THE ROLE OF PUBLIC SPACE IN URBAN TRANSFORMATION

The Case of Santiago de Chile

Diego Andres Sepúlveda
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Proefschrift

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Introduction

"My theory about the second modernity must not be understood as a new periodisation (which is problematic in itself) in which people can conclude, that the first modernity has ended in the Seventies, that since that time we have the second modernity, that all that developed with the first modernity has ended, and consequently we are now living in a completely new period and therefore we need completely different concepts in order to interpret the new realities.... The first difference between the first and the second modernity... presuppose the existence of 'modernities', this is to say, presupposes a community of 'modernity' that now must be understood ...trans-nationally in the dichotomy between the periphery and the centre, amongst experiences of Asians, Africans, South Americans and North-Atlantic modernisation projects. It intends to find a delineation between continuity and rupture. In specific elements, a continuity is assumed (i.e. in the meaning of the development processes, in human and civic rights, as well as in the values and budgets of democracy); although, other elements have basically changed (i.e. the 'national oriented approach' and the dominance of the West in social science, has been overcome by a 'cosmopolitan oriented approach')"


The object of knowledge of this research is the changing role of Public Space in Latin American cities and its potential to become a main actor in the restructuring of the city to achieve social and environmental objectives. The issue is extensive and complex since the traditional explanation of the concept of 'urban' as described under the realm of the state has been eroded by the events of the last three decades. These events have meant a new insertion of regions, countries and cities in the global economy and the changing relationship between the state and the markets in the provision of goods and services. The issue of continuity and rupture is an omnipresent feature that marks the changing relation between the social and the spatial structure. Some authors (Cohen 1996 and Sassen 1994) underline several economic convergence areas and argue that in the era of globalisation 'cities in the North and in the South are becoming more alike in their most important characteristics'. This is true for many large cities in the South with regards to issues such as the concentration of investments and real estate developments in particular locations, the metropolisation process, the polarisation of primate cities and the growing social inequalities. In terms of urbanism the similarities between these cities are apparent (Sabatini 1998; Rodriguez, Winchester 2000). However, when defining urbanism as the culture of cities (Rodriguez Winchester 2000) fewer changes are apparent. In the era of globalisation, in which culture is becoming placeless, it seems that urbanism will retain some relevance because of its ability to explain the specificity of local cultures. For Baudou (2000) urbanism will be the convergence itself where global pressures to change is mediated by the local conditions of continuity.

The issue of continuity and rupture is complex because of the rapidity and nature of the transformations taking place: large agglomerations are steering towards an increasing decentralised and de-concentrated urban model and social structures are dominated by a more individual and market oriented society. The simultaneous processes of urban sprawl and transformation are taking place with repercussion in the urban fabric, the poly-nuclear structures, the increases in mobility and the spatial fragmentation. Three issues that influence the condition of public space can be identified. Firstly the Metropolitan power is losing its capacity to regulate the ever-growing conurbations and local authorities are charged with new functions and bigger financial autonomy. Both contribute to social segregation because of the concentration of population in autonomous districts according to income. Secondly, the omnipresence of private investments and market determination has re-defined the condition of public space. Privatisation, individualism and increasing urban violence have introduced new challenges to public space to perform its function as a place of encounter and citizenship (Rodriguez & Winchester, 2000). Thirdly, in societies marked by fragmentation (but also by rapid flows of information) mobility can act in opposite directions (Sennet, 2002). It can contribute to socio-economic adaptability and integration - when mediated by the principle of the public character of services (Silva, 1992).

Increased mobility necessitates a rethinking of time and space, particularly with regards to the concept of public space. For Sennet (2002) enhancing diversity and individualities will have the implication of bringing urbanism closer to real social relations since what made a city one is the mechanical function of circulation. Mobility creates a notion of freedom, the ability to move in space without belonging to a particular place.

Latin America is an urbanised continent: Argentina, Chile and Uruguay have had urbanisation levels in excess of 80% already in the 1980s, currently they are close to 90% and currently Brazil, Venezuela, Peru, Colombia and Mexico have levels close to 75%. The average percentage of urban population of the continent has changed from 65% in 1980 to 75% in 1999, which is similar to high-income countries (World Bank, 2000) and an intensive process of transformation is enabled by the advance of democratic pluralism, far-reaching economic reforms.
and changes in urban governance. Significant progress in inserting Latin American countries in the international arena and regional integration, have brought greater levels of external financing, but these gains have been accompanied by significant economic shortfalls and social and environmental problems.

Latin America’s economic growth during the 1980s and 90s has been low to moderate (around 2% to 3% p.a.) and much lower than the 5.5% p.a. average of the period 1945-1980, and also lower than the required 6% to address technological and social shortages. Moreover most of the regional economies are suffering from macro-economic vulnerability and financial risks. Inequalities in Latin American cities have grown and a considerable increase in the gap between rich and poor is observed. Since 2000, most Latin American countries have been in economic recession and there has been an increase in poverty that affects almost half of their urban populations. Political and administrative decentralisation is weak and uncoordinated. The overlap of functions and regulations between sectoral, local and regional governments has grave consequences for efficiency and the delivery of goods and services (Boissier, 1997; Garza, 1999).

Urban expansion has contributed to an increase rather than a reduction of land costs since a considerable amount of speculative vacant land has been created. There is a rapid increase in the gap between social groups, since the traditionally large middle-income groups have been reduced, and there has been an increase in informal and flexible employment as well as in the number of self-employed entrepreneurs. At the same time, the reduction of family size, the integration of women into the labour market, the increase of private vehicles and a higher rate of investments in infrastructure and in technological expansions with spatial effects (fibre optics, telecommunications) have modified the land use structure and the organisation of urban space.

The significance of the Santiago case study is related to the fact that the country has been a pioneer in the process of globalisation and liberalisation of the economy and that the social and spatial transformations taking place in Santiago are relevant for the rest of the continent. During the last two decades the urban structure, the functioning and the physical appearance of the city has changed (de Mattos 2002). In fact Chile started very early with capitalist modernisation with an orthodox economic liberalisation adjusted to the principles of the monetarist School of Chicago and the multinational organisations (IMF and WB) for developing countries. Some years later monetarist principles were applied by the Reagan and Thatcher governments in the USA and United Kingdom (Krugman, 1995). The model was later diffused as the Washington Consensus and is currently simply known as the ‘neo-liberal model’. The application of this model produced a number of ruptures and mutations that have established the foundation for the new stage of capitalist modernisation in Chile. Chile became the top of Latin American countries in the competitiveness and country-risk index. During 12 years (1986 and 1998) the average growth of the GDP was 7%. This growth was interrupted by the international crisis initiated by the Asiatic crisis. Currently the growth rate is 3% and it is expected that in 2004 it will be 4.5% (El Mercurio 2003).

The city of Santiago has experienced a long period of economic growth and a number of investments in infrastructure projects have been built that has changed the urban structure and the way in which the city functions. However social polarisation continues and the spatial morphology reflects the persistence of suburbanisation and unconnected poly-centralties.

The neo-liberal model, which opened the economy to external markets, introduced new cultural changes in the way in which the city was used and experienced. Drastic market-oriented schemes in favour of decentralisation, self-sustained management and industrial re-conversion were introduced, in a society increasingly unbalanced in terms of distribution of wealth and opportunities, the quality with regards to the coverage of services and in the quantity and quality of public space.

Santiago has been characterised by a high rate of polarisation and urban growth, despite its high national urbanisation levels and its rate of national demographic growth, which is the lowest in Latin America (1.2% average p.a., from 1992 to 2002). Greater Santiago consists of 34 autonomous municipalities and has about 5.5 million inhabitants. It is estimated that about 40 million m2 of land has been developed over the last ten years (Trivelli, 1996) and most of these investments have been concentrated in only four municipalities. Greater Santiago is characterised by a rapid increase in the concentration of wealth in the hands of a few and the social polarisation is high. Six municipalities consist of predominantly high-income residents, whilst in 20 municipalities no high-income people live (Rodríguez & Winchester 2002).

The city was quite compact until the 1950s, when a dual process of low-density mass social housing construction began together with counter-urbanisation. Urban plans and regulations until the 1950s reflected the influence of imported ideas ranging from rational urbanism to the integrated conceptualisation of city and region. In the late 1950s ideas on the integration of the built environment with the natural environment placed significant importance on the treatment of public space as a structuring element at the different scales. The considerable growth of car-dependency, the high standards of public transportation, and the
involvement of the private sector in road construction have all stimulated counter-urbanisation. The significant concentration of wealth and the persistence of high rates of economic growth increased counter-urbanisation trends even more. Current urban transformations reflect the complexity of economic, social and spatial processes characteristic of the metropolitan decentralisation model. The extension of the city with market-based, high-density, low-income social housing developments and the low-density development of high-income groups are occurring alongside a rapid densification and intensification of some central urban areas and the overcrowding of lower-middle class residential neighbourhoods in the southern and central areas.

In the new century spatial planning has come to a crossroad. New forms of spatial planning are being introduced that considered the position of cities at a broader continental and regional scale and a new position has been developed with the rural hinterland. Contradictory positions have developed between the different scales of planning and sectoral institutions. Many advocate for a broad regional understanding of the concept of agglomeration, emphasise transport, mobility and urban corridor formation whilst others advocate a new form of constellation of self-sufficient municipalities and centralities. A strategy for achieving a more integrated, sustainable and diverse city is giving public space an important role in achieving these goals.

The Structure of this Thesis

In line with the ideas expressed in the introduction, the thesis has been structured around the potential of public space to transform the city structure at two spatial levels. The large metropolitan level is important since at this level public space conditions are defined. It is at this level that global forces are contributing to the concentration and dispersion of the population in space and where the urban structure and connectivities are defined. At the local level, the use of public space is analysed in terms of the morphology, vitality and sense of place. The structure of the dissertation is as follows:

In Chapter One, the basic concepts of the thesis are developed and a review of relevant literature is given. It defines the way in which public space has been used throughout the 20th century. It identifies the urban planning approaches, which very broadly correspond to certain periods: the idealist approach, the sectoral approach, the integrated approach, and finally the strategic approach.

In Chapter Two, the theoretical and analytical framework of this thesis is defined. This chapter explains the way in which the concept of public space will be used. It puts forward the main questions to be answered in the next chapters and explains the methodology used to arrive at the conclusions. The theoretical framework is based on two main issues: Firstly, the condition of urban structure and specifically of public space in a rapidly globalising, segregated and developing society and secondly the potential of public space for playing a restructuring role.

Chapter Three will clarify the historical development, the urban structure and the urban processes occurring at Santiago metropolitan level. It contains four parts. The first provides a historical background of the way in which the urban structure has been transformed during the different development periods: the colonial period, the liberal state period, the modernisation period (welfare state) and the global period (neo-liberal state). The second part will analyse the city structure based on a number of homogeneous areas with similar historical and social features. The third part will analyse the urban transformation trends on the basis of how the different fragments of the city interact and connect with each other through the dynamic understanding of centralities, public space and mobility. The fourth part analyses the system of Public Space at the metropolitan level resulting from the application of different policies and programs over time. The chapter ends with a discussion of the questions on public space conditions at metropolitan level.

Chapter Four explores how public space is used at local level. It provides an analysis of urban morphology, vitality and sense of place in five selected homogeneous areas in the city: areas experiencing renewal processes, gentrification processes, development processes, intensification processes and re-functioning processes. The areas experiencing development processes encompass 75% of Santiago's population and three different processes have been identified: improvement, stagnation and consolidation. In each of these areas a neighbourhood and a square has been selected. This chapter ends with the discussion of the questions posed at local level.

Chapter Five contains the general conclusion of the thesis. The conclusions are made in two levels. The first is the relationship between society and space and the second the way in which the analysis was done to validate results.
THE ROLE OF PUBLIC SPACE IN URBAN TRANSFORMATION

THE CASE OF SANTIAGO DE CHILE
Chapter 1 / AN HISTORICAL REVIEW OF PUBLIC SPACE CONCEPTS AND THEIR APPLICATION IN LATIN AMERICA

INTRODUCTION, THE HISTORICAL FRAMEWORK

The historical relationship between man and nature underpins the concept of public open space. The history of humanity has been a continuous effort to domesticate nature and put it to man's purpose. The history of early cities shows that they often depleted local hinterlands, often exhausting their fertility. Early cities established themselves on fertile land and on coasts, rivers and lakes or near coal or oil deposits. The relation between public space and the use and occupation of the natural environment is a constant theme that persists today. The need to live in society, to produce, to conquer nature and to exchange goods and services have defined throughout history, the type of territorial organisation and the form of human settlements. Some settlements have evolved over time whistle others have been implanted, such as the cities created by the colonial powers in Africa, America and Asia after the XV century.

In Latin America few of today's large cities were formed spontaneously and most were intentionally promoted and created. The Law of the Indies of the Spanish crown regulated city foundation overseas. By order of Carlos II in 1680 a common body of legislation was compiled to administer the overseas territories. Nine books are created subdivided into Titles. Titles 1 to 9 and 12 and 13 of the IVth book refer to urban questions. Title 7 specifically referred to the norms for building cities and villages. They establish a single model for city layout. These laws were universally used in all Spanish territories. The main concept of the urban structure as defined by the Indies Law is the city-territory concept that goes beyond immediate built urban area and embraces a regional jurisdiction defined by its norms (terminos) and integrated by a set of parts perfectly integrated, each with a clear functional purpose. The city-territory concept structures the economic and natural territory around the urban realm where the 'solas del pueblo' are located. It embraces the rural areas that support the city structure. The Colonial Spanish city was a 'finished' city from its foundation and completely limited in its parts and its whole. The urban layout itself consists of a strict orthogonal grid system with the public square located in the geometric centre of the grid. The church was located alongside with its own public space connected to the square by a street containing the public buildings, the size of which was a half of one of the sides of the main square. The transformation and the decline in the observance of the Law of the Indies began after Independence starting around 1810. However the use of the grid continued to be the major form of city expansion until modernism introduced functionalist ideas. The influence of imported ideas of city planning continued throughout the XIXth and XXth century to shape Latin American cities.

Since the 18th century Europe and North America have experienced an urban boom as a result of the Industrial Revolution and the expansion of global trade. Cities became overcrowded and streets dirty and the need for city parks and recreational areas became increasingly apparent. Since that time efforts have been made to counter unplanned and disorderly urban sprawl with coherent planning concepts that turn cities into ordered and sociable places. All over the world cities have tended to defy rational planning sometimes spreading uncontrollably. Today with the emergence of mega cities, new challenges to plan and manage the city in ways that ensure the sustainability of cities and of the planet.

The endeavour to introduce public parks into the city for hygienic reasons can be traced only to the 18th century. It gained a new dimension in the expanding and overcrowded industrial cities of the 19th century, when the liberal, mercantilist and profit-oriented economy failed to offer economic incentives to leave underdeveloped land 'open' or 'public'. Only in some cases did private benefactors support the creation of parks that were open to the public, paving the way for public intervention into the pattern of urban land use. Along the last two centuries the concern with nature has been greater than the concern for protecting the environment or for creating liveable cities. Powerful institutions have kept trying to transform nature into 'tapis verts' or 'English gardens'. The result has been the creation of gardens, squares and landscapes. It was not until the second half of the 19th century, that the claim was raised to defend the 'right of the wilderness' against the 'right of cultivation'. Green open space became part of mankind's history and the design of public space appeared as part of this challenge.
According to the West European Working Group on Open Space in Urban Areas (1997) it is only since the second half of the 19th century that two main arguments have been offered for a "public open space policy". First there was a concern for health, generally interpreted as a 'social' concern: to provide not only recreational areas especially for workers families close to their dwellings, but also places for relaxation, which would ease the businessman's stress. The second argument was the prevention of an unlimited mono-centric expansion of the big city, which became a major problem in the 19th century. Howard (1880) proposed the 'green belts' and stressed the idea of the 'garden city' and a permanent limitation in urban size and growth.

Since then, planning has significantly spread all over the world, and the control of mono-centric growth through green belts has become a main policy measure. The condemnation of suburban sprawl expressed by Howard's ideas at the end of the XIX century has currently became popular again in the compact city debate because of the concern for excessive energy use in low density settlements. Today this concern results in pressures to maintain the polarity and connectivity of urban nodes and its public open spaces. In areas of extended urban development such as in the Ruhr coal-mining region the merging of the built areas of various towns and cities into an undifferentiated urban sprawl was seen to be a most unwelcome trend. The notion of a 'buffer zone' emerged for stopping pollution and purifying the atmosphere, by breaking the continuity of the built-area and preventing agglomerations from merging into each other. The French efforts to create 'development poles' (Perroux 1955) and English 'new towns' (Duff 1961, Greater London Council 1965, Merlin 1969) were unable to control the worldwide trend towards formation of megacities and urban sprawl.

Between the two world wars polarisation and urban sprawl became the main relevant factors associated with industrialisation and commerce. New York became the first megacity with 10 million people. Today New York has long been overtaken by cities such as Tokyo, with nearly 30 million, and Mexico City, with around 20 million. New York took 150 years to reach 8 million people whereas Mexico City and Sao Paulo have taken only 15 years to increase their populations by 8 million (De Mattos 1988).

Urban growth trends are now the highest in developing countries. Between 1950 and 2000 some 1.4 billion people became city dwellers in the developing world. Today there are 20 megacities of over 10 million people and 19 out of the 25 largest cities are in developing countries (De Mattos 1988). The causes of this spatial agglomeration are to be found in the insertion of cities, regions and countries in the global system; the spatial organisation of labour; the industrialisation processes, and on the comparative advantages underpinned by transport and communications technologies. In this complex context it is necessary to grasp the conceptual definition of public space and its relationship with theories of urban planning in the present phase of development.

This chapter will establish a theoretical framework that deals with the changing role of public space in the urban structure and the actions and methods used to intervene in it, which is based on the predominant objectives during the twentieth century.

The need for a theoretical and methodological framework is justified by two reasons. A first reason is the fact that any intervention in the city involves a method and implicitly an ideology, which needs to be identified and explained. Moreover, all interventions in public space take place from different angles, ranging from architectural, sociological and economical, to culturally and environmentally-oriented views. A second reason for establishing the theoretical framework is derived from the fact that most urban theory has been developed in the context of developed countries but been applied in the context of developing countries. The thesis is concerned with Latin American urbanised and developing societies (in particular Chile) where there has been a lack of urban studies relating public space to the complexity of societies with unequal opportunities and rapid economic growth.

During the first part of the XX century under the influence of the utopias of the XVIII and XIX centuries, there was a shift from prioritising 'nature' in the act of human creation, towards the prioritisation of 'man and society'. In the second half of the XX century there was a shift from 'sectoral' to 'integrated and global explanations', which have assigned important roles to social processes. At the end of the century holistic explanations answered in which the 'image' gained a significant role and the "environment" played a determining role in the development of 'strategic' urban ideas for public space. An attempt at categorising and systematising an urban approach will always be controversial with regards to sources, methods
and epistemological interpretations.

I will follow De Teran's (1971, 1985) as in F adda (1996) interpretation of the historical phases of the different urban approaches. De Teran considers urbanism as a science and therefore he believes it requires a maturing period and an evolution process for its scientific performance. Based on this inference he identified three phases up to the 1980s.

In the first phase (1900-1920) urban problems are approached from an 'intuitive, aleatory and pre-scientific' point of view. The elaboration of hypotheses and propositions are not rigorous, and represent solely an idealist interpretation because of 'imaginative anticipations and a preliminary approximation to reality interpretation' (De Teran 1985, Fadda 1996).

In the second phase (1920-1960), the imaginative interpretation was discredited and the search for more rational and objective truths is developed. The analyses during this phase are mono-disciplinary and sectoral in type and the study field is decomposed into different parcels.

The third phase (1960-1990) is characterised by a rejection of sectoral analytical work, which was the source of disconnection and atomisation during the previous phase. A need for 'a harmonising, integrating all partial knowledge develops in a 'integrated' approach. (De Teran's "Global Synthesis"1985, Fadda 1996).

A fourth phase (1990-2002) can be added, in which a holistic and strategic approach is necessary because of the influence of the new cultural requirements of the global economic system, based on rapid technological changes.

In each of these periods, which in general terms coincide with cultural / economic stages of human development, a guiding theory and several interpretations (defined into sub-categories) can be identified. In each of these sub-categories, I will identify the changing role of public space in the formulation of the objectives and strategies for the urban structure. The most significant contemporary examples that act as a source of inspiration for future urban ideas elsewhere will be identified in each period.

Each phase will be discussed in relation to the following subjects:

A short description of context;
A description of the approach;
A description of the interpretations;
The concept, goals and strategies relating to public space;
The main followers of the interpretations;
Significant examples;
Conclusions.

1. THE IDEALIST APPROACH (1900-1920)

1.1 Description of context

There is a direct relationship between the idealistic approach that nourished modern urbanism and the Industrial Revolution. In this period industrialisation became a force for the genesis of urbanisation. The changes in the mode of production resulting from the development of the steam engine and later Fordism influenced the form of national territories as never before. The development of trade and transport increased significantly and unprecedented change started linking the innovations in the industrial structure with the social relations of production. The increasing volume of production and trade contributed to drastically transformations in the spatial and social systems of previous periods towards the requirements of capitalist society (Dobb, 1975). It was a period of technological change, of increasing labour productivity, increasing population rates and an unprecedented growth in the waged sector.

Arnold Toynbee (Toynbee 1884-1956) argued that the increasing velocity of demographic growth was the first surprising fact of the Industrial Revolution. These changes completely transformed the production process, not only did it demand the concentration of labourers in a single working place - the factory - but a collective character was also imposed on the production system, as a combined team, half machine and half human. One characteristic
of the collective process was the increase in the division of labour to a degree of complexity as yet unknown (Dobb, 1975).

Dickens (1837) has given a remarkable description of the living conditions in the city at the time of the Industrial Revolution. The result of the process of increased manufacturing generated large migration processes and cities grew without any control and regulation. The absence of efficient and effective urban transport technologies resulted in the location of the working class in close proximity to the factory. This arrangement of factory district and surrounding residential area was a basic element of the urban form at the time. This affected the ecology of English towns and cities. According to Geruson & McGrath (1977), the term ‘slum’ was initially given to such areas. "Workers chose to live near the noisy, dirty factories for two basic reasons. One was that, for many, employment was on a casual basis, they were obliged to live within reasonably close walking distance of their work. The second reason was the inadequacy and expense of public transportation".

At the end of the XIX century, urban development was described as chaotic and distressed. Social and environmental downgrading and the separation of urban and rural areas characterized the period. A crisis emerged generating a need for urban ordering and the control of urban growth.

The first attempts to regulate these fast-growing urban areas were based on two main principles:

There was a realisation that the promotion of ‘free market forces’ and ‘laissez-faire’ as a form of organisation, discouraged a will for purposeful social and urban ordering that was contrary to spontaneous manifestations;

Second there was the formulation of concrete proposals to reinstate order "to the chaotic city growth of the unplanned city and to the problems of social disintegration between the industry, the agriculture and residential place", (De Teran, 1971).

1.2 Idealist urban planning approaches

In the description of the imaginary island 'Utopia', Thomas Moore (1516-1978) relates a city within walls, along a river shore that flows until the sea, with squares protected from the wind and streets with houses at both sides. "The utopians take much care of their gardens". The river is called Anhidro (without water) and the city is Amaurota (dark place in a clear analogy with London), the government is Ademus (without people) and all in a non-existing land 'Utopia' (nowhere). However, when Hytiodeo describes his island he states his goals regarding the city of his dreams, "he proposed a new order, the utopian believes that it is a great injustice to enchain people with laws, many more that is possible to read, moreover difficult to understand", (Utopia, op.cit.). Colin Rowe (1981) in his book Collage City distinguishes two types of Utopia: the classical utopia and the activist utopia. The classic utopia - oriented to educated people - is an educational instrument, and the activist utopia is a revolutionary attempt of 'changing the world' to establish a new order starting from 'progress' and 'reasoning'.

The emerging national state during the XIX century used neo-classical and baroque principles to restructure capital cities based on these famous guidelines for buildings and streets in order to give a new layout in the grand manner to the cities.

Since the origin of cities, a close link has existed between ideas and urban form. The form of the city was the expression of the culture, of habits and of the spirit of each civilisation. Even today, the remainders we conserve from ancestral civilisation are the city's foundations. Sometimes these foundations have a sacred character linked to the divine culture of urban origins, as was the case in Egyptian, Aztec and Maya civilisations. The emerging national states during the XIX century in Latin America wanted to restructure their capital cities according to the neo-classical and baroque ideas that were in vogue. By using their famous guidelines for building and monumentalisation, the new Republican governments chose big cities combined with the new hygienist ideas to give to their emerging capital cities a strong sense of a better future through good design.

Since the Renaissance the concept of the ideal city has mainly represented an architectural vision linked to classical utopian thought, e.g. as manifested in Palma Nova of Scamozzi or the Neuf Brisach of Vauban. The other utopia but of the XX century was undoubtedly that of the rationalist principles of the Charter of Athens. Here the utopian thoughts of the existence
of a functional city linked are to the culture, the traditions and to the celebration of its own institutions. Remarkable projects based on these ideals were realised such as those of Bakema and van der Broek, of Candilis in the west and the development of the socialist city in the eastern countries. Latin America is famous for the realisation of the utopian visions of Niemeyer and Costa in Brazil. Currently Utopia seems to be represented by a technological utopia; rooted in the confidence that high-tech oriented to a universe without history can solve the problem, yet it includes a clear message in the form of its interventions and transformations. This rather has been their value, which has made them universal. Utopia differs from utopianism. Utopia is a realism that explores ways to realise itself through indicating the way to do it. The use of that ideal as metaphor, as reference to a coherent order must be respected in each project that aims to be converted into reality. The role of the project means to vindicate the values of ideas, to establish a debate from which something better can come out. Transformations are impossible without the existence of such projects; utopian projects are the real terms of any discussion that oppose those solutions imposed as necessary and exclusive alternatives.

1.3 Significant examples of the idealist approach

/ The Linear City

The Linear City was inspired by the living conditions of the European City at the end of the XIX century. The condition of the working class was appalling, the urban structure downgraded and the urban and demographic growth as a product of industrialisation was rapidly continuing. Soria y Mata’s (1894) idea for the Linear City was, in general term, an attempt to return the relationship man-nature to the city and the equilibrium between city and countryside, which was lost with the rapid unregulated growth. The concept gives primary significance to transportation. Soria y Mata, a Spanish engineer believed in the critical relationship between transport and land uses "transport needs a powerful force in organising the city and determining the nature of its open spaces" (Soria y Mata 1894).


The Linear City Model was therefore based on the potential of one of the most significant components of the Industrial Revolution, the railway. The Linear City was conceived as an urbanised strip, developed along a railway or a tramway, joining two existing cities and industrial centres. This would allow rapid movement of goods, and persons and a separation between working place and residence. Physically a main street with minimum width of 40 meters with an axis of two or more rail or tramlines would form the Linear City. The space below this axis would shelter the urban infrastructure and urban services. Perpendicular to the axis, secondary streets will be placed, together with rectangular parcels, forming a longitudinal belt of about 500 meters wide. Family houses were placed in close relation to the countryside landscape. The idea was that people should live close to nature and commute through efficient transport corridors. Ideally, the residential area was to be of low density, with detached houses with large plots, gardens and orchards. All these ideas would improve the living conditions of workers and the hygiene of cities.

Although the particular vision of Soria y Mata was not realised (for better or worse), the rationality of linear form remains significant for the hierarchical ordering of transport modes: train, tram, cycling, buses, pedestrian, rapid transit and above all automobile and network
connections. The Linear City design others in the early XX century including the 'Roadtown' of Edgar Chandlees (1910) and the Linear development of Paul Rudolph following the Penn Central right of way in Brooklyn. More recently some of the goals of the Linear City can be found in the restructuring of the City of Curitiba in Brazil (Ruano 1999). It was also based on ideas enhancing transport efficiency, mixing land uses and closing the gap with the surrounding landscape.

According to De Teran (De Teran 1969), the contribution of Soria y Mata is the acknowledgement of major transport as a restructuring element of the city.

The Garden City

The second example of the Idealist Approach is Ebenezer Howard's Garden City (Howard 1898). The Howard thought that the traditional industrial city was an outrage to nature, and in order to save humanity, the problem must be solved. The congestion of the modern city and the fierce land speculation helped the rapid formation of spatial conurbations and drove the country out of the reach of citizens. The model of the Garden City was related to the Anglo-Saxon family house with garden and farm. It was also based on earlier XIX century utopias whose main representatives were Owen and Fourier, which have based their city visions on the principles of freedom, equality and fraternity (Frampton 1985). Howard's proposal was inspired by the idea of a self-reliant community and a deep-seated harmony between city and countryside, yet it had many pragmatic elements. It combined the utopia of gradual social reform with community held land blended with individual freedom. As with Soria y Mata, the idea was to contain of the population in the countryside. In order to make an attractive countryside, it was necessary to supply people with major attractions. Therefore the idea of the 'three magnets', by which three attraction points exist to create this tension-attraction: the city, the countryside and the Garden City.

Map 2: Howard's Garden City Theoretical Model

The Garden City was to be economically self-reliant and the spatial ordering to be determined in order to keep the city at a small scale (maximum 30.000 inhabitants): low rise detached buildings would be spread out in green areas; there would be an optimum ratio between residence and industry and a green belt. The green belt was fundamental for controlling urban growth, and would be used for agricultural production and for recreational activities. The Garden City would have all the advantage of an 'active and energetic town life with all the beauty and delight of the country'. Urban life would be secured as long as the centre was maintained for administrative, cultural and commercial activities and would have enough industries and businesses. The main difference with earlier utopian cities was that there was an intention to control land rent to the benefit of the community. The difference between the Garden City and a suburban development is that it is self-reliant in employment opportunities.

Howard's Garden City concept also has a spatial level, later used as regional planning model for the 'Social Cities'. The author exposes his spatial model in his Diagram 'Principle of a City Growth'. He defines the distribution of small satellite cities (population 32,000) distributed at some distance from the central agglomeration (population 58,000) forming a ring of cities of limited size, separated by a green belt and connected to the centre by a railway line and to each other by main roads. Each one of the satellite cities should have its own industries. For Howard the diagram of the satellite cities is just a "blue print of an idea", not a real city form, "a plan cannot be drawn until a site has been selected".


La Plata, Argentina (1869)) Letchworth (1902) and Welwyn (1919)

Two examples in England and one in Argentina can be cited as three concrete Garden Cities. La Plata designed by P. S. Benoît was built in 1880, at 40 km from Buenos Aires, as the new capital of the Province of Buenos Aires. The layout of La Plata had a particular fascination for Le Corbusier because of its geometric organisation and the charm of the double geometry (the square and their layout and the diagonals over impose to the first one). It has a macro-framework defined by a hierarchy of streets and boulevards, which have squares
and parks at the cross of the transit nodes. The creation of an urban center answered to a preconceived and total plan regulated by precise theoretical principles based as existing material needs whistle foreseeing the future ones. The plan was conceived as an artistic work, which should define given, uses and service needs for each scale. Formal regulations should prevail and should include hygienic and technical considerations. The regulations shared consider the type of growth and transformation of buildings and residences in the interior of the urban fabric; the location of monuments and main buildings in the central strip; the location of hospital and graveyards on the periphery of the city and there should be an external ring of green and areas dedicated to urban agriculture for production for city consumption, etc.

The layout goes beyond a predetermined form such as the grid, which appear to be the main cause of monotony of the XIX century cities. The layout must show the individuality of each urban center. The city's lay-out consists of a strict square-form of about 5 kilometres per side, structured by five avenues in an East-West direction and five in a North-South direction. These define 36 units that are also divided into 36 blocks through out a secondary street network. This shapes a block of 120 for 120 meters, repeated 36 times. The whole square perimeter is surrounded by a green pedestrian ring that finishes at each of the four corners in a round form. The streets are of 18 meters, 30 meters for the main avenues and boulevards and 90 meters for the perimeter green ring. This main structure is accentuated by a second network of avenues rotated 45 degrees forming the orthogonal base layout. Other diagonals, are located in the direction of the central area, in order to accelerate the communication in the interior of the layout, which is designed to have higher densities. The width of the main avenues of 30 meters permits a sidewalk of 4 meter per side and a green strip to plant trees in the middle. The Southern Park defines the direction to the port and the Santiago river basin and also helps the city orientation to receive wind coming from the river to cool down the city in the summer.

The British examples can be considered a success, even taking into consideration that some main principles of Howard's theory were altered or not considered such as the productive role of the green belt, which was just used as a green area in the cities. The same happened with the idea of self-sustainment and the autonomy of resources, which was not achieved. Rather the towns became dependent on the large metropolis. In these concrete projects,
Unwin insisted on the importance of, "twelve houses to the acre (0.4 ha.)". Compared to the density of the industrial city this low density was extremely revolutionary for the time. In spite of the low-density, the free-standing placing of houses on their lots, the free grouping system and the relation to the street system helped to enhance the sense of community. The irregularity of their blocks and the disposition of streets helped to give a Garden City image, full of a 'picturesque character'. "The less area given to streets, the more chance one has of planning a town. To be obsessed with the idea of planning for traffic is a mistake. One rather plans to avoid all needless traffic if possible", (Unwin, 1909).

1.4 The role of public space in the idealist approach

A preoccupation with nature and social issues is characteristic of XIXth century British city planning. It was believed that the search for city traditions was tied to the countryside, leading to an obsession to scrutinise the countryside and nature. The aristocracy contributed to this tradition. They obtained land in the city or in the immediate surroundings where they constructed landscaped rectangular squares and houses, retaining one side of the plaza for their residence. Out of this tradition urban parks were created in the XVIIIth and XIXth century together with 'terraces' and 'crescents', as buildings that limited and shaped these parks. The utopian preoccupation with nature and social issues stimulated the creation of model communities sponsored by industrial philanthropists to eradicate slums e.g. in London and Manchester. Later, philanthropic actions occurred at the end of the XIXth century in developing countries as well for example in countries like Uruguay and Chile, which exhibit the same purpose and similar achievements in terms of public space concerned with nature and social issues. This preoccupation is linked to the utopian socialists and moulded Howard's 'Garden City' ideas.

In the 'Garden City' the preoccupation with nature is linked to the need to upgrade the living conditions of the workers in the inner cities, and close to the factory. The compact city was associated with unhealthy conditions, overcrowding and labour exploitation. The idea of self-sustaining communities was linked to the formation of a constellation of 'Garden-Cities' in which people could work, live and recreate without large commuting distances and therefore with maximum use of resources. A constellation of small self-sustained communities, of no more than 30,000 inhabitants around a bigger pole of 58,000 inhabitants was formed (Howard, 1880). The contact with nature was double sided: on the one hand, residential areas would have generous green spaces, detached houses with gardens to cultivate crops, and on the other hand, a green belt would separate the city from the countryside where the recreation activities would take place and which would contain city growth. Public spaces were seen as a large constellation at different levels, regional, urban and local. The network directly linked the private domain to the public domain through a network of hierarchical routes of green roads, squares and parks.

The idealist approach unleashed a modern concept of town planning, which can be considered a predecessor to the modernist movement. The design of the street was a crucial element of the changing approach. In the Linear city of Soria y Mata the street is designed from an imaginary block, with detached houses in which the building line is separated from the street line. This is also the case of the designs of Tony Garnier's Cité Industrielle (1917) "Their proposals dissolved the traditional urban form and created in its place a villa landscape", (R. Krier, 1979).

However Unwin's (1909) concept of the street exhibited more modern features than that of Soria (Unwin concretised Howard's Garden City idea). Unwin's preference in terms of street, is for the cosy picturesque effects of Germanic neo-medievalism inspired by the writings of Camilo Sitte. But what is essential is not the streetscape's style, but that it conforms to the overarching qualities required to produce 'satisfactory street pictures' namely visual variety and spatial enclosure. (Kostof, 1992).

All these elements were to influence town planning and urban models for several decades. The fact that Howard proposed to control the process of land speculation and to revert to the appropriation of land surplus from the individual to the community marks a difference with the utopian movement. The problem was in the belief that planning is able to foresee all future contingency and social processes. This static way of conceiving planning is the most important cause of the failure of this approach. The utopian movements also influenced Latin
America. The founding in La Plata, Argentina is an interesting, complete and concrete example of the interpretation of utopian ideas built in the context of South America. The Regulatory Plan for the city of El Salto in the hinterland of Uruguay was drafted by the architect Raúl Lerena Acevedo as the director of the City Beautiful Section of the National Ministry of Civil Works. It is also a direct example of the Utopian thought in Latin America. Lerena drafted norms by which to design city layout and urban agglomerations (1917). In this work again, the architect considered urban theory in terms of aestheticism and picturesque ideas again as a clear follower of Sitte.

According to Lerena\(^1\), "every new urban development should be the result of a total preconceived plan, structured by precise theoretical principles according to the actual needs and in anticipation of future ones, but above all, this should be an artistic work". The formal consideration is above all technically or hygienically rooted. According to Lerena each urban agglomeration should define its own layout taking into consideration the kind of place, the topography and the landscape and with all these elements, it must define the changes and the picturesque effects in order to determine the layout. It was believed that the city should be planned as a whole, as a complete and harmonious composition where the built environment and the space in between could reach equilibrium. It was also believed that the city should have a defined limit. This limit must be a park belt that constrained future expansion, as uncontrolled growth would destroy the original designed equilibrium. Lerena (op.cit) says that if the city must grow it should do so by the annexation of external, independent and formally independent new neighbourhoods, also with a limited size.

Lewis Mumford, Sir Patrick Geddes and other thinkers and follower of the idealist movement (Geddes 1915, Mumford 1961) considered the city should be planned in relation to the landscape and its natural context. They introduced the regional context and this had considerable influence on Latin American and the Chilean planning schools. Particularly important was their influence during the period between 1947 and 1952, in the Faculty of Architecture of the University of Chile. Their influence was also apparent in the work of Klaus Brunner in the first plan of Santiago (1932). Later the work of Luis Munoz Malushcka (1896-1974) gave special support for a landscaping approach, oriented to integrating green space and the road system as a structuring element (Pavez 2002). This will be discussed later in the 1960s Regional Plan of Santiago.

2. THE SECTORAL APPROACH (1920-1960)

2.1 Description of context

The introduction of urban science developed a new way of thinking about the city and new confrontations between different disciplines. The philosophy of North American thinkers started strongly to influence the New World and in Europe there emerged strong protagonists for the development of the ecological vision of the city. This second phase of development of urban science was characterised by an attempt to give real organisation to urban knowledge and concrete propositions are established in order to achieve the goal of changing the urban reality. More than inventing imaginary solutions to the growing social problems, the idea became to understand reality, systematise and sectoralise the knowledge, and give direct solutions. In the task of systematising urban knowledge, the authors of the Charter of Athens (CIAM's written expression) proceeded to rationalise and develop norms for the function of the city, while the ecologists based their interpretations on social theories, biological laws, regional concepts.

These developments occurred before and after the Second World War and acknowledged big changes in the world economic system caused by important changes in transport and communications. The period was characterised by the belief in modernisation, conceived as a mass consumption society and the state as an entity for providing conditions for the development of industrialisation as acting as a guarantor of the democratic process.

Modernisation was the development strategy used in Latin America after World War II by CEPAL, the Economic Commission for Latin America (ECLAC). Its economic, social and political components were based in the belief that the transition from 'traditional' or 'agricultural' to 'modern' or 'urban/industrial societies' could be achieved if Latin America followed the development model of the countries already industrialised, i.e. Europe and the United States (Prebisch, 1964). It was believed that the dynamic role of industrialisation would lead to a
mass consumption society. The problems of poverty, unemployment and income inequality were related to the ability to grow economically as was exemplified by various countries in the region that followed the process (Argentina and Mexico).

State intervention was considered necessary for facilitating opportunities for the private sector and to democratise countries with backward cultural, social and institutional conditions, which were considered barriers to further modernisation. The idea of the dual-society gave rise to the belief in the existence of a 'marginal' population, which need to be encouraged to be modernised. Cultural, social and institutional modernisation was required (Lewis 1954; Hoselitz, 1960) as was the development of the nuclear family; the development of private property rights; the generalisation of waged labour and the modernisation of state bureaucracies.

Urbanisation was regarded as beneficial and urban planning was meant to play an important role to facilitate the transformation of agrarian societies into modern industrial ones. The formation of large agglomerations was seen as both the result and the prerequisite of an industrial mass consumption society with a necessary concentration of critical mass for consumption.

2.2 The sectoral urban planning approach

By the end of the 1920's, a critical attitude to the idealist approach emerged and a more rational interpretation to urban problems developed. The industrial city was facing rapid social, economic and physical transformation, and different interpretations of the phenomena that were taking place started to emerge from a variety of perspectives and disciplines. This period is characterised by the proliferation of sectoral, partialised and mono-disciplinary analyses that explained the city problems from specific viewpoint. This sectoral treatment of urban problems hindered a holistic comprehension of the causes underlying the problems and the development a general theory. The historical events of this period and the particular urban processes taking place in the different realities also determined differences in goals and strategies.

The uncontrolled and rapid growth of cities was caused by economic growth and rural migration and in the case of North America by European immigration flows. This strengthened the fragmentation of the city in term of services supply and transport problems. However, the historical context was different in Europe and in North America. While in Europe industrialisation was proceeding rapidly and growing with enormous social, economic and physical contradictions, in North America the industrial growth and the capitalist economy started an uncontrolled process of international domination. "North America was launched into a prosperity phase which bred a wave of optimism close to delirium", (Dobb, 1975). In North America a superior belief in the fatherland nurtured the idea that capitalism and free enterprise would eliminate shortages and integrate city newcomers to a dynamic economic process that would enrich all citizens.

The sectoral approach had different connotations in Europe and in America. In Europe the legacy of the existing neo-classical city was greater than on the new continent where the dynamism of capitalist growth promptly induced drastic transformations, and within a few decades the largest cities of the planet appeared and surpassed the large European Metropolises. Rapid growth and the free market accelerated the development of sectoral approaches. The most important contribution to this approach came from the urban sciences, in the form of functionalism and from the social sciences from the theory of marginality and the urban Ecological School of Chicago. Both shaped 'modernisation theory' and Modern Urbanism. The confrontation of North American and European urban designers was recognised by Le Corbusier: "Now of course issues like modern transport and healthful urban environment will also be central to the proponents of The Garden City and later of Modernist planning"(Le Corbusier 1929).

2.3 The description of the positions

In this period, the different urban disciplines were trying to explain urban transformations and intervention in the city. Town planners, architects, social-ecologists, economists and urban geographers were providing their different interpretations. In all of them the relationship between nature, the built environment and social structure lead to a particular form of
determinism. Despite this determinism, the different disciplines contributed experiences, ideas and works that remain important today.

2.3.1 The contribution of architecture to urban theory

Camilo Sitte (1926) and the context to the Modern Movement

It is impossible to analyse any sectoral approach to urban science without acknowledging the significance of Camilo Sitte and the Urbanism of Composition movement that he helped to generated. The importance of Sitte’s work, synthesised in “City planning according to Artistic Principles”, (translated into Spanish in 1926), lies in the fact that he started a movement to analyse the construction of the city according to artistic principles as opposed to the urbanistic rationalism of his contemporaries which was oriented towards infrastructure and urban traffic\(^3\). In fact, within a context of great sensibility for public sanitation, for zoning and urban norms, Sitte, fascinated by those European cities which had maintained their positive shape from the pre-industrial time, and by the disposition of their squares, streets buildings and monuments, extracted ‘clear principles’ to judge the planning performance of contemporary cities. Sitte stood for the need to learn both from nature as from the ancient masters.

The city was conceived as a three dimensional architectural piece. He rejected the symmetry and the ordering of the city according to formal principles in favour of intuition and the sensibility of architecture. Sitte was the precursor both of the rationalist and ecologist movement since he had a critical attitude to the indiscriminate use of solid and compact blocks as primary design elements and proposed urban space as the main element in the design of the city. In order to fight against geometrical rigidity, the right angles, symmetries and axes, he proposed the human scale, the emotions, sequential series, and the surprise in the design of the city. Sitte attached great importance to the relationship between building, monument and squares. He defended the concept of the square as a closed place, and he assigned importance to its form and dimensions. Although his contemporaries regarded Sitte as “picturesque and romantic”, he is the predecessor of many movements including the Townscape Movement of the 40s. His ideas made important contributions in the 50s and were consolidated in the 60s with the work of Gordon Cullen (1971) and Kevin Lynch (1960).

Sitte’s analytical contextualisation, which gave special attention to the physical elements of any project, reappeared in the 60s at Cornell University School of Architecture and currently has several major exponents such as Colin Rowe (1981) and Rob Krier (1979). In short the “Urbanism of Composition” provides a special emphasis on the compositional aspects of the city, an empirical way to conceive urban research and a ‘romantic’ respect for the historic legacy. According to many, it constituted an urbanistic position with its own identity during the whole of the XX century.

Rob Krier, emphasising the importance of the urbanism of composition commented that there are no modern squares of a public character that can be compared with the Grande Place of Brussels, la Piazza del Campo of Sienna, la Place Vendome of Paris or the Plaza Mayor of Madrid. The development of Sitte’s analysis to the problems of design of public space was highly influential in the Anglo-Saxon countries. The influence culminated with the work of Cullen (Cullen 1971). Today the analysis of the urban context represents the fundamental starting point for any urban project. The ‘contextualism movement’ developed in the mid 60s at the Cornell University School of Architecture. It constituted a new actualised version of Sitte’s thoughts, and proved that the “Genius Loci”, of Sitte’s idiosyncrasy inspired planning and design. The concept of pattern, was also present in Sitte’s work and is manifested in the willingness to discover the fundamental criteria of planning, and a universal and a-temporal language that can be used in current and future situations.

The contribution of the urbanism of composition to the analysis of open space

The importance that Sitte gave to the analysis of the old city and to the composite relationship between buildings, monuments and squares is of great significance for the study of the role of public space. Sitte assigned importance to the search for the principles used in old cities and was a great protagonist for public spaces and monuments that expressed collective feelings\(^4\). He analysed the urban design of the square “the centre of the square must be kept free and this must be a closed space. Just a piece of empty space is not a
square, it must be furnished and this will give significance and character" (Sitte 1945). Sitte also studied the network of squares, which was of great importance later in the work of Roca. For Sitte, squares were generally articulated around symbolic public buildings. In this respect attention was given to the sequence of routes, spaces and scales and to the desirable sensation of surprise produced by certain types of urban dispositions. Sitte proposed an 'urban composition' to be made by the artist-architect, something rather more complex than the rational application of a geometric rules or the abstract composition of space.

Research through design became the tool to establish artistic principles applicable to urbanistic realisations. The intention was to develop a rigorous theory of urban composition based on the generalisation of concrete practices. Sitte's position was valid notwithstanding its differences with the research themes of the post-modern dictionary. Sitte did not elaborate an urban history but a rather particular way for systematic research to come to conclusions applicable to the construction of the city. This was to become the most innovative and brilliant contribution of this approach.

2.3.2 The social-ecological contribution to urban theory

One of the disciplines that simultaneously, was deepening the understanding of the relationship between the city, the social structure and nature was the School of Urban Ecology of the University of Chicago (known as Chicago School). Since 1915, a working team coordinated by Robert Ezra Park was dedicated to urban research. The results of this research were published in 1925 in the book 'The City' (Park 1967). The approach took social issues were taken into account in the physical environment. Although the work of the Chicago School is today considered as very limited, ecologically partial and full of simplifications and generalisations, if certainly represented a big advance in the comprehension of the city that would influence urban research and theory for decades.

The context was the rapid growth of Chicago, as a product of untamed the development of US capitalism. From almost nothing in 1800, it grew to 112,000 in 1860, a spectacular growth converting the city into a metropolis of 1.700,000 in 1900 and 3.4 millions in 1930. This rapid growth also meant that new significant social phenomena were taking place in the city including:

A diverse mixture of ethnic groups who were obliged to live in spatial proximity; signs of extreme individualism and inequalities with millionaire neighbourhoods alongside those full of beggars; ethnic colonies segregated in ghettos and incompatibilities sometimes encountered by different cultures; the lack of housing and working places; a lack of social organisations able to integrate migrants into the dynamic economic system.

The Chicago School developed research to analyse a range of manifestations that were taking place, those included: the 'urban chaos' as opposed to the 'normality' of the rural environment; the effects of spatial disorganisation upon the urban population and sub-cultures and the zones of violence and social pathologies. The influence of the Chicago School was overwhelming, particularly for Latin American social scientists in the 40s attempting to explain social inequalities. The influence of the Chicago School subsequently, helped to define the 'dual society' the 'theory of marginality' and the 'economic development' approach. The recognition of the marginal position of the migrant population - the dual society - helped to explain the path to social integration (Hoseltiz, 1960). Lewis's, (1954), 'Culture of Poverty' thesis contributed to 'marginality' theory through which he explained the conditions of urban newcomers to the city and their relationship with the urban economy.

The Chicago School explained the urban structure in terms of an interdependent relationship between human beings and nature. The principal theoretical proposition was based on Darwin's principles, according to which plants and animals enter into contact with each other and compete for the control of resources needed for reproduction: food, water light, etc. Competition will progress until the species and individuals are settled in a given place and able to satisfy their needs, creating a state of equilibrium. Because of external pressures or internal growth this equilibrium is lost and the cycle will start again. From this analogy with the animal and plant world the Human Ecologist analysed the city and its inhabitants from a biological perspective. Men entered into competition amongst themselves and the environment to appropriate available resources. This produced a process of invasion and settlement subdividing the city into a number of well-defined areas. Each of these areas had its own
selective capacity and its own culture: they were 'natural areas' that will gave the city its natural character. The city became a constellation of natural areas, each of them with a specific function in the urban economy. It was believed that the 'natural areas' concentrated individual types that were 'homogeneous' for some reason or another. These homogeneous areas could be identified by ethnic characteristics (the ghetto, little Sicily, the China-town, the Blackbelt); or by social homogeneity (the luxurious urbanisation, the middle class suburbs, the working class neighbourhoods, the slums of the sub-proletariat, the places for beggars) or also by zones with special characteristics (the red zones, the artist neighbourhoods, the industrial zones, etc.). The social ecologist believed that although the distribution of the population in natural areas was a product of competition, the main indicators for defining or limiting them was land rent. This competition tended to bring together social sectors that shared similar characteristics. Therefore, the city was a natural entity since it was the product of a natural process of assimilation and separation. The city was not a physical mechanism but a set of traditions, habits, culture and sentiments. The city was deeply involved in the vital process of human life, and therefore was related to human nature. Different social groups with divergent interests formed the city and it was a social organisation that was constantly unstable and it open to chaos.

R.E. Park (1967), using on Darwinian principles and the concept of group solidarity, conceived of the city as an ecological entity consisting of different communities organised by an ecological order. The ecological order was the result of social interaction based successively on competition, conflicts, adaptation and assimilation. All individuals were free to choose, but were hindered in achieving their desired state, because of competition with the other members of the community. The cultural and political organisation of the community was structured through professional organisations, which were organised through an ecological order. Parallel to this 'biotic' law of competition, there was a cultural aspect that produced a union and solidarity of men around a set of aspirations and community values.

For Park the analogy with the animal world was summarised by three principles: competition, domination and invasion/succession. The competition principle explained the development of the city based on economic features. There was a struggle based on the search for location of activities in the best place. The domination principle explains the location of industry and commerce in the central area. These were the activities of the most powerful 'species', those that would settle in the most expensive locations. The invasion / succession principle complemented domination, since it explained the path of an activity or a social group from one place to another of the city. If the original group does not resist this 'invasion', there is a change in land use producing a 'succession'. These are common processes in a city, by which one land use is replaced by another (i.e. a residential use by a commercial function). Thus the urban ecologist explained city organisation according to the ecological, natural and the moral order.

The importance of this approach was that for the first time the city was analysed as a whole, although it was based on empirical observations. The approach was also based on dynamic models that explained change and growth, which gave significance to this theory of urban structure.

The main problem of the approach was its partiality, through which the Chicago case was applied extensively to other cities, and generalisations were based on empirical observation. The extrapolation model of the plant and animal world to human nature is purely formal and processes are not explained, but rather described.

From Park's theory, different interpretations and spatial models were developed later that further explained the location of natural areas in the city. The most significant of these were:

- The Concentric Zone model of Burgess;
- The Radial Sector model of Hoyt;
- The Multiple Nuclei model of Harris, Ullman and Mackenzie.
2.3.3 The contribution of town planning and architecture to urban theory

The main contributions of town planners and the architects to the theory of urbanism, during this period were the Radburn Scheme; the concept of Neighbourhood Unit; the position of Frank Lloyd Wright; the concept of the Satellite City; the Greenbelt Towns and the Modern Movement.

The Radburn Scheme

The scheme was developed in 1928 in New Jersey under the influence of Howard. This scheme linked the ideas of the Garden City with the problems derived from the use of the private car. It differentiated between vehicular and pedestrian transit and created residential communities designed around a road system, based on 'cul de sac' and peripheral avenues.

The concept of Neighbourhood Unit

In 1929, Clarence A. Perry (1929) defined the Neighbourhood Unit as an area of residence, able to generate the demand necessary to sustain a primary school. It also implied basic levels of service provision. Perry suggested that they should have a population of about 5 000 to 6 000 inhabitants (enough to generate the need for a primary school); a maximum of 400 meters of pedestrian walking distance for the primary student. 10% of the total area would be allocated to green areas; the existence of a peripheral circulation with a differentiation in pedestrian and transport streets.

The position of Frank Lloyd Wright

Wright stood for a sort of low density Garden City, which would merge city with nature. Each family would live in 4 000 square meters, produce its own food, and the gasoline station would become the basic service centre. This proposal might have been as utopian as those before 1920 but it had repercussion in many Latin American countries (Amato 1970, Sato 1977).

The concept of Satellite City

This concept proposed the formation of residential units and/or small cities that were arranged around a larger city. It did not imply the traditional notion of self-sufficiency characteristic of the former models (Benevolo 1980). The Satellite cities were simply meant to decongest the large metropolis.

The Greenbelt Towns
These towns were inspired by Howard, but without the industrial component of the Garden City concept. This was according to Kostof (Kostof 1991) the closest American version of the Howard’s model. These towns did indeed have a greenbelt, at least at the beginning (Arnold 1971). Three of these towns were built Greenbelt, Maryland and Greenhills (Kostof 1991).

The Modern Movement

The ideas of the architects associated with the Modern Movement were linked to concerns about the rapid concentration of population in large industrial centres. Three main positions were to be fundamental for the genesis of their functional ideas:

The inadequate management of the city, and the generalised opinion that “the city was in a state of degeneration”, and that “the city could not endure”, because of the degree of congestion, unhealthy environments and high level of disorder taking place in European cities;

A firm belief in the myth of industrial production and the machine. The new industries became the great force behind the new order. It demanded order: rationality and it provided elements for standardisation and serial production that were to be applied to city functions.

The housing problem was due to the high level of densification of new cities: a lack of sanitation, the inadequate size of most dwellings and the intense speculation in urban land and buildings.

The followers of the functionalist approach rejected the ‘urbanism of composition’, which they criticised as being empirical, artistic and romantic. The basic principles of functionalism were taken up in the Charter of Athens. Le Corbusier argued that “urbanism can no longer be subjected to the rules of aestheticism, but it has a functional nature”. He affirmed that urbanism must be concerned with three main functions: residence, work and leisure and that the main instruments should be land uses transport organisation and legislation. The traditional city was criticised as obsolete and not able to adapt to the demands of modern citizens. As an alternative, a rationally-organised-city was proposed with the separation of areas according to their functions; using ‘zoning’ systems. Among the principles to be used were; the classification of buildings by use in zones with different typologies and densities; a hierarchical classification of the road system; and an application of a system of graded community scales. According to this last principle, the city would be composed of ‘neighbourhood units’ defined by a physical and demographic size that generated neighbourhoods, districts and cities. All levels were to be structured according to a systematic hierarchy of the urban system and services. This theoretical formulation was called by Le Corbusier “The Rigorous Theoretical Building of Modern Urbanism” and reached its zenith in 1930 through the decisive action of C.I.A.M. It was later compiled in to the Charter of Athens.

There was a main ideological concern of modernism concerning planning in order to solve the economic and social problems caused by the development of market forces. This could be done firstly through providing conditions for redistribution of income through comprehensive land, transport and housing policies. Secondly through a changing into the excessive land subdivision practices, considered as the principal locus for urbanism in order to solve land speculation. Thirdly it was argued that the colonial city would be transformed through a new order capable of harmonising densities, land uses and services as well as giving solutions for traffic congestion and modifying the piecemeal pattern of land and private property ownership.

Functionalism was undoubtedly the planning and architectural contribution that had the biggest impact on modern urbanism. With this new rationalism the Garden City proposal was progressively replaced by new concepts. The Charter of Athens became dogma for many physical planners for many decades.

It was widely recognised that urban planning and design involved functional and sanitary considerations, which could be solved through rational principles. Some of the principles reflected the requirement for sun, sanitation, and green space; the appropriate density; the separation and hierarchy order between road systems; the pedestrian segregation; The promotion of high rise building (according to modern technology); the hierarchical supply of community services; the concept of the city as part of a region, etc. The extension of new urban areas, the building of new residential developments and interventions in squatter zones would be undertaken through blueprint plans, ruled by explicit principles.
Modernist planning ideas were rapidly introduced into Latin America, and marked the end of the Spanish grid pattern and the compact mono-centric structure prevalent since colonial times. The repetitive grid was regarded as contributing to spatial disorder, generating monotony since no attention was paid to the natural environment and the local context. The use of the four functional zones (residence, work, leisure and circulation) the modal circulation principles and the differentiation of land uses and densities gave rationality and efficiency to urban design. The urban plan defined the location of the different functional zones according to principles that aimed at reducing trips and commuting times. The location of commercial zones, green areas, industrial centres, enhanced the poly-nuclearity of the city and was meant to avoid speculation and leapfrogging.

The sectoral approach in Latin America

During this period the colonial city started to be transformed by the urban design ideas coming from abroad, especially Europe. Urban problems, especially those related to city extension began to be seen as related to particular disciplines, especially architecture. Urban design was seen as spatially-conditioned according to functional and hygienic requirements. Its most influential proponents were personalities such as Sitte (1889), Unwin (1909), J. Stubben (1906), Jaussely (1926) and Le Corbusier (1925), as well as specialised institutions such as the L'Ecole de Hautes Etudes Urbaines de Paris and the C.I.A.M (Kostof 1991). Their work was well known and part of the curriculum for Latin American planners. The construction of railways and the enlargement of avenues opened up the possibilities of linking urban doctrines with national planners. Hausmann's ideas in Buenos Aires and Santiago at the end of XIX century and the 'International Competition for the layout of avenues and location of Public Buildings' in Montevideo 1912 were important links with the main urban centres of thoughts. The French landscape urban designer Charles Thays became an important influence in Montevideo and Buenos Aires in 1912 along with the Swiss urban designer Guidini (1912) and the French Leon Jaussely (1926). They preceded Le Corbusier's influence in the Southern cone of Latin America. Also important were national architects trained in Europe, who contributed many urban design prescriptions. These included R. Larrain (1906) with their book 'Higiene Aplicada a las Construcciones' (Santiago) and the 1917 'Prescription for the Layout of Cities and Urban Agglomeration in the Republic' of R. Lerena in Montevideo in which condense it landscape urban position similar to Sitte.

The introduction of rationalism and C.I.A.M.'s prescriptions led to a profound transformation of the colonial city. In the south of Latin America, the traditional city business centre started to be abandoned and the first counter-urbanisation trends took the high income groups to more attractive locations. New rural migrants were located in the city centre looking for employment opportunities subsequently an inner city to the relocation of low-income groups followed after years of urban experience. Public policies supported the ideas of locating industrial areas in special zones near to city rings and residential zones with sources of cheap labour. The ideas of buffer zones was realised through the use of large green areas to separate functions and residential densities to the functional relation established between transport and land uses. Higher densities for the middle and lower-middle residential sectors were proposed and lower densities for the lower income groups (systems of progressive growth) were considered desirable. The ideas of planning the city at a regional level contributed to the consolidation of a system of rural-urban sub-centres articulated through an efficient transport system.

2.4. The role of public space in The Sectoral Approach

Being the Modern Movement the most significative example of the Sectoral Approach, I will refer to its position regarding public space. The absence of a specific functionalist concept for public space is linked to the architectural determination to create 'a new city', a 'new destiny for the city'. This goal in itself was given greater priority than that of restructuring the city as a whole. The lack of care for the context, for the historical components and the preoccupation with a 'sculptural' vocation for architecture brought about the 'mort de la rue' and were characteristic of the modernist approach. The strict prohibition on creating street sight lines through building alignment hindered the potential of public space to become an
urban restructuring element. The significance given to new urban design prescriptions and the insistence on high buildings separated by large amounts of common public space contrasted with the absence of prescriptions for interventions in the old city. This is not surprising given the lack of prescriptions to deal with spatial fragmentation and the increasing speculation created by the large-scale sectorization of the urban structure. The appeal for a 'new architecture and urbanism that can express the spirit of the time' was represented in the grandeur of the high-rise architecture, wide streets, large squares, new aesthetic expressions and a new spirit of architecture. This transformation architecture was 'not receptive to any contribution of integration with the inherited city and the elements that played the role in that integration.

Many critics of the Modern Movement affirmed that its failure was caused by its 'mechanistic' reduction of man and the social group to functions such as residence, work, leisure and transport. Their functionalism ignored the emotions of life, which is much more intricate and complex and to a certain extent more ambiguous and open to diverse interpretations, both from an individual and a collective point of view. The structuring of the city based on hierarchical and closed urban communities also counteracted the desired social dynamic. Personal relations are not confined to a defined space but relate to an open network and flux of individuals and goods coming from different physical locations. More than 50 years ago Jose Luis Sert (1944) already referred to the "forgotten fifth function" that permits the human collective to feel that it is participating in the city. This new dimension considered as 'the space of social interaction' could have produced a better urban morphology and a social life that was more intense and complex than that of powered functionalism.

Functional urbanism was completely opposed to Sitte's position on the treatment of open public space. According to Sitte urban space was the 'figure' supported by buildings, while with functionalism the 'architecture' is the figure, sculpturally designed above the new city space. Therefore many authors today speak of the loss of urban space in the functionalist city.

A supporter of the social-ecological point of view, Herbert Gans (1963) criticised the architectural determinism of the functionalist approach, observing that the physical environment had less impact on the functioning of the city than physical planners think. Frequently it was thought that the built environment imposed the conditions, but in fact people escaped and influenced it through a 'non conformist use', that, evaded imposition in order to maintain or to reach behavioural models more in line with their predisposition. Therefore "the social environment has a considerably greater impact than the physical one" (Gans 1974).

Other ecological supporters such as Stanford Anderson (1981) observed that it would be better to explain this phenomenon by saying that people act in 'an innovative way' within a built environment that acts as a support and which permits traditional uses or other sorts of activities.

After a great number of realisations and rigorous applications of functionalist norms around the world, functionalism started to crumble precisely because of the elementarily and sectorization of its principles in contrast to the real complexity of urban phenomena. Most functional principles have suffered a deep-seated crisis yet the successes and failures of the functionalist approach have marked the urban culture of the XX century.

3. THE INTEGRATED APPROACH (1960-1990)

3.1 Description of context

The integrated approach in urbanism represented a radical switch in thinking about the city and embraced various global economic cycles and development strategies. The intention of this section of the thesis is to define the context in which modernism was replaced by a sequence of development strategies and to identify the various schools of thought that have emerged in the period that consider the city as a whole and which use a holistic approach in the analysis of the relationship between urban and social structure. Because the idea is to identify the form in which urban theory has been appropriated and adapted to the situations of developing countries, this analytical description about the context will refer to the receptor country rather than to the context in which theory was created.

