

**Evaluating the contribution of New Urbansim strategies on
a Metropolitan Re-Structuring Proposal:
The case of Santiago de Chile**



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 groningen**

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Rijksuniversiteit Groningen
Faculty of Spatial Sciences
MSc Environmental and Infrastructure Planning
Master thesis
Sebastián Hudson Correa
S2700506
Supervisor: dr. ir. W.G.Z. Tan
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Abbreviations:

CBD:	Central Business District
CORE:	Consejo Regional / Regional council
EDR:	Estrategia de Desarrollo Regional / Regional development strategy
GORE:	Gobierno Regional / Regional government
MAS:	Metropolitan Area of Santiago
MINVU:	Ministerio de Vivienda y Urbanismo / Housing and urbanism ministry
MMA:	Ministerio del Medio Ambiente / Environment Ministry
MOP:	Ministerio de Obras Publicas / Infrastructure Ministry
MTT:	Ministerio de Transporte y Telecomunicaciones / Transportation and telecommunications ministry
NGO:	Non-Governmental organization
PLADECO:	Plan de Desarrollo Comunal / Local development plan
PR:	Plan Regulador / Regulating plan
PRDU:	Planes Regionales de Desarrollo Urbano / Urban regional plan
PRI:	Plan Regulador Intercomunal / Inter-municipal regulating plans
PRMS:	Plan Regional Metropolitano de Santiago / Regional plan for Santiago
PROT:	Plan Regional de Ordenamiento Territorial / Regional plans
SCL:	Santiago de Chile
SEAC:	Southeast Access Corridor
SEACC:	Southeast Access Corridor Collective
SECTRA:	Secretaria de Planificacion del Transporte / Office for transport planning
SEREMI:	Secretaria Regional Ministerial / Regional ministry office
SERVIU:	Servicio de Vivienda y Urbanismo / Office for housing and urbanism
TOD:	Transit Oriented Development
USA:	United States of America

Abstract.

The thesis Evaluating the contribution of New Urbanism strategies on a Metropolitan Re-Structuring Proposal: The case of Santiago de Chile explores the current planning framework for Chile and the MAS in particular. Starting by a descriptive analysis of the MAS and its planning framework the research goals and contributions are defined as the creation of a 'how to' framework to apply New Urbanism tools in order to achieve regenerative and catalyzing plans for metropolises. In order to achieve such goals first the New Urbanism tools are described and additional perspectives are described in order to front the MAS's fragmentation and urban issues. Following, the national planning hierarchy is analyzed and the different approaches are exposed, sectorial and all policy making levels are analyzed as single parts and as part of a complex planning system revealing the integration issues and the gaps in the current framework. In order to illustrate this, the MAS is analyzed as a metropolitan example and analyzed more in detail, barriers and stakeholders are described, listed and grouped accordingly. Using the previous analysis, a case study in within the MAS, the SEAC, is taken as test ground for a proposed Holistic Framework aimed at achieving multi-level, multi-sectorial growth in all spatial, economic, social and environmental arenas. Moreover, an operational model is presented in order to test the feasibility of the proposed framework and concrete, tangible recommendations are given for the SEAC. Finally, the result is analyzed and conclusion are given in order to use the Evaluative Framework and the Holistic Framework as a first step towards the construction of New Urbanism-like frameworks for metropolises.

Key words: SCL, Santiago, Chile, Regeneration, Fragmentation, New Urbanism, Governance, TOD, Smart Growth, Planning.

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Image 1.1. Chapter 1. Source: MTT2014

Chapter 1. Introduction

1.1 Introduction

The Metropolitan Area of Santiago (MAS) is highly fragmented and segregated, the northeast cone clusters the richest municipalities and the rank lowers to the southwest. This fragmentation and segregation can be explained, even when it has an important historical roots, from the perspective of the last three decades when Augusto Pinochet's coup d'état and following dictatorship adopted the capitalist and neo liberal policies that until today rule Chilean markets and allowed public and private stakeholders to change urbanization patterns without any other restriction other than the market. This changed the dimensions of the urban sprawl in the MAS. As the result from these policies today we see consequences as:

+Social dwelling keeps on being pushed away from the city center because of the pressure from the real estate marketers.

+The unprivileged are not the only ones moving towards the periphery, the privileged are moving towards the periphery as well.

+These phenomena have created an intra-metropolitan migration where inhabitants are moving from the inner city towards the periphery.

+‘Richer and poorer neighbors locate closer to one another but this results in ‘tectonic’ juxtapositions of polarized socioeconomic groups rather than in socially cohesive communities’ (Livert & Gainza; 2014. Pp. 5882).

+Because of land scarcity, higher and lower income households are getting closer, this is mostly related to high income groups moving into working class municipalities. It is important to state here that this phenomenon is not leading to a social mixture, just a reduction of the geographical scale of segregation

+Densities and socio spatial patterns are being balanced by all the above mentioned phenomenon’, this means that the city is transforming from a municipality-wise fragmented city towards an inner fragmentation that do not respect political limits as low-density high-income gated communities are being placed next to high-density low-income communities.

During the development of the thesis the key problem will be shown to be the lack of adequate planning tools, schemes and processes to fully integrate spatial design with inter-municipal land-use strategies, mobility challenges, and environmental issues.

In the existing literature, there is a great deal of investigation around why has this segregation and fragmentation occurred, none the less there is little or none proposals on how to fix the current situation, most plans aim to stop it or to reduce it but none to revert it.

In this thesis, the author will analyze, test and evaluate the current perspectives of New Urbanism tools, especially TOD (Transit Oriented Development) and Smart Growth and will test throughout institutional and spatial design the possible outcomes for the integration of these perspectives into the MAS's planning framework. Furthermore, the author will present some un-orthodox practices for the evaluation of the proposal, his background as an Architect with a Master in Real Estate Development (DAPI, University of Chile) encouraged him to not only pursue academic research into metropolitan planning strategies but also an attempt to test the strategy out through a design proposal. This tangible form of planning allows municipal-scale stakeholders to use a visible framework to show the involved developers and interested parties how the New Urbanism-like regeneration framework shape the development of the urban form and composition into more positive outcomes. As Chilean planning culture is tightly ligated to an architectural framework, the morphological framework is easier to implement among the developers and stakeholders in general.

1.2 Background.

Cities, as evolving organisms have found ways to cope with these issues showing adaptiveness and resilience. Some cities have managed to find or build a nexus between their mass transit services and the local urban settlement composition, assuming problems as land scarcity, geographical limitations and taking into account open space preservation, enabling sustainable pattern of growth and travel, combining mix used areas concentrating offices, shops and homes in attractive well designed nodes all resulting in a transformation of the urban landscape in order to support transit. Cervero (1998, pp. 3) describes adaptability in the transit context as: ‘a calculated process of making change by investing, reinvesting, organizing, reorganizing, inventing and reinventing’.

The basic idea seems to concentrate dense and mixed urban development around mobility nodes in order to support transit use, and supporting these nodes by connecting them with each other’s (Curtis et al. 2009). A transit metropolis is where the city and the transit (in this thesis transit refers to public transportation systems) co-exists in harmony.

Integration of transportation and land use development in order to achieve social and environmental equity is the highest priority in the agenda of many cities around the world (Curtis et al, 2009). Urban sprawl and therefore greater consumption of land and more material consumption overall, local and global pollution, oil dependency, traffic congestion and accidents, noise pollution and parking subsidies are common issues presented in such places.

Significant amount of papers and studies (Atienza and Aroca, 2012; Benavente, 2007; Universidad de los Lagos, 2010) point that given the surface of Chile and the Metropolitan Area of Santiago (MAS) growth, development, concentrations of activities and population has become excessive and detrimental. This has led to a growing amount of socio-spatial problems that have been ignored in the overall public policy making in matters of economic and spatial issues.

Santiago –as many Latin-American- cities is currently going through a capitalist globalization transformation (Jiron and Mansilla, 2014) this has two important implications: First, the adoption of the neo-liberal economic model has strengthen urban re-structuration processes with great implications on the city (De Mattos, 2002, 2010). The second implication relates with the technological advances concerning transportation and communications in the last decade that has led to increase financial, spatial, informational and political flow, creating canals for this capital super-flows both physically and meta-physically in the city (Jiron and Mansilla, 2014). Chile is one of the countries with higher concentration rates in South America (Atienza y Aroca, 2012). Today, 87% of Chileans (MTT, 2014) live in cities (urban population) and on 2010 more than 40% of them live in the Metropolitan Area of Santiago (INE, 2010).

Given this transformation and its implications, urban fragmentation is one of the greatest issues with the contemporary Metropolitan Area of Santiago. As Capron y Gonzales (2006) state, through this term (fragmentation) is described the concept of an internal rupture in the conception of the city. Moreover, it makes reference to segmentation and atomization in urban spaces that generates spatial discontinuity that limit the unification of the urban system; therefore, fragmentation can be used to describe the logics of separation, extension and new urban borders and orders of the different social-economic groups (Jiron and Mansilla, 2014).

A report submitted by the specially created ‘Presidential advisory commission on urban mobility’ (2014) under the direction of the Ministry of Transport and Telecommunications (MTT) analyses the problem of urban mobility on all of Chile’s major cities. In this document we found that mobility is ‘A manifestation of human dignity, which impact directly in Chileans life quality; thus is the duty of public policies to ensure and protect its public availability’ (pp. 14. Translated by: Hudson).

Several academic papers and NGO’s and governmental reports clarify the nature of the problem. The lack of congruency between land use and transportation planning, added to several other reasons such as local culture and social costumes are, according to the report of MTT (2014) the first detrimental factors of mobility in the MAS. As stated previously, almost 40% of Chileans live in the MAS, a figure expected to increase (INE, 2012) in the following years to come, this will most likely result in an even greater expansion of the city and a higher densification, which will mean bigger social and spatial problems. Added to the increase of populations, Chile has maintained a raising family income average, that even when poorly distributed among the population, still reflects a higher access to commodities and more importantly: to credit, as seen in the image 1.2 there has been an exponential growth in the motorization rate from the year 2003 to 2013 in the MAS reaching an overall 83% increase.

This can be also understood as that the ones that are most challenged with the current situation are the lower income families that do not have access to credit for a car, thus have to suffer from fragmentation, heavy traffic and poor conditions for commuting on the behalf of those who own a car and contribute to all the above mentioned issues increasing inequity and so resentment between classes.

The response for all levels of government has been related with the same hard engineering approach, making streets wider, opening new fast lanes and systematically attacking the symptom instead of the disease by privileging private transportation over public mass transportation systems. This can be seen from three different aspects, the first is the lack of political will to revert the issue, second, the ineffective policies, third, the implementation of weak normative to sustain the policies and the complete lack of regulation, evaluation and feedback.

Concerning political willingness to revert the problem, the author finds that according the MTT (2014, pp. 31. Translated by Hudson): ‘The government has not assumed the seriousness of the issues of urban mobility nor the importance and transcendence it means for the opportunities and life quality of all Chilean’. The current approach is inherently reactive and as explain above, attacks the symptom and not the real issue. On the second perspective, the ineffective policies, there is not an integrative policy for spatial planning, nor in the horizontal or vertical structure of governance, that is coherent with the geographical and demographical characteristics of the MAS. There is none land use policy integration, and if there is, it is inadequate. Housing policies have displaced the lower income groups of the periphery without the support of proper public transportation systems and have also encouraged the suburbanization of the accommodate class, paradoxically providing the necessary infrastructure to do so; Thus encouraging urban fragmentation and territorial segregation. Moreover, the investment policies of the government related to mobility shows a clear disequilibrium privileging the use of private transportation. On the third aspect, the complete lack of regulation, evaluation and feedback, we can see that there is no education program concerning mobility, nor there is intention to create one. Stakeholder’s involvement is hardly achieved, due to lack of will and it is not binding to any process, there is not accountability what so ever.

There is not a clear mechanism to mitigate the impacts of real estate developments, so real estate developer avoid or elude responsibilities in order to reduce costs. There is also a lack of faculty on behalf of the institutions to provide normative and economic regulation in mobility affairs. This can all be understood under the scope that there is no integrated legal mechanism that allows the different levels of governance to create efficient regulation with positive feedback loops.

We can now say that the issues of mobility, urban growth, urban fragmentation and social segregation are not being analyzed under a systemic scope or are not being analyzed at all.

During the course of the MSc Environmental and Infrastructure Planning 2014 – 2015 the author has reviewed several literature regarding these topics and has been able to talk with experts on the subjects, enabling him to recognize the current framework under which these phenomenon are being studied and being tested for possible solutions. This state of the art is currently being led by integrative, holistic and resilient ways to face mobility, urban development and society; all of them are understood as open, complex, nested in, have nested within them, and intersect with other complex systems (Byrne, 2005); thus the framework to tackle issues in within this systems, namely New Urbanism tools such as Transit Oriented Development (TOD) and Smart Growth, recognize these characteristics of complex systems and work upon them. The contribution of these thesis is centered in the development of an evaluative framework to establish the ‘how’ to implement such New Urbanism tools as the why has been answered in several literature (Cervero, 1998; Tan, 2013; Curtis et al. 2009). In order to achieve this goal, New Urbanism tools will be analyzed along with several supporting strategies from around the world, then the existing planning framework of Chile will be analyzed and finally a case study will be developed to analyze and establish an operational framework in which the more important barriers will be identified.



Image 1.2 . Increase in the numbers of cars in the MAS from 2003 to 2013. Source: Made by the author based in La Tercera Newspaper (2013). Data from INE (2013).

1.3 Thesis structure

In this first chapter the basic knowledge of the Metropolitan Area of Santiago in Chile (MAS), the problem with the increasing motorization rate, the low mobility, the decreasing public transportation rate is given; on the other hand a first glance on how to front these issues is given. The thesis problem will be stated and generally explained, so as the thesis proposal premise and approach which will be supported by the thesis contribution to the spatial sciences. In order to understand how is this going to be done the research question are stated and the tools to answer them as well.

On chapter two, the methodology in order to carry on the study is explained step by step in order to validate the results and allow any fellow researcher to inquire further if needed or wanted.

On chapter three, the selected New Urbanism tools, TOD and Smart Growth, are described and analyzed in a general context in order to understand how they work and what is final outcome pursued by each of them. As New Urbanism was developed in the USA and in Europe mainly, in the following section a series of additional theoretical perspectives will be analyzed in order to better fit the proposed framework and the creation of a planning culture in the MAS. Furthermore, there is an analysis on how this main two tools with the additional perspectives will create a tailor suited, context and time specific framework for the MAS. Finally an Evaluation Framework is defined in order to assess the operational process and capacities of specific area of the MAS.

Furthermore, on the fourth chapter, Beginning from the more general national planning framework towards the more specific current urban situation of the MAS, an analysis comprising all levels and stakeholders with a historic perspective is presented. First, the current National Planning framework is explained in order to understand one of the major problems in today's urban matter. Following, a summarized analysis of the existing planning perspectives at a national level is presented in order to recognize the current gaps and problems at a macro level. In the next section, a brief description of the MAS with a historic perspective describes the urbanization paradigms that today affects the city of Santiago. After this is stated and understood an analysis of the current governance and planning context is given as to set the context for the following chapters. Finally, the result of the presented planning structure is a highly polarized and fragmented socio-spatial metropolitan area where the municipalities that have more commuters are in the periphery. This reveals serious discrepancies between urban, transport and social planning; situation that will serve as starting point for the development of a planning framework explained in chapter 5. Finally the area of intervention in order to test and evaluate this thesis is presented.

In chapter five, Using the TOD-Smart Growth Evaluation Framework shown in Chapter 3, a corroborative case study of the invisible corridor comprised the south east and the CBD's existing transportation and development model is presented in this section. For this thesis purposes we will call it the Southeast Access Corridor (SEAC). First, the SEAC is described and analyzed and the reasons of why this region of the MAS was chosen are given. Following, a comparative analysis of the existing mobility versus the development model is delivered in order to understand how agents interact with the given formal structure. The result is given in the following section where new mobility practices are explained and analyzed in order to understand the causes for this phenomenon. To conclude with the chapter an analysis of all the barriers to implement the presented framework is given. These presented planning barriers findings serve as the starting point for a Regional Diagnosis will introduce strategic planning goals. Said goals will comprise a proposed Holistic Planning model, which will aim to directly improve upon the existing system using TOD & Smart Growth paradigms at a regional-level and will lead the way to change from vicious circles towards virtuous circles in the planning arena of the MAS.

Following in chapter six, Building upon the analysis from chapter 5 and the described New Urbanism tools and additional perspectives, in this chapter, the construction of the Holistic perspective is described. First, Recognizing the main goals of both New Urbanism tools and the benefits of the Additional Perspectives the Holistic perspective is shaped. This is followed by several examples on how do the additional perspectives work based in real examples from all over the world. Based in these experiences and with the goals described by the New Urbanism tools an Holistic Regeneration proposal is given together with three major focuses are set in order to achieve institutional and sectorial integration. Finally, general operational recommendations are given in order to ensure a successful operation of the framework.

Furthermore, on chapter seven, As a way to test and test the feasibility of the Holistic framework, the SEAC is chosen as test-ground for the creation of concrete recommendations, strategies and projects aimed at achieving integral regional regeneration. First, The SEAC is presented in a general manner, localizing it in the MAS and overviews the local transportation network and its usage. This is followed by a more detailed operational analysis where the current and future trends in mobility and socio-spatial composition are analyzed and evaluated as barriers or potentialities. After this exercise, the involved stakeholders are stated and grouped according to their interests in order to understand the

current processes and today's vision for the SEAC. After creating a context scenario a governance structure platform is presented in order to define a new platform where the stakeholders interact in a more integrative way so as to achieve the Holistic Perspective. In order to operationalize this platform New Urbanism-like planning tools are presented and described. With these tools the framework is evaluated and benefits and deficits are recognized. In order to make even more realistic and concrete the Holistic Framework, Integral Inter-Municipal recommendations and guidelines are given; this recommendations and guidelines are based in a recapitulation of the framework creation process, where we stated the inherent problem of the current planning framework of the MAS and the gaps that allow the significant deficiencies in the socio-urban spectrum and keep on delivering negatives social outcomes.

After achieving concrete recommendations and guidelines a mapping exercise is delivered to evaluate the SEAC under the proposed strategies. The territory of the SEAC is analyzed in its current situation, highlighting the potentialities and weaknesses. This analysis is translated into a map where the Regional Holistic Regeneration Strategy is given as a regional vision scenario.

A model for implementation with concrete strategies and tools is given in order to materialize the recommendations, guidelines and plans. Finally, technical recommendations for implementation which fall under the scope of this thesis are given.

On chapter eight the conclusion are summarized and exposed in a clear and synthetized manner and further research advice is given.

Finally, in chapter nine all the references are sorted in alphabetical order in order to validate the statements made by the author through this thesis.

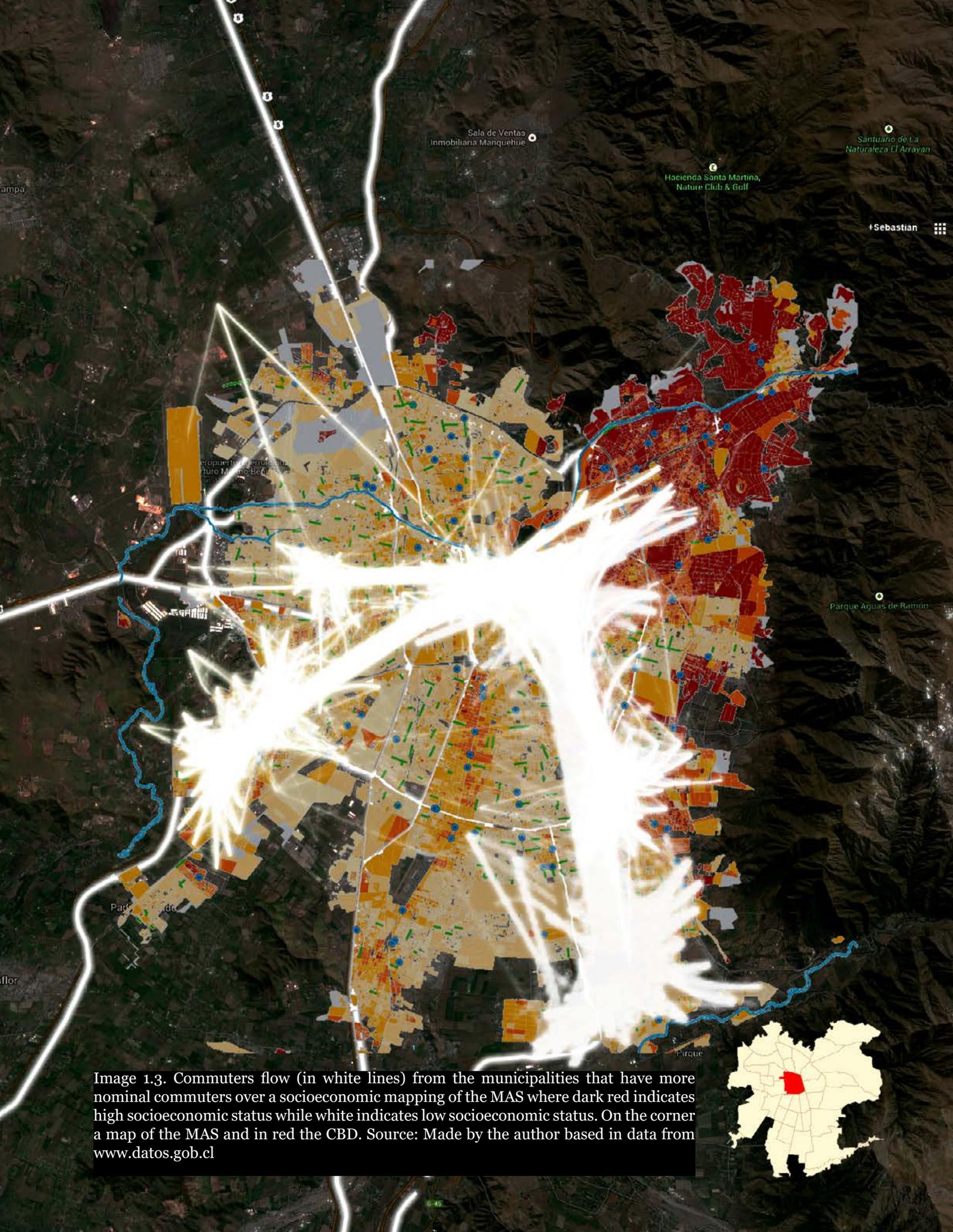


Image 1.3. Commuters flow (in white lines) from the municipalities that have more nominal commuters over a socioeconomic mapping of the MAS where dark red indicates high socioeconomic status while white indicates low socioeconomic status. On the corner a map of the MAS and in red the CBD. Source: Made by the author based in data from www.datos.gob.cl

1.4 Problem statement

The lack of a comprehensive planning system including a metropolitan-to-local perspective over mobility and economic development has led to a highly fragmented, segregated and atomized city.

Image 1.4 represents the flow of the municipalities that have higher number of commuters; we can also see socio-spatial structure of the MAS. It is evident that commuters for the periphery that correspond to the less privileged are creating transit corridors in the city where society, the city and even time are fragmented.

As stated previously in this thesis, the current planning approach focuses in high-level, central, metropolitan-scale developments and ignores low-level, decentralized, local-scale socio-spatial needs such as improving local mobility networks, enabling inter-municipal cooperation on integrating transit and land-use planning, as well as building up existing communities.

