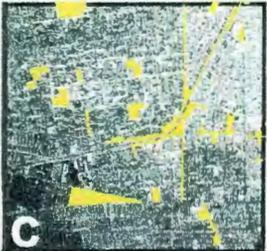
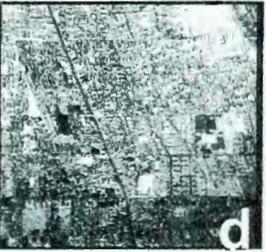
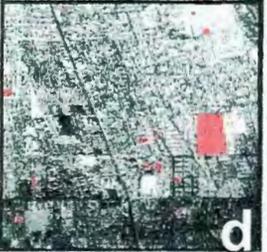
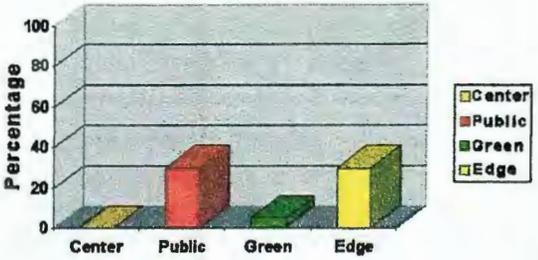
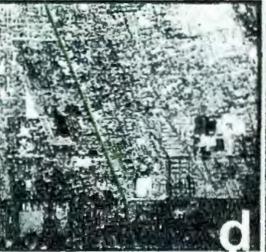
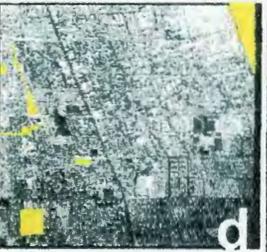
**Figure 73. Santiago south sector aerial photography**

\* SAF. Servicio Aéreo Fotogramétrico de Chile

**Table 7. Quadrant a and b**

<b>Geometry</b>	Irregular and disorganized		
<b>Geography</b>	Plane		
<b>Social Condition</b>	Medium, low income group		
<b>Major pattern</b>	Housing development recognized for a small lot		
<b>Center</b>	Absent presence		
<b>Public</b>	Positive and regular shape		
<b>Green</b>	Central and irregular		
<b>Edge</b>	Negative, linear, and residual		
			
<b>Geometry</b>	Irregular and disorganized		
<b>Geography</b>	Plane		
<b>Social Condition</b>	Medium, low income group		
<b>Major pattern</b>	Housing development and mall commercial areas		
<b>Center</b>	Pole of development		
<b>Public</b>	Positive, regular shape, and disperse		
<b>Green</b>	Randomness		
<b>Edge</b>	Negative, clustered, and residual		
			
<b>Geometry</b>	Irregular and disorganized		
<b>Geography</b>	Plane		
<b>Social Condition</b>	Medium, low income group		
<b>Major pattern</b>	Housing development and mall commercial areas		
<b>Center</b>	Pole of development		
<b>Public</b>	Positive, regular shape, and disperse		
<b>Green</b>	Randomness		
<b>Edge</b>	Negative, clustered, and residual		
			

**Table 8. Quadrant c and d**

<b>Geometry</b>	Irregular and disorganized		
<b>Geography</b>	Plane		
<b>Social Condition</b>	Medium low income group		
<b>Major pattern</b>	Housing development recognized for a small lot		
<b>Center</b>	Absent presence		
<b>Public</b>	Positive with regular shape		
<b>Green</b>	Linear		
<b>Edge</b>	Negative and residual		
			
<b>Geometry</b>	Irregular and linear		
<b>Geography</b>	Plane		
<b>Social Condition</b>	Medium low income		
<b>Major pattern</b>	Housing development recognized for a small lot		
<b>Center</b>	Absent presence		
<b>Public</b>	Positive and regular shape		
<b>Green</b>	Linear		
<b>Edge</b>	Negative border and rural condition		
			

## Deductions

The four-quadrant matrix analysis of La Florida and its surrounding areas illustrates the following deductions:

1. Housing development represents the major land use pattern in low-income neighborhoods, recognized by small lots, high density, and unclear geometry.
2. Green space infrastructure is deficient, there is lack of planning and landscape design, and the green space uses linear shapes as edge spaces between roads infrastructure.
3. Open space acquires a negative condition in this area because of the amount of neglected and vacant areas (a factor which facilitate the increase of delinquency and visual deterioration of spaces).
4. Edge open space is a residual space from urbanization. This is an incremental factor in low-income neighborhoods. These spaces could transform and connect open space creating urban corridors.
5. Plazas, popular stadiums, and the center space of neighborhoods form public space. The central public space pattern design is an interesting spatial condition for further studies. Quadrant c indicates the relationship between shape and function; for this reason, I considered the public open space as a positive space (figure 74).
6. There is a strong absence of open center spaces of revitalization and amelioration of economic neighborhood conditions.
7. Rural land is disappearing and the slopes of the mountains are changing land use to create housing developments.



**Figure 74. Quadrant c, Public space**  
\* SAF. Servicio Aéreo Fotogramétrico de Chile

## Second Case Study: Downtown Santiago

This second case analyzes the historic area of the downtown. This area concentrates around 250,000 inhabitants and it represents the center because of the economic and political power symbolized there.