Modernisation strategies started to crumble in Latin America at the end of the Sixties. In
spite of the fact that economic growth exceeded population growth rates, in most countries the promised benefits of urbanisation and industrialisation failed to improve employment opportunities and living standards for the big majority of the population and income inequalities rose substantially.

Developed countries were suffering from an overproduction crisis and were rapidly changing from an industrial to a service-based society based on the relocation of their labour intensive production to developing countries. This switch revealed the changes in the world division of labour and the failure of modernisation industrialisation strategy in developing countries to achieve the expected mass consumption society. Large multinational corporations from developed countries controlled worldwide resources, finance, production and distribution and challenged national decision making in developing countries. The petroleum crisis in 1973 accelerated these changes.

Urbanisation rates increased substantially in these decades and it was evident that the conventional developed country solution to the housing problem through state subsidies and massive high standard housing production was not viable for all developing countries. Characterised for increasing unemployment the proliferation of slums and squatter settlements and pitifully small urban budgets. By the late Sixties urban social movements emerged demanding popular participation in the solution of urban problems.

The oil crisis of 1973 steered a process of rapid political and economic change and differences between Latin American countries became accentuated. A common feature was a shift from industrial development geared towards the internal market and the start of the opening of the economies to the external market. It became clear at this time that the link maintained by modernisation theory, between urbanisation and industrialisation was not valid. Therefore employment generation in, particularly in the tertiary and informal sectors was targeted. To a certain extent this meant that increased attention had to be paid to urban redevelopment projects that were more oriented towards the commercial and service sectors. In summary a re-orientation took place towards support for the provision of the means of collective consumption, self-help housing activities, alternative technologies, small-scale enterprises and the deregulation of the informal sector (Burgess et al 2002).

3.2 Integrated urban planning approach

The sectoral approaches had represented a big advance for the development of the theory of urbanism; nevertheless they were not able to explain the complexity of the city. At the end of the Sixties a more integrated view of the city was obviously required than that proposed by spatial dualism models. It was recognised that the spatial and social realities of the existing city had to be understood in less pejorative terms than those associated with the 'traditional' city. This led to the search of a more integrated, 'global vision' of urban reality. There was a need for an ideology capable of explaining social practice, and the relationship between capital accumulation, the state and the organisation of space. Significant developments in science and technology were linked to a theory of the organisation of space, which Friedmann called 'Integrated', and others 'the global synthesis' (De Teran op.cit) or as Cardoso (1970), Dos Santos (1970), called "Structuralism".

The Integrated approach was complemented by the structural interpretation of the city. 'Structuralism' was widely use in Latin America at this time to develop an alternative interpretation of reality and its transformation mode. Urban complexity was to be analysed, with the help of a 'system of relationships' able to give coherence to the set of phenomena studied. In this way the concept of Urban Structure became the main theoretical axis of urban studies. From the end of the Sixties a dynamic process of social transformation was taking place driven by a new attitude of social groups towards the authority and a new critical position towards the state. This was manifested both in developed and developing countries. In this context a changing attitude in urban theory was becoming fundamental through an ideological vision, which considered the evolution of the urban artefact and not the negation of it (Benevolo (1978), Aymonino (1978), Tafuri (1976), Coraggio (1979). Coinciding with this, the socialist tradition provided a theory for the organisation of space, based on a critical vision of development and introducing the concepts of surplus appropriation, socialisation of diseconomies and the privatisation of the profits of the urban productive system (Paris School of Sociology, Castells (1972), Godard (1974), Topalov (1974)). The city becomes an object of knowledge
of the contradictions of capitalist society.

The socialist tradition included a holistic concept of the relationship between urban structure and form and socio-economic and political processes; a concept of the social production of space; a recognition of the demands of urban social movements; an assertion of a critical role for the state in the provision of the means of collective consumption and of the need for popular participation in urban plan-making and management.

Three architectural/urbanist visions developed in this period: the Participatory Approach (Alexander (1975), Turner (1972)) the Morphological Approach (the Italian school, Aymonino (1976), Rossi (1966)) and the Radical Approach (Deak (1985), Lawner (1977), Popular Unity of Chile (1972)). Most of the planning instruments developed in this period were based on a holistic methodology to represent reality and to manage its transformation, and on participatory decision-making processes.

The participatory approach and the morphological approach rejected all scientifically oriented aspects, from the systems theory to the planning studies of land use, urban structure and "central places". The top-down approach and the macro-economic, macro-urban and macro-spatial scales allowed the participation only of the dominant groups and were rejected and replaced by the direct participation of users in the building of their own urban environment. From a structuralist view these analyses were regarded as inappropriate in as much as they were fundamentally critical on the market system logic and on the mercantilism functioning of the city.

3.3 The description of the positions

The participatory approach

This approach was best represented by Christopher Alexander's 'A Pattern Language: Towns, Buildings, Construction (1977) and the search for the spirit and patterns of this mode. The method involved to free building from all construction methods and encouraged the internal capacity of each individual to transform his own environment. In order to build the city, a pattern language was needed. In his book Urbanism and Participation, the case of Oregon University (1975), Alexander presents a selection of 250 patterns as examples of how participation can be enhanced in all aspects of city planning (examples of the University of Oregon, MIT, and Habraken). Such an integral vision of participation was regarded as being difficult to implement. However Alexander's principles were welcomed in some developing countries in the task of providing planning and design instruments for the assignments associated with Basic Needs strategies. They included: patterns for transforming the city in small doses; patterns for the formulation of diagnosis; formulation of social and physical prototypes of housing and neighbourhoods and the formulation of patterns of progressive growth. All were based on the participation of users and professionals.

The supporters of Participatory Planning argued that planning and architecture should be based on a "bottom up" rather than "top down" approach that recognised that it was the individual and the community who organised space and that the function of the architect and planner was to facilitate this 'Freedom to Build' (J. Turner 1970) and 'dweller control' (Habraken, 1972). The recognition of the resulting 'pattern language' (Alexander 1968) could be translated into planning and design instruments that could assist re-distributive goals. Concepts that were popularised at this time included: patterns for formulating diagnoses; patterns for formulating social and physical housing prototypes and neighbourhoods and patterns for formulating progressive growth and development. All would involve the participation of both users and professionals.

The morphological approach

This approach is characterised by a preoccupation with the architectural analysis of urban form. It is generally a position opposing the systematic approach, which is considered to be preoccupied more by the process of decision-making than of the resulting urban form. It considers the study of the growth form pattern, architectural typologies and urban morphology.

The morphological approach reassessed the social function of space, and the importance of urban form for planning and transforming the city. It emphasised the need to study the
form of growth patterns of cities and settlements and the need to articulate architectural typologies with urban morphology. It supported the concept of the relative autonomy of the urban form since that the physical form was believed to be permanent while economic and social processes are temporal. It recognised that care should be taken when intervening in the city given the attached symbolic significance of collective memory. Adaptation and harmonisation of new buildings and developments in line with the existing urban form was the key process and not the drastic insertion of utopian and scenographic elements that was characteristic of the modernist approach. The morphological approach adjusted the form and scale of architectural and planning developments to that of the existing built environment and thus provided a design ideology that could accommodate the integration of piecemeal developments within a broader holistic view of urban planning and design.

It is represented by the Italian School, its theories of Urban Analysis, and the reconstitution of the memory, context and history. The connection between the analysis of the morphological structure and the identification of the historic essence was manifested in the search for pre-existing environments (Rogers, 1970) and the set of natural and built elements that conformed the place, determined its character and the built presence. Aldo Rossi (1965) set out the criteria for the city understood as a spatial continuum without ruptures implying the search for elements of a particular nature within the urban structure, as the basis for fragmentary interventions. Two ideas are important for Rossi: the place (locus) and the collective memory, which he considered to be interrelated. For Carlo Aymonino (1965) the city has a meaning because it is possible to identify homogeneity of architectural representations independently of the time of construction. Architecture should be able to represent a generic contradiction (image) and the real conditions (project), and give importance to infrastructure, services and equipment in the configuration of the modern city as determining factors.

3.4 The role of public space in the integrated approach.

In the specific areas of architectural, planning and design practice the Seventies saw a breakdown of the monolithic consensus that had underpinned modernist approaches and indeed the first steps towards the formulation of a theory of postmodernism occurred at this time. All schools of thought considered urban policy in relation to its constituent element, the social structure and if defined objectives, programs and strategies for interventions oriented towards re-distributive goals and equity considerations.

A division of opinion however opened up over the nature, role and function of the spatial dimension in development. Structural differences concerning theory and methods existed between architectural and urban planning positions. A fundamental disagreement developed, especially in relation to the regional question; the informal sector; the role of technologies and spatial form.

Some believed that the concept of seeing the city as a product and as an element of production/reproduction, creating contradictions and segregation, should be replaced by a vision in which the city is a place to be used by the citizen (Friedmann 1973, Boisier 1981, 1996). In this context the new urban theory was to understand and explain the city not as a product but according to its use value, in service of those who live in the city. They argued that in order to achieve the goals of the new city it was necessary to create a consciousness amongst the working class of their rights to appropriate and use the whole city. Others (Castells 1973, Coraggio 1979) strongly argued for a scientific explanation of spatial phenomena and for a theoretical framework that identified the social contradictions of the capitalist system.

What both positions had in common was the need for participation to vindicate the 'right to the city', and that a new theory should be born from Urban Social Movements, which would be able to develop a dynamic of confrontations and a progressive continuum of demands.

The specific proposals related to urban design were:

- To achieve the goals of integrated urban development through combining the rehabilitation of the central areas with the overall process of transformation occurring in the city.
- To conceive transformations as a conjunction of different processes and activities taking place simultaneously in the city and in society, making multidisciplinary actions necessary;
- The ordering of land uses, transport systems and services of the central areas should be
seen as the realisation of a set of interrelated processes with different timeframes for materialisation. This would only occur if the transformation was seen as a process of revitalisation and not of total renewal, considering the existing city; the scale of the location; the enhancement of historical landmarks; the need for densification; the need for consolidation of functions; the spatial integration of the different fragments and the socialisation of public spaces.

- To consider the complexity of the interactions between functions and objectives, which necessarily refer to a planning process, based on information, consultation and participation.

- Architectural and urban design must take into consideration the existing city, the present scale and traditional buildings. It must also consider the constructive, morphological and technological development level of the country. The formal image should express a regional way of life and culture.

- The traditional way of project making would be changed, through integrating analysis and design. This required the general contextualisation of the urban image, followed by the establishment of design and programmatic principles that could rule the development of the sector. This meant developing simultaneously functional and formal principles as well as formulating the rules of the process of urban transformation in line with the architectural and urban culture of the XX century.

Integrated concepts for public space planning took root in Latin America, particularly in Argentina and Chile from the early 50s onwards. The ideas followed the landscape schools of Sir Patrick Geddes (1854-1932), Lewis Mumford (1895-1990) and the architect Gaston Bardet (1907-1989). These influences were developed by Luis Munoz Maluschka (1896-1974) in Chile and Odilia Suarez in Argentina.

In fact the Plan for Territorial Ordering of 1960 of Santiago was influenced by the integrated ideas of the former schools of thoughts and authors, stated for a global landscape conception of the metropolitan region. The Plan considered the green spaces and road system as integrated and structuring elements and emphasised a systematic vision and co-ordinated the regional, micro-regional, inter-communal and local scales. The most relevant concepts put forward to achieve these goals were:

- Consideration of habitable space as a systematic and integrated totality, which comprehended urban and rural space interaction;

- Consideration of the need to perform multidisciplinary studies of the intervention site;

- Consideration of the building of planning guidelines for day to day implementation and through sectoral studies and projects made by different authors;

- Consideration of the need for higher urban densities;

- Considerations of regional space also as a space of landscape and collective interest.


4.1 Description of context

A significant change in the role and meaning of public space in the urban structure took place with the onset of globalisation. Globalisation has had an impact on spatial and social structures both in developed and developing countries and new analytical explanations are needed to understand the effect of this new phenomenon in cities. It has certainly changed the relationship between the state and the market, it has had an impact on the cultural values of the community, the articulation of the factors of production in space and the way in which cities are being structured and regulated. In this chapter we shall analyse the impact of globalisation on the role and meaning of public space.

Globalisation can be considered as a new phenomenon, which has been driven by the development of information and communication technologies (ICT), and the deregulation of markets. Globalisation is seen as a multifaceted phenomenon, which involves economic, societal, cultural and political factors that have homogenised values, knowledge, products and processes all over the world. Many have stated that with the development of information and communication technology and the possibilities of centralised planning and control of
processes and services, the role of the cities as well the dimension of space and time has changed (Castells 1994,1999, Sassen 1989, 1990, 1994, 1995, 2000, 2001). Globalisation has contributed to change the spatial structure of both developed and developing countries since a concentration of productivity gains in small and powerful international groups has been facilitated. It has become evident that the changes in the different countries depend on the position of the countries, region and cities in the world division of labour.

With globalisation, a greater role for knowledge creation, innovation and productivity has contributed to change the factors of production and the way in which people work, communicate, and play. With increasing global trade in many countries the old labour intensive manufacturing structure oriented to internal markets is being transformed or has disappeared, and a new importance has been assigned to the financial and service sectors. The shift from secondary to tertiary activities has intensified. Cities in developing countries are recipients of these changes, and the development and modernisation of infrastructure have become an important advantage to attract foreign investments. The increasing internationalisation of financial services has had an impact on urban development as well. The increasing importance given to urban development in national development strategies tends to increase rather than diminish inequalities since differences in opportunities and incomes significantly arise between regions, cities and urban locations. New globally oriented financial centres have appeared in those urban locations in large mega-cities, able to attract modern advanced services. At the same time several new types of informatisation of work in developed countries have arisen (Sassen 98) and 'just in time' industries, 'maquilas' and free trade zones have been located near large agglomerations and in cross border regions (Barkin 1998). Mexico and Central America are examples in Latin America while in South East Asia, these 'just in time' industries are located everywhere. The United Nations Human Rights annual Report (2000) has highlight the overexploitation of labour, especially women and children that are the direct expression of the new geography of global production.

The common effects of globalisation processes on space can be summarised in three points:

First, when "Cities become the 'locus of growth', urbanisation rates increase, factors of production change and so does the spatial organisation of territory. According to the UN State of the World's Cities Report (1999), in 1970, approximately 35% of the world's population lived in urban areas; By the year 2000 this proportion was close to 50%. Cities are the nexus of nearly all-global trends and will soon become the habitat for the majority of the people. The astounding growth of cities is not an independent phenomenon but part of a broader global process that is moving humanity toward a more interdependent world. There is a tendency – the same as at the time of the industrial revolution - towards spatial polarisation, since agglomeration of critical mass for consumption becomes a comparative advantage for attracting national and foreign direct investments. There has been a rapid increase of financial services and trade from all over the world, steered by the internationalisation of knowledge together with the development of a global market for computers and consumer electronics. This makes the availability of technical and social infrastructure a comparative advantage for globalisation. The revolution in transport technologies (i.e. air travel and containerisation) in combination with information technologies led to an increasing role in global trade of high value industrial goods, services and raw materials and agricultural products. All this gave cities a new role as the material location of international services and finance. The rapid and increased flow of capital, goods and services, the diversity and extent of the process of change and greater population mobility led to a change in the urban–regional form; new modern sub-centres emerged and old industrial centres disappeared; commuting increased in line with the increase in counter-urbanisation, the abandonment of old neighbourhoods and the overall construction of highways and facilities for the high and middle income groups.

The second effect of globalisation was the impact on the physical form and socio-cultural character of urban areas, which exacerbated the relation with the natural environment. The UN State of the World's Cities Report (1999), reviews 600 sources from around the world and has identified several impacts: the growth of mega-cities, the fragmentation of urban areas, the formation of national and international urban systems and the diversification of social behaviour and lifestyles within the cities. On the other hand there were negative impacts such as the growth of insecurity in urban areas, lack of affordable housing or secure tenure, increasing social exclusion, traffic congestion, environmental pollution, shrinkage of the formal economy and a crisis in urban management. The deterioration of the environment and the
need to look for new models of urban sustainability, based on energy reduction and protection
of the ecosystem are recognised as important tasks.

The third is related to decentralisation and deregulation that has brought a new relationship
between the state, the market and the community. New social and economic actors have
emerged, especially through international migration and the emergence of transnational actors.
Many local governments and public administrations are unable to control urban processes
and adapt to rapid changes. The transnational activities of the private sector are a major
force for the loosening of control, but the trends towards decentralisation also contributed
to the process. Cities become more heterogeneous, decentralised and became autonomous
and diversified cultural, economic and decisional poles. The UN State of the World’s Cities
Report (1999) assumes that if local authorities were closer to social realities, they would
request more authority to extend their control over issues that affect their citizens directly.

4.2 Globalisation and the transformation of the urban model

Within this context Sassen (2000) argues that urban centres provide the condition to in
the mix of resources and the social connectivity, which allow a global firm or market to
maximise the benefits of its technical connectivity at a central location. Sassen recognises
that spatial concentration remains as a key feature but is not a simple continuation of older
patterns of spatial concentration. Today there is not a simple straightforward relation between
centrality and geographic entities such as the downtown, or the CBD, and the spatial correlates
of centralities vary according the way in which information technologies affect the spatial
organisation of economic activity. Sassen identifies three types of firms in terms of locational
pattern. First, the firms with highly standardised products/services have a variety of locational
options insofar as they can maintain system integration independently of the context in which
they are located. Data entry and simple manufacturing work can be moved to wherever labour
and other costs might be lower. Headquarters can move out of large cities and to suburban
location or small towns ("just in time" and "maquila" production). A second locational pattern
is that represented by firms, which are deeply involved in the global economy and have
increasingly complex headquarters functions whose complexity demands outsourcing to
highly specialised service firms. This frees also the headquarters to locate anywhere so long
as they can access a highly specialised networked service sector somewhere, most likely in
a city (ICT multinationals, banking, insurance and audit services). The third locational pattern
is the one that benefits from spatial agglomeration at the points of production and highly
specialised network service sectors, most likely in the city itself (multi-media, legal services,
advertising, accountancy, marketing and printing industry, shopping centres)

Within this framework there are several patterns that contribute to the reshaping of the
urban model under globalisation. First, the concept of "centre", can assume several geographic
forms, likely to be operating simultaneously at the macro-level. The centre can be the CBD,
as it still is largely for some of the leading sectors, notably finance, or an alternative CBD,
such as Silicon Valley. The CBD remains a major international business centre and a strategic
site for the leading industries, but is also profoundly reconfigured by technological and
that there are sharp difference regarding the reshaping of the central city in different parts of
the world, especially between Western Europe and North America. Another pattern that shapes
the new urban model is that the centre can extend into a metropolitan area in the form of a
grid of nodes of intense business activity. This model constitutes a new form of organising
the territory of the centre, rather than, as in the more conventional view, an instance of sub-
urbanization or geographical dispersal (Sassen 2000). Insofar as these various nodes are
articulated through digital networks, they represent a new geographical correlate of the most
advanced type of 'centre'. The trans-territorial "centres" are globally interconnected through
digital transaction and partly through conventional transport and travel. The result is the
multiplication of circuits connecting sets of cities. These networks of major international
business centres constitute new geographies of centrality.

The most powerful of these new geographies of centrality at the global level binds the
major international financial and business centres: New York, London, Tokyo, Paris, Frankfurt,
Zurich, Amsterdam, Los Angeles, Sydney, Hong Kong, among others. But according to Sassen
this geography now also includes cities such as Bangkok, Seoul, Taipei, Sao Paulo and Mexico
City. The globalised sectors in the city appear as sub-economies, with a stronger orientation
towards the global markets than to their own hinterlands. The articulation of these sub-economies with the other zones of the city are various, since they can be related to the supply of priced services to the sophisticated workforce, from high standard restaurants and hotels to luxury shops and cultural institutions. There are also low-priced services that cater to the firms and to the households of the workers and which rarely 'look' like they form part of the advanced corporate economy. The demand by firms and households links two worlds that according to Sassen are quite different. There is also a third and huge surrounding area that has little connection to these world-market oriented sub-economies.

4.3 Globalisation and the Latin American urban model

It is perhaps in Latin American large cities that the impact of globalisation and the development of the globalised sub-economy have had the greatest impact and where the new urban model is more clearly starting to be understood. Many researchers have noted that the urban and social structure of cities in Latin America has changed considerably from that of the former economic period. Although some countries (Chile, Argentina, Peru, Colombia, and Costa Rica) experienced a long period of economic growth during the 90s, this did not benefit the lower-income groups and the concentration of wealth increased.

In many large cities a period of downgrading and counter-urbanisation of the city centre has been followed by a period of revitalisation, although the economic 'centre' has became more atomised and intensified. The formation of a network of spatial centres has shifted the globalised activities from the CBD to the various centres located in different places in the metropolitan area. The process of obsolescence, disappearance and reconversion of industrial activities has contributed to wider transformations in different parts of the city. Many low-income residential areas located near to the obsolete industrial centres are in a rapid downgrading process whistle others located in the proximity of reconverted industry are developing faster. In many cases large industrial dilapidated areas of the cities have been converted to modern activities (Puerto Madero in Buenos Aires) others left to downgrade (Mexico City's inner city industrial areas).

The formation of high-income "gated" communities during the Eighties along highways in the suburbs of the metropolitan areas has contributed to the consolidation of a network of service centres, which have included in many cases the new financial and commercial sub-centres. The highly degree of residential segregation of the past, the product of zoning and of highly differentiated residential markets has started to change due to several processes aimed at increasing urban efficiency and urban productivity. These include: administrative decentralisation; investment in metropolitan transportation; strategies for the consolidation of poly-nuclearity; the development of urban development corridors and the formation and consolidation of new activity nodes. At the local level, the development of tertiary activities of all kind (informalisation) has contributed to the transformation of traditional residential areas from mono-functional entities to multi-functional areas.

- According to Sabatini (1998) there are four ongoing processes that contribute to the changes in the segregation pattern of residential areas in Santiago:

- The consolidation of a new residential model for the high and middle-income groups in terms of gated (horizontal and vertical) communities, which has consolidated new social identities.

- The general reduction of the scale of segregation and the increasing dispersion of high-income development in various parts of the urban region.

- The intensification of the geographic segregation in smaller spots rather than in large areas has opened up new opportunities for public space to provide a social encounter of areas with multifunctional activities (services, commerce) and to provide possibilities for a more socially-integrated city.

A positive effect of gentrification has been the process of recuperation of old centres associated with massive movements of people to recuperated public and semi-public spaces. A rapid process of penetration of the 'developed' city in to the marginal areas is taking place through this gentrification process and the opportunities for social encounters in the large commercial centres have followed.
Evolution of the Latin America City model

Map 7: Interpretation of Latin America urban Models 1960s-1980s./ Source: Own elaboration.
Map 8: Interpretation of Latin America urban Models 1980s-1990s./ Source: Own elaboration.
Map 9: Interpretation of Latin America urban Models 1990s-Nowadays./ Source: Own elaboration.

4.4 The rise of the strategic urban planning approach

After two decades of structural adjustment and globalisation the neo-liberal urban deregulated model has become a matter of concern for many global institutions (UN Report on Human Rights 1999; the World Bank Globalisation and Poverty Online Debate 2000). The concern focuses on failures in development models and in urban development control approaches and overall public and private mismanagement. For many researchers a more holistic approach is needed to counteract economic and financial impositions that are able to incorporate social and environmental variables. However the incorporation of a broader social base, actors and interests requires the existence of a common vision of the city and more sophisticated regulations for urban structures. Borja and Castells have in ‘Local y Global’ (1997) expressed their concern that neo-liberal policies of non-regulated urban development are associated with increasing urban social fragmentation (‘de facto’ zoning of activities), the ‘ghettoisation’ of the city, and the accentuation of environmental problems. Non-regulated and/or badly regulated urban development also plays against the objectives of self-enhancing opportunities, since it discourages private investment.

Borja⁶ argue that a strategic vision and planning to the city is necessary in order to interrelate the various levels of intervention: the regional (metropolitan), the urban and the local.

The Strategic Plan of the city is very popular today and is widely in use in Latin America. The supporters of Strategic Planning argue that rather than a being blue print plan it is a framework consisting of proposals for medium and long-term action. A strategic plan is meant to be closer to reality, resources and social actors. It is meant to recognise the need to define urban objectives from the existing social and cultural dynamics. It develops a permanent relationship between objectives, strategies, projects and impacts and it recognises the need for the convergence of interests between public and private actors in all phases of plan making and implementation. It believes that the participation of a wide variety of urban actors will increase the feasibility of the plan. A collective agreement is developed around a general project, a set of measures and responsibilities for the future development of the city, which includes all public and private sectors in the implementation.

As was the case in the Strategic Plan of Barcelona, the strategic approach to urban development recognises the complexity of urban and social structures and the recognition of different subcultures and tools for understanding the urban environment and the behaviour of individuals in society. Popular participation is considered necessary for the construction of a common project based on opportunities based on the premise that self-identity must be constructed by individuals and groups themselves. This is a complex task full of uncertainty,
which requires that individuals and authorities find their own balance through negotiation. An important part of the construction of modern identities is the creation of reference frameworks. The choice of lifestyle and of the living environment (such as the design of place in the city) is part of the process of creation of the reference framework for the new identity.

4.5 The role of public space in the strategic approach

In concluding this literature review it is worthwhile returning to the social and spatial dimensions, and the position of urban planners in relation to public space. Specifically two development theories driven by globalisation have recently appeared which discuss these issues: Those of Beck (Beck 1996) in the second-modernity and Borja (Borja 1999) in the new-modernism.

Beck's second modernity refers to the new confrontation between 'centre' and 'periphery'. As opposed to the modernisation process linked to industrialisation and the welfare state, this modernisation has a transnational scope. According to Beck the steering force that makes individuals act is the desire to generate wealth, and all collective categories are surpassed by the intensification of 'institutional individualism', which has become the main characteristic of the second modernisation. Individualism has accelerated, and become a dynamic part of society cancelling out the force of collective identities.

Individualism has been absorbed by a growing part of society and along with the strong role of gender it has contributed to changing the concept of the family as the spatial, social and economic core of society. Individualisation has changed the way in which space is organised, from all levels, from the house to the city. The opposition between society and nature is being questioned by technology and by the technological crisis. Nature has been transformed presenting risks and danger that are negotiated in the process of 'society building' and which has an autonomous political dynamic. This is what Beck calls "Risk Society" (Beck 1986). Finally he set that capitalist dynamics are nowadays represented by virtual-digital capitalism: the combination of information and communication technology, which undermines the intelligibility of the labour society.

In Borja's new modernism a plurality of institutional and cultural conditions has been reorganised. This new modernism creates the need for an historical view, for reflection and a critical attitude towards past values and practices, and a genuine desire for change and renewal. A crucial element of the new modernism is a new perception of the relation between the individual and society: individuals are perceived as active agents who can change their own destinies, nature and society. New modernism is perceived as a condition of complexity that involves not only constraints but also opportunities. An important characteristic is the intensification of the local and the global. For individuals, this means a new range of opportunities. It implies loosening ties with the local community and at the same time its insertion into the global culture.

Borja argues that the New Modernism is pragmatic and recognises a positive side to spatial segregation and gentrification and a new relationship between the private and the public domain. This relationship is related to the diversification of urban structure to the new connectivities and the development of new opportunities. While privatisation of public spaces is the result of elite preferences for privacy and individuality, the reduction of square meters per inhabitant among the poor sectors of society and overcrowding, give a new significance to the need for public space as a place for extending domestic activities. The closed and gated communities practices, as well as the multiplication of malls and shopping centres, the mobility and transport transfer modes are all extending their area of cultural influence from the upper income groups to the lower incomes groups of society.

Similar conceptions of the social structure and planning public space come from the followers of the new social ecological school of thought (Anderson 1978). Anderson argues that the city is an organised society, composed of individuals structurally specialised, who utilise different resources and who demand different benefits and goods. This definition rejects the concept of a form, which is functionally determined, or an architecturally-determined spatial organisation. The recognition of the inclusive relations of individuals in the built environment requires a model that permits a flexible relationship between form, activity and meaning.
From all this, a greater emphasis has been assigned to issues such as mobility and accessibility; the diversity of public spaces; different land uses; environmental features, and mutually-supporting land uses.

It is important that planners when planning and designing a public space introduce new decision-making tools and a planning culture that will be reflected in the plan in addition to the material objects that will be incorporated. This does not mean attaching a lesser importance to design factors but rather an attempt to find a congruency between the physical environment and the culture of the users. Decisions on what ‘type of culture’ and on the ‘options and distribution’ of the physical elements cannot be separated. This requires new planning tools and cognition instruments.

5. DEFINITIONS OF PUBLIC SPACE, A LITERATURE REVIEW

In this review we have attempted to classify the definitions of public space on the basis of three aspects.

- First these are those definitions based on the spatial and physical aspects, which highlight the nature, dimension, location and typology of public space.

- Second there are those definitions based on the functional aspects and as such highlight the use and the role of public space.

- Third there are those definitions based on psychological aspects and as such highlight the perception and form of public space.

5.1 The spatial and physical aspects of the definition of public space

Public space has inter-related physical and functional potentials and as such constitutes a whole with respect to open and built form and the private and public realm. Therefore it belongs to the architectural domain. Public space is considered as a continuous spatial network that interconnects all points of the city, qualifying the buildings, the activities that surround them and the specific functions that are embraced on this frame. These functions hold the collective and social character that constitute contemporary urbanity: from the spaces for destination and circulation and exchange of persons, goods and services, to those belonging to civic, cultural and recreational activities linked to the citizen's life. Therefore it belongs to the urban domain. Public space is ‘non-detachable’ from its private space. The one shapes the other; it is a strict counter form. The weakness of one will seek compensation in the potentialities of the other. From these shared capacities and interconnections arise complex notions of community and privacy, that each particular city and culture has rewritten in its own fashion. (Arrese 1998).

Public space differs from buildings because they are temporal; they show clearly the values of each historical time, its aspiration and culture. Public space is the principal container of the urban life and plays an important role in the consciousness of the city in the cognition of the functional structure and the significance of the form. It is a limited space, moulded according to human needs. It is the fascinating place of lights, encounter, business, movement, and flow, with all the noise and smells of anonymous crowds. It can also be the place of the homeless, of public protest, of street vendors, prostitution, violence and marginality.

For the West European Working Group on Open Space in Urban Areas (1997), public (open) space has a more pragmatic definition and is conceived “as the space not covered by buildings”. They have seen it necessary to exclude ‘functional’ public open space, including space required for the access to and the day-lighting of buildings. This would restrict the term to areas above a certain minimum size, which serve a purpose not immediately connected with buildings, although it frequently provides for the needs of inhabitants. For this group, public open space may include many sorts of sites, uses and types-planted, paved or aquatic like-parks, squares or lakes. It may also serve for sport or for other forms of recreation, wild life or preservation. It benefits may be ecological, economic, recreational or aesthetic.

The domain of public space is considered by this group at a lower urban scale. It also includes collective public space like inner-courts, which may be insignificant in a metropolitan context; but which can be important -as an overall network of public spaces. Open spaces
surrounding the urbanised area should be included, insofar as they are relevant for ecological effects and for recreational use. The dimension may vary according to local conditions.

5.2 The functional aspects of the definition of public space

For Jordi Borja public space is an opportunity to produce citizenship, because of "its rather unequal distribution; the way it fragments the urban tissue; its accessibility; a its potential to create centrality; its symbolical value; its polyvalence; the intensity of its social use; its capacity for creating employment; the self-esteem and the social recognition, it generates and because of its contribution to give a "sense" to urban life. These are opportunities that never should be forgotten in order to promote the constituent rights and duties (political, social and civic) of citizenship."

A place for exchange and dialogue between citizens is the main functional elements in the definition of public space. In the context of cities currently characterised by spatial and social fragmentation, city policy must consider conditions to encourage user participation. Baudouin (2000) considers privatisation of public space the main cause of city fragmentation and social and spatial mobility the main conditions of citizenship today. In societies marked by fragmentation (but also by rapid flows of information) mobility is a condition for integration and differentiation between place and non-place.

The West European Working Group on Open Space in Urban Areas (1997) restricts the functional condition to a temporal use since it considers that public open space is usually not burdened with heavy material investment and therefore may be more easily adaptable to new uses than most other parts of the urbanised area. Public space is considered as a space available for future decisions to serve a demand as yet not foreseen. This implies sometimes a temptation for short-term policies, which should be resisted for the benefit of future generations.

At the metropolitan scale this European group considers that there are certain open spaces outside the urbanised area, which may serve various purposes: public recreational grounds, golf courts, or even airports. Many current public spaces used to be used by industry, ports and other obsolete activities.

The West European Group distinguishes between two groups of open space in relation to function and scale:

- First the open spaces which are, for functional reason, elements of the urban agglomeration itself and thus normally part of the urban fabric.

- Secondly the open space which surrounds the agglomeration and which is mainly characterised by agriculture, forestry or even uncultivated nature. These include open spaces outside the urbanised area, which may serve various purposes: public recreational grounds, golf courses, or even airfields.

The first group could again be divided into: privately owned and used spaces, (like courtyards and gardens), and publicly provided space (such as streets and squares, parks and cemeteries).

- The privately owned publicly used are those public spaces related to zoning regulations prescriptions necessary to fulfil floor space and bio-physical urban standards.

This is not a precise division, since sport fields, allotments and gardens, for example, could be in private as well as in public ownership while serving the same functions and playing the same role within the urban open space system. This conflict is solved if we analyse public space from the juridical point of view, in which there is a formal separation between private property (expressed in the cadastre and the right to build), and public property, that normally supposes the reservation of land for social and collective uses.

As public space is the place for social and cultural animation the dynamic of the city can create public spaces that juridically speaking are non-existent as such. This can be a factory, an old port, an abandoned site or interstitial land between buildings. Generally the access to train stations, inter-modal nodes and sometimes ecological reserves are included. In all of these, what really determine the nature of public space is its use and not its juridical status.

Some urban planners disillusioned with the functionalist approach argue that modern
urbanism has caused public space to lose its role in urban development and to be devalued. This was achieved through the assignation of a specific use to it. But the point is that public space means public domain, collective use and multi-functionality. In some cases public space is associated with mobility, in others with ‘public ordering’. Public space is associated with monumentality, symbolism or with urban beauty and it is currently very much related to commercial activity. In less fortunate cases public space is related to social segregation depending on the accessibility potential for exclusion and concentration.

Faced with the increasingly complex interrelations of both the urban structure and the social structure, other functionally oriented definitions for public space have arisen. Authors like Remy and Voye (1992) define public space as the space that actually consolidates the continuity relations of territorial interchange spaces. In the context of the “new virtual spaces” Richard Sennett (1994) similarly argues that public spaces form an important component of the urban “armature”. Sennett affirms that changes in social relations and technology have eroded the traditional functions of public space; and there is evidence that other types of meeting places have replaced it. Distinctions between the public and private spheres can be ambiguous, but it is feasible to include privately-owned but publicly accessible spaces, such as public buildings, shops and malls, within the concept of the generic street network (in Argentina the so-called “pedestrian malls”). Similarly, historical places of assembly have their modern counterparts: the shopping centre, the multiplex cinema, the transport modal transfer stations and the leisure centre or gymnasium.

Similarly MacCormac (1993) has argued that in considering the changed character of the public realm, it is necessary to distinguish between the types of activities that currently take place in it. In a series of articles he argues that a distinction may be made between "local transactions" such as those that might occur between small entrepreneurs and their customers in face-to-face interaction - for example the activities associated with a tobacconist or a small print shop- and those which he terms as "foreign transactions", which are associated with inter-regional or national exchanges of information - for example the placing of an order with a foreign bank or communications between the national headquarters of a transitional corporation. The interesting aspect of MacCormac’s argument in terms of public space is the acknowledgement he gives to the changing concepts of the public realm. Rather than proposing that ‘physical space’ is replaced by ‘virtual space’ he suggest that the public realm simultaneously comprises both traditional physical interactions (exchanges of goods, face-to-face social interactions) and virtual interactions (exchanges of information), (M. Roberts 1999)

In the particular case of Chile there are in the Building Law Ordinances, specific definitions of parks, squares and bicycle lanes but there is no specific chapter on urban space for public use, its constituent elements, or on the regulation of use and general norms to solve conflicts. The definition developed by Sergio Leon[7] posits public space in a wider conceptual framework that of "Collectively Used Urban Spaces". In this way he argues for the incorporation of the principle of "ownership". Consequently the Collectively Used Urban Spaces are understood "as the network of publicly and privately owned spaces and buildings used by the population for its recreation and circulation, either on a permanent or regular basis, which are explicitly linked the one to the another, at the scale of the pedestrian".

In line with this definition, the Argentinean architect Odilia Suarez also distinguishes the relation between private and public domain, not only in terms of ownership but also in terms of the management responsibility for its planning, control and maintenance. She considers that "public space is not only that which is used but is also that which is perceived". She introduces into the definition the morphology of the private properties that surround it, and considers it is a "natural public right to regulate them". She adds that the juridical concept of owned property is not the only one that differentiates the public and the private in this context.
5.3 The psychological aspects of the definition of public space

The psychological aspect of the perception of public space also has to be considered. In fact of the question of how we define a public space. The first thought in definitions of Public space is of a wide physical space, well-defined through its borders and with a great activity and mobility of people within it. From this perspective public space is the confluence, the crossing and the transfer of gravitational (or repulsive) forces that generate movement which are produced by the elements that exist in that space (Lopez & Kramp 2002). The Barcelona Rambla concentrates a strong mobility flux given the significant number of elements that are concentrated in the space. From this is possible to consider two thematic categories to define public space. The first is based in physical knowledge associated with the phenomena of gravitation, repulsion, weight, mass, energy, distance, etc. The second is in the type of perception of public space by people. This theme is understood by Arheim (1978), Rapoport (1978) and Bailly (1978) as a dynamic configuration of forces.

Others (Mook, 1993) look to in physics to understand the perception of public space. In physics, movement is defined as the displacement of an object produced by an impulse or by a gravitational attraction produced by another object. The magnitude of the force is dependent on the object's mass. In a public space something similar occurs. Although the experiences of physics are determined in empty spaces, in urban space we find a similar phenomenon when we refer to a mass of buildings producing either an attraction, or repulsion in relation to the perception of public space by people that live in the surroundings.

Despite the fact that physical phenomena as they exist in nature cannot be applied to people (because human beings are moved only by their own will), we can recognize the effect of a force that can be external to the spatial domain. The action of people are the answer to a set of unpredictable situations caused by external pressures, which are manifested in different directions and in spite of it unequal nature, individuals perceive them, often unconsciously. These forces can range from those derived from a church, a market place, an old tree, to advertising landmarks consisting of sounds and lights.

Canter (Canter 1978) considers the perception of public space as being of a dynamic nature. He considers that people act in different ways according to their internal experiences and that there exists a dualism between the purely intellectual information and the internal emotions that produces the given object's inherent forces (cit. Arheim 1978, p.168). Therefore it is argued that we can only judge an object on the basis of what we think of it or what we can perceive it is. That is to say by its most dynamic elements.

Arheim gave the name "spontaneous symbolism" to the inherent expression of perceived objects. In order to be expressive the form of an object must be seen as dynamic. When an object is viewed only from its geometric attributes we do not see any expressive attribute. On the contrary when the form has an expressive attribute we see the evidence of its symbolism.

The verbal language applied to the perception of objects is different to that we are accustomed to use. We do not characterise objects according to their objective attributes, "as things linked to things", but we can refer to them in a more adverbial way, when seeing them as belonging to activities rather than to things. (Arheim, 1978). According to Lopez and Kramp (2002) it is necessary to get rid of a static vision of things in order to see the real dynamic inherent in each thing, which is directly related to the form of the use of the object by humans. They apply here the example of a glass which seen from the static point of view is not more than a thing in a table that is used for drinking and that can have several forms.

Juan Navarro Baladeweg (1999) argues strongly about the latent attributes of things that prevent us from seeing only the accessories or their ornamental qualities. Rather than referring to the space existing between things and persons, he refers to the links between them, such as the gravity or the shades produced by the light that can be imagined as invisible threads that join them and that conduct us through unpredicted roads that form part both of the nature of things as well as of human nature. (Navarro, 1999).

We can conclude then that sometimes peoples action can be determined by the form of the space and it latent attributes. But this is not to say that 'function follows form' in a conventional way. The influence of form in a space that determines its pleasantness for a person and a willingness to stay in it depends of the way that the subjacent forces of the place are expressed. This to affirm that the willingness to stay in the place is rather an issue of sensations than of consciousness about measurements and real sizes. Lopez and Kramp
(2002) argue that a space can be very extended, but it must have certain elements that generate a relation between it in distance. Although the scale can be overwhelming, the existing relation between the elements can give a sensation of being part of gravitation and to lead to action according to it.

With this it is argued that the issue of the optimal distance for an open public space is not measured by the degree of physical nearness amongst objects or by the empathy that we can have for a given urban element, but by the complex grouping of attraction forces between the mass of elements, that acts rhythmically and in consequence according to an order that is able to make us fill a part of it. This is an order that produces a sense of place Thus: I am a part of a great city; I can see the Eiffel Tower from far away; I am part of a neighbourhood, I can see the church and the school; I am part of a square, I can see the clock of the cinema and the light of the fountain reflected in it, etc.

There exists a degree of relativity in the perception we have of the dimension of distance. In psychology distance is transformed into a subjective aspect dependent on factors such as time, preference, sex, age, culture and context (Bailly, 1978). A worthy place is filled more closely. According to Bailly, the distance is greater when there exist repulsive forces in the place and less if the elements belonging to the place make us feel part of it.

6. CONCLUSIONS

6.1 Conclusion from the functional–spatial point of view

Using functional and scale concepts, public space, is both an intrinsic element of the urban agglomeration itself, and thus, part of the urban fabric. Secondly, public space is the space, which surrounds the agglomeration and is characterised by agriculture, forestry and uncultivated nature: such as ecological reserves, public recreational grounds, golf courses, or even airfields. In this thesis we will concentrate on the first scale, although the regional or metropolitan scales are both constituted in the general framework.

This thesis will focus on publicly provided space such as streets and squares, parks and cemeteries even though other types of ownership have been included. It may be feasible to include privately owned but publicly accessible spaces, such as public buildings, shops and malls, within the concept of the generic street network (as defined by the so called "pedestrian malls"). Similarly, historical places of assembly have their modern counterpart in the shopping centre, the multi-cinema and the gymnasium.

To the concept of ownership it is possible to add two more ideas, of mobility and of management. Regarding mobility, the concept of public space will embrace "the network of publicly and privately owned spaces and buildings used by the population for recreation and circulation, which is explicitly linked at the scale of the pedestrian". From the viewpoint of management responsibility, as defined by planning, control and maintenance, "public space is not only that which is used but is also that which is perceived". We shall define the morphology of private property and its direct surroundings and hence consider the public right to regulate them.

6.2 Conclusion from the user’s perception point of view

From the user’s perception public space is defined as being dynamic in two terms. The first is based on physical knowledge - associated with the phenomena of gravitation, repulsion, mass, distance, etc. The second is the type of perception of public space by people themselves. People’s actions are the answer to a set of unpredictable situations caused by external pressures, which are manifested in different directions, despite their unequal nature, individuals perceive things even by way of an unconscious act.

The concept of the sense of place is associated with the existence of a latent attribute of things that prevents us from seeing only the accessories or the only ornamental qualities. Objects are seen as belonging to activities rather than to things. The existence of a simple space between things and persons ignores the links between them, such as gravity or the shades produced by the light that forms part both of natural of human nature.

Spatial forms may generate actions and latent attributes, but this is not to say that ‘function
follows form' in a conventional way. The influence of form in a space that determines its pleasantness for a person and a willingness to stay depends on the way that the subjacent forces of the place are expressed. The willingness to stay in the place is rather an issue of sensations than of measurements and real sizes. Distance and scale are relative to the relation between the elements that can give a sensation of a sense of place as of being part of gravitation and to lead to action according to it.

6.3 Conceptual framework and the public space definition of this thesis

To summarise, the concept of public space is an historical and temporal concept that is related to the way in which society has constructed its built environment. During the XX century, the concept of public space has moved from being closed to nature and the urban landscape and towards being influenced by social and environmental considerations. Currently the concept of public space has been instrumentalised since new opportunities to restructure the urban fabric have been exposed through adequate management and planning potentialities. The form and size of current urban agglomerations, new centralities, and the generalised population mobility freely influence these new conditions. The changing concept of public space has been mainly due to changes in social relations and technology that have eroded the traditional functions of public space.

The role and conception of public space has changed from city to city and has undergone different approaches. In general the dominant conception of public space has changed over time: it was seen as an important element of the city by the idealistic approaches dating from the beginning of the XX century. By the 1960s it was seen as structural element of an integrated system of social and spatial relations. Later it has been seen as a market good with attributes for adding aggregate value to goods and services, and currently it is seen as a key element for restructuring the city given its dynamic attributes of embracing encounter, mobility and connectivity.

The global interactions of culture, goods and services of an increasingly interdependent world help to understand the city as a network of activity, nodes encounters, places and flux. Therefore public space is not a static concept represented by the "space not covered with buildings", as it incorporates the notion of mobility. Mobility is an historical factor that has changed with the development of the factors of production, culture and currently with the development of information and communication technologies. Mobility contains a physical dimension, understood through a principal of connection (connecting two places with recognised functions, e.g. place of residence, place of work).
Chapter 2 / THEORETICAL AND ANALYTICAL FRAMEWORK

INTRODUCTION

It was stated in chapter one that the object of knowledge of this study is the changing role of public space in Latin American cities and different concepts of public space were discussed. Now the definitions have to be applied within this body of research. This chapter aims to develop an analytical framework, state the main research questions and define the methodology to be followed in the research.

The theoretical and analytical framework is based on two issues, which should briefly be clarified, in order to support the research questions. The first issue addresses the contemporary meaning of and approaches to public space, as applied to the role of public space in rapidly globalising, segregated and developing societies. The second issue focuses specifically on the Latin American urban framework and the current conditions for public space to achieve its role as an urban 'restructuring' element.

The chapter concludes with the general hypotheses and methodology used in the analysis of public space using a case study of the city of Santiago. The categories of analysis are defined, as an initial step, only to fix the relation between the object of research at the different urban scales.

1. THEORETICAL FRAMEWORK

1.1 Globalisation and development

There can be no doubt that globalisation has emerged as the dominant paradigm of the XXI century. Whilst two decades ago globalisation was used only by a limited group of political scientists, it now provides the theoretical and policy basis for most agencies including The World Bank, IMF, OECD, UN, WTO and EU. Globalisation goes beyond economics and embraces science, technology, power, politics and culture and it has had an impact on society and space world-wide. Its processes are associated with the widening and intensification of the international economic circuits that link an increasingly integrated but differentiated global economy.

Globalisation processes were undoubtedly strengthened during the 80s by the ICT revolution and by the global shift towards market forces with the accompanying liberalisation and deregulation of the flows of goods, capital, technology and services. The process was fuelled by rapid improvements in technology related to transport and communications, where falling costs are bringing goods, capital and ideas together, faster and more cheaply. As globalisation has opened up national economies and increased the mobility of the factors of production, it has also reduced the power of the nation-state to independently manage its economic affairs. Globalisation will have an increased influence on the rate and pattern of growth of national economies, on the distribution of income, wealth and on the incidence of poverty within them.

The elasticity of international financial capital to invest in one country, or another, in the search for profits is making the developed/developing country-concept increasingly more flexible (Silva 1997). The rapid development of specialised services such as financial services, telecommunications infrastructure and industrial services gave a new impulse to Foreign Direct Investments and international trade, as well as a new role for major cities as location centres for servicing and financing, trade, investment and headquarters operations (Sassen 1998). As the market became more open and larger, opportunities have grown. Large urban agglomerations equipped with technical and social infrastructure above a critical threshold, had become the natural centres for financial co-ordination and management: "Cities have become the strategic nodes through which the new economy can be planned and facilitated" (Sassen 1995).

The need for adjustment has been recognised to be universal, but the types of policies implemented in specific countries have varied depending on their different position in the system of the global economy (core, semi-periphery, and periphery). Although the specific
characteristics of the adjustment process have varied between 'the developed', 'new-market-economies' and 'poor developing' countries, in all cases they are designed to achieve the same effect to 'externally-oriented' economies and to expose them to the forces of an increasingly open, integrated and competitive global economy. Everywhere this has meant a shift towards export-oriented strategies; in the search for the comparative advantages offered by different countries (regions and cities within countries). The goal has become to improve productivity through increased domestic competitiveness and efficiency.

There is a general consensus about the goals and strategies of these policies, however there is considerable dispute on whether these policies can achieve these goals. Critics point to the growing gap between the 1/5th of the world population in developed countries that profits from the benefits of globalisation and the 4/5th that remain in poverty (currently over 1 billion in absolute poverty, but 4/5th of the world's population is about 5.2 bills. The global inequalities are appalling: for example in the 60s, the 20 richest countries concentrated 62% of world wealth, in comparison to present day scenarios where the same countries concentrate 75% of the total wealth (Human Rights Annual Report 2000).

1.2. Analytical categories on development: continuity or rupture.

First General Hypothesis

The present chapter is focus on the search for analytical categories to explain the new relationship that has developed between society and space, which has clearly been surpassed by the scope, dimension and rapidity of the process and that has made obsolete the old concepts based on the Nation-State. Some researchers explain the stages of development as a continuation of the previous stage of capitalism accumulation (industrial capitalism) which steered by the ICT revolution has been responsible for changing the relationship between the Nation-State and the market. Others prefer to consider a cultural explanation. Certainly globalisation would have to include a notion that progressively the transactions that occur within national boundaries will be increasingly determined by relations outside of them. This position implies a rupture with the previous stage of development.

Several observers have attempted to explain the changes in the form of the international division of labour, in terms of changes in technology, production processes and regulations (Aggiota 1977, Mistrail 1980, Ominami and Hausmann 1981). They have explained the emerging paradigm as a continuation of the former phase of the capitalist mode of production. They represent the Regulationist School, in which 'accumulation regimes' and 'modes of regulations' became the central categories. Regulationist theory establishes a system of periodicity, which is used to study the transformation in the historical development of advanced capitalist economies. Regulationist theory provides a framework for studying the globalisation process and the accumulation crisis in the core countries and its effects in the periphery.

Another approach considering the continuation has as its theoretical point of departure the model of economic cycles in the form of 'long waves'. This was first developed by Kondratieff in 1926 (Kondratieff 1926) and combined with the consequent effect of innovative technological development by Schumpeter in 1939 (Schumpeter 1939). New attempts were made to continue this line of thought in the 80s and 90s, in the developed economies (Gschwind/Hencel 1984, Vasko 1985, as quoted in Harms 2003). Schumpeter developed the hypothesis that the respective starting point of long-term economic cycles can be related to an innovative thrust from a new base technology, its economic realisation demanding high levels of investment which generated profound structural change. These changes affected production methods, production organisation, trade and consumption, technical infrastructural equipment and urban development. Globalisation according to this theory is considered to be a fifth economic cycle under the realm of the new technologies of transport and communications.

Manuel Castells (1989) in the 'Informational City' provides the analytical basis for the spatial analysis of the new global economic era and stresses the importance of regions and cities for capital accumulation. He treats the whole global process affected by the ICT revolution as a process of articulation of post-industrialised and industrialising countries. The work of Saskia Sassen (2001) recognised the continuity of the processes of organisation of space. She argues that for centuries cities have been at the intersection of processes at the supraregional and intercontinental realm. What is different with globalisation is the intensity, complexity
and global span of these networks and the extent to which significant portions of economies are now materialised and digitised and hence travel at great speeds through these networks. Sassen develops categories to analyse the changes in the organisation of space in a global span and embraces the relationship between developed and emerging economies.

The work of Ulrich Beck (1986-2002) is significant for this research because he establishes the social and cultural categories that will be relevant for the study of society, the new global division of labour and development. He distinguishes 'globalisation' from 'globalism'. Globalisation is understood not only as an economic issue but also as social and cultural. Globalism for Beck is the neoliberal dictatorship of the world market that has eliminated the Third World's -currently almost non-existent - democratic basis for self- development. The importance of Beck's research is based on the elaboration of new categories to analyse society under globalisation. He identifies those concepts that belong to the so-called 'first modernity' and those of the 'second modernity'. The first modernity corresponds to societies defined in terms of the Nation-State, the labour society or the society of full employment. Its discourse was about capital and labour, societies of large social groups and large collectives, and the differentiation of society from nature. The second modernity occurs in a global context, removed from the realm of the nation-state since modernity is the confrontation between the centre and periphery. The second modernity is not the result of an original impact or revolution, but something 'a-political', out of the scope of Parliament from any government or of social life. It is a 'reflexive modernisation', it has a transnational scope, and Beck speaks of a sum of Asiatic, North American, European, and South American modernity. It attempts to develop an understanding of the differences between continuity and rupture.

According to Beck there are four changes that have contributed rupture with former categories of organisation of space (full employment and the welfare state). The first is related to the fact that collective categories become weak since all institutions are oriented to the individual and not to the group nor to the family. The intensification of the 'institutional individualism' has become the main characteristic of the second modernisation. The basic institutions within society, such as those concerned with education, social, political and civic rights, participation in the labour market and the mobility processes emphasise the search for wealth as the only form of individual action and as such are not oriented to family values, community or group. In this way individualisation is accelerated, and collective identities have been removed from internal restraints. In this context it is difficult to talk about a continuation of social processes.

The second fact contributing to the break with former categories is certainly the concept of the family that is being influenced and transformed. What was formerly the spatial, social and economic analytical core of society is being fragmented. Beck affirms that the family is not the same anymore, that the traditional concept of family as suggested by traditional sociology, has changed and this has implications for the new concept of the organisation of space and the role of public space. Another consequence of the growing individualism is the changing concept of gender, which already created a shock during the Seventies with the feminist movement. As the neo-liberal process has developed, Individualism has been absorbed by a growing part of society. The concept of the self-entrepreneur has been introduced and extended. Life itself has been projected as an enterprise; we must behave as capitalists, organise all in accordance to market laws. Individualisation has changed the way in which space is organised, from the level of the house to the level of the city. The third element that represents a rupture with former categories is that the opposition between society and nature is being questioned by technology and by the technological crisis. For Beck it is clear that what we call nature has been integrated in the current period to the industrialisation process itself and has been transformed into risks and dangers that are negotiated in the process of 'society building', and that this represents an autonomous political dynamic. This is what Beck calls "Risk Society" (1986).

The fourth element of rupture is associated with the way in which capitalist dynamics and the development of the virtual-digital capitalism, particularly the combination of information with communications technology undermines the intelligibility of the labour-based society. This rupture confront society and all its members and institutions with the question about the need to develop a new organisation, a new foundation of society, in which waged labour no longer has a monopoly - either of sense or of economically existential as a way of belonging to society.
For Beck we are confronted with a change in which causes are embedded in a framework of what was until now known as the dynamic of modernisation. This represents a fundamental paradigm change, which obliges us to develop new concepts in the domain of the social sciences, but also in the social and political institutions able to address these questions.

One of the most important problems for society and space in the current city (Sabatini 1998) is vulnerability. A 'citizen insecurity syndrome' has developed; a generalised belief in insecurity that derives both from the perception of the increase of antisocial conduct as well as the deceptions of the institutions, which are meant to control this conduct (judicial power and the police). This insecure feeling restricts the circulation of people in public space, the avoidance of nocturnal activities, residential mobility restricted to only certain neighbourhoods, and increased tendency to stay indoors and enjoy leisure activities only in closed and private spaces. The interaction amongst people of different social origins is reduced, whilst spontaneous sociability in encounters in public space is discouraged. Groups increasingly developed an 'in group/out group' psychology. Urban design changes with the proliferation of gated communities and the tendency to live in flats instead of in a house. Commercial activities tend to concentrate in large malls in order to take the advantages of economies of scale and to protect themselves from robbery. The privatisation of public space, the development of circulation nodes, transfer modes of exchange and shopping malls provides new elements to define place and non-place (Auge1992).

A return to the categories of dual society (Chicago School) has been noticed and the culture of poverty concepts are being redeveloped in the new relationship between global and local, within new relationship between the state, the market and the community.

Baudouin (2000) referring to French cities acknowledges a major increase in city fragmentation. He considers privatisation of public space and the formation of edge cities (Davis 1992) as the main cause of this fragmentation. He believes that for public space to become a place of exchange and citizenship-dialogue, city policy must consider conditions for residents' participation in the definition of living space. Facing the omnipresence of private space, the redefinition of public space must be accompanied by a deep reflection on the levels of social and spatial mobility that characterises the conditions of citizenship today. In societies marked by fragmentation (but also by rapid flows of information) the mobility of a person in space signifies social-economic adaptability and integration. This stirs a debate regarding mobility and freedom and differentiates between the concepts of place and non-place. For Baudouin (2000) speed of movement also implies a rethinking of time, globally. By denying the existence of individualities, urbanism has become divorced from real social relations. Time of personal experience has been denied. For Sennett (2002), what made a city a whole is not the social body but the mechanical function of circulation. Mobility creates a motion of freedom, the ability to move in space without belonging to a particular place. City is conceived as a space for free movement, the time of space re-experiencing and 'moving through' rather than 'being in'.

From the theoretical framework it is clear that the composite city experiences constant transformation. Similarly the Latin American city is currently undergoing extremely fast transformation processes, and is permanently remade by the addition of various types of historically-defined urban morphologies and flows.

- The relationship between society and space is largely manifested in the form in which different urban morphological expressions of historical forms of social reproduction connect, interact and transform each other (Pradilla 1987, Sabatini 1998).

- The public space concept is defined at each of the different levels of the city, by the nature of its use (West European Commission on Public Space 1995) and is constrained by the perception of its users (Arheim 1978, Rapoport 1978, Canter 1978, Mook 1993, Navarro 1999).

- The different ways, in which morphological spatialities or typologies connect and interact, reflects the level of social development that a society has reached (Sassen 2001).

- The intensity of connectivity contributes to spatial and social diversity. Diversity can enhance identity and on the contrary social segregation can contribute to the downgrading of a neighbourhood (Borja and Castells 1997).

This current debate on public space focuses on perceptions of public space derived from
its historical and temporal nature and the significance and understanding public space is inserted in the idea of a city as a whole.

Public Space remains a dynamic concept, since it is embedded in the various morphologies interconnected by flow networks. In this context public space contains positive or negative socialisation potentials. It can contribute to the enhancement of identity and a sense of place or can contribute to the development of social pathologies that can lead to the disintegration of the community.

This will be the first general hypothesis of my research, focused on an explanation to validate the question regarding the urban structure and the different fragments of the city. New specific hypothesis must be designed related to vitality, the morphology realm and the sense of place of each fragment and of the city.

1.3 Theoretical categories in Latin America. Second and Third General Hypothesis

New concepts and strategies to plan and manage the city have emerged related to social and economic transformation, whilst is necessary to identify new concepts to explain the position and meaning of public space in the new processes and context of Latin America. In 1992, the ECLAC (Economic Commission for Latin America and Caribe) launched the 'growth with equity' development model to confront the transformation brought about by globalisation (ECLAC 1992), although the social and development objectives its claims have been far from beneficial. ECLAC explains the intensive process of transformation as being enabled by the advance of democratic pluralism and deep economic reforms and governance. Important progress in economic stability, international insertion and regional integration, have brought greater levels of external financing, but these gains have been accompanied by significant economic shortfalls and social and environmental problems. First the economic growth during the 90s has been moderate (around 3% p.a.) and quite lower than the 5.5% p.a. average of the period 1945-1980, and lower than the required 6% to cope with the technological and social shortages. Secondly, most of the regional economies are suffering from macro-economic vulnerability and financial risks. Inequalities in Latin America cities have grown, where a considerable increase in the gap between rich and poor is observed. Globalisation, economic liberalisation and individualisation have accentuated this inequality.

This study deals with the highly urbanised countries of Latin America in the Southern Cone, which has some common historical and morphological features and two decades of pressure from globalisation. They have liberalised their economies, have imposed administrative decentralisation, privatised services, deregulated the urban development and have invested massively in technical and social infrastructure, especially in transport and telecommunications. Although they experience low demographic growth (between 0.9 and 1.2 % p.a.), cities are characterised by the double process of urban sprawl and urban transformation. There is a tendency towards sub-urbanisation and sprawl, steered by industrial/tertiary de-concentration and high-income residential counter-urbanisation and at the same time a rapid process of renewal, gentrification and densification in some central locations and pauperisation, stagnation and overcrowding in the peripheral areas.

These complex changes, which started in the Eighties, intensified in the 90s when most countries attained high levels of economic growth (6%-8%) and attracted massive inflows of Foreign Direct Investment (Chile's FDI inflows amounted to 12% of GNP). From the year 2000, most Latin American countries were in economic recession and there has been an increase in poverty to cover almost half of their urban populations.

The simultaneous process of expansion and urban transformation, which has been termed 'de-concentration with polarisation', has exacerbated the problem of land and created serious distortions in the way urban productivity is increased and urban poverty in alleviated. Urban expansion helps to increase rather than reduce land costs since a considerable amount of speculative vacant land is created. A rapid increase in the gap between social groups and social changes is currently taking place; the reduction of traditional large middle-income groups, the reduction in the size of the family and the integration of women to the labour market; and there has been an increase in informal and flexible work as well as in the number of self-entrepreneurs. At the same time there has been an increase of private vehicles and a higher rate of investments in infrastructure and in technological expansions with territorial effects (fibre optics, telecommunications, telephone coverage, information technology) that
modifies the form of use and the organisation of space. Together with technological, economic, social and cultural progress the negative externalities are sharpened and the perception of an urban crisis has become apparent. City scenarios forecast negative panoramas for the quality of life of inhabitants and the externalities hinder opportunities for development.

The lack of correspondence between the double process of urban sprawl - urban transformation and the spatial administration of territories, weakens the management potentials of the city as a whole and challenges the possibility for urban restructuring and the role of public space. This is the second general hypothesis of this thesis.

Structural heterogeneity characterises the productive system of the region. There are dramatic differences in productivity between a few large globalised enterprises, and a large number of backward firms. ECLAC acknowledges that this accentuates social inequalities; it accentuates the gap in productivity and incomes. It limits the possibility of growth and, hinders the articulation of different productive systems and the diffusion of technical progress. The larger the social and territorialised inequalities the easier the return to a concept of dual society becomes. Cities are becoming increasingly differentiated by their respective economic, social and cultural characteristics. Suburban and peripheral settlements constitute a second class environment, societies of outcasts, where unemployment, school dropout rates, and crime rates remain above national averages. The pattern of residential segregation is changing at the same pace as transformations occurring in the whole urban structure. An important development has been the phenomenon of the gated communities (edge cities). In those societies with a large urban tradition and continuity of economic and technological changes the pattern of a generalised great scale segregation have been modified to a more intense but smaller scale segregation in geographic terms (Sabatini 1998) in which the public space condition became particularly changed. This appears to be true in the case in several Chilean and Argentinean cities, which need to be proved further in this thesis. This is the third general hypothesis.

1.4 The role of public space in urban transformation. The Specific Hypothesis

Under the conditions stated above, we have witnessed a public space strategy linked to a city-vision of multiple interconnected centralities and as result, a rapid increase in individual mobility. Public space in this context is important in its potential to create accessibility, which is assigned to it as a 'vitality factor' by the symbiosis with its morphological surroundings and by its potential to create a 'sense of place'. This 'city-vision' proposes the continuity and the symbolic expression of public space as a way to achieve an integrated, sustainable and cultural city. The dialectic of mobility/centrality is the key question of modern urbanism and the conception of public space is an important factor that can give an answer to this dialectic.

This argument supports the specific hypothesis that public space is an essential factor for urban restructuring and for a creative strengthening of the city image. Public space should contain potentials for the creation of centralities and integrated mobility derived from the goals and objectives of integrated planning. It also can be considered within the scope of a Large Urban Project with focalised interventions.