The result of this (lack of) planning framework has led the MAS to develop ill socio-spatial outcomes as ghettos, gated communities, the creation of transit tunnels and atomized spatial inequities.

The key problem is the lack of adequate planning tools, schemes and processes to fully integrate spatial design with inter-municipal land-use strategies, mobility challenges, and environmental issues.

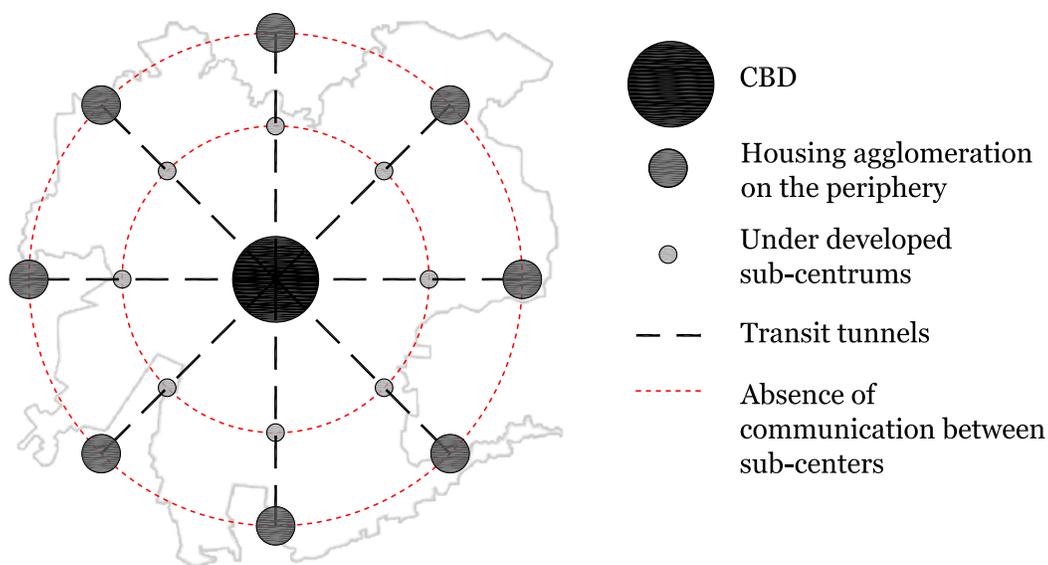


Image 1.4. Monocentric vision of the MAS. Source: Made by the author

1.5 Proposal premise and approach.

The MAS future development stability depends on a more coherent, holistic and all levels / all sectors and integral regional and local planning framework reinforced by governance integration in both vertical and horizontal axes. A change in perspective is needed away from the mono-centric way the MAS is understood to a more complex system of sub-centers with a more local scale that will support regenerative growth to the peri-centric and peri-urban areas of the MAS. In order to achieve this, the plan is to build upon the real potentialities of each area, involving and making accountable all involved stakeholders in order to achieve organic, sustainable development.

The main goal is to take on an academic research to see how integrative strategies (New Urbanism tools) can aid in metropolitan planning/sustainable development. The aim is to re-structure the planning governance system in order to overcome the operational gaps that have led to the fragmented area the MAS is today. The main focus is to develop strategies to sustain urban regeneration throughout building upon potentialities of each area strengthening sub-centers currently located in transit corridors. The approach is to focus on the deficiencies of the current planning system and revert them using TOD & Smart Growth perspectives in order to generate a starting point for shaping a more inclusive, socio-spatially resilient urban structure for the MAS. Image 1.5 illustrates the objective stated above.

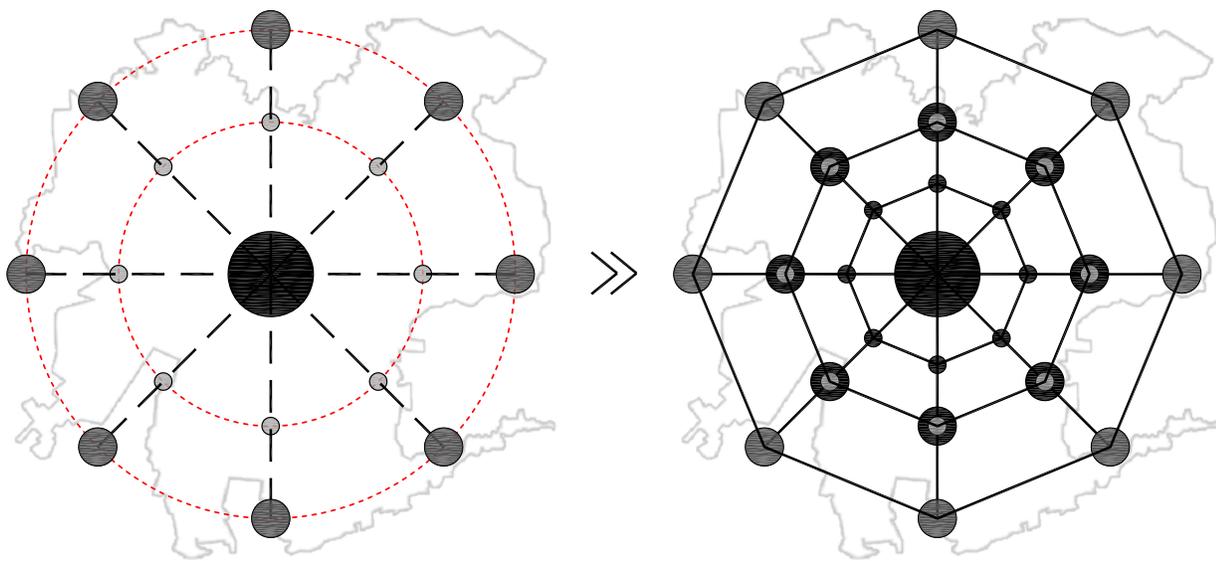


Image 1.5. Proposal premise; link and potentiate all subcenter in order to achieve a complex multicenter network within the MAS. Source: Made by the author

1.6 Thesis contribution

During the course of the EIP Master, several reasons for the 'why' New Urbanism tools and strategies can improve livability in metropolises. Along the research of this thesis, the literature review and the discussion with my fellow classmates and professors the question of the 'how' appeared to be fuzzier. Thus, the contribution of this thesis is to develop an Evaluative Framework in order to recognize barriers and potentialities of each metropolis/region/locality and under this evaluation being able to develop a Holistic Framework tailor-suited for each context specific intervention which will allow an effective Operational Model for the named Metropolis.

1.7 Research questions & tools

The complexity proper to context specific systems that raises the research questions for this study. The proposed strategies will work in a complex mosaic backdrop of mutually influencing individual choices and lifestyles, market forces and political trends that are colored by constantly changing socio-cultural forces and determine in part by existing urban structure and regulations unique to each city and region (Wegener & Fürst, 1999; Tan, 2013)

1.7.1 Main question

How can New Urbanism strategies (particularly TOD and Smart Growth)/integrative planning strategies contribute to metropolitan planning for sustainable development in Santiago de Chile?

1.7.2 Sub questions

1. What are the current context and the context-specific barriers for sustainable development in Santiago de Chile?

Goal: Define current context and identify and conceptualize these barriers.

Research tools: literature review, data analysis, mapping/observations.

2. How can integrative planning instruments address the various context-specific barriers?

Goal: Establish relations between the barriers, stakeholders and institutions.

Research Tools: literature review, data analysis, mapping/observations.

3. What are the possible effects of applying integrative planning strategies to the case of Santiago de Chile? Moreover, how is this process going to affect SCL's urban morphology and structure?

Goal: Define urban development scenarios, analyze benefits and/or disadvantages

Research Tools: mapping/observations; image creations.



Chapter 2. Methodology

In order to validate this thesis, this chapter aims to give an experienced investigator enough information to replicate the study. The research design here presented is used to structure the research and to show how all of the major parts of the research project, including the sample, measures, and methods of assignment, work together to address the central research questions in the study. As stated previously, the main goal is to take on an academic research to see how integrative strategies (New Urbanism tools) can aid in metropolitan planning/sustainable development. And the aim is to re-structure the planning governance system in order to overcome the operational gaps that have led to the fragmented area the MAS is today.

2.1 Appropriateness of the Research Design

In order to better face the research questions, the main goal and achieve the aim of this thesis, a case study method was selected. Case studies refer to studying a specific social phenomenon in its natural context (Swanborn, 2010). Flyvbjerg (2006, p.242) emphasizes the importance of case studies: “a discipline without a large number of thoroughly executed case studies is a discipline without systematic production of exemplars”. It is particularly relevant for research that is interested in experiences, values, attitudes and opinions; case study research makes it possible to explore the world as seen by participants (Swanborn, 2010). Consequently, in a case study approach, practical, experience-based knowledge is more important than theoretical knowledge (Flyvbjerg, 2006). The grasping of this context-dependent knowledge is at the very heart of case study research. A case study approach, as a result, seems to suit well for this research, which focuses on local knowledge, thus experiences and beliefs, and how that might be used in (non) integrative planning. Moreover, to fully understand and grasp these aspects, an in-depth approach, such as a case study approach, is recommended.

Swanborn (2010) distinguishes several types of cases, of which the representative one is interesting for this research. A representative case does not stand on its own, but findings from it might eventually lead to generalizable theoretical propositions. However, Flyvbjerg (2006) argues that a case is powerful enough as just an example and that generalization is not necessary per se. The researched case were not selected randomly, but were selected on the basis of the expectations about their information content. The selection of the SEAC is related with its history, development and current situation, known by the author for living in the MAS for 27 years. All of this will be clarified and further explained in the case study chapter.

2.2 Research design

For this research, a mixed-method data gathering effort was used to answer the research questions. This method will combine quantitative and qualitative approaches (Tashakkori and Teddlie, 1998). The mixed-method feature is chosen because during the research both quantitative data (like data on Density) and qualitative data (like Design elements of the build environment) and perspectives from ‘experts’ are used to answer the main research question. In order to illustrate this a table was created:

Research question	Data collection	Data analysis
1. What are the current context and the context-specific barriers for sustainable development in Santiago de Chile?	Official governmental documents and webpages, OECD policy review for Chile.	Construction of governmental structures and listing of the involved stakeholders and their accountability.
2. How can integrative planning instruments address the various context-specific barriers?	Scientific literature review and national and international documents about New Urbanism, TOD and Smart Growth.	Literature review, Case study analysis (Cervero, 1998).
3. What are the possible effects of applying integrative planning strategies to the case of Santiago de Chile? Moreover, how is this process going to affect SCL's urban morphology and structure?	Scientific literature review; Case study review (Cervero, 1998); Historical and political analysis.	Qualitative governance structure outcomes comparison between Chileans planning framework and examples from around the world, design testing.

Image 2.1. Mix method illustration
Source: Made by the author

The first general characteristic of mixed-method research is what Tashakkori (2010) calls methodological eclecticism, he defines it as selecting and then synergistically integrating the most appropriate techniques from a myriad of QUAL, QUAN, and mixed methods to more thoroughly investigate a phenomenon of interest. This definition goes beyond simply combining QUAL and QUAN methods to cancel out respective weaknesses of one or the other. In order to better illustrate this, Tashakkori (2008) presents a table with reasons to use this method.

Purpose	Description
Complementarity	Mixed methods are utilized in order to gain complementarity views about the same phenomenon or relationship. Research questions for the two strands of the mixed study address related aspects of the same phenomenon
Completeness	Mixed methods designs are utilized in order to make sure a complete picture of the phenomenon is obtained. The full picture is more meaningful than each of the components.
Development	Question for one strand emerge from the inference of a previous one (sequential mixed methods), or one strand provides hypothesis to be tested in the next one.
Expansion	Mixed methods are used in order to expand or explain the understanding obtained in a previous strand of the study
Corroboration / Confirmation	Mixed methods are used in order to assess the credibility of inferences obtained from one approach
Compensation	Mixed methods enables the researcher to compensate for the weaknesses of one approach by utilizing the other
Diversity	Mixed methods are used with the hope of obtaining divergent pictures of the same phenomenon. These divergent findings will ideally be compared and contrasted.

Image 2.2 Reasonable reasons to use the Mix-Method research method. Source: Tashakkori (2008)

2.3 Setting and Participants

This thesis is set in the 2015 Metropolitan Area of Santiago de Chile in South America. The MAS concentrates the political and economic capitals of Chile with around 5 million inhabitants. It is important to distinguish between Santiago de Chile and the Metropolitan Area of Santiago as the MAS has been expanding at a fast growth rate since the 70's and now is bigger than Santiago itself, this throughout conurbation. The case study for design and test the South East Access Corridor (SEAC) is located in the MAS in the South East area; an area that today is under great real estate development pressures and facing dramatic change in its structure.

In order to make this thesis as complete as possible, all stakeholders were considered in the creation of the proposed planning framework; none the less, due to geographical restrictions (the author is living in The Netherlands while working in this thesis) this information had to be obtained through official documents and not by interview or first hand method, this being said, the author did sustained dialogs with local municipalities, institutions and residents that provided documents, information and insights that were used for this thesis. The stakeholders considered are:

Firstly, all levels of planning governance, from the central government, the ministries, GORE's, SEREMI's and Municipalities. Secondly, public – private partnerships involved in planning and with influences in city development such as Transantiago, Infrastructure Concessions and Metro. Thirdly, from the private sector several sectorial associations and financial agents were consulted among: College of Architects, Chilean Chamber of Construction, Sectorial Associations, Regional and local business, Private real estate developers, Banks and Financial Institutions. Fourthly, from the civil sector of society, local NGO's, residents and local associations and groups were consulted through municipalities and official documents. Finally, academia, universities and urban and economic laboratories based both in Chile and in South America were consulted in order to obtain their perspective in several issues.

2.4 Instrumentation

The instrumentality of the research considering the mixed-method paradigm requires both qualitative and quantitative data. Regarding the quantitative data, is related to spatial and demographic index such as density, trips per day, time of commute, distance to de CBD, land price, connectivity and so on. This indexes and indicators allow a basic comprehension of the study and allow a more concrete form for the evaluation of the proposal, none the less they lack depth that can only be given by the qualitative indexes and indicators. For the qualitative indexes and indicators, the author analyzed in a comparison based manner the complete governance structure from the highest to the lower levels and analyzed the theory of governance guidelines for transitions towards sustainability if there were any existent, all of these was compared with examples from better practices from around the world in order to understand how governance structures and frameworks can affect integrative urban growth and development.

2.5 Procedure

In order to better understand the situation of the MAS, the first step was to make a literature review of local journals, especially EURE magazine, featured by the Pontificia Universidad Catolica de Chile. This journal specializes in urban issues across Latin America and as it is based in Chile contains a great deal of articles from local scholars related to the topic of this thesis. After achieving a better understanding of the political and economic processes the MAS has gone by and are currently happening, the second step was to analyze and explore the cases and how the plans took shape. To do so, a policy document analysis was carried out to get a first impression of the key events and key actors over time. This information was obtained in the official websites of each level of governance, this way; the author was able to construct a diagram on the planning framework in within the MAS. A third step was to search for the position of each one of the stakeholders, this was achieved by gathering official documents from their webpages in most of the cases, requesting additional data to the institutions that did not had enough to work with in their official website and analyzing official surveys and inquiries in order to know the inhabitants and resident opinions.

The OECD played a crucial role in helping the author reveal where the institutional and governance gaps and context-specific barriers were as they elaborated a full report on Chilean governance (2008) the one that was contrasted with the official data gathered from the official websites of the central government and every level beneath it.

There is also to mention that the author has lived for 27 years in the MAS and has experimented the city by living it, this gives him an experience which is not always translatable to the paper but must not be discarded as contains a lot of qualitative data regarding spatiality and urban composition.

2.6 Ethical Considerations

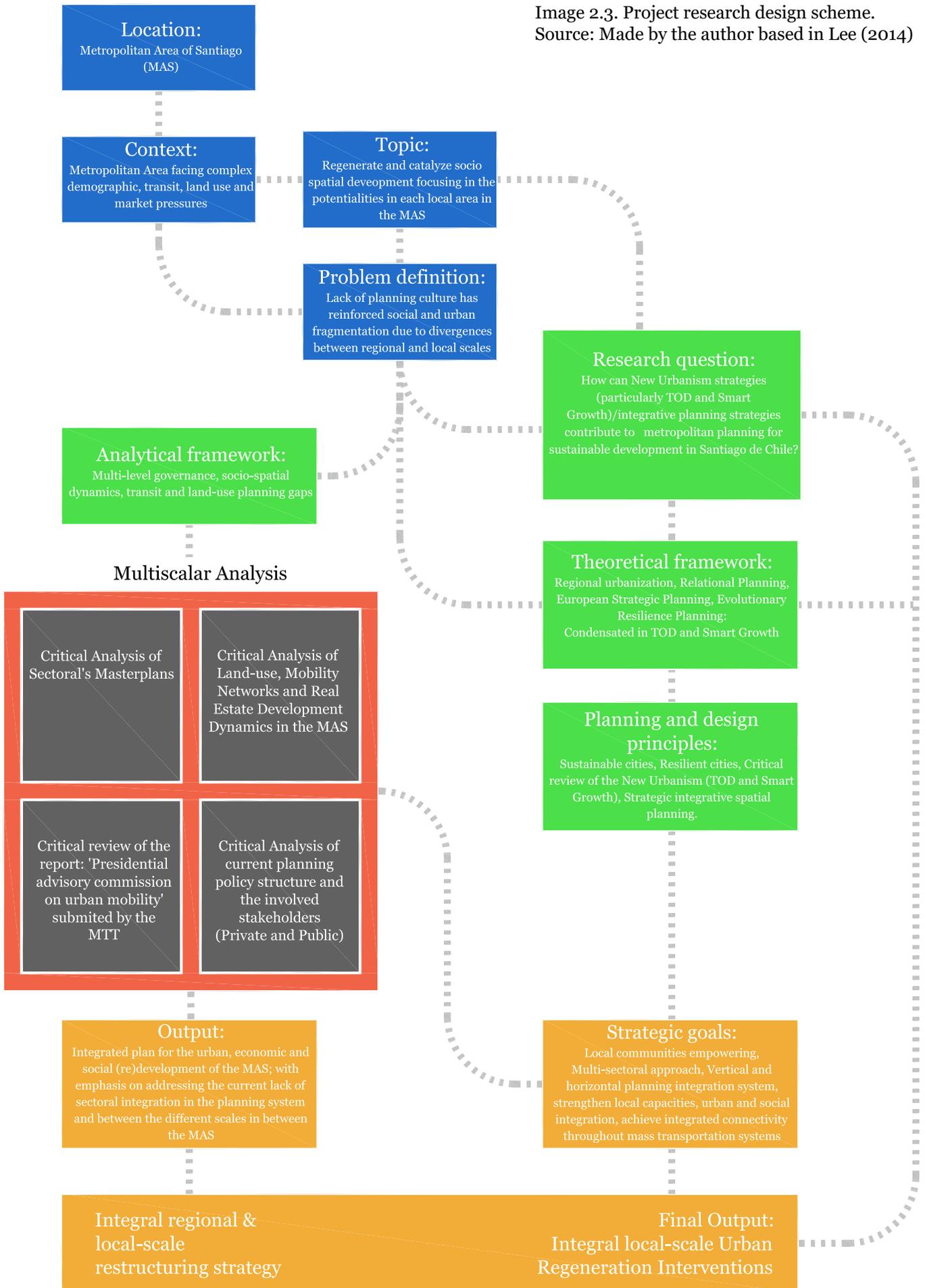
In this section of the methodology, the researcher's position in the research itself is discussed. Being aware of the author's positionality and being reflexive on your position is crucial, because this will create more rapport between the data/ information and the researcher, the author will be more aware of the relation between the two (Hennink et al., 2010).

The author has a background as an architect and has a Master's degree in Real Estate Development, this in mentioned because in his past studies has had to research about this area and has previous knowledge about policies applied there that have led him to create a political position towards the plans and the authorities. None the less, the author, prevailing the robustness and validity of the thesis prevents making personal judgments by writing the following chapters relying highly in existent information, using many quotes and enriched and confirmed with policy documents. By doing so, the author tries to show the gathered 'thick description' (Geertz, 1983). One difficulty was to translate many documents from Spanish to English, the author tried to be as impartial as possible, none the less many terms, policy names, groups and institutions names are open to interpretation and if translated literally might lose their original meaning this is why whenever the translation is of the author it is stated next to the quotation.

2.7 Internal and External Validity

In order to test the validity of the thesis, it will be tested with the case trough design. Even when this is an unorthodox way of testing, in a country like Chile, where capitalism pressures are high, if the planning instruments give room for interpretation, this are usually taken to the extremes, so as to ensure the robustness of the proposed framework, a general design layout will be given as outcome. This tangible form of planning allows all stakeholders to use a visible framework to show the involved developers and interested parties how the the proposed regeneration framework shape the development of the urban form and composition into more positive outcomes. As Chilean planning culture is tightly ligated to an architectural framework, the morphological framework is easier to implement among the developers and stakeholders in general. In this case, the design will allow to better comprehend the internal validity of the thesis as it will show graphically the study's ability to determine cause and effect concerning spatial development and urban regeneration; on the other hand it will serve as an case study for a fellow researcher in order to create external validity as this thesis will show results that can reflect similar outcomes elsewhere, and can be generalized to other populations or situations.