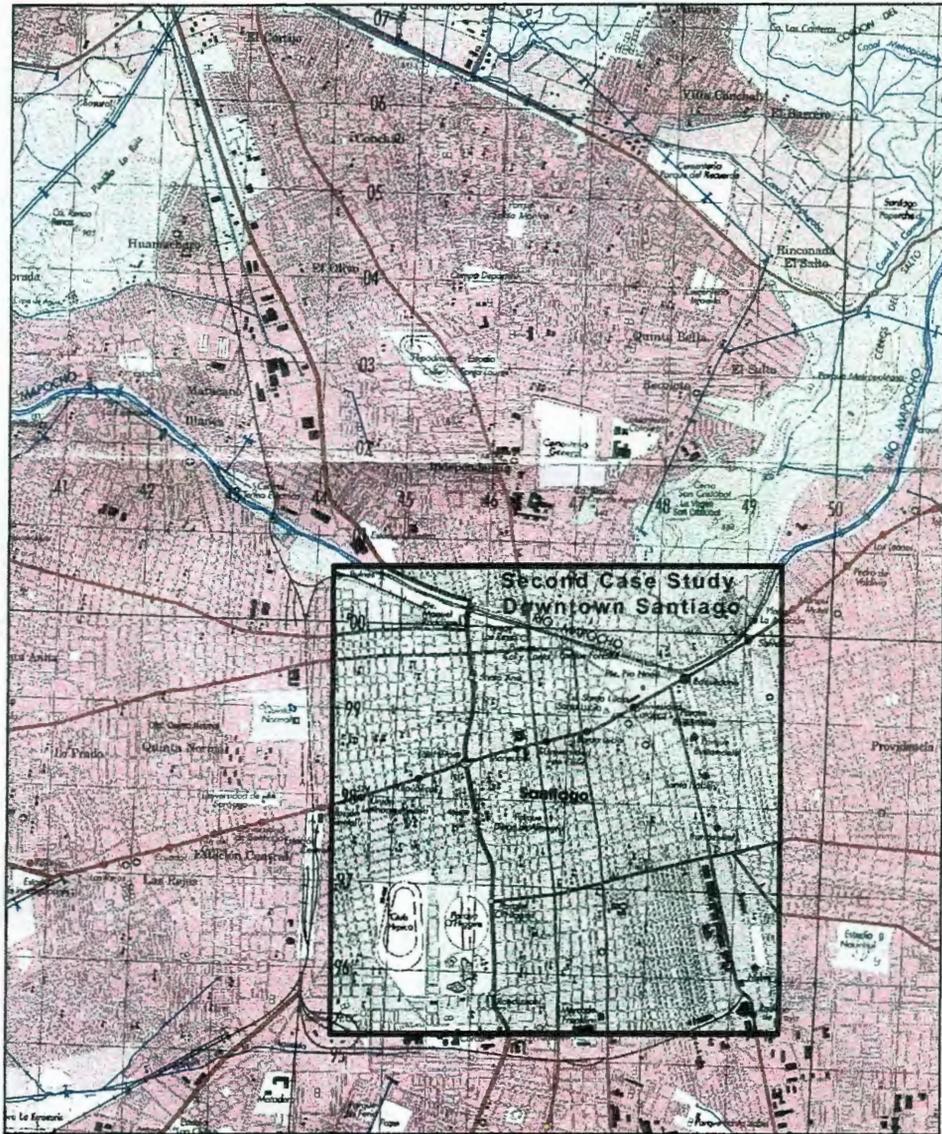
Before the 1990s this area was very deteriorated, especially towards the west, because of the migration of the population to other areas of the city (particularly to the northeast). Currently, the government has decided to implement a revitalization plan for the downtown as an answer to this process. The revitalization was implemented by lowering of land cost values and taxes for private housing enterprises, private universities, and educational institutes and encouraging the rehabilitation or reuse of historic buildings as an incentive for creating new housing developments with commercial areas around the historic neighborhood.

A large student population has helped to support these neighborhoods. The results at this time have been very successful and the downtown population has increased in terms of older and younger residents because of the existing infrastructure close to the houses and apartments, and the consequent lower demand for auto use as a necessary means of transportation.

In addition, downtown contains the major cultural spaces and resources for the city such as museums, theaters, and galleries, which are a service for all Santiago. One difference in between the downtown and the previous case study is that the edge of the downtown open space is produced by vacant lands or abandoned impoverished neighborhoods, or by industrial sites.

One possible alternative or improvement the actual condition would be to identify these spaces with the goal of transforming them into more green areas, prioritizing the acquisition of those that would allow the city to create a connection between the exiting plazas. This would be an opportunity to create a more functional and easily identifiable pattern of open space in Santiago. In addition, there is a need to contemplate streetscape design to include more trees and pedestrian circulation to support the development and increased numbers of people and density.

# Second Case Study



**Figure 75. Santiago central topographic map**

\* Source Instituto Geográfico Militar de Chile

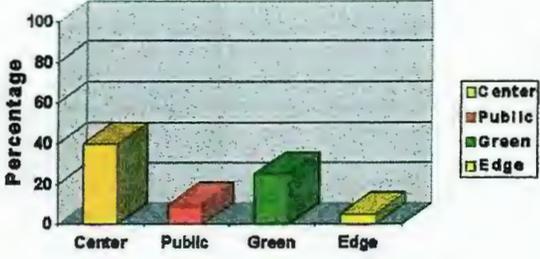
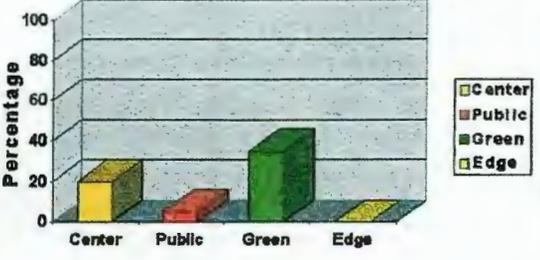
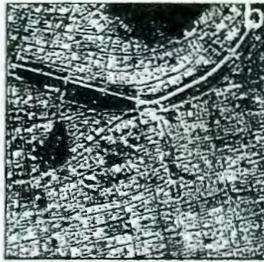
# Section Downtown Santiago



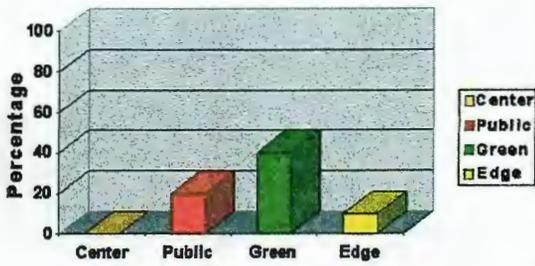
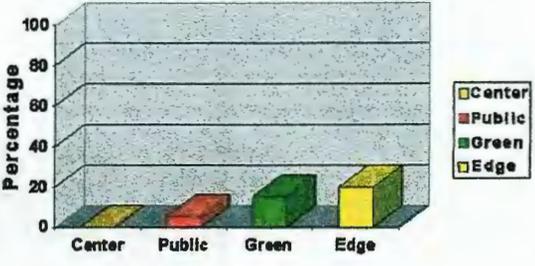
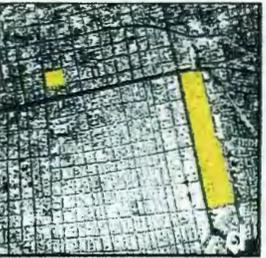
- Open Space**
- Center
  - Public
  - Green
  - Edge

**Figure 76. Santiago central sector aerial photography**  
\* SAF. Servicio Aéreo Fotogramétrico de Chile

**Table 9. Quadrant a and b**

<b>Geometry</b>	Regular cuadrícula												
<b>Geography</b>	River-Valley												
<b>Social Condition</b>	Medium mixed income group												
<b>Major pattern</b>	Commercial housing development and cultural institution												
<b>Center</b>	Historic triangle pattern												
<b>Public</b>	Plaza squares												
<b>Green</b>	Edge linear shape												
<b>Edge</b>	Negative and road residual												
 <table border="1"> <caption>Bar Chart Data (Top Section)</caption> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Center</td> <td>45</td> </tr> <tr> <td>Public</td> <td>15</td> </tr> <tr> <td>Green</td> <td>30</td> </tr> <tr> <td>Edge</td> <td>10</td> </tr> </tbody> </table>		Category	Percentage	Center	45	Public	15	Green	30	Edge	10		
Category	Percentage												
Center	45												
Public	15												
Green	30												
Edge	10												
<b>Geometry</b>	Regular cuadrícula												
<b>Geography</b>	Valley												
<b>Social Condition</b>	Medium income group												
<b>Major pattern</b>	Commercial and high buildings												
<b>Center</b>	Historic triangle pattern												
<b>Public</b>	Plaza												
<b>Green</b>	Linear edge shape-vacant abandoned												
<b>Edge</b>	Absent presence												
 <table border="1"> <caption>Bar Chart Data (Bottom Section)</caption> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Center</td> <td>25</td> </tr> <tr> <td>Public</td> <td>10</td> </tr> <tr> <td>Green</td> <td>45</td> </tr> <tr> <td>Edge</td> <td>5</td> </tr> </tbody> </table>		Category	Percentage	Center	25	Public	10	Green	45	Edge	5		
Category	Percentage												
Center	25												
Public	10												
Green	45												
Edge	5												