The creation of centralities does not have as its sole objective the recuperation of certain central functions in decaying centres, but is also oriented to changes in the scale of the city, to articulate and qualify the urban peripheries and to supply an image of modernity to the territory.

Improvements of 'infrastructure and transport systems do not guarantee centrality, although they are unavoidable. The creation of a conglomerate of qualified tertiary activities does not automatically produce centrality. Only the existence of accessible, safe and polychromatic public space supplied with aesthetic equipment, quality and symbolic force, this is to say with cultural significance can create centrality.' (Borja & Castells 1997). Considering the current urban reality, there should be two types of urban intervention in public space:

- Firstly, through micro-scale urban interventions in targeted locations.
- Secondly, through the implementation of Large Urban Projects (LUPs), considering a city-wide urban program based on negotiations between public and private sectors.

Borja and Castells (1997) stand for the second option, arguing that targeted projects are
mono-functional and sectoral and that Large Urban Projects can counteract market-excluding tendencies. They support LUP's because they can enhance densities; improve social relations within the territory; increase the functional heterogeneity of each urban morphological zone; and lead to a multiplication of multifunctional centralities; and facilitate cultural integration. However, in Latin America a Large Urban Public Space Project can include targeted intervention projects, since it is closer to the community and permits an active participation of the community, in terms of direct work and financial participation. Given the financial weakness of the low-income municipalities a compensation program can also be established through a Large Urban Project.

The second specific hypothesis of this study is that the potential role of public space to restructure specific parts of the city at different scales depends on the surrounding urban morphology, the centrality and network flows to which it is connected and the sense of place it generates. It can contribute to the enhancement of identity and the uplifting of an area or to the development of social pathologies that can lead to the disintegration of the community and the downgrading of an area.

1.5 The conceptual approach of public space

Urban social relations in an increasingly interdependent world that are conceived as the interactions of different cultures and opportunities can help us to understand the city as a network of activity, nodes, encounters, places and flux. The city is a complex artefact, increasingly socially and spatially fragmented, but still functionally integrated through telecommunications and transportation, with a constantly changing relationship between the private and public domain. Understanding the city as a daily creation, that contains more than mere survival possibilities, but rather the ability to provide good living conditions to all citizens remains the central question behind the extent of this investigation of public space. Therefore public space has the potential of being conceived as embracing the notions of integration, sustainability and cultural principles.

A principle of integration conceives public space as a continuous spatial network that interconnects all the points of the city, qualifying the buildings and the activities surrounding them. These functions embrace all the environmental, collective and individual uses that makes contemporary urbanity; from the spaces for mobility and exchange to those belonging to civic, social, cultural and recreational activities linked to the citizen's life. An integrated dimension sees public space as not being detachable from its opposite-private space. The one shapes the other. The weakness of one will seek compensation in the potentialities of the other. From these shared capacities and interconnections arise complex notions of community and privacy, that each particular city and culture has rewritten in its own fashion (Arrese 1998).

A principle of the sustainability of public space recognises its function with respect to environmental and social objectives. This means the need to provide a diversity of public space coherent with the complexity of relations between city and nature and to have a responsible and democratic position in relation to the needs of all the population. Therefore special attention has to be paid to diversity and to social vulnerable groups.

A cultural principle recognises that public space is where clearly the conflict between global and local culture is manifested. A cultural dimension of public space is related to the architecture of the site, since public space is the principal collector of urban life and plays an important role in the understanding of the city, the cognition of the functional structure and the significance of the form. It is a limited space, moulded according to human needs. It therefore poses as architecture.

2. ANALYTICAL FRAMEWORK

The aim of this thesis is to develop a systematic study of the role of public space in the restructuring of the city. The study will be fundamentally related to the options for those interventions that consider a city-wide urban restructuring through the definition of a negotiation structure between public and private sectors and through the implementation of programs on public space.
2.1 The two levels of analysis

In the analysis we shall identify two levels of analysis the metropolitan/urban level (Chapter III) and the local level (Chapter IV).

The Metropolitan level

At the metropolitan level public space is conceived as part of a greater urban system, constituted by various sub-systems: recreation, green areas and parks, protected spaces, rivalling and coastal spaces. At the metropolitan level public space has an environmental function for the improving the ecosystem in which the city is located. The metropolitan level is the most appropriate level for strategic planning to take place, and is the location for policy-making and negotiation. Currently it deals with the interaction of the sectoral and political negotiations of large urban projects, which have an influence on the condition of public space (i.e. integrated transport systems, social housing, public space programs, etc).

At the urban level per se, public space is understood as accomplishing a number of functions simultaneously: recreation, mobility, social encounter, view guiding, leisure, culture and sport.

In order to achieve analytical simplification, I have considered the metropolitan and the urban scale as one unit and will form the first analytical scale.

The metropolitan level often has not one authority but sectoral plans and programs. In this thesis the metropolitan level provides the context of urban spatial interaction with the natural space. The urban level is where public space is intrinsically embedded. By joining these two scales I recognise that public space must be included within the ecological region in which the large spatial agglomeration is located, and where a particular articulation exists between the built environment with nature, landscape and the ecosystem.

The urban level, per se, contains various urban sub-centres and various local authorities with different interests, development opportunities and possibilities for intervention for regulating land, infrastructure and flows in their own domain

The research at the metropolitan / urban level will adumbrate historical, macro economic and microeconomic layers developed by secondary sources and empirical studies. It will incorporate an historical analysis of the agglomeration's development, to explain the structuring of homogeneous areas; the study of the urban structure through an analysis of the homogeneous areas; the study of the interaction between city fragments, the accessibility potentials and centralities; and finally an analysis of metropolitan public space.

The local level

The local level is where people live and where place and project interact. The local level is the domain of stakeholders, individuals, and the community and of recognised public and private interest. It becomes a communal platform where the management and the design of public space interface are taking place.

At the local level public space contributes to the identity and character of the city. Since is the addition of the total circulation's, textures, volumes, views and colours of a city. It provides the physical and social identity of all human settlement. I will research the conditions of public space at the local level by analysing five homogeneous areas already identified

2.2 The analytical phase to the introduction and selection of homogeneous areas

In each period of time urban transformations have taken place in the different fragments of the city, and these have corresponded to the particular relation between the state, the market and the community expressed in the various national development strategies. The pressure for constant urban modernisation, yet the limited resources of all kinds, contributes to the uneven transformation of the urban structure. The exodus and abandonment of some areas, the renewal and consolidation of others, and a constant extension of the city have all
been expressed in the transformation of the urban structure and in the fragmentation of various spatial and social realities. Different periods can be identified for the entire city on the basis of the structure of the urban morphology in historical terms and the development and evolution of particular residential typologies.

For research purposes we have proceeded by a phases on process. In the first phase we make a preliminary differentiation of the different morphological areas and urban processes that the city has gone through historically. This apriori identification is based on knowledge from earlier research and secondary sources.

In a second phase a particular neighbourhood has been selected for each of the different areas that are considered to be the most representative urban morphology in terms of the characteristics of open and closed spaces. Each neighbourhood encloses a particular residential typology, which will be analysed at a minor scale.

In a third phase a more detailed quantification will be made of the amount of area and population that exists in the different homogeneous areas. The determination of the different areas is achieved through the behaviour of different factors occurring in the different municipalities. In this way the process occurring in each homogeneous area can be determined more accurately.

The use of homogeneous areas as an analytical tool and sub-hypothesis

The identification of homogeneous areas for urban analysis has been much accepted in Latin America. Several city-wide analyses have been made on this basis including: The Sanitation Study of Managua (Carmona et al 1988), The Economic Development Study of Mexico City (Suarez 2000), The Microenergía Study of Buenos Aires (Murillo 2001). In order to understand the city's transformation process we will differentiate five urban areas with similar historical, social and morphological processes.

The first approach consists of mapping the complex and differentiated development process occurring in the city, and to represent them in areas undergoing similar processes. I have identified the following homogeneous areas each experiencing different urban processes:

- The compact-areas of the city centre composed of mixed residential and micro-business neighbourhoods. They undergo a process of decay, depopulation and transformation. These areas are considered as undergoing an Urban Renewal process.

- The globalising areas, which attract land uses, related to the international market and which are undergoing a process of changing land uses, densification and verticalisation. These areas are considered as undergoing an Urban Intensification process.

- The poor peripheral areas are large, mono-residential and socially excluded, with different processes of consolidation, improvement or stagnation. These areas are considered as undergoing an Urban Development process.

- The traditional, local market developed areas of mixed densities and uses, are undergoing processes of gentrification and verticalisation. These areas are considered as undergoing an Urban Gentrification process.

- Obsolescent areas or 'brown-fields' sites are in a process of changing their land use. These areas are considered as undergoing an Urban Re-functioning process.

The selection of municipalities, settlements and squares

The second approach has consisted in selecting a representative municipality, human settlement and square that can be analysed in depth in order to asses and evaluate the analytical categories at the local level: the morphology of the place, and its vitality and sense of place.

2.3 The structure of the analysis

An historic analysis of the given scale will be carried out at both levels. At the metropolitan/urban level an analysis of the development of the spatial agglomeration will
explain how the city has been built, planned and managed. At the local level a study of the historical development of each homogeneous area will explain its opportunities and problems.

At the metropolitan urban level, three categories will be analysed: the urban structure, the metropolitan transformation and the condition of public space. At the local level three categories will be analysed: morphology studies, vitality studies and sense of place of a particular location.

The metropolitan urban level comprehends the urbanised metropolitan area, which is divided in 34 Municipalities. The Local level comprehends five homogeneous areas defined by the actual urban process going on in each of them: Urban Renewal, Urban Intensification, Urban Gentrification, Urban Development, Urban Re-functioning. The urban development process has been divided into three processes: consolidation, stagnation and improvement.

2.3.1 Urban structure/morphology of the place

The Latin American city is extremely fragmented and disconnected due to the historical patterns of land occupation, unequal distribution of wealth and opportunities and uncontrolled surplus appropriation. The understanding the structure of the whole urban agglomeration and the interaction of the different fragments remains necessary to explain the urban transformation and the role of public space in urban restructuring. The analysis of the urban structure is not guided by the idea of searching -morphologically- for 'the type' to unify the city structure. This was the intention in the Sixties of the followers of the morphological school. In this research the analysis of the urban structure is a form of understanding the impact of the fragmented structure on the way society uses and perceives the built environment and a search for interventions that considers the importance of mobility and diversity.

At the metropolitan level the analysis will be devoted to an analysis of the urban structure, while at local level the analysis will be devoted to the morphology structure. In the analysis of the urban structure we recognise the existence of historical and structural factors that have moulded the city and which need to be understood in order to achieve social and environmental objectives of any kind. In the city we identify several homogeneous areas in terms of their morphological attributes. These morphological attributes are the expression of certain historical and social developments that have defined the form of how a socially segregated city has grown, been transformed and renewed in a context of market dominance.

The apparent interdependence of the elements to the whole that can exist in the inner city-compact original city seems to be lost in the successive extension and transformations of the city. Free acting urban markets are significant for the interaction of social relations and place. The poverty and the exclusivity of unequal social relations can strengthen local identity, yet at the same time global pressures are interacting and weakening local ties whilst fostering homogeneity and sameness based on the doctrine of consumerism (Beck 1998). Apparently, several dichotomies and conflicts between private and public space are found in newly-built urban environments for very low-income levels, bringing about a significant impact in the city. These conflicts seem to contradict a certain symmetry and social symbiosis between private and public space in other morphological areas, built for the same social sectors at other times and in other places.

The urban tissue mirrors the social structure organised in neighbourhoods around the square and in urban areas around parks. These places receive the influence of their social status, becoming the urban organisers from both the morphological and the social point of view.

Main categories to analyse the urban structure/morphology

The metropolitan level:
- The historical development of the city expressed in the formation of different rings
- The socio-economic characteristics of the population living in each municipality
- The land and building cost in each municipality
- The transformation in the built environment in terms of m2 built in the last ten years.
- The number of social housing (subsidised) built in each municipality
- The income and expenditures of each municipality

The crosscutting of these data will provide a socio-economic framework and urban structure represented in the form of homogeneous areas of the city as well as the prospects and trends for each area.

The local level:

In this analysis we will understand the existence of a 'type' as the concept that describe a group of objects characterised by having the same formal structure. Moneo (1978) explains that a type is different to an average of a serial, since the concept is based fundamentally in the possibility to group the objects taking into consideration the structural similarities that are inherent in them.

The categories to be analysed are the typology/morphology characteristic of the built environment; the relationship between private and public space; the type of building; the level of compactness and density (raw, open, introverted or extroverted construction); the land uses; and the density of activities and buildings (floor rate, land occupation).

The subjective factors are the perception of the neighbourhood, the historical values, security, the formal attributes and the aesthetics of the built environment. This analysis is connected to a direct empirical quantification and qualification in the form of a reduced survey in the different squares and the built surroundings.

2.3.2 The analysis of urban transformation and vitality of the place

"The balanced mixture of urban land uses in the past was due, among other cultural and social factors, to the small size of cities, where all distances were short and no room existed for spatial segregation. The situation has radically changed today, when marked differences of accessibility within the metropolis segregate the location of social groups and economic functions" (Valenzuela 1994). One of the changes altering land use patterns most severely is the loss or increase of their relative accessibility. All other things remaining equal, the accessibility of a sector depends: on its location; on the capacity of the transportation infrastructure and on the efficiency of the vehicles serving it. The more central and better served by good transportation the more people will travel to that sector. The concept of vitality is then linked to accessibility and a balanced mixture of urban land uses.

In this research we will develop a study of urban integration through the analysis of accessibility at the metropolitan level and a study of vitality at the local level.

The concept of public space in the current city it is linked to a city vision of multiple interconnected centralities. Public space in this context has a dynamic understanding and is related to the interconnectedness of urban centralities, to the vitality of the spatial relations and thirdly, to the opportunities for socialisation in the place. Public space then has a 'centrality factor', which is assigned to it by its accessibility level and the intensity/density and quality of the social relations that facilitate the mixture of groups and behaviour and by the possibility to enhance cultural integration.

Mobility is an historical factor that changes with the development of society, through transformations of the factors of production, cultural changes and through the development of information and communication technologies. Mobility contains a physical dimension, understood as connectivity (connecting two places with recognised functions, e.g. place of residence with place of work); an economic dimension since is mediated by purchasing power, and a demographic dimension because is potentially related to the number of people able to come to a point.

Main factors to be analysed at the metropolitan level:

- The structure of a city vision of interconnected centralities and mobility through public spaces.

- The identification and qualification of centralities, mobility/development corridors and activity nodes that generates places of peoples encounter in public spaces.
- The distribution and quantification of travel in the city and the attraction and pull of certain areas
- The analysis of the different development scenarios and forms of urban agglomeration

The creation of a Model to analyse the metropolitan factors. The Bi-Directional Economic Flow Model

In order to analyse the potential of public spaces with respect to the rest of the city it is essential to have an objective measurement of the interconnectivity and of the accessibility at the metropolitan level and the attraction potential of the different centralities and corridors that has being consolidating in the city.

In a large polynuclear metropolis decentralised and with high social inequalities like Santiago, the measurement of accessibility, that is the relationship between a part and the rest of the system, cannot be assessed directly without making subjective choices. Because the real measuring of the capacity of all the mean of transportation in real measurable distance is a complex task, in place of measuring the roads and public transport capacities and their mapping over the city, it is proposed here to use an indirect method of assessment of accessibility through the use of the 'permeability' index. Classical flow models from physics describing potential problems like water flow or electric current have inspired this model. (Gastebold 2003)

There is a long tradition to use mathematical transport models in Chile. In 1969 M. Echenique introduced the Cambridge developed transport model, based on A. Lawry principles and it was widely spread in transport services and Chilean Universities. Nowadays the Ministry of Transport through the Secretary of Transport (SECTRA) uses the ESTRAUS a computer package for solving supply-demand equilibrium problems on multi-modal urban transportation networks with multiple user classes. The model answers to the need of providing co-ordinated alternatives of the city and the transport system. The model should articulate land uses (land distribution and activities) the environment conditions, the transport model. For the planning the urban transport system it is required cognition of the evolution and interaction of the system that compose it: the activity system, the transport network and the flows. The activities comprehend all the urban elements that generate/attr act trips and determine the demand: residence (households), employment centres, commerce, services, etc. The road infrastructure, the characteristic and the means of transportation define the networks; elements that determine the transport supply. The subsystem of flows with its characteristic of volumes (vehicles and passengers), speeds and other variables at service level are the expression of the equilibrium between supply and demand in a given moment.

The interaction of the last two described systems is resolved by the model of simultaneous equilibrium (ESTRAUS) a tool that permits to evaluate plans and strategic transport projects. This model provides a detailed description of the physical transport networks. The model MUSSA is another instrument oriented to the description, prediction and simulation of the real estate market, considering it interaction with the transport system, obtained this last through the measures of accessibility and attractiveness that present determined urban zones for the location of specific activities. The interaction of all these models in the Ministry of Transport is considered as an important achievement in the spatial ordering and the improvement of living conditions.

The importance of the existence of such amount of digital and alphanumeric information have permit me to build a model for the requirements of this thesis to measure the accessibility potentials of the different homogeneous areas in relation to the 11 sub-centres that have the Metropolitan area of Santiago as well as of the new urban corridors and activity nodes.

What was necessary for generate for the analysis of this thesis was a model to measure three factors: First the transport capacities allowing reaching the given municipality. Second, how many people are likely to gain access to the given municipality and third, how much buying capacity is likely to gain access to the given municipality.

Considering the difficulties to obtain publicly those specific data I decide to built a model considering the existing publicly available data. The publicly data concern daily flows of people throughout a city (origin and destiny survey) and the distribution of socio-economic data both of people and municipalities are standard available data. Therefore was meaningful
to built a model for measuring potentials of given points and to analyse how interconnectivity and accessibility affect the people flows and distributions. This model can measure the transport, demographic and economic accessibility of the city considering the municipalities as units. In order to build this model some previous assumptions has been made:

- This model is based in the permeability calculation model used for calculation of flow systems as water and oil flows. It defines the ease to allows flows between point a to point b. The permeability index uses two dependencies, the diameter of the pipes and the highness of the tanks or containers. We had adapted this principle using different urban phenomena but based in the dependence on flows, considering real data (as origin destiny survey, municipal business taxation, municipal population, municipal active population), where is understood the flow as created by the flow itself and the need that originate it. The permeability (K) is understood as a constant property of the system that had being measure by the different flows into each potentials (from each point)\(^9\). This defined the indirect assessment of accessibility. Permeability can be defined as the ease to allow flow between two points and can be understood in the context of the urban environment as a measure of the transport capacity between these two points provided by the road network and the various public transport systems.

- It has been chosen to define the potential of each municipality in economical terms as employment and commercial activities are assumed to be the main driving force that generates urban traffic.

- That each municipality is considered as homogeneously supply by a public transport network in a reach walking distance of 400 metres. Therefore the municipality data is suitable for the analysis of every point of the given area.

- We presume that he flows of persons are motivated by a variety of factors. However it can be assumed that in the morning rush-hour (7:30-9:30 am), the bulk of the traffic is made of commuters going to their workplace, and most of the rest of the flows is motivated by some economic activities, such as education (going to school), shopping opportunities, service payment, etc.

- The traffic is assumed to being motivated by the heterogeneity of the distribution of supply and demand throughout the city. If capacity of transport were infinite, the flows would be at their maximum, however the actual transport capacity, traffic jams, cost and time consumed by transport limits flows to an equilibrium point.

- To measure the interconnectivity and the accessibility a hypothesis of linearity is made\(^10\) and the following flow rule is adopted:

- The flow between A and B is equal to the capacity of the transport infrastructure, termed permeability, times an economic potential existing between A and B and motivating the flow\(^11\).

- In the framework of an economic model, the flow will be expressed in terms of cash per day, defined as the potential total buying capacity of all the persons commuting in the morning from A to B. The economic potential existing between A and B is defined as the sum of the total daily of earnings of the population living in A plus the total wealth produced per day in B by economic activities.

Once permeability is so defined, we have a measure of interconnectivity between all the 34 municipalities in Santiago. The accessibility of one municipality can then be defined by the sum of the permeability starting in all the municipalities in the city and ending in the considered municipality. As was pointed out above, such an accessibility index is merely a measure of the transport capacities allowing reaching the considered municipality. Such an accessibility index will therefore be termed infrastructural accessibility IAI (Infrastructural Accessibility Index).

Knowing the distribution of socio-economic data throughout the city, it is now easy to build new accessibility indexes. By weighting the permeability by the population living in the municipality of departure, a demographic accessibility index is obtained (Demographic Accessibility Index). The DAI gives a measure of how many people are likely to gain access to the considered municipality.

By weighting the permeability by the total earning of the population living in the municipalities of departure, an economic accessibility index is obtained EAI. The EAI gives measure of how
much buying capacity is likely to gain access to the considered municipality.

It should be noted that those indexes reflect capacity and potential traffic, independently from the present factors motivating flow through the city.

Assumptions in order to apply by the Bi-Directional Economic Flow Model

To achieve a critical assessment of the model accuracy, the main assumptions and simplifications applied in the model are listed here:

- First: we are only considering the work traffic flows, not the total commuting traffic.
- Second: we are only reasoning in terms of averages and we assume homogeneity in municipalities (statistic average per municipality).
- Third: the assumption of linearity of the flow rule is a simplification assumption and is only accurate around the current equilibrium situation.
- Fourth: the infrastructural, the economic and the demographic index are actual subjective classification designed for interpretation purposes.

The strong point of the model:

- First: the model can be easily applied to commonly available economic and demographic data.
- Second: the model can be used as a powerful tool for simulation of urban and economic development around the present situation (i.e. specific improvements in infrastructure and their impact on the whole city). The model can predict if an action is positive or negative, if it increases or decreases the flows.
- Third: the application of the model to Santiago demonstrates that obtained results are sensible (in the next chapter, the results obtain by using this model are analysed in extensum).

Vitality at local level

The way we can assess vitality at the local level is through measuring the intensity/density and the quality of the social relations that facilitate the mixture of groups, and the possibility to social-cultural integration. Therefore, vitality can be measured through two factors that make possible social interaction and integration, the density of social relations and the functional heterogeneity:

- The first factor in the accessibility of place and the connectivity within activity nodes will be studied building a map identifying the hierarchy of street networks, the attraction areas (lanes or points) the level (quantification and qualification) of public and private traffic and connections, and the pedestrian mobility routes. The objective measures will include the distance to the main landmarks and activity centre, the density of flows considering the amount of trips per hour considering the different modes used including pedestrian.
- The second factor is the mixing of land uses, and the compatibility of functions and activities that takes place in its surroundings. This will be studied through land uses maps and the matrix calculation of compatibility. It will be quantified according to the master plan regulation of the areas.

2.3.3. Public Space conditions and sense of place

In this thesis I understand that public space role answer to environmental, social and cultural objectives. This means the need of a diversity of public space coherent with the complexity of relations between city and nature and to have a responsible and democratic position in relation to the needs of all the population in terms of connectivity, encounter and leisure. To act in existing public space is not the same as creating a new one. The city is historically expressed in its public space and has printed its traditions on it. Intervention in public space must recognise this context not as a freezing of traditions but rather as its projection to meet new needs and technologies of a now globalised generation (Chile Urbano 1996).
We accept Borja's position that public space has the opportunity to produce citizenship through: "its distribution more or less unequal, its articulating conception of the urban tissue, its accessibility and its centrality potential, its symbolical value, its multi-functionality, the intensity of its social use, its capacity for creating employment, its contribution that gives "sense" to urban life, etc, are always opportunities that never should be forgotten in order to promote the constitutive rights and duties (political, social, civics) of citizenship." (Borja 1997).

We accept that in Latin America, the square is a constitutive element of the urban tissue. Neighbourhoods are organised around a square and urban areas around parks. The urban tissue provides the framework for the connectivity and accessibility of squares and parks defining the public and private domain. These public places receive the influence of the social status, becoming the urban organisers from both the morphological and the social point of view. In order to establish a link between the user of an specific square and the social and morphological characteristic of the neighbourhood where the square is located, it is necessary to study the 'sense of place' understanding that this concept start with the believe that place is socially constructed, that place doesn't come as a biological or even timeless representation, but place is made by people and defines by the way that it is use in each historic moment. The analytical problem is to search for the dialectic between the spatial situation and perception conditions, which feed how people can develop a sense of place and how they articulate it, to reach the point how to measure or implement it.

According to Falk (2002) "Sense of Place" concept is often credited to the North American author E. Welty, who in general terms relate it to the ways in which we understand and interpret "place" which may have profound effect on us. According to Altman and Low (1992), 'sense of place' is the interplay of emotions, knowledge and actions with reference to a place. Both Cameron (2001) and Relph (1992) appears to be more accurate in the term of what Place is, "the word place is best applied to those fragment of human environment where meanings, activities and a specific landscape are all implicated and enfolded by each others. According to Cameron, to put a "sense of" in front of a word is to bring attention to the individual experience enfolded meaning, activities and landscapes, and the felt sense of belonging to a place emerges from those experiences, ritual and ceremonies.

The condition of the public space and in particular the square in a given morphological context, it is related to how the square is used and perceived by the users. The use of the square is related to objectives attributes of the square and the perception to subjective attributes which are being objectivised by sub-cultural and spatial morphological conditions to which the square may belongs, that has given identity to the place and have create memories. The question and the concept analysis lay into the estimation towards define in what ways and to what degree the existence or absence of sense of place can affect the condition and maintenance of the square.

A number of new elements are being incorporated in the inherited morphologies especially regarding squares and their role as centres of social life of the neighbourhood. These are associated with various rituals that the square performs as a place of encounter, with a strong character in terms of social status and functions reflecting the form of social life of each neighbourhood. They assign the sense of place, that is to say the symbiotic identification or the social density of the place.

In tune with the two level analysis of this thesis we can assess public space attributes on two levels. At metropolitan/urban level will be considered the conditions of public space in relation with historical growth and the natural landscaping and morphological characteristic of the city. At local level will be assess the sense of place of the given square and neighbourhood:

- At Metropolitan level
  The condition of public space at metropolitan level will be assess through different methods:
  - Through the historical analysis of the way urbanisation has taken place and the conceptual importance given to public space and landscaping in the different plans of the city.
  - Through developing successive analysis of metropolitan plans, the relation of public space with the urban structure and landscape.
  - Through the identification of the changing relation between state and the market regarding the management of public space.
- Public space analysis in the different city fragments according to the homogeneous areas approach
- An analysis of the social implication related to quantitative and qualifying indicators as m² of green space for inhabitants, its distribution, connection and relation with the environment. A quantification and qualification of existent and proposed public space in the different scales.
- A description of the type of squares that exist in the city and its spatial qualification.

At local level:

The local level corresponds to the square and its surroundings and it will be analysed by way of objective and subjective attributes:

- The objective attributes are those related to the physical attributes of the square (dimension, surrounding buildings, design of the square, furniture, green)
- The subjective attributes are related to the use and perception of the square (characteristic of the users, density of social relations, sequence and frequency of the activities and the perception of the space).

We analyse the significance of the square, its type of use, the capacity to meet users demand, and also we search the way to establish the formal relations between the surrounding typologies and the morphologies that constitute it.

The dependent variable is referred to the universe of persons that use the square in an specific amount of time and the independent variables are related with the morphologic areas pre-defined in their internal organic and in regard to the city.

A reduced survey was performed following the Copenhagen (Geh 2000) study of use and perception of public space in which the quantified variables are:

- Type of the neighbourhood where the square is located (socio-economic level; functional characterisation)
- Type of prevailing construction in the neighbourhood (typology of the neighbourhood; average density, average size of the lots;)
- Origin of the users (residents, external visitors)
- Use of the square and square design, (pedestrian internal routes or crossing, stretch of lawn; children playground; tract of level ground; laterals vehicular streets; associated pedestrian streets, central space).

The survey was based in the measure of the amount of users of the square in a weekends day, or in the rush hours, this to inquire about the multi-functionality of use and users in order to constituted empirical evidence. The square was qualified in terms of stratification in socio economic terms, the morphologic characteristic of the area and the typology of its surroundings.

The amount of users had been determined by counting people who where using the square, in temporal units, measured every half/hour in three period of one day, corresponding to apriori resolute most busy time in each square, but also to the routine related to the work and the student schedule.

The way the survey was performed was oriented to assess the level of security and vulnerability of the neighbourhood and the square. Violence and insecurity in most Latin American countries has increased with spatial fractioning and segregation. (Sabatini 2000, Rodriguez 2001) and in Chile the growing inequalities resulting from rapid economic growth has made the feeling of lack of confidence and fear particularly singular. In the study done by Rodriguez & Winchester (2000) it has been highlight that the perception of insecurity affects social life and diminish social contacts, there is a tendency to self- enclosure and citizen loose their public space of encounter and there is little interaction between inhabitants of different social strata. I can here state that the perception of the increase of antisocial conduct as well as the deceptions of the institutions varies in term of the type of neighbourhood. Direct inquires in the various homogeneous areas seems to be an adequate form of measuring this possible changing perception. A subjective analysis oriented to peoples perception will provide evidence about insecure feeling which can restricts the circulation of people in public space, hinder nocturnal activities, and residential mobility restricted to only certain areas, and increased tendency to stay indoors and enjoy leisure activities only in closed and private spaces.

The following chart summarises the structure of the analysis and main issues that will be developed in the next two chapters:
### Chart 1. The Analytical Structure

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<td>- Republican period</td>
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### Historical Development Context

Current urban processes:
1. Renewal - Santiago Centre
2. Intensification - Providencia-Nuñoa
3. Gentrification - Eastern periphery
4. Development - Southern Periphery
5. Re-functioning i.e. ex Cerrillos airport

### Morphology Studies

- Origins and development of the area
- Street pattern
- Evolution of the blocks
- Division of the lots
- Façades and built form
- Open space network
- Typology of main buildings

### Vitality

- Accessibility and connectivity potentials
- Mobility
- Accessibility potentials
- Multifunctionality and zoning regulations
- Master plan regulation in the area
- Land uses

### Sense of Place

- Sense of place of the neighbourhood and square
- Analysis of the use and perception of the square (survey)
- Partial conclusions
- The objective attributes
- The subjective attributes
Chapter 3 / THE CONDITION OF PUBLIC AT METROPOLITAN LEVEL

INTRODUCTION: Presentation of the case study and contents of the chapter

In the first chapter we established that a city is not just a place for production and consumption of goods and services mediated by mobility fluxes but also is an artefact that is socially-produced (Castells 1974-1989). The literature on national development and currently the literature on the 'second modernity' (Beck 2000) have accentuated the need for the historical analysis of the economic, social and political forces that underpin structures and processes in society and space. The spatial reorganisation of global capital-influenced by changes in the international division of labour and the re-location of the productive activities, enhances the formation of large spatial and economical; agglomeration and made cities became 'locus' of growth. It has also influenced the dynamic -generally associated with the public domain- to manage more efficiently the production and reproduction of the urban space in order to improve the international competitiveness of cities. This suggests that with globalisation there is a convergence of processes and a similar pattern can be found to affect developed and developing countries in relation to the growth and restructuring of region, cities and localities. These common trends can be found in the realm of public space. We believe that all analyses of urban transformation should take proper account of the relationship between development forces and globalisation forces (Ward, 1994 Cohen, 1996, Wu 1996). On the other hand we understand that through time, there has been a symbiosis between public space and the political, cultural and ideological structures that differentiate one historical period from the other.

Practically all large agglomerations and cities in the world are suffering rapid spatial transformations and Latin American cities are no exception. All are steering towards an increasing decentralised and de-concentrated urban model, changing deeply the pattern of social and spatial segregation. The simultaneous processes of extension and renewal of the city with the incorporation of new actors, functions, income groups and densities is occurring in different ways in every large metropolitan area in Latin America. The significance of the Santiago case study is related to the fact that the city has been a pioneer in the process of globalisation and liberalisation of the economy. The social and spatial transformations taking place in Santiago are very relevant for the rest of the continent.

Profile of Santiago de Chile

The City of Santiago capital of Chile has been characterised by its high rate of polarisation and urban growth, despite high national urbanisation levels (88% 1998) and a rapidly decreasing rate of national demographic growth, which is the lowest in Latin America (1.2% average p.a., from 1992 to 2002). A sequence of politico-economic models - Liberal, Christian Democratic, Socialist, Neo-liberal and Social Market - have failed to resolve the tendency to urban primacy and the expansion of the Metropolitan area into the best agricultural land of the country. During the last 20 years the Metropolitan area grew by 1000 has per year under the influence of de-regulation and the primacy of market forces. Greater Santiago is formed by 34 autonomous municipalities and has about 5.5 millions inhabitants. Santiago, the inner-city municipality has 230.000 inhabitants and a daily floating population of 1.8 million. The Santiago Metropolitan Area has a population of 5.2 millions (INE 2002). The urbanised area was 630 Km2. The GDP was USD 5.105 per capita in 1999 when the unemployment rate was 11.4%.

Greater Santiago has attracted a considerable amount of FDI through the application of liberalisation measures. The privatisation policy assigned to the capital market an innovative role in the delivery of services, pension funds, transport, communications, real estate development and public works. These measures have given an important role to the building sector in employment generation and in GDP formation. It is estimated that about 40 million square metres have been built in the last ten years and most of these investments have been concentrated in four municipalities (Trivelli 2002). The urban management skills of Santiago-Centre have helped to deal with counter-urbanisation and downgrading of the city centre and to attract investments. Notwithstanding Greater Santiago is characterised by a dramatic increase in the concentration of wealth in the hands of a few. High poverty levels are recognised
by the new administration metropolitan plan and are to be dealt with through integrated spatial and economic measures.

The city was relatively compact until the 50s, when a dual process of low-density mass social housing construction began together with the counter-urbanisation process. Around 75% of the firms established in the inner city relocated to the periphery in the period between 1950 and 1980 (Vaineruela, 1994). This process continues with residential, employment, recreational and commercial functions all moving to peripheral areas. The considerable growth of car-dependency, the high standards of public transportation, and the involvement of the private sector in road construction have all enhanced counter-urbanisation. The significant concentration of wealth and the persistence of high rates of economic growth increased counter-urbanisation trends even more.

Greater Santiago has the highest rate of subsidised housing construction in the country (300,000 units in the last two decades). Social housing construction during the last 20 years has been planned and built by the private sector and in the last ten years has been of very high-density (200 houses per ha) with a reduced housing area (36 m²) and cost per m² (about 150 US dollars). This reduces habitability standards and leads to an increase in social pathologies. It is expected that that improvement of overall accessibility and new measures for developing the housing secondary market will produce housing mobility that approximate that of the social housing stocks of the 1950s and 1960s. This mobility should reduce the demand for land currently used for building large low-quality high-density housing projects on the fringes of the city.

Current urban transformations reflect the complexity of economic, social and spatial processes characteristic of the metropolitan decentralisation model. The extension of the city with high density low-income housing developments and the low density development of high-income groups, is occurring alongside a rapid densification and intensification of some urban centre areas (e.g. Vitacura, Las Condes and Providencia), and the overcrowding of lower-middle class residential in the southern and central areas.

The city of Santiago has experienced a long period of economic growth and the tenacity of city planners attempting to implement a number of investments in infrastructure projects, which have been in discussion for several decades. Amongst these there are the North-South and the East-West Corridors, which have improved the regional position of the capital city in relation to the Mercosur. A peripheral ring road is under completion, which connects the various sub-centres of the city and the new Integrated Transport System with the extension of the Metro lines and exclusive bus lanes all over the metropolitan area. All these projects are expected in the long term to meet social and environmental objectives of social integration, consolidation of urban centralities and new relationships between place of residence and work.

Contents of this chapter

This chapter will clarify the historical development, the urban structure and the urban processes occurring at Santiago metropolitan level in order to explain the condition of public space. It will refer to the same periods established in Chapter One. As Santiago and other cities of the New World are 'young' cities it is important to start from the urban structure of the colonial and post-colonial periods. I have stated that the condition of public space in an exclusive, segregated and decentralised city is essentially related to the globally-induced changes to the urban structure; to the mobility and connections of its different urban realities and to the accessibility of the citizen to the opportunities of its economic, social and political life.

This chapter will consist of four parts. The first part will present the historical background of the urban structure of Santiago. The plans, policies and administrative system that have governed the urban agglomeration in each period will be studied because they have helped to constitute the various urban realities in economic, social and morphological terms. The second part will analyse the city structure in terms of its constituent urban realities using the current administrative, financial, economic, and morphological attributes that constitute a number of homogeneous areas with similar historical and social features. The third part will analyse the city transformation trends on the basis of how the different fragments of the city interact and connect with each other through the dynamic understanding of centralities, public
space and mobility. Conclusively the fourth part is aimed at presenting the system of public space at the metropolitan level resulting from the application of different policies and programs in historical terms.

1 THE HISTORICAL DEVELOPMENT OF SANTIAGO

Santiago has a simple foundational core. It did not have the magnificence of an historical centre and the legacy of the viceroy such as in Lima, Mexico City or Quito. The foundational core had a similar scale as that of Buenos Aires, Caracas, Montevideo, and Asunción. During colonial times a number of small villages were built according the Law of Indies. Large transformations to the city structure occurred in the XIX century with the Independence and the aspirations associated with Nation-State-building. These changes followed classical and utopian ideas imported from Europe and from the more advanced countries. It is only since from the XIX century that important and progressive changes in all aspects of social life have occurred. This is reflected in the building typologies and in the mode of transformation of the urban morphology and the central area is urban tissue. Planning practice over the following decades and the action of market forces has defined the morphology of the different areas and public spaces.

Around the beginning of the XX century and for almost 75 years, Santiago adopted several plans to adapt to the requirements of urban growth, the emerging industrialisation process, the life-style changes and the modernisation of transport. These plans reflected the influence of ideas ranging from the new rational urbanism to the integrated conception of city and region. Emphasis will be placed on the plans elaborated in the late 1950s, which considered long-term scenarios and ideas on the integration of the built environment with the natural territory. These plans gave a significant importance to the treatment of public space as a structuring element at the different scales. At the end of the XX century the neo-liberal model, which opened the economy to external markets, introduced new cultural changes and the way the city was used and experienced. Drastic market-oriented propositions in favour of decentralisation, self-sustained management and industrial re-conversion were introduced, in a society increasingly unbalanced in terms of the distribution of wealth and opportunities, and the use of public space.

In the new century spatial planning has encountered a crossroad. New forms of territorial planning are being introduced that considered the position of cities at a broader continental and regional scale and a new position has been developed with the rural hinterland. Often contradictory positions have been developed between the different scale of planning and sectoral institutions, making obvious the lack of consensus about 'what type of city we want'2. Many advocates for a broad regional understanding of the concept of agglomeration emphasise transport, mobility and corridor formation whilst others advocate a new sort of constellation of self-sufficient municipalities and centralities. However it is a fact that urban regulations are being flexibilised to improve regional-wide mobility and connectivity amongst sub-centres. This is meant to be the strategy for achieving a more integrated, sustainable and diverse city and is giving public space an important role in achieving these goals. Therefore the aim of this section is to provide an historical background to the way in which the urban structure has been transformed in Santiago in relationship to development periods. Here we recognise four periods: the colonial period, the republican (liberal state), the modernisation period (welfare state), and the global period (neo-liberal state).

1.1 The Colonial Period (1541-1810)

The extension of Santiago's urban foundational core, planned according to the prescriptions of the Law of Indies has remained almost the same since the city was established (1541) until the present. While city functions have become more complex, the core has increased its density and new residential functions have grown outside of these limits. The original process of transformation was guided by the possibilities of a gridiron as well as by a set of regulations established by the colonial powers.

Public space during the colonial period was shaped by a society that differentiated the Spanish from the Indians and the "mestizos" (the mixture of both). Public space expressed the power structure, with all its symbolical elements around it, the church, the military corps,
the merchants' residences and the artisans. There existed a clear definition of social groups as well as hierarchies in the definition of streets, blocks and squares. The main idea was that a city must be different from the countryside and that it should be identified with civilisation, which according to the Renaissance ideology was order. The gridiron ensured control over the land granted to the settlers and allowed for the creation of a network of open spaces and fillings that could be described in legal and geometrical terms. The square occupied the centre of the town, surrounded by arcades, principal buildings and governmental accommodation.

The Catholic Church occupied the core of the central square. The Spaniards demonstrated their supremacy by placing a display of facades and towers around the central ring. The Indian population could work in the city, but was not allowed to live in the centre. The mestizos and free artisans were located near urban markets. They formed the second colonial ring in the city structure.

Map 10: Ideal City Model of the New City / Source: Rojas 1978

Map 11: Territorial Structure at Indies Law. The Mediterranean City in the XVth century / Source: Bernal 1987
1.2 The urban development during the Republican Period (1810-1930)

With independence (1810) the landowners and merchants became the centre of power, linked by trade with European cities. With the constitution of the Republic, it was deemed necessary to give "monumentality" to the inherited city, in order to express the spirit of the new nation. Public space played an important role, since the uniform gridiron was altered for the opening of main avenues joining important new landmarks. Arcades and boulevards where constructed to strengthen the magnificence of the squares and to support the main functions of the buildings: the central government, the Palace of Culture, the Cathedral, the Court of Justice, the Palace of Congress, the Municipal Theatre, etc. Palaces and houses were built along the avenues and the open spaces were designed as places of encounter for promenade, for parades, to enhance patriotism and courage. "The Alameda de Las Delicias, which is nearly three miles long and three hundred and fifty feet wide, extends across the city from the Cerro de Santa Lucía to the Central Railway Station. From a mere Highway approach to the old colonial capital, it has grown to be the chief boulevard of the modern metropolis, which has herself evolved out of the poorest conditions to become the most charming of cities" (Wright, 1903).

During the 19th century, Santiago was developed according the City Beautiful code. Several urban parks where built including Cousiño Park (350 acres) and Quinta Normal (350 acres). The O'Higgins Park and the Hipico Club were all inspired by the different European styles and cultural movements (classicism, the Spanish Baroque and even Arabic styles) and contained a significant number of bad imitations and replicas of European landmarks. In 1900 the city had rather more than 180,000 inhabitants and was a large modern metropolis. It had a tramline of 100 kms and public transport was extended with the "double decker" carriages. During this time a preoccupation with town improvement developed due to the growing poverty in the city's suburbs. The concern for sanitation was expressed in the canalisation of the river that crosses the city, the extension of water supply and the total electrification of streets and houses. After the 1906 earthquake, that destroyed the city of Valparaíso, the first National Housing Law was passed. This aided the philanthropic action of building "houses for the poor". The Law stimulated the introverted growth of the city, through the subdivision of lots in the interior of the Spanish-block.

The change to the Spanish block was carried out using ideas of the hierarchy of the streets and the length of lots exposed to the main streets. Larger houses were placed towards the main street while the densification of the interior of the block was done with smaller lots. Small closed streets and community squares containing tiny 'raw patio-houses' for workers and city newcomers were built. These community-squares multiplied in the residential areas along the second ring and represented the private-public space of the low-income community, the place of encounter, the place of domestic work, the place of rest and of daily life. This was the origin of the Chilean social housing residential pattern; it was called "citê" or the "conventillos". Many of these houses were simple single rooms with collective services. Along the main streets, these residential structures developed into two-story buildings where the wealthier people lived, and where the formal commerce was located. This introverted growth of the city lasted until the 1930s.
Until this time the city maintained a certain balance between population and open spaces and certain equilibrium between the closed grid and the semi-public spaces in the interior. It also expressed the use of the building materials of the time, mostly a wooden structure plastered with mud and wire. With the development of public policies, housing production increased in complexity. The earlier industrialisation of the country lead to the creation of different sectors in the city, based on to activities and residential purchasing power. Around First World War the capital city received a large amount of investment derived from profits from saltpetre export.

These benefits were materialised in large infrastructure works and in the construction industry. The city extended within the undifferentiated Spanish grid network, but lost the initial equilibrium of closed volumes, landmarks and open spaces. The city extension started to be built piecemeal, lot by lot according to the market conditions of the liberal state. The possibilities given by the introduction of concrete and reinforced masonry help to loose the horizontally of the street line and to transform it into an immensity of anonymous individual boxes. This social segmentation of the city continued through time and increased in individuality, intensity and complexity.
1.2.1 Urban plans and public space in the Republican Period

The Republican period was influenced by idealistic principles and a preoccupation about nature and social issues. In Santiago, as with other cities, housing regulations preceded urban development plans. The first "social housing" legislation appeared in the second half of the 19th century, in order to control the proliferation of 'ranchos' within the urban limits that were considered to be the cause of the unhealthy conditions in the city. At the end of the 19th century numerous settlements built by philanthropist initiatives took the form of 'cités' and started to shape a particular introverted urban morphology, that is found today even (Map 8 Santiago 1906).

The first modern comprehensive plan of Santiago appeared in 1876. The new plan reflected the XIX century European ideas and new green boundaries where added to the city enabling growth with a semblance of coherence. These boundaries were the Balmaceda Avenue to the North; the Matucana Street to the West; the San Joaquín Street to the South and the Vicuña Mackenna Avenue to the East.

Several monumental buildings were constructed in commemoration of 100 years of Independence (1910) following the prescriptions of City Beautiful and the Garden City ornaments. In 1925 Law Decree 308 created the Superior Council of Social Welfare, which built 43 rental settlements also on the ideas of the Garden City.

The first extension and transformation plan for Santiago was carried out in 1913 by the North American Architect Ernest Coxhead, which incorporated the Cartesian ideas of Hausmann into the guidelines for formal urbanism, opening avenues and connecting large axes and nodes.
1.3 The urban development during the Modernisation Period (1930-1970)

The emergence of Modernist planning ideas in Latin American cities was significant for the growth and extension of the urban structure. These ideas marked the end of the Spanish grid pattern and in particular the mono-centric structure. In the 1920s a critical attitude to the idealistic approach developed and a more rational attitude to urban problems arose due the fact that the emerging industrial city was confronting social, economic and physical transformations. Sectoral and partial explanations appeared from the different disciplines (architecture, urbanism and sociology) and there was an intensification of rural migration to the main city.

After the Second World War, the process of diversification of industrial production took place, when the continent-wide economic-oriented strategy of "desarrollismo" was introduced. This gave a new impulse to industrialisation and to the State control of the economy. The colonial city that had already been transformed by the implementation of garden-city principles was transformed again according to the precepts of modernisation strategies and functionalism. This development strategy produced a significant demographic and urbanisation impact, since large numbers of unemployed peasants moved to the cities looking for better living conditions. These large masses settled illegally on the periphery or in over-crowded non-urbanised areas in the West of the city.

The residential functions moved out of the centre towards the East to leading to the adaptation of the old mansions for different uses. At this time the modern school, with functionalist ideas of building the city, gained a foothold re-shaping the city, as well as giving an unmistakable touch to the rich and middle-income new suburbs, including the large social housing developments of the working class. A combination of factors caused by unplanned urban growth, rapid demographic increase and the modernisation of transportation created serious problems for the city. The severity of the separation of functions was materialised in a fragmented extension of the city and produced opposite results to those stated as functionalist
goals in the urban plans. Unfortunately segregation increased rather than diminished. Space became formless without a structural whole that contained it.

The functionalist ideas applied in Santiago destroyed the closed block and eliminated the cultural domain of the semi-public closed space of the "cité". The high income areas were transformed into garden cities, rich with green, wide forested paths, and large green avenues, whilst the middle income groups in development areas produced an unregulated architecture of piecemeal and multi-form dividing walls. In the large social housing developments 'a no man's land' was created generating a desolate sensation of anonymity with repetition of hundreds and hundreds of low and middle high rise blocks and detached houses with unequipped empty spaces and vacant land in between.

1.3.1. Urban plans and public space during the Modernisation Period (1930-1940)

Modern urbanism was introduced in Santiago around 1930 when ideas of integrated urban planning of the city commenced. In the 1929 the Urban Development Section was created, attached to the General Direction of Civil Works. The Austrian engineer Karl Brunner was
invited to develop the first City Plan of Santiago. On his first mission to Chile, Brunner created a set of recommendations for the city and it suburbs under the name "The City of Santiago: A Study for its future enlargement" (Brunner 1939), which was meant to be the model for Santiago and for other cities of Chile. Several guidelines for the densification of the Spanish grid and the enlargement of the city were proposed. The introverted dense block was supported together with ideas of green connections through the interior of the blocks, using the traditional alleys as a new morphological model. In 1934 the Official Urbanisation Plan for Santiago was carried out also under the guidelines of Brunner, which was approved in July 1939.

The Brunner Plan resulted in the first intention to get away from partial aesthetic conceptions and to plan the city as a whole. It provided the first instrument for dealing with urgent city problems; the renewal of the city centre, the opening of new avenues and streets, the different morphological pattern for city-densification and in general the zoning of the city structure.

A new social housing law (1931) provided subsidised housing for low income groups following the large migration flows to the city that causing serious development problems. The law defined the concepts of 'social housing' (in the urban areas) and 'workers farms' (in the suburban areas). In 1940, Santiago had 1 million inhabitants and urban problems of all types reflected the lack of an industrialisation process and investments in the city and of the necessary housing instruments. The multi-scale intervention prescriptions of the Brunner Plan were all insufficient guidelines to tackle these problems. This resulted in each municipal district establishing its own functional locations (industry, services) according their specific interests, with the residential structure becoming a "radio-concentric" phenomenon.


Commerce was placed along the transit routes without considering coincidence between the road corridors of each municipal district. Morphological fragmentation continued with serious consequence when the sewerage, paving and water systems needed to be extended. An exaggerated radio-centric approach continues to this day, with overwhelming land speculation and a rapid increase in land values in the central areas of the city.
1.3.2 Urban plans and public space in the Modernist Period (1950-1960)

In 1953 three important institutional changes permitted a new evolution in the understanding of the relationship between regions and the cities. First: the “Regional Planning” idea was introduced as the basic territorial structuring of the country, and between 1953 and 1958 the country was divided into Planning Regions3. The concept of ‘regional plan’ was developed and a new architectural conception was introduced. Rather than urbanism being understood as an artistic activity it was steered towards the comprehension of the economic and social functions of human settlements. Territorial Planning comprehends: the idea of plan and action programming at the different scales, whilst urbanism dealt with those problem in a single region. The Regional Plan consequently was framed in a territorial scale that had established the existing relation between the different urban centres and the economy of the whole territory. The Central Region of Chile (1953) included the area between the valleys of the rivers Maipo and Aconcagua and the cities of Valparaíso, San Antonio and Santiago. Regional and Metropolitan Planning was based in the Ministry of Public Works (Ministerio de Obras Públicas -MOP). With the creation of the Planning Metropolitan Office at the Ministry of Public Works and the approval of the Metropolitan Plan, several plans were realised which expressed the different ideological approaches to society and city structure.
The second institutional change (1953) was the fusion of the Corporation of Reconstruction and the Housing Bank in the Ministry of Housing and Urbanism that brought a new National Housing Plan. A massive process of social housing construction in cheap and peripheral areas started according to rational considerations of mass building production and construction techniques. These large social housing residential developments (named 'harmonic settlements'), together with the increasing migration to the city accelerated the process of land speculation and illegal occupation as the cheap land in between the residential settlements was targeted for land invasions. The land invasion process would continue for three decades.

The third institutional change was the start of a mass-housing program oriented to middle-income groups. The idea of a co-operation between the government and the private investors in order to confront the structural lack of housing of this sector was strengthened while contributing to economic growth. In 1959 Law DFL2 was approved oriented to middle-income groups. The banking sector received special franchises in order to enlarge saving capacity and a system of incentives and flexible authorisation to private capital, to stimulate the investment in dwelling not exceeding 140 M2. This Plan helped for a short time to re-reactivate the economy through the strengthening of the construction activity. Industrial growth was stimulated by import substitution processes and urbanisation was accelerated.

1.3.3 The Metropolitan Plan 1960

The Metropolitan (Inter-commune) Plan of 1960 was the first plan to comprehend the totality of Santiago’s geographical region and had a coherent proposal for different components. It fixed a metropolitan (inter-urban-communal) and a sub-urban limit, in conjunction with the existing municipal limits. The main principle supported by the plan was "de-concentration with centralisation"; a principle that was to return 40 years later steered by globalisation forces. It proposed regional zoning with different functional strategies (different types of agricultural parcels for the suburban region), a structured road system that identified railway, bus and air inter-city terminals. It provided delimitation of the industrial zones according to degrees of nuisance and the agriculture and forest reserve areas and the location of the green areas and system of public space inside the urban fringe. The Plan defined the different type
of urban centres (of various spatial levels, national, municipal, and local) and the different urban functions. It aimed to control urban growth through a process of filling-in and consolidation of the idle-land inside the urban fabric. The idea was to fully occupy and rationalise the 20,000 ha of the city (considering that in the year 2000 the region would have about 6 million inhabitants) in line with an Integrated Urban Planning Approach of the time. It fixed the location of the different types of housing intervention (urban renewal, urban improvement and upgrading and self-help areas).

Map 18: 1960 Metropolitan Plan (land use) / Source: Inter-communal (Metropolitan) Plan 1960 Land Use Plan

In terms of public space, the 1960 Territorial Plans incorporated the landscaping potential of inter-communal public space⁴. A global landscaping conception of the whole Santiago region was integrated with green public spaces and the road system as an integrating whole. This integrating potential was thought of as a system of public space co-ordinating the different regional, micro-regional and communal scales. It considered the local level since it identified the empty land in-between the large residential projects and with a strict application it could have controlled land speculation. The plan considered the large structuring spatial guidelines leaving the sectional planning open for further design to the various disciplines and interest sectors. The educational formation of the authors of these plans in the Faculty of Architecture of the University of Chile during 1947 and 1952 and later in foreign countries, suggested a strong influence of Sir Patrick Geddes (1854-1932); Lewis Mumford (1895-1990) and of the architects Robert Auzelle (1913-1983), Gaston Bardet (1907-1989) from the French catholic school, and the Chilean precursor Luis Muñoz Maluschka (1896-1974) (Pavez 2002).

In terms of public space the 1960 Plans considered: first, the diversification of public space itself; second, the integration of structuring elements with the natural environment and; third, the generation of a green public space circuit integrating spatial polygons amongst the built areas of the urban space and within the urban and rural space at different scales. Finally, the plans established the public patrimony of the designed area confirming the willingness of public functions of public spaces and it landscaping potential.

The 1960 plans contemplated a significant increase of the areas of public space. It incorporated standards of a metropolitan area and it enhanced the development of recreational activities within a morphological-landscaped framework taking into consideration functional
needs. The Metropolitan Plan proposed two higher densities to tackle the problems occurring in the low-density areas with negative effects of social and civic de-integration. The Plans were conceived as an answer to the massive need for recreation and civic exchange, which were considered to have been forgotten in the strict application of the CIAM prescriptions for the design of the large residential developments during the 1950s.

The Metropolitan Plan (1960) also included the creation of a permanent office for the implementation and improvement of the Plan. These policies and strategies were maintained for a long time and contributed to the transformation of the metropolis and the achievement of a large number of the Plan’s objectives.

In 1964, with the emergence of the Christian Democrat government changes in the concepts of economic growth, social equity and cooperativism took place in response to the social unrest that was occurring as a result of the failure of the internal market development model. More importance was now given to urban sectoral planning (housing and transport) rather than to the regional system of cities and the environmental and landscaping elements of the previous territorial plan. The priority given to the form of the city and its relation with natural space was abandoned given the necessary short-term changes that the city was demanding. Priority was now given to industrial development, the agrarian reform and to the renewal of the city centre. As migration to the cities proceeded, the program of saving and loans was intensified with private banks for the lower-middle income groups and social housing construction was now considered to be an important trigger for economic growth. Public retirement association funds were targeted on social housing programs for workers and civil servants.

The achievement of the program was linked with the idea of the rationalisation of 'social-housing', which consisted in an attempt to create a balance between prefab and labour intensive technologies. A vast program for economic dwellings (36m2) and four storey flats (40 - 60m2) followed with the construction of large settlements ‘poblaciones’ for the working classes delivered according to household income levels and purchasing power. A significant program of sites and services (S&S) was started for those unable to pay for a complete social unit. This S&S program was located in the low-cost peripheral areas of the Western part of the metropolis, all measures that contributed to an increase in spatial segregation within the city. The state assumed the main role in the production and financing of large-scale infrastructure, urban renewal and transport projects, which contributed to an enormous urban sprawl and the lack of co-ordination of the different sectors, and levels of governance became a serious problem.
The Urban Renewal Corporation (Corporación de Mejoramiento Urbano CORMU) at the Ministry of Housing and Urbanism and the Urban Road and Underground Service in the Ministry of Civil Works, were the institutions largely responsible for these changes. The construction of the rings, the North-South and West-East Corridors and the 'Metro' (underground) started. Around 3.000 km of street and avenues and 100 km of underground lines were added to the systems. Urban renewal, similar to other large-scale operations of the time was characterised by the bulldozing of large central areas and replacing them with residential towers. A process of rapid gentrification followed the state program of construction of eighteen 21 storey-high towers (San Borja Renewal), which did not preserve the traditional architecture of the city-centre and started a large process of land speculation promoted by real estate offices.

1.4 Urban development in the 1000 days of Socialism (1970-1973)

The socialist government in 1970 placed a value on public space through an integral conception of the city. The socialist tradition included a holistic concept of the relationship between urban structure, and socio-economic and political processes and the demands of urban movements were recognised. CORMU started a program of public equipment and the construction of parks, urban centres and civic centres on the urban periphery. Importance was given to the expression of the values of civics and citizenship (Plaza del Pueblo). These were used as structural elements, creating new centralities and landmarks in the immense spaces of anonymous self-built settlements. Instead of building large urban renewal projects in the central areas, small renovations were started in specific locations to reinforce their urban character and commercial spaces and symbols. The approach of Alexander to proceed in "small doses" with a strong component of participatory urbanism was followed. The evidence of this can be found in the renewal of several city-centres and in central-peripheries.

1.4.1 Urban plans and public space in the 1000 days of Socialism (1970-1973)


In the three years of the Socialist government, between 1970 and 1973, another approach to urban planning was implemented (although the 1960 Plan could not to be changed in the short period). Urban planning strategies were inserted in a development model based on the mixed economy. Urban planning ideas were geared to improving the efficiency of the urban system within the principles of social justice. The city should provide conditions for the redistribution of incomes and several measures was taken in pursuit of this goal. Amongst the measures that were taken, were: the transport system (including the metro lines) should respond to social demands and not be based purely on a cost-benefit approach (subsidies);
S&S programs were increased not enhanced since they contributed to the segregation of the poor population on the outskirts of the city and fostered illegal occupations; the program of social housing construction was strengthened by building 100,000 houses per year; the housing delivery system should facilitate lower income the access to a housing unit; the filling of vacant land and densification was enhanced to permit an efficient use of infrastructure and transport system; urban renewal programs should be the result of neighbourhood participation and should be made in small doses to avoid gentrification; an extensive program of urban park and neighbourhood services was started and finally several measures for facilitating land expropriation for social purposes and for improving the situation of the tenants of inner city housing were established. In Santiago the urban renewal of the inner city was implemented with the construction of social housing estates such as: Tupac-Amaru, Plaza Chacabuco, Mapocho Bulnes, Las Carabelas and Santiago-Poniente. The plan envisaged 12,440 housing units within the concept of renewal without eviction (Lawner 1992). An International Competition was held for the rehabilitation of 25 hectare in Santiago-West. The objective of the project was the North-South corridor, which was initiated in 1972 with the idea of connecting the two sides of the new highway and to correct the segregation resulting from urban expansion through a revitalisation of the core.

1.5 Urban development in the Globalisation Period (1973-1990)

I subdivide this period into two sub-periods: the first (1973-85), was characterised by an authoritarian political setting that opened drastically the economy to the international markets. The second start with reforms that ended in a democratic regime in 1990. In the first period of neo-liberal policies to adapt to the international market, obliged labour intensive industries to close and there was a drastic reduction of the state in public service provision. Large number in the popular and middle-income groups lost their jobs. As impoverishment continued, as the city was drastically ordered according to income, land was considered solely as a market good and forced evictions of thousands of poor inhabitants living in central areas to the periphery took place. Several other measures were introduced to strictly differentiate city areas according purchasing power. The process of counter-urbanisation of middle and high-income groups continued as well as the decay of the central areas. A new post-modern centre was created around new residential developments attracting modern specialised services, along highways and metro stations.

During the second period of the authoritarian regime (1985 to 1990), a mature economic period started with the recognition of the failure of orthodox neo-liberalism. Land was again considered a scarce resource and a new impulse was given to social housing. Social polarisation continued and the political crisis was violently expressed in the street through public demonstrations. Democratic values became an expression on the re-appropriation of the street. Economic violence was exacerbated with the privatisation of public space and the creation of urban ghettos. Public space started to loose its function as encounter and became
a place to move, to rush and to pass through. The consumption ideology of the free-market 'solved' the question of community encounter, at the place of reunion and meeting through the creation of a new urban element: shopping malls.

"The shopping malls produced a new urban typology and a new way to conceive the city. In contrast with the modernist ideologies, the shopping mall is part of the end of the "progressist" cycle of an economy guided by internal market principles and the withdrawal of the State was evident. City transformations do not require the spatial expression of social heterogeneity but the need to expand and consolidate according to function, contrasts and by purchasing power fragmentation. The shopping mall requires the existence of "elite mobility corridors" and accessibility and diversity started to be more important than social integration. Although, to become homogenous means the expulsion of the population beyond the geographic limits; "the shopping mall lives from the contrast, due to the order and security that it demands, as a new value in this post-modern city - it lacks public space! The shopping mall offers this value in its own closed world" (Gorelik; 1994).

1.5.1 Urban plans and public space in the first Globalisation Period

In 1973 Chile embraced the free trade ideas espoused by Washington. Lecturers arrived (from the IMF, Harvard and Chicago) to teach how to privatise, de-regulate, open markets, attract foreign capital, and reform the tax system, the social security system and to develop the internal capital market. In 1979 a neo-liberal metropolitan plan was approved (law 420) and was based on the ideas of the North American economist and planner Harberger (1988). It was argued that the new ordering of the city need not succumb to a required 'future image' materialised by normative zoning associated with hierarchies and system of urban activities, infrastructure networks and movements of residents as had occurred in the past. The 'future image' of the city was replaced by an adaptive system that submitted the development of the city to the variations of the land market and to the need to improve urban productivity in order to attract foreign investments to the city. With this plan the deregulation of city growth started, underpinned by the idea that regulations interfered with the cost, uses and supply of land. Free urban extension was supposed to reduce the costs of land generally in the inner city. Land was considered a non-scarce resource. Normative planning based strongly on design considerations, was replaced by adaptive planning that was seen as been more adequate for the socio-economic variations of the urban system and the market. It emphasised quantitative aspects over qualitative considerations. In the case of Santiago, variables were defined to address the 'urbanisable /non-urbanisable' dichotomy for the physical-environmental, organisational-functional and normative-cultural components. The systematisation of this variable was used to define the areas of urban expansion, urban consolidation and protected areas in the territory regulated by the Master Plan of 1960. In 1985 a dynamic Private Social Housing Financial System started and the occupation of the neighbouring agricultural land continued throughout the rest of the 80s. Ten thousand hectares of the best agriculture land of the country was incorporated into the urban area and city densities were reduced to 80 inhabitants per ha, while densities of social housing (residential development) increased considerably to about 200 housing units per ha. The new model of globalisation started and high-income residential functions and other functions (shopping malls, schools, financial centres and modern industry and services) began to be located in the periphery.

1.5.2 Urban plan and public space in the second part of the Globalisation Period (1990s)

In the 1990s the effect of the 1980s' deregulation policies began to be noticed in the deterioration of environmental and living conditions and a new type of city planning was deemed necessary. The democratic government in 1990 again controlled urban limits and developed a subsidised system of social housing together with a private financial system, supporting the mass construction of low-income housing. The development of public space was an integrated objective and was meant to achieve centrality and to improve the quality of urban life to citizens.