Image 2.3. Project research design scheme.
 Source: Made by the author based in Lee (2014)



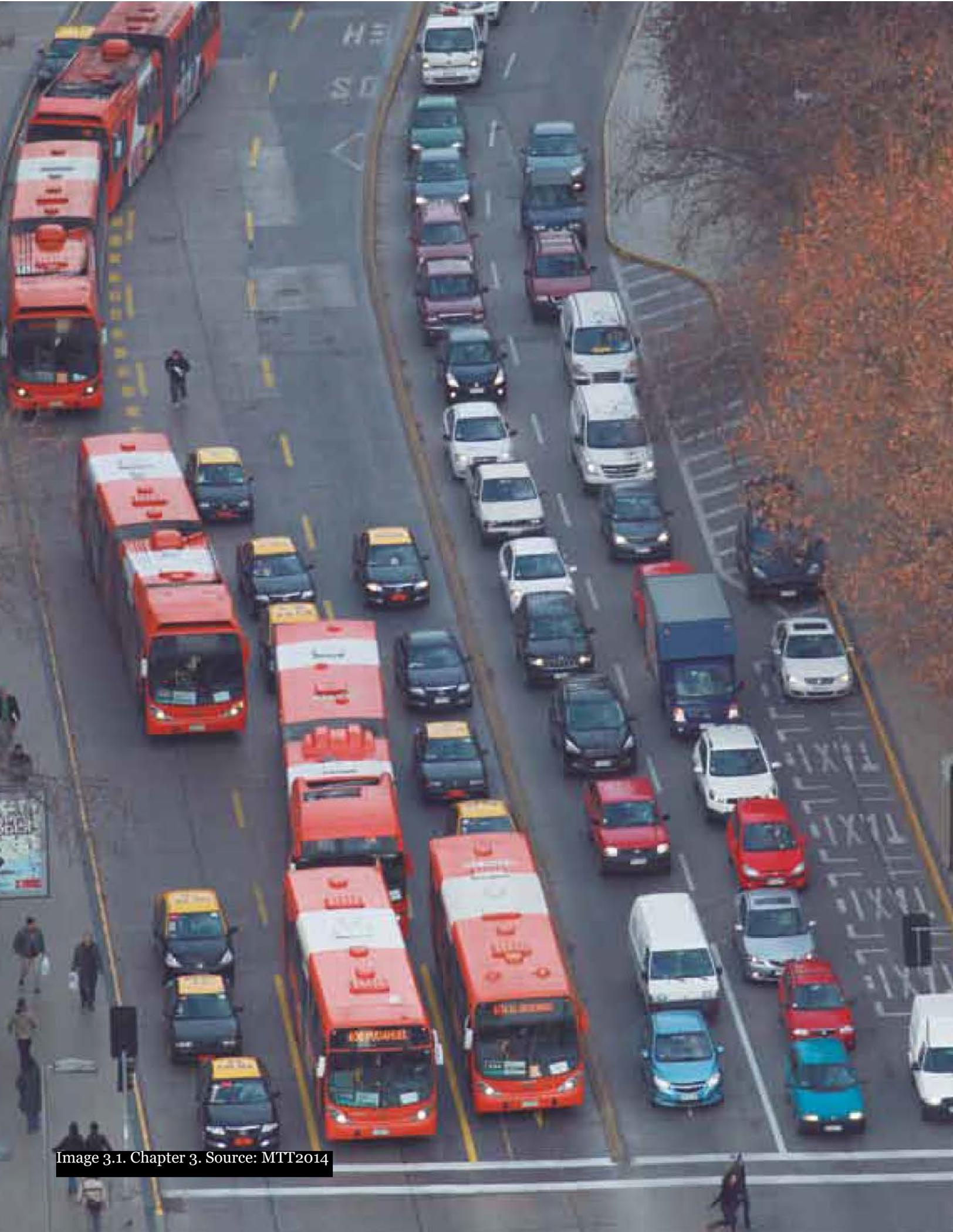


Image 3.1. Chapter 3. Source: MTT2014

Chapter 3. Theoretical framework: Proposal approach

3.1 Introduction

Traditionally, spatial planning and the different disciplines that are involved in it have been separated, this has been a worldwide trend, though there is to mention that since the last 60 years countries as The Netherlands have changed this paradigm towards a more inclusive and holistic approach (Heeres et al. 2012); this is not the case of Chile. Chile has continued with the separated disciplines approach towards infrastructure planning and urban planning, this is the root to many of the issues in within the MAS.

During the past century, architects in the western world, individual designers, including Tony Garnier, Antonio Sant'Elia, Le Corbusier, Frank Lloyd Wright, and Leon Krier, have presented many potent promoting potent modernist visions of the city. Less idealistic but no less profound visions, such as company towns and Levitt-towns, are scattered around our country, some with a well-developed sense of community. Many of these visions, especially the more heroic ones, turned out to be unsuccessful, even disastrous, when implemented. Like any self-regulating system, cities must correct and recorrect themselves continuously, with larger paradigm leaps when clearer models are put or called forth. During the last decade in North America and Europe, there has been a surge in design charrettes, conferences, essays, books, and on-the-ground projects that attempt to reform or preempt contemporary and modernist models of urbanism. Central to these efforts is the New Urbanism, an "ism" that has a growing number of adherents in many fields (Kelbaugh, 1997).

'At the very time planning becomes bolder in its recommendations concerning urban form, an increasingly unfavorable political and economic context frustrates the implementation of alternative models of metropolitan development. The economic and environmental merits of compact forms of urban development are becoming a dominant theme both within planning documents and the urban literature' (Filion, 1996. pp. 1637)

In the following section a series of theoretical perspectives will be analyzed in order to recognize their potentialities and reveal their new spirit and difference with traditional planning Furthermore, two New Urbanism tools, namely TOD and Smart Growth support and condensate the named perspectives and will allow to create a tailor suited, context and time specific framework for the MAS. Finally an Evaluation Framework will be defined in order to assess the operational process and capacities of specific area of the MAS. The selected New Urbanism tools, TOD and Smart Growth, were developed in the USA and in Europe mainly, so they are described and analyzed in a general context in order to understand how they work and what is final outcome pursued by each of them.

3.2 Theoretical Perspectives

The elected theoretical perspectives support the implantation of the a framework and the creation of a planning culture. Under this scope, they aim to a more democratic and just urban process. For this thesis, this five perspectives namely: Regional Urbanization, Relational Planning, European Strategic Planning Perspectives, Community-Based Planning Perspectives, Evolutionary Resilience Perspectives; will be analyzed under the Chilean scope in order to provide costume, tailor-made solutions for the MAS.

+ Regional Urbanization

Regions are not only interpreted as reflection of social and economic processes, dead background, container, stage, extra-social environment but as dynamic figures, as dynamic, problematic, developmental, ideologically charged, and filled with action, dialectics, process, and social causality; units of social life, comparable with markets, states or families (Stroper, 1997; Soja, 2011). Under this perspective, regional urbanization is understood as a trans-boundary phenomenon that has been imposed over the Chicago School of Urban Ecology and that is best described as 'a shift from a distinctively metropolitan mode of urban development to an essentially regional urbanization process' (Soja, 2011. pp. 1). This means that the boundaries between the metropolis and the periphery do not longer apply in such a clear way, both CBD and peripheries are submitted to complex urbanization pressures. As stated in previous sections, the creation of the urban limit has not stopped nor reduced the urbanization pressure over the periphery, this added to the lack of a properly integrated planning policy and the fact that the market is the main driving force in Chilean urban planning and real estate development has led to a clear regional urbanization process in the MAS. This phenomenon reinforces the need of an integrated, communicative, just planning process and practice, one that is concerned with managing stakeholders, institutional and market initiatives and forces in order to achieve urban regeneration initiatives

instead of continuing with the characteristic urban sprawl of the MAS.

+ Relational Planning

Recent social theories stress the very real heterogeneity of the experiences of time-space within and between cities (e.g. Giddens, 1979; Lash & Urry, 1994; Adams, 1995; Amin & Graham, 1998). This theory severely undermines the idea that of the city as a unitary phenomenon with a single space-time (Graham and Healey, 1999). The need to incorporate social time into the study of fragmentation arises. There is a common distinction between space and time of the phenomena being studied; however, these two dimensions occur in a parallel, in a relational and procedural way. Space and time make fundamental categories on which social life unfolds.

When thinking in time, we tend to associate it with the chronological time that is given by a clock; or, similarly, about 'long times', which mark the historical periodization of linear character. Yet, time as well as space, can be thought of as social production. In this perspective, time signification takes diverse forms, depending on the social, political, economic or cultural from which this ideal to understand. (Jirón & Mansilla, 2014, pp. 10. Translated by: Hudson)

The experience of social time is multiple and heterogeneous, culture varies between societies and individuals and is related to their social position. For this, May and Thrift (2001) identify four main domains where time and space have implications for social practices.

First, the experience of time-space varies with the times and rhythms, this is, on one daily cycles, seasons or biological rhythms. The second domain, time-space consists of discipline or social systems, in terms of Lefebvre (2004), linear rhythms, including job time, house time, religious practice time, recreational time, among others; all with varied meanings in different spaces. A third sphere concerns the relation with instruments, apparatuses and devices that affect the way in which time and space relates to social practice. The mobile phones or computers that have generated less necessity for physical mobility; Also, the use of more efficient systems of transportation has important implications for how the space-time happens. Finally, the time-space results in various forms of representation, which require understanding of the practices that are carried out, including patterns, experiences and travel conditions.

In the context of globalization, we have analyzed the compression of time through the conquest of space (Santos, 1994; Harvey, 1994; 2004). In these arguments, the distances traveled by information, money, goods and people have been overcome through the development of transport and communications technologies. This idea has been rapidly interpreted by the social sciences, who have argued the death of the space under the conquest of time (Haesbaert, 2007; Jirón & Mansilla, 2014) notion that contrasts markedly with the reality of cities, where most of the people must face daily physical-spatial barriers to develop their activities, making it through everyday practices of mobility (Jirón & Mansilla, 2013).

It is important to consider that globalization has not eliminated the importance of space and time in everyday life but, on the contrary, has generated divergent impacts on the space-time experience (Massey, 1995; 2005). In this sense, spatial fragmentation that configures the urban space in the present has impacted significantly on various forms of fragmentation of time in society (Jirón, 2010a, 2010b; Jirón, Lan e & Bertrand, 2010; Jirón & Mansilla, 2013, 2014; Lange, 2011; Cebollada, 2009; Gutierrez, 2009; Jarvis, 2005).

Jirón & Mansilla (2014) recognized three possible forms of spatial-temporal fragmentation in society. First is the link between spatial fragmentation and temporal fragmentation and its impact on everyday life. As mentioned by Salvador (2000):

"The inhabitants of the metropolis functionalized increasingly their daily life, spatially and temporally dividing it in every day most basic activities for more specialized ones" (pp. 123. Translated by: Hudson).

The second form of spatial-temporal fragmentation relates to the existing fragmentation between the appropriate conditions of use of time and those temporary impositions that globalization, institutions and consumer society assigned to our rhythms in the city (Lefebvre, 2004; Fani, 2011; Salvador, 2000). The times and rhythms that are imposed are dissonant with peoples time, forcing them to schedule their daily lives, establishing strategies to address temporary barriers socially imposed. The times of daily life are segmented and cracked: family time, eating, sharing, are eliminated for solving the imposed program of activities. A third form of fragmentation occurs when the distinction of chronological time as a total fades before the differential possibilities that social groups have to achieve the spatial-temporal compression. Only some social groups can access hypermobility provided by the technologies of communications and transport, while others are immobilized or continue moving in slow rhythms, marked by precariousness (Santos, 1994), embedded in tunnels of separation with different spaces, frequencies, duration,

environments and qualities (Jirón, 2010a).

Even if these considerations do not represent all forms of temporal fragmentation, they do demonstrate that there is indeed a fragmentation between experiences and temporalities imposed by the current economic system. From these ideas is possible to propose an approximation to the time fragmentation phenomena as the creation of a differentiated experience of time determined by the material conditions of the city and at the same time, the socio-cultural conditions of its inhabitants, generating tunnels with different temporality in motion.

+ European Strategic Planning Perspectives

Several scholars have stated that planning in the MAS is in a crisis. The dimension of the city, the market pressures, the lack of political involvement and the characteristic complexity of urban and social systems has brought recognition by planning entities of the necessity for a regional planning perspective. As in Chile, nor previous nor the current planning framework has ever considered an integral development for strategies involving spatial development, environmental concerns, social integration and transportation [among others] there is no local culture where to set the foundations for a new framework, especially one that has a long run perspective instead of the local short sighted system. Under this scope, learning from more evolved planning practices like some of frameworks produced in Europe can be a good starting point to developing a sustainable governance system that integrates all perspectives in planning (Environment, social, economic, transportation, etc.) and all the different scales in between the MAS (from human to metropolitan). European experience and theoretical developments will be used as basis for defining a more suitable, costume, tailor made governance framework for Chile.

+Community-Based Planning Perspectives

As some authors state (Lee, 2014; Ellis, 2002) New Urbanism paradigms such as TOD and Smart Growth are based on unrealistic assumptions of continuous economic expansion and have emphasize financial benefits and physical (infrastructure) development in a regional scale over local demands of space and users. The proposed approach towards planning must involve all stakeholders and interested parties; a communicative and collaborative planning framework is needed. Knowing the spatial-socioeconomic composition of the city is key to anticipate the reaction to implemented plans so as for future demands. Lee (2014), Angotti (2008) and Legacy (2013) stress the necessity to incorporate in the developed models features that allow them to work in environment where rapid economic growth is not feasible nor/or desirable. By recognizing the spatial-socioeconomic composition of the MAS, the potentialities of each area will be detected, thus generic plans will be avoided and potentialities will not be disregarded, this will lead to a tailor-made regeneration, catalyzing each area's true potential based in their demographic, economic and geographical composition.

+ Evolutionary Resilience Perspectives

This perspective challenges the whole idea of equilibrium in the urban system and advocates that the very nature of systems may change over time with or without an external disturbance; we can call this phenomena socio-ecological resilience. In this respective resilience is not conceived as a return to normality, but rather as the ability of complex socio-ecological systems (as the city) to change, adapt and crucially transform to stresses and strains (Davoudi, 2012). Systems are conceived as complex, non-linear and self-organizing, permeated by uncertainty and discontinuities (Byrne, 2005). As Lee reflects (2014, pp. 32) due to its focus on building up adaptive organizational capacities and integrating urban with ecological systems, an evolutionary resilience-based approach presents a way to consider how TOD-based strategies and Smart Growth-based strategies can propose different urban forms and governance processes with respect to the vulnerabilities of this region. In place of trying to return to the status quo, it offers a way to shape adaptive urban systems that can change and transform in response to ecological disturbances (Eraydin, Tuna-Tasan, 2013; Dessai, 2013).

3.3 New Urbanism tools: TOD and Smart Growth

New urbanism aims at ‘the restructuring of public policy and development practices to support the following principles: neighborhoods should be diverse in use and population; communities should be designed for the pedestrian and transit as well as the car; cities and towns should be shaped by physically defined and universally accessible public spaces and community institutions; urban places should be framed by architecture and landscape design that celebrate local history, climate, ecology, and building practice’. (Browne, 2002)

TOD and Smart Growth condense most of the desired trends and aim towards to the expected outcomes for the MAS, They condense the theoretical approach that will help build the proposed Planning Framework for the MAS.

+ TOD

‘Rail transit and holistic transportation planning, that includes transit-oriented development (TOD), present cities with significant potential advantages for economic, social, and environmental. These advantages may include, for example, capital investment opportunities, reduced personal expenditures for transport, mixed-use areas and housing that can foster vibrant neighborhoods, higher-density pedestrian and bicycle-friendly developments, reduced automobile dependency, and improved local air quality’. (Dorsey and Mulder, 2013, p. 65)

TOD was created out of reaction to the condition fostered by the automobile-dependent world and all of the issues of globalized metropolitan areas (Calthorpe, 1993; Cervero, 1998). Implementing TOD in existing cities can be quite challenging, the huge amount of stake holders involving urban context modifications, the apparent reduced areas for development and the challenges of embedded land use, zoning and history are just a few of the problems (Belzer and Autler, 2002; Dorsey and Mulder, 2013). This is why, as noted by Hess and Lombardi (2004), most recent TOD projects have been suburban in nature, on the fringes of economically strong and growing cities, with far less attention paid to older cities and inner city redevelopment.

In general, TOD can be “a central part of a development paradigm that is more environmentally sustainable and more socially just, and that contributes to both economic development and quality of life” (Belzer and Autler, 2002, p. 1). The potential benefits of TOD that Belzer and Autler (2002, pp. 8–17) identify are framed in terms of “performance criteria” and they include:

- +Location efficiency – transit nodes are embedded in mixed-use, pedestrian friendly places where people can have the choice to work, shop, and play close to home.
- +Value recapture – good transit means less is spent per capita on transportation, including those costs beyond the individual.
- +Livability – quality of life factors are enhanced by TOD (e.g., cleaner air, more open space, greater mobility and access to services).
- +Financial return – mixed-use TOD should provide flexibility and opportunity for return on investment (public or private).
- +Choice – transit rich cities and TOD offer greater choice (e.g., in housing, transport, shopping) than the suburban model of development.
- +Efficiency – TOD can help create more efficient regional land-use patterns that can yield benefits such as more open space, shorter commutes, less traffic, and cleaner air.

Another way to see this advantages is the table created by Envision Utah, a volunteer, regional, multi-stakeholder planning entity in the State of Utah, US. Envision Utah is both name of the organization and an on-going, long-range regional planning project.

Financial benefit	Community/social benefits	Environmental benefits
Reduced Household transportation spending	Mobility, housing and community choices	Regional air quality and congestion improvements
Housing affordability	Urban revitalization and infill	Open space preservation
Infrastructure savings	Community identity	Brownfield redevelopment
Increased developers return and marketability	Enhanced public safety and health	Improved water quality
Increased transit ridership		
Cost-effective transit		

Table 1. Potential benefit of TOD. Source: Envision Utah (2002)

It is important to notice that transit improvement alone is not enough to achieve a successful TOD plan. The transit system alone does not necessarily cause intensified urban development or increased land value (Knight and Trygg, 1977; Cervero and Duncan, 2002). In order to achieve urban (re)development its compulsory to link transit measures with local and regional policies as land-use policies that support mixed use and high density developments (Dorsey and Mulder, 2013). Yet, transit improvements added to supporting policies is also not sufficient to generate successful TOD, this two features will led to a more walkable city, promote the use of the bicycle and promote alternative forms of transportation which is an important part of the TOD's outcome, but not all of it. Investment in infrastructure and enabling economic support is crucial for a positive evaluation of a TOD project; so each of these issues –transit improvement, land policies and investment- are interdependent when trying to achieve a successful TOD plan (Hess and Lombardi, 2004).

The presented scenario is the reason why TOD as a comprehensive approach for development is such an elusive process. While private investors and corporate interests have long been a dominant influence in urban development (Jonas and Wilson, 1999), the public sector is largely responsible for determining the transit infrastructure and the rules for development: i.e., zoning and land-use laws, in a given place, making government actors key to place-making (Cervero, 2004; Arrington and Cervero, 2008). Such complex relationships between public and private sectors interest and investments ‘such a complex mix of private and public interests and investment in transit and urban development raises issues of growth and the question of who will profit. Competing interests can create significant barriers to TOD projects, so collaboration and partnership between stakeholders (e.g., lenders, developers, government, planning agencies, community groups) has been identified as essential to successful projects (Cervero et al., 2002), while competition and disagreement between stakeholders can derail transit decision-making’ (Dorsey and Mulder, 2013, p. 68).



Image 3.2. Bikes in the MAS. Source: MTT2014

+ Smart Growth

Smart growth is the USA version of the Compact City concept (Lee, 2014). According to Downs (2005) Smart Growth was conceived as a reaction to a series of un-desirable features of continuous growth through sub-urban sprawl, these features are listed as (pp. 367):

- +Unlimited outward and “leapfrog” expansion of low-density new development.
- +Large-scale conversion of open space and environmentally sensitive lands to urban uses.
- +Lack of choice among housing types and neighborhood configurations.
- +Worsening traffic congestion and air pollution caused by more intensive use of automotive vehicles for ground travel.
- +Costly requirements to expand roads, sewers, water systems, and other infrastructures outward rather than repairing and using those already in place.
- +Failure to redevelop existing older neighborhoods.
- +Segregation of land uses rather than a mixing of uses that reduces the need for travel.

As Smart Growth was designed to eliminate or diminish these undesired effects, it advocates for opposite principles of action, namely (ibis, pp. 368):

- +Limiting outward extension of new development in order to make settlements more compact and preserve open spaces. This can be done via urban growth boundaries or utility districts.
- +Raising residential densities in both new-growth areas and existing neighborhoods.
- +Providing for more mixed land uses and pedestrian-friendly layouts to minimize the use of cars on short trips.
- +Loading the public costs of new development onto its consumers via impact fees rather than having those costs paid by the community in general.
- +Emphasizing public transit to reduce the use of private vehicles.
- +Revitalizing older existing neighborhoods.
- +Creating more affordable housing.
- +Reducing obstacles to developer entitlement.
- +Adopting more diverse regulations concerning aesthetics, street layouts, and design.

We can say that Smart growth will vary in each community, but the main emphasis will be in locating dense compact developments in the existing urban fabric, while providing transit improvements, housing variety and commercial functions.

3.4 Model evaluation framework

The selected models and theories have been selected in order to develop a costume, tailor-made, specific model for the MAS. TOD and Smart Growth will serve as basis for the development of such a model and the additional theoretical perspectives will serve as guidelines towards a more just, integrated and communicative approach. Under this scope, a literature review was conducted in order to establish the parameters, targets and indicators in order to assess the implementation of each measure/theory. Specifically, this evaluation framework will be used to assess the operational process and capacities of a specific area in the MAS: the SEAC, a corridor comprised between the south-east and the CBD of the MAS, presented as case study in chapter 4. The case study validates this proposal's premise and approach which focus on how the MAS (none) existing planning paradigm results in concrete negative socio-spatial outcomes.

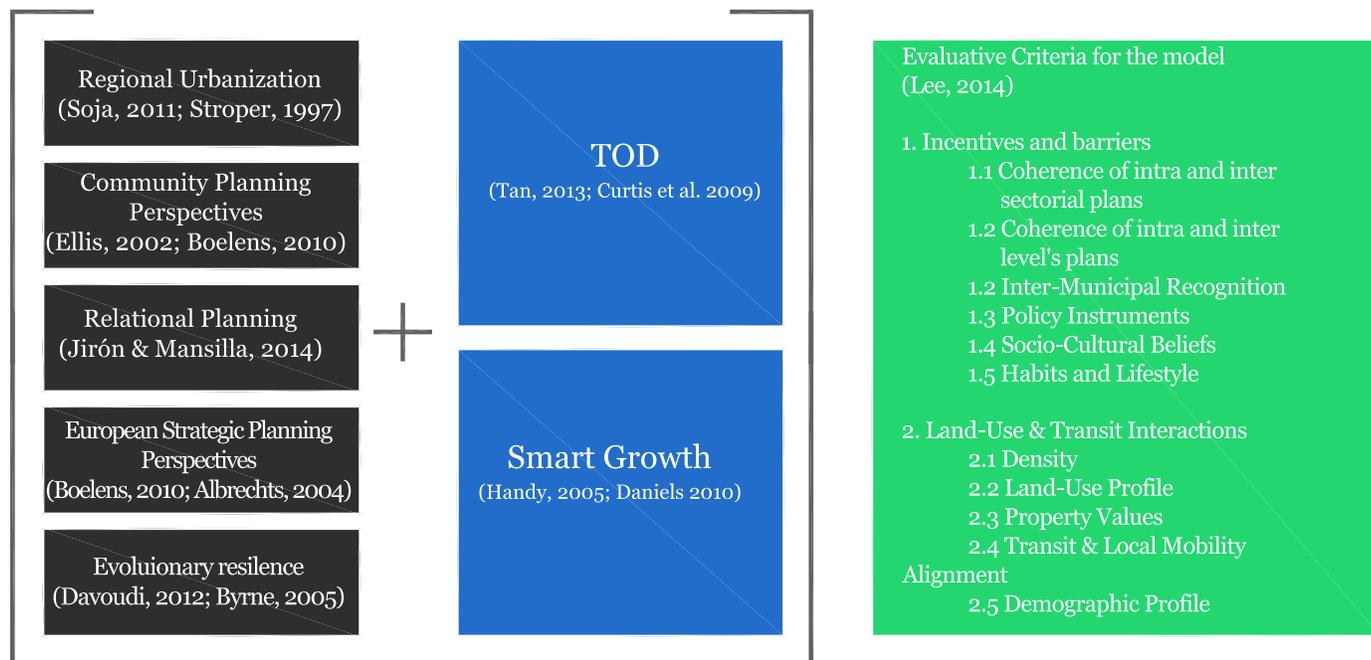


Image 3.3. Evaluation framework. Source: Made by the author based in Lee (2014), Tan (2013) and Ellis (2002)

Accordingly, In the next chapter the aim is to further develop this conceptual framework with the stated criteria and indicator. Thus, in the next chapter the author will:

- + Look and examine for context - specific barriers
- + Examine what tools / instruments / strategies are appropriate for intervention in the MAS and the SEAC
- + Consider, foresee and evaluate the impact and consequences for the application of such tools and instruments to the case study



Image 4.1. Chapter 4. Source: MTT2014

Chapter 4. Case study: the Metropolitan Area of Santiago [MAS]

4.1 Introduction

Beginning from the more general national planning framework towards the more specific current urban situation of the MAS, an analysis comprising all levels and stakeholders with a historic perspective is presented. First, the current National Planning framework is explained in order to understand one of the major problems in today's urban matter. Following, a summarized analysis of the existing planning perspectives at a national level is presented in order to recognize the current gaps and problems at a macro level. In the next section, a brief description of the MAS with a historic perspective describes the urbanization paradigms that today affects the city of Santiago. After this is stated and understood an analysis of the current governance and planning context is given as to set the context for the following chapters. Finally, the result of the presented planning structure is revealed to be a highly polarized and fragmented socio-spatial metropolitan area where the municipalities that have more commuters are in the periphery. This reveals serious discrepancies between urban, transport and social planning; situation that will serve as starting point for the development of a planning framework explained in chapter 5.