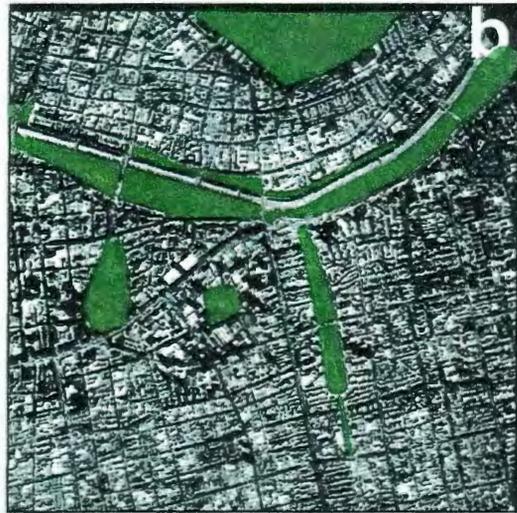
**Table 10. Quadrant c and d**

<b>Geometry</b>	Cuadrícula		
<b>Geography</b>	Valley		
<b>Social Condition</b>	Medium income group		
<b>Major pattern</b>	Housing and commercial buildings		
<b>Center</b>	Absent presence		
<b>Public</b>	Regular specialized		
<b>Green</b>	Regular and connected shapes		
<b>Edge</b>	Vacant land and regular shape		
			
<b>Geometry</b>	Regular cuadrícula		
<b>Geography</b>	Valley		
<b>Social Condition</b>	Medium -low group		
<b>Major pattern</b>	Housing development		
<b>Center</b>	Absent presence		
<b>Public</b>	Plaza and minimal condition		
<b>Green</b>	Linear and street edge condition		
<b>Edge</b>	Deteriorating industrial land		
			

## Deductions

The four-quadrant matrix analysis of Downtown Santiago and surrounding areas; I drew the following deductions:

1. This area concentrates the major central open space area, generating economic value, and other public spaces. A consolidated center area generates positive open space because the interaction between the unbuilt and built is in balance. The public space hierarchic institutional buildings and architecture at the time that they establish social aspect necessities for people.
2. The plaza, which is the major central open space, is the symbol of culture, history, and socialization. This section area presents a clustered center within the *cuadrícula*, which organize the structure of the open space.
3. The area does not present spatial fragmentation and irregular shapes, a major difference with the previous case study.
4. The center generates green space attraction. It has linear shapes and usually answers to natural spaces with the characteristic of being functional and aesthetic spaces. Green spaces are not found close to the periphery in this area.
5. Economic development is directly proportional to the quantity of open space.
6. Open space still has not provided or achieved a visual connection with the city and the designed public spaces in the neighborhoods.
7. The existing open space has had an historic connotation, especially the public space that represented society and Chilean customs.



**Figure 77. Quadrant b, Santiago green space**

8. The Mapocho River is the axis of the existing green open space. Quadrant b shows how the river and the hill organize the structure and shape of the green space; these areas have a more aesthetic function and passive role than recreational (figure 77).

### Third Case Study: Providencia and Surrounding Areas

Providencia and the northeastern sector are areas with evolving commercial and economic development focus. This sector contains the wealth of Santiago, and it is home for the high-income population. The axis of the street Providencia (also the name of this region area) generates commercial, residential and pedestrian connections to other areas of the eastern sector. The population of Providencia is today 107,098 inhabitants.

The economic wealth created and developed urban progress in all the areas including streetscapes, landscape design, and the apparent order in urban planning which is absent in other communal districts. Additionally, large residential lots found in other sectors of the capital allow for front and backyards, especially in areas closer to the river and closer to the mountains. In the commercial areas, tall buildings and condominiums offer safety and security that poor districts do not have. The highway, educational, sports, and recreational infrastructure is more extensive and in better condition. The spatial geometry of neighborhoods is regular and organized around visual quality and infrastructure implementation needs. Architecture in this sector has a homogeneous character and it is easy to recognize the hierarchical identity of spaces because most of the urban places are designed.

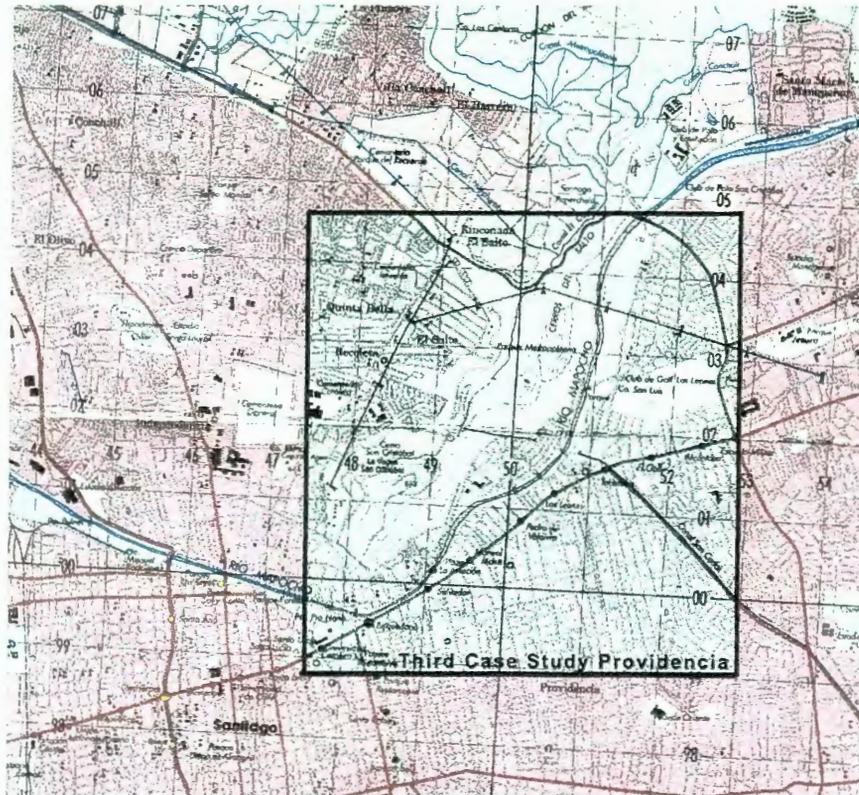
Private place use and individuality replaces public or shared space use, a condition which is the inverse of low-income districts. Open space at the edge condition does not exist. In relation to the application of the typologies, this is the most distinguishing character that differentiates this sector from the previous case studies.