The Metropolitan Director Plan of Santiago (1994) was clearly an attempt to re-establish control over urban development, that had been heavily unregulated during 20 years of free market policies. It is also clear that the instruments introduced in 1960 were not able to adapt to the new conditions of globalisation. The biggest conflicts arose over the role of the state.
in inter-sectoral co-ordination. The Chilean State that had been the principal actor and provider until the 70s was drastically set-aside during these 20 years period. The new plan aimed to adapt to the new global conditions within clear principles of equity and environmental concerns, established in the 1990 Strategy of Regional Development.

In the new plan the state should had to share with the private sector the responsibility for restructuring the city. This meant setting dynamic instruments to draw in investments using principles guided by common interest. The accelerated rate of economic growth had already generated an active and dynamic real estate market that changed the image of the city. However, it was characterised as being a large consumer of land optimal for agriculture and a predator of natural resources (extraction of gravel from natural basins, de-forestation etc). The effects of unregulated city development were expressed in the unsustainable level of pollution now affecting the city, the growing floods, landslides and natural hazards and a generalised environmental deterioration. The previous 1992 Regional Development plan provided strategic guidelines regarding the system of urban centres of the region guiding the concentration and dispersion of the population and its economic base. Several instruments had already been established that provided an institutional framework for the Director Plan. These included: the law of regional governments, the acceleration of the 'municipal autonomy' process, the participation of professional institutions, development agents and others that permitted a democratic consensus about the proposal.

The Metropolitan Director Plan's (1994) main innovative elements were as follows:

It established clear hierarchical levels of planning with flexible attributes. For example municipalities were are able to establish specific norms within the framework of the plan. They could fix the average municipal floor space ratio and the percentage of land use and they could fix their own norms to achieve them. Similar powers were granted for the implementation of sub-centre, services and facilities.

The Metropolitan Director Plan besides being an ordering instrument acted as a mobiliser and generator of positive externalities for the materialisation of investments. In general the plan aimed at a balanced urban development and offered opportunities to diversify options through the generation of less centralised network connections. Each fraction was made part of a system where each component and its relation generated successive complementarities from which the state could better visualise the possibility of targeting dispossessed groups. It facilitated the possibilities of integration to the city economy and the organisation of areas of social interest for the materialisation of private investments. In this way the decay and downgrading of certain areas would be confronted. In spatial terms the Director Plan aimed at revitalising the inner city downgraded areas and at guaranteeing agricultural areas a long-term planning regime.

Main Issues treated in the Metropolitan Director Plan 1994:

City Extension

In the Santiago valley agriculture productivity is high given the fertility of the land. This area is also ecologically vulnerable given the flooding regime, the growth of surface waters and areas affected by geological faults, which are dangerous for urban functions. In this perspective land has become a scarce resource that is necessary to administer with care, and there is a need to establish control of urban growth, higher densities, intensification, and flexible zoning. These required norms to fix growth limits; the intensity of land use; the zoning of urban activities and the connections with the country, the region and the city sectors. The idea was to reduce the potential urbanised area through supplying land for high-density development, thus reducing the pressure on land with agro-productive potential. The plan provided opportunities for communal territorial interaction using a normative framework. This had to be carried out through an integrated approach that was people-centred and which pursued the optimisation of resources, and the efficiency and the functionality of the urban structure. The city (Great Metropolitan Area) was differentiated from the non-city (Restricted Area, excluded from urban development). An innovative zoning plan provided for the interaction between residential and non-residential area, with definitions of spacing and buffer zones. Zoning was also established to keep 'high nuisance' firms out of the peripheral ring (Américo Vespucio).
Open Space Network (See Map 24)

The Metropolitan Plan seeks a system of connected open space to improve environmental quality, through increasing the supply of recreational and leisure spaces. It identified parks, avenues, sports spaces, etc. The plan seeks to improve environmental conditions through the zoning of industrial and productive activities, according to the degree of nuisance.

Public Space. Ecological Preservation (See Map 24)

The plan provided regulation for areas of risk and ecological preservation and aimed to allocate and develop land use according to its specific advantages. The Plan maintained the general norms on public space, adding the park-graveyard to this dimension, but strengthened the protection of agricultural land and risk areas through strict demands for environmental impact studies.

Road System and Transport (See Mp 25)

The plan seeks a rational pattern of internal and external accessibility that can be achieved through a regional, metropolitan and inter-communal network road system. The plan took into consideration development factors (generation of employment in peripheral areas) and it was expected to reduce the displacement of people and to reduce transport times. The road system enhanced radial, regional accessibility and a network of connectivities amongst the different urban fragments. What was new in this respect was the demand for feasibility studies for any new project that assessed its impact on the urban system.
Sub-Centres

The Plan anticipated the consolidation of a network of 11 metropolitan sub-centres for services fostering cultural integration and community identity whilst at the same time enhancing land values in deprived areas. The goals of fixing the location of 11 sub-centres (confirming the previous plan) allowed the State to focus its extension of services and facilities to those areas with shortages. It also facilitated the creation of areas of interest for private investments, and made the transport system more efficient reducing the amount of travel to the inner city.

Revitalisation of the Metropolitan Centre

The Strategic Plan was based on a vision that there is an optimal relationship between urban form and energy consumption that it is necessary to achieve. It was essential to keep
the metropolitan centre economically-vital and socially-varied, without minimising its commercial, financial, administrative and cultural functions reaching an equilibrium point by avoid the over exaggeration of residential developments in large mega cities a better relationship between land uses and accessibility could be achieved through simultaneously improving the control of urban expansion and sub-centre development.

**Mixed Land Uses**

The regulation of land uses became more flexible although it does not preclude regulation which is done in a more sophisticated manner (identification of development corridors, centralities, etc). Important is the de-regulation of land uses regarding not conflicting small manufacturing uses.

**Public Space and Parks**

The Ministry of Housing and Town Planning (MINVU) was put in charge of the planning, design and construction of urban parks. This competence began in 1992 with the Program of Urban Parks and Squares. Since then MINVU has built 17 new parks mostly in areas of extreme poverty, which has proved to be an efficient performance. These urban parks were designed in a participatory fashion with communities and their social organisations. However, an uncertainty existed over the longevity of the existing and programmed investments and on the level of effective satisfaction of the expectations and needs of the communities. Once the urban parks were built the administration and maintenance was transferred to the private sector or to the local administration. In Santiago's case the administration and maintenance is charged to the Ministry itself. Given the financial limitations of most of the municipalities and the various responsibilities regarding public programs (schooling, training, health, local services and green areas), there have always been other priorities that have delayed the maintenance of the new public spaces.

2 THE URBAN STRUCTURE

It has been widely recognised that in Chile, as in other Latin American countries, segregation and city fragmentation have been rising as a result of market-oriented policies (Rodriguez, 2001; Ducci, 2001; de Mattos, 1998, 2001). Social and economic inequalities have exacerbated already fragmented city of the industrialisation and welfare period. In this section we will analyse Santiago's urban structure through identifying the process of the formation of homogeneous areas.

Chile has sustained an economic growth rate of about 7% for more than 15 years, but after the recent Asian economic crisis. This growth rate was reduced to 3%, which although insufficient to deal with poverty alleviation remains over of the highest in Latin America. Although demographic growth is decreasing, the level of urbanisation is as high as 90%.

Poverty in absolute terms has diminished, but the rapid concentration of wealth is the most significant feature of the social process. This wealth has been concentrated in only some parts of the city towards the Northeast, and is presently moving down to the Southeast, where previously the middle-low income population lived. The social and spatial geography of the city has therefore changed (Map 27 and 28). The wealth concentration of the last 15 years has changed the traditional segregation and urban expansion pattern of the city caused by the process of modernisation and industrialisation of the 1940s. Large-scale social segregation has always been present in Santiago as well as in other Latin American cities, although what has been new in these last years is the velocity of transformation, the amount of capital concentration and the intensity of land occupation. Sabatini (Sabatini 1998) in his last study on residential segregation in Latin America argues that the old type of urban structure has changed but at a more intensive and smaller geographic scale. A similar feature is described by Sassen (2001) for developed countries.

Maps 27 and 28 show the current distribution of incomes and Maps 29 and 30 the segregation pattern in 1980.
Santiago as with other cities experiencing rapid globalisation transformation, reveals a process of 'in' and 'outs' movements of people and activities, influencing not only the Santiago Metropolitan region, but also the Santiago Region and the whole Macro-Central area of the country. Many activities and functions have moved out the city in search of space, privacy and nature (high-income, residential -gated communities- and their associated services, schools, commercial and recreational, modern industries, etc). Other functions are attracted to the city such as new financial centres, brown-field reconversion sites, etc. The process has been called 'de-concentration with polarisation' (De Mattos 2001). These processes have changed the tendencies of almost 50 years, which was towards the extension of the city, locating low-income groups systematically further out in peripheral zones in a sort of radial growth through successive rings, whilst the high-income groups moved in radial axes. The urban development pattern of this type of growth resulted in leapfrogging and vacant land, waiting for redevelopment.

Nowadays 'urban sprawl' is accompanied by renewal and reconversion. Many planners talk about Santiago as entering an 'urban transformation' period (Rodriguez, 2001, Ducci 2001), characterised by intensification and gentrification in smaller areas, within a large metropolitan region that covers 3 provinces and 34 municipalities and a new phenomenon of suburbanisation steered by high and middle income groups towards the Metropolitan Region. In this new stage of development, the character of the periphery mutates with changes in the whole urban structure. Social inequalities became more evident and social exclusion more apparent.
Several factors are involved in this change: The transport improvement the introduction of a new type of sub-urbanisation for high-income groups; the densification process in some areas; the re-population of the inner city; the gentrification of inner city and some popular areas; the consolidation of new financial and commercial centres; the development of new technological parks; the re-functioning of obsolete areas (airport, industrial, railways, etc); the structuring of rings and radial development corridors; the new connections between activity-centres; the increase in the use of private cars and commuting flows, etc.

All these factors are widely reflected in the increase in land prices and in the differences occurring between the different segments of the city (the homogeneous areas). It particularly affects the conditions in the popular settlements lying to the North; South and West of the Metropolitan area (see chart of the Latin American Urban Models in Chapter One).

2.1 Metropolitan decentralisation

Chile was one of the first Latin American countries to open itself and liberalise its trade and capital flows and to change its internally oriented development model to that oriented to the external market, thus transforming itself from being a ‘provider’ state to being an ‘enablement’ state. Fiscal and economic adjustments to globalisation, led to the idea that cities should became economic units in their own right opening their own production, commerce and financial services to international competition.

The country has since the 1970s made efforts to modernise its highly centralised economy. New principles of management efficiency were adopted to strengthen municipal powers. Many functions were transferred to them, they were granted more autonomy in spending practices/policies, and in the training of their personnel in local financing and project management. Municipalities were encouraged to depend on their own resources as much a possible and to become efficient managers of infrastructure and services for the community, local firms and real estate holders, which lay at the heart constituted the locus of their economic prosperity (Valenzuela 1994). Decentralisation in 34 Municipalities, urban deregulation of Metropolitan level, together with a long period of economic growth and neo-liberal economic transformations have brought enormous changes to Santiago’s physical and social structure.

De Mattos (1998) distinguishes two stages in the economic development of the country, over the last 25 years. In the first stage, restructuring forces produced the dispersion of economic activities through the country according to comparative advantages, and the economic activity of Santiago suffered a strong setback. In the second stage, after this process was consolidated, the accumulative economic and demographic tendency returned to Santiago, in the vicinity of the Metropolitan Region, a tendency observable in Table 1.

Table 1.

<table>
<thead>
<tr>
<th>Participation of the Metropolitan Area in the Gross Geographic Product GGP and in the Gross Industrial Product GIP (%)</th>
<th>Source: De Mattos (1993:3).</th>
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<tbody>
<tr>
<td>GGP</td>
<td>47.6</td>
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<tr>
<td>GIP</td>
<td>52.1</td>
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To analyse the social impact of these adaptations of the market, it is necessary to analyse the transformations in the structure of employment. Although the Metropolitan Area - including Greater Santiago - has regained its historical participation in the GGP, the employment structure has changed significantly. In the period 1967-1994 the participation of industrial employment decreased from 30.8% to 21.8%; that of the service sector increased from 30.7 to 37.5% and that of the construction sector increased from 5.2 to 6.9%. In 1967, the sectoral distribution of employment was 6.9% (primary), 36.9% (secondary) and 56.2% (tertiary). In 1994, this distribution had changed to 4.5%; 29.5% and 66.0% respectively (De Mattos, 1999).

Another large change, related to globalisation and liberalisation, has been the development of urban sprawl. The city of Santiago currently covers 60 000 has while 10 years ago it was only 45 000 has. In 10 years, with demographic growth decreasing significantly (1.2%) and with a democratic elected government, the city has extended by a further 15 000 has. This is due to the deregulation of land and
the sub-urbanisation of the high-income groups followed by large investments in road infrastructure, services, shopping centres, the formation of industrial parks, and conclusively the creation of new centralities. The sustained growth rate of 7% per year was reflected, not only in the spatial de-concentration of activities and counter-urbanisation, but also in the transformation of the built environment. In this period 39.5 million m² was built. This amount is approximately 1/3d of the total estimated built-up area of Santiago in 1991 (Trivelli, 2002), which was 110 million m².

Table 2.
Distribution of built area (m²) by sectors. Source: De Mattos (1993)

<table>
<thead>
<tr>
<th>M²</th>
<th>295 676</th>
<th>1 963 871</th>
<th>3 088 754</th>
<th>27 440 695</th>
<th>6 659 697</th>
<th>39 448 693</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>0.75</td>
<td>4.98</td>
<td>7.83</td>
<td>69.56</td>
<td>16.88</td>
<td>100</td>
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</tbody>
</table>

The amount of private and public building construction recorded by the Chilean Chamber of Construction (during the period 1990-1998) is concentrated in only a few municipalities. This has contributed to changing the image of Santiago into a modern city with an attractive skyline, parallel to the Mapocho River, with the Andes Mountains as background.

Table 3 shows the distribution of floor area of new buildings in the 34 municipal districts and it has been added to the program of the Ministry of Housing (extremely centralised sector), which consists of the highly subsidised social-housing characterised by small, plot and high density. More than the half of private construction activity is located in only 4 municipalities and 90% of the total newly built floor area is located in 15 of the 34 communes. Thus, in more of half of Santiago's Municipalities (19), which according to INE data, house 2.4 million persons, no further building investment has been recorded. On the other hand, 80% of social housing is concentrated in 11 poor municipalities.

For many municipalities, social housing construction is more a burden than a benefit as property taxes and municipal incomes of the low income population are unable to address and sustain basic needs, especially those that are concerned with employment, public space and services.
Table 3.

Distribution of floor area of new buildings, and of Social Housing compared to the population size of the Municipal Districts / Source: INE\textsuperscript{15} cit. A. Rodríguez 2001 recorded by the Chamber of Construction (without including social housing). R. Hidalgo 2001. (3) Internet INE

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<td>17.49</td>
<td>17.49</td>
<td>720</td>
<td>244 446</td>
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<td>691</td>
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<td>Puente Alto</td>
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<td>39 606</td>
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<td>100.00</td>
<td>852</td>
<td>113 639</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>39 448 693</td>
<td>100.00</td>
<td>100.00</td>
<td>159 748</td>
<td>5 192 850</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.2 Decentralisation and urban governance

The inequalities of living conditions in the Metropolitan Region of Santiago are significant. Large differences exist between municipalities, according to their location in the city. Successive urban growth and administrative decentralisation has produced a concentration of poor municipalities in the first and second ring towards the western sector of the city. Table 4 shows the limitations of low-income municipalities in meeting the basic needs of the population.

The table shows the increasing inequalities: the city-core and CBD spends 10 times more...
per inhabitant than the poorest municipality and four times more than the average Metropolitan Region municipality (INE 1997).

Table 4.

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Category</th>
<th>Income</th>
<th>Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Santiago-Centre</td>
<td>Renewal</td>
<td>229 761</td>
<td>591.34</td>
</tr>
<tr>
<td>Providencia</td>
<td>Renewal+Gent</td>
<td>109 324</td>
<td>586.62</td>
</tr>
<tr>
<td>Vitacura</td>
<td>Intensification</td>
<td>83 510</td>
<td>456.59</td>
</tr>
<tr>
<td>Las Condes</td>
<td>Intensification</td>
<td>222 886</td>
<td>380.31</td>
</tr>
<tr>
<td>La Granja</td>
<td>Development</td>
<td>146 153</td>
<td>69.70</td>
</tr>
<tr>
<td>Cerro Navia</td>
<td>Development</td>
<td>164 768</td>
<td>71.30</td>
</tr>
<tr>
<td>El Bosque</td>
<td>Development</td>
<td>187 799</td>
<td>62.28</td>
</tr>
<tr>
<td>La Pintana</td>
<td>Development</td>
<td>230 758</td>
<td>67.85</td>
</tr>
<tr>
<td>Average Metropolitan Region</td>
<td>-----</td>
<td>133.4</td>
<td>126.3</td>
</tr>
</tbody>
</table>

The level of segregation existing amongst Santiago’s municipalities (Table 5) allows the identification of the different morphological zones that constitute the city. If we analyse homogeneous areas according to the distribution of income in quintiles we observe that only 3% of the low-income population reside in the high-income municipalities, such as Vitacura, Providencia and Las Condes, whilst there are no higher strata in 11 low-income municipalities. The social conditions in Santiago-centre are different to those in other high-income municipalities, since it is quite heterogeneous and includes lower income groups.

The municipal income of the Santiago area is generally speaking, higher as it is the administrative centre of the country, and the numbers of daily visitors add up to 4 times the residential population of the high and low-income municipalities. The four poorest municipalities increased their incomes by 21% and their expenditures by 37% respectively, during 1992 and 1997, whilst the 4 richest municipalities increased their incomes by 82% and their expenditures by 98% within the same period.

Table 5.
Distribution of Population according to levels of income in Selected Municipalities (in percentage) and in quintiles (ABC1 is the highest and E the lowest). / INE (1992). Cit. Ducci, M. (2001)

<table>
<thead>
<tr>
<th>Municipality</th>
<th>ABC1</th>
<th>ABC2</th>
<th>ABC3</th>
<th>ABC4</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Santiago-Centre</td>
<td>3.2</td>
<td>66.3</td>
<td>30.5</td>
<td>0.5</td>
<td>0</td>
</tr>
<tr>
<td>Providencia</td>
<td>35.0</td>
<td>66.0</td>
<td>3.0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Vitacura</td>
<td>66.5</td>
<td>33.5</td>
<td>0.0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Las Condes</td>
<td>60.5</td>
<td>37.0</td>
<td>2.5</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>La Granja</td>
<td>0.0</td>
<td>45.5</td>
<td>54.5</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Cerro Navia</td>
<td>0.0</td>
<td>22.0</td>
<td>78.0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>El Bosque</td>
<td>0.0</td>
<td>42.5</td>
<td>57.5</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>La Pintana</td>
<td>0.6</td>
<td>16.5</td>
<td>82.9</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>San Ramón</td>
<td>0.0</td>
<td>21.5</td>
<td>78.5</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Peñalolen</td>
<td>0.0</td>
<td>27.0</td>
<td>72.5</td>
<td>0.0</td>
<td>0</td>
</tr>
</tbody>
</table>

In spite of the fact that there is a National Redistribution Fund to help diminish inequalities between communes, through revenue re-distribution, from high to low-income municipalities, poverty, unemployment
and social pathologies such as crime, and violence have increased. Social-housing developments ("poblaciones") are concentrated mostly in low-income municipalities. Residents in these housing estates do not pay property tax or for services, such as garbage collection, as the social compensation law exempts low-income groups from these payments. The 'poblaciones' are located in municipalities where almost nothing has been built in the last 50 years besides these social-housing developments.

Low-income municipalities, in contrast to those in the Northeast of the city, are unable to attract investments that could lead to improving services and the living conditions of the population. The redistribution-distributive Fund is an insufficient instrument to meet its social goals since it does not take into account the spatial dimension of segregation.

2.3 The homogeneous areas of the city

In this section we shall identify similar morphological areas in terms of the historical and spatial transformation processes that have taken place. This identification of morphological areas is necessary in order to analyse the potential of the public space in a highly segregated city and to assess the possibilities of creating synergies and developing targeted areas of the city, as specified by the Director Plan 1994. This chapter quantifies and describes the different homogeneous areas, as the main process that affects each area.

In each period urban transformation has taken place in the different fragments of the city, and these changes have corresponded to particular national development strategies. The pressure for constant modernisation combined with the limited resources of all kind, induces the uneven transformation. The exodus and abandonment of some areas, the renewal and consolidation of others, and a constant extension of the city has all been expressed in the transformation of the urban morphology. The different periods can be identified over the entire city, identifying the structure of the urban morphology in historical terms and the development and evolution of particular residential typologies.

Our research has proceeded by approximation. First we make a preliminary differentiation of the different morphological areas and urban processes that the city has gone through out history. This apriori identification is based on knowledge from former research and secondary sources.

In a second approach a particular neighbourhood has been selected in each of the different areas that is considered to be the most representative urban morphology in term of the characteristics of open and closed spaces. Each neighbourhood encloses a particular residential typology, which will be analysed at a smaller scale in the next chapter.

In a third approach more detail quantification will be made of the amount of areas and population that exists in the different homogeneous areas. The determination of the different areas is dependent on the behaviour of different factors occurring in the different municipalities. In this way the processes occurring in each homogeneous areas can be determined more accurately.

2.3.1 First approach: identification of urban processes and the homogeneous area

According to the urban historical analysis I have apriori identified 5 types of urban transformation processes: First an urban renewal process in the old central areas (Santiago and Providencia); second a rapid intensification of some middle income and high income urban centres towards the east (Vitacura, Las Condes); third a gentrification of lower-middle class residential areas in some Northern - East and Central-East areas (La Reina, Ñuñoa, Lo Barnechea). Fourth, a vast process of development has occurred in the low-income areas considering both the official planned settlements and those planned by land speculators in the 50s and 60s. The low-income areas are undergoing different development processes, which we reduce to three types: consolidation, improvement and stagnation. Finally, the re-structuring of brown-field areas with the rapid integration of obsolete areas with new urban functions, which are the new elements in the urban fabric but also important areas for urban connections and restructuring (Old Cerrillos airport, Railways at Mapocho Station).

The successive extensions that the city has experienced in the different historical periods have been enhanced by the free operation of land and labour market. These extensions can be seen in the form of 'rings'. The addition of successive rings has been done in a mono-centric form along large radial access. The map 33 presents the different time periods identified, the growth contributed to the formation of a social fragmented city and different morphological areas.

Colonial and Republican architecture can still be found in the historical centre of the city. This centre, despite drastic transformations and a long period of downgrading and obsolescence, has again recovered its function as a CBD and residential area and public space has played a significant role in this. The Liberal Period (1900-1930) introduced the compact-city structures, embracing the immediate environs of the historical centre. It constituted the First Residential Ring of the city.

Since the 1960s the need to upgrade the First Residential Ring have resulted in a process of urban
renewal. The first actions constituted large-scale renewal processes, which were later followed by more sensible small-scale renewal. Currently gentrification of some areas has occurred but at the same time tax franchises have support the construction of social housing. Therefore this area has been experiencing a process of Urban Renewal.

The influence of the development strategies of the Modernisation period (1930-1960), and the spatial implications of urban theories with sectoral connotations (CIAM, ecologist school), have contributed to two urban processes that have developed simultaneously in the centre and in the periphery of the city.

Firstly, the exodus of the middle and high income groups from the city centre and the development of a new centrality that has today become a second CBD (2CBD);

Secondly, the building of large social housing developments consisting of subsidised flats and houses for low-middle income groups located on the city fringe make up the Second Residential Ring (2RR).

The second CBD is today undergoing a process of Urban Renewal and the Second Residential Ring a process of Development Improvement.

The 1960s and early 1970s was characterised by ideas of social distribution. Large developments of social housing were built on the fringes of the city (in the 1960s) and significant occupations of land with illegal settlements followed, constituting a Third Residential Ring (3RR). Currently these areas are undergoing a process of Urban Development with sectors in a state of upgrading, consolidation or stagnation in relation to the level of infrastructure development and initial type of residential unit.

In the southeastern and eastern part of Santiago, a new process of rapid Gentrification is taking place both in areas of the second and third residential rings. This process is new in Latin America and old popular areas are becoming target locations for the new modern residence place for middle and upper income groups, along with the formation of new activity nodes and development corridors.

The orthodox neo-liberal period that has characterised Latin American countries between the late 1970s and 1990s has produced significant new transformations in the urban structure. The more important processes in Santiago are:

The intensification of land uses and the functions of the areas around the Second CBD, has taken place through several processes: the return of the high-income population from the fringe to the new globalised central areas in vertical condominiums; the formation of new financial and commercial centres along new elite corridors, and the overall introduction of global architecture and urban programs. This has significantly changed the image of the city, creating new life-styles and aspirations.

The successful implementation (in quantitative terms) of a market-steered social housing program in high-density developments on the fringe of the city (Fourth Residential Ring) continues with the extension of popular areas in the West North and West South changing the low-density morphology of former periods. In the case of Santiago these consist of about 300.000 units, one third of Santiago's population.

There has also been the formation of 'gated communities', mainly for high and middle-income groups outside of the urbanised fringe on greenfields sites that have extended the city through highway corridors (strip development).

The reconversion of old industrial land to urban uses has also occurred as in the case of the old airport, the old railway stations, and the old industrial areas.

Considering the simultaneity of these different processes in the high-income areas in the various rings there will be some processes, which will not be studied in this thesis.

Between the studied process and analysing each of them at a local scale we define a sub hypothesis for each area, which will structure the research as shown in Chart 2:
Chart 2. Hypotheses per homogeneous area

<table>
<thead>
<tr>
<th>Process</th>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban renewal</td>
<td>When the level of vitality and renewal processes are high, the sense of place can be strengthened by public space renewal. The question is to what extent this renewal can address formal and land use improvements without losing identity</td>
</tr>
<tr>
<td>Urban intensification</td>
<td>In middle and high income areas where a rapid intensification of uses is taking place with good connectivity and closed security, public space matters as an element of interaction and encounter but of a general public space system</td>
</tr>
<tr>
<td>Urban development</td>
<td>In low-income areas with poor vitality and a limited sense of place, endogenous forces (public or private) are needed to induce community building. The potential of public space is to create activity nodes, densification and multi-functionality within a system that enhances general mobility.</td>
</tr>
<tr>
<td>Urban gentrification</td>
<td>In middle income developments located in areas with high levels of vitality, that have undergone rapid gentrification the question is if public space development is possible to increase the sense of place to maintain the process.</td>
</tr>
<tr>
<td>Urban re-functioning</td>
<td>In areas of obsolescence and re-functioning public space can become a city-wide landmark and the motor of the processes of restructuring</td>
</tr>
</tbody>
</table>

2.3.2 Second approach: the selection of case studies (municipalities, neighbourhoods and squares)

The next step is the identification of the Municipalities that are representative in term of the predominant urban processes. In spatial terms we can map all the municipalities containing a similar historical and development process and we can speak of Homogeneous Areas. We will identify one Municipality for each of the five identified homogeneous areas as being the most representative for further research. The selection includes the choosing of the most relevant building typology and the identification of one square as a case study for each area. The location of the Municipalities affected by the five processes and the location of each square can be seen in Maps 31-32.
Urban Renewal Process

This homogeneous area represents the compact city and the "traditional neighbourhoods of Santiago". It is an introverted sub-division of the typical "Spanish blocks" carried out under the European influence of the time. Other Municipalities similar to Santiago (on the eastern side) are Quinta Normal, Estación Central, Lo Prado, San Miguel, Independencia and Macul. Plaza Brazil and Plaza Yungay in Santiago Poniente neighbourhood at Santiago Centro Municipality, have been chosen as representative for the empirical research.

The Gentrification Process

This homogeneous area represents the second extension of the city and is the natural extension of the Alameda corridor. It represents the "garden city" extension and the closed and rigid repetition of the Spanish blocks is forgotten. It was developed mainly as a high-income residential area in the 1920s and from the 1970s it rapidly changed functions to
welcome mixed offices, commerce, banking and high-rise residential. Today housing it presents
the highest density pattern of the city. The Municipalities similar to Ñuñoa are La Reina and
Lo Barnechea.

From this type the Parque Ines de Suarez and the correspondent neighbourhood in
Providencia-Ñuñoa municipalities has been chosen as case study for empirical research.

The Development Process
The Development Process is represented the lower income areas of the city. They were
mainly developed according to CIAM principles in the 60s and 1970s and were built using
strong urban norms to achieve efficiency in the use of public infrastructure and land. They
also contain areas with rural development. In these poor municipalities programs for public
space development are being implemented. Municipalities similar to these are in the South,
Macul, Pedro Aguirre Cerda, Lo Espejo, Cerrillos, La Cisterna, San Ramón, San Miguel, La
Granja, La Florida, Macul, Peñalolén, El Bosque, La Pintana, Puente Alto, San Bernardo,
Maipú, and towards the north, Estación Central, Pudahuel, Lo Prado, Cerro Navia, Quinta
Normal, Quilicura, Huechuraba, old industrial areas such as Renca, Conchalí, Independencia,
Recoleta.

From this type the Plaza del Soldador in Pedro Aguirre Cerda Municipality (consolidation
process), Plaza de La Havana in Lo Espejo-Cerrillos Municipalities (stagnation process) and
Plaza de la Alcaldesa in La Florida Municipality (improvement process) and the surroundings
neighbourhoods have been chosen as case studies for empirical research.

The Intensification Process
This is an area with rapid verticalisation and mixture of uses. It has changed from being
a garden city model to high-rise buildings for high-income groups. It is characterised by higher
floor space ratio and building densities.

From this type the Plaza Loreto in Las Condes Municipality, has been chosen as the
representative Square for empirical research.

The Re-functioning Process
The area chosen for this research is the ex international airport located in the South West
of Santiago in the Municipality of Cerrillos. The area is currently in state of design.

2.3.3 Third approach: quantification of areas
The following step is used to assess the selection of homogeneous areas and urban
processes according to a number of indicators. Given administrative decentralisation and
the division of the metropolitan area into municipalities the idea is to consider each municipality
as representative of one homogeneous area type. Although we recognise that most municipalities
are socially and morphologically heterogeneous for analytical reasons municipalities will be
differentiated according to it predominant and most significant social-morphological type.
Social and morphological indicators are taken from municipal data. These indicators include:
density (inhabitants per ha), average household income, land and property value, and amount
of construction of social housing units over the last 10 years.

The areas of the low-income periphery that are to be studied include the municipalities of
Macul, Pedro Aguirre Cerda, Lo Espejo, Cerrillos, La Cisterna, San Ramón, San Miguel,
La Granja, La Florida, Macul, Peñalolén, El Bosque, La Pintana, Puente Alto, San Bernardo,
Maipú and towards the North, Estación Central, Pudahuel, Lo Prado, Cerro Navia, Quinta
Normal, Quilicura, Huechuraba, old industrial areas such as Renca, Conchalí, Independencia,
Recoleta. These municipalities constituted about 4.1 million inhabitants, about two thirds
of the population of Santiago (INE 2002).

Urban renewal areas to be found are in the central part of the city. They correspond to the
municipality of Santiago and Providencia. There are also areas experiencing renewal in the
first ring covering including about 325,000 inhabitants.

The intensification areas are in the Municipalities of Las Condes and Vitacura, and include
321,555 inhabitants.

The municipalities of La Reina, Ñuñoa and Lo Barnechea are in process of gentrification
and include a population of 333,792 inhabitants.

Finally there are the brown-field areas which are in process of re-functioning. They are as
yet not populated. This is the case of the old Cerrillos airport project, the Central Station
development and the recent reconversion of the Mapocho station area.
### Table 6:

<table>
<thead>
<tr>
<th>Category</th>
<th>Municipality</th>
<th>Total Area (m²)</th>
<th>Urbanised Area (m²)</th>
<th>Population</th>
<th>Density (p/km²)</th>
<th>Household Income ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Renewal</strong></td>
<td>Santiago</td>
<td>2300</td>
<td>230977</td>
<td>100,4</td>
<td>206044</td>
<td>89,58</td>
</tr>
<tr>
<td></td>
<td>Providencia</td>
<td>1420</td>
<td>111182</td>
<td>78,3</td>
<td>119863</td>
<td>84,41</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>3720</td>
<td>342159</td>
<td>92,0</td>
<td>325907</td>
<td>87,61</td>
</tr>
<tr>
<td><strong>Intensification</strong></td>
<td>Las Condes</td>
<td>3590</td>
<td>208063</td>
<td>58,0</td>
<td>244446</td>
<td>68,09</td>
</tr>
<tr>
<td></td>
<td>Vitacura</td>
<td>2389</td>
<td>79375</td>
<td>33,4</td>
<td>77107</td>
<td>32,40</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>5970</td>
<td>287438</td>
<td>48,1</td>
<td>321553</td>
<td>53,86</td>
</tr>
<tr>
<td><strong>Gentrification</strong></td>
<td>La Reina</td>
<td>1780</td>
<td>92410</td>
<td>51,9</td>
<td>97443</td>
<td>54,74</td>
</tr>
<tr>
<td></td>
<td>Ñufloa</td>
<td>1630</td>
<td>172575</td>
<td>105,9</td>
<td>162116</td>
<td>99,46</td>
</tr>
<tr>
<td></td>
<td>Lo Barnechea</td>
<td>1540</td>
<td>46768</td>
<td>30,4</td>
<td>74233</td>
<td>48,20</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>4950</td>
<td>311753</td>
<td>63,0</td>
<td>333792</td>
<td>67,43</td>
</tr>
<tr>
<td><strong>Development</strong></td>
<td>Recoleta</td>
<td>1500</td>
<td>164767</td>
<td>109,8</td>
<td>142546</td>
<td>95,03</td>
</tr>
<tr>
<td><strong>Improvement</strong></td>
<td>Macul</td>
<td>1230</td>
<td>120708</td>
<td>98,1</td>
<td>111591</td>
<td>90,72</td>
</tr>
<tr>
<td></td>
<td>San Miguel</td>
<td>950</td>
<td>82869</td>
<td>87,2</td>
<td>78473</td>
<td>82,60</td>
</tr>
<tr>
<td></td>
<td>La Florida</td>
<td>3250</td>
<td>328787</td>
<td>101,2</td>
<td>365373</td>
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</tr>
<tr>
<td></td>
<td>E. Central</td>
<td>1340</td>
<td>140896</td>
<td>105,1</td>
<td>131083</td>
<td>97,82</td>
</tr>
<tr>
<td><strong>San Joaquín</strong></td>
<td>960</td>
<td>119017</td>
<td>1152</td>
<td>98,1</td>
<td>599103</td>
<td>59,18</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>9260</td>
<td>952024</td>
<td>102,8</td>
<td>927259</td>
<td>100,14</td>
<td>735,31</td>
</tr>
<tr>
<td><strong>Consolidation</strong></td>
<td>Quinta Normal</td>
<td>1180</td>
<td>116349</td>
<td>100,3</td>
<td>102289</td>
<td>89,90</td>
</tr>
<tr>
<td></td>
<td>Cemilllos</td>
<td>1200</td>
<td>72649</td>
<td>60,5</td>
<td>72061</td>
<td>111,49</td>
</tr>
<tr>
<td></td>
<td>Conchal</td>
<td>1060</td>
<td>152919</td>
<td>144,3</td>
<td>133785</td>
<td>126,21</td>
</tr>
<tr>
<td></td>
<td>La Granja</td>
<td>1000</td>
<td>133285</td>
<td>133,3</td>
<td>133110</td>
<td>133,11</td>
</tr>
<tr>
<td></td>
<td>Lo Prado</td>
<td>860</td>
<td>110933</td>
<td>168,1</td>
<td>103649</td>
<td>157,04</td>
</tr>
<tr>
<td></td>
<td>Independencia</td>
<td>740</td>
<td>77794</td>
<td>105,1</td>
<td>65013</td>
<td>87,86</td>
</tr>
<tr>
<td></td>
<td>Quilicura</td>
<td>560</td>
<td>39954</td>
<td>71,3</td>
<td>126825</td>
<td>225,94</td>
</tr>
<tr>
<td></td>
<td>Puente Alto</td>
<td>2760</td>
<td>254127</td>
<td>92,1</td>
<td>301042</td>
<td>109,07</td>
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<td></td>
<td>Peñalolen</td>
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<td>179791</td>
<td>115,2</td>
<td>216367</td>
<td>78,39</td>
</tr>
<tr>
<td></td>
<td>Maipú</td>
<td>2770</td>
<td>253606</td>
<td>91,6</td>
<td>463496</td>
<td>167,33</td>
</tr>
<tr>
<td></td>
<td>San Bernardo</td>
<td>2360</td>
<td>181960</td>
<td>77,1</td>
<td>244354</td>
<td>103,54</td>
</tr>
<tr>
<td></td>
<td>Pudahuel</td>
<td>860</td>
<td>133393</td>
<td>155,1</td>
<td>194417</td>
<td>226,07</td>
</tr>
<tr>
<td></td>
<td>La Cisterna</td>
<td>1000</td>
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<td>126,42</td>
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<td>948910</td>
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Table 7:


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<th>Gentrification</th>
<th>Development-Improvement</th>
<th>Development-Consolidation</th>
<th>Development-Stagnation</th>
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<th>Total</th>
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<td>109.8</td>
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<td>465.0</td>
<td>589.5</td>
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2.4 The prospect and trends of homogeneous areas

In Table 7, we can see that the municipalities that are experiencing an urban renewal process are the smallest areas of the city (7.4% of the total urban area) and they currently contain few residential uses that favour other uses typical of a CBD under renewal and revitalisation. There are two municipalities, which are quite different in terms of density processes and economic power (Santiago-centre and Providencia). Santiago-centre municipality has continued to reduce its residential density in spite of the transformation caused by the considerable amount of new construction. The income distribution shows clearly the existence of different sectors ranging from low-income groups in the West to high-income groups in the East. The CBD of the capital city of the country has a daily population that is seven times bigger than that of the night. Providencia has witnessed a decrease of residential densities in favour of a shift of functions towards services and the consolidation of new elite corridors, including the high intelligent towers of the city.

The analysis at the local level will interpret the fact of low residential densities in relation to the land use occupation rates and the distribution of public spaces. In both municipalities the urban renewal process also has been generating a gentrification process. This gentrification is more noticeable in southern Providencia.

The Municipalities affected by the urban intensification process represent a small area (12.11%) in relation to the total city area but only 6.2% of the population live there (INE 2000). They also contain the highest average incomes of the country, which is 8 times higher than the average of the lower municipalities. These two Municipalities are experiencing large and radical physical transformations and one can talk of the existence of a certain convergence between developed and developing countries. Many talk about a 'new city'. This transformation proves the hypothesis that in cities with a long urban traditions and continuity of economic and technological changes (as is the case of Chile and specially Santiago in the last 15 years), the pattern of generalised large scale segregation has been modified to a more intense but smaller segregation in geographic terms, in which the public space conditions have changed substantially. Here the imperatives of technological change have facilitated the mobility of global capital flows contributing to the creation of a new image with a massive concentration of resources. They are also expressed in the self-segregation of high-income populations in gated communities, which in these Municipalities (Las Condes, Vitacura) takes the form of vertical luxurious condominiums scattered with offices and headquarters of global corporations and abundant private green spaces (golf, polo clubs and private school fields).
Three Municipalities experience a Gentrification process and are quite different in their historical background. They constitute 10.3% of the total city land and contain 6.4% of the total city population. One of the three Municipalities, Lo Barnechea, constitutes an atypical case. Until recently it was a rural locality but nowadays it concentrates the largest number of 'gated communities' and therefore the lowest city residential density (30 persons per ha), but there is also present a large number of social housing schemes of high density. The average income is rather smaller than that of the intensification sector although Lo Barnechea has the highest average municipal income\(^\text{16}\) in the country (4.163 Euro is the monthly income per household).

A rapid process of gentrification is taking place in the areas adjacent to Providencia such as Nuñoa, given its proximity to La Reina in where started the construction of gated communities for middle- and high-income groups began at the beginning of the Eighties. The process of gated community formation is different form that in other Latin and North American cities, inasmuch as they were built in old country houses areas, at high density and with row houses along a protected alley. Many of them respond to the need for isolation and to 'close up' the communities during the military government. This new urban morphology and the densification towards the East, motivated private developers to continue the process of building middle and high-income housing developments towards the Southern east. A process of gentrification followed the creation and consolidation of centralities around shopping and services centres and corridors. This rapid process of urban transformation is also another fact that many consider as a process of convergence with developed cities.

The rest of the city, which occupies about 70.32% of the urbanised land and contains the 81.1% of the Metropolitan population, has the greatest expression of social polarisation and the inequalities associated with the globalisation process. In spite of the reduction of poverty in relative terms this urban region is characterised by an average income of 590 Euro per household per month. Here I have identified three categories relating to the type of experience of the development process: those areas under Improvement, the areas under Consolidation and the areas in Stagnation and decay. Here I use ‘the mirror theory’ to explain the relation between society and space, by which the first is reflected in the second. The study of public spaces generally has been confined to the areas occupied by the richest 30% area of the city. The lack of social and spatial studies of these poor areas may be explained by a believed in 'progressive development' and 'evolution'. There is however a large number of social studies from other disciplines that refers to the growing segregation of these areas (i.e. Human Development Index, (PNUD 1996)).

The Municipalities, which experience development and which particularly, showing considerable social and spatial Improvements, cover wider areas in the city (18.8%) and contain a similar amount of total population (17.9%). The average income in these Municipalities is low (735.5 Euro per household per month) (INE 2000, CASEN 1991, 2000). The Improvement process is reflected in the considerable increase in land market prices, given the fact that they are old ‘social housing developments’ of a good quality (garden city type), with wide green streets, and some public spaces. Although along with the rest of this category they are dormitory towns, these Municipalities also experience a process of industrial reconversion, service creation, tertiarisation, and extraordinary changes in accessibility and urban mobility. The Central Station Municipality, San Miguel and La Florida are particularly dynamic areas in a clear process of improvement.

The Municipalities characterised as experiencing development and consolidation process correspond to vast areas of the city (37.2%) and to 44.6% of the metropolitan population. 14 Municipalities fall into this category. Many of them were initiated as small villages, whilst others were created in a process of urban sprawl associated with the period of industrialisation based on internal markets. In most of them the social housing programs of the state constitute the most significant land use as well as old industrial sectors, which also characterise the areas. Because of the deep pauperisation process many of these Municipalities have received people from the eviction programs carried out by the dictatorship to achieve a spatial homogenisation of the city. They are characterised by growing violence and this is expressed in the gating of community spaces. The privatisation of urban common space, such as that in front of buildings; by the closing of streets and parking places and particularly open sites planned to be public space, according to the norms.

The Municipalities characterised by development and stagnation correspond to 7
Municipalities that represent 14.4% of the total metropolitan area, but the 18.6% of the population of the city. The difference with the former is their more peripheral location, their low level of accessibility, and their isolation from the rest of the metropolis. They also contain a large number of newly social housing schemes, which are of high density exacerbating the problems of unemployment, violence, and drugs. They are socially stigmatised and are the Municipalities with the lower income per household.

2.4.1. Fine-tuning: incorporation of market indicators

The next step is to incorporate market indicators to fine-tune the type and number of Municipalities in each homogeneous area.

Table 8 compares the market land and built price, the amount of M2 built during the last 10 years and the population density in the different Municipalities. The analysis reveals the truth we have presented for every homogeneous area. It is interesting to highlight the way in which differences between development in levels of improvement and the areas in gentrification are reducing the gap. Land is increasing in value in the Municipalities under improvement although the quality of the built area of the buildings located in the gentrification area is very high. It also shows the importance of gentrification in these areas of the city. The data highlight how backward are the areas in stagnation and the differences in land rents, which are difficult to bridge through time and progressive growth. It is important to relate market prices with densities and are substantial the difficulties of the municipalities to deal with the problem of high densities. These are very relevant factors to qualify public space conditions in the different fragments of the city.

Table 8.

Land and New Building Value in Euros/m² in Homogeneous Areas. / Source: Own elaboration from data (Cornojo 2002)

<table>
<thead>
<tr>
<th>Process</th>
<th>Value (Euros/m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renewal</td>
<td>454.83</td>
</tr>
<tr>
<td>Intensification</td>
<td>344.68</td>
</tr>
<tr>
<td>Gentrification</td>
<td>159.91</td>
</tr>
<tr>
<td>Development improvement</td>
<td>169.07</td>
</tr>
<tr>
<td>Development consolidation</td>
<td>64.79</td>
</tr>
<tr>
<td>Development stagnation</td>
<td>44.34</td>
</tr>
</tbody>
</table>

The following step consists of comparing the market and demographic data of the homogeneous areas. The differences and particularities of the different processes become more apparent in this exercise. Renewal areas have the highest land prices of the city although the new buildings located in the area are not luxurious. It is beyond doubt that other city centres concentrate the higher standards of business and financial activities. The quantity of urban transformation is one of the largest experienced by the city as measured by the amount of m² built per inhabitant and the amount of social housing. The construction of social housing in the central areas is high which instead of being a problem is an opportunity, given the special location locational subsidy of the centre that makes possible the construction of better quality housing.

The intensification area is undoubtedly globalising, as all indicators show the overwhelming transformations going on. The amount of M2 built is the higher per inhabitant (26.2m²) while only about 700 social houses have been built. The quality of building is the highest in the city, where the average price is more than 1,200 Euro per m². The gentrification area is transforming rapidly as seen in the amount of building and the high quality of the new building-taking place. Most of these areas were previously in the hands of the middle-low income sectors of the city, which is reflected in the cost of land. In the development areas the differences in terms of building per inhabitants is very high. In the areas under improvement is notorious that the transformations largely take the form of the construction of new buildings, which are scattered over a large area. This has made the land costs increasingly higher and new functions and
centralities are appearing those are changing the image of the areas as poor areas. The biggest mall of Santiago is located in this area. The consolidation area is the biggest area of Santiago and contains 70% of the population and the transformations taking place are scattered throughout the large poor area of the city. About a half of the built area of new buildings has been constructed although standards are about the half of those built in central areas, and about one third of those built in the intensification area. The land price remains low with big differences compared to those development areas under improvements. The number of social housing units built in the last 20 years is high although in relation of the population it is lower that in the intensification and stagnation areas. All the indicators easily identify the area in stagnation. No new building has been built outside of a large number amount of social housing units.

Socials housing in these cases are of poor quality and represent a burden for the municipalities since are the most subsidised of housing types. This is an important indicator for the analysing the conditions of public space.

Table 9:

<table>
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<tr>
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<th>Renewal</th>
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<th>Gentrification</th>
<th>Development</th>
<th>Improvement</th>
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Finally I shall assess the type of municipalities in the different homogeneous areas through weighting all the indicators used in term of assigning a value (low, middle and high). In Table 10, the weighting system for each of the indicators is presented and Table 11 assigns the values to the different municipalities.

Table 10:
Weight of municipal indicators. / Source: Own elaboration

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89
Table 11:

Weighting the Indicators by Municipality. / Source: Own Elaboration Based On INE (1992-2002 census); ACOOP (Cornejo 2002) Real Estate Research, Collect Real Estate Research.

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Legend  
0 low 
1 medium 
2 high
3 THE METROPOLITAN TRANSFORMATIONS

3.1 Accessibility and the new city vision

As Chile has become globalised a new importance has been given to the formation of global and regional economic networks, the consolidation of large spatial agglomerations and the improvement of technical and social infrastructure.

With the return to democracy in 1990 a more humanistic approach towards globalisation was implemented. It was recognised that the modernisation of the country was a precondition for competition and that was necessary to consolidate the country's role as MERCOSUR's gateway to the Pacific. The need to improve national and metropolitan infrastructure has been one of the most sensible goals of the official political coalition since the 1990s. An ambitious program of infrastructure modernisation was started, not only linking the country longitudinally but also to the MERCOSUR countries through I1-oceanic corridors. In general a new impulse was given to urban development as a national development strategy.

The metropolitan regions were favourably considered in this modernisation plan, especially the Santiago Metropolitan Area. Accessibility and mobility were considered as important advantages for opening up to international market opportunities.

The Metropolitan Strategic Plan of Santiago (1994) of the Ministry of Housing and Urbanism established the main guidelines for the regulation of the city, the protection of the environment and the reversing of social segregation. The strategy has been to increase the efficiency of the city, to make full use of the infrastructure, to 'compact' the city structure, to control city growth, and to facilitate mobility and accessibility to and from and inside the city. Mobility improvement will be a main condition for improving the city's vitality, which is considered to be an instrument for urban integration. The development of public space is an integrated objective and is meant to achieve centrality and to yield a higher quality of urban life for citizens.

Instruments to implement the Metropolitan Strategic Plan 1994 include the empowerment of the metropolitan authority over the organisation of the Regulator Plans for all 34 Municipalities, the creation of special offices for public spaces and the strengthening of the Unified Financial Housing System. The modernisation of infrastructure was considered essential to improve productivity and its construction would be made possible through liberalisation policies, partnership between public and private enterprises and the encouragement of links with the international financial system.

Implementation will take place through flexible zoning and regulations; a subsidy system for developing special locations particularly the city centre; the development of an efficient integrated transport system; the consolidation of the old and the creation of new sub-centres. Development corridors of mixed activities have been incorporated in order to link accessibility with development of the network of centralities.

From the environmental point of view, it is believed that it is necessary to control urban growth and energy consumption. The way to attain this objective is through the consolidation of an urban network system with lower energy consumption indices and therefore lowers air pollution rates rather than an urban scheme that concentrates too many activities in a single small area (Valenzuela 1994). The strategy involves reinforcing the existing linear network system through combining 'metro-stations' and 'transfer mode stations' of public transport, through underground and ground level corridors and their conversion into connectors of trips from metropolitan areas. Implicit here is the recognition that the present fragmentation of the mobility generator activities demands a number of transport lines of low demand at high cost.

The concept of public space is linked to a city vision of multiple interconnected centralities. Public space in this context has a dynamic consideration and is related to the vitality of spatial relations. Public space represents then a 'centrality factor', which is assigned to it by its accessibility level and the intensity/density, and quality of the social relations that facilitate the mixture of groups and behaviour and by the possibility of enhancing cultural integration.

3.2 The problems in achieving goals and strategies

Numerous problems have arisen in implementing the goals and strategies of a development political program, which have been expressed in the Metropolitan Strategic Plan of Santiago
(1994). The first problem is the lack of a clear vision of the city in relation to the territory. There is no clear agreement between the various sectors of government over the concept of the future form of the territory, and big disputes exist over the urban-rural duality and the large-scale suburbanisation of Santiago and other large metropolis. The suburban developments not only consist of 'strip developments', 'edge cities', and gated communities, but also consist of a large number of secondary cities and villages that are in a rapid conurbation process. These new conurbations are expanding with the development of new techniques for information flows, communication and because of the rapid spread of private cars and mobility. As Borja and Castells say, 'things are more complicated, and the articulation between technology, economy, society and space is an open process diverse and interactive. It is therefore becoming evident that with globalisation, the global is imposing itself on the local (Borja & Castells 1997). It looks like in Chile three different visions regarding territorial ordering overlap with different possibilities of implementation. The first is that of the Ministry of Housing (Metropolitan Strategic Plan of Santiago 1994) that follows a model of concentration in existing centralities and human settlements that are strengthened through zoning and connectivities. The second is that of the Ministry of Public Works (MOP) in which the territory is ideally organised through transport corridors emphasising linear cities, edge cities and strip developments with the direct consequence of extending the area of influence of the core. The third is a regional networking of cities considering the Macro-Central Region of the country, which includes Valparaiso (region V) and Rancagua (region VI). In this opposite vision the Ministry of Housing and Urbanism can only facilitate guidelines for implementing the master plans of the various municipalities, they can influence the construction of social housing for the low-income sectors as well with the construction of local streets and parks. The Ministry of Public Works has the control of the national infrastructure including the national transport and primary connectors of the cities, which include the underground system, the port authority, the railway system etc., and they are becoming a crucial sector in the rapid transformation of the territory.

Secondly as has been discussed earlier important constraints attaining the restructuring goals are the development of the market economy, the success of economic growth and the difficulties in regulation to guide development to achieve certain social and environmental objectives. This has been expressed in the spatial intensification of segregation with the formation of a development cone (North-east part of Santiago) that contains 20% of the city is population consisting of the higher income population and the main globalised city activities. This cone starts in the old inner city and extends to the East. It concentrates the processes of Urban Renewal, Intensification and gentrification and contains the most important 'elite corridors' of activities. This has been express expressed in the 'new face' of Santiago and has proven that a certain has convergence occurred with other globalising situations.

The third constraint to attain the objectives of the Metropolitan Strategic Plan is the constraint related to the difficulties of restructuring an agglomeration of 34 decentralised and financially uneven autonomous municipalities. There is a lack of real instruments to implement the goals of the Metropolitan Strategic Plan, the co-ordination of the goals of individual municipalities and the need to achieve efficiency and self-sufficiency of the different sectoral institutions.

Concerning the efficiency of the Municipal Master Plans, it is clear that flexible zoning regulations have only succeeded in those municipalities have concentrated the high-income population and that have attracted significant national and international investments. Even in these areas - an issue that will be developed in the next chapter -, there is a lack of coordination between neighbouring municipalities, which has converted them into a sort of isolated islands. In many municipalities of the city, especially those that sprawl towards the south-west in the periphery integrating old villages on the periphery into the agglomeration, there have been concentrations of illegal subdivisions ('loteadores brujos') and subsidised housing. These residential developments are interspersed between factories and have produced a pattern of illegal leapfrogging and fragmentation. The municipal zoning and regulations have not contributed to the formation of an integrated city, nor an urban tissue that is able to harmonise built and open spaces, road hierarchies and land uses. Although the efficiency of sectoral housing institution (Ministry of Housing and Urban Development) there is a clear contradiction with municipal norms and local services programs. When the private sector started to increase the construction of social housing, the principle of 'maximisation of profits and reduction of risks' has had a significant effect on the urban environment of vast areas. The franchises of DFL2 have also made zoning and the regulations unworkable. The next
chapter will go in more depth into these morphological issues.

The fourth constraint in achieving the goals of the Metropolitan Plan is that derived from 15 years of high economic growth and economic liberalisation — namely the multiplication of private car and public transport and the introduction of ICT, which has changed the relationship between residence and work. Both have deeply affected the way in which the large metropolitan area works how different parts of the city connect and ‘how’ and ‘why’ people, goods and services move and are mobilised.

Table 12 (Greene & Soler 2001) quantifies the increase in the number of vehicles. It compares population growth rates with vehicle growth rates.

<table>
<thead>
<tr>
<th></th>
<th>Total Thousands</th>
<th>Growth Rate</th>
<th>Total Thousands</th>
<th>Growth rate %</th>
<th>Vehicles per 1000 inhab.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1977</td>
<td>3.500</td>
<td></td>
<td>208</td>
<td></td>
<td>59.79</td>
</tr>
<tr>
<td>1977-1991</td>
<td>26.6 %</td>
<td></td>
<td>405</td>
<td>94.7%</td>
<td>89.63</td>
</tr>
<tr>
<td>1991</td>
<td>4.500</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991-1999</td>
<td>28.2 %</td>
<td></td>
<td>605</td>
<td>60.5%</td>
<td></td>
</tr>
<tr>
<td>1999</td>
<td>5.500</td>
<td></td>
<td></td>
<td></td>
<td>120.00</td>
</tr>
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</table>

There has been a significant growth in the number of vehicles, which have quadrupled between 1977 and 1999. This has led to a doubling of the per capita index from 59.79 to 120.00 over the period. This has had an impact on the form of city growth sprawled and on the quality of the various urban environments. The construction of highways, with all that implies for the restructuring of a city structure, which is already highly segmented and segregated, has aggravated the quality of life of the population living nearby the nodes and the places where demolition has been necessitated for highway construction. The construction of interurban highways has also significantly contributed to the construction of the new form of Santiago. This new form is expressed in the formation of 'elite corridors', large areas of gated communities, the peripheral location of malls and shopping centres and the extension of the secondary cities through the construction of second homes. It has also brought the pauperisation of small peripheral villages through the return of some unemployed urban dwellers to them.

The most remarkable image of Santiago and of the principal cities in Chile is the congestion of buses in principal streets and the time spent in finding goods and services, and commuting. The immediate conclusion to this pattern of unproductive urban development is to blame the insufficiencies of the transport system. It can be generalised that in all the big cities the congestion and the difficulties of transportation are obscuring the positive advantages of agglomeration.

3.3 The urban mobility interaction

There are about 8.5 million daily trips in Santiago Metropolitan area according to SECTRA (1991, 2003) (all modes, all purposes, the whole day). 36.4% of these are working purpose (commuting), 31.5% are students commuting to schools, and all others purpose make up 32.1% of the total (see annex 2). Almost 80% of all trips are motorised and walking accounts for only 20%. The survey determines that 56.9% of all trips are carried in public transport, and 15.8% in private car or taxi. These data suggest the possibility of improving the location of services and the need to improve locational functions and accessibility. In this chapter we shall first research the accessibility and interaction of the different Homogeneous Area with the help of the SECTRA flux and location of trips as global data. The second step will be to identify the centralities and corridors of the city, which are rapidly reshaping the way the city is used. The third step will be to compare these data with demographic and economic index.
so as to be able to assess the accessibility of the different municipalities and places of the city, which are attracting flows. The idea is to analyse the accessibility potentials of the different homogeneous areas and their restructuring possibilities, especially those of the low-income population.

Table 13:
Flows in the Homogeneous Areas considering all modes, all purposes, the whole day. It has simplified the data by Municipality. / Source: Origin-destination surveys SECTRA 1992

<table>
<thead>
<tr>
<th>Renewal</th>
<th>610.491</th>
<th>158.029</th>
<th>165.895</th>
<th>1.016.757</th>
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<tr>
<td>Intensification</td>
<td>174.175</td>
<td>58.148</td>
<td>295.596</td>
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<td>Gentrification</td>
<td>165.966</td>
<td>213.323</td>
<td>58.246</td>
<td>185.007</td>
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<td>Development</td>
<td>632.644</td>
<td>183.449</td>
<td>136.738</td>
<td>3.647.702</td>
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</tbody>
</table>

Table 14:
Survey Origin Destination of any trip, all purposes the whole day per Homogeneous Area. / Source: Origin-destination surveys SECTRA 1992

<table>
<thead>
<tr>
<th>Renewal</th>
<th>7.20%</th>
<th>1.86%</th>
<th>1.96%</th>
<th>12.00%</th>
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</thead>
<tbody>
<tr>
<td>Intensification</td>
<td>2.06%</td>
<td>0.69%</td>
<td>3.49%</td>
<td>9.10%</td>
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<tr>
<td>Gentrification</td>
<td>1.96%</td>
<td>2.52%</td>
<td>0.69%</td>
<td>2.18%</td>
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<tr>
<td>Development</td>
<td>7.47%</td>
<td>2.16%</td>
<td>1.61%</td>
<td>43.05%</td>
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<tr>
<td>Total</td>
<td>18.68%</td>
<td>7.23%</td>
<td>7.75%</td>
<td>66.33%</td>
</tr>
</tbody>
</table>

This table demonstrates as have other studies done (Greene 2002) - that the conditions of accessibility and the urban functions of Santiago have been changing rapidly over the last years. The periphery of Santiago has experienced significant changes, due to the fact that it has been the preferred location of large industrial development and currently it has been revitalised through the corridors and rings that connect a network of centralities. It has suffered the impact of the changes from an internally oriented industrialisation model to that associated with export-oriented industries and the development of a service economy. The periphery contains 80% of Santiago's population and is experiencing a different type of development process dependent on the location and functions of the area. Many nuisance creating and polluting industries and services are located in the low-income periphery, which provide jobs (formal and informal) and which co-exist with low-income residential settlements. The number of daily journeys between areas under the development process reflects the importance of the activities, taking place in the peripheral zones. It is not surprising to find highly toxic and chemical industries together with residential developments (Cerrillos) and sites for waste disposal (Maipú) in these areas.

35.2% of the motorised trips occur in the three peak hours of the day (morning, lunch and evening) that represent only 12.5% of the 24 hours of the day, of these 16% are concentrated in the morning peak and 43.5% of those trips have as destiny three communes of the city cone: Santiago, Providencia and Las Condes and the neighbouring San Miguel.

On the other hand Table 14 also explains the concentration of trips responds to the specialisation of uses and confinement of mixed use to just a few places in the city. The Renewal sector concentrates 18.80% of the trips. When this is seen from the point of view of the purpose of trips, Santiago, Recoleta, and Estación Central (Urban Renewal) have 44% of the total commercial uses of the whole metropolitan area, while Santiago, Providencia and Las Condes (Intensification Area) concentrate 52% of all the services used in the whole metropolitan area. Quilicura (North periphery) and San Bernardo (Southwest periphery) concentrate 52% of all industrial land uses available in the whole metropolitan area. Puente Alto (South East), Lo Barnechea (Northeast) San Bernardo and Maipú (North West) concentrate the total land available for residential uses. Considering all the journeys of the
city it is possible to see that 36.6% of the journeys for working are made within the same area.

3.4 The strategy to achieve an integrated city

The study of the new integrated transport system of Santiago has followed different principles and strategies, which when implemented are expected to increase urban vitality and produce a real impact in the city (SECTRA 2000).

The fundamental consideration of Santiago’s new mobility system is to implement integrated principles based on urban development rather than to have a purely sectoral orientation. It is not enough to simply enlarge the road network, or merely to build more segregated lanes exclusively for collective transport, or to facilitate the inter-modality of trips through a common tariff. Not even the combination of these actions, with measures to rationalise the use of infrastructure and the different transport modes by transferring the real social costs of investments and operations to users and operators, is considered to be enough.

The only way to achieve a sustainable city is to have a broader integrated approach by which urban transport is only one of a set of urban functions and activities that are working together. It is believed that it is not enough to plan the transport system but rather the city should be planned as a whole with the issue of urban transport explicitly considered in the process plan.

The Integrated Transport Plan has questioned the nature of urban development expressed in the functioning and land use of the city. It is believe that the type of urban development has contributed to increased commuting and the concentration of trips in peak hours, because of its segregated and specialised character, the dependent links between the specialised areas, the concentration of services and functions in some central locations and the acute social homogenisation of residential developments. The economic growth and the increase of household income over the last decade have introduced new limitations and constraints to the way the city and transport are organised. The maintenance of the present tendencies of functional localisation can increase significantly the negative externalities of agglomeration produced by an insufficient transport system.

The new integrated mobility system of Santiago aims to address all these tones lines and thus, to plan transport and land uses together, and in such a way that it will permit progress towards achieving internalisation of social costs by the agents that produce them, in order to avoid the reproduction of spatial inequalities.

The general objective of the Plan is to harmonise urban development with the natural environment through better co-ordination, information and indicators.

The strategies of the Plan are:
- The creation of a unique technical metropolitan unit to control investments;
- The co-ordination of urban development and environmental indicators;
- The extension of the underground system towards the southern low-income area (i.e. Line 5 to Santa Ana);
- The creation of exclusive lanes for motorised bus transport;
- The construction of transport nodes for modal exchange;
- And the creation of a simple fare tariff for all types of transportation is an important strategy of the plan.

The plan was based on the recognition of the increasing deterioration of living conditions and their effects on urban productivity, given the increasing amount of travel through private buses and constant traffic jams. The main reasons for travel are the mono-functional character of the periphery and the proliferation of new centralities with a non-regulated transport system to articulate them. This produces a decline in travel speeds, an increase in travel times, and a fall in the quality of life of the city with great losses for both public and private transport. The road concessions play an important role here since they attract private resources for the creation of basic equipment, the designation of exclusive streets
and the operation of suburban railways. Another measure is the improvement of transport management (better automation of streetlights etc). The support for public transportation through the single tariff and the bus–bus and bus Metro combinations are aimed at reducing the use of the private car. A differentiated system of tariffs will be implemented, as well as taxes on petrol and parking, in such a way that the cost to the users will be close to the real social costs of the trip.