4.2 Existing National planning framework

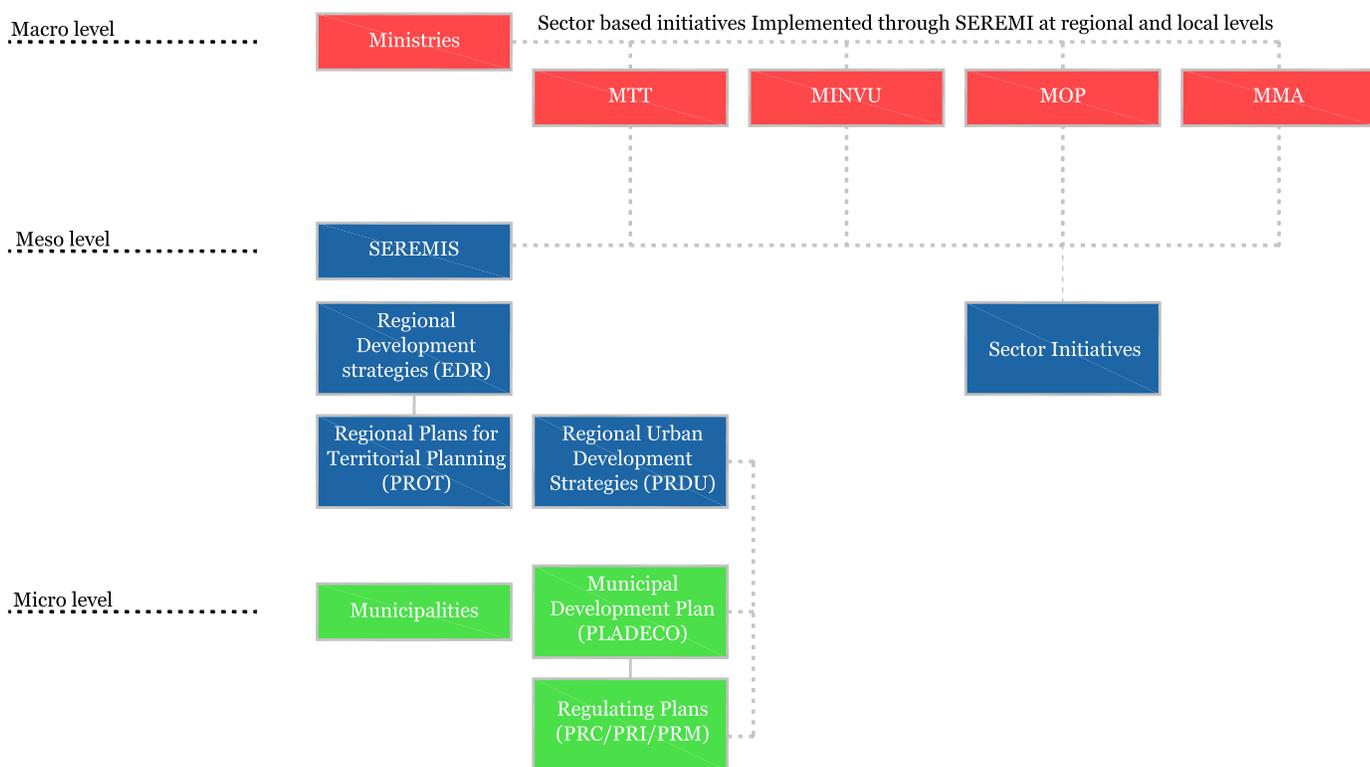


Image 4.2. Current urban programming hierarchy in Chile. Note: PROT are designed to support the realization of ERD and cascade down from them. Because PROT and PRDU are both being used at present, this is not yet the case in all regions, though PRDU are being phased out and gradually replaced by PROT. Regulating Plans (PR) are intended to devolve from the PLADECO, but their relationship has not yet been fully elaborated, given that many Regulating Plans were in place before the introduction of the PLADECO. This issue will be resolved as new PR are elaborated. ERD should help to guide municipalities in the formulation of their PLADECO, and PROT inform the design of PRs. Source: Made by the author based in OECD, 2013.

As it is seeable in Image 4.2, Chilean planning system is highly fragmented especially in the horizontal axis, this have been reflected in the MAS structure. Planning systems have become more sophisticated and knowledge about interaction between systems is getting more complex. The lack of integrations and cooperation reveals that there is no one single planning goal or planning concept and this is being translated in policies that lack continuity, do not develop a long term strategic vision for the urban form, do not ensure comprehensive strategic plans for urban matters at all levels of government, fail to build capacities through the central level for sub-national strategic planning, and until now have not devise consultation mechanisms that may be set up on an ongoing basis to help policy and decision makers identify trends and shifts in urban preferences.

Within the sector initiatives we can find the MMA's Pollution Prevention Plans, MOP's Transit Master Plan for the MAS, MINVU's PRMS and so on. Even when well-intended, this plans lack the strength on their own to address the number of urban challenges and needs of the MAS. This is the basis for stating that the MAS need an integrated approach towards regional urbanization issues, socio-spatial disparities, transit integration and strategic planning. This integrated approach could be provided by a tailor-made model of TOD / Smart Grow with additional perspectives that fits the MAS necessities and provides the conceptual foundations for a more inclusive and integrated planning model for the MAS.

In order to develop this model, firstly the MAS's planning concepts will be explained in further detail; by analyzing these perspectives, we will find the biggest challenges and overlooks. Secondly, we will analyze the current state of the art concerning comprehensive, holistic planning in order to establish a tailor-made model for the MAS. These concepts and perspectives as a hole comprise this thesis' Theoretical Framework, which aims to develop the mentioned model. Finally, this model is complemented with a set of evaluative criteria to assess the operability, viability and performance of this model as a regeneration agent in relation with the social and urban problems stated. The following will serve as the theoretical basis of the thesis' integral planning perspective and proposed operational planning model.

4.3 Existing national planning perspective

The lack of an integral approach in spatial planning has impeded the creation of a single planning perspective, goal or scenario. Multiple sectorial initiatives have been put in place, none the less they do not support, complement or integrate between them so they lack the strength to actually make a difference. Moreover, there appears to be no links between central government sectorial initiatives and local level strategies to implement such initiatives. Chile has not managed to create coherence in overall urban development and management processes (OECD, 2013). Today, the market is still the driving force in Chilean real estate development and in urbanization processes. Next, two policy analysis reports, one governmental and one non-governmental, are summarized and key aspects are displayed, then sectorial plans are summarized and briefly explained

4.3.1 Special presidential advisory commission pro urban mobility

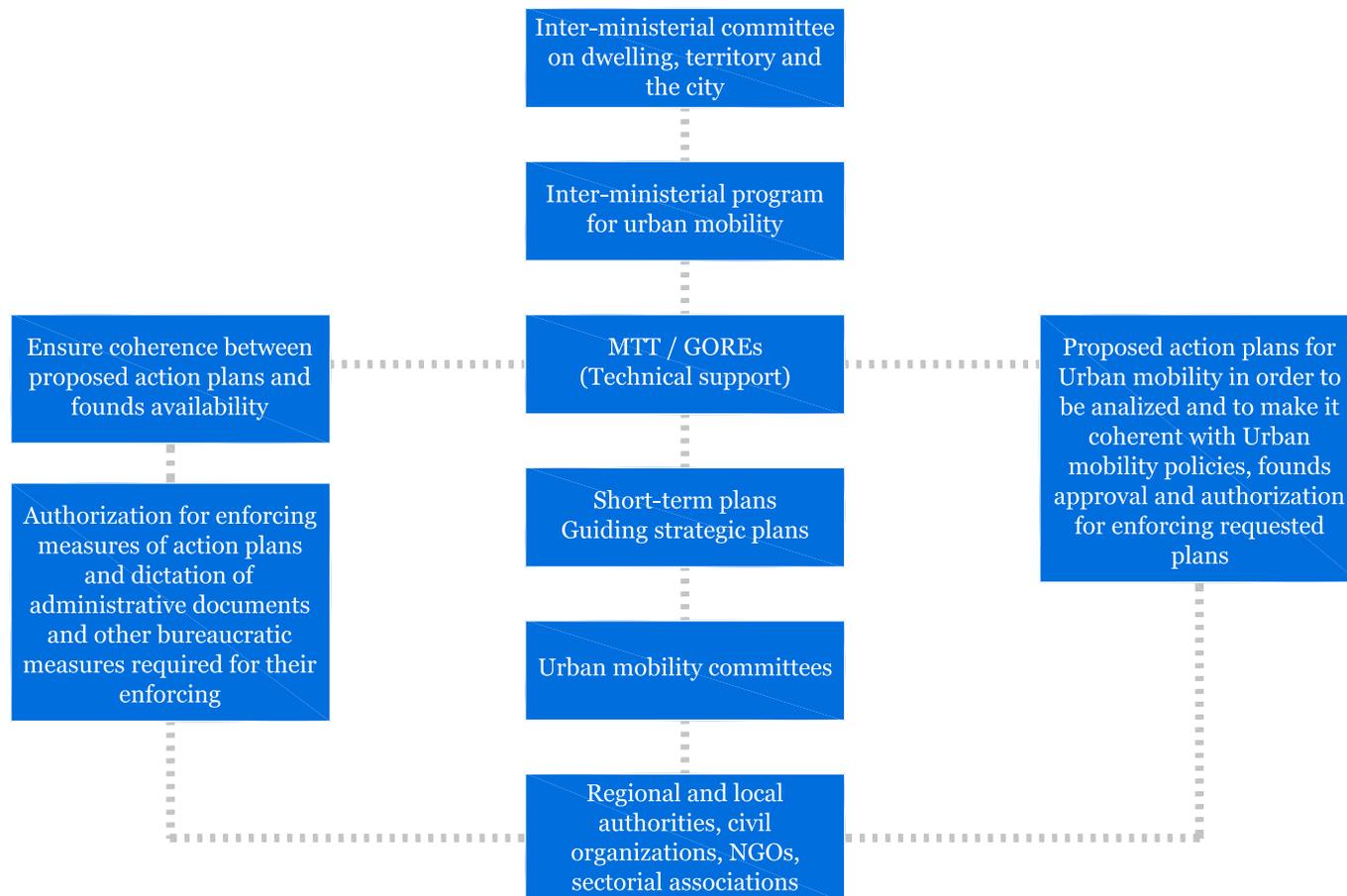


Image 4.3. Proposed framework of the Special presidential advisory commission pro urban mobility.
Source: MTT 2014

This report was delivered to the president on December 2014, the first and most important statement is that is not binding with any program of the government, so at this time does not go further than any other academic paper on the subject, legally-wise. The report recognizes the main issues of Chilean cities (it is not directed only at the MAS but to all Chilean cities) and proposes a more integrated approach towards planning making emphasis in the local authorities as main agents of increasing mobility in the cities. It also recognized the necessity to integrate transportation and land-use policies in order to achieve more organic and just development in urban areas. This report, even when well-intended lacks both the concrete actions and/or plans and the binding capacity to enforce them, thus being just an exploratory report on urban mobility in Chile.

4.3.2 OECD policy review for Chile

The OECD creates reports analyzing policy frameworks of their member states trying to help guide the development in order to achieve a more just and economically prosper society. In this document, we can identify a thorough analysis of Chileans policy framework. According to the OECD (2013. Pp. 201): ‘There is no ‘best’ model for urban governance or metropolitan governance. The appropriate course of action with respect to urban governance architecture should be driven by the objectives at hand. Among the pressing goals for urban development in Chile is to ensure urban sustainability and continue to improve the quality of life for urban residents. Concretely, this means overcoming the obstacles posed by administrative and institutional fragmentation in order to ensure better policy outcomes in such areas as land use, housing, transportation and the environment’. This document states various comparisons with several other systems and institutions used around the world that could benefit Chilean planning and policies frameworks. In the report there are also general guidelines to improve and achieve the stated goals, all of the above is considered in the creation of the proposed governance structure of the MAS.

4.3.3 Sectorial initiatives analysis

+ MOP - Transport Masterplan for Santiago 2025 [Plan Maestro de Transporte Santiago 2025]

Is created under the ‘necessity to create a managing guidance instrument to aim to a urban transportation system oriented to satisfy the mobility needs of Santiago’s inhabitants and products in the long-term’ (MOP, 2012, pp. 11. Translated by Hudson). This masterplan defines four major goals, namely: Efficiency, equity, sustainability and security. The masterplan, more than defining scenarios, scopes, perspectives or frameworks aims to the development of different infrastructure for different transport systems as mean to increase mobility. As stated in this thesis, this perspective is highly short-sighted and will result in a decrease in the quality of life of the inhabitants of the MAS if implemented only as an investment portfolio; none the less, as the instrument exists, the proposed investment are further analyzed in order to fit into the Holistic Catalyzer Framework in order to use them to potentiate it.

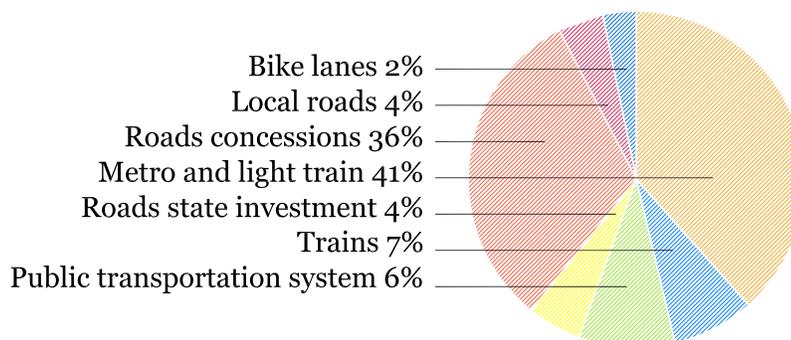


Image 4.3. Distribution of the investment according to the Transport Masterplan for Santiago 2025 . Source: made by the author based in MOP (2012)

+ MINVU – PRMS [Plan Regulador Metropolitano de Santiago]

The PRMS was designed to stop the continuous urban sprawl of the MAS. The PRMS is supposed to guide the growth of the MAS with a regional/metropolitan perspective, none the less we can see today that most of the local PRC –local development plans- do not match the criteria defined by the PRMS. Moreover, the main goal of the PRMS was to stop the increasing urban sprawl, none the less, this instrument has created several ways to bypass this goal in order to achieve greater development outside city limits.

+ MTT – Urban transportation Master Plan [Plan Maestro de Transporte Urbano]

These regional-made plans have the same composition as the Transport Masterplan for Santiago 2025; they are pretty much an investment portfolio for privates and the state. Moreover, these plans are not binding and do not relate at any level to, for example the PRMS, or any other Master Plan.

+ MMA –Pollution Plans [Planes de Descontaminacion]

These also not binding plans are made for specific areas that do not match any political limit making them hard to implement as no one knows who is in charge to do so. Once again, the plans limits to a set of top-down initiatives not properly funded that do not match local necessities and that do not relate to other sectorial Master Plans for the same are, being so far highly ineffective.



Image 4.5. SEAC view. Source: MTT2014

4.4 The Metropolitan Area of Santiago (MAS).

The MAS or Metropolitan Area of Santiago is the largest urban area in Chile with around 6.1 million inhabitants; this is 35% of the population of Chile. In the political perspective, the MAS is composed of 34 communes or municipalities, 32 from the Santiago province and 2 adjacent municipalities (San Bernardo & Puente Alto) it covers over 84.000 ha. Both the urban sprawl and the population growth has been exponentially increasing for the last 30 years driven mostly by the adoption of the liberal practices of capitalism and the dynamic economy this model brought. It is important to note that even when both factors have increased rapidly, urban sprawl has been faster than population growth creating a decreasing density curve. At this moment, the residential density within the urban built area is 84 inhabitants/ha (INE), which is considered medium low according to international standards (Livert & Gainza; 2014).

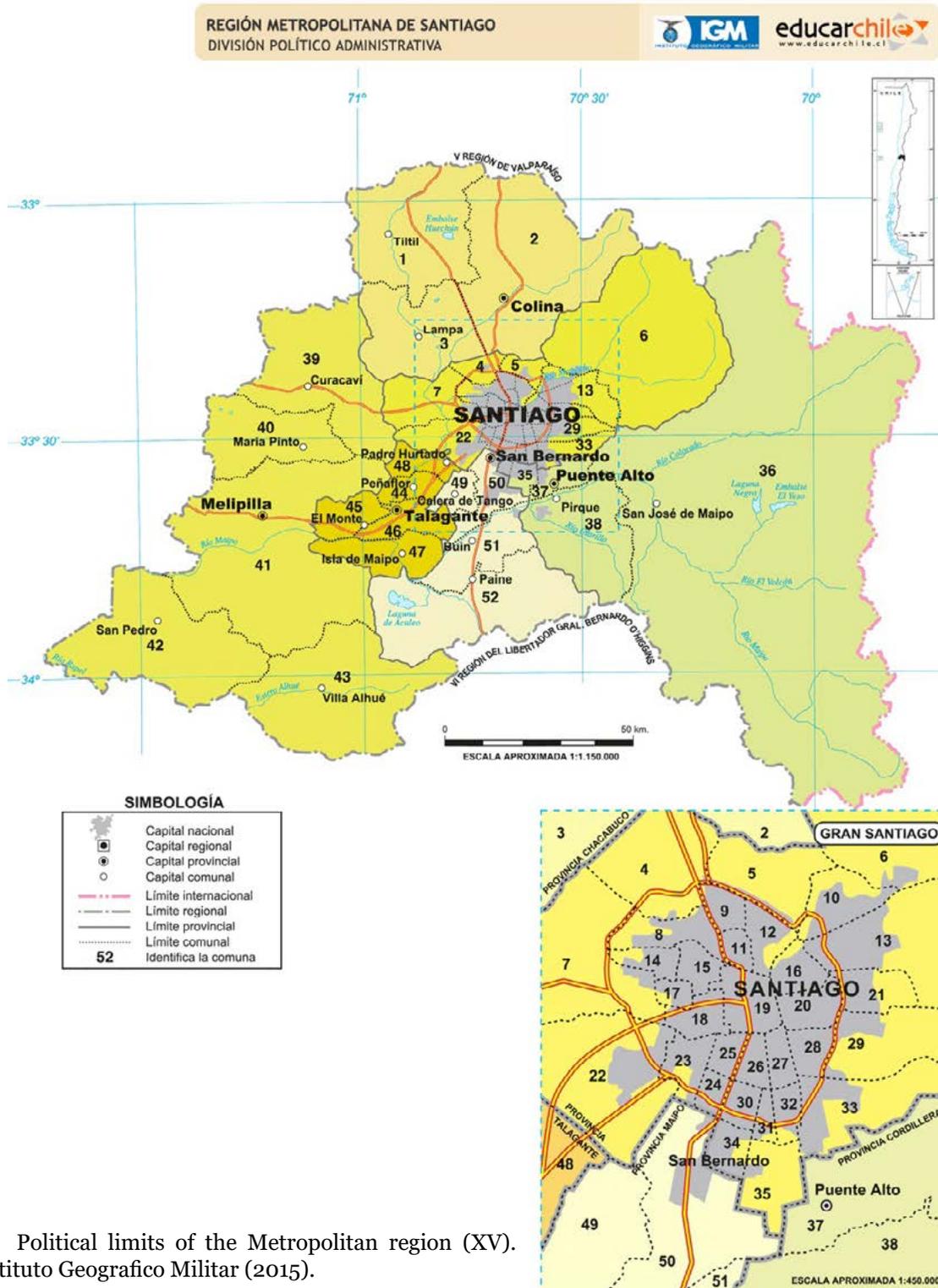


Image 4.5. Political limits of the Metropolitan region (XV).
Source: Instituto Geografico Militar (2015).

The MAS is highly fragmented and segregated, the northeast cone clusters the richest municipalities and the rank lowers to the southwest. This fragmentation and segregation can be explained, even when it has an important historical root, from the perspective of the last three decades when Augusto Pinochet's coup d'état and following dictatorship adopted the capitalist and neo liberal policies that until today rule Chilean markets and allowed public and private stakeholders to change urbanization patterns without any other restriction other than the market. This changed the dimensions of the urban sprawl in the MAS.

As the result from these policies today we see consequences as:

+Social dwelling keeps on being pushed away from the city center because of the pressure from the real estate marketers. This is translated in a decrease in life quality of those displaced towards the periphery, incrementing social resentment because of the unprepared neighborhoods they have to move that do not supply the basic infrastructure or services needed to have a full social and personal development nor the necessary accessibility to access them.

+The unprivileged are not the only ones moving towards the periphery, the privileged are moving towards the periphery as well. Of course not the same one as the first group. New residential mega projects started to appear since the 1990 focusing in the ABC1 group, and emerging in peri-urban municipalities or in working class municipalities. They are mostly designed as gated communities, low density wealthy ghettos.

+These phenomena have created an intra-metropolitan migration where inhabitants are moving from the inner city towards the periphery. Almost all core municipalities lost population and some peripheral municipalities increased its population almost a 200%.

+‘Richer and poorer neighbors locate closer to one another but this results in ‘tectonic’ juxtapositions of polarized socioeconomic groups rather than in socially cohesive communities’ (Livert & Gainza; 2014. Pp. 5882). Because of land scarcity, higher and lower income households are getting closer, this is mostly related to high income groups moving into working class municipalities. It is important to state here that this phenomenon is not leading to a social mixture, just a reduction of the geographical scale of segregation; none the less this phenomenon has brought some positive changes into these areas such as the creation of jobs, the improvement of infrastructure, improved public services and even an increased sense of proud in the local community. This new phenomena has changed the way we understand the MAS structure as the municipality used to be the political unity to define socio-spatial division and this is no longer valid because of the new heterogeneous social structure of some municipalities.

+Densities and socio spatial patterns are being balanced by all the above mentioned phenomenon’, this means that the city is the city is transforming from a municipality-wise fragmented city towards an inner fragmentation that do not respect political limits as low-density high-income gated communities are being placed next to high-density low-income communities.