In addition, the aerial photograph also shows the San Cristobal Hill and the Mapocho River disconnect Providencia from the Nonwestern sector of Santiago and surrounding areas. The geometric pattern changes immediately to the small lot with major residual edge space. The hill is a natural limit or boundary that bifurcates the city. Developed as a recreational

space its eastern slope offers extremely different aspects than its Western face. The differences are radicals the Western slope features again the small lot and the increase of edge condition accompanied with the disappearance of green space.

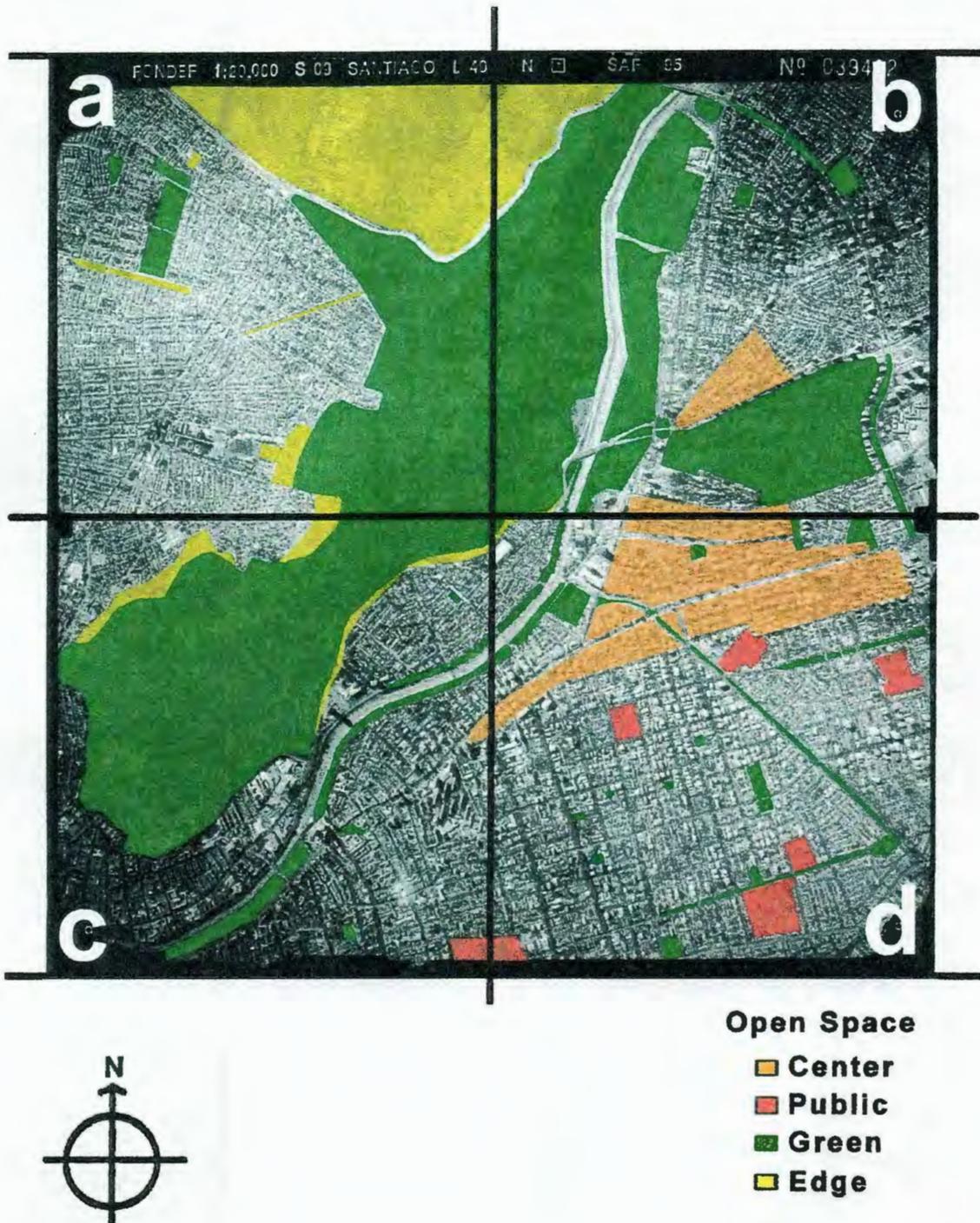
While this area may exhibit the least "problems," alternatives for improvement of the existing situation would be to increase the public spaces connected by green areas with the possibility of creating pedestrian circulation around them; interconnecting services, commerce, and housing development reducing reliance the car; and increasing the open space on the western face of the hill ameliorating the condition of this sector.

### Third Case Study: Providencia and Surrounding Areas



**Figure 78. Santiago Northeast topographic map**  
\* Source Instituto Geográfico Militar de Chile

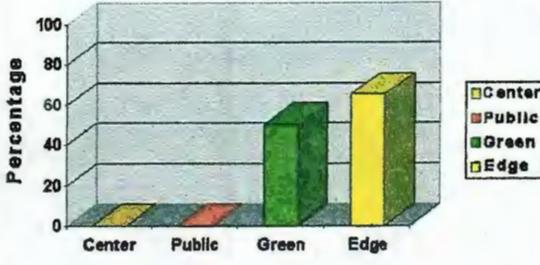
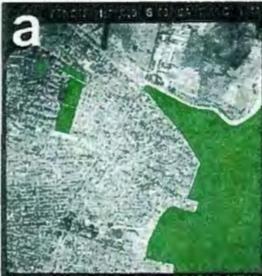
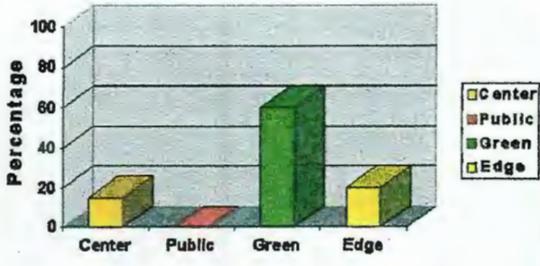
## Section Providencia and surrounding area