The future implementation of the inter-modal system, which will combine an underground system with public transport in the form of buses and minibuses, will change the conditions of accessibility of the peripheral areas in a significant way. Many communities have used the issue of movement of people in the struggle for improving connectivity and extension of metro lines. The eleven centralities that the system enhances, together with the strengthening of existing corridors is producing networks of connectivities and flows that are expected to contribute to integrated urban development.

3. 5. The development of the accessibility model for the assessment of the urban transformations

The measurement of accessibility - that is the relationship between a part and the rest of the urban system - and of the interconnectivity between two points was made using an indirect method of assessment. The conceptual model and method has been explained in chapter 2. It has been stated that to be able to speak of flow between two points a spatial unit has been chosen. This unit is the municipality. We have use information out flows, household income and purchasing power at municipal level. To measure the interconnectivity and the accessibility a hypothesis of linearity has been made and the following flow rule has been adopted:

Flow between A and B is equal to the capacity of the transport infrastructure, termed permeability, times the economic potential existing between A and B motivating the flow

In the framework of our bi-directional economic model, the flow will be expressed in terms of cash per day. This is defined as the purchasing power potential of all persons commuting in the morning from A to B. The economic potential existing between A and B is defined as the sum of the total daily of earnings of the population living in A plus the total wealth produced per day in B by economic activities.

The permeability are then understood as an unitless index measuring the transport capacity for mobility going from A to B. Permeabilities can be indirectly measured as the relation between the flow from A to B and the economic potential between A and B.

With this definition of permeabilities we have proceed to measure the interconnectivity between the 34 municipalities in Santiago. The accessibility of one municipality can then be defined by the sum of the permeabilities starting in all the municipalities in the city and ending in the considered municipality. Such an accessibility index is a measure of the transport capacities allowing reaching the considered municipality. Such an index will therefore be termed as infrastructural accessibility (Infrastructural Accessibility Index).

By weighting the permeabilities by the population living in the municipality of departure, a demographic accessibility index is obtained DAI (Demographic Accessibility Index). The DAI gives a measure of how many people are possible to access to the considered municipality.

By weighting the permeability by the total earning of the population living in the municipalities of departure, an economic accessibility index is obtained EAI. The EAI gives measure of how much purchasing power is possible to access to the considered municipality.

The following table is the result of the application of the mathematical model (see annex 4).
Table 15:
The Three Accessibility Indices correlated with the Municipalities./ Source: Own Elaboration (Gastebléd, Sepúlveda 2003)

<table>
<thead>
<tr>
<th>Municipality</th>
<th>Index</th>
<th>Accessibility</th>
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<tbody>
<tr>
<td>Santiago</td>
<td>Renewal</td>
<td>41,3</td>
</tr>
<tr>
<td>Providencia</td>
<td>Renewal</td>
<td>30,6</td>
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<td>Las Condes</td>
<td>Intensification</td>
<td>20,1</td>
</tr>
<tr>
<td>Vitacura</td>
<td>Intensification</td>
<td>12,9</td>
</tr>
<tr>
<td>La Reina</td>
<td>Gentrification</td>
<td>7,8</td>
</tr>
<tr>
<td>Ñuñoa</td>
<td>Gentrification</td>
<td>25,4</td>
</tr>
<tr>
<td>Lo Barnechea</td>
<td>Gentrification</td>
<td>4,8</td>
</tr>
<tr>
<td>Recoleta</td>
<td>Improvement</td>
<td>15,5</td>
</tr>
<tr>
<td>Macul</td>
<td>Improvement</td>
<td>14,2</td>
</tr>
<tr>
<td>San Miguel</td>
<td>Improvement</td>
<td>18,9</td>
</tr>
<tr>
<td>La Florida</td>
<td>Improvement</td>
<td>6,9</td>
</tr>
<tr>
<td>E. Central</td>
<td>Improvement</td>
<td>13,0</td>
</tr>
<tr>
<td>San Joaquín</td>
<td>Improvement</td>
<td>9,8</td>
</tr>
<tr>
<td>Quinta Normal</td>
<td>Consolidation</td>
<td>11,9</td>
</tr>
<tr>
<td>Cerillos</td>
<td>Consolidation</td>
<td>5,9</td>
</tr>
<tr>
<td>Conchal</td>
<td>Consolidation</td>
<td>4,5</td>
</tr>
<tr>
<td>La Granja</td>
<td>Consolidation</td>
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</tr>
<tr>
<td>Independencia</td>
<td>Consolidation</td>
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</tr>
<tr>
<td>Quilicura</td>
<td>Consolidation</td>
<td>1,1</td>
</tr>
<tr>
<td>Puente Alto</td>
<td>Consolidation</td>
<td>3,0</td>
</tr>
<tr>
<td>Peñalolena</td>
<td>Consolidation</td>
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</tr>
<tr>
<td>Malpú</td>
<td>Consolidation</td>
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</tr>
<tr>
<td>San Bernardo</td>
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</tr>
<tr>
<td>Puduahuel</td>
<td>Consolidation</td>
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</tr>
<tr>
<td>La Cisterna</td>
<td>Consolidation</td>
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</tr>
<tr>
<td>Huechuraba</td>
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<tr>
<td>P. Aguirre Cerda</td>
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</tr>
<tr>
<td>Lo Espejo</td>
<td>Stagnation</td>
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</tr>
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<td>Cerro Navia</td>
<td>Stagnation</td>
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</tr>
<tr>
<td>El Bosque</td>
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</tr>
<tr>
<td>La Pintana</td>
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</tr>
<tr>
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</tr>
<tr>
<td>San Ramón</td>
<td>Stagnation</td>
<td>3,8</td>
</tr>
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</table>

The Table 15 shows the accessibility potentials of the studied municipalities at metropolitan level. The data considered is an indirect value, which have been built from the SECTRA\textsuperscript{20} census 1992, and demographic and economic data of National Institute of Statistics INE 1992. The Table shows the three types of accessibility potentials (infrastructural, demographic and economic), which have been discussed in chapter 2, and the result is an approximation using the concept of permeability. It must be considered as a preliminary intention to analyse the metropolitan system of centralities and accessibilities considering a limited number of economic and non-economic data.
The first general conclusion of table 15 is that their exist a certain correlation between the infrastructure potential, the demographic concentration and the purchasing power. In most municipalities this correlation has been found. Important then is to analyse those figures that does not follow this correlation as is the case of Independencia and Lo Barnechea, in which Infrastructural and Demographic potentials are much higher than the Economic power. Independencia municipality is a sector very well accessible by several transport routes and modes and high density of low and middle income residential. It is a typical services provider zone although not yet developed as centrality since it proximity to Recoleta corridor. In the case of Barnechea explanation is to be found in the fact being a residential middle-income neighbourhood is mostly act as commuter dormitory, mostly accessible by private car and contain few services. It is the typical case of gated community.

A second general conclusion of the table is that it shows the importance of the Central Cone, which starts in Providencia (Plaza Italia) and extend to the East-North of Santiago. The infrastructural accessibility of most Municipalities of the Cone is high as well as it concentrates population and purchasing power. The new agglomeration economy that has been formed in the East contains the fact of its multiplier effect. The fact both Santiago-centre until the Central Station neighbourhood, which until some few years ago were in a strong process of downgrading, has been revitalised presenting not only a high accessibility potentials (concentration of metro stations and bus transfer system). The new policies of revitalisation and re-population have been able to maintain a high degree of commuting population stimulated by the new environment produced by permanent residents and activities related.

The third general conclusion of the Table 16 is that there are several other new centralities with a great index of infrastructure, demographic and economic potential, spread towards the South East, and to the West Northern part of Santiago. Although the existence of this centres the large majority (52%) of the municipalities are having relative lower potentials of accessibility.

In order to analyse the accessibility potentials of the metropolitan area is necessary to analyse:

1. The potentials of Santiago historically planned sub-centres
2. The potentials of Santiago New centralities

3.5.1. The potentials of Santiago sub-centres

To consolidate the connectivity of the 11 metropolitan sub-centres, a network and connectivities of transport modes has been considered by the new transport system. Many of these sub-centres, specially those situated in the periphery, correspond to the old city centres or old villages that have been agglomerated and formed the current Santiago large conurbation. The sub-centres are:

1. Renca - Quinta Normal
2. Estación Central - Lo Prado - Pudahuel
3. Huechuraba - Recoleta
4. Puño - Peñalolén - Macul
5. La Florida
6. Maipú centre
7. Pedro Aguirre Cerda
8. La Granja - San Ramón
9. San Bernardo centre
10. La Pintana
11. Puente Alto centre

To these planned subcentres must be added the market based transformation occurred in the last decades to attract services and population in a particular place. The formations of urban development corridors and activity nodes along the main modal points have become
new city transformation phenomena and have been considered in the strategic plan of connectivities.

The maps 33 show the main urban corridor and city centres of the metropolitan region of Santiago that have been consolidated during the last decade. The map provides the basis for understanding how the new urban plan structure has changed the form of the city and how integration and the connectivities have not yet been effective in the various areas.

Regarding the subcentres, we can see that the majority of the 11 Sub-centers score high in the accessibility potential considering the whole city and those that present low performance are located in peripheral locations far from main traffic routes and present various accessibility index.

The first sub-centre is located in Renca and Quinta Normal. It is undoubtedly that Quinta Normal has much more infrastructure, demographic and economic potentials than Renca, notwithstanding the physical location of the sub-centre is in Renca. Renca is constituted mainly by old large industries and is a low-income residential area particularly of social housing developments of the 1950s. Renca belong to the stagnation category while Quinta Normal is rapidly consolidating as a middle-income neighbourhood. The normal tendency is the consolidation towards the south of Quinta Normal, although the new East-West access corridor of Costanera Norte will provide the possibilities to develop centrality towards the North (Renca) considering the large amount of derelict industrial land available in the area.

The Estación Central - Lo Prado - Pudahuel is a sub-centre located in Estación Central. Estación Central have clearly high level of vitality given the accessibility related to various infrastructure networks (metro, corridors, access-roads) and the whole area present mixed uses and wide develop commercial circuits. The Estación Central is the most important strategic project in the framework of the Bicentenary transformations. It is expected that several other projects will be unfolded from this, given the large availability of derelict land. Besides there is a high concentration of population of low-middle incomes and therefore the purchasing power is low. Pudahuel and Lo Prado are neighbouring areas with low infrastructure, demographic and economic accessibility potentials. Expectations to develop these two municipal areas are grounded in the improvement of infrastructural accessibility. This is depending in the further enlargement of the coverage of existent metro stations through ground level system, to bridge the mobility corridor separating both areas and to facilitate their mixed use potential to attract further activities.

The Huechuraba-Recoleta sub centre is located in the limit of Huechuraba and (North-East) Recoleta. Being Huechuraba a new municipality of the metropolitan area (1994), it is characterised by having a huge rural area and rural population. Therefore the accessibility data are distorted. Without doubt there is a high level of poverty and as such it is conceived as a 'consolidating' municipality although it concentrate many modern uses of the city (techno-park, several gated communities and commercial centres). The sub-centre is located in the main ring of the city, therefore the high infrastructure accessibility that present. Recoleta also present high demographic potentials and is showing the fact that is in process of development consolidation.

The Nuñoa - Peñalolén - Macul subcentre is located in Nuñoa in the conjunction of two important corridors, Vespucio, Grecia and in the area of influence of a third one (Irrazábal). The accessibility potentials of all kind is high for Nuñoa and Macul since they constitute the third and six place in the whole city with higher index of accessibility. Peñalolén is an area with low and mid income population in consolidating process since is very much affected by it position neighbouring Nuñoa and Macul. It is an area with economic potentials since contains a large rural area and vineyards.

The La Florida subcentre is located in the Northeast border of the Municipality. Because the large size of the municipality and the fact that contains a large rural area, the infrastructural accessibility potentials index is low. The index does not express the fact that the subcentre is a metro terminal with a great vitality and mixed uses. As consequence of this vitality there is a high tendency towards gentrification around the subcentre area and social mobility is high. It contains three large malls (two under construction) given the high demographic potentials, although the low economic index. The population living in the rest of the area is low and low-middle income groups and the area is considering in consolidation process.

The Maipú sub centre is located in the historical centre of Maipú, and old village annexed
to the metropolitan area in the half of the XX century. The municipality although contain low and middle income groups, maintains a large rural area and is currently an important dormitory place for commuters and gated communities. Two large mobility corridors surround the Municipality. Because the rural character and the bordering nature of the mobility corridors it accessibility potential is low. Two large malls have been place in the borders, although the subcentre has its own synergy to maintain retail and daily commerce with a strong traditional environment.

The Pedro Aguirre Cerda subcentre has been planned in the 1960 when several social housing development where built under the idea of progressive consolidation. This subcentre represents the failure of such ideas of self-development without any external pressure. The accessibility potentials of all kind are very low and the municipality is in process of stagnation.

The La Granja - San Ramón subcentre is located along the main ring Américo Vespucio in conjunction with the Santa Rosa industrial corridor. The ring Vespucio divides the municipality of La Granja and San Ramón in two. The origin of both municipalities is rural and social housing development was built around 1960s. Being the subcentre located just aside the ring it development impact in the area is very low. There is high spatial fragmentation produced by the highways that act as physical barriers and nuisance producer of all kind. The accessibility potentials are very low. San Ramón is in stagnation process and La Granja in consolidation process given it development towards La Florida along Santa Rosa corridor.

The San Bernardo subcentre is a traditional old village centre annexed to the metropolitan area. The accessibility potentials (of all kind) score low given the relative isolation from the urban structure. The subcentre itself is built in 1815 and has the traditional Spanish grid layout. It has a railway to Santiago centre and is at the end of the Gran Avenida. The isolation is related to it peripheral location, which distances more 20 kms to Santiago centre and, 60% of San Bernardo perimeter is surrounded by rural areas. It still functions as apart secondary city, with a mall in the central area.

The La Pintana subcentre has been planned in the end of 1970 following ideas of progressive development, self-help development and concentration of social housing. It is now days considered as the poorest municipality of the city. It has a marked rural municipality with large areas occupied by university's agriculture research centres. The subcentre is located at the end of Santa Rosa Streets, which is not longer considers as an industrial corridor. It is a typical peripheral poor residential development (17 km from Santiago Centre) without any significant functions. The accessibility potentials of all kind are low.

The Puente Alto subcentre is the far-located centre of the city (21-Km from the city centre). It is a traditional manufacturing centre and contains several labour intensive complexes (i.e. Papeleras, Volcán). Its manufacture nature is far greater than the rural function. It is isolated from the neighbouring municipalities and the only connection with the city is through Víctu Isa Mackenna Avenue. Along this avenue two malls are located and at a middle distance to the city centre are the main ring of the city and the subcentre of La Florida. Therefore the infrastructure accessibility is low, the demographic and the economic accessibility is average.

3.5.2. Potential of Santiago new centralities

In general we can affirm that the new centralities (development corridors and malls) has been in large extent supported by the increasing density of structuring roads and the rise of demographic potentials.

The main amount of new centralities has been developed in the last three decades and has been facilitated by the deregulation of the urban development and the consolidation of a highly modern real estate sector. The influence of ITC development and cultural globalisation has contributed to the consolidation of linear development centres and a various type of activity nodes (i.e. malls, transfer centres, cinema complexes, etc) all are affecting the nature and use of public space.

Several important national infrastructure projects have been built to improve regional accessibility to and from the metropolitan area, and they have directly influenced the structure of the city especially the peripheral municipalities and those located in the radial axes. The renewed southern access to Santiago that crosses La Pintana, La Granja, San Ramón and the opening of the L Para, and the new parallel corridor to the Gran Avenida, which transacts
El Bosque, La Cisterna, Pedro Aguirre Cerda and San Miguel, all serve to join the periphery with the centre of Santiago and connect the network of centralities.

On the other hand, the completion of the Américo Vespucio ring has significantly improved the infrastructure accessibility of previous peripheral locations such as Cerrillos, Lo Espejo, San Ramón and La Granja. This is especially true when considering that it is not only a mobility ring but also the location of important new sub-centres, which are attracting population and services from all over the city. Although the private character (concession) of these rings and corridors has not directly affected the direct neighbouring residents, it is expected that they will produce improvements in the transport nodes and multi-nodal transfer locations. Many West-southern municipalities had benefitted to an extraordinary extent from the opening of Line 5 of the Underground (Macul, San Joaquín, La Florida, and La Granja).

An important factor in the improvement of infrastructure accessibility has been the rapid linear connection of development corridors from the periphery to the inner city and from West to East crossing diametrically the City (Costanera, Kennedy, Alameda), that constitute a network of nodes and rings. The most important corridors that are consolidating are the Gran Américo Vespucio Avenue, the Santa Rosa, and the La Florida Avenue. They improve mobility and contribute to improve accessibility, economic potentials, and activity nodes of commerce and services. Many places along the corridors have been converted into a destination rather than a place of flow. These places are attracting new activities, which support each other (bank branch offices, offices and services, printing services, photocopying, and specially gastronomy, restaurants and bars), producing synergies towards the surroundings.

Many master plans of the southern municipalities include the transformation of the street profile, landscaping and street furniture to improve the local character of these corridors. Line 5 of the subway (Metro) has been completed and is creating several new centralities along the multi-modal stations. A large Mall has been built in this southern part of Santiago, significantly changing the accessibility factors of the surrounding areas (Puente Alto and to the South–east La Florida one).

3.6. The three scenarios for Santiago: mobility and regional structure

At the urban level there is strong agreement amongst planning institutions to integrate, to make more compact and connect up the city and that this will favourably influence mobility to socially targeted areas and will have a strong environmental impact. This will facilitate the impact and use of public space. What is far from clear is the existence of a common vision about the form of the city whether this is the Greater Metropolitan area of Santiago, the Region of Santiago, or the Macro Central Zone of the country.\(^\text{21}\)

The lack of common vision between the different planning levels is making that several activities continue to move ‘out’ of the metropolitan area. The efficiency of the action of the Ministry of Public works and Transport MOPTT\(^\text{22}\) to achieve their sectoral goals contributes to increase urban sprawl. MOPTT’s policies could consolidate a different sort of urban structure than that of MINVU and the other sectoral institutions that agree with it including SECTRA.

We can identify three scenarios for the year 2022 in relation of the spatial organisation of the main country agglomeration: option one is the Compactation-present trends, the option two is the Moderate growth - Capital Region (including the Metropolitan Region), and the option three Inter-regional development (including the Macro Central Zone) (S. Gonzalez 1999).

Option one: is premised as Santiago having a population of between 7.8 to 8.2 million inhabitants for the year 2022 with a population of 400 and 600 thousand in the Provinces of the Metropolitan Region. All Santiago’s growth will probably be concentrated in the consolidated limits in 1998. The intermediate cities of the Metropolitan region will grow at current rates and there will not be substantial growth in the urban areas. Strict environmental regulations will be needed to improve the environment and will permit improvement in quality of life. The analysis of this option implies taking advantage of present synergies and there exist several projects, plans, sectoral programs and private investments pointing in this direction. However it is far from clear that the environmental goals will be achieved and moreover, that current conditions of degradation will continue.

Option two projects Santiago with a population in 2022 that will reach between 5.8 to 6.2 million inhabitants. This implies that minimum densities might be reduced. In this scenario, the provinces that constitute the Metropolitan Region will have a population between 1.8 to 2.2 million inhabitants. The population of the cities of the inter-region will increase by 300,000 more inhabitants than the current tendency. This demands an identification of the urban - intermediate systems with the idea of enhancing their development. This is a scenario in which the intermediate cities might absorb the greater part of the growth. This option seems to be technically and politically more feasible since its management in great measure depends on decisions taken in the regional context, although it demands national level commitments. The advantage in relation to the other two is that it demonstrates a clear political will for change.

In option three, the Inter-regional development (including the Macro Central Zone) is predicted a population for Santiago between 5.800.000 and 6.200.000 inhabitants for the year 2022, and between 1.200.000 and 1.500.000 for the provinces of the Metropolitan Region. Other regions would absorb between 800.000 and 1.2 million that according to the trends would have to have shelter in Santiago. An important part of the population growth would be distributed in the Metropolitan Region and in the V (Valparaiso) and VI (Rancagua) regions. Measures for rapidly connecting the cities should be implement without polluting the environment. The intermediate cities would be provided with infrastructure and services that facilitated and enhanced the locational factors. Part of the public central administration would be located in the regions. This option was conditioned by the fact that decisions would have to be taken at the central level, and the political would be difficult to predict. It also depended on a rapid light mass transport system able to connect the principal centres of the region.

In synthesis regional authorities seem to agree that the reordering of the metropolitan territory would be focused on options 2 and 3 since they revealed a clear political will for change long term-objectives of improving the environmental condition of the region, socio-spatial equity and a more balanced development of the urban centres.
4. METROPOLITAN PUBLIC SPACE

This section is aimed at presenting the conditions of the system of public space at the metropolitan level. It will present a review of Policy and Plans over the last 40 years and a quantification of the present situation, which has seen a considerable decrease in green and public space per inhabitant.

4.1 Policy and plans

In 1930, Santiago Metropolitan area had an extension of 65 km² (6,500 has), with a population of 696,000 inhabitants (Pavez 2002). It is characterised by a diverse range of public spaces: the Cousiño Park (today O'Higgins), the Quinta Normal, the Santa Lucía Hill, the Great Britain Park, and a significant number of squares and sport fields. A public space amount to 800 have and constitutes 12% of the urban area and represents more than 11 m² per inhabitant.

In the 1960 Plans for Territorial Ordering, oriented by Integrated Planning ideas, 4,000 has were reserved for urban and suburban green areas (without considering the rural green areas), for an estimated planning population of 5,500,000 and 6,000,000 inhabitants for the year 2000 in an urban area of 40,000 has. The gross density was planned to reach 100-150 inhabitants per ha and 7 m² of public green space were to be allocated per inhabitant, representing the 10% of the total urban space. In 2001, the public space conditions of the city have significantly deteriorated both in quantitative and qualitative terms. The amount of Public space is currently only 2.5 m² per inhabitant. To explain this drop we must analyse the objectives, instruments and nature of the policies that have been applied in Santiago.

In 1960 the idea was that a rational growth of the Macro-regional urban centres should be planned. This planning should consider the natural environment, the different hydrological basins and the soil characteristics of the valleys with a high agriculture potential. The reforestation of the whole territory between the 700 and the 1,000 Mts. high was proposed to avoid the loss of agriculture land, orienting urban extension towards land of less potential. The urban form would be incorporated in to the natural space and the landscape, avoiding the radio-centric growth pattern and repetitive and monotonous settlements.

Santiago was considered as a great amphitheatre, constituted by the Central Valley in the Maipo river basin. The Maipo River is formed through the confluence of its tributaries the Puangue, Lampa and Collina in the North; the Huechuraba, Mapocho and La Aguada and the Maipo River itself in the West-East axis; and the Cariñilo, Paine and Angostura rivers in the South. The guidelines of the Micro-Regional plan was formed with these four hydrographic axes, and the central nuclei of the metropolis was shaped by four hills (islands) Renca, San Cristóbal, Chenia and Viczachas (between the Cordillera de Los Andes and the Cordillera de la Costa). For J. Parrocha (1987), one of the authors of the plan, this was a remarkable natural geographic structure containing the residential satellites and the different networks and corridors of roads, train, and buses as well as the energy and water systems. Guidelines should therefore be based on the exceptional macro landscape potential of the central-valley of the country.

Territorial planning was carried out in the form of "sectional functional and landscape plans" which referred to the micro landscape of large urban corridors and Sectional Avenues where different architects, landscapers and planners could participate in the urban design at the local level.

In the 1960\textsuperscript{23} plan, the objective was to preserve a sustainable urban settlement system. These objectives demanded specific actions to preserve all the agricultural resources of the region and to prevent its destruction through urban sprawl. It was necessary to restore the environmental aspect of the flora and fauna in all the mountains and hills of the region. The reforestation of the low quality agricultural areas was also considered. These included those areas destroyed for consumption demands in the XIX century and at the beginning of the XXth. It was also necessary to recuperate the badly drained and dry land especially in the north area of Santiago.

In general the Plan sought to generate significant changes not only in the landscape but also in the ecological equilibrium of the area and it economy. This meant a change in the
organisation of space and the way of life of the urban region.

The 1960 Plan also anticipated the possibility of enhancing the tourist and recreational potential of the region's resources. It sought to re-discover and multiply the recreational places of the region, including valleys, lakes, lagoons, high mountains and other natural features. The strategies and norms that defined the 1960 Santiago Metropolitan Plan were supposed to guide all the municipalities and public sectoral services. It was necessary to improve the Metropolitan plan's strategies through the Communal Master Plan, the Sectional Plans and some specific Sectoral Plans.

The plan also included industrial zoning at several levels. The main idea was to build exclusive industrial parks, with proper city connections and integration. This was also in line with environmental sustainability goals trying to avoid atmospheric contamination. This was (and is today) an extremely complex task given the particular climate and hydrographic characteristics of the metropolitan area.

The plan also considered a definition of a suburban ring that would connect the urban and the rural areas. This idea considered a transitional and stable space composed of the rural farms and metropolitan equipment located within this ring. The ring was supposed to act as barrier to an urban sprawl, helping to focus urban growth inside the ring or outside in the different satellite settlements that surrounded the metropolitan area.

The integrated character of the Plan stressed the good performance of the transport and road networks, which were defined at all, the regional, urban and communal levels. This showed the importance given by the plan to good connectivity within the regional-urban system and the diversity of the traffic network.

The Road system defined in the 1960 plan considered several green corridors of different types to connect the different fragments of Santiago. These types were:

The Santiago accesses routes and city highways (Pan Americana highway; Ochagavía; Road to San Antonio Port (Ave. P. Aguirre Cerda)). The Road to Valparaíso, via Lo Prado; The Road to Macul - Las Vizcachas; Avenida Vicuña Mackenna); the Peripheral Metropolitan Ring (Américo Vespucio); the Middle Ring, the Middle Ring of distribution and the Metropolitan radial roads.

The road system of the 1960 plan identified two type of design for these green corridors:

Park Avenues:

These were to be avenues with one or two lanes for slow traffic adjacent to a green strip, which would be continuous or discontinuous, with a line of trees, gardens and children's playground. These Avenues were to connect two or more communal parks with special areas. The following avenues were considered to be Park Avenues:

- The old Pan-American Highway between La Cisterna and San Miguel. This avenue had a 100 meters width.
- Gran Avenida that extended from the railway ring at the North, to Salesianos Street in the south, with a width of 60 meters.
- The I. Riquelme Park that extended from V. Mackenna in the East, to P. Aguirre Cerdá, in the West.
- An Avenue that would connect the National Stadium, Colo-Colo Stadium and the Inter-communal park N°6 (La Castrina) with a width of 60 m.
- An Avenue that would connect the East part of I. Riquelme Park, from V. Mackenna to the Viña Macul Park in the east. With a Width of 60 m.
- The Avenue that connected the Western part of I. Riquelme Park from P. Aguirre Cerdá to the Los Pajaritos road. It was proposed to have a width of 60 m. this was initially a part of the Maipú master plan.
- The Dorsal Avenue, extending from Conchalí commune and its extension to the West, running through to Renca Municipality on the North bank of the Mapocho river, with a width of 60 meters.
- Tobalaba Avenue extending from Mapocho River in the north to the Departmental Road in the South.

- The Manquehue Avenue in Las Condes Municipality that extends from the Mapocho River in the North to Metropolitan Park No7 in the South.

- Francisco Bilbao Avenue that extends from Manquehue Avenue in the West to the future cemetery in Las Condes commune in the East.

- A Diagonal Avenue was designed into the Ñuñoa Master Plan, extending from Viña Macul Park in the East to its extension in the West, through the South Avenue, from there to their division in Matta Avenue and Bustamente Park, creating a connection between those parks.

- The new road to Valparaiso through Lo Prado, lying between Ecuador Avenue in the East and the Mapocho river in the West (Parallel to the future planned road to Lo Prado in the north). This new road would have an open green space corridor and a local transit street with 70 meters width.

Tourist Roads

A tourist road was designed to cross the municipalities of Puente Alto, la Florida, and Ñuñoa, Las Condes and was to be extended to Vizcachas in the South and Cerro Alvarado in the North.

The main physical structure of the city of Santiago was conceived as a star made up of seven points, allowing ‘green wedges’ to penetrate to the centre through geographic formations (island’s hills). The natural green areas of these wedges were the Manquehue Hill, the Santiago Forest, the San Cristóbal Hill; the Renca Hills and Cerro Colorado Hill; the Mapocho River and the Zanjón de la Aguada Creek. Amongst the artificial obstacles was the Cerrillos airport, the Castrina research agrarian resort of the University of Chile, etc. This star form would permit better communications and more rapid transport and a better integration and transition between urban and rural space in landscape terms.

The plan contemplated a great diversity of public spaces, including the River bank system of the Mapocho River which is the main metropolitan West-East corridor²⁴, that would integrate a network of lateral public spaces that has existed since 1900 (Parque Forestal, Centenary Park (today Parque de Los Reyes and Providencia Park). The Metropolitan (Inter-communal) Park of the Mapocho basin alone would account for 690 has.

The 1960 Plan proposed integrating circuits or networks of public space both in the interior of the urban fabric and in the suburb-rural region. Several systems were defined (the Rural Forest Reservoirs; the Forest and Agricultural Sub-urban Reservoir; the Inter-Communal Parks (Defined Areas); the Inter-Communal Parks (River’s Basins); the Communal Parks; Special Areas, Santiago’s Access Highways, the Peripheral Municipalities Ring, the Ring for Middle Distribution, the Middle Ring, the Metropolitan Radial Corridors, the Park Avenues and the Tourist Roads). The Plan have established the following principles:

A co-ordinated system of open green spaces of public use was defined to be used for the relaxation and recreation of the inhabitants as well as for environmental sanitation.

In those areas, which were defined as part of this system of open green spaces for public use, construction, which was forbidden with the sole exception of those activities, needed to retain the natural functions of the defined green spaces.

There was a better performance in the public space related to mobility and green corridors. Since the creation of the Office of Urban Roads and the Metro in the Ministry of Civil Works, between 1965 and 1975, 80,000 m² of metro stations were built with 100,000 m² of tunnels and 3,500,000 m² of paved roads in Santiago.
The public space Systems Defined in 1960 Plan:

a. Rural Forest Reserves: These were to be designed to surround the urban area and to be planted by trees and all kind of plants that could adapt to the particular characteristics of the soil. Four reserves were identified:

The Eastern forest reserve, a space about 900 to 1000 meters above sea level in foothills of the Andean Mountains chain. This area extended from Las Condes in the North East of the city and was extended to the Punta de la Silla in Pirque in the South East of the city.

The Northern Forest reserve, formed by the hills of the Manquehue area, defined by the zoning maps.

The Western forest reserve: This area correspond to the Mapocho Basin, starting from the Lampa creek at the foot of the Ampolola hills, extending through Lo Aguirre, La Bandera, Punta de Vientos, Ratones hill, to the rocky areas of the lowlands of Lo Prado area.

The Southern Forest reserve: This area included the Chenas’s hills, the Negro hill, Las Cabras hill at the Bajos de Mena area and its surroundings.

b. Forest and agricultural Sub-urban reserve: The areas considered as agricultural and cattle land should continue with these uses and be identified as areas to be used as forest reserves, distributed on surfaces from 300 to 800 hectares. These were to be: the Quilicura area including Ranca and Barrancas, the Barrancas areas including Maipú, the San Bernardo area, the Puente Alto area and the Núñez area, the Apoquindo area including Las Condes, the Alvarado hill area, and the Manquehue area including the San Cristóbal hills.

c. Inter-Communal Parks-defined areas: These corresponded to open green spaces and others spaces defined as meeting points, playgrounds, sports areas, distributed in each of the City's cardinal points. These areas would be between 30 and 100 hectares in size and open to use of the whole city’s population. The areas would be defined by commune and were as follows:

In Conchalí: the Dorsal Avenue Sector, 44 hectares.

In Quinta Normal, an area of 52 hectares.

In Santiago Cousiño Park, 140 hectares.

In Santiago, the University and the arts Center in the Los Dominicos Church Station.

In Núñez, the Country Club with 80 hectares.

In the areas of Santiago, Conchalí and Las Condes: the San Cristóbal hills with 282 hectares.

In Las Condes: the Golf Club with 64 hectares.

d. Metropolitan Parks (River’s Basins): These included the Mapocho river basin with an extension of 690 hectares and the Maipo river basin in the Puente Alto area with an extension of 30 hectares.

e. Communal Parks: This type was defined with an area of 8 and 18 hectares. A communal park was defined as being for the use of a municipality or a group of neighbourhoods. Their characteristics were similar those of the metropolitan parks but their "impact area" was smaller. These types were located near dense neighbourhoods using empty spaces or also using old existing parks. See table 16.

f. Special Areas: This type corresponded to open green area in the private or public domain, with controlled or restricted use such as:

The Sports areas: National stadium, Hippodromes of Club Hipico and Hipodromo Chile, Colo-Colo stadium etc.

Private Parks: Macul Park, Lo Hermida Park, Apoquindo, etc.

g. Areas of Cultural and Historical Interest: e.g. Los Dominicos Convent, the Lourdes Church area etc.

The Achievements and Failures of the 1960 Plan

The achievements of the plan were numerous when looked at from a 1980’s perspective. The Master Plans (Planes Reguladores) for each municipality were initiated using the guidelines of the plans. The most dangerous industries were evicted from the city, and the public infrastructure works were built according to the integrated model of the city and relieved traffic congestion.

However despite the great expectations of the 1960 plans for public space, twenty years later on the reality was quite different. Only 1000 ha of public space areas were built at the different urban scales, and these however however with a very low level of facilities. In 1980, Santiago had a smaller area of public space than fifty years earlier in 1930. The urban sprawl continued without any comprehensive regulation affecting the consolidation of the urban fabric.
Table 16:  
Communal Parks considered by 1960s Metropolitan Plan. / Source: Pavez 2001

<table>
<thead>
<tr>
<th>Park</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conchali</td>
<td>11</td>
</tr>
<tr>
<td>Independencia</td>
<td>12</td>
</tr>
<tr>
<td>Domingo Santa María</td>
<td>8</td>
</tr>
<tr>
<td>Quilicura</td>
<td>8</td>
</tr>
<tr>
<td>Renca</td>
<td>14</td>
</tr>
<tr>
<td>Quinta Normal</td>
<td>4</td>
</tr>
<tr>
<td>Parque Lo Franco</td>
<td>4</td>
</tr>
<tr>
<td>Cerro Navia</td>
<td>8</td>
</tr>
<tr>
<td>Estadio Municipal,</td>
<td>4</td>
</tr>
<tr>
<td>Santiago</td>
<td>5</td>
</tr>
<tr>
<td>Cerro Santa Lucía</td>
<td>18</td>
</tr>
<tr>
<td>Sector San Pablo</td>
<td>10</td>
</tr>
<tr>
<td>La Palma</td>
<td>12</td>
</tr>
<tr>
<td>San Joaquín</td>
<td>10</td>
</tr>
<tr>
<td>Sector Avda. Matta Sur</td>
<td>8</td>
</tr>
<tr>
<td>Sector 10 de Julio</td>
<td>8</td>
</tr>
<tr>
<td>Barrancas</td>
<td>12</td>
</tr>
<tr>
<td>La Cisterna</td>
<td>10</td>
</tr>
<tr>
<td>Lo Valledor Sur</td>
<td>10</td>
</tr>
<tr>
<td>La Blanca</td>
<td>16</td>
</tr>
<tr>
<td>Avda. Progreso</td>
<td>12</td>
</tr>
<tr>
<td>San Bernardo</td>
<td>8</td>
</tr>
<tr>
<td>San Miguel</td>
<td>8</td>
</tr>
<tr>
<td>Ciudad del Niño</td>
<td>10</td>
</tr>
<tr>
<td>La Legua</td>
<td>12</td>
</tr>
<tr>
<td>La Granja</td>
<td>8</td>
</tr>
<tr>
<td>La Florida</td>
<td>10</td>
</tr>
<tr>
<td>Las Mercedes</td>
<td>10</td>
</tr>
<tr>
<td>Puente Alto</td>
<td>8</td>
</tr>
<tr>
<td>Puente Alto</td>
<td>8</td>
</tr>
<tr>
<td>Simón Bolívar</td>
<td>10</td>
</tr>
<tr>
<td>Santa Julia</td>
<td>14</td>
</tr>
<tr>
<td>Escuela Agrícola</td>
<td>12</td>
</tr>
<tr>
<td>Providencia</td>
<td>16</td>
</tr>
<tr>
<td>Antonio Varas</td>
<td>16</td>
</tr>
<tr>
<td>Las Condes</td>
<td>16</td>
</tr>
<tr>
<td>Lo Saldes</td>
<td>12</td>
</tr>
<tr>
<td>Maipú</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>356 ha</td>
</tr>
</tbody>
</table>
4.2 The change to a market-oriented approach regarding public space

In 1980 with the consolidation of the neo-liberal military regime a drastic change of urban planning practice was noticed with enormous consequences for territorial ordering. A gradual process of destruction and privatisation of the public space started with negative impacts on the regional and urban landscape. The market-oriented approach regarding public space meant that in the year 2000 the total amount of public green areas was 3,000 has, only 1,000 of which was forested. In the year 2000 there were 2,4 m2 of built parks per inhabitant compared to the expectations of the 1960 plans for 7 m2 per inhabitant.

Currently and after years of economic growth and with renewed ideas on equity and distribution the preoccupation with public space has returned. The Metropolitan Strategic Plan of Santiago (1994) now led by the Ministry of Housing and Urbanism was a flexible instrument, which enhanced democratisation of decision-making and the decentralisation of implementation. The plan identified the Urban Metropolitan Area and the Restricted Area. The goal was for the intensification of land use, through the definition of average densities per zone leaving the distribution of densities to the local level.

Important instruments to implement the plan were the new powers given to the metropolitan authority for the organisation of the Master Plans of the Municipalities, the creation of special offices for public spaces and the extraordinary development of the Unified Financial Housing System.
The enabling role of the State was further enhanced according to the new concepts of city marketing, leadership and strategic planning. The Metropolitan Strategic Plan (1994) tried to address the problems of social integration and urban structuring in the whole Metropolitan region. It replaced the outdated inter-communal regulator plan of 1960 with its multiple and partial modifications. The main idea was to "assure a unitary treatment to territorial problems through a wider and integrated vision in which different actors could share the different spaces in pursuit of common interests". The image of an extensive, mono-centric, congested and environmentally degraded city made it necessary to fix governing norms.

The responsibility for the maintenance of the Natural Rural Areas now became the National Forest Corporation (CONAF), a dependency of the Ministry of Agriculture, and the responsibility for urban public space areas was shared by the Ministry of Housing and Urbanism (MINVU) and the Municipalities.

4.3 The quantification of public space

Santiago is characterised by a very uneven distribution of green space per inhabitant. The following chart shows public space under municipal responsibility (it does not include private green spaces, sports fields, private schools, golf and polo clubs, hippodromes, football stadium or private residential gated communities).

Table 17:

<table>
<thead>
<tr>
<th>Metropolitan</th>
<th>4,751,605</th>
<th>2,150,000</th>
<th>2.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Santiago (UR)</td>
<td>282,810</td>
<td>1,964,028</td>
<td>9.7</td>
</tr>
<tr>
<td>Vitacura (In)</td>
<td>78,810</td>
<td>845,825</td>
<td>10.8</td>
</tr>
<tr>
<td>Las Condes (In)</td>
<td>197,417</td>
<td>1,734,735</td>
<td>8.8</td>
</tr>
<tr>
<td>Cerrillos (D)</td>
<td>72,137</td>
<td>77,903</td>
<td>1.1</td>
</tr>
<tr>
<td>Puente Alto (D)</td>
<td>254,531</td>
<td>298,106</td>
<td>1.2</td>
</tr>
</tbody>
</table>

The great differences in area of Public space between Municipalities are due to the decentralisation of public space maintenance to the municipalities and the uneven financial inputs between them. This makes it necessary to understand the current legal structure and communal organisation in relation to public space.

4.4 The legal structure related to public space

The Organic Constitutional Law no 18.695 art. 20, sub art. C; establishes that are the Municipalities through their departments of maintenance have the obligation to take care of the construction, conservation and administration of public spaces. It is understood that public spaces are national public goods.

The General Ordinance of Construction and Urbanism (Law and D.S. 458-76) of 1992, established that the new residential developments must be built together with the tree planting of streets and the furniture of square and parks and other spaces expressly planned. This new legislation has contributed to improve considerably the situation of public space in the low-income municipalities.

The Local Ordinance of Parks and Gardens (1992) established rights and duties to the community and individuals, in relation to the maintenance of green areas and public space.

4.4.1 The instruments that regulate public space

The planning instrument that regulate public space at the different levels are:

- The Regional Plans of Development
- The Director and Sectional Metropolitan Plans which regulate general land use and define the structure of the road system.
- The Director and sectional Municipal Plans (fall under the regulations of the previous levels). Regulate land use in order to find the best way to achieve the city's role in development.
- Special Laws: Concessions for the private use of national resources (i.e. water fronts)

4.4.2 The formulation of the development plans

Municipalities through their autonomous powers elaborate their own development and urbanisation plans through the Municipal Master Plans. The Regulator plans approved by city councillors determine the amount of land for public space. They have the power to generate strategies for distribution of public space in their municipalities. Generally the Municipalities have financial limitations to strengthen the construction of public space in areas of social interest.

4.4.3 Community organisation

Law No. 18.893 of 1989 regulates the ‘neighbourhood units’, the ‘neighbourhood joints’ ‘mother's centres’ and the ‘municipal union of neighbours’: The community has the right to participate in the annual maintenance budgets of the Municipalities and therefore can influence the plans towards certain targeted areas. The Law is more effective in the low-income municipalities where participation is more sensible and needed than in rich municipalities.

4.4.4 Financing the Construction of public space

Three sources can be identified for the formal construction of public space: the Municipality, the Ministry of Housing and Urbanism and the private sector (new urban developments). The Municipalities assign resources for public space according to their own financial possibilities.

There is an evident difference between the 34 municipalities as discussed in the introduction at the beginning of this chapter. Since 1992 the Government through the Ministry of Housing and Urbanism has initiated significant programs for the construction of Urban Parks. During 1992 and 1997 US 32 millions dollars were invested, most of them located in areas of dense populated of low income populations which lacked formal green areas, especially in the Metropolitan area of Santiago. The private investments in public space differ from those of the Municipality since are related to the new developments and imply a considerable amount of public space being delivered to the community.

4.4.5 Financing the Maintenance of public space

The Maintenance of public space is completely financed by the municipalities out of their own resources. This acts as a disincentive to poor municipalities to build public space since its maintenance becomes a fixed cost for life. Municipalities can provide the in own maintenance service or contract it act to private companies.
Map 37a: Metropolitan open green space network/ Source: Author based on MOP aerial photos and Santiago officials maps/ Inst. Geográfico Militar 2000
Map 37b: Location of green areas per the homogeneous areas.
Metropolitan green areas over a minimum area of 6000m².
Source: Author based on MOP aerial photos and Santiago officials
maps Inst. Geográfico Militar 2000
### 4.5. Public space analysis of the homogeneous areas

#### Table 18:
Quantification of the maintained green area per inhabitant in Homogeneous Areas. / Source: Anexo Estadístico del Programa de Parques Urbanos-Chile, MINVU, 1997.

<table>
<thead>
<tr>
<th>Category</th>
<th>Area</th>
<th>Coverage</th>
<th>Product</th>
<th>Demand</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renewal</td>
<td>Santiago</td>
<td>230,977</td>
<td>153,56</td>
<td>13,5</td>
<td>6,65%</td>
</tr>
<tr>
<td></td>
<td>Providencia</td>
<td>111,182</td>
<td>38,16</td>
<td>3,35</td>
<td>3,43%</td>
</tr>
<tr>
<td>Gentrification</td>
<td>La Reina</td>
<td>92,410</td>
<td>30,47</td>
<td>2,68</td>
<td>3,30%</td>
</tr>
<tr>
<td></td>
<td>Ñuñoa</td>
<td>172,575</td>
<td>94,38</td>
<td>8,3</td>
<td>5,47%</td>
</tr>
<tr>
<td></td>
<td>Lo Barnechea</td>
<td>46,768</td>
<td>14,28</td>
<td>1,26</td>
<td>3,05%</td>
</tr>
<tr>
<td>Intensification</td>
<td>Las Condes</td>
<td>208,063</td>
<td>72,05</td>
<td>6,33</td>
<td>3,46%</td>
</tr>
<tr>
<td></td>
<td>Vitacura</td>
<td>79,375</td>
<td>59,17</td>
<td>5,2</td>
<td>7,45%</td>
</tr>
<tr>
<td>Development</td>
<td>Recoleta</td>
<td>164,767</td>
<td>61,12</td>
<td>5,37</td>
<td>3,71%</td>
</tr>
<tr>
<td>Improvement</td>
<td>Macul</td>
<td>120,708</td>
<td>19,53</td>
<td>1,72</td>
<td>1,62%</td>
</tr>
<tr>
<td></td>
<td>San Miguel</td>
<td>82,869</td>
<td>9,51</td>
<td>0,84</td>
<td>1,15%</td>
</tr>
<tr>
<td></td>
<td>La Florida</td>
<td>328,767</td>
<td>26,74</td>
<td>2,35</td>
<td>0,81%</td>
</tr>
<tr>
<td></td>
<td>E. Central</td>
<td>140,896</td>
<td>25,4</td>
<td>2,23</td>
<td>1,80%</td>
</tr>
<tr>
<td></td>
<td>San Joaquin</td>
<td>114,017</td>
<td>21,23</td>
<td>1,87</td>
<td>1,86%</td>
</tr>
<tr>
<td>Development</td>
<td>Quinta Normal</td>
<td>116,349</td>
<td>30,64</td>
<td>2,69</td>
<td>2,63%</td>
</tr>
<tr>
<td>Consolidation</td>
<td>Cerrillos</td>
<td>72,649</td>
<td>3,27</td>
<td>0,29</td>
<td>0,45%</td>
</tr>
<tr>
<td></td>
<td>Conchalí</td>
<td>152,919</td>
<td>33,97</td>
<td>2,99</td>
<td>2,22%</td>
</tr>
<tr>
<td></td>
<td>La Granja</td>
<td>133,285</td>
<td>56,59</td>
<td>4,97</td>
<td>4,25%</td>
</tr>
<tr>
<td></td>
<td>Lo Prado</td>
<td>110,933</td>
<td>16,73</td>
<td>1,47</td>
<td>1,51%</td>
</tr>
<tr>
<td></td>
<td>Independencia</td>
<td>77,794</td>
<td>3,95</td>
<td>0,35</td>
<td>0,51%</td>
</tr>
<tr>
<td></td>
<td>Quillica</td>
<td>39,954</td>
<td>7,77</td>
<td>0,68</td>
<td>1,94%</td>
</tr>
<tr>
<td></td>
<td>Puente Alto</td>
<td>254,127</td>
<td>13,54</td>
<td>1,19</td>
<td>0,53%</td>
</tr>
<tr>
<td></td>
<td>Peñalolen</td>
<td>179,781</td>
<td>4,98</td>
<td>0,44</td>
<td>0,28%</td>
</tr>
<tr>
<td></td>
<td>Maipú</td>
<td>253,606</td>
<td>11,62</td>
<td>1,02</td>
<td>0,46%</td>
</tr>
<tr>
<td></td>
<td>San Bernardo</td>
<td>181,960</td>
<td>34,75</td>
<td>3,05</td>
<td>1,91%</td>
</tr>
<tr>
<td></td>
<td>Pudahuel</td>
<td>133,933</td>
<td>18,2</td>
<td>1,6</td>
<td>1,36%</td>
</tr>
<tr>
<td></td>
<td>La Cisterna</td>
<td>94,712</td>
<td>23,89</td>
<td>2,1</td>
<td>2,52%</td>
</tr>
<tr>
<td></td>
<td>Huechuraba</td>
<td>60,957</td>
<td>2,18</td>
<td>0,19</td>
<td>0,36%</td>
</tr>
<tr>
<td>Development</td>
<td>San Ramón</td>
<td>100,817</td>
<td>5,21</td>
<td>0,46</td>
<td>0,52%</td>
</tr>
<tr>
<td>Stagnation</td>
<td>Lo Espejo</td>
<td>120,075</td>
<td>8,3</td>
<td>0,73</td>
<td>0,69%</td>
</tr>
<tr>
<td></td>
<td>Cerro Navia</td>
<td>155,735</td>
<td>15,59</td>
<td>1,37</td>
<td>1,00%</td>
</tr>
<tr>
<td></td>
<td>Pedro Aguirre C.</td>
<td>130,441</td>
<td>11,48</td>
<td>1,01</td>
<td>0,88%</td>
</tr>
<tr>
<td></td>
<td>El Bosque</td>
<td>172,654</td>
<td>13,86</td>
<td>1,22</td>
<td>0,80%</td>
</tr>
<tr>
<td></td>
<td>La Pintana</td>
<td>169,640</td>
<td>17,05</td>
<td>1,5</td>
<td>1,01%</td>
</tr>
<tr>
<td></td>
<td>Renca</td>
<td>128,972</td>
<td>178,41</td>
<td>15,68</td>
<td>13,83%</td>
</tr>
</tbody>
</table>
Table 19:

<table>
<thead>
<tr>
<th>Renewal</th>
<th>342.159</th>
<th>191.72</th>
<th>16.85</th>
<th>5.60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensification</td>
<td>287.438</td>
<td>131.22</td>
<td>11.53</td>
<td>4.57</td>
</tr>
<tr>
<td>Gentrification</td>
<td>311.753</td>
<td>139.13</td>
<td>12.24</td>
<td>4.46</td>
</tr>
<tr>
<td>Development Improvement</td>
<td>952.024</td>
<td>163.53</td>
<td>14.38</td>
<td>1.72</td>
</tr>
<tr>
<td>Development Consolidation</td>
<td>1.862.419</td>
<td>262.08</td>
<td>21.84</td>
<td>1.41</td>
</tr>
<tr>
<td>Development Stagnation</td>
<td>978.534</td>
<td>249.9*</td>
<td>21.97*</td>
<td>2.55%*</td>
</tr>
</tbody>
</table>

*: Renca includes Cerro Blanco that according to the National Corporation of Environment CONAMA, has almost no vegetation. If we eliminate this large area located in the Municipality, then the maintain public area in the stagnation area will be 80.9 has, and the M2 of green area per inhabitants would be 0.89 M2 per inhabitants. The former chart shows the uneven distribution of public space (green areas) in Santiago in the different homogenous areas.

Table 20:

<table>
<thead>
<tr>
<th>Renewal</th>
<th>342159</th>
<th>191.72</th>
<th>16.85</th>
<th>3720</th>
<th>24.46%</th>
<th>5.60%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensification</td>
<td>311753</td>
<td>139.13</td>
<td>12.24</td>
<td>4950</td>
<td>37.28%</td>
<td>4.48%</td>
</tr>
<tr>
<td>Gentrification</td>
<td>287438</td>
<td>131.22</td>
<td>11.53</td>
<td>5970</td>
<td>45.78%</td>
<td>4.57%</td>
</tr>
<tr>
<td>Development Improvement</td>
<td>952024</td>
<td>163.53</td>
<td>14.38</td>
<td>9260</td>
<td>52.97%</td>
<td>1.72%</td>
</tr>
<tr>
<td>Development consolidation</td>
<td>1862419</td>
<td>262.08</td>
<td>21.84</td>
<td>18330</td>
<td>53.02%</td>
<td>1.41%</td>
</tr>
<tr>
<td>Development stagnation</td>
<td>978534</td>
<td>249.9</td>
<td>21.97</td>
<td>7100</td>
<td>72.79%</td>
<td>2.55%</td>
</tr>
</tbody>
</table>

5 CONCLUSION
The Condition of public space at Metropolitan Level

The purpose of this chapter is to clarify the historical relationship and changes in the urban structure and process in the metropolitan area of Santiago and to explain the conditions of public space. It is clear that over time, there has been a symbiosis between public space and the political, cultural and ideological structures that have differentiated one historical period from another. The current urban structure reflects the economic and social processes that Chilean society has undergone as well as the form in which the local forces - expression of the various interests - react to the new condition of globalisation.
Therefore in this chapter our conclusion will focus on few questions. First, how over time has the city been dealt with the different development stages and how and with which instrument has the city been transformed? Second, how effective have been the research tools we have used to analyse the various urban realities that constitute the metropolitan area and what are the institutional and spatial conditions of the different homogeneous areas? Third, how effective are the new strategy and its instruments for dealing with a fragmented and rapidly transforming city? Fourth, what is the condition of public space and the possibility it offers for achieving a role in the restructuring of the city?

1. Considering the first question it has been demonstrated that the urban structure of Santiago up to the first half of the XX century and specifically the nature and role of public space was significantly oriented to the most important school of thoughts prevailing in Europe and USA at that time. Santiago in 1930 presented clear objectives, strategies and instruments to deal with the transformation of the city and public space was considered inserted in regional, urban and local scales as demonstrated in the Brunner Plan and in the quality and quantity of public space as measured in m² per inhabitant at the time. Landscape principles to deal with the city continued to be put forward in the 1950s with the influence of the ideas of the Geddes school (1915); Mumford (1966) and of the architects Auzelle (1959), Bardet (1941), from the French Catholic School, and the Chilean precursor Munoz Maluschka (Pavez 2002). The Metropolitan Plan approved in 1960 was the result of thinking about the integrating potential of a system of public spaces co-ordinated at the different regional, micro-regional and communal scales. The multi-scale principle was considered necessary given the tendencies to fragmentation and sprawl already caused by the building activities of new rural to urban migrants and the non-regulated urban markets. It focused on the local level since it identified the need to control the large empty land in-between the large residential projects, which was bringing chaos to an ungovernable city. It was believed that strict application of norms could have controlled land speculation. The Plan considered it necessary to share the responsibilities and roles of those setting the large structuring spatial guidelines and those making and designing the sectional plans and make them operative. The reliance on the norms and socially oriented principles was elaborated in more depth at the beginning of the 1970s when the social function of land and the need to redistribute incomes through land use, housing delivery and allocation of urban functions was implemented. The idea of a compact city through self-contained neighbourhoods was considered necessary based on popular participation and democratic planning.

Chilean development history reveals decisive and drastic changes in social principles and in the role of the state. These drastic changes were prescient to similar changes in other countries of the world. In 1979, new instruments based on competition and the liberalisation of labour and urban markets were introduced. These new instruments were based on recognised World-Bank neoliberal guidelines on urban productivity, privatisation and decentralisation, which have lasted until now. The Regional Development Plan (1991) and the Metropolitan Strategic Plan for Santiago (1994) introduced flexible urban regulations to create a more sustainable, compact and interconnected city. These are being confronted by strong forces based on regional restructuring and adaptation to the new demands and life styles underpinned by globalisation.

In fact the current urban transformations in the Latin American City reflect the complexity of the economic, social and spatial processes associated with globalisation, liberalisation, and the effects of cultural individualisation.

Practically all large agglomerations and cities in the world are experiencing rapid spatial transformations and Latin American cities are no exception. All are moving towards an increasingly decentralised and de-concentrated urban model that has changed deeply the pattern of social and spatial segregation. The Santiago case proves the hypothesis that as social segregation grows in intensity (social polarisation) this segregation occurs at a lower geographical scale26.

2. Two conclusions can be made on the second point on urban structure and the research tools used to analyse it. These concern first, the conclusions on the present urban structure in general and second the more specific situation of the parts that make up the metropolitan...
area and the efficiency of the research tools.

The processes of globalisation and liberalisation have changed the urban and social structure and the form of urban segregation in Santiago. They have stimulated new and more evident forms of residential segregation. They have made the urban structure more complex than that of three decades ago. However, for various reasons that range from economic to cultural, segregation could be lessening in spatial terms and growing in social terms. The most recent more open form of segregation that nowadays is observed and based on the close physical proximity between the rich and the poor that creates new problems and issues for social integration. The compression of time and space (enormously increased by private car, public transport and development of ICT, etc) has had an effect on the new urban structure of Santiago and it looks set to become a common pattern in the Latin American city.

This study has demonstrated that most of the regional population (90%) is concentrated in the metropolitan area, low density predominate areas (about 60% of the residential land) and the dominant urban trend is for extension and not densification. Each year 1.270 has are added to urban functions, especially related to high-income groups and modern industries. A weakness exists in the system of regional centres, which have low service levels and facilities and where urban growth occurs without planning the settlement of a rural land. In spite of the high level of infrastructure coverage (97% water and electricity) there is a weakness in the treatment and re-conversion of wastewater and solid waste as well the absence of an integrated solution to the collection and elimination of rainwater. This and the unregulated settlement of land produce a substantial threat to the environment that exacerbates floods and landslides.

The persistence of an unclear urban vision of the city has stimulated the continuation of a poorly regulated urbanisation. The need for a double process of compaction and de-concentration in order to make the city more efficient and competitive has significantly affected the environment. The air of Santiago is highly polluted, the city has been declared saturated, the underground water has been affected as well as the soil.

In general we conclude that there is a strong concentration of poverty in some municipalities, which are spatially segregated and financially poor. There is a concentration of activities with a negative impact in the poor neighbourhoods. There is a concentrated location of productive activities around and along the radial access routes to Santiago. The economic activities tend to generate a major concentration and there is a mismatch between employment generation activities and residential areas. There is a growing and accentuated differentiation of land values between central areas and the periphery and between the municipalities of Santiago and those in the provinces.

For research purposes we have identified 5 types of process: urban renewal in the old central areas; a rapid intensification of some middle income and high income urban centres, a gentrification of lower-middle class residential areas in some southern and central areas and a vast process of development of planned and unplanned low income settlements with consolidation, improvement and stagnation as the result; the re-functioning of brown-field sites with a rapid preparation of obsolescent areas to new urban functions, which include crucial areas for urban connections and restructuring, and development.

This analysis has confirmed that:

- The identification and use of homogeneous areas has become an efficient tool for urban analysis, in terms of processes and programs. Especially in the analysis of segregation, accessibility and public space condition.

3. On the third point, the conclusions have been related to the current urban processes and instruments for interconnecting the city. Currently, the city of Santiago reflects the effects of more of 15 years of high levels of economic growth and the tenacity of city planners to implement a number of investments in technical and social infrastructure projects, which have been under discussion for several decades. All these projects were expected, in the long term, to fulfil the social and environmental objectives of social integration through the consolidation of connectivities and mobility. It was expected that the new relationships formed between the place of residence and work would influence accessibility and the role and use of public space all over the city. The present trends on regional restructuring reveal the
existence of controversial positions in relation to the vision, objectives and plans as identified in the three long-term scenarios.

From the infrastructure viewpoint, it has been demonstrated that the radial octopus growth that has occurred through new modern highways converted into mobility corridors towards the Santiago region and the peripheral ring road have reinforced urban concentration, but exacerbated communication at the regional level and produced strong ‘dysfunctionalities’ at the urban level. They have facilitated the continued spread of mono-functional activities and income-based segregation, which has been aimed at containing, compacting and connecting.

Nowadays the urban process is not only characterised by an iterative ‘urban sprawl’ as has always been the case in the past, but also by a process that combines renewal and reconversion. Santiago has entered into an ‘urban transformation’ phase, which consists of urban renewal, intensification and gentrification processes. Although these processes occur in a small area of the city they influence the whole city particularly in terms of cultural, economic and social terms. The importance of international financial capital and the ‘global’ values associated with it has rapidly created new jobs and employment opportunities linked to marketing, media, communications and modern services in general. A new style of suburbanisation steered by the high and middle income groups towards the small cities of the Metropolitan Region also takes place as agglomeration diseconomies build up and as urban compaction increases (air and soil pollution, noise, traffic jams). In this new stage of development, the character of the periphery mutates with the changes throughout the whole urban structure. Social inequalities in the periphery have become more evident and social exclusion more apparent.

It has also been explained how the policies towards making the city more competitive and improving urban productivity have also influenced the development of an ‘underclass’. This is a similar process that has been widely studied in developed countries (Berry 1989, Marcuse, 2000, van Kempen 2000) and is an issue, which is also becoming more apparent in the newly emerging countries such as Chile, where studies on ‘marginal population’ and ‘informal sector’ have been widely developed since the 1960s. The pattern of urban sprawl and spatial fragmentation with leapfrogging and vacant land, typical of the previous development periods has been transformed into the creation of decentralised urban regions. This new structure mixes rural and urban space, in spite of the fact that demographic growth and densities are decreasing, and the negligible contribution of migration rate to urban growth, yet migration has become important for turning cities into new multicultural spaces. The city has decentralised towards new commercial, residential and services centralities and new types of corridors have appeared to connect them.

In terms of the possibility of attracting investments in order to deal with basic needs and public space, the study has shown that there are significant differences between the various municipalities. The changes occurring in some ‘developing’ municipalities such as La Florida, Huechuraba, Maipú and Puente Alto, have been attracted large commercial malls, or large office buildings and new manufacturing industries. They have been followed by a rapid gentrification process, attracting middle-income housing development, thereby improving the tax base of the municipality. These new improvements have also brought about the ‘gating’ of communities and the privatisation of newly-built open spaces, and the low income areas have benefited little from this general gentrification in terms of employment. Accessibility and the network connections between sub-centres are not yet complete in all peripheral municipalities, but they remain important preconditions for opening up new job opportunities for the low-income municipalities.

4. Finally I have stated that the condition of public space in an exclusive, segregated and decentralised city it is essentially related to the global changes of the urban structure; to the mobility and connections of its different urban realities and to the accessibility of the citizen to the opportunities of its economic, social and political life. In Santiago it is becoming clear that this statement is correct at the Metropolitan Level and it is worthwhile exploring its validity further at the Local Level.

The Plaza de Armas was centre of foundation of Santiago (1541) and it was built according to the colonial prescriptions of the Laws of the Indies, whilst Santiago’s Shopping Malls represent the consumer culture of the end of the XX century. Both are important urban
landmarks in the metropolitan core of a country that is taking advantage of the opportunities presented by the open market. Its cultural, political and spatial structure is influenced by global trends. For most of the inhabitants of Santiago the centre of the city, and its colonial square, remains as an important symbolic place and an attraction for visitors, although other locations also exhibit symbols of power, centrality and globalisation.

This allows us to conclude that the square is a public space that is a major component of the city structure that expresses the social changes that have occurred to it, more than the original function. Public space also contains a dynamic dimension considering that is an element that structures and links different activity functions and movements in the city. The analysis of public space at the local level is necessary in order to clarify the relation between urban realities in morphological terms, and connectivity in relation to the potential effects on vitality.
Chapter 4 / THE POTENTIAL OF PUBLIC SPACE AT LOCAL LEVEL

Introduction

This chapter analyses the interactions of public space in each homogeneous area that were established in the previous chapter and tests the validity of the hypotheses regarding its role in urban restructuring. In each homogeneous area we have chosen a representative unit area, composed of a neighbourhood and a public square. This has been as follows:

I. The First Residential Ring (the Compact City) is affected by an urban renewal process. This renewal area corresponds to the Santiago-Centre Municipality and is a part of Providencia Municipality. The selected neighbourhood is Santiago-west, with the Brazil Square and Yungay Square.

II. The Second Residential Ring, (the CIAM model of the 1950) is a middle-income sector affected by a process of gentrification. It corresponds to part of the Municipalities of Providencia, Ñuñoa, La Reina and includes an area in the fourth residential ring in Lo Barnechea. I have selected the South-east of Providencia Municipality on the edge of Ñuñoa and the example chosen is the Square and Park Inés de Suárez.