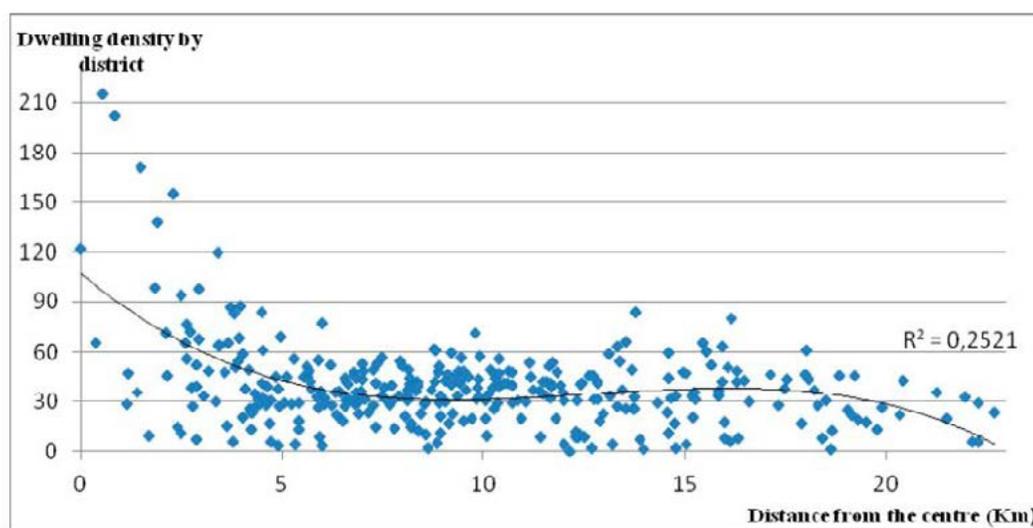


Image 4.6. Relationship between dwelling density and the distance from the city center in KM, sorted by district.
Source: Livert & Gainza (2014).

4.5 Urbanization paradigm.

Various authors (De Mattos, 2002a, 2002b, 2010; Capron and Gonzales, 2006; Jiron y Mansilla, 2014) coincide that the commercialization of the urban dynamics is a global major trend and constitutes a signature characteristic of the capitalist process of urbanization. The real estate development boom has exponentially grown in the last three decades in the areas that favor surplus value in the short, medium and long run, this is the areas where the location is optimum or the normative is flexible. As it has been stated the two major conditions for this phenomenon to succeed is to liberate the economy and de-regulate urban growth, both present in the MAS.

Vicuna del rio (2013) analyses the commercialization of urban growth considering two parallel processes: first, the way the neo-liberal agenda has been applied into both the normative and operational urbanism in the MAS and second, the way this path has shifted objectives due to political and economic changes in the macro-level and that have been materialized as the normative frame for urban development.

This section aims to describe and analyze the trajectory of the institutional frame of the neo-liberal urbanism in Chile with emphasis in the MAS, and its materialization in the spatial transformations in the city.

From this point of view, in the capitalist arena of the MAS three real estate development's phenomenon can be found:

- +The policy trend tends to encourage horizontal relationships (do not mistake with integration) between public and private stakeholders. The market has gained value in the regulation of both the real estate development and the consensus participation of the stakeholders involved in the processes of city-creation.

- +There have been technical adjustments to the urban planning process, especially at the local scale. This has been translated in to a late reaction to the strong real estate investment trends beginning in the early 90's by some municipalities that in the past decade have shown a great deal of urban renovation.

- +The capitalistic model applied in the urban context of the MAS presents some discrepancies, contradictions and paradoxes product of the inherited centralist planning approach that where juxtaposed with the neo-liberalist and capitalist approach resulting in an hybrid capitalistic model.

4.5.1 From technical rational towards neoliberalism

Technical rational planning, in the Chilean context, was materialized with more strength in the 'Plan Regulador Intercomunal de Santiago' [Intercommunal plan for Santiago; Translated by Hudson], abbreviated PRIS, in 1960. The PRIS was developed by the central government and the main goal was to establish a limit for the growth of the MAS. Throughout the creation of different zones, the PRIS separated activities and reserved land for green areas. This planning instrument was the first one to consider the roles of transportation and infrastructure in planning; in this context, the state does not only plan as a centralized agent at all levels, but also carries out direct public investment aimed at equipment, infrastructure and housing.

The first reforms to this model came at the beginning of the 70's as a political response to two phenomenon: (1) the decreasing profitability of industrial production and (2) the crisis of the Keynesian welfare state (Vicuna del rio, 2013). After the military coup d'etat run by Pinochet in the 73' the neoliberal and capitalistic agendas were drastically imposed in all market matters, included land market, by a group of economists formed in the Chicago University under the direction of the economists Milton Friedman y de Arnold Harberge. The so called 'Chicago boys' stated that 'the neoliberal ideology is based on the belief that open, competitive and 'unregulated' markets, which are not subject to state interference or the actions of social groups, represent the optimal mechanism for socio-economic development' (Theodore, peck and Brenner; 2009. Pp. 2). Arnold Harberger sustained that land is not an scarce commodity and that the limit imposed by the PRIS created disequilibrium in land pricing between the urban and non-urban areas, and that erasing the limit would help smooth the distribution curve of spatial land pricing (Massone, 1996). This brought two major impacts on the MAS: first, the extension in a 160% of the urban area throughout the extension of the urban limit and second, the exemption of the state to provide infrastructure, housing and equipment into the areas to be developed, responsibilities that were delegated to the privates.

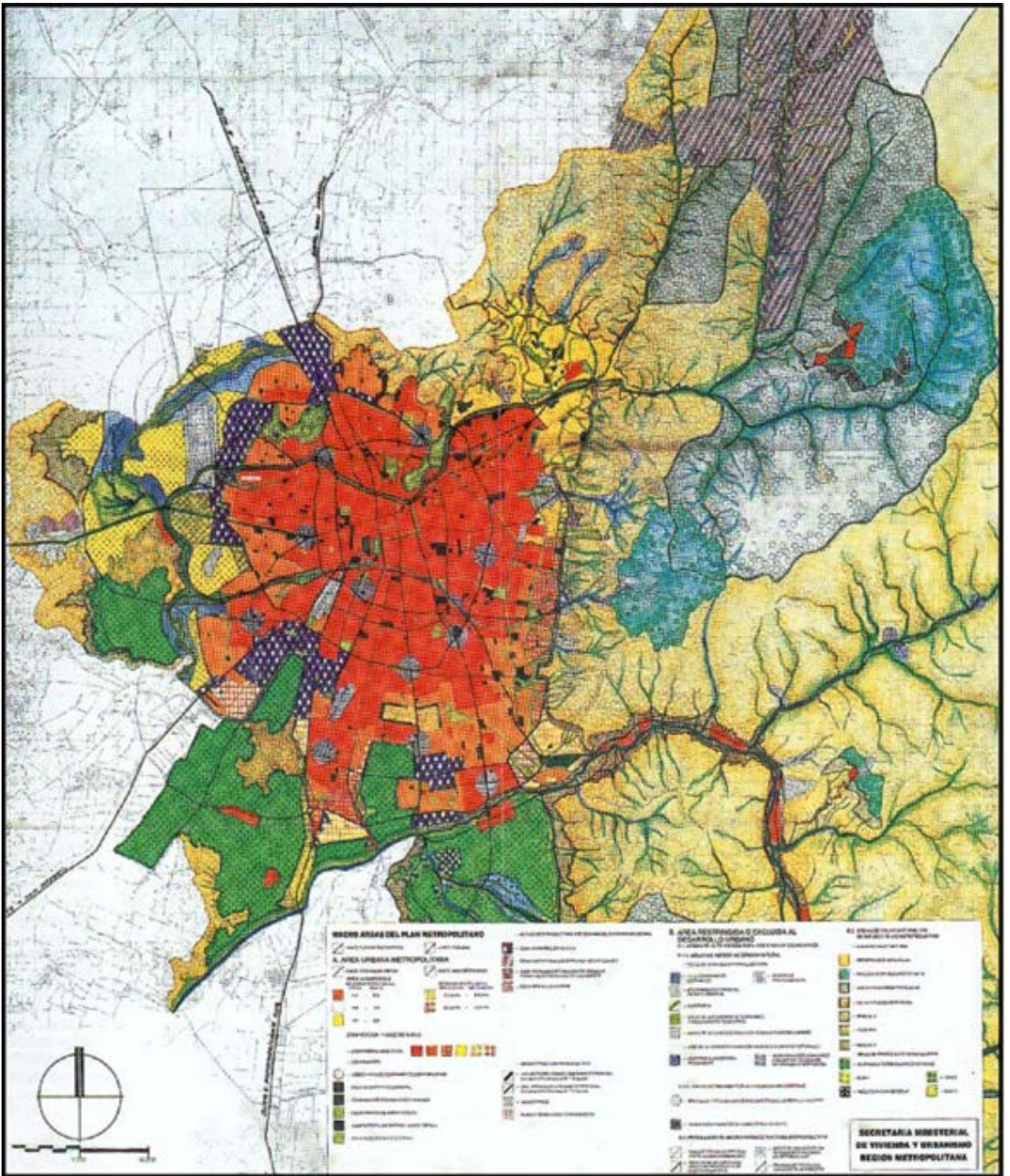


Image 4.7. The Plan Regulador Metropolitano de Santiago (PRMS) [Metropolitan plan for Santiago].
Source: MINVU (1994)

In 1985 in the theoretical speech, quality of life, the environment and stakeholders participation gain value, none the less, national policies regarding urban development maintained the market as the main actor and only transferred the state the duty to guarantee minimum standards for development throughout minimum regulation.

In the early 90's the consequences of the de-regulation was evident and started to show signs of detrimental growth. The urbanized area had increased at a huge rate and the expansion towards the periphery continued lacking basic equipment, infrastructure and services and at the same time was consuming huge amounts of agricultural land. As the social housing policy since the 60's had been the one to eradicate informal settlements, people was moved from their peri-centric informal settlements towards the edge of the city, especially towards the south periphery.

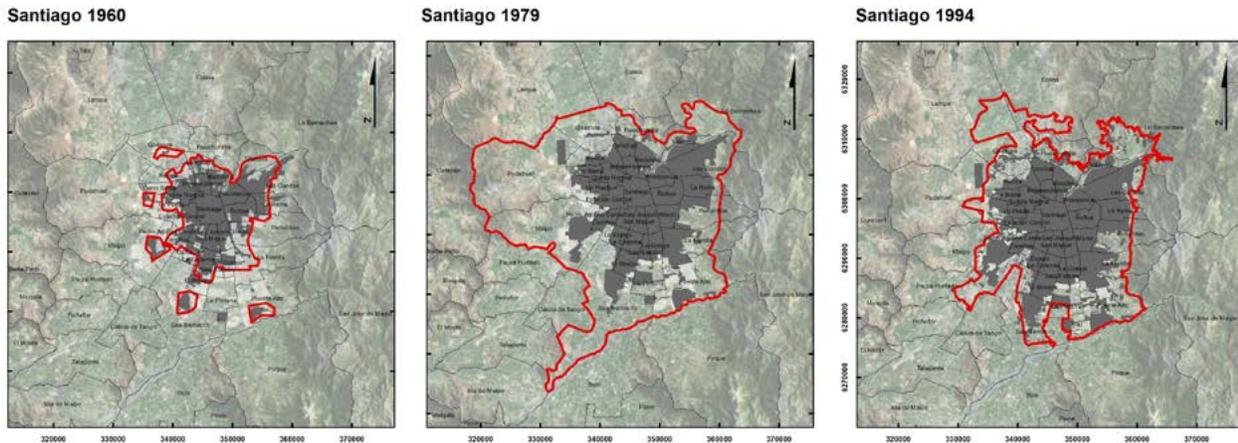


Image 4.8. Sprawl of the MAS and the different Urban Limits according to each planning instrument.
Source: Vicuña Del Río (2013)

Theodore, peck and Brenner (2009) state that the neo-liberal ideal does not necessarily coincide with the political practices of neoliberalism, which creates market failures, especially in the urban context. In the case of the MAS, the policies trying to efficiently distribute resources and investments was translated into new ways of social polarization, increased spatial inequities and several internal crises within governance agents and the central government.

Pinochet's dictatorship was dissolved in 1990 so did the strong neoliberal policies. The central government through the Ministry of housing and urbanism (MINVU) approved the Plan Regulador Metropolitano de Santiago (PRMS) [Metropolitan plan for Santiago, translated by Hudson] in 1994. The PRMS is an attempt to go back to technical rational planning, it contains a lot of insights of the 1960's PRIS, it basically aims to control the city within a limit, separate activities by zones, define structural network for transit and traffic and articulate the center and the periphery throughout sub-centers.

None the less, and despite the existence of the urban limit set by the PRMS, the city kept on growing. The neoliberal practices became part of the urban culture, and despite the regulation, it was impossible to go back to the technical rational metropolitan planning.

In 1997, the PRMS was modified for the first time, the incorporation of the Chacabuco Province and the creation of the Zonas Urbanas de Desarrollo Condicionado (ZODUC) [Urban areas for conditioned development, translated by Hudson], this meant the incorporation of 15.000 ha to the urbanizable land in the MAS.

In 2003 two more instruments of conditioned development were introduced: the PDUC and the AUDP, that different from the ZODUC did not had a territorial definition, but could be located anywhere as long as they met the conditions. In 2006, the PRMS incorporated the whole area of the Metropolitan Region with the remaining two provinces and two municipalities that were not included; this meant an increase of 9.000 new hectares for the MAS.

This brief historical review aims to establish how the current cooperative planning process between public and private model was forged. This model aims to canalize market forces throughout control policies and mitigation regulation for the real estate developments transferring all urbanization costs to privates.

The public sector has embraced this model pointing out that the conditions set for these kind of developments pursues socio spatial integration, the creation of necessary equipment, infrastructure and green areas. Thus, the technical rational planning as the neoliberal practices are both in recoil in order to establish a new cooperative form of urban planning. Here we see the concept of horizontality described in the introduction of this chapter.

4.5.2 Technical adjustments to the neoliberal ideal.

Capitalism is understood as a multilevel ideology, thus, not only the regional and inter-communal planning policies have evolved in this context of neoliberal practices but so have the local planning policies. Actually is at this level that we can recognize technical adjustments to the planning instruments that are tightly linked to the goals of real estate development as a mean to either increase or decrease local development.

Profitability maximization of land, under the regulation of highly permissive plans has been the main factor in the current transformation of the city. The more developed and richest municipalities have imposed density, height and several limits in order to preserve and protect construction, design quality and public spaces. We can say that these municipalities have been successful in regulating market forces in order to achieve high investment and good urban design practices. On the other hand, other municipalities have been drive by the unregulated market forces because of weak and poorly design plans, creating ghettos, traffic jams and overall detrimental public spatial development.

4.5.3 Hybrid neoliberalism: discrepancies, contradictions and paradoxes.

Operative neoliberalism requires a certain degree of hybridism as for in its purest form cannot exist due to the coexistence of local contextual institutions product of culture and historical practices. In the case of Chile and the MAS, this hybridism tends to show paradoxes ad contradictions at the different governance level's policies and the mechanisms for regulatory and operational urbanism.

Despite the restrictions defined in the communal urban plans, aimed at control and directing real estate investment, there still exist some central/top-down regulation instruments that allow developers avoid local normative. Such instruments work on the basis of the 'exception'. In the Ordenanza General de Urbanismo y Construccion (OGUC) [General ordinance for urban development and construction, Translated by Hudson], that supports the technical aspects the Ley General de Urbanismo y Construccion (LGUC) [Law for urban development and construction, Translated by Hudson] establishes the minimum urban requirements to develop social housing outside the urban limit. None the less, the same OGUC establishes that it is the duty of each municipality to such conditions and requirements so this kind of projects don create unplanned under-equipped mono-functional sub-centers outside the urban limits.

Thus the contradiction comes because the OGUC has priority over local planning instruments, allowing the creations of such unplanned under-equipped mono-functional sub-centers outside the urban limits despite all planning instrument prohibit them. Like this rule, there are several more that mainly focus in the development of social housing and that allow developers to engage in mega mono functional projects that are detrimental to the city and for all healthy urban development.

This 'exceptions' have conditioned the MAS growth in the past 30 years, they have increase the speed of the urban sprawl of the MAS and have created several peri-urban unplanned under-equipped mono-functional sub-centers outside the urban limits, that once consolidates are included inside the urban limit as a way to protect and the population and as a mean to push for the necessary equipment and infrastructure missing. This is known as ex-post urbanism. Thus, this contractions and paradoxes keep on reinforcing fragmentation, discontinuity, the creation of ghettos and social resentment and inequity.



Image 4.9. Ex-post urbanism in the sub-urban Municipality of Colina in the MAS. Source: Vicuña Del Río (2013)

4.6 Governance and planning contexts.

'Actors in urban development at all levels in Chile agree that the current urban governance architecture is strained. It is challenged by high levels of centralization, administrative and institutional fragmentation, a lack of coordination among public and private sector actors, and an urbanism framework that is top-down, sectorial, and rigid in its design and implementation. This complicates the formulation of plans for robust and sustainable urban policy outcomes, including an enhanced quality of life for urban residents' (OECD, 2013, pp. 142)

The OECD (2013) has deeply analyzed governance structure and architecture in Chilean urban planning; in the following section the most important topic will be summarized and complemented with different authors opinions in order to achieve how this governance system works and where the fortresses, opportunities, weaknesses and threats are.

4.6.1 Current urban governance institutions at different levels: Macro (central), Meso (regional) and Micro (local).

Identifying the actors at the government governance institutions:

+CORE: [Consejo regional] members are elected by the municipal councilors of the region's municipalities. The Regional Council approves: municipal urban Plans, regional urban development plans, regional development strategies and the regional budget.

+GORE: [Gobierno regional] Local government, one per each of the 15 regions. Each is led by an appointed regional executive, the Intendant, and has a CORE. GOREs are divided into three administrative units: Administration and Finance; Planning; and Analysis and Oversight. These units implement the various dimensions of regional policy and are responsible for regional public administration. The GOREs have no own-revenue raising capacity, and depend entirely on the central level for regional development resources. At the same time, GOREs are the key administrators and disbursers of funds for the local authorities.

+Intendant: [Intendant] Intendants, directly appointed by the President of the Republic, lead the GORE. Among the Intendants' functions is to oversee development initiatives and ensure the coordination and integration of sectorial policies in their region.

+MINVU: [Ministerio de vivienda y urbanismo] The Ministry of Housing and Urbanism has traditionally been focused on addressing the urban-housing deficit and in providing social housing. At the same time, through its Urban Development Division, it has the primary responsibility for urban planning at a national level. MINVU, mostly through SEREMI, has a significant level of influence on Chile's land use plans.

+MMA: [Ministerio del medio ambiente] Ministry of the Environment, participates in the strategic environmental assessment of urban and transport policies and plans. It is responsible for the administration of the system of environmental impact evaluation (SEIA) and approving environmental impact studies and declarations (including those for land-use plans, real estate projects and transport projects).

+MOP: [Ministerio de obras públicas] Ministry of Public Works, is in charge of planning, designing, building, expanding, repairing, maintaining and operating the national public infrastructure system. Within its legal powers, the MOP is responsible for the implementation of the Law on Private Concessions and for controlling and supervising the private concession scheme on infrastructure.

+MTT: [Ministerio de transporte y telecomunicaciones] Ministry of Transport and Telecommunications, is the link between the government and transport-related enterprises; on the other hand, leads the implementation and evaluation of the Impact Assessment System for Urban Transportation System, which aims to mitigate negative impacts on the transportation system associated with building projects.

+Provincial governor: [Gobernador provincial] appointed by the President, support the region's Intendant. The governors are often viewed as valuable given their proximity to citizens, but the role they are given in territorial management and policy implementation is limited and will depend on the region and the particular Intendant in office.

+SECTRA: [Secretaria de planificación del transporte] The Department of Transportation Planning is a technical agency under the MTT responsible for the planning process of the urban transport system in Chile's cities. It advises national and regional authorities in the decision making and management of investment projects and initiatives

that the process generates. SECTRA is responsible for developing and monitoring Transportation Master Plans.

+SEREMI: [Secretaria regional ministerial] Ministerial Regional Secretaries, support the Intendente, serving as a “cabinet” of technical advisors. These are the regional delegations of line ministries. Central-level ministries with sub-national competences have a SEREMI and/or equivalent body in each region, representing such ministries.

+SERVIU: [Servicio de Vivienda y Urbanización] The Housing and Urban Development Agency is an executive unit under the MINVU that deals with the construction and maintenance of urban roads. It has played a central role in implementing public transport corridors.

+ Macro level.

At the macro level, Chile’s centralized tradition have created a very developed vertical integration, none the less in matter of horizontal integration, there is still low dynamics between and within institutions and organizations. No ministry has the authority, or the willingness to push and/or pull other ministries into an integrated urban development process; thus, housing, transportation, environmental concerns and financing are all disconnected hindering successful project management. This applies also to non-governmental stakeholders, the lack of participation and/or accountability by stakeholders has reinforced a narrow and sectorial perspective over urban matters.

+ Meso level.

The first problem relates to lack of continuity of key players: Intendants average length of services averages one year. This of course creates disruptions to the stability and the continuity of policy implementing processes as well as damages the credibility of the office.

One second problem is the one of political inconsequence’s and paradoxes. The administrative system is pervert and allows contradictions so all political actor are serving central governance instead of local as they should. First, Intendants which are the head of GORE should watch over local interests, none the less as they represent the central government (and are designated by the president); they will push for centralized nation-wise policies and guidelines, which in most cases will not be aligned with local interests.

Secondly, SEREMIS are in a complex situation, they represent the central government through the ministries and also serve the intendant. While in theory all parties should be aligned, this is hardly true. SEREMIS have to watch over the ministry interests in the local area, while respecting the central government and the local government illustrated by the intendant. It is important to state that in SEREMIS will tend to outlive the political life so they will tend to prioritize ministries agenda in order to achieve a certain political stability.

Lastly, the in-definition of some roles such as the one of the provincial governor is unclear as far as the degree of influence of the office in decision making. Furthermore, governors are in a similar position as intendants in the way that they have to answer to both intendants and municipalities.

+ Micro Level.

Operationally speaking municipal autonomy in fiscal, financial and urban management is limited. Most municipalities are highly dependent on Macro-level funds to execute their competences. This of course interferes in the local agenda, as if the projects are not in line of what the central government wants, funds will not be granted. Even when we consider this, public expenditure at municipal expenditure was 16% (Asociación Chilena de Municipalidades, 2012) in 2012 (the average of the OECD is around 30%), this reveals that most of the efforts are still at central level. Valenzuela and Rojas (2012) analyze this scenario and state that this number represents a decreasing share of total public resources, potentially indicating a trend away from further decentralization. This is aggravated by the lack of multi-annual budgets and dedicated budget lines. Furthermore, even when local planning is stipulated within the responsibilities for each municipality, these plans can be overridden by instruments used by the central authority, reducing once more the authority over their territory.