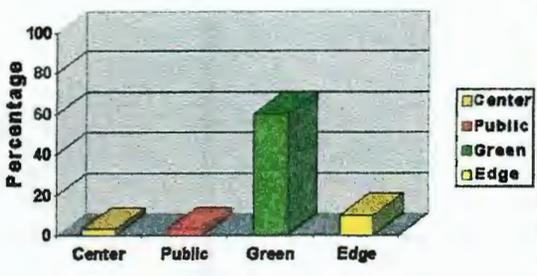
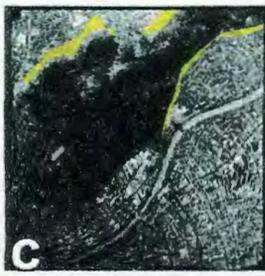
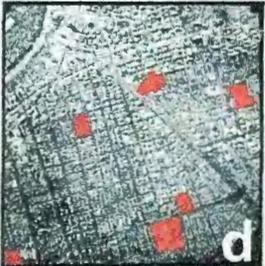
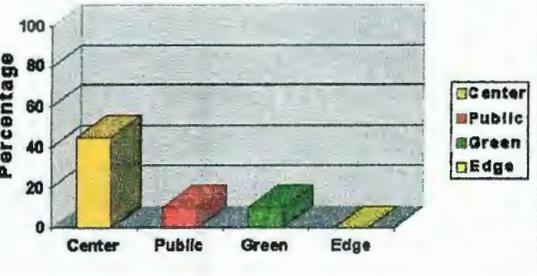
**Figure 79. Santiago Northeast sector aerial photography**

\* SAF. Servicio Aéreo Fotogramétrico de Chile

Table 11. Quadrant a and b

<b>Geometry</b>	Regular		
<b>Geography</b>	Valley		
<b>Social Condition</b>	Low income group northwestern sector		
<b>Major pattern</b>	Housing development recognized for a small lot		
<b>Center</b>	Absent presence		
<b>Public</b>	Absent presence		
<b>Green</b>	Irregular and natural limit		
<b>Edge</b>	Negative and residual		
			
<b>Geometry</b>	Regular cuadrícula with and radial tensions		
<b>Geography</b>	Valley		
<b>Social Condition</b>	Medium, high income group		
<b>Major pattern</b>	Commercial, high buildings		
<b>Center</b>	Clustered and geometric		
<b>Public</b>	Absent presence		
<b>Green</b>	Irregular natural limit and clustered		
<b>Edge</b>	Negative and border hill condition		
			

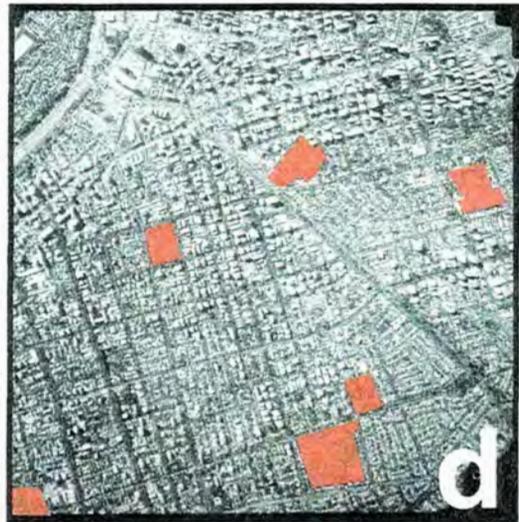
**Table 12. Quadrant c and d**

<b>Geometry</b>	Regular and radial		
<b>Geography</b>	Valley		
<b>Social Condition</b>	High income group		
<b>Major pattern</b>	Housing and commercial buildings		
<b>Center</b>	Absent presence		
<b>Public</b>	Absent presence		
<b>Green</b>	Natural limit		
<b>Edge</b>	Negative and hill residual spaces		
			
			
<b>Geometry</b>	Regular cuadrícula and tensional configuration		
<b>Geography</b>	Valley		
<b>Social Condition</b>	High income		
<b>Major pattern</b>	Commercial buildings and housing development		
<b>Center</b>	Clustered linear axis configuration		
<b>Public</b>	Regular and more concentrated		
<b>Green</b>	Regular and linear		
<b>Edge</b>	Absent presence		
			
			

## Deductions

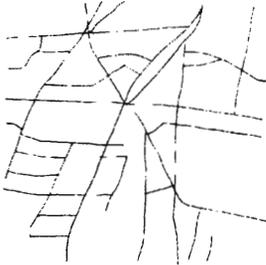
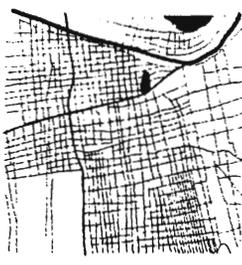
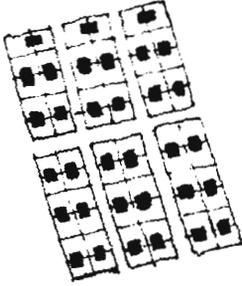
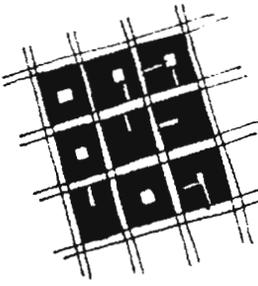
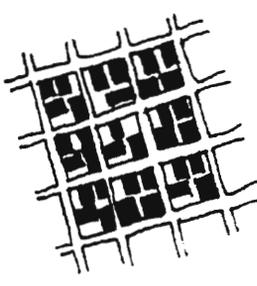
The following deductions can be drawn from the four-quadrant matrix analysis of Providencia and surrounding area.

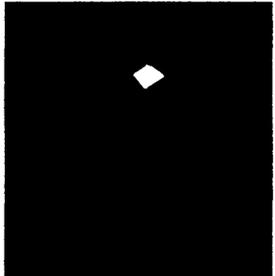
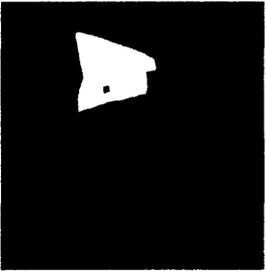
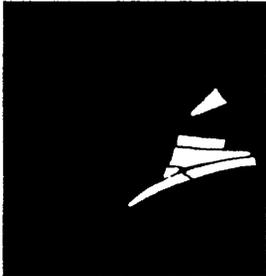
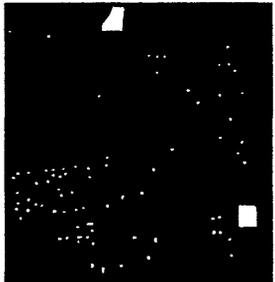
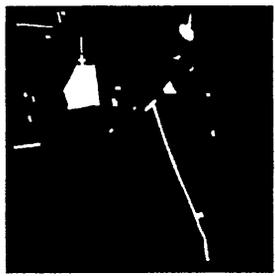
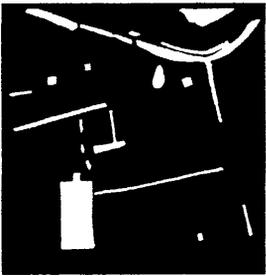
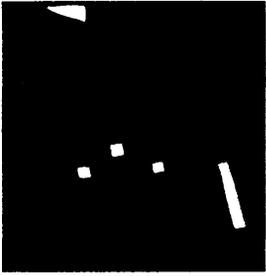
1. The commercial area generates a linear axis of development. The tall buildings and housing development are the major pattern surrounding this central axis. The geometry recognizes the *cuadrícula* as a structural element.
2. Green space is developed in a consistent way in streetscapes, parks, and natural limits, such as the slope of the mountain and the edge of the Mapocho River.
3. Open space acquires a positive condition because it has an aesthetic characteristic, which improves the visual quality of neighborhoods. Open space areas are controlled and there is a connection between them.
4. Edge open space in quadrant c and d is minimal. It is only present in the slope of the hill, responding to the high-income sector. However, in the northwest face area of San Cristobal Hill a low-income situation generates a major edge space, especially along boundary limit between the rural and urban areas.
5. There is major concentration of public space created through by private clubs, plazas, and popular stadiums. However, the social insecurity answers to the pattern of condominiums incorporating public space into private property.
6. The San Cristobal hill is a natural feature designated for recreational area that represents the major difference with the other case study. The presence of the hill delimits the eastern sector, protecting and separating it from lower income sectors. It also gives nearby neighborhoods the perception of large green open space.