III. The Third Residential Ring (the spine-fish development) for low and middle-low income is affected by a process of development. It corresponds to Santiago’s “poblaciones” where 80 percent of the city’s population live. The area is subdivided into three successive rings. In the areas affected by the urban development processes; I have defined three levels related to the development process, which are the development-improvement process; the development-consolidation process and the development-stagnation process. I have selected one neighbourhood for each process. These were are: first for the development-improvement process, the Plaza de La Alcaldesa in La Florida municipality, for the development-consolidation process the Havana Square at Lo Espejo-La Cisterna municipalities, and for the development-stagnation process, the example is Lo Valledor Square in the Pedro Aguirre Cerda Municipality.

IV. The Second CBD formation (new verticalisation) for middle and high-income sectors is affected by a process of Intensification. It corresponds to the Municipalities of Las Condes, Vitacura. The selected example is Loreto Square at Las Condes.

V. The Re-functional areas (infilling and recycling of land uses) corresponds to the strategic projects of the city. The selected example is the square of the Mapocho railway station and the former Cerrillos airport.

The study of the condition of public space at the local level will be carried out through analysing the interaction of the formal attributes of the neighbourhood, its vitality and the specific sense of place of the given square.

Morphological and formal attributes will be studied from the relationship between open and built space, and will be measured according to the attractiveness and the compactness of the built structure that constitute them.

The relationship of each selected area with the city structure will be studied in terms of the concept of vitality, which is a measurement of the activity generation potential of an area, and the characteristics of the mixture of land uses that are taking place.

At the square level the sense of place will be studied through an analysis of the character, range and diversity of the activities that takes place in the given public square.
1 THE RENEWAL AREA: SANTIAGO CENTRAL MUNICIPALITY

Santiago - West Area

1.1 The historical development context

After a long period of downgrading, Santiago-central municipality is currently going through a process of urban renewal and re-vitalisation. The city-centre until the first half of the XX century acted as a magnet for business, commercial, services and administrative facilities. As these activities in the CBD multiplied, residential activities have started to move out and the commuting population has increased. High-rise buildings appeared in the historical grid, following ideas imported from international architecture that often obscured the old public buildings, which had served as monumental landmarks in the past. Cars, buses and taxis began to monopolise the street and helped to expel residential and specialised service functions from the inner city to the newly created centres.

The rapid process of counter-urbanisation was unleashed in the 1950s when hundreds of industries and residential uses left the centre. Attracted by the remaining industrial and commercial activities lower income population sectors established their residences in the Northern, Western, and Southern areas surrounding the inner city. The old mansions left by high-income groups were to be transformed into rented multi-family buildings and many properties were demolished to serve as parking places to await better market opportunities, resulting in the downgrading of the inner city and its neighbouring areas as a whole. When the new dynamics in the area brought in commercial activities and storage functions, the land values decreased even more, are accelerating the physical downgrading process and exacerbating social problems.

In 1952 the residential population of the municipality of Santiago-centre was 440,000 inhabitants, but by 1992 this had fallen to 202,000 inhabitants (Corporación Para el Desarrollo de Santiago1992). Santiago lost 800 industries, offices and commerce in the 20 years after 1950. The double process of rapid-city growth and counter-urbanisation was to last until the 1970s when both started to be reverted. A process of inner city renewal and the gentrification of old residential areas then started. In 1992, there were 90 has of empty land and the population density was only 77.5 inhabitant per ha. and there was the proliferation of small industrial workshops, low value added factories, educational buildings and empty lots. Until 1982 demographic growth was negative (-2.6%). The two decades of non-regulated growth of the city caused great distortion to the housing market in the central area due to the fact that infrastructure investments in the periphery reduced resources for the central areas of the city. In the last eight years the process has started to revert again, and in this trend, the role
of public space improvement has been significant.

Nowadays Santiago-centre municipality presents the highest concentration of activities and functions of the metropolitan level. Although the long period of downgrading and the several processes related to counter-urbanisation have economically and socially distressed the inner city, the revitalisation that is taking place has meant the accentuation of the CBD and government functions. The revitalisation of the inner city reflects the achievements of an integrated and multi-sectoral strategy planned and managed by fully empowered autonomous local government. Strategies have succeeded in the identification of real opportunities and the advantages of the inner city and the revitalisation process are extending rapidly into the neighbouring areas according to an integrated plan for the development of centralities and connectivity. Many new functions have been appearing in the inner city and several others have returned to the centre. There is a significant amount of public service offices, and this is the place where national political activity takes place along with national administrative and financial activities. Although other centralities are becoming the main financial and business districts and are attracting headquarters (World Trade Centre complex in Providencia, the technological Industrial Park in Huechuraba, etc.), this area has a large number of architectural heritage buildings in the country, and entertainment and tourism are currently being fostered as well. The development of an inter-modal system of subways and buses, as well as the policies of pedestrianisation and public space development have improved accessibility but without creating negative externalities that could delay or diminish the revitalisation process. There has been an integrated redesign of metro stations with the creation of new types of collective public space connecting landmarks, new centres and activity nodes. All these changes have provided new advantages for the return of residential activities and several residential towers are being constructed alongside offices and administration buildings. The recycling of old buildings (Mapocho Railway Station, Municipal Market) and the creation of large city parks (Parque de los Reyes, Parque Arturo Prat) have all helped to achieve the new image of a vital centre of an emerging country.

Currently the Santiago-Centre Municipality has 2.230 has and a population of 250,000 inhabitants (residents) and more than a daily floating population of 1.5 million. Some general data for Santiago include: (source: Universidad de Chile 1991)

| Total Number of housing | 78,530 |
| Housing Density         | 35.2 dw/ha |
| Population density      | 170 inhabitants per ha |
| Total number of families| 96,715 |
| Families that own houses| 38.396(40%) |
| Families that rent houses| 58.319(60%) |
| Overcrowded families    | 11,773 families |
| Dwellings in bad state  | 3,926 dwellings |
| Housing shortage         | 15,699 dwellings |

The principal goal of the municipal plan has been to cope with the enormous social problems created by housing overcrowding and poverty and to continue with the task of reversing the counter-urbanisation process. The strategy has been to consolidate a process of re-settlement, to establish a sustainable economic base through a positive gentrification program based on site-targeted subsidies and to facilitate the working of the land and real estate market towards these objectives. The Santiago-centre Municipality is divided into four sectors which are: The foundational triangle that corresponds to the City's CBD in the North-East, the Santiago West area to the North-West, the Dieciocho area to the South West and the Carmen-Serrano Area to the South-East (See map 39).
1.2. Morphology studies


Map 40: The Origin and Evolution of Santiago-West Zone. Top-left, Foundational layout 1541; Top-right, Lot Division at Portales, Farm 1793; Down-left, Sub-division of the Portales, First Part Division 1836-50; Down-right, First Urbanization at Santiago West 1850. / Source: Fernandez 2001.
1.2.1 The origins and development of the area

The Mapocho River towards the North, the Matucana and Exposition Avenue to the West, the Blanco Encalada Avenue to the South and the North-South Axe corridor to the East limit the Santiago-West area. Santiago-West has advantages of proximity to the CBD and a good level of connectivity to consolidate mixed residential uses. The area also has good accessibility from and to the other centralities of the city and an adequate level of infrastructure and services. It also presents a morphological heterogeneity with a strong character and identity. However, these advantages are not strong enough to cope with the social backwardness and the unemployment derived from decades of downgrading and years of separation from the CBD by the North-South corridor, which crosses the metropolitan area and in this particular area is placed underground. To overcome this barrier and to achieve the revitalisation of the neighbouring areas is may be the most important task of the public space program (Contreras and Alessandri 1991).

This area is a traditional neighbourhood of Santiago and has acquired a ‘model’ status due to its outstanding morphology and formal unity. The idea of the compact-introvert-block for restructuring which has been applied there, has been extended to other locations suffering from spatial fragmentation. The analysis of this area is therefore crucial for a comparison of the processes occurring elsewhere in the city.

This area started to be developed in 1830 and was consolidated around 1841. The northern part presented a precarious development situation that has been maintained today with small and medium industrial areas on the periphery. The Southern part had reached a notorious progress in its improving condition.

At the end of the XIXth and the beginning of the XXth century elegant mansions appeared forming avenues and streets with a degree of high urban unity, such as in the Brasil, Cumming, Moneda, and Compañía Avenues. Both of the studied squares were built at this time, Yungay in 1880 and Brazil in 1906. They will be transformed into the preferred places of encounter of the neighbourhood’s residents. The compact construction had an architectural influence and was built in various European styles eclectic aesthetic values were expressed whilst the spatial principles of block occupation was maintained. The area was not built in a piecemeal fashion but rather through large architectural developments ("harmonic development projects"), not always of high standard. The greater part of the housing was for the low income population, but with a peculiar layout of streets with continuous buildings, with squares, passages,
courtyards and 'cités', and with special treatment to the corners conforming the blocks giving the area a clear urban image.

The open spaces constitute a unity with the closed built areas; they became unseparate elements of the same urban layout.

The areas that border the studied areas (Yungay and the Brazil neighbourhood) comprehend different variants of the introverted typological model with the square, the street, the passage and the cité as open spaces and the whole block as a closed element, a three-dimensional element shaping the whole urban scene.

This morphological fact inserted inside the basic growth-unit - the block- gives rise to an orderly layout of public, collective and private spaces. A rich language of building elements, can be noticed, such as: the façade where the full over the opening predominates, the vertical windows; the overhang; the attic windows; the 'ochavo' triangle corner; the 'cité' access with its arcs and steps; and the continuity of the plinth, the cornice and the balcony windows.

The first changes to the area started to occur during the process of counter-urbanisation and when market laws get going the fate of the area was determined through piecemeal demolition and re-development.

1.2.2 The 'cité' and the subdivision of the block as original typology

In order to understand the origin of this typology it is necessary to understand the origins of the block that gave rise to the typology. The block was the growth unit of the city, which when repeated produced a network of full and empty areas, a typical feature of Latin American cities, dating from their military origins created by Hipodamos de Mileto, applied through the Roman Empire, including Spain where it was normalised through the Laws of the Indies, as the codex for the foundation of the new American cities.

In this way cities grew in an orderly and harmonious fashion. The block was initially drawn from a square of 110 mts. Later the dimensions and proportions varied. Later adjusting to different circumstances; but the geometric orthogonal principles have lasted until now.

In the gridiron the relation between the blocks is given through the unfilled. These areas included the street, the square, the passage, the boulevard, etc. However, in the interior of the block there are also other empty areas that can range from very private (individual yards) to collective spaces (collective yards), and semi-public spaces ('residential cités').

The concept of the 'cité' has its origin in the old 'Latin civilitas' that corresponds to medieval settlements of small streets of houses grouped around a castle and with walled perimeter
protected from the invaders. The city has an internal life par excellence, with defended access and a location that responds to the requirements of the city with respect to the external world. Currently the term 'cité' is used to convey a sense of interiority, a space protected from the public domain. The cité is the place were several families live together and in order to penetrate to the interior implies crossing a threshold, an access point, behind which there exists a degree of privacy and a sense of ownership greater than that felt for the street or the passage.

The 'cité' of the Santiago West Area, was created at the end of the XIXth and the beginning of the XXth century, at a time of a housing shortage that made a maximum use of the interior of the block. Facing the street there were larger lots and even two and three floor buildings in the interior one or two floor buildings with several dwellings that share one common patio. This type of solution was not only for the very low-income sectors but also became a popular solution for middle income groups. The urban layout developed in an orderly and homogeneous fashion following the norms of the Spanish grid. Until the present this sort of continuous architecture has last and has been protected by regulations, that facilitates continuity

Fig 13: Cité Brasil, at Brasil Square Area, Top-right
Original Layout, Right: Actual Situation. / Source:
Bosa/Marinello (1982), Own Elaboration

The architecture resulting from this typology developed at different times and styles and ended abruptly around the 40s. Later buildings started breaking the continuity of the block and in many locations the remaining 'cités' constituted isolated landmarks in a piecemeal urban fabric of international architecture.

Map 43: The Location of the cité in Relation to the Block Layout. Source: Carrasco 2000

In the North of Santiago West Area, there is a poor neighbourhood where the construction of the cités has been are predominantly of one storey, adobe, tiles and wood and in the more developed cases of bricks.

Toward the South are the large mansions that follow architectural styles of different European origins (French, English, Italian and German), which observed as a whole defines an eclectic
area with relative good aesthetic values yet which conserves the spatial principles of the occupation of the block with a continuous façade toward the street.

The morphological study in the neighbourhood of Yungay Square gives a Gross Built Occupation of 46.7%. The measurements correspond to an area of 12.9 has around the Yungay Square, which was measured from the middle of the main street and includes spaces of internal circulation and the Yungay Square with 0.8 has. There is a Net Built Occupation of 57% on average per block. The Gross Built Occupation around the Brasil Square is 40% and this includes an area of 21 has., using the same measured method commented on before, and includes Brasil Square with an area of 1.8 has., Brasil has a Net Built Occupation rate of 61% on an average per built block. In spite of being an area with big old mansions, the Net Built Occupation rate is higher than in the Northern part because, the big old gardens have been through time occupied by other functions. The Net Floor Ratio in the studied block in Yungay neighbourhood is 1.14 while the Net Floor Space Ratio scored 2.44 in Brazil.

1.2.3 The street pattern

The urban tissue of Santiago-West area is characterised by the orthogonal layout of the streets, which form blocks. The majority of the blocks have a rectangular form. Two main metropolitan parks are located within the boundaries of this area, to the West, the Quinta Normal and to the North, along side the river, the Parque de los Reyes. The squares constitute another type of public open space defined as being as medium size.

The main avenues, in a North-South direction, are Brazil Avenue (30 metres width) and Ricardo Cumming Avenue (25 metres width). In the oldest part of Brazil Avenue, near the Los Reyes Park the width is only 13 meters. Both avenues have a large amount of vegetation and trees in the strip that separates the two traffic directions. In the East-West direction the two main avenues, Portales and Agustinas, form a lineal strip park of 50-meter width with vegetation. In this same direction Avenue San Pablo has a 20-meter width and Mapocho Avenue a 25 metres width and they connect the area to the East.

The remaining streets have a width varying between 10 and 18 meters. Given the particular residential typology of the area, and the sub-division of the lots inside the interior of the blocks, there are also semi-private spaces. The width of the streets and alleys are in the range of between 1.5 and 6 meters.

The majority of the streets in the area have trees; the wider ones also normally have a
green space with grass, defining a transitional zone between the pedestrian path and the street itself.

On the Southern limit the Santiago -West area is defined by one most important corridors of the city, the Alameda Bernardo O'Higgins, part of the city's network of primary roads, which has played structural role in the formation of the whole city. Their design is similar to the majority of the main streets in Santiago that include a green island that divided the two traffic directions.

1.2.4 The evolution of the blocks

The streets of Santiago -West have an orthogonal layout, a heritage of the colonial gridiron structure. Transformation over the years has divided the original blocks, which have been subdivided into different sizes (see Map 42). The differences in the block size could be related to the different urbanisation periods, the type of building or to the different densities planned.

The most common dimension of blocks is 90 by 120 meters, and they often correspond to residential functions. To the north of Mapocho Avenue is where the biggest blocks are located, whose present sizes are 300 by 350 meters, and these correspond to the former industrial zones.

There are smaller blocks of 50 by 70 metres located e.g. in the zone defined by Mapocho Avenue, Maturana Street, Cumming Avenue and San Pablo Street. This area corresponds to housing estates.

The blocks take the following forms:

- Closed blocks: This type of block corresponds to the original block, with the dimensions of 90 by 120 meters. These blocks have continuous sides, and the accesses to the buildings are via public space. Their forms are frequently rectangular or sometimes square. There are some exceptions given the layout of the street pattern, which means that there exist some examples of trapezoidal form and some variations. This type is located in the transitional areas at the point where the street layout joins the river Mapocho or near the oldest part of the Alameda (to the south of the zone) that was formally one arm of the river.

- Blocks with alleys: This type of block appeared originally with the development of the"cités typologie", that has an alley as entrance.

- Divided blocks: The original block was sub-divided in two or three sub-blocks by alleys, but it is still possible to perceive the unity that the two or three parts once constructed it.

- Fragmented blocks: This type is a product of several sub-divisions of the original block, normally due the small size of the lot or an important transformation. This type is found in the south of Santiago -West in the neighbourhood of the Concha y Toro area, based on the ideas of Camilo Sitte ideas and structured around one round square, in contrast with the original lay-out of the area.

1.2.5 The division of the lots

The analysis of the lot division by block consists into a study of the form and dimensions of the lots and their layout into the block itself.

The original lot pattern is associated with the original block structure; but this was changed through the densification required by the market and land prices at the end of XIX century and beginning of the XXth.

The Santiago -West area in general has a high percentage of land in use. The private open space is mainly located in the interior of the block, basically in the form of "Patios" that correspond to a single lot. The particularity of the internal open spaces in the block that corresponds to the "cité" structure is also common in the area.

According to the analysis of the Civil Works Department of Santiago Municipality, those lots with a high percentage of land in Use are characterised by:

- Deep and narrow-fronted lots, 7 x 50 or 7 x 40 or less. These were the lots for traditional one-floor dwellings with two or three patios.
- Middle size lots, of 9 x 33 metres depth used for small two floors collective buildings
- Little Lots, with a rectangular or square shape used for cité or alleys projects (See Map 43).

The average land use in these lots was between 70 and 90 percent.

The longer and bigger lots of 15/16 x 40/50 meters, and the rectangular shaped ones with 12 x 22 meters, normally have a lower land use percentage of between 50 to 60 percent. Large one-floor mansions with several patios commonly used this type of lot. Later in the thirties these types of lots were built with of one or two floor collective building.

This form of land use that permits an open private space at the back of the lot creates a peculiarly shaped open space inside the block.

Also in those big lots and in single block lots, there are some public buildings, which have a high land occupation percentage. In the 1960s and 1970s renewal processes used some of these big lots but with a lower percentage of land use (around 40 percent) giving more communal space for the resident of the projects, but these remained private open spaces.

1.2.6 The facades and built form

The high buildings

Santiago-West Area is characterised by building continuity and homogeneity in terms of the height of the constructions that form the street facade of the blocks. The most significant variations are observed inside of the blocks or with some specific constructions such as like church towers or other architectural details in some large houses; this constituted a reference and also contributed to the richness of the "skyline" of the neighbourhood.

According to the Civil Works Department of Santiago Municipality, it is possible to define three types of block related to the built height average:

- Blocks with buildings of one to three floors that correspond to the original typology of the area
- Blocks with buildings of four to five floors that were built during the first urban renewal process, that respected carefully the homogeneity of the area
- Blocks with a heterogeneous height were to found mainly in those lots covered by the last renewal projects. These new projects changed the homogeneity of the area and with the streetscape.

Streetscape and perspectives

Given the characteristics of the original typology in the area, it is possible to define a homogeneous linear space, through the disposition of the facades in one line and the homogeneity of building height.

In general the width of the streets corresponds to the height of the buildings, this plus the rectangular form of their lay out contributes to the creation of a sense of order and an easy perspective to the eye. There are some exceptional avenues where the wide of the street is more than the height of the buildings, giving a depth to the perspective and a sense of more space as in the case of San Pablo Street and Matucana Street.

To the west of the area, the Jorge Alessandri Avenue forms an edge. There the width of the street is significantly more than the height of the built surroundings. This imparts a depth to the perception of the urban tissue and longer and deeper sight lines.

In some of the Cités or Conventillos, buildings divided into rooms for rent mainly or small apartments buildings are organised in closed spaces related to one entrance where the distances between the continuous facades are short. This reduces significantly the perspective of the interior.

The northern limit of the area is the river, parallel to the Balmaceda Avenue. Given the presence of The Parque de los Reyes, there is a large open perspective, open to the park and in particular to the Andes Mountains in the background.
1.2.7. The open space network

The two main parks in the area offer big open spaces and create an open perspective to views of the area and their relation to the streets that surround them; their trees define a line that accentuates this perspective.

The Parque de los Reyes is located to the North of the Santiago-West area along side the Mapocho river, a linear park of 30.2 hectares, that defines an open green space for more than one kilometre.
The park was created at the beginning of the 1990s, using the vacant land left by the old railway that connected the capital to the port. To the West the park connects with another park, Parque Forestal, and then with several green areas that lines the banks of the entire river from source.

This park is the line of perspective of the main avenues of Brasil and Cumming and it also defines the character of the Balmaceda Avenue that goes alongside the park in the area. Given its dimensions and location the park is thus related to the whole city. To the West there is the park of Quinta Normal. This park was created in 1840, and today consists of a 34.4 hectares, a "botanical garden", with some service facilities, a museum and equipment. As with the Parque De los Reyes this area, given its size and equipment, also constitutes a metropolitan park.

To the Southwest of the area is located the Portales park - a green island in the middle of the Portales and Agustinas Avenues. The park is divided into several parts, interrupted by perpendicular streets that go through the Portales Avenue. It is defined as a green corridor that connects the Quinta Normal Park and Brasil Square. The final part of this connection, which was proposed in 1934, remains unfinished. The park has an area of 2.1 hectares and a length of around 800 meters.

In the orthogonal lay out of the area, there still exist some squares, which occupy complete block or half block in a rectangular shape. These Santiago-West squares include Brasil Square (1.66 hectares) and Yungay Square (0.78 hectares). Both occupy a complete block; Panama Square (0.39 hectares) which occupies a half block and finally Balmaceda Square (0.39 hectares) which has a triangular shape given the change of the damero urban tissue. The squares are defined as "gardens" and consist of a pedestrian edge used as a catwalk and a more intimate centre, separated by several low vegetation areas (See Map 60).

1.2.8 Typology of main buildings

The typological study of the area is related mainly to the residential buildings, which are the most significant function that has developed in the area and also the main line of enquiry for study the transformation -through the definition of the blocks, their lot subdivisions and their changes over time.

The criteria used by the Civil Works Department of Santiago Municipality to analyse the architectural heritage of the area, which includes form and dimension of the lots; height of the building; location of the building in the lot and the spatial organisation of the dwelling. Using these criteria it is possible to define nine types of dwelling in the area.

The main typological dwelling is the original 'republican house', that found its origin in the colonial model of the house, heritage of the Mediterranean architecture, that means the Patio House.

The type corresponds to a house of one floor, structured with one or two patios and located in a large lot with great depth. The external facade originally was defined with sobriety and later some ornamental details were added. All other models originated from this type. It was used for a detached house or later with lot subdivision for two houses per lot using the same structure that was usually repeated over a block or an area. This was also the case of the 'half-house', also structured around one or two patios, located in a lot with a significant depth but with half of the frontage of the lot of the republican-house. The Republican house were often converted into two 'half-houses' in the form of a collective building, that used the patio division as the property access as common space. Finally, the simplest houses used the short frontage and half the depth of the original lot and had a similar organisational space with lateral access in a corridor and one back patio. This was the most common type in the Santiago-West Area.

In the first part of the XXth century a process of densification and changes in the way of life of the middle class, gave rise to appear another type of building; a collective building of two or three floors organised around one central patio. It was built in a square or rectangular lot and located with the entrance facing a street or an alley. These are mainly located in Maipu Street or in the alleys in Huérfanos Street and Compañía Street.

The most recent type is associated with the urbanisation projects of the 1930s and 1940s,
and consists of two storey houses with a back patio, sometimes with a front garden as well.

This type of dwelling are built on lots with a depth of 50 to 60 metres and a frontage of 12 to 16 metres, and were normally built in a North-South direction. These types are symmetrically organised around the patios, as were the rooms surrounding them.

The relation of the height of the facade to the frontage of the lot was 1:2 to 1:2.5.

The facade's performance was related to the original colonial house, with just a few decorative elements. The late houses in this type have neo-classical facades.

This type of dwelling was built in a half block with 50 to 60 metres depth. Each has the same depth but the half of the frontage (6 to 8 metres width). The type is named half-house because it has the same structure as type one but on half the lot and with the half of the area.

The relation of the height of the facade to the frontage of the lot is 1:1.5. The symmetric facade is organised in three equal parts.

This type of dwelling is built in narrow lots of 6 to 7 metres with 50-meter depth.

The habitability is expressed at the front part of the house, related to the street and the patio at the back.

The relation between the height of the facade and the frontage of the lot is 1:1. The
entrance door is normally at one side and the facade decoration is simple.

This type is defined as a collective building that has its origins in the half-house but with two storeys, they were usually developed as a group of buildings in one project, and thus they have a good impact on the streetscape. The lots are divided in a North –South direction into units of 8 x 33 metres adjacent to each other, and in west-east direction in square lots.

The facades are decorated but homogeneous throughout the whole project.

This type of dwelling is organised by one side open space, on small lots of 6 to 9 metres frontage and with 20 to 25 meter depth.

The proportion of the facade related to the frontage of the lot is 1 to 1:1.5 and is organised into three equal parts. Decoration is simple and just defined by the zocalo and the cornice that characterise the upper part of the facade.

This type is built on a lot of 10 metres frontage of 15 to 17 metres depth. The volume is organised so as to surround a central patio.

The facade is as high as it is wide, and always in proportion 1:1; the facades reveal peculiar different styles even when are part of one project.
This type was built in the 30s and 40s in rectangular lots of 10 x 20 metres approximately. The dwelling consists of one block with a garden at the back. This gives an important characteristic to the interior of the block. The facade is horizontally defined and the proportion of the height to the width is 1:1.25.

This type was built in the 1940s. The lot has an approximate square form of 12 x 15 meters. The volume performance has an “L” shape. The proportion between the height and the width is 1:1.

This type is constructed on bigger lots, with 25 metres of frontage and 60 metres depth. Individualisation allows it to be a detached house or part of a group of houses along one street. The large lots permit a central patio as part of the building and a big garden at the back.

The proportion between the height and the width is 1:2. The different parts and ornaments that make up the facade are extremely enlightened and defined.
1.3. The vitality studies

The condition of public space at the local level is related to the vitality of spatial relations and the social density of activities and flows. Public space represents a centrality factor, which is assigned by its accessibility level and the intensity and quality of the social relations that facilitate the mixture of social groups and functions. Vitality can therefore be assessed by the accessibility of the place, its connectivity within activity nodes and the compatibility of functions, activities and land uses that make possible the social interaction and integration.

1.3.1 Accessibility and connectivity potentials of Santiago-West Area

The great improvements that have occurred in terms of the accessibility and connectivity of the Santiago West Area are related to the general urban strategy and the strategic projects for urban integration. These programs are reflected in the various sectoral plans co-ordinated by the Strategic Plan for the Metropolitan Area already discussed in the previous chapter. Santiago West has been particularly influenced by:

a. The modal transport system

b. The pedestrianisation and enhancement of mixed uses

c. The activity poles and connectivities

In Santiago-West, these three strategies are very well represented and are in the process of implementation.

a. With respect to the Modal Transport System, undoubtedly Santiago West presents new opportunities for the integration of the whole transport system to improve and control accessibility. The new metro lines and the construction of new metro stations have really being changing the accessibility to the zone and making possible a reduction of the number of private cars entering the zone. This area is bordered for 1.8 km by the Alameda, which is the main connection axis of the city and which has a strong potential to attract new firms and modern urban activities. In the boundaries with the Alameda there are three metro stations and most of the Modal system with buses and taxis takes place in these zones. There is great effort to transform the street layout to facilitate modal changes including that of the underground system. The whole inner city receives daily more than 1.5 million visitors, and the Santiago West receives a sufficient number of visitors to bring about economic transformations and to develop activities to the internal market (Porter, Valenzuela).
street profile of the Alameda with separate lanes for public transport facilitates the integration of Santiago West to the city system.

b. The intervention in pedestrianisation and the enhancement of mixed uses are strategies, that are currently taking place in the CBD, producing new conditions for accessibility and the development and enhancement of indigenous activities of place. Pedestrianisation in the central area has been a policy, which for many years has been implemented to revitalise the central areas and to counteract air pollution, which is dramatically high in the Santiago Central area. This policy has been integrated with other measures to assure the necessary critical mass to attract new commercial and service activities in central areas. Large-scale retail commerce has opened up along the length of the streets, and the abolition of sidewalks, and new street furniture, are all measures that are increasing the accessibility of the pedestrian to the central areas, giving a new life to the inner city. Pedestrianisation is different in the Santiago-West, where the attraction of firms and enterprises to the area is still very low. Important infrastructure works are needed to facilitate further the connections and easy pedestrian access over the North-South Ave, which would facilitate further the access to and from the centre. The Master Plan for the Public Buildings of the Santiago Centre, which was carried out by Sur Professionals (MOP, 1999), has the objective of bridging the area divided by the North-South Ave and of contributing to the vitality and the diversity of the traditional centre (Sur profesionales proposal MOP 1999). The city’s regulator plans purposes other important measures including a development corridor with mixed uses and the regulation of facades in the poor northern areas of the Santiago-West. This northern area has considerable potential because of the rapid pace of construction that is occurring in the new activity poles of the northern part (Mapocho). The traditional morphology of the South Western Area, with wide sidewalks, hierarchical streets and alleyways is advantageous for improving accessibility and for enhancing the small and medium firms that want to set up in the area without losing the historical character of the place.

c. The strategy to enhance new activity nodes and improve connectivity, can be seen in the De los Reyes Park; the re-functioning of the Mapocho Station and the old city jail buildings. These contribute to the creation of important activity nodes that have a considerable impact at the city level and in the surrounding deprived areas of Santiago West. The changes in the traffic system also contribute to the reduction and organisation of the traffic in the area through some especially targeted streets that act as activity development corridors. The enhancement of public space and its connectivity through pedestrian mobility areas also foster development activities in the area. The last municipal’s summer program (2002) consisted of a program for building public temporary swimming pools in the public spaces of the most deprived areas. It has really resulted in a revitalisation of targeted activities and public spaces as connectors of these activities.

1.3.2 Mobility in the studied area

Map 57 shows the traffic structure and the streets where public transportation is permitted (buses and taxis), these streets become mobility spines or development corridors. It also shows the location of bus stops and pedestrianised streets.
1.3.3 Accessibility potentials

The vitality of the renewal area is related to proximity to the CBD, which lies in the East, walking proximity to the Alameda (Santiago’s most important axis), and proximity to the transport nodal-systems of the metro lines and highways (the North - South axis). Good accessibility is manifested in the continuous transport flows, which connect the area to the city centre, and to the rest of the city. Another measure of accessibility is registered in the existence of cable TV and digital fibre; penetrations which is demand-driven and a comparative advantage in relation to other middle-income sectors of the city.

Survey on the transport and pedestrian flows of the square

Chart 2: Traffic and pedestrian flow surrounding Yungay square / Source: Sectra 2000, Own Elaboration
Chart 2 shows traffic and pedestrian flows in different places in the square. Mobility was measured every 30 minutes between 12.00 and 14.00 in the winter and in each of the corners that are related to a transport node. The charts show the importance of the pedestrian connection, especially in the Corridor of Brasil Avenue (Brasil area) and Rosas Avenue (Yungay area), where the main pedestrian traffic is concentrated coinciding with the density of mixed-use activities. The charts also clarify accessibility in terms of connection to the city. In Plaza Yungay, which is bordered by a public transport corridor of mixed use (Rosas), there are 14 buses, every 30 minutes, which pass by and stop in the middle of one side of the square. 60% of the buses travel through the centre of the city with locations of more than 10 km and 40% do trips with a range of 5 km and pass through the city centre. The two direct North-South streets of Yungay Square do not have public transport. Despite having more visitors than Yungay, Plaza Brazil has less direct accessibility in terms of public transport. In the west-east direction the Compañía transport corridor has less of a hierarchy than Rosas and only 3 buses every half hour pass through, while there are 12 buses every 30 minutes in the North South direction. The numbers of pedestrians and visitors in the plaza are greater in Brazil Square than in Yungay Square. These were 116 pedestrians every 30 minutes in Brazil and 32 in Yungay. Taxis going through the streets of Brazil are also more than in Yungay, 28 against 16.

In terms of the distance to the main urban centralities existing in the area, Map 57 shows that Brazil within a radius of 1600 metres has three connections. The Corridor Alameda (the main West-East corridor of the city) is located 880 metres to the South. The CBD is located 1690 metres (Plaza de Armas) to the East and it is 1620 metres to the main Mall of the CBD. Underground stations with modal transfer are located inside a radius of 1600 metres and there is one metro line station within a distance of 880 metres, which give the area good accessibility. Brasil Square is located 1290 metres from the Parque de los Reyes, the new city park of the central area. The Yungay Square has the Alameda main city corridor and the city underground station (1550 metres) within a radius of 1,600 metres from the Parque de los Reyes is located at a distance of 1,287 meters. This also gives the Yungay area good accessibility.

1.3.4. Multifunctionality and zoning regulations

The second variable, which contributes to urban vitalisation, is the multifunctionality and the compatibility of land uses. Accessibility and connectivity and a compatibility of mixture of land uses have been considered as conditions for social and economic integration.
1.3.5. The Master Plan regulation in the studied location

The 1994 Master Plan of Santiago recognises three zones in the study area according to location in relation to the centre, land use and type of construction.

- The first zone (A) is closer to the CBD and is a zone with a significant number of large one-family mansions. The zone has been affected by proximity to the CBD and modern activities such as finance, banking, fashion and marketing are rapidly leading to the reconversion of old mansions still existing in the area. A process of recycling obsolete buildings is taking place, whilst the pedestrianisation of important streets is extending towards the zone.

- The second zone (B) is constituted by smaller residences of the introverted type with a mixed use of residential, commercial and domestic small enterprises (Brazil Square)

- The third zone (C) is constituted by a corridor strip forming activity nodes, which are constituted by small lots of two to three floors, with the mixed functions of residential and commercial uses (Yungay Square).

- The process occurring in the neighbourhood enhances gentrification, yet there is a struggle of residents to improve and modernise the area.

1.3.6. Land uses

It is important to acknowledge the resistance in this area, and the continuation of its downgrading process. To a large extent this resistance has been due to the low residential mobility of a large proportion of the original users that remained in the neighbourhood and resisted the negative process that was downgrading the adjacent CBD. Several processes have affected the central business district since the 1950s. First, this has been an intensification of the vehicular traffic and the proliferation of non-regulated transport. Second, these have been an exodus of high-income residential, commercial, financial and CBD activities towards the second CBD (to the North in Providencia and to the East). Third, there has been a marked process of 'tugurisation' on the fringes of the area and in Santiago West. Fourth, skyscrapers have replaced many old buildings. All this has cause a high level of nuisance and pollution, and the transformation of empty lots into parking places. Generally speaking there has been a deterioration of traditional lifestyles and activities, which were the attributes that kept the downtown area permanently alive in the past. Now it has been turned into a desolate nocturnal landscape, illuminated by crystal towers alternating with dark streets.

In the last 8 years the new Strategic Plan of Santiago-Centre together with the impulse
given by a charismatic Major (Ravinet) have contributed to an integrated vitalisation, which has been recognised both nationally and internationally. The master plan regulations have enhanced mixed land uses that enhance vitality.

- In the first zone A, land use zoning supports the mixing of residential and urban equipment. A wide range of metropolitan, communal and neighbourhood level equipment, including health, education, culture, community organisations, green areas, recreation and tourism, retail-commerce, public services, professional services, security, sports and artisan activities are all permitted. Non-permissible uses, which are not compatible with CBD functions, are regulated by norms. Special regulation for the location of parking, buildings and Industrial uses is prohibited.

- In the second zone B, the mixing of residential and urban equipment is similar to zone A with restrictions on retail, commercial activities and storage.

- In the third zone C, a large range of supporting land uses are permitted including retail commerce, storage and small industries when they are not located in the main streets or in blocks that concentrate 50% or more of these activities.

The present regulations for the Master Plan of Santiago help to maintain and enhance the morphology of the area and at the same time facilitate continuity and diversity.

The following regulations are presented in the zoning codes:

First Zone (A):

- **POF Lot Occupation Factor** minimum 60%, Maximum 100%
- Min lot size: 500m²
- Min width: 18m²
- Building typology regulation: detached, semi-detached and continuous (raw)
- Exception: raw house typology in the sector between Santo Domingo North, Alameda Bernardo O'Higgins Avenue, Miraflores and Teatinos Streets.

  - In lots bigger than 1600 m² with a minimum front of 40m² detachable (single) buildings are permitted, with a min separation of 5 Mts. from all the edges. The minimum height is 9 metres and the maximum height 41.50 Mts.

Second Zone (B) (Grey) Includes the Brazil Square neighbourhood

- **POF** minimum 60%, maximum 100%
- Min lot size: 500 m²
- Minimum width: 18 Mts.
- Building Typology: detachable, semi-detachable and continuous (raw)
- The last two have a maximum permissible height of 35 Mts. Higher buildings are only permitted as detached constructions, whose height and separation from other buildings is established in Article 2.6.3 of the General Ordinance of Urbanism and Construction.

  - Towards the west of PDT. Jorge Alessandri Ave. a maximum of 20 Mts. is permitted for all types of layout. In this sector detached construction is not permitted only raw buildings.

Third Zone (C). Includes the Yungay Square neighbourhood

- Maximum POF
- For housing and Urban equipment: 60%
- Other uses: 100%
- Minimum lot size: 250 m²
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- Minimum width 10 Mts.
- The type of parcelling of buildings is determined according to height and distance. Detached, semidetached and raw houses. The last is permitted up to a maximum height of 12 Mts. Above this the only possible detached construction is regulated by the General Law of Urbanism and Construction

1.4 Sense of place studies

1.4.1 The sense of place of Santiago-West Area

Necochea (1984) a Chilean historian argues that Santiago's squares have exerted a significant influence and a common tendency in their design since the firsts decades of the XXth century. These first designs shared a group of spatial elements from a particular urban morphology, which had its origins in European baroque design. Later on there was an adaptation and reinterpretation of these ideas to constitute a sort of Chilean style in the design of the residential typologies and squares.

A number of new elements are being incorporated into the inherited morphologies especially with regards to the squares and their new role as centres of social life of the neighbourhood. This is associated with various rituals that the square performs as a place of encounter, with a strong character in terms of social status and functions, which reflects the form of social life of each neighbourhood.

Necochea argues that the squares became a significant morphological element in the neighbourhood because around the square the urban tissue was organised as a replica of the original function of the central square of the foundational city. The urban tissue was constituted as a mirror of the social structure organised in neighbourhoods around the square. These places expressed the influence of social status, and were organising elements of both a morphological and social nature.

The rituals and ceremonies expressed in the neighbourhood found their representation in the square and in this way the principles of the baroque style were formalised and implemented.

These rituals and functions define the type of square in Santiago. The particular form of the square that arises reflects how the whole area is developed, with it pavements, the dividing elements, the gardens (prados), paths, etc. This assimilation contributes to the demarcation of the zones for each ritual and function that is taking place, and in this way we can affirm that a formalisation of a prototype of square arises. This logic can be identified in most of the cases we have analysed in this research (Brasil, Yungay, Suárez, Loreto, Lo Valledor, Plaza de la Havana, Plaza de La Alcaldesa).

The new neighbourhoods that were built during the XXth century generated squares conceived as a traditional element of urban design and not as an element of the social life of the neighbourhood as previously. In this way the square became a landmark with a symbolical character rather than a real use.

In the empirical observation of the current use of the square we can identify at first glance that there is a dis-function between the real use and form of the square. We can also perceive the social transformation of the users of the square and the enormous social impact of the current cultural and economic process the city is experiencing as a whole.

1.4.2 The use of the square

Santiago has a climate that is amenable to support and develop outdoor activities. There are no extreme temperatures in winter or in summer, day or night. Temperatures fluctuate between 32° and 0° degree Celsius in the different seasons of the year. Rainfall has a Mediterranean regime. Rain is generally intermittent and not very intense or the climate allows the development of outdoors activities throughout all the year. There are four well-defined seasons, with a humid and relatively cold winter but with many sunny days, with a dry summer without rain and an intense heat at midday in the and afternoons and fresh nights. In spring there are with alternate days of sun and cloud and medium temperatures and in autumn there are dry and sunny days.
The population's habits depend on the climate. The daily journey is long with large pause at lunchtime. In this way the squares achieve major use during the lunchtime break. Later with the end of the school or the university day, the square is visited after 16.00 hrs. At 19.00 the working population, at the end of the daily journey is added to the public spaces. Saturday and Sunday are usually rest days where working activities can be mixed with shopping and recreation.

In this way the use of the square changes depending on the season of the year, the day and the time of the day. The type of use and specific space varies in its dryness, rainfall, the sun and the shadow.

Yungay Square

Map 58: The map shows the Yungay Square and the lot division around it. Own elaboration / Source: Own elaboration 2002

Map 60: The map shows the volumes that make up the square and the street layouts of the area. Own elaboration / Source: Own elaboration 2002
This square was built as part of the residential expansion at the end of the XIXth century. This expansion was planned to accommodate new residential functions for the city. Currently these neighbourhoods experience a rapid renewal process. This renewal process has been fostered since the 1990s by the local government in order to enhance the recuperation of residential functions through a process of gentrification. The idea is to stop the obsolescence processes that affect the area as well as the centre of Santiago.

The most significant characteristic of the neighbourhood is given by its social diversity and by the typology of the continuous facades that shape the street with a relatively homogeneous average height of 10 meters. Given these characteristics, the Yungay Square constitutes an important element in the urban tissue, and is the only public green space in the area.

The street layout that surrounds the square like as the rest of the neighbourhood is part of a grid structure that lacks a strong hierarchy of streets, and it receives vehicular traffic on all four sides. Nowadays, Rosas Street in the North has more movement being a one-way street with intensive public transport use.

There is a church in the corner of Santo Domingo and Esperanza streets (in the South) that constitutes a landmark in the neighbourhood. On Rosas Street is a public school for the area. Finally this neighbourhood has a group of four storey modern residential flats for middle to high income sectors, each marking up a closed community, built since the Plan for Revitalisation in the early 1990s. Most of the other flats in the area are lofts for first-time buyers. The rest of the buildings that surround the square retain the original continuous façade (old constructions but in a good state of repair). There are four little shops and on one corner a kiosk for the municipal guard, which acts as information centre for local government activities in the area.

The square was built as part of a single project for the complete neighbourhood and occupies a complete block. This factor gives significance to the built form that surrounds the square, where the relation between the square and the buildings defines the public space.

The square has a symmetrical form and a distinctive landscape defined by large trees along the peripheral edges that connect it to a wide pedestrian sidewalk, where many comfortable benches are located, oriented towards the streets. The trees are high enough to permit a transparency between the sidewalk edge and the interior of the square.

The interior space of the square is from a compositional point of view, organised around
a large monolithic statue in the very centre (the monument to the Unknown Soldier), in a large open space of white compact sand and crushed stone. This space is connected with the peripheral sidewalk through eight points of access, distributed symmetrically in the corners and at the edges. This layout produces a sort of island or 'parterres' that is covered by grass and surrounded by small fences where the numerous benches are located.

In the South it is located a plastic, modern playground for children surrounded by a low fence and a gate for child security. The area has a capacity for 50 children approx. This area ends with bandstrand.

The square was recently renovated on the initiative of the association of neighbours and the municipality. The Santiago Development Corporation supported this renewal project. The renewal project changed the benches, the playground and gave a new pavement to the completed sidewalk. The new pavement towards the south was connected to the street forming a new large atrium in front of the church.

The limits of the streets and the square are defined by the repetition of small concrete posts. Children with bicycles and skates taking advantage of the low vehicular traffic of the Santo Domingo Street at this point of use in the area.

Brasil Square

This particular trapezoidal square was built in the second half of the XIXth century as an extension of the residential street Compañía and has a very elegant character. The lots that surround the area are bigger than the others in the central area of Santiago west.

The original typology was of detached large urban mansions with a direct façade to the street and back gardens. It is important to notice that in the middle of Compañía Street, in front of the square, a 'cité' for low-middle class families was built. It consisted of a three-floor patio building with a high and ornamental façade.
Originally the square was surrounded with large mansions, that in total were no more than one dozen plus the ‘cité’, a fact, which permits the possibility nowadays for several major transformations in the area. Today, there are two new high storey buildings (10 and 8 floors high) with a “loft typology” apartment for small families or young middle class couples. These projects are part of the renewal program initiated in the early 90s by Santiago Centre municipality.

Both buildings have a basement floor with shops and a high first floor, which incorporates the three landscapes to the view of the apartments. These new constructions changed the average height of 12 metres around the perimeter but the continuity of the façades conformed the street line.

The old large mansions changed their residential functions and are used as university faculties or higher education institutes. There is also a fire station that has replace a large house on the Southern corner.

On the East, at the corner of Compañía and Soler there is a big church that has a primary school alongside it. This gives extra life to the square itself; a large part of it is used as an extension of the school playground.

The program for the square corresponds to the classical Chilean Square. This square is surrounded by five-meter wide sidewalks that are related to the interior of the square through a big screen of trees along the complete perimeter.

Given its special trapezoidal form and its dimension (140x120x160x140mtrs), the square does not have a specific central area but several internal pedestrian paths that connect to the side walk edge at 12 points, with one in each corner and the others symmetrically located at each side. There is a second perimeter area of grass, in the form of island or parterres which frame a long interior where there are located particular sculptures used as children’s playgrounds and sitting benches.

The renewal process gave a unity to the neighbourhood and kept open the possibility of further projects on the square that would respond to the users’ needs. Last year a little skateboard path was added and some basketball arcs.

Because of their dimensions this is a ‘Go To’ square but with the addition of special bus
stops and taxis stops, the place is also used as a 'Go Through' space. This last fact is most apparent at the junction edge of Brasil Avenue and Compañía Street, where there is a bus interchange point.

The square has numerous traditional benches along the entire perimeter sidewalk, with views to the buildings, and several benches are located on the internal paths.

The height and age of the trees permit a good visibility throughout the square, giving better conditions for security at night and maintaining the idea of a perception of one large space that includes the streets and the buildings' side walk. The square is in permanent use, over the weekdays with the majority of its users at school or university and over the weekends the neighbours use it.

An important number of new high and middle high residential apartment buildings are concentrated in Santiago Centre. These projects were built as part of the renovation program of the municipality. The new developments were designed as high-density buildings a fact that gave an extra stimulus to use of the square. The area is also being developed as a restaurant and club area (around the Brazil Avenue in particular), which has generated extra nightlife.

The square is located in between two major city corridors 600 metres wide: the Northern Mapocho corridor and the Southern Alameda corridor.

The square has been constituted as a new centrality in the Santiago-West Area.

1.4.3 The use of the square

The Public Square is an important constituent part of the neighbourhood and plays a significant role as a social integrator confronting the extension of the segregated and disordered built space of nowadays.

The Yungay Square

![Yungay Square](image)
a. - Main functions and equipment that define the square

The main function is as a place of destination for the surrounding neighbourhood. 65% of visitors come from the local area and 35% come from neighbourhood more than 800 metres away. The Yungay Square, is defined as a neighbourhood square with greenery, benches with a capacity for 370 people, plus 7 parterres areas with grass; a children’s playground; 8 public phones and an official municipal guard. These are no formal sport fields or sports facilities, but just in front of the church, connected to the square at one level of the pavement there is a space that is used by the children as a football field or skating area.

b. - Frequency of use of the square

About 68% said that they came more than three times a week and 35% says that came daily.

c. - The Use of public space in the city by the user

Starting from the central location of the square and also considering the fact that there is a big park (Parque de los Reyes) at a distance of 900 metres, a 50% of respondents said they went frequently to a metropolitan park with an average of 3.5 times per month, and 67% went to other squares in the city with a frequency of 5.2 times a month. Brasil Square was popular, with 42% of the preferences.

d. - The perception of the square’s equipment

The main reason cited by the users for going to the square was because they lived nearby. 17% said that they came for the facilities for the children (playground); 18% says that they came because of the greenery and nature. 84% gave a qualification of “good” (from a rage of Bad-Reasonable-Good) in their assessment of the square. On the question of possible future improvements, 67% wanted better equipment including lighting, more children’ playground and better drainage for the rainwater.

e. - Schedule of use

As the survey was carried out between midday and early afternoon the answers were 100% for this period, but 45% also said that came at night one or two times per week.

f. - Place of residence of the user (live near/work near as well)

66% of users responded that they lived or worked nearby, and 34% lived outside the area (more than 8 blocks distance)

g. - Mode of transportation to the square

As most of users lived nearby 66% said that they came to the square by walking, 18% by bus, and 16% by bicycle or motorcycle.
The Brazil Square

The main function is defined as a place of destination for the direct neighbours and it also functions as a communal park. Brasil Square is defined as a big square of 1.8 has. (compared to the 0.8 has. of Yungay Square), and is considered as a small park with vast greenery, benches with a capacity for 520 people plus 14 areas with grass, one monumental child playground; an open space for basketball; a skating closed platform; an official municipal guard; 12 public phones and parking for 26 cars at one side The open area is used as a sports field and permits the possibility of playing a baby-football match as well. There are also several paths for walking and exercising the dog. There is a taxi stop and two kiosks, one that sells magazines and newspapers and the other food.

b. How often the user came to the frequency of use of the square

The square is located in a secondary city-centre, surrounded by a primary and a secondary school, a university and two technical schools. This helps explains the 72% who responded they came more than three times per week, 15% came every day, and 13% less than two times a week.

c. The Use of public space in the city by the user

The large size of the square explains that only 14% of the interviewers went frequently to one of the metropolitan parks with a frequency of 2.8 times per month. 43% responded that they went to other squares in the city 3.1times a month, in particular to the Plaza de Armas at the heart of the nearby CBD (32.4% of the preferences).

d. The perception of the Square's equipment

Given that the buildings that surround the square are mainly educational, the main reason of the visit is because they live near or work/study nearby. 40% of the preferences were based on the good equipment of the square and the possibilities for play, whilst the
centrality of the location was mentioned by 15% who used the square as a meeting point.

Related to the user qualification of the square, 58% gave a qualification of "reasonable" (from a range of Bad–Reasonable–Good). On the question of possible future improvements, 44% wanted better equipment related to lighting, more children's playgrounds, more greener (particularly more grass) better drainage for the rainwater, whilst 15% demanded more security.

e. – Schedule of use

As the survey was developed between midday and early afternoon the answer were 100% during this period and only 13% said that they came by night once or twice a week.

f. – Place of residence of the user (live near/work near as well)

In terms of the distance of residence of the users, a 79% lived or worked nearby, and 21% lived outside the area (more than 8 blocks distance). Out of this last percentage 18% lived in the eastern part of the city that meant more than 50 blocks away.

g. – Mode of transportation to the square

A large number of interviewers lived or worked/studied nearby, and also given area's status as a secondary centrality, 100% of the answers said that they came by walking.

Partial conclusion

Brasil and Yungay Squares are representative of urban transformation in areas affected by renewal processes. The areas experiencing renewal cover 7.5% of the total area of the city and accommodate 6.3% of the total population of the City of Santiago. These areas are inhabited by middle-low to middle-income residents and are experiencing rapid upgrading (both social and spatial).

Brasil Square (1.8ha) is a landmark in the city whereas Yungay Square (0.8ha) is a neighbourhood square. Both of these squares are destinations in themselves and being located within the inner city, are highly accessible and therefore exhibit high levels of vitality.

There is a symbiosis between the morphology of the place, the typology of the houses and the relationship between the open and the built areas. In terms of sense of place, the survey shows that both squares are highly appreciated by their users. The squares are reasonably well-equipped and the the green areas are highly valued.

The squares are used by various different age groups and accommodate a variety of activities. Both are perceived as being safe areas for users.

The high level of maintenance of the squares can be attributed to the existence of the proactive Municipality of Santiago Centre; co-operation with development corporations; the implementation of a master plan; charismatic mayors and active neighbourhood associations. This has contributed to the successful upgrading of both squares over the past couple of years.
2. THE SECOND RESIDENTIAL RING: INTENSIFICATION (LAS CONDES AND VITACURA MUNICIPALITIES)

2.1 The Historical Development Context

Las Condes Municipality is located in the Northeast of Metropolitan Santiago, and is part of the High-Income Cone. It covers 9940 hectares, with an urban area of 4214 hectares. The remainder (56%) is an ecologically protected area, with native flora and fauna. The municipality is bordered by the Vitacura and Lo Barnechea Municipalities to the north, and by Providencia Municipality to the west and La Reina and Núñoa Municipalities to the South. To east lie the roads going to the Andes Mountains (Farellones Road). Large Avenues or urban landmarks make up the boundaries with the exception of the East (See Map 36). The current population (2002) is 244,446 inhabitants and there is a gross density of 58 inhabitants per hectare.

Up to 1980 the municipality was predominantly a residential area. The 1980s changes to the Regulator Plan introduced several mix functions as well as an intensification of land uses that converted the district into part of the CBD. Despite the importance of these new functions along the main corridors, the district still retains numerous residential areas mainly in individual one-storey houses in large lots. A significant amount of green areas covered by trees exist in the district. In this context it has the second highest coverage in the metropolitan area with nearly 40 percent of the public area covered with trees shade. The municipality has attracted major investments in infrastructure, modern office buildings and residential towers over the last decade. Between 1990 and 1998, 6,900,000 m² was built. 17.49% of all the new built area of the city has been concentrated here.

The new skyline has changed the image of the capital city and it is now known as the "Sanhattan". The coming together of modern towers buildings and green space has also changed life styles since the high income sectors are returning to this central area of the city. The Municipality also has one of the highest income levels per capita ($ 321 US dollars) and the highest expenditure per capita of the entire metropolitan area. It has also the largest concentration of embassy buildings, headquarters of large national and international firms and the residences of high-income groups.

The development of Las Condes started as a part of a garden-city residential urbanisation project developed in the 1930s with lots with an average area of 1000 m². Changes to the Regulator Plan in 1980 defined a new role for the area starting the process of intensification that replaced family houses with big large residential towers.

To analyse the condition of public space in the urban areas undergoing an intensification process, I have chosen a typical quarter in El Golf to the north east of Las Condes. The square chosen is Loreto Square part of the original structure of the Garden-city project and a locus for the intensification process over the last 10 years.
2.2. Morphological Studies

Map 64. Las Condes area layout history / Source: Own elaboration 2002

2.2.1 Origins and Development of the Area

The current area occupied by Las Condes municipality has been inhabited since pre-colonial times because of the geographical opportunities of a foothill site for irrigation. In the XVIIth century the territory of the Indian chief Apoquindo was assigned as an “encomienda” to the first Spanish woman in the colony, Inés de Suárez. She controlled the territory including rights and duties to the Indian labour force that lived there. The area was predominantly rural until the 1950s. It was connected to the centre of Santiago through the Apoquindo Road that ended in the San Jose de la Sierra farm, owned by the Condes de Sierra Bella, from where the commune takes its name.

The area to the east of Santa Lucia Hill (in central Santiago) was known as Ñuñoheue, that means a place with wild plants. In 1891 it became Ñuñoa Municipality, and was subdivided in 1897 to become the Providencia and Ñuñoa Municipalities.

Las Condes was part of Providencia and was a rural area with large farms. With population growth and the rise of criminality the owners of this farms demanded the creation of a new district in order to better manage their security. In 1901 a presidential decree created the new commune of Las Condes. San Enrique became the central area of the Municipality, currently at the intersection of Las Condes and Apoquindo Avenues.

In 1900 the area was made up of the large farms (haciendas) of Las Condes and Los Dominicos, Los Leones, San Pascual Santa Rosa de Apoquindo and several other smaller farms (chacras) such as Lo Fontecilla, San Luis and El Rosario. The main road was the rural road of Apoquindo that connected with Providencia and from there with the Central Area.

The urbanisation process started in the Los Leones farm in 1930, with a main structural avenue today I. Goyenechea Ave., which led into a square, El Golf which today is called Loreto Square. In front of the square was a church built as part of the urbanisation project together with the area of the Golf Club, Los Leones, designed by the German landscape architect Oscar Praguer. The Presidente Errázuriz quarter in the East, was part of the San Pascual farm, urbanised using the same model of one main street ending in a church (Santa Elena).

This was connected to El Golf area by a group of mansions belonging to the original owners of the farms. In the middle of the area was developed the first residential apartment project at the intersection of G. Echáique and R. Sanchez Streets giving form to another square planted with trees that soon defined the green character of the new area.

The Colon, Bilbao and Apoquindo quarters were all urbanised in the late 1940s. Wide streets and large lots characterised formed all these quarters. Today transformation occurs along the main avenues in the form of strip corridors. The urbanisation process was gradual and grew using different development styles with various lot sizes that defined the heterogeneous characteristics of the area. The Colon main avenue was later extended to the East until the houses on the Santa Rosa de Apoquindo farm streched up the mountains.

The Bilbao quarter, which was connected to the Country Club was later extended further to the East. The Apoquindo quarter started as a main connection to Providencia. It originally had the same typology of large houses that later facilitated their transformation into individual towers. The extension of the subway line into this corridor helped the intensification of land uses in the area. The Los Dominicos quarter started with the foundation of Los Dominicos
Convent in the XVIIIth century, at the end of the Apoquindo Road. It was not until the 1950s that the area in-between was urbanised. To the north the bigger lots remain as individual big houses and the area in between the convent and Apoquindo area was later subdivided and urbanised in smaller lots in a mix of individual houses and small residential towers of four floors. Up in the hills the urbanisation started with lots of half a hectare each and they retained a rural character until the 1990s. Thereafter a process of lot subdivision started in the form of one or two floor houses mixed with some group of towers of not more than four floors. The centre of the area is El Cantagallo that nowadays is an important activity node to the Northeast of the city.

2.2.2 The Street Pattern

This area followed the same process of development as Providencia, it was originally a rural suburb and the old rural roads later structured the whole area with roads parallel to the Mapocho River and roads descending from the mountains in an east-west direction. From north to south these avenues were Kennedy, Apoquindo, Las Condes, Colon and Bilbao. A Metropolitan concentric structure cuts these structural avenues in a north-south direction. The concentric avenues are Tobalaba Avenue, Americo Vespucio Avenue (that constitutes part of the main internal ring of the Metropolitan area) Manquehue Avenue and Padre Hurtado Avenue. All avenues are connected by secondary roads.

The main Avenues sections have been extended over time and today the average is between 30 to 48 metres. The exception is Kennedy Avenue a rapid speed corridor of 75 metres and Vespucio Avenue, which is 60 metres wide. Most of the large Avenues have a central green strip that is very well maintained by the Municipality. The secondary roads have an average width of 15 to 18 metres, have different directions depending on the urbanisation style and the topography. Generally they are an angled in a Northwest – Southeast direction.

2.2.3 The evolution and division of the block

The morphology of the area was transformed from the 1920 Garden City structure to the most modern centrality of the capital city today, with mixed uses along the main municipal avenues. The original subdivision of the larger lots has permitted a good adaptation to the new functions. The large avenues have become the location of high tower buildings designed for different uses, in those cases where land developers could easily count on large amounts of land.

The urbanisation of Los Leones farm in 1930 put the Golf Club (75 hectares) as its green core. The urbanisation followed the strip model of one main street, progressively extended by blocks of 100 per 150 metres and lots of 1000 m² each in the form of square lots with dimensions of 30 by 30 metres approximately. This process is also to be found in the Errazuriz quarter.

The Colon quarter was urbanised in the late 1940s. It was a suburban urbanisation with large lots of 5000 m² usually with a 60 metres frontage and 90 metres depth. The Bilbao
quarter was urbanised in the 1940s and was developed gradually with different lot sizes usually around the 400 square metres specified by the regulations for the middle income housing programs of the saving and loans banks (DFL 2 Law). The Apoquindo quarter developed in a different period with a lot division of 1000 m2. Today’s transformations along the important mobility and activity corridors in Apoquindo Avenue demand that the lots continue to be large since they receive an intensive mixture of use and functions. The Los Dominicos quarter started its urbanisation process in the 1950s. The convent was developed into a rather more middle-income urbanisation with lots of about 400 m2 regulated by the DFL2 law. To the north a more luxurious urbanisation was built with lots of 5000-m2 stretching up the mountains. Many of these lots were sub-divided in the 1990s for densification with buildings of four floors, including higher vertical gated communities.

2.2.4 The Facades and Street Perspectives

The importance of the main avenues for the definition of the municipal urban structure has produced a hierarchy of streets and facades with different landscaping characteristics. The city main corridor of Apoquindo Avenue (the continuation to the East of the Alameda in the inner-city area) is an activity node with mixed uses. It is characterised by wide pedestrian sidewalks at both side of a large avenue of 40 metres, with continuous facades at street level and high towers above. The continuity of the commercial street façade has been interrupted only by some openings and demolition of old buildings, creating a sort of wider transitional space between the public and the private domains. The complete avenue has high quality street furniture, several benches in a regular disposition that are frequent more in the widest spaces, continuous lighting that helps to build up another perspective at the pedestrian scale. The street has some tree lines but giving its wide dimension they are not perceived as an integral constituent of the avenue. The same characteristic of wideness helps to frame the high mountains at the end of the avenue in an easterly direction.

Kennedy Avenue in the north is another high-speed street 50 metres wide. It has become an edge separating the Las Condes and Vitacura municipal areas. Some slower side roads have been developed in order to create new perspectives adapted to the new scale; big institutional and residential towers have been built and individual houses have been adapted for commercial use. At every road intersection there is a green island giving the avenue a more open perspective that helps the visual connection of this openness to the landscape defined by the higher mountain in the easterly direction and the perspective of San Cristóbal Hill in the North.

Bilbao Avenue has also been widened. Given the typology of buildings resulting from less deep lots and individual houses, the transformations have developed in a different way. Bilbao Avenue is a secondary commercial corridor with wide pedestrian sidewalks on both sides, and a continuous tree line that acts as a noise screen for both sides. The trees define a central strip that is too small to be used by the public but which acts as a traffic buffer. Unfortunately this happens for about one third of the complete length of the avenue. There is also a misuse in the definition of the Avenue when it confronts both the Country Club and the Inter-communal Park without any spatial treatment to connect the landscape.

In the South-North direction of the Americo Vespucio Street, part of the metropolitan ring road, a strip island park of 30 to 40 metres width has developed. This is the most extended and well-maintained park of the city defining an openness that permits a perspective of the mountains, and also gives a good perception of the topography of the city’s basin. The avenue has being shaped by big towers at the main intersection points that use the middle avenue park for creating a unity. The avenue is connected to the Country club and the Golf club as a continuous long park. The Manquehue Avenue manifests the same idea of a linear park through an island form with a strip of shorter dimensions. The street is shaped by big houses of one or two floors, connected by a line of trees that blends with the front garden of the houses. In this way a low rise but extended green-avenue is defined, and the fact that this street receives less traffic has produced a quiet residential area with a high level of integration. The Padre Hurtado Avenue at the foot of the mountain has similar characteristics to Manquehue but there is less greenery. Las Condes Avenue, a continuation of Apoquindo to the mountains to the north is a main new strip corridor for the city. The sidewalks are as large as the secondary routes and there is as yet no green line defining the transition between the sidewalks and the avenue landscape.
Most secondary routes of the whole Municipal area are mainly defined by sidewalks of 3 to 4 metres with green parterres of 2 metres planted with trees that impart an aspect of the garden city to the whole area.

2.2.5 The Open Space Network

More than 55% of the Las Condes municipality is a protected ecological area in the form of a Mountain park, part of the Andean chain. This determines a compact development that contributes to the land use intensification process and gives to the main open spaces an impressive background and a permanent landmark status.

The northern part of the Municipality has been the location of several private sport clubs. The Golf Club Los Leones (76 hectares), the Military Academy (35 hectares), the Parque Araucano (22 hectares) are being developed and one third of the area equipped as public space. A process of public-private partnership in a concessional form has led to further developments. Further on lie the Palestinian Club (16 hectares), the Syrian Club (11 hectares), and the Calan Hill, which is used as an astronomical observatory (64 hectares). In the middle of the municipality is the Italian Club (9 hectares). To the south the municipality is connected to the biggest urban parks of La Reina Municipality, the private Country Club and the East inter-communal Park (68 hectares), maintained by both municipalities.