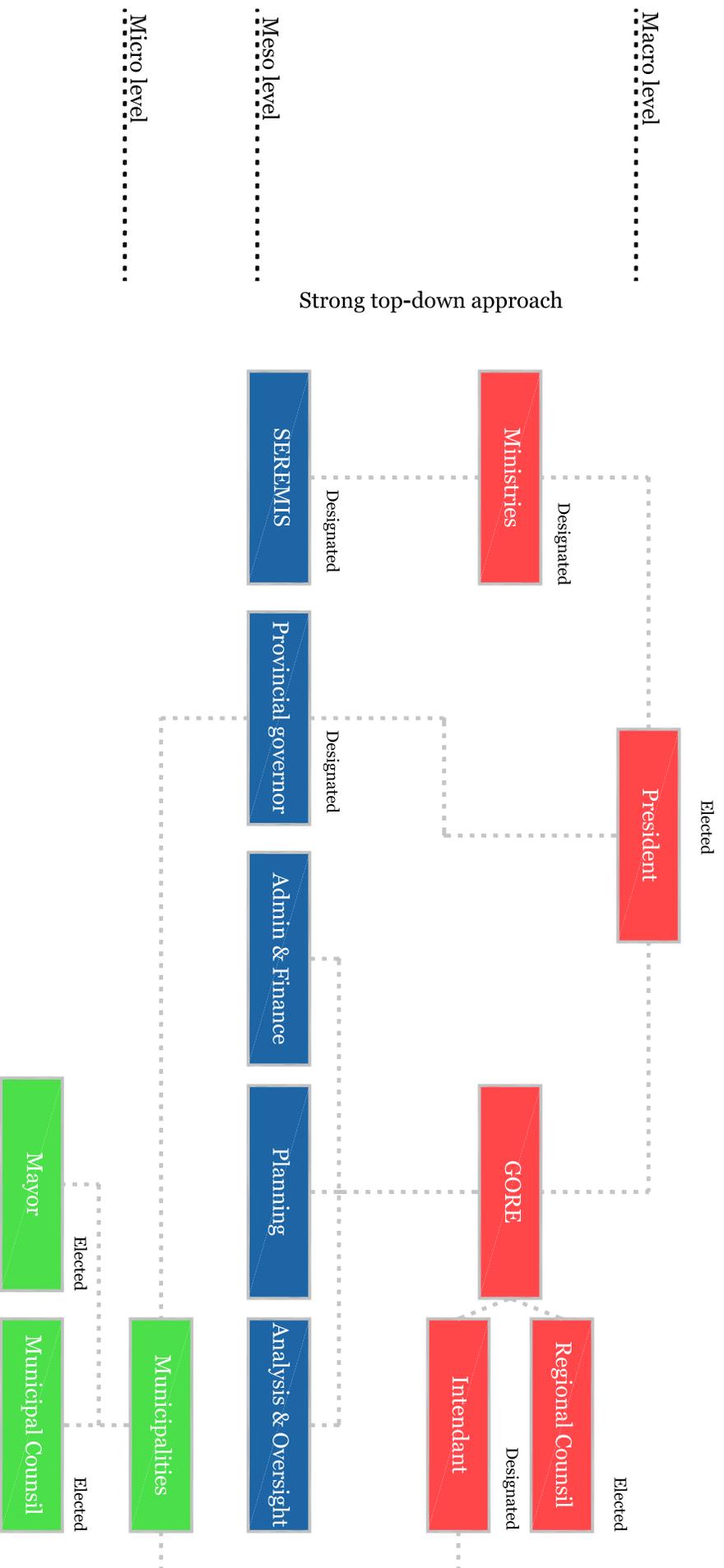


Image 4.10. Central/regional institutional reporting structure. Source: Made by the author based in OCDE (2013)

4.6.2 Governance framework: Sub-national finance.

As it has been presented, finance and budgeting practices currently do not support subnational interests. The inexistence of budget lines and multiannual budgets has crafted the little autonomy presented by municipalities regarding funds allocation. The result is a short sighted system that prioritizes short term plans and projects dismissing long term development planning.

This inefficient system has supported the vertical integration in governance dismissing the horizontal integration, which has created great inefficiencies in the regional – local goal delivery system continuing to diminish municipalities' capacities.

Micro level budgets are composed by: own source revenue, a system of horizontal transfers' through a common municipal fund (FCM) and central government funding support. Municipalities' sources of revenue include property taxes, user fees and certain concessions. None the less, this is being undermined, especially in low income municipalities by an extensive tax-exemption structure and the impossibility for municipalities to adjust tax-rate levels in order to finance urban services that cannot be subject to user fees (Bird and Slack, 2008).

4.6.3 Governance framework: Competence allocation.

It is now visible that the current financing system does not support competence allocation, and has proven to be flexible enough to account for the generally higher service demand and cost per capita associated with a metropolitan area versus a small urban one, for example (OECD, 2013).

This lack of flexibility can be read as a key concern of the central government regarding the competences of local governments, thus being reluctant to decentralize any further. In Chile, the capacities gaps appear spatially, being the MAS the center of all creation and retention of capacities and reducing proportionally as governance institutions get further away from the center (the MAS). This gap can be understood as the lack of human capital, knowledge, infrastructure and resources, limiting the capacities of them, regardless of the level of local government (Charbit, 2011). This phenomenon is not only reflected at national level, but within the regions and multi-municipal cities as well.

Regardless of the location, size or resources of the municipality municipalities are required to deliver the same set of public services. Of course, due to the disparities in municipal capacities throughout the territory, this service delivering system has proven to be unrealistic and unjust.

The misalignment between the resources available and the competences ascribed in a homogenous fashion across the territory will need to be considered, as it creates horizontal inequalities in the types, level and quality of services provided, further entrenching spatial segregation even within an urban area (OECD, 2013. Pp. 156).

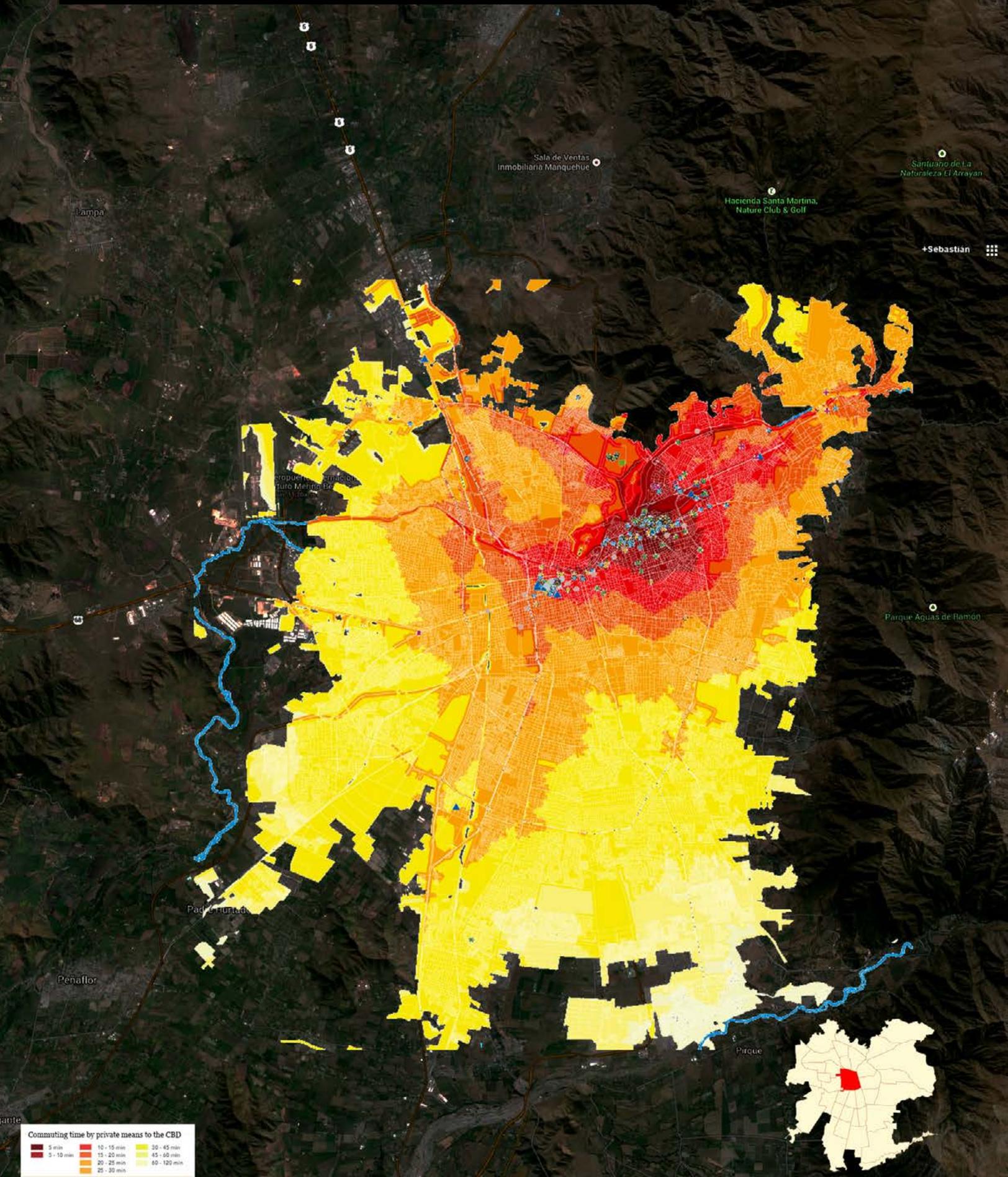
4.6.4 Fragmentation in the urban governance framework.

Even when fragmentation and atomization in governance structure is common, in Chile is highly evident according to the report of the OECD (2013, pp. 158). In the report three main points are discussed:

1. Approximately 40% of Chile's urban areas are a composite of more than one municipality. Managing such fragmentation requires a territorially appropriate framework and the capacity to help reconcile possible differences in development objectives, capacity and capability, and socio-economic disparities.
2. The fragmentation of urban management responsibilities across various actors (often with their own policy approach) and the lack of a coordinating body leads to task overlap and negatively impacts accountability and transparency.
3. The sectorial approach taken by line ministries and SEREMI in designing and implementing urban programming is consistent with a hierarchical governance structure such as Chile's. However, it inhibits the development of an integrated, multi-stakeholder, 'whole-of-city' approach based on shared urban objectives and priorities, characteristics more often associated with forms of network governance.

This administrative and institutional fragmentation has materialized in disaggregated plans and policies and finally in the territory as fragmented regions, cities and even municipalities.

Image 14.11. Time taken by private transportation to the CBD. Source: OCUC (2008)



4.7 Polarized development structure, Fragmentation in the MAS.

The result of the presented planning structure is a highly polarized and fragmented socio-spatial metropolitan area where the municipalities that have more commuters are in the periphery. This reveals serious discrepancies between urban, transport and social planning. It is important to this thesis to state that given the top-down tradition and low degree of decentralization, most efforts and mechanisms are defined by the central government, having little or no consideration for local governments.

This process has generated a dual landscape between successful sectors of the global city and marginalized sectors lacking the benefits of modernization (De Mattos, 2006); thus, the city is fragmented into winners and loser spaces, bright and dark areas, islands of wealth saber seas of precariousness and vulnerability (Caravaca, 1998; Veltz, 1999; Jirón & Mansilla, 2014).

Borsdorf (2007) refers to this process of urban fragmentation, as a new form of separation of functions and socio-spatial elements: urban fragmentation as the disposition of wealth nuclei embedded in poor areas and vice versa. Such situations are reinforced by the construction of walls and other safety devices that separate and secure the gap between poverty and wealth enclaves.

Also, the construction of urban highways allows the development of this new spatial organization, linking the distant fragments in which the city has been broken. Therefore, the city is no longer constituted from distinct areas of social groups, but sees itself fragmented and segregated into small homogeneous neighborhoods (Janoschka, 2002). In this regard, it is important to note the distinction that Capron and Gonzalez (2006) made between the processes of segregation and fragmentation. Segregation according to the authors relates to a city that is formed by parts -not fragments-, maintaining relations of complementarity, but also opposition. Fragmentation, meanwhile, relates to gated communities with relative autonomy and spatial isolation, although the multiple impacts generated from these subdivisions influence various urban contexts (Jirón & Mansilla, 2014).

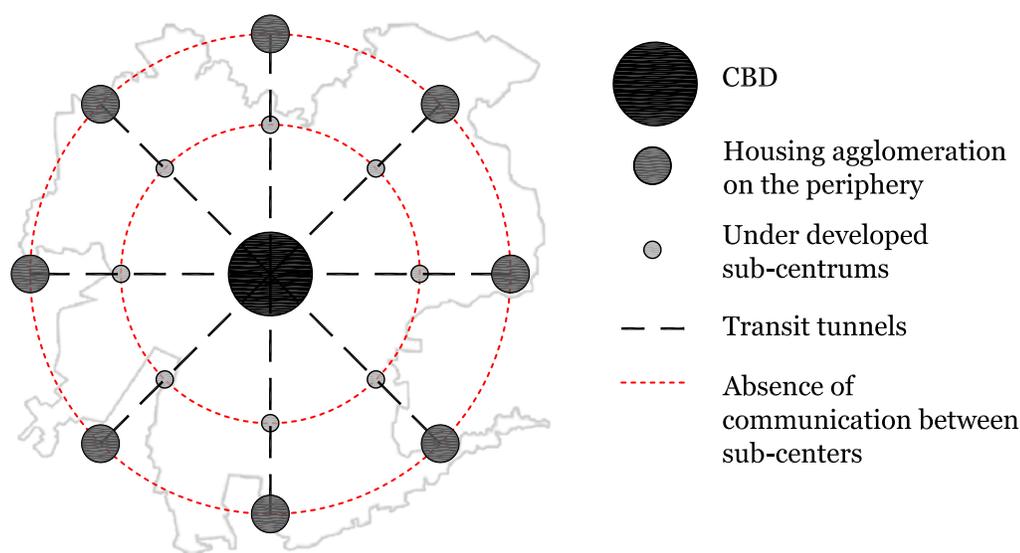


Image 4.12. Monocentric vision of the MAS. Source: Made by the author

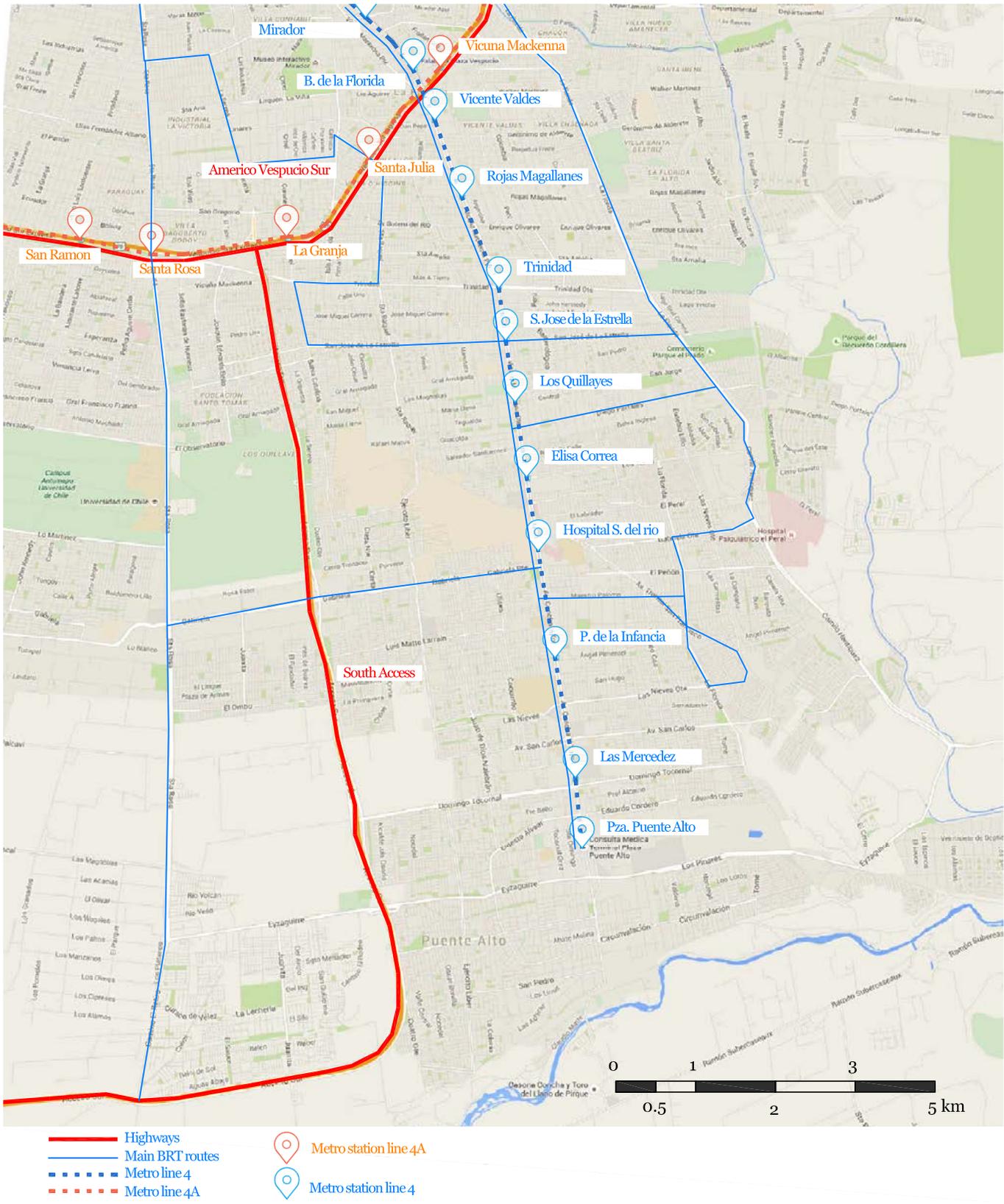


Image 4.13. SEAC Source: Made by the author / Google Maps

4.8 Area of intervention: The Southeast Access Corridor / SEAC

The SEAC is located in the south-east periphery of the MAS; it is composed by the municipalities of Puente Alto and La Florida. Puente Alto used to be a city-commune by its own until it was appended to the MAS during the 80's due to the real estate development pressures looking for cheap terrain to develop social dwellings. Nowadays, Puente Alto has 757.721 inhabitants with an increase of 54% in relation to the last census in 2002 and 88 km² of surface, thus a density of 8.600 inhabitants per km². It concentrates mainly the groups C3, D and E in the NRS social grade (INE, 2012); On the other hand, La Florida has 397.497 inhabitants with an increase of 9% in relation to last census and 70.2 km² of surface, thus a density of 5.600 inhabitants per km². It concentrates mainly the groups B and C groups in the NRS social grade (INE, 2012).

The SEAC was chosen for being representative of all the previously mentioned urban problems, further more, The SEAC has been subject to some phenomenons that encouraged the author to choose it as testing ground:

+ The technical and technological improvements of the last decades involving transportation systems and telecommunication flows have change the traditional morphology of the way of life in the MAS, this morphology or structure is no longer understood as a physical limit, but as a social practice change paradigm (Lazo y Calderón, 2014).

+ The Transantiago project (Bus Rapid Transfer system for the MAS) was presented in 2007 not only as a solution for the chaotic 'microbuses' (former 'formal' public transportation buses which was highly informal) situation of the MAS's arena, but also as one of the strategic projects to take SCL towards a world class city, modern and competitive in a worldwide scale. After the implementation of Transantiago in 2007, the public transportation system of the MAS is steel inadequate to suit the necessities of the socially and spatially marginal inhabitants of the city as the inhabitants of Puente Alto. This is translated into long commuting journeys for an important part of the population. Individuals had to change and re-adapt their daily practices concerning daily mobility in order to adapt to this new system without settling for what urban planners had foreseen. This margin between the imposed system and the daily practices could be interpreted as a resistance towards the urban transportation system (Jouffe and Lazo, 2010).

This adaptation process can be understood as a power relation between system and the user, in the sense that the system tries to impose practices mobility practices and the users tends to transform/adapt the system to its own mobility practices. Under this situation, there is no pretension to judge the intentionality of neither the user nor the institutions that practices power through the system. In this thesis the author will follow Foucault's (2001b, pp. 302; Translated by: Hudson) who states: 'Power itself does not exists, [...] it is in reality, relationships; a spectrum more or less organized, more or less pyramidal, more or less coordinated, of relationships'. From this perspective, the key analysis is the one of resistance as a power constitutive dimension (Foucault, 2001), and at the same time, and as an agent for change and transformation in the urban fabric.

Under this scope, Jouffe and Lazo (2010) make the difference between the official transportation network, more or less regulated, and the individual use of it, what we call daily mobility practices: Inhabitant's daily mobility practices always change the way the official network is imposed. This is that the inhabitants will not conform to the new imposed formal system, but will adapt them and transform them by applying daily mobility practices that are unforeseeable and/or repressed.

All of the above make the SEAC a good candidate for intervention as it represents the problems and issues described throughout this thesis.



Image 5.1. Chapter 5. Source: MTT2014

Chapter 5. Corroborative analysis

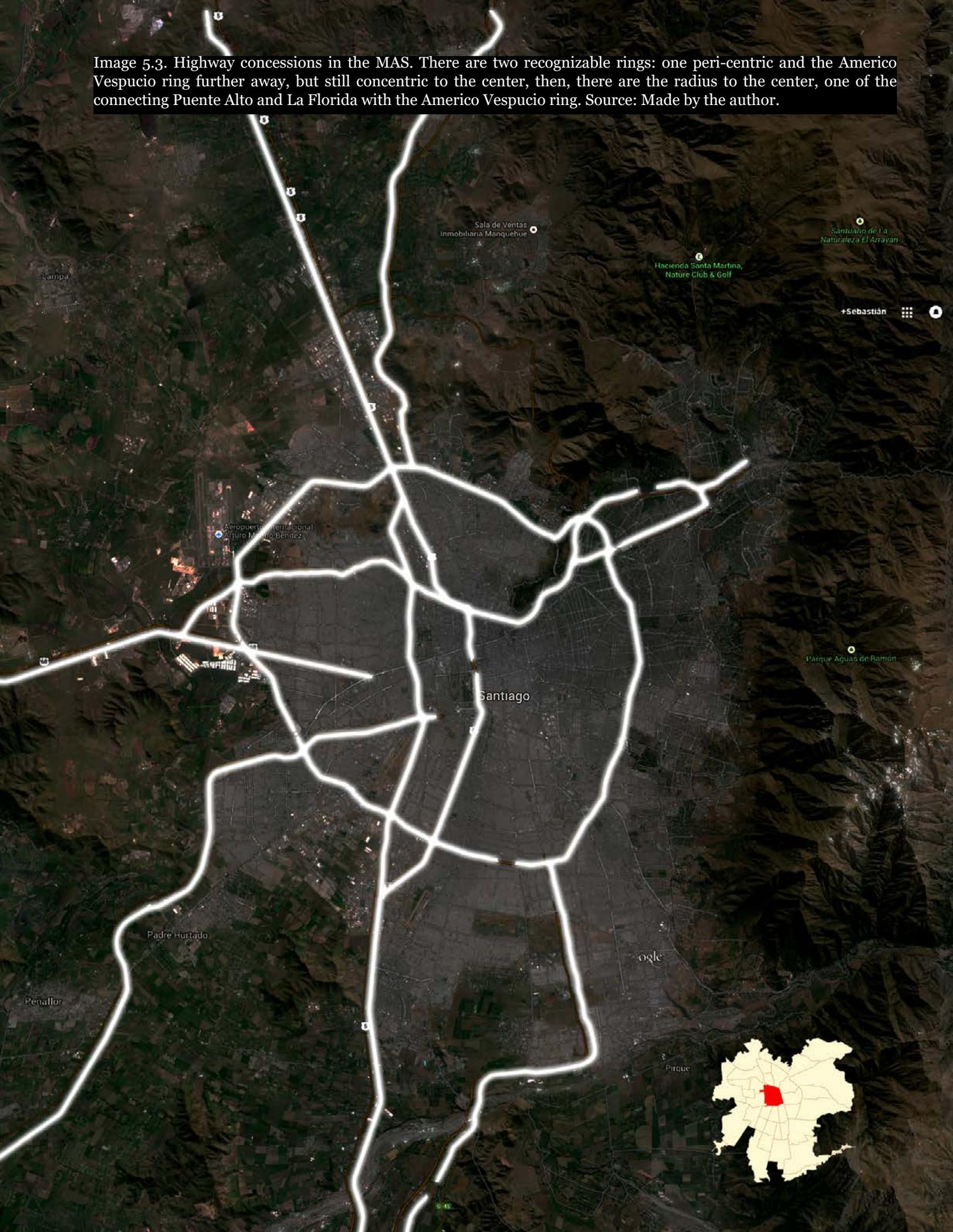
5.1 Introduction

Using the TOD-Smart Growth Evaluation Framework shown in Chapter 3, a corroborative analysis is performed in order to detect where the previously presented gaps are become tangible. Following the methodology, the planning instruments were surveyed and analyzed in order to achieve visible outcomes in the form of maps that will further explain the urban processes the MAS is currently being part of. In this chapter, several information regarding the structure and the composition of the MAS are presented, following a series of socio-economic phenomenon are explained and related to the shown information which will be decanted into conclusion in the form of findings. To conclude with the chapter an analysis of all the barriers to implement the presented framework is given. These presented planning barriers findings serve as the starting point for a Regional Diagnosis will introduce strategic planning goals. Said goals will comprise a proposed Holistic Planning model, which will aim to directly improve upon the existing system using TOD & Smart Growth paradigms at a regional-level and will lead the way to change from vicious circles towards virtuous circles in the planning arena of the MAS.