**Figure 80. Quadrant d, Northeastern public space**

Table 13. Summary comparison table between cases studies.

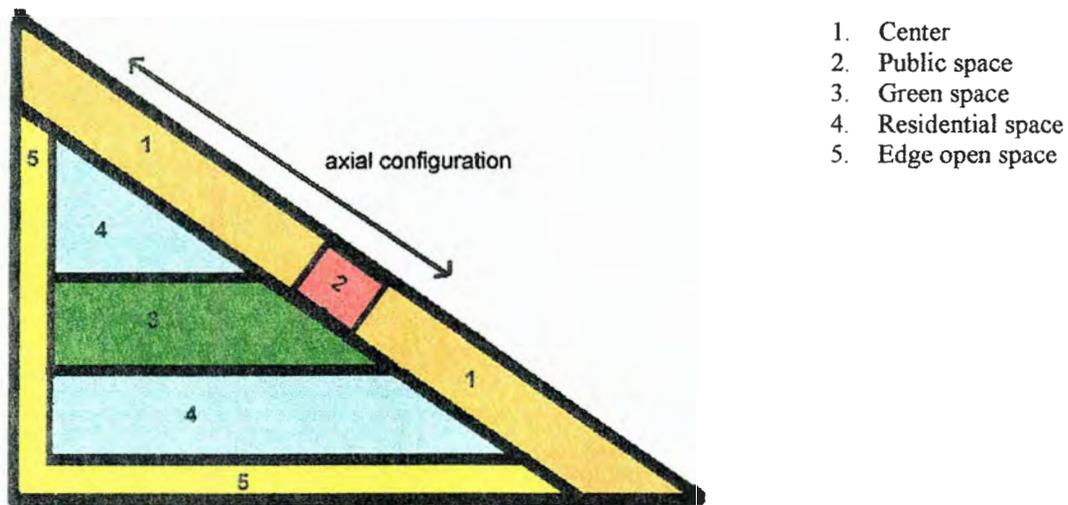
Qualities aspects	La Florida and surrounding area	Downtown Santiago	Providencia and surrounding area
<b>Geometry</b>			
<b>Geography</b>	 Development Mountain	 River Development	 Hill River Development
<b>Social condition</b>	Medium low income group	Medium income group	High income group
<b>Major pattern development</b>			
<b>Major pattern typology of open space</b>			

Typologies of open space	La Florida and surrounding area	Downtown Santiago	Providencia and surrounding area
Center			
	Mall	Business and commercial area	Surrounding principal streets and axial shape
Public space			
	Surrounding housing developments	Surrounding center	Surrounding housing developments
Green			
	Close to mall center area	River green axis	Big recreational area linked with river axis
Edge			
	Residual and fragmented	Specific locations	Linear shapes surrounding the hill

## An alternative of Open Space Pole of Development

Based on the previously presented research I can postulate an alternative model of open space design that could be proposed for Santiago. The design I believe would improve the following quality aspects: networks between spaces, hierarchy, and organization in new or deteriorated areas. This figure is based in the conceptualized historic triangle and new center areas.

From the previous concepts applied to designs, it is possible to conclude that the shape of open space is important, as is its structured network or relationship to other open spaces. My study indicates that an open space network must contain a center, public spaces, green spaces, and edge open space for whole city sections.



**Figure 81. Diagram of Open Space Pole of Development**

I proposed a new basic alternative model called of *Open Space Pole of Development*. It is should based on the historic shape and the new shape of area centers. The triangle is the historic and modern representation of the spatial geometry of Santiago's centers that could create positive open space.

In this triangular configuration, the center should have an axis configuration generated by the edge of the hypotenuse and should include public spaces, i.e. the traditional plaza. The center should economically support the others spaces by containing commercial and services. Green space with characteristics of a super park (Stuart, 1971) should accompany the center to absorb its intense mobility and act as a transition space to the residential area. The clustered residential area should be surrounded by edge space visualized as a boulevard or buffer area. The buffer area represents the transition space between residential areas and other development areas. The peripheral edge space acquires a positive character connecting through the perimeter with the other spaces. This basic design can explore variables and adapting diverse scales and densities, but the concept principle which emphasize this diagrammatic configuration and the objective is to unify the open space typologies in a single concept.