The north south-corridors of the green avenues of Vespucio and Manquehue connect with important points in the Southern area of the city. The Vespucio runs from the edge of the Country Club and ends in the Military Academy Park and the Golf Club. The Manquehue Ave finishes at Araucano Park. There is as yet no network system of green spaces but the length and the connecting character of the main avenues could easily allow a programme to enhance the better use of green spaces.
2.2.6 Morphological analysis of the Loreto Square surroundings

A quadrant of 5.4 hectares was selected for the analysis of the Loreto Square surroundings. The quadrant limits were President Riesco Avenue to the North, a strip of 150 metres to the west of the square and a strip of about 50 metres to the East.

The quadrant gives a perpendicular intersection of I. Goyenechea Street and El Golf Avenue where the Church and the Convent are located and the square became an island. The lots and houses were originally good quality mansions of different styles, located in the middle of lots of 30 x 30 meter approximately. Mansions were located symmetrically at both sides of Goyenechea Street, of El Golf Street and around the church as well.

Nowadays the area is being seriously intensified with the construction of high individual towers. The process of intensification started in the 1960s in the Apoquindo area with the construction of the first six tower buildings. Later with the flexibilisation of land uses brought on by the new Master Plan, the construction of residential towers around the Loreto Square started. In the mid 1990s big office buildings were allowed to be built. The Apoquindo sector is one of the most attractive locations for real estate investments in the city.

The gross occupation of residential/office land use is high at 79.6%, and there is an open space of 5.4%. The large amount of residential land used is explained by the selection of the quadrant that avoided the large roads existing in the neighbourhood. The area is in a rapid process of transformation from a garden city structure of large mansions to a dense high storey development of mixed uses of residences and offices. The density is 626 inhabitants per hectare. The net occupation of land is of 33% and the floor space ratio is 2.3.

2.3 VITALITY STUDIES

2.3.1 Accessibility of the Area
Survey on the transport and pedestrian flows of the square

Chart 3: Traffic and pedestrian flow surrounding, Loreto square / Source: Own elaboration summer 2002

The survey shows that the streets that directly surround the Square have no bus lines, but a high level of private car traffic. The Apoquindo Avenue that is the main metropolitan corridor that connects the study area with the rest of the city is located 230 metres south, and has an important number of private cars and public transport. Apoquindo is a commercial and financial corridor with a high pedestrian use. Two metro stations are located at 400 metres from the Loreto Square.
2.3.2. Multi-functionality and Mixture of Land Uses

The Regulator Plan Las Condes at Loreto Square Area, El Golf Neighbourhood, defined as being for mixed uses, services, commerce and residence. It corresponds to the prescription of E-Aa2, E-Aa4.

Land Use & Building Norms

Area E-Aa4: High Storey Isolated Buildings No 1:
The area is defined for uses such as residence and services, commerce, and offices.
A) New houses or extensions of residential buildings must answer to the following norms:

| Table 21 |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Existing. | Existing. | 1.0 | 0.4 | No request | 70° | 3 Storey with a Maximum of 10.5 mts High | 7 m. | 6 m. | Isolated Detachment Permitted |

159
B) Equipment densification Projects.

The Equipment Densification projects located in this zone must follow the required norms:

<table>
<thead>
<tr>
<th>Isolated Residential and Equipment buildings</th>
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<tbody>
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Area E-Aa2: High Storey Isolated Buildings No2:

A) Housing Projects or extensions of existing prospects must follow the required norms:

<table>
<thead>
<tr>
<th>A) Housing Projects or extensions of existing prospects must follow the required norms:</th>
</tr>
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</table>

B Housing and Equipment Densification Projects

The densification projects to be built in the area should answer to the regulations of the E-Aa2 norm:

<table>
<thead>
<tr>
<th>B Housing and Equipment Densification Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>-------</td>
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</table>

A free area must be considered at the ground floor level.

If a new project is regulated according to table B and limited with a lot of continuous building, a continuity of the façade can be achieved with the same depth as the existing building. In this case the floor space ratio and the land occupation index can increase by 10%. This increase of area may only be devoted to continuous building.
2.4 Sense of Place Studies

Map 70: The map shows the volumes that make up the Loreto Square and the street layout of the area. Source: Own elaboration (2002)

2.4.1 The Loreto Square

The Loreto Square was created in the 1930s as part of the first urbanisation that the family Lyon-Cousiño developed on their farm San Pascual. The name of the square came by the name of the landlady Loreto Cousiño. The square was shaped as an extended atrium of the Church Nuestra Señora de Los Ángeles built in front as part of the same Quarter unit. The unity includes the Golf Club at the right of the Church.

The layout surrounding this square is formed by the intersection of I. Goyenechea Street
and El Golf Avenue forming a T where the square is located as an island in the middle. The entrance of The Golf Club at one end and to the other is connected to Apoquindo Avenue. Along the eastern side of the square is located the Church with the Convent behind it, in a semi-circular layout with high buildings shaping the square.

The square is shaped as a rectangular ending in a semi-circular form, creating a sort of rotunda. The last renewal project was in the year 2000 when the square was divided into three zones. The central zone has a big water fountain surrounded by sandbanks. This part was added to the original design. The left side has a grass area and a right side has an interior enclosed by low benches making a place for children's playground with sand and two play-stations. The complete square is surrounded by a path and has sitting benches with capacity for 180 people. There is a green grass edge that surrounds the square that creates a sort of intimate interior, defined by the trees that give fresh shade on both left and right sides. At the round ends the pavement creates another opening where it is possible to get a complete perspective of the square and the Church atrium. The sidewalk is a single level continuous pavement crossing all through the streets and the atrium of the Church. This unifies the square with the open front gardens of the buildings that surround the square.

2.4.2 The use of the square

1. Main functions and equipment that define the square

Since the last renewal the square has become one place (former was divided in two by an extension of Goyenechea Street). It is a small square (0.6 has) divided into three areas. These areas are related to three different uses: for the daily break of the people who work in the neighborhood; as a children's playground for the residents and the use of the square as an atrium of the church's activities. The pavement, which extends from the church to
the sidewalk in front of the building across the street, is used as a kind of skating place by the young.

2. -Frequency of use of the square

Only 13.4% of the users live nearby. Most users work nearby, and most respondents came to the square every day for working days that is Monday to Friday. The high percentage of users said that came daily (42.84%) and a 35.73% came three times per week. That is to say 78.54% came there in a minimum of three times per week.

3. -The Use of public space in the city by the user

The fact that the most users work nearby and live far away explains the result. 40% went regularly to other squares, and 53.3% went regularly (2 to 4 times per month) to a big park. Out of these 62.5% went to the Inter-communal Park of La Reina.

4. -The perception of the Park’s equipment

73.3% of users defined the parts as good, and the rest as ‘reasonable’. 66.7% of visitors manifested their preference for using this square because they worked nearby (in a range of less than 800 meters). Out of these 46% said their preference was based on the perception of nature (green and tree shade). Only 20% of the users preferred the square because of its equipment.

On the question of possible future improvements, 26% expressed a wish for better toilet facilities, 53,3% mentioned different aspects of services around the square and of these 46,7% said there was a need for a grocery shop. It is important to remember that the area has one of the most expensive land values per square metres in the whole city.

5. -Schedule of use

As the survey was carried out between midday and early afternoon the answer were 100% during this period. No one came at night, but 53.3% came often (2 to 3 times per week) more than once a day and here the same percentage use the square at the afternoon as well.

6. - Place of residence of the user (live near/work near as well)

Only 13.3% lived nearby (in a range of 400 meters) and of the rest, 100% lived in a range of over 800 meters, and all outside of the Las Condes municipality.

7. - Mode of transportation to the square

Given the fact that 86.7% of the users work nearby, response rate of those walking to the square was the same (86.7%). As most live outside the municipality, the lack of public long term parking places and the existence of good subway connections near the area, public transport is the most likely form of access to the neighbourhood.

Partial conclusion

Loreto Square (0.6ha) is representative of urban transformation in areas affected by intensification processes. The areas experiencing intensification cover 12.1% of the total area of the city and accommodate 6.2% of the total population of the City of Santiago. These areas are inhabited by high-income residents and are experiencing a rapid process of globalisation, intensification and change in use.

Loreto Square displays a high level of vitality, although few of the users live nearby. The square is a place of destination because it has a high level of accessibility by the underground, busses, taxis, private cars and pedestrian flows. The square is visited daily by the employees of the offices and commercial buildings that surround the square as well as the neighbouring areas.

The sense of place also makes this square a destination. The characteristics of the urban environment, the morphology of the place, the modernity of the buildings, the human-scaled landscaping in contrast with the surrounding tower buildings and the high quality design as well as the special attention given to street furniture and paving, makes this a very special place. It is highly appreciated because of its sense of safety and its spatially defined character.
The high level of maintenance of this square can be attributed to the effectiveness of the public policies of high-income municipalities. There is a lack of direct participation of high-income residents that could have produced discrepancies between the user demands and the public actions.

3. THE SECOND RESIDENTIAL RING: GENTRIFICATION
(Lo Barnechea, Ñuñoa and la Reina Municipality)

3.1 The Historical Development Context

To understand the condition of public space in the urban areas undergoing the gentrification process, I have chosen Providencia Municipality and specifically the areas in the Southeast. Providencia is bordered by Santiago to the West, Ñuñoa to South and La Reina Municipality to the North. The particular neighbourhood under study is located in the Southeast of Providencia Municipality, adjacent to Ñuñoa. The Parque Inés de Suárez has been chosen given the significant spatial and social changes occurring around it.

Providencia Municipality is going through a process of urban renewal to the Northwest and gentrification to the Southeast. The municipality is part of the "high-income cone" of the city. The municipality has a total area of 1420 has, of which 1250 has of which are urbanised whilst 170 has correspond to the Southeast part of the San Cristobal hill, the largest metropolitan park. The distribution of space within the urbanised area is formed by 68% private lots, 24% streets and 8 % green areas, including the Mapocho River basin. The green area is made up of 63 has of public parks and squares, and 26 has of river basin.

3.2 Morphological Studies
3.2.1 Origins and Development of the area

The Municipality of Providencia was created in 1897 by a presidential decree that subdivided the municipality of Nuñoa. The area at that time had 5000 inhabitants and had a clear rural landscape and layout. In 1903, the new Municipality of Providencia was subdivided giving almost the half of its territory to the newly created municipality of Las Condes in the Northeast.

The first period in the transformation of Providencia can be defined as the transition from being a peripheral rural area to an urbanised territory, which occurred between 1903 and 1930. Initially the municipal area was the location of several institutions and agricultural firms, which created activity nodes, consolidate the area as part of the Santiago urban periphery. The rural origins of the area which was characterised by large farms, tree-lined roads, wide avenues and private parks was a very suitable location for implementing the new Garden City ideas, coming from Europe. The garden city model was imposed between the 1920 and 1930. The economic crisis of the 30s generated a large-scale migration to the city and the central area started a downgrading process after residents started to move to the new periphery, accelerating the urbanisation process of Providencia. The ideas of the Garden City helped to realise large avenues with trees, squares, a riverside avenue, and better connections to the central area of the city, all this infrastructure gave a significant character to the area, which survives until today. A third period started in 1965 with new processes of densification and changes of land uses, which transformed the area into a dynamic node between the centre and the neighbouring municipalities of Las Condes and La Reina. This role was recognised by Providencia authorities that started a new land use plan for the main corridors in order to transform Providencia into a metropolitan Sub-Centre. The decision to construct the first metropolitan subway-line along the main corridor, Providencia Avenue helped to consolidate this area as a sub-centre. A new Regulator Plan (1975) was necessary in order to harmonise the original garden city structure with consolidation of the area as a sub-centre. Finally a fourth period can be recognised after 1980, when major transformations re-defined the street layout. This was the start of a rapid process of renewal that continues until today and will continue until the Regulation Plan's measures are completed.

3.2.2 The Street Pattern

The rural structure and topography gave a significant character to the transformation of the XIX century road, connecting the city centre to the Orphan House of La Divina Providencia and constituted the main structural element of the district. This axis to which the farms were connected followed the Mapocho River bank. The axis was oriented in a north south direction (in the form of a half fishbone) while the internal roads were defined following the natural movement of the mountain and water, in an east-west direction.
In 1900 one of the farms was urbanised with a central avenue with a square in the middle (Pedro de Valdivia Square). The model was linear and based on the Catalan architect Soria y Mata’s idea of the Linear City. The axis was defined and soon a trolley line was built connecting the area with the Santiago centre. This was the basis for the development of the Providencia Avenue corridor. Houses for the middle class were then built between 1924 to 1934 according to an interpretation of the Garden City model, which produced a particular built environment. It was built in a semi-rural area and a special internal square was developed, constituting a unique characteristic that defined the unity of the neighbourhood, in a picturesque layout. Small housing projects were developed, the largest the Peumo Street settlement, a project of 4.4 hectares and the smallest the Keller Street with 0.95 hectares. These projects were built with high densities, according to the principle of "two houses under one roof. The projects were located along streets running in a north-south direction. Later with the development of larger residential developments for the upper middle and high-income classes, such as the urbanisation of El Golf, Providencia area, a more generic Garden City model was followed. The creation of large green avenues in an East-West direction completed the spatial tissue, including the Lota Avenue (15 m), Carlos Antunez (20 m), Las Lilas (25 m, but extended later), Pocuro Avenue (30 m), and Bilbao Avenue (30 m).

The pattern of development of the area reveals the origins of the current function of the Providencia as a mixture of tertiary services, education, residence, commerce and leisure and as a connection between the central area and the residential areas of the East of the city.

At the beginning of the 80s a renewal process in the main corridor, Providencia Avenue, led to the adaptation of the metro stations into a transfer node and continued with the adaptation of the streets’ structure to enhance its function as an urban corridor. This was a response to the rapid densification and consolidation process occurring in the eastern area of the city as a residential zone. The new programmes for the streets were defined into urban corridors with parking areas and slow side traffic streets. The last project that helped in the consolidation of the urban corridor was the construction of underground parking plots (year 2001) that extended the parking capacity of the corridor by 35% or more.

3.2.3 The evolution and division of the block

Given the rural origins of the area and the North-South division, the later development of East-West subdivisions, and the different urban projects, in the area understandably has a large variety of block conformations. As an original peripheral area it developed in a mix of the rural and urban, starting with settlements with a dominant typology of detached houses with front gardens and backyards. This area as well as several others in the second residential ring has an orthogonal layout of open blocks, detached facades and mainly straight street, with the exemption of the few Garden City projects of the 20s and 30s. The conformation of the block is strictly defined by geometry determined by the original main corridors.

3.2.4 The definition and dimensions of the lots

During the colonial times land was assigned for agricultural uses. Later the land was subdivided into farms with an average area of 50 hectares each. In this rural structure some institutions such as the Orphans’ House, convents and the Salvador Hospital were built. In 1900 one of these farm was urbanised in plots with a 50 mts. front and a length of 150 m with a central square (today the Pedro de Valdivia Square, where the main axis also takes the same
name). This project generated several others such as Seminario Street, with a continuous facade of raw buildings (following the old model of the street corridor), with plots with a 15-m front and 60 metres length. A similar size block can be found in other projects that defined the built landscape of the streets, Roman Díaz, Miguel Claro, Condell etc. Some of these are characterised by a subdivision with plots of 6.5 m frontage and a length of 50 to 60 m. In the 1920s and 1930s, around 10 to 15 projects were built using a Garden city model. These projects were built in individual plots of 300 square metres with detached houses.

Examples of this type are the projects for the Union of Civil Clerical Workers and the "two houses under one roof" as projects such as in Obispo Donoso Street. These settlements were combined with extensive private green areas occupied mainly by sport clubs such as "Aras limited", the "German Club", "the Gath y Chaves Club", the French Club etc, with areas of between 20.000 to 30.000 m². The subdivision of the big farms (especially in the North part of Providencia and in the main avenues such as Providencia Avenue or Los Leones Avenue) started in the early 1930s. Large lots of about 1000 to 2000 m² were defined with a range of 15-metres frontage and 60 metres length to 30 metres frontage and 60 meters length. After the early 1980s these large lots allowed the building of high separate towers with four façades. The lot structure thus avoided the need to buy and assemble small lots or the construction of small towers with blind-shared wall (medianeras), both of which are main characteristics of other areas of the city, especially the central area.

3.2.5 The Facades and street perspectives

With these spatial transformations, the street perspective and the built environment changed, influencing the relation between private and public space. The orthogonal layout existing in this area defined large green avenues running in a North-South direction whilst the urban transformations depended on the origins, the development of the area and the master plan regulations. The main linear corridor, Providencia Avenue, represented an important metropolitan landmark. This corridor has the Teléfonica tower (the highest in the country) in the West followed by a long area of a continuous line of buildings, interrupted by two big churches and, to the other side, the Balmaceda park with low vegetation that allows sightlines to the Tajamar project (three towers built in the 1960s as part of the renewal project in the area).

From this point until the end of the Providencia Avenue, at Tobalaba Avenue, the high-rise corridor is defined by its service characteristics and functions on the ground floor. The main mobility corridor has wide pedestrian sidewalks on both sides lined with leafy trees. In the Middle of the Providencia Avenue, lies the Nueva Providencia Avenue a well-defined commercial area with parking, wide pedestrian paths, good lighting, benches, and large trees, and a continuum of high buildings mixed with a few houses with continuous facades.

The visual continuity that is characteristic of all the area has been a goal since the first Regulator Plans. Almost every street and avenue has large trees for shadow that helps to unify the perception and to connect the multiplicity of architectural types. Another instrument that helps to unify the area is the pavement in the main avenues and the street lamps.

In some of the main north-south corridors the densification process has defined a high horizon of buildings, particularly in the avenues and streets running from east to west. A mix of heights in each block is perceived in the secondary roads.

Towards the South, the sprawl of high storey buildings diminishes and a mixture of detached villas and a continuous housing facade is perceived. This allows the perception of the mountains and a longer visual perspective towards the South, in avenues such as Montt, Varas, and Los Leones. Later the original urbanisation process was strictly regulated and the dominant residential typology was detached of garden villas in 30 m. wide Avenues. Today the original villas have changed their functions and the skyline perspective and the mountains are clearly appreciated, especially the advance of high-rise buildings from Providencia to the South. The secondary corridor of Bilbao, with an East-West direction, is a 30 m. wide avenue with wide pedestrian paths at both sides, large trees and several squares, that are today being re-designed to build a connected green system. Detached villas and new buildings, which are no higher than 6 floors, have shaped the surroundings and permitting a good visual perspective.
Towards the North, a linear park has been laid out between River Mapocho and the 30 m wide Costanera Avenue that runs parallel to the river shore. It offers a good perspective of the Cordillera in the north and defines a big open space that ends with the new skyline of modern high towers on the borders between Providencia and Vitacura municipalities. Narrow streets and smaller lots characterise the Southern area. Higher densities are maintained with a mixture of detached houses and residential blocks, particularly around the Parque Inés de Suárez. The surroundings are made up of different types of buildings, from the subsided apartment flats of the 1960s to the new high residential towers for the upper middle classes. The trees in this part of Providencia are younger so the width of the avenues permits a view of the changes in the skyline of the area.

3.2.6. The Open Space Network

Providencia is characterised by abundant greenery, scattered in avenues with trees planted more than 100 years ago, a large amount of private parks and open sports clubs, a variety of Garden City developments and a typology of houses which had a front and a back garden. Finally in the Northeast, in the more dense built area municipal regulations demanded an open front garden for the entire length of the block according a well-defined Floor Space Ratio. Given that Providencia forms part of the high-income cone of the city, an exceptional growth in car ownership has taken place that has necessitated a redefinition of the Open Space Network to deal with an increase in air pollution. In 1997 after a district survey it was decided that there was a need to extend the amount of green area, through a project that connected the several parks that surrounds the Municipal area. The project consisted in connecting the Eastern Park of Tobalaba with the Costanera Andres Bello (the riverside park along the Mapocho river in the North); the Bustamante Park in the southwest; the Inés de Suárez Park in the central-south area and the Pocuro Park in the east to form a complete green ring around the municipality boundaries.
3.2.7 The Typology of the Main Buildings

The first settlement in the form of a Garden City provided the model for building a complete settlement as a whole spatial unit. They were introverted systems with a special internal development. Later with the developments of the biggest project for the upper middle and high income sectors a more generic Garden City-model was followed based on the maintenance of large green axes, such as in the urbanisation of El Golf.

3.3 Vitality Studies

3.3.1 Description of the Accessibility of the Zone

In the next sector we see the spatial structure of the Municipality and the Differentiated Road System regulated by the Regulator Plan. If we analyse the zone that surrounds the Inés de Suárez Park we can identify the importance of the west-east corridor of Bilbao and the north-south corridor of Pedro de Valdivia and the accessibility of the sector in relation to the district and the metropolitan area.
Survey on the transport and pedestrian flows of the square

Chart 4: Traffic and pedestrian flow surroundings Yungay square / Source: Own elaboration, 2002.

The survey revealed that car use is high throughout the area. The public bus lines pass through the main corridor, as Bilbao, Valdivia, Varas, and Alferes Real. Valdivia and Bilbao are the avenues that have the most traffic.
3.3.2 Multi-functionality and the mixture of land uses

The Regulator Plan of Providencia was based on the idea of the district as a 'city unity'; this is to say a recognisable unit in terms of size and space. It is an economically self-sustained unit capable of being administered managed and controlled. It is homogeneous in terms of the distribution of services but it is differentiated in terms of the diversity created to answer the demands of each individual.
The role of Providencia Municipality has been to intervene in three lines of action: first, the construction and maintenance of public space, streets, squares and parks; second, the construction of communal equipment, including administrative buildings and building for culture, education, health, social organisation, sports and the preservation of the heritage; third, the study and implementation of adequate norms to orient private space in the uses and characteristics of the built environment.

As Providencia is one of the richest municipalities of the country, a rapid process of renewal and gentrification has threatened its habitability and life style. Powerful social groups have contributed to the negotiation of the Regulator Plan that merges architectural and planning demands. This Regulator Plan is not only physically oriented but also has a Development Plan and an Action Plan.

A Differentiated Road Structure recognises rapid structural roads, service roads or transport corridors, sector distribution roads, tree lined axis roads, local streets, and commercial areas. In Map 77 we see the Differentiated Road Structure of Providencia. The Action Plan of equipment and other civil works identified the 16 neighbourhoods and the location of the building work that needed to be carried out.

The Land Use Plan was different to that in other municipalities of the country and included the building norms. It identified the zones with unbroken (raw) construction; the areas with high-detached buildings (without height limits); the areas with high-detached buildings (with height limits); detached buildings of medium height and low rise, detached buildings. The Plan also identified zones for commerce, small industries and workshops, offices and residence. The residential areas are scattered throughout the different areas. The building norms regulated the form of the construction in the whole district identifying the separation between buildings, front gardens, and minimum subdivisions and retire. The factor of land occupation and Floor Space Ratio are both strictly regulated by the land use plan and the differentiated road system.
The Building Norms

In the entire Neighbourhood:
- Separation: 4 metres
- Before Garden (Building Line): 5 metres (with exceptions)
- Minimum Subdivision: 800 metres (with some exceptions)
- Retire: 70 degrees
- High Storey: Isolated Building Construction Zone

In the sector with Commerce and Offices:
- Building rate: free for compulsory commerce, 1.8 for optative commerce
- Ground occupation: 1,2 + 3 floor 100%
- Occupation higher floor: 40%
- Retire above continuous building structure in street axes and lateral to neighbours

In residential Zones:
- Building Rate: 1.6
- Occupation First Floor Level: 20%
- Occupation higher Floors: 40%
- Retire at ground level: in property line and lateral, in 6 floor and retired 7 floor
- Maximum: high 19m
- Building rate: 1.6
- Occupation first floor: 20%
- Retire at ground level in property line and lateral
At Continuous Construction:
In the Middle High Building Sector
Maximum depth: 15m
Occupation in the floors with continuous construction: 60%
Minimum high: 5.6m
Maximum high: 8.2m
Limiting Factor: Height = 1/2 the street size

In High Building Sector:
Maximum depth: Without limit
Occupation in the floor with continuous construction = sector with Commerce and Offices
Fixed High: 3.5 in optimal commerce
10 in compulsory commerce

Low Isolated Construction Zone:
2 floors+a retired 3rd floor
Occupation in all the floors: 40%
Retire at ground level in property line and lateral

3.4. Sense of Place Studies

Map 80: The map shows the volumes that make up the Suarez Park and Square and the street layout out of the area / Source: Own elaboration, 2002.

3.4.1 The Inés de Suárez Square and park
The Inés de Suárez Square is a communal park rather than a communal square and is the Integrated Open Space System project of the Providencia municipality. The Park has been recently renovated in a full project designed by the Architects T. Fernandez and M. Palmer in a municipal assignment incorporating a residents survey that defined as the priority task, an increase and in development of green open area with facilities.
The Park’s formation took place in four phases. First, in 1968 the Pocuro Square between Pocuro Avenue and Bilbao Avenue was built as part of a modern group of six storeys high-rise building for middle-income inhabitants (six buildings). Second in 1970 the “Remodelación Inés de Suárez” was built, and the project consisted of a square that continued the Pocuro Square on the other side of Bilbao Avenue constructed at the side of the four high buildings.

Third, in 1978 the land that ran to the South was intensively used as open communal space the Park Inés de Suárez, which had an extension of 3.8 has. During the 1970s was used as a football field and for horse shows from the neighbouring Police Academy. Fourth, in 1995 a definitive renewal project for the three open spaces was developed.

A complex programme included the construction of one street to the south of the park, to connect both sides of the park. The project included the Park and the two squares with a possible extension to the North of Pocuro Square.

The municipality invested 1.8 million Euro into the project. The project included the development of Inés de Suárez as a traditional square. It contained green parterre, benches and in the central part a children’s’ playground. The latter was extended and some sandbanks and continuous benches were added. At the Southwest of the square number of big rocks were used as a vista-point so that visitors could appreciate the full extent of the park. The park was developed as a four-strips for different functions. In the eastern part, which is one third of the total area, a big multi-purpose open space planted with grass and crossed by paths was built. The place is used for walking or play, but also for big events such as the traditional horse shows. A straight paved strip, starting with a covered garden surrounded by palm trees connects this area. The third strip is defined as a fully paved area, and has being built using different paving stones, that make a big chess board, a skating strip and an obstacle course for bikes. This area also has two closed and illuminated sports field, used for Five by Five-football, and volleyball with a covered stand, and a dressing room equipped with WC and showers. The fourth strip was designed as a garden for sitting with half round benches and large tress and flowers. An element that unifies the park is a pedestrian path around the periphery. The park has three main entrance one in the North through the Inés de Suárez Square, the other. All three have some parking facilities.
Several residential buildings built at different periods surround the park. The first is a group of five 6-storey buildings that originate with the first square. The second are the towers of the renewal period that give the name to the park.

To the North west of the park there is a large 4-storey apartment building for civil servants built in the 1980s. To the South West of the park another group of four apartments building, two of 8 storeys and two of 6 storeys with apartment of 60, 80, and 120 square meter were built. To the South east of the park three residential towers of twelve storeys, with apartments of 120 to 220 square meter were built in 2000. This gives an interesting high density to the area, where the function of the park is not just as a space for leisure but also a retreat from the dense surroundings, permitting buildings an open view and a better perspective.

To the South of the park there is the building of the Police Academy in a very leafy park with a wide variety of trees.

3.4.2 The Use of the square
The Inés de Suárez Park

1. - Main functions and equipment that define the square

The main function of the square is to be a place of destination for the commune and the direct surroundings. It has also a park function derived from municipal sport facilities and open space for public events. These functional characteristics is clearly seen in the pilot study where almost 100% of the visitors questioned, answered they came there because they lived nearby or worked nearby, of these 35,3% came because of the sport facilities. The fact that 66.7% of the visitors lived nearby, and live within 400 metres from the park is explained by the high densities of park's surroundings.

The park is equipped with benches and has a capacity of more than 800 seats. It has an area covered by grass of 1.18 has; 0.2 has is covered by different pavements constituting a skating area and a bike obstacle course, and 0.6 has function as quiet gardens with concrete benches and little corners. The two multi-use sport-fields are equipped to be used for Five by five football, basketball or volleyball, and are illuminated and surrounded by a metal screen. There is a building that acts as a changing room for the users of the sport-field. There is also a small shop for drinks and a terrace with tables exactly in the middle that function as meeting point with public telephones and bike parking.

2. - Frequency of use of the square

About 63% in the survey said that they came more than three times a week and 13% of them said that they came daily.

3. - The Use of public space in the city by the user

The good equipment of the park is reflected in its use: 50% went to other parks but only around once a month, of these only 12,5% went to other parks in Providencia, and 37.5% went to Ñuñoa main square, 52% more that 2 times a month.

4. - The perception of the Park's equipment

The perception of the park by the user is positive. 100% say that that it is of good and of this an equal percentage said that they preferred this park because they lived nearby and the other 50% said they preferred it because of the facilities. Of these, 12,5% came to the park (nature) and the 87,5% came to use the facilities (sports field, children's playground).

On the question of possible future improvements, 37% expressed a desire for better equipment related to the drainage for rainwater (the main part of this pilot study was developed in the rainy season), 62% manifested their interest in an improvement of the equipment. Out of these, 25% wanted an improvement in the amount of sport fields and another 25% expressed a need to improve the children's playground. It's remarkable that only 6,3% wanted to improve security.

5. - Schedule of use

As the survey was developed between midday and early afternoon the answer were 100% for this period. No one came by night, and indeed a new rule closes the park at night except for the first part (the original Inés de Suárez Square).

6. - Place of residence of the user (live near/work near as well)

100% of respondents lived or worked nearby, and 66,7% of those who lived in the area were within 4 blocks of the park (around 400 metres distance), 12,5% lived between 8 to 10 blocks away and 18,8% came from the La Reina municipal area.

7. - Mode of transportation to the square

The fact that the main number of users lived so nearby explains the fact that: 79,2 percent came by walking but 20% came by car and 25% of these pointed to as an attraction of parking facilities.
Partial conclusion

Ines de Suarez Square (1.18ha) is representative of the urban transformation in areas affected by gentrification processes. The areas experiencing gentrification cover 10% of the total area of the city and accommodate 6.4% of the total population of the City of Santiago. These areas are inhabited by middle-low, middle to middle-high income residents. Gentrification is affecting the middle-low income sectors, which are moving to the south-east of the city.

The excessively high level of accessibility, limits the potential of Ines de Suarez Square to become a place of destination. In spite of this, the square is considered to have a high level of vitality and it is a meeting place for the surrounding inhabitants. The park also contains important municipal sporting facilities.

From a morphological and land use point of view the area consists of social housing and rapid real estate developments with an increasing trend towards enclosure (gating). The sense of place is created by the definition given by the surrounding buildings as well as good landscaping design and suitable facilities. The square is considered to be very safe since it is surrounded by residential middle rise buildings facing onto the square.

The maintenance of the square is good given that it is located in a high-income municipality (Providencia).

Negotiations and political change occurring in Chile with the return of democracy, conditions in these areas have slowly started to change and public space in the low-income areas could be important for achieving social objectives.

4. THE THIRD RESIDENTIAL RING: DEVELOPMENT

The North and South Peripheral Municipalities

'Poblaciones' refers to those human settlements built and subsidised by the State for the low-income population during the XXth century. The 'poblaciones' are scattered in the north, west and south of the city. They are the main residential types on the periphery of the low- and middle-income municipalities, which make up about 60% of the total metropolitan area and contain over 80% of Santiago's population. The poblaciones are areas predominantly with residential functions and in different conditions of socio-economic form of development (such as improvement, consolidation, and stagnation).

There are 27 Municipalities in the category of Development Areas. 6 of these Municipalities are characterised as in a process of improvement (Recoleta, Macul, San Miguel, San Joaquin, Estación Central and La Florida). They house 927,250 inhabitants on an area of 9,260 hectares, a gross population density of 102,8 inhabitants per hectare. This Municipality has an average monthly household income of 735, 3 Euro.
There are 14 Municipalities characterised as being in a process of consolidation (Quinta Normal, Cerrillos, Conchali, La Granja, Lo Prado, Independencia, Quilicura, Puente Alto, Peñalolén, Maipú, San Bernardo, Pudahuel, La Cisterna and Huechuraba). They have 2,317,218 inhabitants on an area of 18,330 hectares with a gross density of 126.4 inhabitants per hectare. These Municipalities have an average monthly household income of 589.3 Euro.

There are 7 Municipalities characterised as in a process of stagnation (Pedro Aguirre Cerda, Lo Espejo, Corro Navia, El Bosque, La Pintana, Renca and San Ramón). They have 987,121 inhabitants on an area of 7,100 hectares, a gross density of 136.2 inhabitant per hectare. These Municipalities have an average monthly household income of 465 Euro.

In morphological and social terms, these ‘poblaciones’ are different to the compact city structure of Santiago-Centre and the other areas where more middle and high-income people live. The ‘poblaciones’ concentrate poverty, unemployment, drugs, violence and lack of opportunities. The type and form of public space in these areas has been the result of the utilisation of quantitative rather than qualitative regulations, although the low budgets for infrastructure, housing and maintenance also play a role. The type of public-squares has varied according to the dominant housing strategy and its implementation over the decades.

Since the institutional and political change occurring in Chile with the return of democracy, conditions in these areas have slowly started to change and public space in the low-income areas could be important for achieving social objectives.

4.1 The Historical Development Context

Different housing strategies have played an important role in the urban development of the poblaciones. In accordance with the urban development periods established in the previous chapter, we can identify the following periods. First, there was a period of the delivery of finished housing units (1920-1950). Second, there was a period of delivery of self-help co-operative housing units (1950-1965). Third, there was a period of low-density site and services (S&S) schemes (1965-1970). A fourth period involved high density rational housing (1970-1973) and in a fifth period, high-density market-oriented solutions predominated (from 1980 until today).

Fig 23: Social housing projects between 1920s - 1950s. Source: Paramore 1995 and own elaboration.
Between 1920 and 1950 a number of public institutions developed social housing of relative
good quality was built to address the housing needs of the working population. These social
housing solutions at the beginning of the 1930s were detached houses or flats, following the
modernist guidelines of the time. Only 8,500 social housing units were built in the period
from 1936 to 1950 which was not enough to solve the housing demand of the growing working
class.

The above figure shows duplex apartments of 4-storey social housing developments in
the 1940s.

Around the mid 1950s a conservative government followed centre-left and populist
governments, which had enhanced industrialisation. An uncontrolled migration from the
countryside to the cities started and the problems of a marginal population became evident.
The government handled the migration and housing problem in an integrated way.

An agrarian reform started to expropriate the badly cultivated agricultural farms and
simultaneously incentives to invest in public housing were established transforming the building
sector into a motor of the economy. The housing Law (decree DFL2) was passed in order
to regulate and to give incentives to private capital to invest in housing for the middle class.
Capital from the compensation of rural expropriation was invested in public housing as the
new decree provided tax exemption on properties for 20 years. These middle-income
developments helped to expand the city towards the East with an interpretation of the ‘garden
city’ pattern and high-rise apartment buildings following modernist principles. At the same
time a new form of social housing was implemented to tackle the increasing housing shortage
of the low income working population. These housing solutions were subsidised and located
in low rent areas in the West and Southern periphery in order to minimise costs.

The housing problem for the marginal population was to be solved through the reduction
of building standards. The strategy was the provision of a core-unit (wet cell of about 13m2)
and a massive self-help construction for incrementally extending the core-unit. This form of
construction was made possible with the organisation of housing co-operatives and a wide
range of light pre-fabricated panel systems built by the private sector.

Around this period, the housing problem grew in seriousness. This led to the first organised
‘illegal occupation’ of land and the housing social movement of Chile began. In 1958, 174
256 persons lived in illegal settlements and by 1988 this number increased to over half a million persons (Lawner 1972, 1994, Hidalgo 2001).

The state around 1965 opted to rationalise social housing construction for the low-income working population (C36, 1010 and 1020 buildings) and to reduce the standards of Sites and Services (S&S) to meet the demand of the non-solvent population. New urban rings of large low-income settlements extended the city, using cheap land, lowering densities through enlarging the lots to facilitate (individual) self-help housing. These programs were scattered around the city fringe leaving huge empty areas in between which where developed later by land-speculators and which attracted self-builders, land invaders and squatters. In many cases these huge developments abutted industrial zones, high-tension electricity lines, or land reserved for the building of a highway in the future. This policy of reducing housing standards to meet the demand of the low-income population is still in use, although different ideological principles and densities differentiate the periods that followed.

Technical assistance and popular participation in the S&S areas was steered by the Ministry of Housing, contributing to the development of a wide popular movement that ended only with the military dictatorship in 1973. Between 1965 and 1970 the State through CORVI, built 50 881 social housing units over an area of 1.800 has in Santiago (Hidalgo 2001). 50% of the S&S schemes in Santiago were built in 4 municipalities: Cerro Navia, La Pintana, Peñalolén and San Ramón.
In the beginning of the 1970s, the housing shortage was about half million units and in line with the objectives of the socialist government the strategy was to increase production, to raise productivity and to foster social and environmental integration. The control of urban sprawl was considered unavoidable; therefore urban compacting and the 'fillings' of vacant land existing in the interior of the city were thought to be necessary. Consequently the S&S program was eliminated. At this time the CORMU (Corporation for Urban Renewal) established a special program to supply the existing ‘poblaciones’, with social infrastructure and street and square furnishings.

With the change to a market economy in the mid 1970s, the housing policy experienced a new change, which influenced urban development. Counter-urbanisation was enhanced through land liberalisation and de-regulation that facilitated the construction of 'gated communities' in the eastern outskirts of the cities and along the main metropolitan access. In the meantime, military-supported actors undertook mass slum clearance activities from the city centres towards the western, southern and northern outskirts of the cities, marking the most radical and harshest segregation policy in the history of the country. 120,000 people were forcibly removed to the poor outskirts.
In 1985, a new market-oriented housing policy for the low-income population started, with massive involvement of the private sector together with state housing subsidies. This policy is still operative today and 500,000 subsidised housing units were built in the period 1985 to 2002.

Considering the fact that since the 1980s the municipalities of Santiago are autonomous entities, there are several limitations for poor municipalities to address the demand for public space of these high-density areas. Basic education and public space maintenance are the most problematic services.

4.2 Morphological Studies

The urban morphology of the 'poblaciones' has varied over time. In the 1930s, the low-income areas followed a similar pattern to the residential development for the middle-income sector. Great importance was placed on the street profile, and garden city ideas formed the basis for modelling the block. The Spanish grid pattern was abandoned in favour of the fishbone system, with a hierarchy of streets and open spaces. The design of the square was an important component of this urban development. The diagonals, the corners and the uniformity of the street volumes were combined with public spaces, which followed a rhythm within the built structure.

When the building standards were reduced in the 1950s, urban design was still an important component of these settlements whose size varied between about 40 and 120 dwellings. The word ‘población’ started to be used around this time to refer to these types of settlements, which were placed on the periphery of the cities.

Although a great part of the settlement was developed through self-help construction, the layout allowed the building of large closed facades open to the street (raw houses), with short and long lots giving a certain degree of monumentality to the tiny houses. The layout contributed to shaping the streets and squares.

An inventory to self-help and co-operative residential development over 15 years, undertaken at the end of the 1960s by the Chile University of Santiago, concluded that the larger the initial core unit was and the more the use of raw houses, the higher was the valorisation of the properties over time (Hidalgo1984).

The loss of identity started with the development of massive programs of sites and services (Operaciones Sitio). These settlements grew from having hundreds of housing units to thousands of units at the end of the 1960s. Public space in these settlements was regulated in quantitative terms and contributed to marginalizing the meaning and importance of public space. With the mass construction of S&S programs public space lost its use-value potential and started to become leftover space, no-man's land, the place where residential activities were not possible. There was a complete separation between the urban layout and the architecture of the site, which was left to non-solvent insolvent self-help builders. Individuality was enhanced since building took place according to the possibilities and determination of each household.

The Chilean S&S program eliminated the core-unit, and lots were laid out at a very low density with a design oriented by infrastructure efficiency. The fishbone layout was the most popular design, with a single and unlimited repetition of a common pattern through the entire plan. Little attention was paid to natural space and landscaping.

To facilitate self-help activities individual lots where enlarged and consequently these settlements where placed further out on the fringes of the city. Residential densities were reduced to 20 dwelling units per hectare.

The consolidation of the settlement with a large lot, freedom to built and little money contributed in many cases to segregation and to the low valorisation of the individual property and the neighbourhood. A detached unit in a large lot allows the side elevation to be exposed to the streets, revealing the poor conditions of the self-builders. The influence of a bad design affected the whole neighbourhood and contributed to the general downgrading process. Only a few examples of S&S schemes have successfully developed progressively into integrated and liveable environments.

During the period of urban in-fill strategy (at the beginning of the 1970s), middle-rise flats
with densities of 600 inhabitants per hectare were considered more adequate, since this allowed for more collective space for those living in the small apartments. The dilemma was how to provide more compact settlements and at the same time address the need for expansion of a minimum-housing unit (36m²). A proposal was made to provide an extendable four-storey typology developed for the lower income groups together. Simultaneously the massive construction started of serial built 4-storey buildings for workers and public servants of 48 m² and 67 m² (type 1010 and 1020) respectively. Densities increased to 80 dwelling units per hectare (Photo 5, Villa Anita).

The private involvement in housing production has resulted in some improvements in typologies for middle-income social housing (Los Sauces 1983). Compact morphologies appear to be important to avoid spatial fragmentation and were thought to contribute to the improvement of public space, the street and squares.

The involvement of the private sector in the delivery of low-income social housing meant a massive production, a significant increase in densities, and a reduction of housing standards to meet the housing cost of 100 US dollars per m². Densities have grown to 150 and 250 dwelling units per hectare (600 to 1000 inhabitants per ha). This high density with inadequate materials and isolation created a considerable loss of individual privacy, again leading to the deterioration of the functional meaning of public space in the settlement layout.

In general, there is a growing gap between the urban plan and the reality that is expressed in the disunion between the planning instruments and the urban morphology on Santiago’s periphery. Chilean urban policies seem dramatically unresponsive to the physical environment, which shapes the ‘poblaciones’. The public realm in suburban Santiago is the result of restricted codes applied to private property. Spatial qualities and morphological identities are completely overlooked by two dimensional urban laws and regulations.

4.3 Vitality Studies

To analyse vitality we will refer to the general mobility and accessibility of the vast areas occupied by poblaciones, which are scattered throughout 27 municipalities.

According to the National Socio Economic Characterisation Survey (CASEN 2000) all the poblaciones have a good coverage of public transport, since most of them present a 94% of the population living in radio of 8 blocks distance to a public transport corridor (900 metres).
Accessibility.

The figure below shows the way the variable has been constructed. Transport system connection, distance to main centrality.

Mixed Use

The predominant land use of these Municipalities is residential. Many Municipalities have old Regulatory Plans, many plans are being implemented and adapting their urban regulations to the rapid changes occurring in the metropolitan area. The main idea is to providing greater flexibility in order to attract productive investments to the area.

Currently most of Regulatory Plans define different zones, from the central district to the areas predominantly for low income residential. They identify the different densities, the maximum factor of land occupation, the retires to the different streets, and the minimum sizes for residential use, equipment, storage use and lots for small industry.

The Regulator Plan also fixes a maximum high for the zone and the form of grouping of construction (detached, two under one roof, continuous etc). With the return to democracy (1990), Santiago started a new period of economic growth with equity considerations, which it is believed, will change the poverty conditions existing in the poblaciones. The passage of one decade, however, has been insufficient to revert the structural legacy of the past. In fact, there are several indicators that show that with globalisation the differences of opportunities have increased. It is expected that inequality will start to be reverted after important structural changes in urban development will open new opportunities to the downgraded areas of the city. From the economic point of view, the positive expectations are the continuation of a growth of 3% per annum, yet it is consider as insufficient to achieve the goals of the social policy. From urban development point of view expectations are centred on the new transport modal system, currently under construction, that will change the conditions of the city, connecting the different areas and integrating the various centralities. This integrated way of seeing the future of the city is the basis of the analysis of the conditions of the public space in the large area of low-income periphery.

4.4 Sense of Place Studies

The private sector in the 1990s has been unable to develop a housing typology that can meet a number of social and environmental objectives. The need to build compact residential areas corresponds to the need to reduce building costs; through reducing infrastructure costs and optimising shared walls. All these considerations together are producing housing units
with very low levels of privacy, non-extendable units and undifferentiated environments. These are negatively affecting the sense of place of the 'poblaciones' built for the very low-income groups of Santiago. The private sector involvement in the design of the housing typology has resulted in the design of housing units rather than sustainable urban environments. This is widely seen in the treatment of the public space, which is again the no-man's land, a non-place. The unemployment and lack of opportunities existing in this type of 'poblaciones', that is reflected in the violence, insecurity, drug abuse and destruction of property has meant a 'gating' of communities of considerable proportions.

The potential of participative planning has been an important restructuring element in some municipalities. This can serve as an example to others municipalities in the common identification of needs and furnishing of squares for different uses. People participation is giving a chance to enhance the mixed uses potential existing in the neighbourhoods through facilitating centrality creation around saved and well maintained community squares. It also will enhance the consolidation of streets became local development corridors that connects the settlement with the other and with node transport centres.

The program of Urban Parks of the Ministry of Housing and Town Planning (MINVU) has proven to be successful, at least in the construction of 17 new parks in the areas of extreme poverty since 1992. These parks have been designed in a participatory fashion with communities and its social organisations. However an uncertainty exists on the longevity of the existing and programmed investments and on the effective satisfaction of the expectations and needs of the communities. Once the urban parks are built, the administration and maintenance is transferred to the local administrations or the Ministry itself. Given the financial limitations of most municipalities and the various social responsibilities (education, training, health and green areas), there are always other priorities that delay maintenance of public parks.

To analyse morphology at local level we have chosen three examples each representing one type of developing settlement. We have chosen the población Los Sauces 2 with the Plaza de La Alcaldesa for studying the Improving process, the población Lo Valledor, with the Plaza El Soldador in the La Cisterna/Pedro Aguirre Cerda municipality for those in Consolidation process and the población Jose Maria Caro with the Plaza La Havana in the Lo Espejo-Cerrillos Municipality for studying the Stagnation process.

4.4.1 Studies in 'Poblaciones' in Consolidation Process

Morphological Study at Lo Valledor settlement

The Población Lo Valledor is the example we analyse to understand the social and spatial transformations occurring in popular neighbourhoods experiencing a consolidation process, which involve about 1,862,419 inhabitants, that is the 44.6 % of Metropolitan Santiago population.
The Población Lo Valledor was built in 1965; it is a settlement with 1543 houses in an area of 51.4 hectare (30 houses per hectare). It was built in the program called 'slum clearance' of the CORVI (Housing Corporation of the Ministry of Housing), which was based in the progressive construction system. This program constructed 13,000 houses units of this type between 1960 and 1965.

To the North of the area is the important heavy industrial area, which contains amongst other the slaughterhouse that is use at metropolitan level and several obsolete industries (i.e. the old railway yard). To the West is the old city airport of Cerrillos, which is in process or re-functioning to an important activity node of multiple uses.

Lo Valledor has 6142 inhabitants, a gross density of 119.5 inhabitants per hectare and the initial area of the housing unit of 41.16 m2. In the layout of the settlement a hierarchy of open space and community services was consider. The layout also follows the topography of the site getting rid from the strict application of the grid. The layout also follows the strict regulations on street wide and protection of large highways. The settlement border towards the East with the Departmental road and a road protection area of 30 metres is maintain with the lots facing the back side to the main road. In the other internal streets the retire varies from 6, 3 and 0 meters. The average block has between 16 to 48 houses; the block is fish-spine type with lots of 10 x 16 m2 or 9 x 18 (160 m2).

The percentage of land use for residential purpose is 48%, for street and open space (including parking and squares) is 32% and for services and community equipment is 20%. There is also a compulsory retire of 2 metres to the streets conforming (does that word mean?) the front garden and a factor of lot occupation is fixed in a maximum of 70%.

The Floor Space ratio is 0.26 per lot (net).

The housing units are of the type 'two under a roof'. It was program and design by the CORVI and built through tender by the private sector. Considering that corresponds to a slum clearance program, in which the eviction must be done rapidly, the progressive construction of the unit recognised three phases. First the construction of the humid cell and the sharing wall between the two houses. The second phase also built by the private sector is the housing unit of 36m2, which are two bedrooms and a living space. The third phase is the extension of the house according to the possibilities of each owner. This extension is generally done towards the back yard. The humid-cell is built in the back of the lot to facilitate the backward extension. After the delivery of the first phase people can move to the lot and built a preliminary shack with their old throwaway materials of the squatter.
Public space is generous and they are well distributed in the whole settlement. About 30 houses units make a community around a common space. All houses face the street a path, a cul de sac of a community square, introducing a great variety of internal community spaces, which give a unity to the neighbourhood and great individuality to the lots. The primary school building placed in the interior of the settlement; provide security and a double use of the school open space according daytime.

Vitality study at Lo Valledor settlement

The almost fifty years of existence of this settlements born as an eviction of squatter dwellers is reflected in the level of social consolidation. Today most of the houses have a car, which park inside the lot. The fact of being situated so close to a heavy industrial area, including the main slaughterhouse of Santiago, have contributed to a slowly consolidation because of a general stigmatisation of the area. Nowadays the industries have been reconverted and the slaughterhouse is modernised. The old part of the slaughterhouse has been converted in a storage place and a transport modal station for products. In Lo Valledor there are some few households with productive firms inside the settlement, they are mostly related to car maintenance or to daily products, appearing as small shops to the street. Inside the settlement there is a large primary school but still no supermarket and the nearby retail area is located in the traffic node of Central Avenue with Lo Ovalle Avenue at 900metres from the El Soldador Square.
The figure below shows the way the variable has been constructed. Transport system connection, and distance to main centrality at the Lo Valledor Area. The most traffic activities is to the Lo Valledor Ave. and to Departamental Ave.
The Plaza de El Soldador is one of the community squares; it has an extension of 0.1 ha, it measures 22 by 55 meters. It is part of the original project of Lo Valledor settlement in 1965. The square did not follow the exact original layout, since is smaller. The church facilities and a kindergarten have been added to the original design. The neighbours constructed the square within the public space program of the Ministry of Housing and it is maintain through the effort of some of the residents that lives in the surrounding houses. The square name is El Soldador (the welder man) because one of the residents uses the square as an extension of his workshop with the compromise of maintaining the square clean. The welder built all six-playground elements and some other elements. The agreement between the neighbours is that the front neighbour should maintain each side of the little vegetation that the square has. The area is kept clean and there is a special care of keeping an open view for security reasons.
EL SOLDADOR SQUARE
SEQUENTIAL PHOTOS
Lo Valledor Settlement
La Cisterna Municipality

Fig. 30: Sequential around El Soldador Square / Source: own elaboration (2002)

EL SOLDADOR SQUARE
EQUIPMENT AND USE
Lo Valledor Settlement
La Cisterna Municipality

Fig. 31: El Soldador Square equipment and use / Source: own elaboration (2002)
The area is mainly residential but given the fact that regulation permits services and small household industrial activities as storage, workshops and shops, is very usual that the houses have a working area towards the street. To the square we found a workshop, one welder, and one car mechanical service. A monumental building closes the square, which is the Jehovah Witnesses Church. Two under roof houses extended up with a prominent roof makes the church. There is not retail shop in the street perimeter. Towards the North of the area is an industrial area including the slaughterhouse, which have a metropolitan scope. To the West was the old city airport of Cerrillos, which is in process or re-functioning to an important activity node of multiple uses.

The Use of El Soldador Square

1. - Main function and equipment that defines the square

The little El Soldador Square represents the less visited square of this study although it is characterised as a place of destiny. The main function is defined as a meeting point for those going to the church, and as child playground. Given the small size of the square and the closeness of the surrounding houses, the users are not allow to made much noise and there is not intimacy possible. The few permanent users are children coming from the nearby houses to play in the simple facilities offered by the square.

2. – How often the user came to the square

50% of the questioned users said that they visit the square daily, and from them more than 30% are neighbours who live nearby the square. 33% of the users visited the square more than two times per week; from them 100% are related to the church activities.

3. – The Use of public space in the city by the user

The fact that the area is a low-income zone in the city explains the fact that only 17% of the user use another park or square. From this 17% the 100% said they visit another square in the same Municipality of Lo Espejo. This because the weekly vegetable market take place twice a week and corresponding to the days that the fair open as well. All the interviewee manifested to visit a park one a year, and most of them visit the Parque O'Higgins, that correspond to the official place where the national Independence Day is celebrated freely open to the public.

4. – The perception of the square equipment

50% of the interviewee answer to be a good square (the answers included interview to those people who help into the maintenance), only a 30% of the users found the place too quiet but defined it as reasonable place. 20% have a bad perception of the square. The main reason for visiting is in an 80% the fact of the nearness; and only 20% prefer the place because of the child playground.

5. – Schedule of use

Given the fact the survey was developed between midday and early afternoon the answer were in great percentage regarding this period. It is important to realise that between the users of the square 80% says that they came twice a day, but for not more than one hour per time. The square is not use at night, because have not street lighting and the proximity to two main traffic corridors makes the area dangerous.

6. – Place of residence of the user (live near/work near as well)

Related to the distance of residence of the users, 100% live near and from them 80% in a range of 400 meters.

7. – Mode of transportation to the square

Given the fact that 100% of the users live near all of them they arrive by walking.

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4.4.2 Studies in Poblaciones in Stagnation Process

Morphological Study at José María Caro settlement

Homogeneous Area in Stagnation Process. Población José María Caro

This settlement represents the situation of areas in stagnation process. It represents the situation of 967,121 inhabitants, being 18.6% of the metropolitan population. The same as the former studied settlement this settlement was built according to the program for squatter eviction. It was built by a public department the Housing Corporation CORVI in 1966. The initial population originated from the Zanjón de la Aguada squatter shore, where many families suffered annually the flooding of the river. The settlement consists of different areas and several uses are permitted (residential, small industries, offices, warehouses). The plan followed strictly the Regulator Plan of the time which control the separation of uses, the retires according to zones, the compatibility of uses, etc. The original residential settlement has 1,900 houses units, in an area of 47.5 hectare, with about 11,000 persons (231 inhabitants per hectare). It is located near Lo Valledor bordering the Los Cerrillos airport in a deprived area with large heavy and dangerous industries in the surrounding.
The lots are of the same size as those in Lo Valledor however there are more housing units per hectare, with less public area. The lots are of 160 m²; they have different dimension varying from minimum front of 6 metres and 26 long to 10 mts front and 16 long. They are about 40 lots per hectare. It has 64 % of the land for residential use 25% for streets, parking and green areas and 11 % per services and community facilities.

The layout of the settlements is built in orthogonal form strictly with repetitive blocks of 16 and 24 units. The blocks vary according the number of lots and the size of them: 52 metres deep and metres 12 long and 32 deep x 132 long. They are place in orthogonal way forming rectangular public-square.

The Initial unit is the same core unit consisting in a humid cell built by the private sector and one or two sharing wall. The users themselves according to an assisted self-help program build all the following phases. The construction is mostly of reinforced masonry, but many houses opted for using pre-fabricated building panels for backward extensions. The low level of initial construction will develop the settlement in different level of consolidation. Some lots has built the whole perimeter of the lot with continou construction, other after almost 40 years they still uses through away material for closing the blocks.

There is not so notorious hierarchy in streets, except for the two North-South main avenues, the secondary roads are of 10 and 8 metres wide, there are no pedestrian paths or lots organised forming protected community space. The sidewalks are simple; they were done according to regulations of progressive built neighbourhoods. The street drainage and the sidewalk forming a unity, with stabilise soil as pavement (the last 5 year a participatory programmed had helped in the pavements of pedestrian path and street, the veredas participativas helped in the change of aspect of those poorest areas). There is also a compulsory retire of 2 metres to the streets conforming the front garden and a factor of lot occupation is fixed in a maximum of 70% which is not much accomplish .In the strictly residential area is not permitted heights more than 12 meters.

In the mix zone were residential, small industries and warehouses are permitted the area of lots can be of 1000 m² and 400 m² and a high of 7 mts and lots for housing of 160m². The Floor Space Ration varies from 0.4 to 0.25.

Vitality Study at José María Caro settlement

The high density of the area, between 300 to 400 inhabitants per hectare defines a good public transport service (mainly buses) in a range of 300 metres from the square. The public traffic occurs in the Central Avenue in a frequency of one bus every 30 minutes approximately. The issue here is the distance to a sub-centre and the several modal interchanges necessary to reach a main point into the city network structure.
The area is still with a low coverage of public facilities and formal commerce, although several small shops in the surroundings help daily consumption. There is also basic school and some other public institution in the surroundings, which does not cover basic needs of this 50 years settlement.
Chapter 4 / THE POTENTIAL OF PUBLIC SPACE AT LOCAL LEVEL

Map 91: Connectivity at La Habana Square area / Source: Own elaboration (2002)

Legend:
- Distance sub-centre 400 m
- Distance corridor 4000 m
- Distance mall 3000 m
- Subcentre
- Mall
- Corridor influence area
- Route of public transport

Development - Stagnation - La Habana Square

The area in the Great Santiago
Sense of Place Study at José María Caro settlement

The Use of La Habana Square

1. Main function and equipment that defines the square

This square is related to the social equipment centre of the neighbourhood. The square defines the connection between the neighbour's association sport field, the Basic school, two little chapel and the first aid medical assistance centre for the area. As is appreciated in the map 38 I had considered square, the main space that connect the sport field with the basis school and also the continuation in front of the school, where the space that correspond to the square itself is 0.4 has. and the total area including the extension is 0.6ha, formed the main green area in the neighbourhood.

2. How often the user came to the square

The users manifested different perception, where a 32% says that came more than three times per week near 46% says that came once or twice a month because normally is dangerous. From the people who came frequently they says that normally stays for one hour, the other group of user says only stay for 15 to 30 minutes but no more. Both groups only came by daylight; at night 100% says that is dangerous so they do not came. Its important to notice that the school had being close for one year already and only one guard live in the building that means that more than the half of the surroundings of the square are practically uninhabited.

3. The Use of public space in the city by the user

The fact that is a very poor area and there is lack of services in the area, clarify the answered of the users, where only a 33% visits other squares, 100% of them visit only squares in the area (between 400 to 800 metres around), all of them are between 20 to 35 and 76% men, and manifested that in the other squares there is more to do, related to some services and a cafe in a square located in proximity to the one studied. In respect to the use of other parks in the city only 11% visits other parks, and all the answers were related to a bigger extension of green (1.4 ha) at 1200 metres from the
Havana Square, an area with more trees and better playground near the bus station, which is not considered as a metropolitan or communal park at all.

4. - The perception of the square equipment

The perception of the park users is in 100% of disapproval, since the school close the area had suffer a serious worsening, in maintenance and in security as well. The mainly answer of main reason of use of the square are the proximity of home, 33.4%, to use the field to play football, 22.2% and as a meeting point 46.7%.

5. - Schedule of use

The schedule of use also correspond to the schedule of the survey, here was developed early in the morning and between 16 to 17 hrs. Mainly corresponds to the schedule of the users who says in a 82.2% that they came the square in the mornings and later in the afternoon, from that 100% says that they never came by night because is know as a dangerous area, not illuminated and visited by gangs.

6. - Place of residence of the user (live near/work near as well)

Related to the distance of residence of the users, 100% live near and all of them in a range of 800 metres from the square. Is also important to notice than 70% of the user says that they do not have a work, and the 35.6% that work, work at home in the area.

7. - Mode of transportation to the square

Given the fact that 100% of the users live near all of them came by walking.

4.4.3. Studies in Poblaciones in Development-improvement Process
Morphological Study at Los Sauces II settlement La Florida Municipality

Los Sauces II is a settlement built in 1983 within the new neo-liberal policy of the Ministry of Housing of enabling the housing market through a strict support of the supply side. The private sector is being empowered to plan, design and build social housing program in numbers superior to 140,000 units per year. The amount and weight of individual saving, state subsidy and banking mortgage varies according the different housing programs, and private sector provide solutions for the different segments. The social houses are highly subsidised and are oriented at the low-middle income groups. The location is in the Municipality of La Florida.
The particular settlement has a gross density of 506.5 inhabitants per ha, occupies an area of 11.64 hectares. The density is 74 houses per hectare. The settlement consists of a new vision of housing scheme, trying to make a complete use of the street landscape and to provide large community space. The result is a system of closed block with housing units of two and three storeys high, considered as low-rise high-density. The maximum height of the residential areas is 12 metres and equipment and services 7 meters. All houses have a front garden of 5 meters. And the housing unit has a small front of minimum 3.20 metres and maximum 4.00 meters. They are houses of 48 and 64 m². The Floor Space Ratio in Los Sauce varies from 1.25 to 0.95 and factor of land occupation is 40% maximum.

Vitality Study at Los Sauces settlement

The area is located at 200 metres from a city main corridors, Vicuna Mackenna, which connect at the area two main malls, both coincident with two city centralities, a Florida central area and Puente Alto central area. The square is located at 2200 metres from La Florida main centrality and 1800 from Puente Alto main centrality. The corridor is a main road of 3 tracks in each direction, with several bus lines and collective taxis. At the area around the square is a secondary structure with a minimum of car traffic and no buses, only 200 metres North is a main road with more car traffic and collective taxi stop.
The socio-economic characterisation of the area defines that one every 2.6 families own a car. Following the same model that in Lo Valledor and even with some high-density characteristic every plot has a car parking area inside.

The following map shows the way the variable has being constructed, transport system connection, distance to main centrality at Los Sauces area.
The square is part of a project developed in the early 80s characterised by close block system. Security regulation defines that the interior were not publicly use so the project adds an open square confronting the original layout to the north. The area has being renewal in a project between the neighbours association and the municipality that has re-named the
square. The square has an extension of 1,1 hectare with a closed multi sports field (baby football, volleyball, basketball) in a very good condition surrounded by a fence. There are two playground areas, one for small children and the other for older ones. The grass parterres are design in a symmetric manner, following the edge sidewalk around the square in a concentric way.

The trees area is located at the edge defining the transition between the streets and the interior; inside there are some other trees that gave large shadow to the benches (located around the parterres) in a capacity for 82 seats. The neighbour association manages the sport field in a very active way, so is practically daily used. The street that surround the plaza is of 15 metres width and the pedestrian path of the block around is of 4 metres width, this gave an independent capacity to the square and their activities. The typology of the surroundings of square is individual houses in a plot of 400 metres part of the first Los Sauces project, that has been developed at the south of the square in a peculiar close block form, this project helped to a better improvement in the area and is appreciated a gentrification process at the area of the square.

The use of the Square
El Soldador Square

1. - Main function and equipment that defines the square

This square has been developed as the classic concentric square with edge trees and in the interior a sport field that define the main use and characterise it use as a destination place.

Young people consider the square as very secure and are used even by night especially at weekend. The square has a permanent guard service. Amongst the municipal plans for the square is the placing of a sculpture and a semi-covered stand in the sport field. Neighbours ask for a sculpture of the major who helped in the development of the quarter. The typology used for the design of the square is similar to that being used in the Yungay Square or in any other traditional square of the central area except for the sport field that gave a more interactive use. The square is therefore not only oriented to children or old people relaxing but related to the demands of the neighbours, functioning as part of the municipal facilities.

2. - How often the user came to the square

The square is highly used, 89% of the users came as minimum three times per week, and 50% says came daily, 83% manifested that they know that the area is well used by night, a 17% says that they came one or twice a week by night as well and these are younger that 35.

3. - The Use of public space in the city by the user

Even giving the fact that is an area well connected with the metropolitan structure and is defined as a middle income area, the lack of green space in the municipality and the distance to others park explain the fact that no one of the user says that they goes to other square neither in the area neither further, and in respect to the visit of other park, only 17% goes to the Schoenstatt Park in the north of the municipality in a frequency of once or twice a month. That park is a private park open to the community and is define as an open chapel, in an extension of 3 ha extremely well maintained.