Image 5.2. Flow from the 5 municipalities with more commuters in a working day, namely: Puente Alto, Maipu, La Florida, Pudahuel and Cerrillos (in red in the reference map in the bottom right corner and in blue the CBD). Source: Made by the author based in data from www.datos.gob.cl.



Image 5.3. Highway concessions in the MAS. There are two recognizable rings: one peri-centric and the Americo Vespucio ring further away, but still concentric to the center, then, there are the radius to the center, one of the connecting Puente Alto and La Florida with the Americo Vespucio ring. Source: Made by the author.



5.2 Existing mobility and development model

The radical monopoly power of motorized transportation media (Illich, 1973) tends to lead the population without access to them into excluding essential aspects of daily life. To this marginalization of the ones without car, is added the automobile dependency of the 'with car' (Dupuy, 1999; Cervero, 1998) that organize daily life based on the (in) efficiencies this system provides. The extension and segregation of modern metropolis as much as labor flexibility are tightly related to the state of development in the transportation system and the apparatus that are needed to work efficiently. Mobility becomes then a decisive instrument for urban fragmentation in both spatial and time-wise aspects (Le Brenton, 2004), and this instrument dissolves and merge at the same time both places (spaces) and times of a potentially vindictive collective proximity (Jouffe and Lazo, 2010). In addition, this is also imposed as capital that each individual should explore and develop in the individualist socio-economic race (Ibid).

When realizing this, it is understood that mobility is not a destructive force of the enrooted social ties, but it is more of a process of individualization (Foucault, 2001). Now mobility can be understood as an apparatus for identity (Jouffe, 2010) and could empower inhabitants as a new strategy towards individualization

This way, Jouffe and Lazo (2010) describe and analyze daily mobility practices as power relations between the users and the mobility apparatuses, and they are classified in their resistance capacities towards the apparatuses. Foucault's reflection on governability provides a set of useful concepts in order to understand this. In the interview with Foucault conducted by Fernet-Betancourt R, Becker H and Gomez-Muller A (1984; Translated by: Gauthier JD), Foucault states that the practice of liberty constitutes a way of understanding and observing power relations from the practice. Thus, these daily mobility practices not only refer to mobility, but to liberty; they constitute a reflection and questioning on the domination (in the Foucauldian sense), this is to say to all practices, apparatus and rules that limit throughout uneven power relations, freedom.

From the previous statement of Foucault's interview conducted by Fernet-Betancourt R, Becker H and Gomez-Muller A we can infer that liberty practices can be very restricted in a domination state; under this scope, Jouffe and Lazo (2010) define liberty practices that reveal such domination state, these practices are defined as real behaviors in daily mobility practices that can be induced by observation and they are named by the author as 'liberation practices'.

Liberation practices are a key phenomenon to understand development and mobility in the MAS suburbs, being unprivileged and having scarce resources with limited social and political networks, MAS's suburbs inhabitants have modified their mobility practices. In order to classify them, the author define three categories for such liberation practices characterized by its relation with the daily mobility apparatuses: Liberating questioning, liberty broadening, and strict respect; and they define them as liberation practices, liberty practices and exoneration practices. In order to illustrate these practices some examples will be given in the following paragraphs.

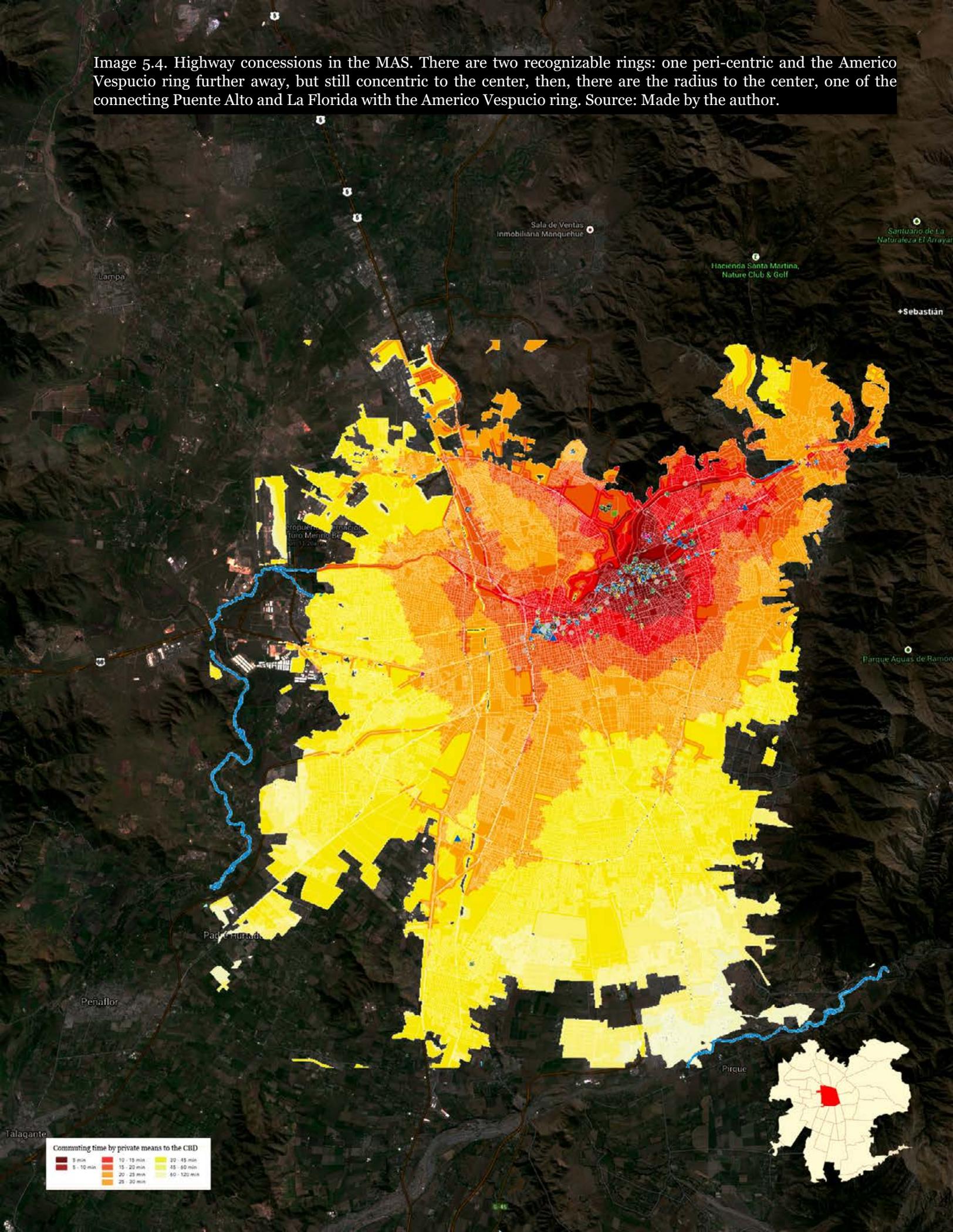
+ Exoneration: From the bus towards the car.

Many middle-low income families, living in the peri-center or in the periphery of the MAS are currently getting car credits in order to buy a car. This sounds quite normal, but when understanding the socio-economic situation of these families, acquiring debt is highly controversial; none the less, the desire of mobility is higher than the risk of getting a credit. It is important to understand that in this case the car does not substitute the public transportation network but works as a proximity agent: not only for the provider, but the whole family and many times for the neighbors as well. This is how these families, that suffer from the radical monopoly of motorized vehicles, specially the car, that defines the structure of most metropolises, perceive the access to a car as an act of emancipation, an act of exoneration from the difficulties from daily mobility practices (Illich, 1973). Now, this can also be understood as the beginning of a car dependency behavior that can go beyond the bus dependency, as some displacements can only be fulfilled by car, thus creating dependency and a vicious mobility cycle.

In the suburbs and periphery the car is understood as mean to achieve a greater liberty, gain control of time and space therefore to be able to achieve multiple and variable tasks and responsibilities. None the less the car itself is not enough when distances and task are multiple and concentrated, so, this mobility needs to be re-enforced by proximity resources: the neighborhood becomes now a source of economic and social support where exits can be coordinated in order to make them more efficient, tasks are distributed and mobility is a solidary phenomenon.

So, this exoneration is an adaptation of the car as an intermodal agent. The car is now conceived as a connecting agent between the neighborhood and the subway or the bus stop, complementing the current system, not substituting it. This new local availability of the car constitutes a transgression to the bi-model (bus + subway) system creating an opposition between the public/collective and the private/individual modes; as long as it is used as a micro-transportation system which is alternative, collective, local and solidary, thus creating liberty throughout exoneration.

Image 5.4. Highway concessions in the MAS. There are two recognizable rings: one peri-centric and the Americo Vespucio ring further away, but still concentric to the center, then, there are the radius to the center, one of the connecting Puente Alto and La Florida with the Americo Vespucio ring. Source: Made by the author.



+ Liberation: Avoid work in order to avoid transportation.

When the Transantiago reform occurred, one of the major transformations was that the previous buses (microbuses) used to cross long trajectories throughout the city, connecting many communes and neighborhoods in only one ride, this used to allow people to commute long distances in only one bus in a reasonable comfortable manner; this was changed to a Rapid Bus Transfer system with its characteristic connections and different kinds of buses with different purposes. With the reform, many have shrunk importantly the area where they look for jobs/schools/leisure in order to avoid the annoying commuting process.

The transgression here is related to the work/study/leisure-commute apparatus, this is: even when if there is an increasing lack of opportunities in the job market in the local area, many will prefer to lower their life quality standards rather than commuting longer distances and the associated decrease in life quality; many will prefer to exclude themselves from the global market; this means that there is a transgression to the moral demand imposed by capitalism to participate in economy. One important feature about this liberation practices is that has a double impact in the work/study/leisure-commute apparatus as they refuse to both work/study/leisure and commute.

+ Liberty: refuse to use the feeders' buses.

In a city such as the MAS, confined in a valley with a lot of geographical accidents, walking and biking is generally associated (when talking about commuting, not sports) with the less privileged classes. The use of these transportation systems is considered a liberty practice related to the urban transportation apparatus. By using the bicycle or walking, some individual will adapt the established transportation system, using them to move around and/or away from their poorly connected neighborhood. They will, respectfully, refuse the use of the imposed transportation system; they will not use the imposed feeders which constitute an act of liberation, but will not refuse to use the whole system; thus constituting a liberty practice. Under this perspective, we understand liberty as a partial exit (in the Hirschman (2009) sense) from the system in favor of non-official, complementary practices.

Image 5.5. Densities in the MAS. There seems to be a paradox concerning densities in the MAS, it seems to increase further away from the CBD, especially towards the south-west. This means that the people that live further away from the CDB are the one that has less space for dwelling. Source: Made by the author based in OCUC (2008).

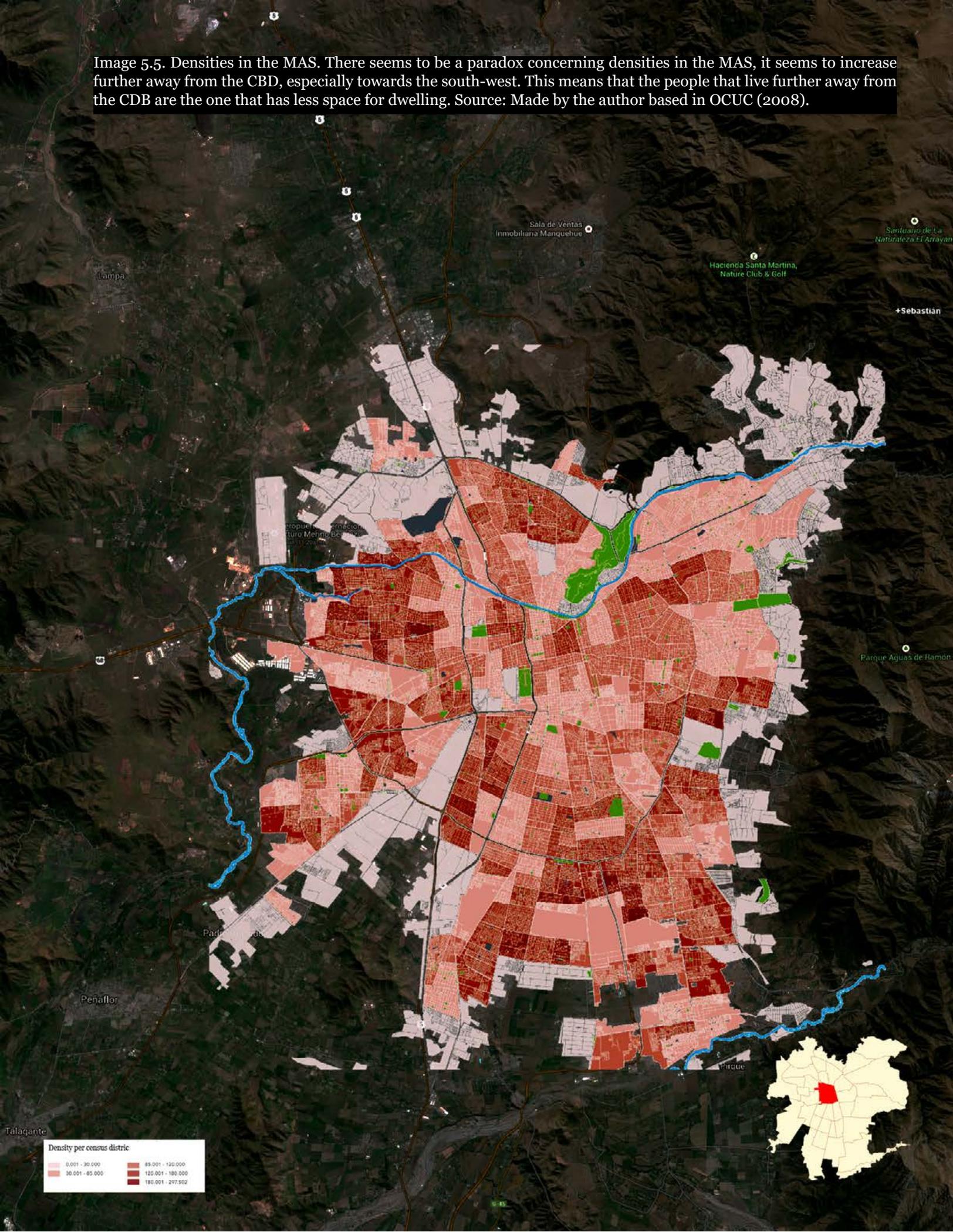


Image 5.6. Spatial socio-economic composition of the MAS. There is a clear concentration of the most privileged groups in the north-east cone and then escalating towards to the south and the east the more disadvantaged groups. Source: Made by the author based in OCUC (2008).

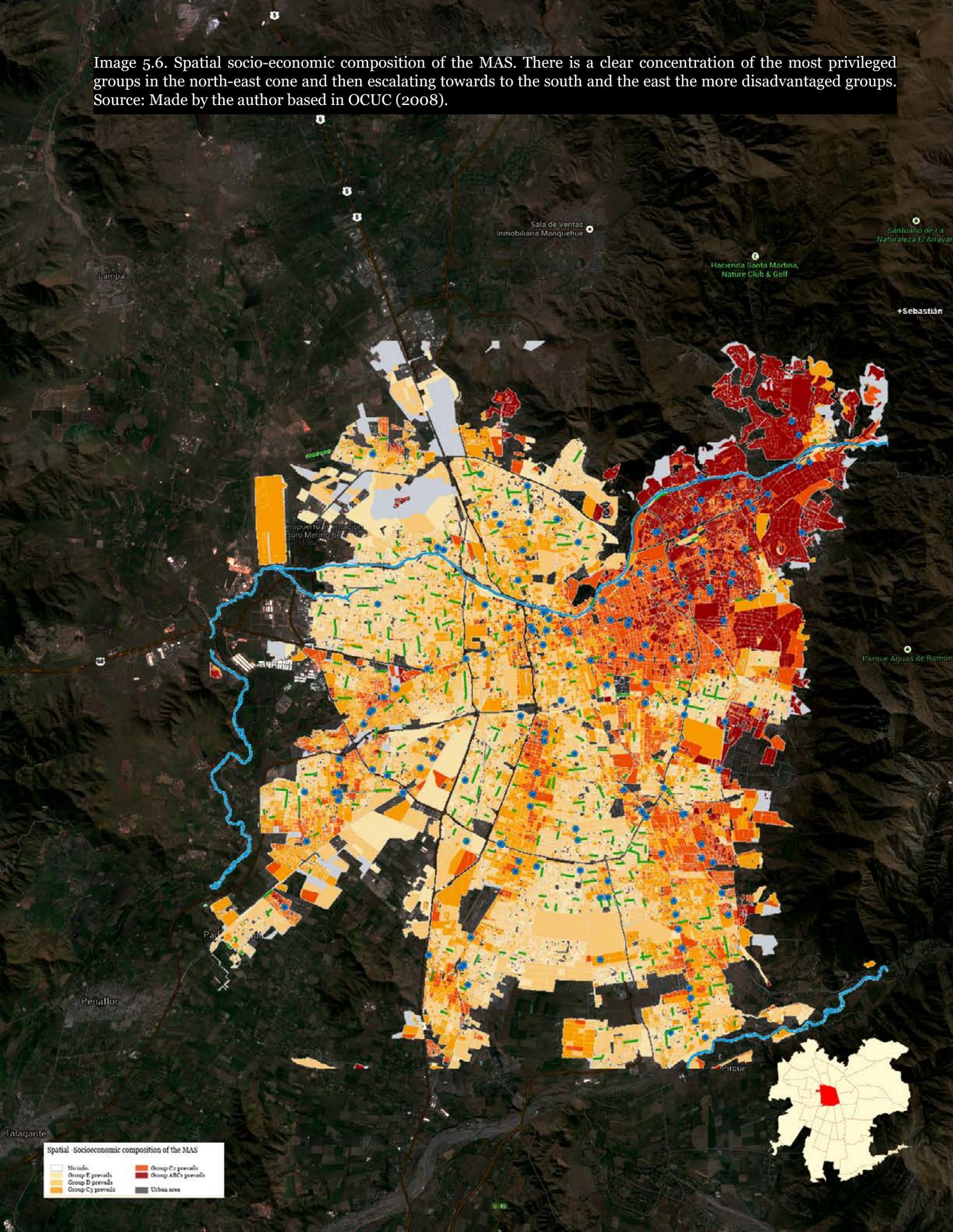
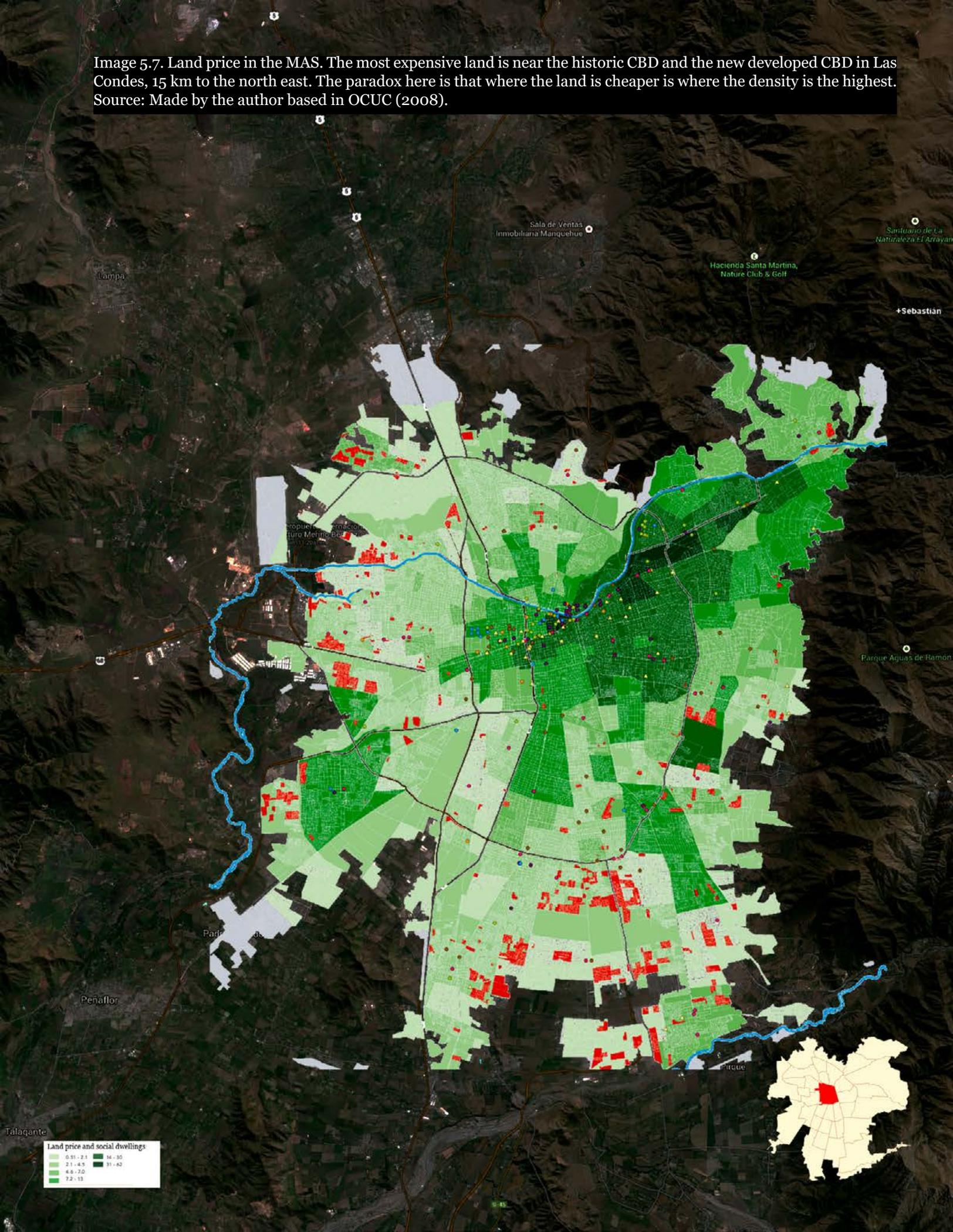


Image 5.7. Land price in the MAS. The most expensive land is near the historic CBD and the new developed CBD in Las Condes, 15 km to the north east. The paradox here is that where the land is cheaper is where the density is the highest. Source: Made by the author based in OCUC (2008).