## Open Space Pole of Development

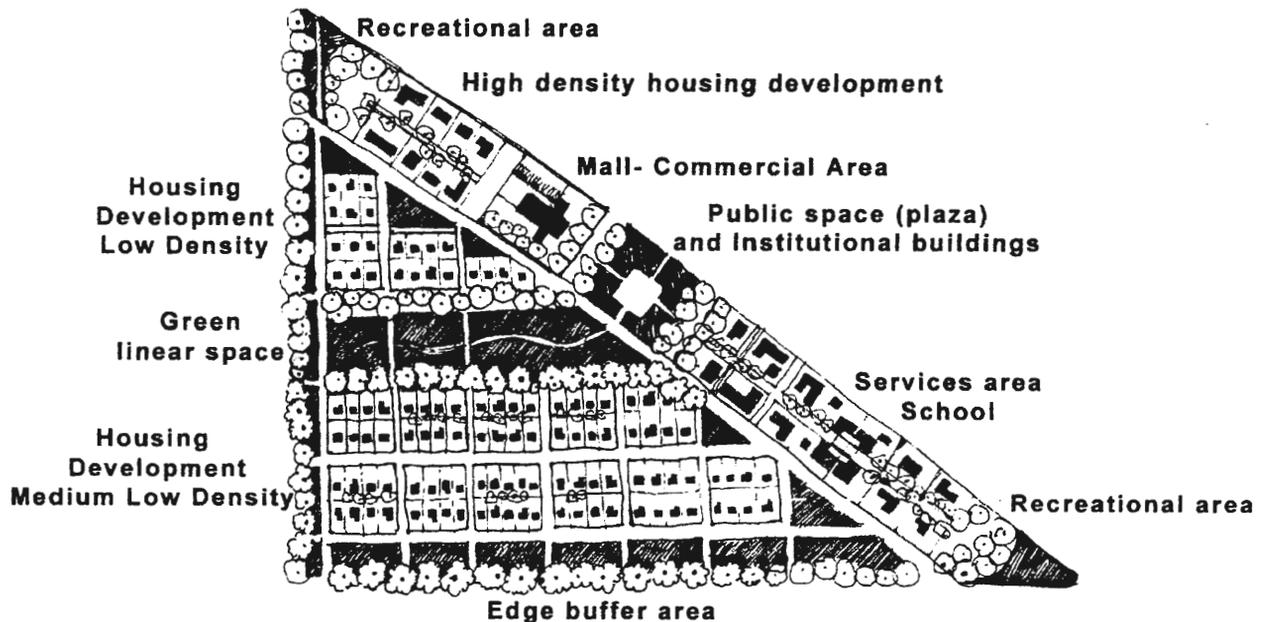


Figure 82. Alternatives use

## GENERAL CONCLUSIONS AND RECOMMENDATIONS

The design of open spaces is a cultural and social necessity in Chile. The analysis of the cases studies from a macro-scale perspective magnifies the social necessity of open space, especially in impoverished districts where the lot size is small as a product of an intense densification. This condition has caused streets and other urban spaces to be adapted for public use. Through the analysis of the three case studies was possible to deduce that the development of open space is directly proportional with the evolution of economy, culture, and society and the analysis of open space manifest or reflect these aspects.

All the open space typological examples presented in this study should be considered within future developments and should be consolidated within the existing city. Undeveloped countries have high levels of poverty and glaring inequities within between social classes. Santiago presents the same problems and the inequity is expressed plainly in the spatial and open space configurations of the city.

The first case study (La Florida and surrounding area) shows that the extent of vacant land or edge open space is highly superior, in comparison with the other two cases. This condition of edge and neglect open space I could speculate is still more increased in extreme impoverished areas towards the south of Santiago.

In addition, the development and maintenance of open space in peripheral areas of the metropolitan region and the maintenance will depend upon strong support program of education generated by government and private sectors of the Capital involving community participation.

Therefore, the improvement of the existing conditions and alternatives depends on recognition of the problems caused by the lack of vision and understanding of the importance of open space as a community resource. A social consciousness seems lacking because there has been an intensification of improvements in a few of the areas of the Capital, while in the others, poorer areas suffer from neglect.

There are many possibilities for the amelioration of these conditions, ranging from neighborhood programs for the rehabilitation of plazas and centers to macro-regional studies in the creation of new suburbs.

## **Scale of analysis**

The scale is a major factor to consider in the planning of open space. This study contemplated a macro-scale and four quadrants of analysis for each study area, and the primary database was aerial photography. However, an increased resolution generating a small grid will present another scale of analysis or a micro-scale that will reveal more particular and site specific information. A new analysis could generate other background elements for each typology product of a major detail and observation.

## **New philosophy**

There are plenty of urban spaces in the city without memory and without function. A new perspective should plan for positive open space, re-established its real function as the place of entertainment, public representation, pleasure, recreation, design, and cultural significance. The culture is affirmed when the space itself creates a spatial memory in the inhabitants. The structure of culture could be achieved through a network imagined across a continuum of landscapes, transcending, limitations of culture/nature and artificial/ natural. Additionally, new housing developments must contemplate open space design as primarily element including the four typologies following this interpretation:

Center open space: The area that incentive the economic development and support the other open space typologies and housing development.

Public space: space of representation and contact for citizens.

Green open space: the aesthetic space of recreation and pleasure.

Edge open space: the buffer area or intermediate spaces between urban spaces with a principal ecological function (Spirm 1996).

## **Economic priority and culture**

Economic factors of course limit the implementation of plans, strategies, and improvements. In times of crisis, a design problems seem secondary to a variety of

transcendent economic problems. However, in this thesis interpretation, the development of open space catalyzes neighborhoods and economic development. Government programs have implemented the creation of new parks in peripheral areas, but the success of these spaces depends as well on the physical network which impacts the historical, economic and social meaning of each sector. Commercial and services areas transform the negative character of open space to positive resource when the economic impulse generates the amelioration of urban spaces. Community improvement through thoughtful open space planning is a strategy requiring sustained commitment and support.

In the United States, each typology of open space is able to be singular and strong, and the network between spaces is established through green spaces conceptualized as public spaces. Chile, with its historic Spanish influence on its urban form, needs to transcend cultural frameworks which limit the realm of "public " space to the traditional plaza. Green spaces have an essential " public" role as well. The maintenance of green spaces is a cultural issue. In developed countries, open space design is a cultural indicator, and each typology is sustainable from a macro-perspective. This is a difference from the Chilean case where the typologies need to work together to strengthen organization and shape.

### **General conclusions about the cases studies:**

La Florida has major economic problems which are expressed in all its physical qualities and conditions. The housing pattern is fragmented and dense. The existing open space is disconnected and there has not been established any link between housing patterns and related services areas. The edge typology is what determines the major difference between La Florida and other areas, because this condition is diminished in Downtown Santiago, and Providencia and surrounding area.

The Downtown center is clearly the historic example of open space;, it presents public spaces as the essential typologies in part because of its historic meaning. The center has its fixed geometry, which is distinctive and clear. Open space articulates and surrounds the area, which is built up in terms of civic hierarchical which relates to the center. The link between existing open spaces and the spatial overall configuration is unique, not to be found in any

other space of Santiago; it contains all four typological examples of open space. However they are present, a greater connection between them would emphasize the Downtown's special historic and shape characteristics.

Providencia (and surrounding area) by contrast contains major typological examples of green space, and these spaces establish connections with public and center open spaces. The green space also recognizes a linear shape identity, which is the most typical common place Santiago open space design. The spatial configuration of this area is influenced by the existing Mapocho River and San Cristóbal Hill, which are notables landmarks of the capital.

## **Recommendations**

The following statements are principal considerations in the creation, design, and planning of open space in Santiago.

1. There is a dichotomy between the laws and their application. The *Ley General de Urbanismo y Construcciones* (Manual Laws of Construction in Chile) should define in detail concepts and coordinate landscape design application for diverse scales of spaces, including streetscapes. The laws should clarify the percentage and shape and other qualities of green public areas for development. In addition, each Municipality should design a General Master Plan for its sector for open space focusing on new housing developments and the rehabilitation and incorporation of open space in the existing areas.
2. The design of these spaces should establish various scales of open space creating a network linked to actual infrastructure, such as schools, churches, services, and commercial areas with housing areas. The link could be produced through nodes or intercommunal centers, generating a system of open space that connects the neighborhood open space with a metropolitan network open space design.
3. Open space should have a distinct landscape design depending on social conditions, especially to provide security and safe use of open space. The design should address neglected spaces in impoverished areas, and should address the control and maintenance of public spaces in order to strengthen to inhibit deteriorate the visual quality of

neighborhood. The landscape design should be capable of offering alternatives for design depending on social and cultural conditions.