4. - The perception of the square equipment

The perception of the square facilities is in a 67% of approval, good. The possible improvement answers were related with more benches and better lighting in 33% and 67% manifested several other request, related to services in the square as a shop (60% of the answers) and seat rows for the sport field 17%. The analysis of the main reasons of use define a high percentage because of living in proximity, with more than 80%, and the green supply more than 60% of the answers. The security of the square was also an important factor in the choice and the good perception of the square with more than 40% of the answers.
5. Schedule of use

The time in which the square is use has been control by the two surveys that was performed one in the midday and a second in the evening. Daily use scored 50% and a 17% came by night as well.

6. Place of residence/work of the user

Related to the distance of residence of the users, 83% says that they live near, all in a range of 800 meters, 50% manifested that they also work near in a range of 1000 meters. The area also receive a 33% of user which live in a range superior of 1000 metres but in the same municipality, that came here in 100% of the cases to play at the sport field.

7. Mode of transportation to the square

Given the fact that 83% of the users live near all of them came by walking, but the rest came by bus.

Partial conclusion

El Soldador, La Habana and La Alcaldesa Squares are representative of the urban transformation in the different areas affected by developing processes. These areas cover 70.3% of the total area of the city and accommodate 81.1% of the total population of the City of Santiago, mostly low-income residents. Three different areas have been identified:

- Consolidation areas, which cover 37.2% of the total area of the city and accommodates 44.6% of the total population of the City of Santiago
- Stagnation areas, which cover 14.4% of the total area of the city and accommodates 18% of the total population of the City of Santiago
- Improvement areas: which cover 18.8% of the total area of the city and accommodates 17.9% of the total population of the City of Santiago

El Soldador Square (0.1ha) is located in the consolidation area and is both a destination and a neighbourhood square. Although it is not structurally connected to the rest of the city, the recently developed public transport system is improving the accessibility of the area. Its vitality though, is not based on its accessibility, but rather on its use by the surrounding inhabitants.

The square is centrally located in an area that contains old social housing projects of the 60s, built within the context of progressive development ideas. This area consists of small core housing units at a very low density.

The design of the neighbourhood creates the possibility for the closing and appropriation of the internal space, which has been converted into a safe area for the residents. The fact that all houses face the square, that the front gardens flow into the square and the sidewalk, adds value to this modestly equipped public square.

The level of maintenance is directly related to the involvement of the residents and their sense of ownership of the square. This implies that the economic situation of the residents, defines the quality of maintenance of the square.

La Habana Square (0.4ha) is centrally located in a low-income area considered representative of the stagnation process. Although it is a neighbourhood square, it also functions as a pedestrian thoroughfare.

The surrounding area consists of old site and services projects of the late 60s, also built within the context of progressive development ideas. The original locality of the square was linked to community services i.e. a school (which has since closed down) and a primary health clinic.

Despite its central locality and its original linkages to services in the area, La Habana Square does not have a strong sense of place. This lack of sense of place is related to the layout of the area: a lack of formal definition of the square; the ambivalence of internal circulation which creates conflict between land uses and functions; and the dependence on the quality of the adjacent services. The closure of the school, which originally took ownership of the square, has left the square vulnerable. This makes the square unsafe
and badly used.

The maintenance of the square is consequently also bad.

La Alcaldesa Square (1.1ha) is located in a low-income to middle-low income area and is representative of an area experiencing improvement. Although it is located in a low-income area it is structurally well connected to the rest of the city via private and public transport.

This area consists of social housing projects built over the last two decades with small subsidised houses of a good quality.

La Alcaldesa Square is the example of a good design in a low-middle income area, with a balanced combination of densities, layout and land uses. The square has a sense of place that has been developed through the concerted efforts of a well-organised residents’ association and their ability to influence municipal actions. This has resulted in the development of a sports field, proper landscaping and a well-equipped playground. The square is well used by the whole neighbourhood and not only the adjacent residents. It is thus also considered to be a safe area.

The responsibility for maintenance of the square is shared by the residents’ association and the municipality.

Based on the above analysis of developing areas, the following general statements can be derived:

- From a morphological point of view the importance of regional design is considered to be fundamental for the future development of low-income settlements.

- The layout has been a factor that has influenced the ascendance, consolidation or stagnation of the neighbourhoods. The layout pattern, the hierarchy of the road network, the location of public spaces and green avenues, the street width and the spatial patterns are of importance. These factors influence the growth and the way in which individual owners are upgrading their properties and have had an impact on the future development of the neighbourhood, the settlements and the city as a whole.

- Another factor that is of importance for the vitality of the neighbourhood is land use. These areas are predominantly residential in function. This mono-functionalism is aggravated by the sheer magnitude of the settlements, creating huge areas without any centrality or activity nodes.

- Accessibility is considered to be a significant factor, which is highly influential in the vitality of the area. The changing condition created by the consolidation of metropolitan corridors and rings influence the ascendance, consolidation or stagnation of low-income areas. There is a general perception that the implementation of the integrated transport system will improve the mobility and accessibility of the place. These changes could increase the general employment of residents in the area and therefore indirectly the spatial improvement of the squares and their functions.

5 RE-FUNCTIONING AREA

5.1 The Bi-Centenary Portal

The Bi-centenary Portal is the largest urban reconversion project in Chile. It has been compared with the urban transformation done in Santiago for the celebration of the First centenary of the Independence in 1910 (Trivelli op.cit ).

The location is the old International Airport of Cerrillos, and it occupies and area of 245 hectares. Because of the location and magnitude it is believed will develop a high impact project in the city, will create a new access (portal) to the city from the South, will create a new centrality and will help the upgrading of the most deprived area of the city.

Several urban projects of high impact are in process of formulation in the framework of the BI- centenary celebrations. These projects are being sponsored directly from the presidency and many Chilean cities are trying to be eligible to national loans through realistic
plans and illegible partners for it implementation.

In the Portal Bi centenary the intention is to formulate a project that could be attractive for the city, the investors and the direct users. The main idea is to enhance the provision of public spaces, to built mixed programs of residential and productive activity properly equiped, to take advantage from the connectivity potentials of the privileged location. The program offers evident advantage to private investors.

The procedure to advance in the formulation of the project is to inform public opinion and to call for a competition of ideas to refine the program. A next step is to tender the technical assignment and finally to call for the master plan urban design.

The government has made clear that the public role in the planning and management involved in the project does not substitute the natural role of the private sector in real estate business. The state will assume a facilitator role in the design and planning phase, in will offer investment initiative to the private sector by way of giving greatest business opportunities through the tender of urbanised land supplied with infrastructure and public services. This managerial procedure is believed is the way to realise an integrated project able to guarantee the coherency and quality of the development.

The metropolitan objectives of re-functional project of such magnitude are to enhance the growth towards the west south, which has been very poor, and for low incomes than towards the east. It also aims to enhance the introvert growth from the America Vespucio ring inwards in order to increase density and control urban sprawl towards the high quality agriculture land. The inwards occupation will facilitate to reduce travel time and make more efficient the use of existent services and infrastructure networks.

Los Cerrillos is located in a 15-min distance from Santiago historic centre and closed to industrial, commercial and services employment generation areas. Also is located in a strategic position for expedite connections with the southern part of the country and the coast (San Antonio port and beaches resort).

The Cerrillos airport was built about 1930, the life-span of the airport was 40 years since the new International Airport in Pudahuel took over passengers operations and freight trade (1970). The Cerrillos airport together with the industrial road and railway corrido to Valparaiso and the coast was formed about the 50s, contributed to give an urban-industrial image to Los Cerrillos and Maipu communes. Around the 50s the agrarian use of these large areas was changed to industrial use. The residential area was developed behind the industrial corrido in an area limited by the Zanjon de la Aguada, area characterised by peripheral slums in the 50s. Around the 60s exploitation of quarry preclude further the area from residential uses. The area surrounding the airport is from lower-income to poor in relation with other communes of Santiago. In the last fifty years only low-income social housing has been built, which represent additional problems to a commune that no other infrastructure and services investments has been built in the period. The industrial vocation of the area contributes to maintain poor population in it surroundings. 22.5% of the population of the area correspond to the 5th lower quintile, and 52.5% to the lower 4th quintile. Both together amounts 75% which characterise the population of being poor to very poor. The average income of the area is 186 Euro per month.

In the last year in the neighbouring Maipu commune a metropolitan sub-centre is being consolidating and this shows an improvement of living standards of the two communes.

Description of the intervention area

The present population of Los Cerrillos is 78.696 inhabitants (48 inhabitants per ha) is expected to be duplicated with this project. The idea of mixing use in the new project area provides an opportunity to spread development towards the deprived old area. The current landscape which has been affected by several external pressures however it has great potentials for future landscaping changes. There is an open landscape of significant visual amplitude. The location is related to a mobility network of important highways to San Antonio port, to the South, the America Vespucio ring and structural communal roads as Ave Lo Espejo, which are giving to the place a good level of communal accessibility. However topographic factors and roads and railway corridors aggravated by the low incomes of the population contribute to hinder interior connectivity producing fragmentation of streets and
a segmentation of the territory

Competition of Ideas. Design Criteria.
A Competition of Ideas was called in 2001 according to the following design criteria:

To enhance urban quality of life
It was expected design could consider environmental, landscaping, architectural and transport factors that increase quality of life and introduce new, creative and secure form of urban environments

Integration of the territory with its surroundings
It is enhance the search for integrative and balanced growth both of the urban tissue as well as of the various physical and functional sub sectors of the proposal. Integration must be conceived at metropolitan as well as at communal level.

Optimising the connectivities
Proposal must be innovative in fostering the North-South connection with the centre of the city, and in taking advantage of the proximity to the centre and to the access to the principal national route. It also must present a good inter-commune connectivity to the Metro-train extensions with other public transports.

Functional Diversity
The airport and the industrial zone have hindered functional diversity. It is expected that proposals should consider other mutually supporting uses related to the potentials of the site and of a modern urban life.

Management Model: A Public Management with Private Investment
In this operation the state is expected to make the necessary investments in basic infrastructure of the sector and the private sector should take the heaviest burden. A mix entity will be created to exchange, sell or to conssessionate the part of the global project and to assure a total coherence. It is expected that proposal develop this premises and the urban design be consequent with this management model

Phases of the Program and Development Flexibility
Being a project of significant magnitude 245 ha it must be considered the phases in a horizon of 15 years, taking into consideration that a consolidation of phases should be in 2010 for the celebration of the bi-centenary of the Independence. It also must be flexible to changes in economic growth and market trends.

PROJECT PROGRAM
Public and Green Spaces.
One important land use is for public space. One third of the land should be devoted to public use, including parks and roads for cars and pedestrians. This is to say 82 has

Housing.
About 15,000 houses for middle-low and middle-income level which prices fluctuate between 15,725 Euro and 64,285 Euro. It is necessary to take into consideration diversity in the housing supply.
Services.

The basic residential equipment must include health, schools, sports, commerce and cultural centre, both for the Portal BI-centenary as well for the surrounding area.

The selection of the projects has been made and the Master Plan is in Progress.

6 CONCLUSION

6.1. Comparison of the variables

We have in previous chapters agreed that the public space conditions should be analysed in the set of elements of the urban fabric that are the expression of the socio-spatial development of the city. The lectures of these elements and the search of the urban interventions are to be seen in the different scales, which the physical organisation is defined. In this chapter we have dealt with the local scale and we have followed the same analytical construction we have analysed the metropolitan-urban scale: the historic relationship between morphology, vitality and sense of place.

The result of this mode of looking the urban structure should make clear both at theoretical as well as at analytical level the relationship between the morphological development of the city, the facts that intervene in the construction and transformation process and the potentialities of each of the analysed areas to be intervene and change.

In order to analyse the condition of public space in the different homogeneous areas we shall proceed in a comparative way. The central idea about a comparison of the process and elements that form the urban structure is our consideration of the city as a whole and the relative conditions of the different attributes of the built environment as belonging to a defined spatial formation historically and socially defined. The way on how the comparison is done is through assigning a value and a weight to each attribute. We have apriori assigned a value (index or indicator) and a weight to each of the analysed attributes and these has been discussed in the analytical framework (chapter II) of this research.

The following charts present the summary of data developed at metropolitan/urban and local level. The data at metropolitan/urban level will be used as reference for the study of the relationship between morphology, vitality and sense of place at local level.
The Table 24 summarises the data about accessibility and proximity index of the case studies municipalities and localities at metropolitan level.

<table>
<thead>
<tr>
<th>Name of the square</th>
<th>Brasil Santiago</th>
<th>Yungay Santiago</th>
<th>Loretto Las Condes</th>
<th>Ines de Suares Providencia</th>
<th>Pozos Areneros San Miguel</th>
<th>La Alcaidesa La Florida</th>
<th>El Salvador La Cisterna</th>
<th>Santa Anita Lo Prado</th>
<th>Davila San Ramón</th>
<th>La Havana PAguirre Cerdá</th>
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<td>22</td>
<td>25</td>
<td>49</td>
<td>30</td>
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Distance closer centre:
- 0-1600
  - 3
  - 1
  - 2
  - 1
  - 1
- 1600-2400
  - 2
  - 2
  - 2
  - 2
  - 1

Table 25. Shows the real data on vitality and morphology at local level and uses as reference the metropolitan index of accessibility and proximity.

<table>
<thead>
<tr>
<th>Name of the square</th>
<th>Brasil Santiago</th>
<th>Yungay Santiago</th>
<th>Loretto Las Condes</th>
<th>Ines de Suares Providencia</th>
<th>Pozos Areneros San Miguel</th>
<th>La Alcaidesa La Florida</th>
<th>El Salvador La Cisterna</th>
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<th>Davila San Ramón</th>
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0-1600
- 3
- 1
- 2
- 1
- 1
1600-2400
- 2
- 2
- 2
- 2
- 1
>2400
- Proximity Index: 92

| Buses per hour | 26             | 30              | 30                  | 54                        | 21                       | 18                     | 14                   | 18                | 16              | 14                   |
| Land Use       | Mixed Use-%    | 35%             | 36%                 | 45%                       | 16%                      | 13%                    | 10%                  | 18%               | 13%             | 18%                  |
|                | Local Density/ha | 170            | 170                 | 665                       | 960                      | 429                    | 506                  | 120               | 358.8           | 186.5                |
|                | Density dw/ha   | 39              | 34                  | 166                       | 240                      | 75                     | 74                   | 30                | 76              | 47                   |
|                | Land Use % settl.| 61%             | 57%                 | 80%                       | 23%                      | 30%                    | 40%                  | 50%               | 38%             | 40%                  |
|                | Floor Space Ratio | 2.44          | 1.14                | 2.3                       | 2.0                      | 1.2                    | 1.25                 | 0.26              | 0.5             | 0.4                  |
|                | Municipal expend./cap | 561.58     | 561.58              | 375.92                    | 543.56                   | 168.32                 | 120.4                | 89.87             | 73.33           | 71.13                 |
|                | Av. household income | 967.7       | 967.7               | 3372.7                    | 2264.6                   | 972.5                  | 831                  | 855               | 531.3           | 514.8                 |

209
The Table 25 presents the accessibility potentials and proximity index of the studied municipalities at metropolitan level. The data considered is an indirect value, which have been built from the SECTRA\(^3\) census 1992, and demographic and economic data per Municipality of INE 1992. The Table shows the three types of accessibility potentials and the result is an approximation using the concept of permeability. It must be considered as a preliminary intention to build a metropolitan system of centralities and accessibilities considering some economical data and limited number of non-economical data. In relation to the accessibility the table shows the importance of the Estacion Central and the surrounding municipalities Lo Prado and San Miguel, which present the higher levels of infrastructure, population density and economic potentials in relation to the whole city. This is explained because the high concentration of low-middle income population, the good infrastructure coverage that permit large daily flows of population. Although the neighbouring central area (Santiago Municipality) attract 21% of all daily trips all purpose and all time, the index is lower because the lower amount of population in relation to the whole city, although the economic potential is relative good. Providencia follows similar patterns than the central area with higher economic potential for business and El Golf although the higher income groups and business are located in this area, it have a good infrastructure the accessibility potentials are of an average potentials in relation with the city potentials as a whole. In the low income municipalities, the low performance of La Florida is related to the relative isolated position at the south west of the city, also this index is explain given that the actual developed of La Florida has being part of the last 10 years of economical growth and the data used refers to the situation at the early 90s.

The table 26 shows mixed real data regarding flows and space. It contains data about the proximity to main centralities, mobility and accessibility potentials, amount of mixed uses, and land-uses of the neighbourhood surrounding of each of the case study squares. It is also added the income of household and municipality expenditure per capita. The proximity index is measured in a value related to 100. It is 100 when in a distance up to 1600 there is a mall (20), a corridor (30) and an urban centrality (50).

<table>
<thead>
<tr>
<th>Table 26. Proximity Weight Factor</th>
<th>Table 27. Proximity Index</th>
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<tbody>
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</tr>
<tr>
<td>0-1600</td>
<td>renewal 2</td>
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<tr>
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<td>gentrification</td>
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<td>4000-4800</td>
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<td>4800-5600</td>
<td>consolidation</td>
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<tr>
<td>5600-6400</td>
<td>stagnation</td>
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<tr>
<td>6400-7200</td>
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<tr>
<td>7200-8000</td>
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<table>
<thead>
<tr>
<th>Radius</th>
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<td>1600-2400</td>
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</table>

**Proximity Index**

Here is possible to see the high levels of proximity index of the two squares of the Municipality of Santiago (Brazil 92 and Yungay 84). The proximity index is also high in the El Soldador Square (67) located in the Municipality of La Cisterna. The Inés de Suárez Square of Providencia Municipality scores 50, which is still above a threshold. The other squares present poor proximity index, since are located in mono functional areas with less coverage of services and are placed far away of commercial or urban centres, having index of 27. This is the situation for the squares in stagnation areas.

**Mobility and Accessibility Potential**

Regarding the mobility potentials through the public transport coverage measured through
the addition of all public transport vehicles in a distance of 800 metres ratio at 12.00 am (high peak hour). Inés de Suárez score the higher coverage with 54 buses per hour, followed by the inner city squares of Brazil (26) and Yungay (30). The Loreto Square has 30 buses per hour but is only 200 metres from the metro, which give an exceptional high level of mobility and accessibility in comparison with the other eight squares. The coverage of public transport in the squares in the areas in development are lower considering that metro line and the transport modal system have not yet extended, they are highly populated areas and population is poor to very poor. The best covered by public transport is Pozos Areneros which is located in San Miguel (21), followed by La Alcaldesa in La Florida (18) and Santa Anita in Lo Prado (18). Davila has 16 and El Soldador and La Havana only 14 buses per hour.

Mixed use

Regarding the mix land uses in the areas surrounding the square, the inner city present the less amount of mono-functionality. Around Brazil Square 65% is residential and 35% contains mixed uses. This considers as high mix uses in the city. It comprehends offices, services and commercial areas. In Yungay 54% is exclusively residential which is considered as a mixed area with combination of areas with commercial corridor and small industry areas. At the south of Providencia Municipality, which is a highly mix area, the Inés de Suárez Square is located. Although it is mainly a residential location (84%) it has 16% of areas with other uses (services, commerce and offices). The squares in development areas, corresponding to residential development which have been little attention to open facilities for mix uses. This are mostly left over places, or industries, petty-household commerce and services. The residential area varies from 80% in La Alcaldesa (Los Sauces), 82% in Davila up to 87% in Santa Anita. The regular layout of Los Sauces development has maximised market efficiency. Although being a relative recent project did not took in consideration the possibility for development mixed uses. There are some ground floor converted in shops and domestic delivery services.

6.2 Relationship between the morphology, vitality and the sense of place

Land Use Analysis (Density, Land Occupation, Floor Space Ratio and Incomes)

Regarding the density, land use occupation and floor space ratio they are non-separated attributes, which need to be analysed together. They also must be analysed in relation with household income and quality of the constructions.

The surroundings of Plaza Brazil, which is representative of the architecture of the 1920 contains until now large houses, some 'cités' and modern buildings. It is a neighbourhood in transformation. There is also a tendency towards gentrification. The low density of houses per hectare (39) is because the large houses existing still in the neighbour. Therefore the 61% of net land occupation is explained because many large interior gardens has been built, some for garages, parking places and other uses. The gross density 57% reflects the existence of large, green streets plenty of trees shadow. Because the fact that the typology of the housing stock is a combination of raw houses of two and three floors in the street side one floor in the interior and some modern condominium of four to eight floor high the floor space ratio is high (2.44).

The situation in the surroundings of Plaza Yungay is slightly different. It represents a traditional poor area of the inner city, which start to be influenced by the effect transformation of the central area. The density of 34 houses per hectare is related to the existence of mix uses more than larger lots. The net land occupation is 57% with houses of one and two floors densely attached, which explain the 1.14 floor space ratio. This two neighbourhoods belongs to the Municipality of Santiago, which is a relative rich institution with an annual expenditure per inhabitants of 561,58 Euro per capita and an average monthly income of the neighbours of 966 Euro.

The surrounding of the Loreto Square is a typical area in intensification and corresponds to one of the richest part of the city. There is yet a high number of old mansions with large gardens together with high isolated residential and offices towers. Therefore the gross land occupation is high (80%) although the net occupation is about 40%. The high towers have regulations of maximum land occupation between 40 and 50% and floor high depending in
location, with averages between 2 and 4. In the studied area the average of the whole quadrant is 2.3 since there are several isolated houses. There has been paid attention to the urban design of the square, making possible the creation of large visual perspectives in spite of the irregular constructions that surround it. The quality of the construction expresses the level of income (average of 3750 Euro per capita) and the municipality expenditure of 375.62 Euro per capita.

The surroundings of Inés de Suárez Square represent the programmed extension of a rich Municipality. It is located in the border of a low-middle income municipality currently in gentrification. The neighbourhood is essentially high-density residential (240 houses per hectare). The study area in the quadrant correspond to the urban renewal program of the late 60s, therefore has a low occupation of land (23%) and a floor space ratio of 2. With towers of 15 floors high. The large amount of green open areas typical of Providencia Municipality adds value to the square. The monthly income per capita is 2,264.5 and the expenditure of the municipality is 534.56 Euro per inhabitant. This explains the good maintenance conditions of the square.

The Pozos Areneros Square surroundings has a density of 75 houses per hectare, is rather high in relation to those social housing built in the end 1960s. They are four-storey long buildings place parallel to each other with individual patio at the ground floor. This will give 29.9% of land occupation and an amount of open space left free for public spaces. The floor space ratio is then 1.2, which is a relative good performance for a social housing construction. The average monthly income is lower than the preceding ones but not poor, is 973 Euro per capita, the Municipality expenditure per inhabitant is poor of only 168.32 Euro per capita, which relation with the average household income is quite less than the preceding ones.

The development of Los Sauces were the La Alcaldesa Square is founded, is a new experiment of the end 80s to develop high density low rise houses, all of them with direct entrance from out the street. The density of 74 houses per hectare is high considering that they are individual houses of three floors. The floor space ratio is 1.25. They form a large rectangular community square in the middle of the block. The average income per capita is 831 Euro and the Municipal expenditure per capita is also 120.3. Euro.

The El Soldador Square is in Lo Valledor site and service development. Was built in the beginning of the 60s. It is a neighbourhood built with large lots and semi-attached houses. There are 30 houses per hectare, and a net land occupation per block of 50%. They are predominantly one-floor houses. Only some few ones have grew in a second floor. This gives a floor space ratio of only 0.26. The average monthly income is of 855 Euro and the municipality expenditure per capita is of 89.87 Euro.

The surroundings of Santa Anita Square in Lo Prado are an experiment of floor storey apartment houses with possibility of progressive extensions. Therefore there is a high density (76 houses per hectare) and the gross land occupation of 38% considering the private ownership of the ground floor. The flats are placed close together which gives a floor space ratio of 0.5. There is more than 20% of land for public space and parking. The average income per capita is 531 Euro and the expenditure of the municipality is 73.3 Euro per capita.

The Davila Square neighbourhood has 47 houses per hectare, is built in 1956 contains four story buildings and raw houses of one and two floors. The gross land occupation is 40%, which gives a floor space ratio of 0.4. Streets are large which gives a good visual perspective to streets. The monthly income per capita is low, 515 Euro and the per capita expenditure of the Municipality of Lo Prado is only 71.13 Euro.

Finally in the neighbourhood Jose Maria Caro is founded the La Havana Square. It was built in 1966 as a site and service. It has a high density of houses per hectare (40) because the small lots, and the land use occupation is high 66%. It has very well defined squares and open spaces being the floor space ratio of 0.3. The monthly income per capita is 530 Euro and the expenditure per capita of the Municipality Pedro Aguirre Cerda is 70.58 Euro.

Table 28 shows the weighted data on vitality and land uses according to the given indicators and values. It presents a final index that assesses the real conditions of the studied neighbourhood.
### Table 29. Summary Index

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Indicator</th>
<th>value</th>
<th>assessment</th>
<th>value</th>
<th>assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metropolitan accessibility</td>
<td>See 6.1. table 2 in this conclusions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proximity index</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Accessibility</td>
<td>&lt;35 buses</td>
<td>8</td>
<td>good</td>
<td>20-35</td>
<td>medium</td>
</tr>
<tr>
<td></td>
<td>&lt;20</td>
<td>2</td>
<td>bad</td>
<td>&lt;45</td>
<td>bad</td>
</tr>
<tr>
<td>Mixed Use</td>
<td>&gt;45</td>
<td>2</td>
<td>bad</td>
<td>35-45</td>
<td>reasonable</td>
</tr>
<tr>
<td></td>
<td>20-35</td>
<td>8</td>
<td>good</td>
<td>20-15</td>
<td>reasonable</td>
</tr>
<tr>
<td></td>
<td>&lt;15</td>
<td>2</td>
<td>bad</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land Use</td>
<td>&lt;40%</td>
<td>2</td>
<td>bad</td>
<td>40-50%</td>
<td>regular</td>
</tr>
<tr>
<td></td>
<td>50-65</td>
<td>8</td>
<td>good</td>
<td>66-70</td>
<td>regular</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>&gt;140 Dw/ha</td>
<td>2</td>
<td>bad</td>
<td>75-140</td>
<td>regular</td>
</tr>
<tr>
<td></td>
<td>35-75</td>
<td>8</td>
<td>good</td>
<td>&lt;35</td>
<td>bad</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>low income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Floor Space Ratio</td>
<td>&lt;0.4</td>
<td>2</td>
<td>bad</td>
<td>0.41-1.2</td>
<td>good</td>
</tr>
<tr>
<td></td>
<td>1.2-2.4</td>
<td>5</td>
<td>regular</td>
<td>&gt;4</td>
<td>bad</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>low income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municip. Exp. per capita</td>
<td>renewal</td>
<td>475</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>intensification</td>
<td>375</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>gentrification</td>
<td>452</td>
<td>8</td>
<td></td>
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<td></td>
<td>improvement</td>
<td>120</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>consolidation</td>
<td>53</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>stagnation</td>
<td>49</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The conclusions of this study in terms of the condition of public space in relation to vitality, mobility and sense of place assign a higher value to the conditions of the Intensification process and in particular to the Loreto Square. It follows very close by the park-square Inés de Suárez located in a area with Renewal-gentrification process and the two squares Brazil and Yungay in the central area affected by Urban Renewal process.

In a second order and in a large certain we have the La Alcaldesa Square of the development area ongoing improvement process followed in a larger distance by the Pozos Areneros Square of the same category. Close to this last is the square in consolidation process Santa Anita. The La Havana Square score slightly higher done the second square in consolidation process the El Soldador, and the last some points later situated the Davila Square.
6.3. Validation of the Hypothesis per homogeneous Area

First Particular hypothesis. The Urban Renewal Area

Regarding the squares located in the Urban Renewal area, the hypothesis is: "When level of vitality and renewal processes are high, the sense of place can be strengthened by public space renewal. The question is into which extend this renewal can address form giving and land use improvements without losing identity."

In this study has been already proved that the Brazil and Yungay squares fulfill the previous condition of having high level of vitality and are located in an urban area where a clear renewal process is taking place. Santiago West is considered to be the most valuable patrimony of the city of Santiago. It has been proved in the survey done to the users that both squares have been good asses and they are accepted by the majority of the square users, therefore the sense of place is particular high. People have awarded the symbiosis between the morphology of the place, the typology of houses, the relationship between the open and closed spaces. In general the 'cités' as the main patrimony unit, has become a landmark in Santiago built which have been recognised in various important studies of the inner city.

The proximity index in Santiago West is also high as is located near the Santiago CBD, the Alameda and two central malls (considered as citywide equipment). The level of public transportation and mobility is also high and traffic under control. The land-uses studies shows the greater condition of mix uses (between the 40 and 65%), which permit to think that there is enough agglomeration economy and a great economical potential. The existence of different income groups and the mixture of uses including small and medium industries in the northern area also give a particular attraction and increase accessibility to the place. All these conditions added to the general increase of GDP of Santiago population are doing from Santiago-West central area attractive for the land market. Rapidly empty land has been purchased for new construction and a gentrification process has started to be developed, particularly gentrification has been intensive around the Brazil Square and Brazil Avenue.

Besides all this positive considerations, there is a concentration of low incomes in specific location (the northern area, in some particular 'cités', and in general in all rental houses, etc.). There is a great number of rent houses, which in the case of a de-regulated and market economy as Santiago provides conditions for speculation and exclusion rather than integration. Another worry condition is the lack of territorial or neighbourhood associations given the high level of individualism that Chilean society has arrived. The by force imposition of a neo-liberal system for almost 20 years contributed to the end of neighbourhood movements have never recovered. Under rapid market urban development conditions and weak social movement there is concern for the conservation of the patrimony of the place, especially the formal giving attributes that is making this place attractive.

The threat to patrimony values is the unregulated constructions taking place in empty lands, the construction of new residential condominium (loft type) becoming gated communities in the interior of this network of green streets and small allies. This new constructions particularly the condominium have break the continuous façade prescription, the heights, the block structure and the typical ornaments that gave last for almost 100 years. The attraction of the place is becoming a threat also to existing building that are in danger of be demolished and rebuilt. Also is the threat of public institutions that do not follow form-giving prescriptions. The regulator Plan of 1986 have regulated in favour of the transformation taking place for facilitating private investments in the region and to cope with modernisation trends.

The challenge of this area is the feasibility to cope with modernisation, market orientation and to conserve without loosing the identity and patrimonial values of the place. Some important cognition about the importance of this urban sector has taken place during the 90s, which have resulted in several studies, and sectoral planning ideas to conserve the identities and integrity of the different zones, including new normative and landscaping regulations.

The validity of the hypothesis could be proved when we broad the question of the renewal of the Santiago-West to some positive experiences that have developed in other part of the city. Important should be the example where the force for the conservation of the sense of place has been greater than the market forces to rebuild according to effective demand. The case of Bellavista renewal done without loosing the sense of place is a relevant example for Santiago-West. Although in the case of Bellavista the motor that moves the resistance to demolition and rebuilt was the existence of a community (artist) with common values, and

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interest, which need to exploit the morphology of the place to maintain it identity. The enhancement of the identity make possible the development, modernisation and conservation of the place.

Second Particular hypothesis. The Intensification Area

Regarding the squares located in the Intensification area, the hypothesis is:

"In areas of middle and high income in rapid intensification of uses with good connectivity and closed security, public space matter as an element of interaction and encounter but of a general system".

The case of Plaza Loreto is a representative example of intensification process. It has higher values regarding mobility, accessibility and mainly of transformation potential. It has become the symbol of Santiago globalisation potentials and change. The Loreto Square is a square that has been transforming with the path of events. From a neighbourhood square of a garden city area, to a city square of a globalising country. The change of the name is part of the transformation, since Nuestra Señora de los Angeles represents the atrium of the Church and Plaza Loreto the place of encounter and interaction of the working population of the surrounding towers that currently surrounds the square. This transformation has occurred in very few years and from being an elite square of a high-income residential development has become a public space of a city network. The proximity of the Alameda corridor, its good furniture and urban design attracts visitors of all conditions and from several places. In this case the quality of the design, under several transformation, is an important consideration for making the square became a landmark. In this case we can prove the validity of the hypothesis.

Third Particular hypothesis. The Gentrification Area

Regarding the squares located in the Gentrification area, the hypothesis is "In middle income developments located in areas with high levels of vitality, which underwent rapid gentrification the question is if public space development is possible to rise the sense of place to maintain vitality". The Inés de Suárez Park and Square are seen as representative of a gentrification process in a location enhanced by the rapid transformation and polarisation of the city. Although the typical gentrification process is that that occurs in central areas after a process of downgrading and revitalisation, this gentrification process takes place in the periphery of a social and economic privilege area.

Although the predominance of residential uses, the surroundings of Inés de Suárez Square has been proved to be an area with high level of mobility, accessibility and proximity index, which makes the area a vital place. Around the square where traditionally was located social housing programs, which in the Chilean context are meant for low and middle-income groups, now a days the attraction of huge real estate investments has change the context. The most important change is the gating of three of the four residential developments that surround the square. The only area that remains ungated is the area with towers built by the Ministry of Housing in the 1970, which are in a rapid process of modernisation and gentrification. The area with social housing apartments of the 1980s has been gated and a rapid process of gentrification followed. The two new real estate developments have been built since the origin with gates isolating them from the square. The condominiums are meant for middle and high incomes with apartment towers of 120 m2 on one side of the Park and towers of 180 and 220 m2 on the other side, which mark a real difference with the social units. What is important in this new context is that the vitality of the square has not been lost but has been change in essence. The renewal of the urban design of the square has provided new functions to serve a large amount of population directly bordering the square. The density of 240 inhabitants per hectare provides visitors to the Park which dimension and layout makes it attractive and safe. Although is true that the 1970 towers provides a direct connection to the Park stimulating security and sense of place, the gated communities hides the parking places which also improve the relationship between the square and the buildings. Being high towers and a large Park in both directions the visual relation of the surrounding building serve to improve security in spite of the gates. Finally it looks like that the factor of mix uses to support vitality is in this case is replaced by the high density of agglomeration that gives the enough socialisation
potentials to the square. In this condition we can accept the validity of the hypothesis.

Fourth Particular hypothesis. The Development Areas

Regarding the squares located in development areas, the hypothesis is "In low-income areas with poor vitality and little sense of place, endogenous forces (public or private) are needed to induce community building. The potential of public space is to create activity node, densification, and multi-functionality within a system that enhance general mobility."

Essential for discussing the condition and role of public space in low-income areas is the understanding of the pauperisation process affecting increasing and broader Chilean social groups. Considering the development process that started in 1986 and finished in 1998 with the Asiatic crisis, have changed the social and spatial structure more than in other Latin American country. Therefore, it is necessary to make reference to those changes, which are until the present steering the development of the city. In spite of the democratic management of the country, the same system of liberalisation, deregulation, state subsidies, external opening, wages flexibility and individualisation have continue and are in the ground of the social polarisation and exclusion process of the great majority of Santiago population. The urban structure resulting of these is a fragmented sprawl of urban centres in which the interstitial parts does not have a real urban nor a rural character and where there is noticed an intensification of social inequalities but in reduced geographic locations. This assigns to connectivity and mobility an important role, especially in the areas where low income population lives.

The validation of this hypothesis needs first to identify the level of vitality and sense of place in low-income areas and to differentiate in the different development process occurring in development areas.

In chapter 3 and 4 we have proved the validity of the differentiation in homogeneous areas and the identification of areas in improvement, areas in consolidation and areas in stagnation. The validation of this hypothesis must make reference to these three processes.

Regarding the condition of public space in improvement area, we have studied two case studies: the Pozos Areneros in San Miguel municipality and La Alcaldesa in La Florida municipality. Both locations are in improvements because it is noticed in the transformation in term of private investments and in the increasing income of the population. They present differences in term of resources. San Miguel municipality has expenditure per capita of 168 Euro while La Florida has 120 Euro. The level of accessibility is higher in La Florida and at the same time the proximity index of San Miguel is 45 while the La Florida is 26. In spite of this differences in vitality that favour San Miguel, the total conditions of the public space is better in La Florida because its performance in morphology, land uses and sense of place of the public space and its surrounding. In this case the aggregated value of the recent urban design gave to the Los Sauces neighbourhood a sense of place, which have not been obtained in Pozos Areneros in its 50 years of existence.

The validity of the hypothesis in the case of areas in improvement is correct in term that endogenous forces (public or private) are needed to induce community building. What concern the potential of public space to create activity node, densification, and multi-functionality within a system that enhance general mobility is quite relevant in Pozos Areneros although in Los Sauces (La Alcaldesa Square) is less significant since high density and multifunctionality has been considered in the urban design. What it remains is the question of the existence of a system that enhances general mobility, which is not yet completely empowered.

Regarding the condition of public space in consolidation area, we have studied two squares: the El Soldador in the Lo Valledor settlement in La Cisterna Municipality and Santa Anita in La Florida Municipality. Both places has a good accessibility and proximity index and the municipality expenditure per capita is low La Cisterna 89.9 Euro and Lo Prado 73.3 Euro. Lo Valledor settlement is quite different to Santa Anita; the first has 50 years old and the second 30. Lo Valledor is a low-density, low-rise self-built settlement and Santa Anita is an experiment of extendable social units in high rise (4 floor high). Santa Anita has better qualification on land use than Lo Valledor, and the public space is better distributed and have density that permit the opening of small commerce around the squares. In Lo Valledor the density is low and the square is too quite, bad equipped, insecure and badly visited. The
needs for an external trigger to empower communities and to built and maintain the public space is correct for both situations. The experience of the Participative public space program of the Ministry of Housing is well evaluated by the dwellers.

Regarding the areas in stagnation, two squares have been studied: the Davila Square in the Municipality San Ramón and the La Havana in the Jose Maria Caro settlement in Pedro Aguirre Cerda. Both settlements has more than 50 years of existence and no significant private investment has been located in these areas during the years of the economic boom and the accessibility and proximity index are the lower. Both Municipalities are considered poor with 71 Euro expenditures per capita in San Ramón and 70.6 Euro. Davila belongs to the type of social housing settlements built by the state in 1956 while Jose Maria Caro is a self-help program for eviction and relocation of squatters of 1966. Both has about 2000 dwellings has similar densities but Davila has planned houses built in raw while Maria Caro are self built houses, many of them are still using through away materials. After the years Davila has developed into a much better environment and the distribution and design of public space has play a role for making the difference. La Havana Square is the most rejected public space of this study. It is likely that any external trigger that can help community in the construction of public space will improve the neighbourhood, but the improvement of mobility and accessibility should really contribute to the integration of these populations to the city.

Fifth Particular hypothesis. The Re functioning Area

Regarding the areas in obsolescence, the hypothesis is “In areas of obsolescence and re-functioning the public space can become a city-wide landmark and the motor of the processes of restructuring”

The Cerrillos Municipality was the biggest re-functioning programme that has been proposed. It is considered to be very poor. In the last fifty years only low-income social housing has been built which represent additional problems to a commune that no other infrastructure and services investments has been built in the period. The average income of the area is 186 Euro per month. The re-functioning of the 250 hectares of the former airport is still in the level of project proposal and is considered one of the main urban projects to be built in relation to the celebration of the National Bi-centenary (2010)

It is expected that a re-functioning program based in environmental, landscaping, architectural and mobility factors can increase quality of life, introducing creative and secure form of urban environments. The connectivity of the area with the city-centre will be enhanced with the North-South connection and it will take advantage of the proximity to the access to the principal national route. It also enhances inter-commune connectivity to the Metro-train extensions and with other public transports. The project enhances functional diversity, it is expected that proposals should consider mutually supporting uses related to the potentials of the site and to modern urban life (residential, governmental, tech-park) and overall a 40% will be reserve for open green spaces.

In this operation the state is expected to make the necessary investments in basic infrastructure of the sector and the private sector should take the heaviest burden. A mix entity will be created to exchange, sell or to consessionate the part of the global project and to assure a total coherence. It is expected that a design proposal develops these premises and the urban design be consequent with this management model.

The Significant challenge for this area is to become a city-wide landmark in the poor south east part of the city and also constitute a real motor for the processes of restructuring of the complete area.
Chapter 5 / GENERAL CONCLUSIONS

General Conclusions

The conclusions on public space must by necessity be related to the relationship between society and space and to the way in which the analysis has been performed in order to validate results. In terms of the relationship between society and space it is maintained, throughout this research that the rapid technological changes that have been induced by globalisation have had an unprecedented impact on the global production structure and the reproduction of labour power and at a pace never seen before. The withdrawal of the state from the provision of a large range of urban activities and services such as housing, infrastructure and public space has reduced the ability of earlier concepts of urbanisation and "urban" to explain the relationship between urban and social processes in developing countries. Under these circumstances the new global conditions of production have tended to determine the structure and dynamics of cities rather than State initiatives as in the past. In this situation we have to treat the urban not at one level of space but as an integration of several social processes at various spatial scales. This mode of understanding of space has allowed the development of some conclusions regarding the role of public space under conditions of globalisation.

The multi-sectoral and multi-scaled manner in which the case of Santiago has been analysed, has led to the idea that in the current context of globalisation, there is a relationship between the level, nature and form of economic development that a country has reached, the living conditions of the population and the spatial organisation of the collective means of reproduction. This affirmation contains a second proposition, which is related to the fact that urban development theory has usually been initiated in the context of developed countries and applied indiscriminately to regions and countries in developing countries. The insertion of Chile in the world economy and the type of urban development that has occurred over the years, have revealed evidence that there has been a marked influence by the changes in the production process on the form of the city and how the city has grown and been restructured.

The city of Santiago is a reflection of the different development strategies that have successively been applied in Chile and which have been expressed in the formation of various homogeneous urban areas and rings. Public space has been a reflection of how society historically has constructed its built environment, and of the way in which society has used it.

Public space differs from buildings because of their temporal and dynamic nature, as revealed through the values of each historical ‘time-frame’, and the aspirations, culture and flows, which it contains. Public space is a main component of the city structure and its use expresses social changes more than its original function. Public space has a dynamic dimension considering that is the element that structures and links different activity functions and movements in the city.

In this research it has been made clear that to intervene in a existing Public Space is not the same as creating a new one. The city is historically expressed in its Public Space and has imprinted its traditions on it. Intervention in Public Space must recognise the created sense of place, and see these traditions as dynamic rituals in order to project them to the new needs and technologies of a new globalised generation.

From an historical perspective the significance of the different urbanistic approaches to the structuring of the city have become clear. It is concluded that the more complex and larger the city has become, the more public space has started to lose its role as a structuring element related to morphology and function and the more it has gained the dynamic role of an element of mobility, exchange and flow.

The compositional and functional equilibrium imposed by the Laws of the Indies (17th century), by neo-classicism (19th century) and later by the compositional and functional approaches of the first quarter of the 20th century occurred within a period of slow demographic growth and the assimilation of culture and forms. Public space was seen as open space between buildings that have the capacity to define urban structure, which required an order of its own, shaped by autonomous compositional and urban design laws. The revolt of Modernism affected the relation of the new developing city and specifically the morphological meaning of public space. The effect of Le Corbusier's influence in Latin America was later than in Europe; but important

From Baroque to Hausmannian ideas

Camilo Sitte (1927); Stubben (1906); Brunner (1939)
Chapter 5 / GENERAL CONCLUSIONS

in terms of: the options for modernising cities through decongesting the centre of large cities; the discussion on density and its urbanistic influence; the role of transportation in the urban structure; the introduction of green zones into the interior of the consolidated urban fabric; the distinction between private and public buildings; the segregation between pedestrian and vehicular traffic; the differentiation between traditional street and mobility roads. All of these have been important considerations that pointed to specific problems and they have had a great influence on the planning and design of public space. In the case of Chile the (housing) sectoral functionalist approach failed to pay attention to the use of urban space as a structural element despite its discourse and incorporation into the municipal Master Plans. Moreover the integrated regional/urban planning approaches with their prevailing landscaping viewpoint ended in the 1960 Metropolitan Plan. Market forces and the difficulties of regulating the relations between the urban plan and architecture to the benefit of society as a whole made the urban structure develop in directions other than those stated in the plans. Even more than the shortcomings of the plans, the permanent development of the urban market and the inability to find more flexible and sophisticated regulations that shaped the emerging city led to the development of a chaotic, multi nuclear, unconnected and sprawling agglomeration, with appalling living conditions for the low-income groups.

The emergence of globalisation and the State’s withdrawal from the regulations governing labour and urban development, led to a new role being assumed by public space. This role was more in line with the development of new technologies, particularly of transport and communications systems. There was a modernisation of infrastructure, especially of road infrastructure and mobility improved, and a relative improvement in purchasing power through the generalisation of consumption loans and a marked increase in the symbols of the mass consumption society. With these developments public space could no longer be conceived as a ‘space not covered by buildings’, since it now had to include the notion of mobility. Mobility is a historical factor that changes with the development of the factors of production, culture and currently with the development of information and communication technologies. Mobility contains a physical dimension that can be understood as the act of connecting (connecting two places with recognised functions, e.g. place of residence with place of work or with places for encounter and exchange).

In summary the nature and role of public space has changed in relation to the level of development reached by Chilean society. It has been influenced by different approaches through time. The concept of public space has changed from being an important and ‘symbolic’ element of the city, in line with the idealistic approaches of the beginning of the 20th century, towards becoming a ‘structural element’ in an integrated system of social and spatial relations, during the Sixties. In the Seventies and Eighties it became a ‘market good’ with attributes for adding value to places and buildings as well as to goods and services, whilst currently, it has become a key element in the ‘restructuring’ of the city through its given dynamic attributes in relation to encounter, mobility and connectivity.

This thesis has established that concepts to understand the nature and meaning of public space have been provided as well as tools to analyse the condition of public space in a segregated and unequal city.

In a society marked by deep spatial and social fragmentation a new meaning has been given to public space, since social and spatial mobility are important elements of contemporary social existence. In an urban environment, characterised by a fragmented society and rapid flows of information, mobility in space signifies social-economic adaptability and integration.

The condition of public space in an exclusive, segregated and decentralised city such as Santiago is essentially related to the transformation of the urban structure; to the mobility and connections between its different urban realities and to the accessibility of its inhabitants to economic, social and political opportunities. At a citywide level, the restructuring potentials of public space for achieving these conditions are constrained by four general limitations:

A lack of central authority for the entire city.

Administrative decentralisation reforms aimed at giving financial autonomy to local governments, has eliminated metropolitan power in most Latin American countries. The metropolitan area consists of various local authorities that have hindered the possibilities for the integrated planning of land, infrastructure and public space at the different levels. This

4 With the exception of Ecuador, San Salvador and Peru.
has restricted the possibilities for taking advantage of the landscaping potential in relation to natural space. It has also restricted the possibility of planning a public-space-network that connects places, and creates centralities and intensified mobility.

The predominance of market forces.

The effects of the de-regulation of urban development and the tendency towards privatisation of services have made integrated and planning modalities unpractical, with enormous consequences for public space. A most significant spatial consequence of liberalisation has been the privatisation and unequal distribution of public space and the reduction of m2 of public space per inhabitant (in comparison with the city of the 1960s). The present tendency towards Strategic Planning has not been applied in poor municipalities and secondary cities since difficulties have arisen as a result of the lack of sectoral coordination, and the lack of basic information. On the contrary enforcement of the strategic planning approach can reduce its role due to the overall tendency towards improvisation.

Decentralisation, vitality and sense of place.

Institutional decentralisation, which is the product of reforms, have deepened the fragmentation of the city with regards to income, with growing social and spatial segregation into exclusive neighbourhoods to such an extent that there are areas with almost only high and middle income inhabitant and others with almost only low income inhabitants. A constraint has emerged in terms of integration and connectivity of the different urban morphologies that make up the large poorly articulated spatial agglomerations (mega-city), with the dual processes of 'growth' and 'compaction' in a context of 'lack of connectivity' within the urban structure. In large areas of the city the symbiotic identification between place and surroundings has never evolved and an emerging process of vitality and sense of place, pertaining to social density is taking place in some municipalities, but is difficult in the case of the rest of them.

The formation of a large spatial agglomeration.

The formation of a mega-city with the de-concentration of tertiary activities, modern industry and high-income residential zones, have all helped to increase inequality in the distribution of public space. These functions have created large extensions of private space (country-clubs, golf courses, private schools, sport fields etc) and privately-owned publicly accessible spaces (malls, entertainment, leisure) that are largely accessible by private car on highways specially created for these areas. Social homogenisation in the spatially fragmented city has resulted in the lack of hierarchy and differentiation of public spaces from the residential neighbourhood to the city level. The possibility of an integrated mobility system if implemented -as planned- could contribute significantly to assigning to public space a restructuring role at the city-wide level.

The potential of public space for Urban Restructuring as we have demonstrated is high. The possibility for urban restructuring and sustainable development on a citywide scale is dependent on the coordination of urban interventions in favour of social integration and the protection of the environment. Considering current urban realities there seems to be two types of urban interventions into public space: through micro-scale urban interventions in targeted locations; or through the implementation of Large Urban Projects as part of a citywide program. It seems that targeted projects are closer to the people although they are monofunctional and sectorally-oriented and that large urban projects can contain a range of different programs and can counteract exclusionary tendencies of markets.

Large urban intervention in Latin America, does not refer to those large urban developments initiated around the 1960s which involved large operations, supported speculation and were synonymous with the destruction of public space and gentrification. Today within a democratic framework and an urban vision, resulting from a strategic approach, it is possible to rethink the 'large projects' and propose solutions for the city as a whole. Large projects in public space can include issues such as the regeneration and renewal of downgraded and consolidating areas and they can enhance the city-wide connectivity of centralities and of activity nodes. A large urban project such as those proposed for Santiago can enhance the
density of social relations within the area; the functional heterogeneity of each urban morphological zone; the multiplication of multifunctional centralities; and they can achieve cultural integration. A large urban public space project such as the Urban Park program MINVU can include targeted intervention projects; it can be closer to the community, and permit the active participation of the users, not only in term of direct work but also in terms of financial participation. A large urban program can also counteract the financial weakness of the low-income municipalities through a compensation program.

The Public space project at a local level (the square) should overcome the fragmentation of the project in the different layers. Layers are necessary for functionality, definition of space and building implementation, and are expressed in a number of building items (landscaping and trees, sanitation and drainage, lighting and pavement) but the integral character of the project is necessary for the unitary vision of the space.

The first issue then is to recover the unitary vision of the project and to confirm its ownership, especially when it is community-based, which to a large extent has been lost in the market-oriented social housing schemes on the periphery of large Latin American cities.

The second issue at the local level lies in the understanding that it is necessary and positive that urban space be produce from the superposition of primary and secondary functions and for its symbolical significance. The vagueness and functional complexity are important and positive qualities of public space because it rescues it from pragmatic simplification and allows it to be understood as something more complex and subtle. But this functional complexity is not enough to assure the quality of good urban space. It is evident that the street must be used by cars and therefore in designing it, the problems of mobility and circulation have to be considered, but in spite of this a street is not a highway. The difference lies precisely in the attributes of its functions and it symbolical significance. The design has to address traditional demands but must also make the street a recognisable urban element in itself.

I accept Borja's (1997) proposition that public space is an essential factor for the creative strengthening of the city. It can be considered as a Major City Project, since public space provides a significant mechanism to enhance the property value of the site and the surrounding areas at the scale of an urban project. It affects not only the immediate residents, but also other users and the inhabitants in general. This potential must be confirmed within the urban design and, as with all other elements of the built environment, it must be verified by the use and the social acceptance of the project. Public space can be considered as an opportunity for urban renewal, since it is able to provide innovative forms for financing and other resources for city management. The incorporation of the administration and the maintenance of public space as an element of socially oriented initiatives, can occur if the participation of the different urban actors is built into the process.

Public space is a suitable instrument to guarantee the connectivity of an urban project. It is able to "articulate" the neighbourhood and the settlement levels to urban agglomerations and the metropolitan region. The continuity of the large axes of public spaces is a condition of the visibility and of the accessibility of each of the urban fragments, and an essential factor for social integration.

Public space is an efficient instrument to facilitate the multi-functionality of urban projects, since it allows diversity of uses and adaptability over time. Public space projects can also strengthen the image of the city at various scales including improvements in the visibility and aesthetics of each zone in the metropolitan region.

Therefore, public space must recover its value as a structural element of the city fabric. In opposition to the idea that the city is basically shaped by buildings and that the spaces between them are interstitial, there is a need for giving empty spaces the potential to create a sense of place through shaping the morphology of the place, the squares and the street. The building-open space dialectic is an essential departure point for a citywide project.
APENDICES

Annexe 1.

The Bio-directional Accessibility INDEX

The calculation of this index is achieved in five steps, which are defined as follows:

Step one: definition of wealth and activity potentials for each municipality.

The Wealth Potential, \( P_w \)

Unit: [\( \sigma \)/Day]

\[
P_w = \frac{\text{AverageSalary} \times \text{%ActivePopulation}}{30}
\]

The activity Potential, \( P_a \)

Unit: [\( \sigma \)/Day]

\[
P_a = \frac{1}{\text{%TaxRate} \times \text{TotalTaxRevenue}} \times \frac{365}{365}
\]

Step two: definition of cash flow between each pair of municipalities.

Given the two municipalities \( i \) and \( j \),

Definition of traffic flow, \( Q_{ij} \)

Unit: [numbers of persons/day]

\( q_{ij} = \) Traffic from \( i \) to \( j \) at the morning rush hour,

assuming \( i \) as the residence location of the commuter.

Total cash flow from \( i \) to \( j \), \( f_{ij} \)

Unit: [\( \sigma \)/Day]

\[
\phi_{ij} = \frac{\text{AverageSalary}_i \times \text{%ActivePopulation}_i \times q_{ij}}{30}
\]

Assumed Flow Rule:

\[
\phi_{ij} = K_{ij} \times (P_{wi} + P_{aj})
\]

where \( K_{ij} \) is the permeability between \( i \) and \( j \), defined as unit-less.

Step three: indirect assessment of permeability

\[
K_{ij} = \frac{\phi_{ij}}{P_{wi} + P_{aj}}
\]

Step four: definition of Accessibility Indices:

A - Infrastructural Accessibility: measure of the cumulated capacity of all types of transport infrastructures allowing, in order to reach the considered municipality \( j \) from the rest of the city.

High accessibility = Ease to access \( j \)
Close to zero accessibility = difficult or low capacity to access j
Infrastructure Accessibility Index = IA\(j\)

\[
IA_{j} = \sum_{i=1}^{j} K_{i}^j
\]

B - Economic Accessibility: measure of how much buying capacity can potentially reach the considered municipality j from the rest of the city.
Economic Accessibility Index = EA\(j\)

\[
IA_{j} = \sum_{i=1}^{j} \left( K_{i}^j \times \frac{\text{Average Salary}_{i}}{30} \times \%\text{Active Population}_{i} \right)
\]

C - Demographic Accessibility: measure of how many people can potentially reach the considered municipality j from the rest of the city.
Demographic Accessibility Index = DA\(j\)

\[
IA_{j} = \sum_{i=1}^{j} \left( K_{i}^j \times \text{Population}_{i} \right)
\]

Proximity Index: is the level of accessibility to a centrality in spatial terms. For the calculation of this index three type of centralities has been weighted regarding the coverage of services. This weight is as follows:

<table>
<thead>
<tr>
<th>Mall</th>
<th>20%</th>
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</thead>
<tbody>
<tr>
<td>Corridor</td>
<td>30%</td>
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<tr>
<td>Urban Centre</td>
<td>50%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Radius</th>
<th>%</th>
<th>30</th>
<th>20</th>
<th>50</th>
</tr>
</thead>
<tbody>
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<td>0-1600</td>
<td>100</td>
<td>30</td>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>1600-2400</td>
<td>90</td>
<td>27</td>
<td>18</td>
<td>45</td>
</tr>
<tr>
<td>2400-4000</td>
<td>80</td>
<td>24</td>
<td>16</td>
<td>40</td>
</tr>
<tr>
<td>4000-4800</td>
<td>40</td>
<td>12</td>
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<td>20</td>
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<td>4800-5600</td>
<td>30</td>
<td>9</td>
<td>6</td>
<td>15</td>
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</tr>
<tr>
<td>6400-7200</td>
<td>10</td>
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<td>2</td>
<td>5</td>
</tr>
<tr>
<td>7200-8000</td>
<td>5</td>
<td>1,5</td>
<td>1</td>
<td>2,5</td>
</tr>
</tbody>
</table>

225
Annexe 2


I. -Who were the respondents?
1. -Age group
   15-24
   25-34
   35-50
   51-65
   66-older
2. -Gender group
   Male
   Female

II. Main purpose of the Visit to the square
   Work
   Work related
   Wait for transport
   Leisure
   Education
   Others

III. -Residence of those who use the square
   In The neighbourhood
   In the Commune
   In other Commune
   Out of Santiago

IV. -Distance /time travel of those who visit the square
   1-5 minutes
   6-15
   15-30
   30 or more

V. -Mode of transport use to go to visit the square
   Walking
   Bus
   Car or taxi
   Bicycle

VI. -Frequency of visits to the squares
   3 times per week/ more
   1-2 times a week
   1-3 times a month
   Less often

VII. -Use of other public space in the commune or the city
   Other squares
   Others parks

VIII. -Perception of the actual state of the square equipment
   Excellent
   Good
   Bad
   Other appreciation

IX. -Perception of the old state of the square equipment
   Excellent
   Good
   Bad
   Other appreciation
X. Consideration of the user to improve the area
   Security
   More Child facilities
   Better light system
   More benches
   Gardens
   Shops
   Others
   Nothing.

The organisation of the variables is as follows:

— Type of neighbourhood and community where the square is located (socio-economic conditions, employment records, security rate, social pathologies, homogeneity rates, functional characterisation)
— Type of prevailing construction in the neighbourhood and type of square (typology and building quality, densities, average size of the lots, street profile surrounding the square,
— Origin of the users (residents, visitors,)
— Activities and design of the square (place of destiny or place of pass over)

A survey has been performed to analyse the subjective answer of the users with the following categorisation:

1. - Perception of the type of function that defines the square
2. - How often the user came to the square.
3. - The use of public spaces in the city and of the square by the user
4. - The perception of the square and the square furniture and equipment
5. - Schedule time of use of the square
6. - Place of residence of the user (live near/work near as well)
7. - Mode of transportation to the square
8. - Frequency of visit to the square

A survey was performed in which the variables were as follows:
Quantified variables

Type of the neighbourhood where the square is located
   Socio-economic level
   Functional characterisation according to the Master Plan
   Others
Type of prevailing construction in the neighbourhood
   Typology of the neighbourhood
   Average density
   Average size of the lots; others
Origin of the users
   Residents
   External
Activities of use of the square (internal design)
   Pedestrian internal routes or crossing
   Stretch of lawn
   Children playground
   Tract of level ground
   Laterals vehicular streets
   Associated pedestrian streets
   Central space; others

A pilot study in form of a reduced survey was carried out in the winter of 2001 (July and August) in each of the squares—chosen for each of the pre-defined homogeneous areas. A second reduced survey on traffic and use was carried out in the summer of 2002.

The first survey was meant to measure of the number of users of the square in a weekend, a day, or in
the rush hours. This was designed to furnish empirical information about the multi-functionality of use and users. First the square was qualified in terms of socio-economic stratification and the morphological characteristics of the area and the typology of its surroundings.

The variables defined for the survey are as follows:
1. Type of function that defines the square. The activities in how the square is used
2. How often the user came to the square.
3. The use of public space in the city by the user
4. The perception of the square's equipment
5. Schedule of use
6. Place of residence or work of the user
7. Mode of transportation to the square
8. Frequency of visit to the square

The questionnaire
Name.
Age group (15-24; 25-34; 35-50; 51-65; 66-older)
Gender (male/female)
Main reason(s) to visit the square (work related; leisure; meeting point, others)
Distance to residence, work or study (in the municipality, in another municipality, outside of Santiago)
Mode of transport to visit the square (walking, bus, metro, car, bicycle)
Frequency of visits to the square
Use of other public space in the commune or the city (other squares, others parks)
Perception of the actual state of the square (good, reasonable, bad)
Perception of the former state of the square (good, reasonable, bad)
Consideration of the user to improve the area (security; facilities; equipment, nature, green etc)

Annexe 3:
The following is the weighting of variables at local level.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Indicator</th>
<th>value</th>
<th>assessment</th>
<th>value</th>
<th>assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metropolitan accessibility</td>
<td>See 6.1. table 2 in this conclusions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proximity Index</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Local Accessibility</td>
<td>8</td>
<td>good</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-35</td>
<td>5</td>
<td>medium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;20</td>
<td>2</td>
<td>bad</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;45</td>
<td>2</td>
<td>bad</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed Use</td>
<td>2</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>35-45</td>
<td>5</td>
<td>reasonable</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>20-35</td>
<td>8</td>
<td>good</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>20-15</td>
<td>4</td>
<td>reasonable</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>&lt;15</td>
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<td>Land Use</td>
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<tr>
<td>%residential area</td>
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<tr>
<td>40-50 %</td>
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<td>50-65</td>
<td>8</td>
<td>good</td>
<td></td>
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<tr>
<td>66-70</td>
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<td>Density</td>
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<tr>
<td>&gt;140 Dw/ha</td>
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<td>75-140</td>
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<td></td>
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<td>&lt;35</td>
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<td>Floor Space Ratio</td>
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<td>0.4</td>
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<td>0.41- 1.2</td>
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<td></td>
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<tr>
<td>4&gt;</td>
<td>2</td>
<td>bad</td>
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<td>375.62</td>
<td>8</td>
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<tr>
<td>gentrification</td>
<td>535.56</td>
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<tr>
<td>improvement</td>
<td>168.32</td>
<td>4</td>
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<tr>
<td>consolidation</td>
<td>89.87</td>
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<tr>
<td>stagnation</td>
<td>71.13</td>
<td>1</td>
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</table>
Annexe 4
Matrix origin/destination all day all aims all transport

Table 21:
Origin destination journey per area related to the homogeneous areas / Source: SECTRA origin-destination surveys 2001. Own elaboration.

<table>
<thead>
<tr>
<th>Destination area</th>
<th>Renewal</th>
<th>Renewal (centre)</th>
<th>Renewal percentage</th>
<th>Renewal (east)</th>
<th>Renewal percentage</th>
<th>Renewal (west)</th>
<th>Renewal percentage</th>
<th>Renewal (north)</th>
<th>Renewal percentage</th>
<th>Renewal (south)</th>
<th>Renewal percentage</th>
<th>Total</th>
<th>Total journeys</th>
<th>Total percentage</th>
</tr>
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<tr>
<td></td>
<td>337955</td>
<td>262685</td>
<td>276315</td>
<td>147,177</td>
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<td>262262</td>
<td>1058643</td>
<td>113711</td>
<td>83,245</td>
<td>122479</td>
<td>205153</td>
<td>1845493</td>
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<td></td>
<td>23,93</td>
<td>14,24</td>
<td>20,21</td>
<td>14,81</td>
<td>15,33</td>
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<td>16,91</td>
<td>18,57</td>
<td>57,41</td>
<td>8,32</td>
<td>8,38</td>
<td>7,64</td>
<td>17,89</td>
<td>22,06</td>
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<tr>
<td>Development</td>
<td>271799</td>
<td>113197</td>
<td>82,2137</td>
<td>60,636</td>
<td>65,352</td>
<td>33976</td>
<td>1367097</td>
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<td>83482</td>
<td>59,401</td>
<td>62,2334</td>
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<td>percentage</td>
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<td>60,12</td>
<td>6,1</td>
<td>4,08</td>
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<td>4,53</td>
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<td>62,62</td>
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<td>Development</td>
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<td>63977</td>
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<td>636405</td>
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<td>11,12</td>
<td>2,34</td>
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<td>3602367</td>
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<td>Percentage</td>
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<td>100</td>
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Chapter 5 / GENERAL CONCLUSIONS


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