4. A deeper analysis should consider the following factors in the determination of new cultural open space areas: density, population, distance, proximity, vehicular flow, access, growth, cost, social classification, cultural development, and geographic condition.
5. Open space planning and design should become a new community impulse in the government programs generated by the Housing Ministry as "Chile barrio" (neighborhood Chile) and the "Programa de Parques Urbanos" (urban parks program). The government could establish pilot areas for testing of the application of these typologies and the creation of network open space involving community participation.
6. Community participation is the essential requirement when addressing open space design in low-income districts. Participation can provide education regarding the understanding of public spaces as part of the community, benefiting people and society at all levels in a number of ways.
7. Finally, and perhaps most importantly, open space has an ecological function in protecting the environment. Pollution and contamination in Santiago is a serious problem. Automobiles and urbanization have increased the environmental problems, principally during cold weather. In this manner, green spaces and buffer areas are solutions which improve environmental health by enhancing air and water quality, which in turn benefits the health of all citizens.

## Questions

Finally, this study suggest further questions and possibilities for continued research:

- How can a finer-resolution study be conducted, such that it yields more useful and particular data about the potential for open space as a community resource?
- How can the open space typology established in this study be applied and "tested" in Santiago neighborhood?

- How can appropriate scales of open space be determined, considering land costs and economic constraints?
- How do Santiago citizens perceive their open spaces? What values do they place on open space as community resource?
- What factors or processes act to diminish open space in Santiago?
- What special circumstances influence the design and planning of open space in impoverished neighborhoods?
- How should particular aspects of Chilean culture and geography influence the planning and design of open space networks?

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## APPENDIX

### Conceptualized alternatives of existing open space design

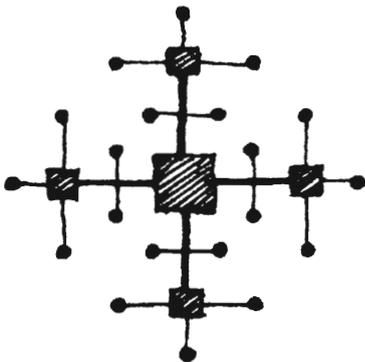
The case studies generate the recognition of the problematic conditions in the development of open space. I consider it necessary to create singular alternatives for each case which should eventually be elaborated, creating a more detailed spatial analysis and contemplating others aspects that are not represented through the anterior matrix quadrant. At the same time, the generality of my proposal recognizes possibilities for alternative schemes, applying existing system models of open space at a macro or micro scale, depending upon the area being studied.

Conceptual system model of green space for cities was proposed by both Jere Stuart in his book *Urban Green* (1973 ) and by Peter Calthorpe 's whose model is reflected in his town plan for Laguna West (California 1989) as well as "Pedestrian Pocket" concept. These models establish a vocabulary of potential general solutions and alternatives

**Table 14. System models of open space (Stuart, 1973)**

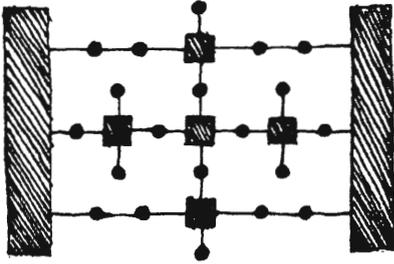
1. This first system model of application has been referred to by Stuart as "Central Park".

This system emphasizes design in the creation of a fractal geometric structure. This shape could be repeated to achieve a coherent organization (New York, Central Park).



Diagrammatic relationship of three-tiered system having one central park, (New York Plan) four regional city parks, and twenty neighborhood or community parks (Stuart, 1973, p. 101)

2. The second system model of application is similar to the previous design and establishes a similar network, but with two perimeter or edge "super parks" that work as open space for future growth (Paris).

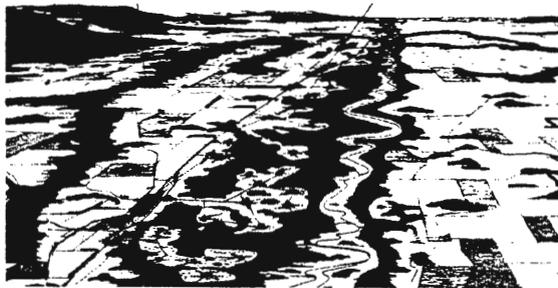


Diagrammatic relationship of three-tiered system having two peripheral super parks (Paris plan), five regional city parks and eighteen neighborhood parks (Stuart, 1973, p. 102)

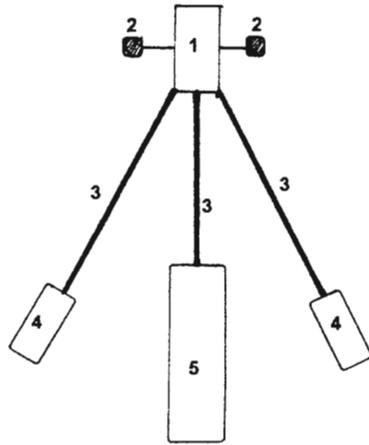
3. This system is called as the "Swiss Cheese System" (London). It has the particularity of taking existing designed parks and unifying them through greenways and belts.



4. This system green space follows natural limits, edges or boundaries such as valleys, rivers, and mountains. Parks act as an ecosystem, following a corridor with an ecological structure of biodiversity (I. McHarg, 1971).

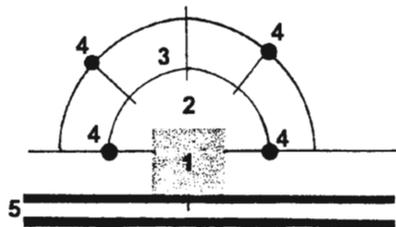


5. This open space application system designed by Peter Calthorpe focuses on pedestrian connections between spaces, articulating them in a coherent axial organization.



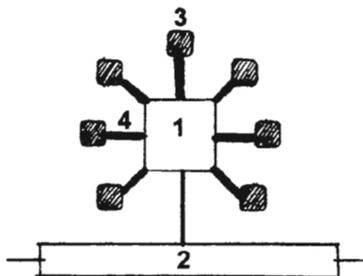
1. Center, mall shopping area
2. Public plazas
3. Edge open space, pedestrian circulation
4. Public spaces, sports areas
5. Green specialized park

6. This diagram of transit oriented design development proposed by Calthorpe shows the center as the point generator again with connection to other spaces using a radial structure.



1. Center
2. Public space
3. Residential areas
4. Plazas
5. Edge

7. This Calthorpe diagram a proposed neighborhood plan, features a linear center which is connected with a central green space. The green space is also linked with private courtyards through pedestrian walks.



1. Green plaza
2. Center axis
3. Private yard