5.3 Corroborative Analysis Conclusion / Findings

Following the previously presented analysis, the presented methodology and research design, the barriers are given using the governance structure and planning framework analysis and the discoveries and findings made in the previous sections of this chapter

Formal Barriers	
Legal	<ul style="list-style-type: none"> The strong top-down approach of the central government has reveal to be ineffective in allocating resources and coherent planning instruments where local communities have needed it. The planning instruments and tools have fail in their planning duty due to a lack of a binding link and a lack of a accountable authority to supervise them. On the other hand, the lack of coherence between all instruments has undermined the seriousness of them and the providing institutions.
Financial	<ul style="list-style-type: none"> Lack of financial management and autonomy of the municipalities: the lack of revenue-raising capacity of municipalities tends to create disparities at the local level. Evidence suggesting that metropolitan areas with greater control over their finances tend to be more successful than those areas with less control is likely to hold true for regional and non-metropolitan local authorities as well (OECD, 2013). Unfit alignment of resources regarding competence allocation: there is a need to introduce mechanisms to address the misalignment between resources and ascribed competences at the local level. These can include creating incentives for horizontal co-operation in service delivery; transferring select competences to a higher level of government; create different categories of municipalities and ascribing competences based on the municipality's level, with smaller authorities having fewer high-cost responsibilities than larger ones(OECD, 2013).
Informal Barriers	
Institutional and territorial	<ul style="list-style-type: none"> The hierarchy of planning tools and processes is not respected, thus, greater inter-municipal or metropolitan planning instruments do not match local plans creating des-coordination Many sectorial plans are defined under particular regionalization that does not match any particular political boundary, leaving them in an implementation limbo where no one takes responsibility of accountability for them As the approach is highly centralized and top-down; plans usually mismatch local necessities and local potentialities are usually ignored Lack of integration between all policy levels and between privates and public spheres
Political and cultural	<ul style="list-style-type: none"> Overall lack of planning culture, the market is considered as the main shaping form of the city. Neoliberal policies impulse by the military dictatorship of Pinochet still rules the urban sprawl. Lack of human resources to implement New Urbanism-based framework. This perspective is unknown in Chile. Stakeholders' resistance. Chile is still a highly conservative country that struggles a lot with change. Political class crisis. Nowadays the politics in Chile in general have a bad reputation, making all plan implementation a real effort as there is a general discontent in the inhabitants New Mobility emerges spontaneously and provides a great deal of uncertainty The most unprivileged groups which are the most affected do not have the political or economic means to defend themselves
Practical and technological	<ul style="list-style-type: none"> Rapid development and population growth makes plans obsolete before being implemented Rigid checkerboard fabric of the CBD difficult fast transit Great deal of concessions that have to respect their long-term contracts before acting upon them Automobile design of the MAS. The metropolitan fabric was conceived for the use of the automobile Lack of an integrated transportation system

Table 2. Formal and Informal barriers. Source: Made by the author

So far, several deficiencies in the planning framework of the MAS have been exposed, a table based in the barriers defined by Tan (2013) help us organized them in order to know how to bridge these gaps and transform the current vicious circles into virtuous circle (Image 5.8). The first categorization comprehend legal and financial barriers that constitute the formal barriers to achieve sustainable holistic development; then the informal barriers, that are socially constructed are the institutional and territorial ones, political and cultural and practical an technological.

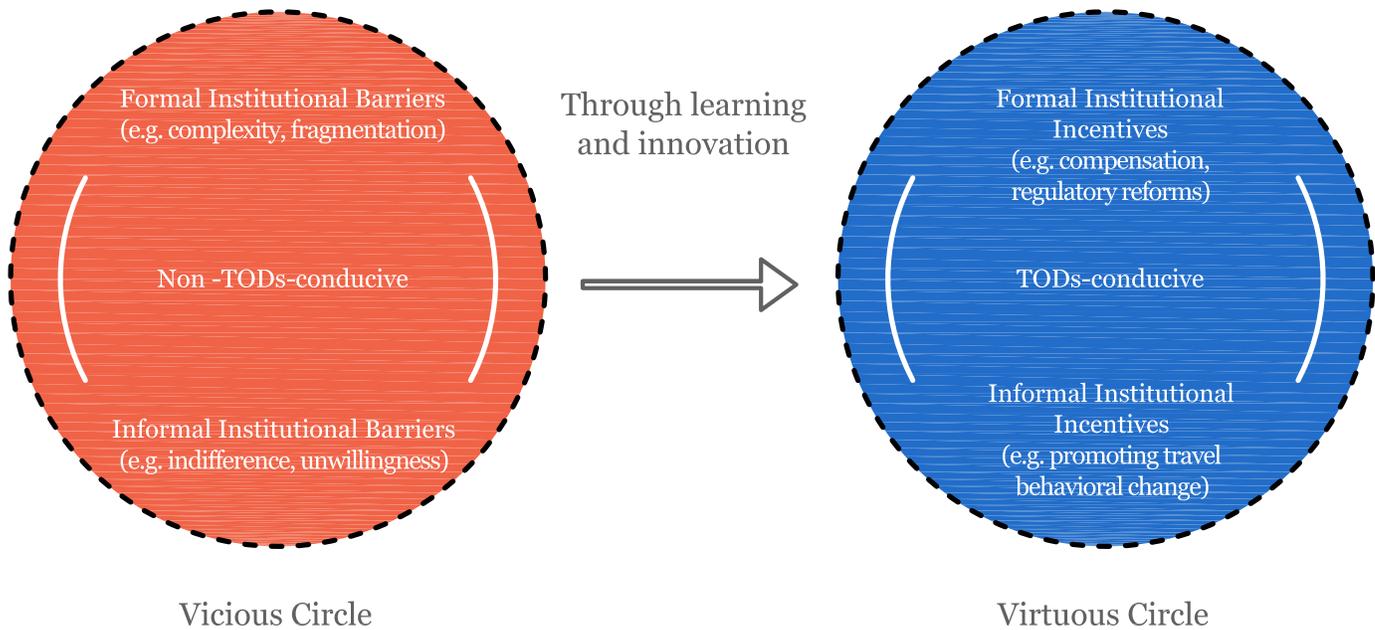


Image 5.8. Conceptual model on the dynamics between formal and informal barriers (left), leading towards the possible lifting of barriers (right).. Source: Re-drawn from Tan et al. 2014

All of the above analysis reinforces and validates the necessity to improve and bridge tangible gaps in an unbalanced planning system which is now contributing towards negative outcomes. As the inhabitants of the area do not have neither the political nor the economic means to guide these changes the plan must be created in a responsible communicative manners to find and detect the potentialities present in the area in order to be able to exploit them. The operational barriers shown by the current planning and development processes are symptomatic of a lack of coherent regional planning culture and a lack of integrated institutional structures within the MAS. As shown in Image 5.9, These major planning barriers found in the previous analyses serve as the starting point for a Regional Diagnosis, which introduces four major strategic planning goals. Said goals will comprise a proposed Holistic Planning model, which will aim to directly improve upon the existing system using TOD & Smart Growth paradigms at a regional-level and will lead the way to change from vicious circles towards virtuous circles in the planning arena of the MAS.

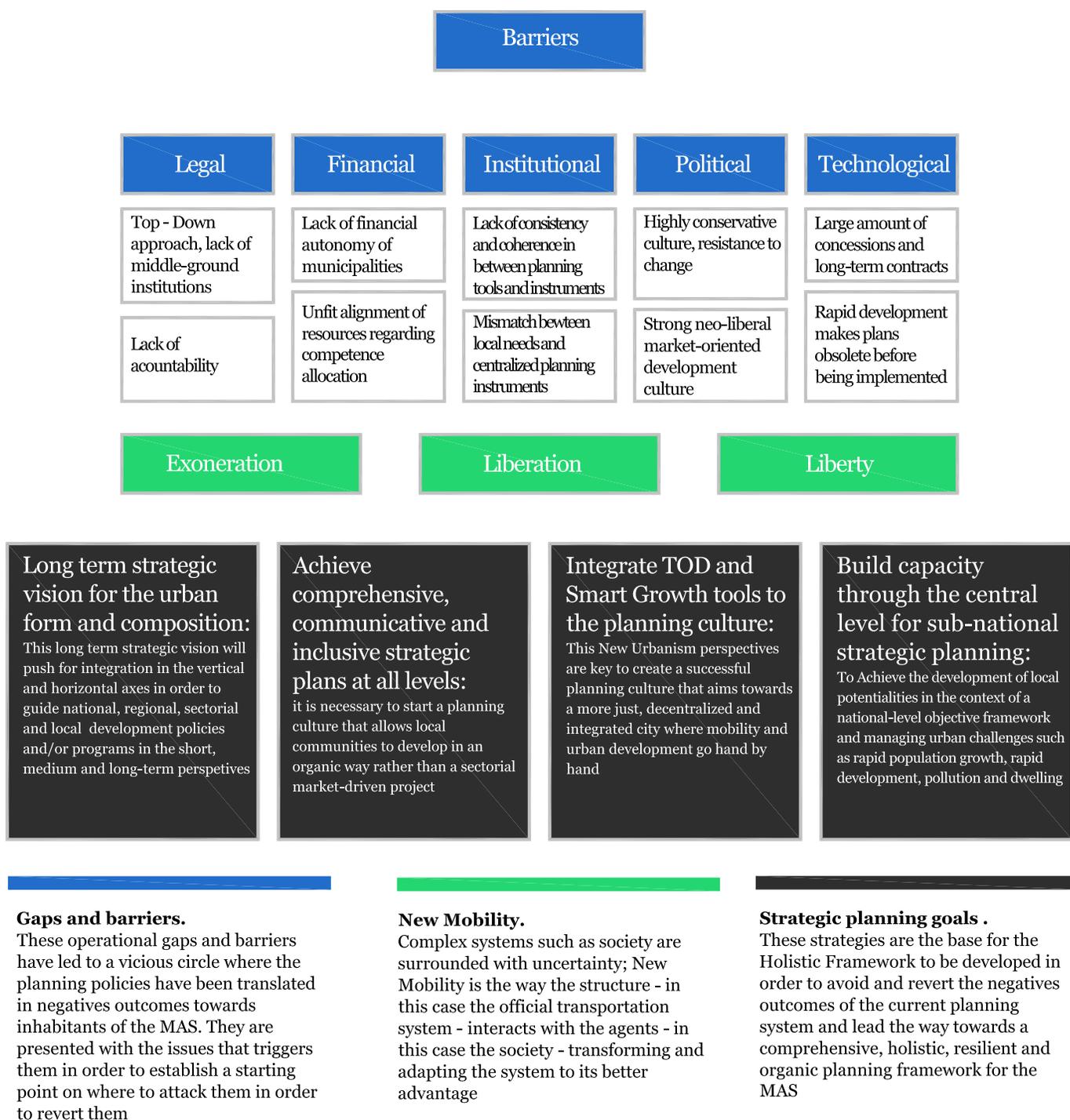


Image 5.9. Regional diagnosis; basis for the following Holistic Planning Framework. Source: Made by the author.



Image 6.1 Chapter 6. Source: MTT2014

Chapter 6. Integral model towards Holistic Regeneration

6.1 Introduction

Building upon the analysis and the findings from the previous chapters and following the methodology, New Urbanism governance structures that have led to positive outcomes in metropolis around the globe are reset in order to better construct / design the Holistic perspective is described as a tool to achieve the proposed inclusive design to be tested; this is framed in sub-question number 2: *How can integrative planning instruments address the various context-specific barriers?*. Based in these experiences and with the goals described by this thesis an Holistic Regeneration proposal is given and three major focuses are set in order to achieve institutional and sectorial integration. Finally, general operational recommendations are given in order to ensure a successful operation of the framework.

6.2 Holistic perspective

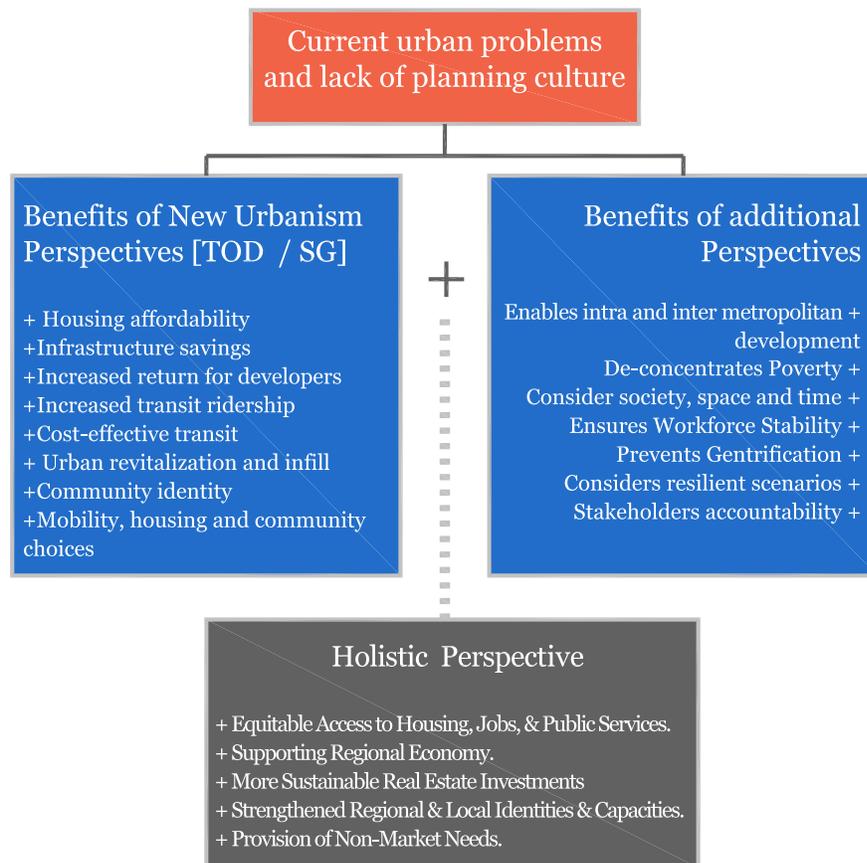


Image 6.2. Holistic perspective for the proposed framework. Source: Made by the author

The regional diagnosis presented in the previous chapter served as basis to set four major strategic planning goals. Said goals comprise a proposed Holistic Planning Model, which aim to directly improve upon the existing system using TOD & Smart Growth paradigm's at a regional-level. At the same time, these two perspectives serve as a tangible planning criterion which will sustain and be the foundation of the Holistic operational framework. Moreover, this criterion addresses the weaknesses, barriers and operational gaps detected in the previous chapters. In order to illustrate the proposal, similar examples of urban regeneration will be analyzed in order to identify key strategies and learn from their lessons; these will support and further validate the thesis statement on the linkage between operational planning processes and socio-spatial outcomes.

6.2.1 Comprehensive holistic regeneration precedent: The Dutch Area-development approach

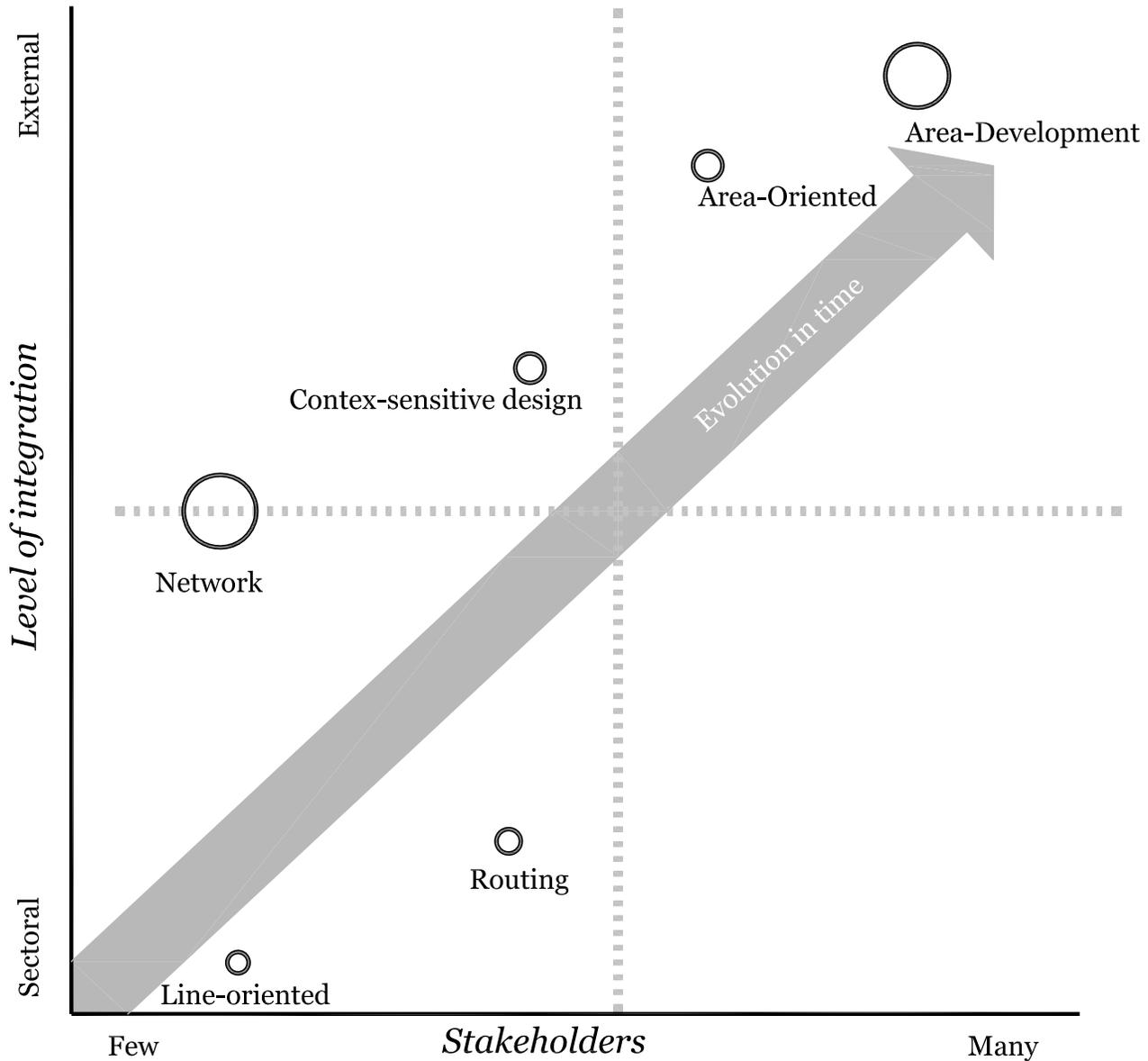


Image 6.3. Relationship between different approaches to infrastructure planning and the level of integration, actor involvement and spatial dimensions. The size of the dots reflects the spatial focus (small: local focus; larger: regional focus). Source: redrawn by the author based in Heeres et al. 2012.

The evolution of the planning culture in The Netherlands is illustrated in Image 6.3. The line-oriented paradigm was conceived as a rather technocratic and hierarchical in character, dominated mainly by the central government, approach that worked well in the era of development of large motorway network. A first step towards integration was the realization that roads are part of a larger transportation system that includes other roads of different hierarchies, and that is complementary to other transportation modes. Regarding external integration, routing, with its first minimal recognition of the importance of road surroundings, can be seen as an initial step in that direction; this planning framework evolved from an increased demand for attention to aesthetic aspects towards concerns about spatial quality; in the evolution of this thesis, the concern for synergic integration of land uses and transportation infrastructure increased decanting in the area-oriented planning framework, this framework encompasses the idea that wider and earlier stakeholders involvement would result in a better outcome, however, in this approaches the parts are still more important than the hole. On the other hand, Area-development approach is the result of a collaborative planning process, taking into account all the interests in an area; Compared to area-oriented planning, area-development is even further externally-oriented with a broader area and actor focus. The dimensions of the plan area can well extend beyond the local perspective of the area-oriented approach (Heeres et al. 2012).

De Graaf et al. (2010) analyze three case study of the implementation of area-development projects in the Netherlands and reveal two main reasons why these projects are hard to deliver: firstly, planners have to cope with institutional boundaries that cripple their ability to address local environmental characteristics and stakeholders' demands. Furthermore, the second reason is that 'Planners, politicians, market parties, and other stakeholders are convinced that the current hierarchical way of planning is adequate and do not experience a sense of urgency to change. As the results show, such a planning culture limits the possibilities for strategic urban planning because that requires another way of thinking and working' (pp. 476). On the other hand, Lee (2014) states that one of the major difficulty of implementing area-development plans is related to finding and ensuring a funding source that will enable such initiatives to be implemented and maintained; for example, in the case of the Netherlands, the municipalities have to act as real estate developers and speculate with land in their boundaries in order to gain revenue with the selling of such speculated land.

Even when The Netherlands and Chile present really different planning and development scenarios, they both display operational gaps in term of their lack of integration and financing models; this indicates the necessity for a multi-level perspective as well as a viable alternative to founding mechanisms that recognizes this structure.

6.2.2 Resilient cities, the post- growth scenario:

The collapse of existing urban planning and land and property development systems in Europe as a result of severe financial turbulence and uncertainty challenges ongoing political ambitions to enhance the competitiveness and liveability of cities. In many European countries, the urban land and property markets are severely disrupted, reinforced by dwindling and increasingly 'reregulated' private financial resources, while public spending is curtailed due to the recession and debt crisis. As a consequence, many urban intensification development projects are substantially delayed or even cancelled. The growth paradigm, dominant in planning policies, requires a fundamental rethink in light of these circumstances. (Jansen –Jansen, 2013; abstract)

The financial crises of 1997 in Asia and the one of 2009 in the USA and Europe have revealed the deficiencies in the system named by Jansen – Jansen in his paper 'delivering urban intensification outcomes in a context of discontinuous growth: experiences from the Netherlands' not only in The Netherlands but also in Chile. These has revealed the need to set the context to urban regeneration and intensification right, there is a need to devise appropriate strategic planning frameworks and tools, to secure the appropriate financing for infrastructure and land development, and, most of all, to be realistic about the future. Public as well as private actors have continued with inappropriate assumptions or denial, which have now limited the potential for adaptive recovery (Lloyd and Janssen-Jansen, 2013). The changing context demands more innovative planning interventions including the recovery of a strategic dimension to policy and planning. The current context requires a 'reality check' vis-à-vis the idealistic aims of intensification in constrained economic circumstances. Furthermore, the negative knock-on effects, for example the accelerated inflation of housing costs, pushing the middle-income households away from the city, need both a rethink and policy innovation suited to a transformed context (see also Williams, 1999). Comprehensive regeneration strategies are still needed, perhaps now more than ever, to sustain the economic prosperity of cities while concurrently reducing social inequality. Intensification might be an option, but not necessarily in all contexts. In a no-growth context, perhaps, intensification might not be a good policy to achieve a more equitable situation, as intensification is expensive and not well suited to changing market demand (ibid).

Countries, such as Chile, with still growing economies must use these insights – and challenges – to improve and rethink their own intensification strategies and to recalibrate them to changing circumstances in the future.

6.2.3 European Regeneration Perspectives: The Netherlands Model

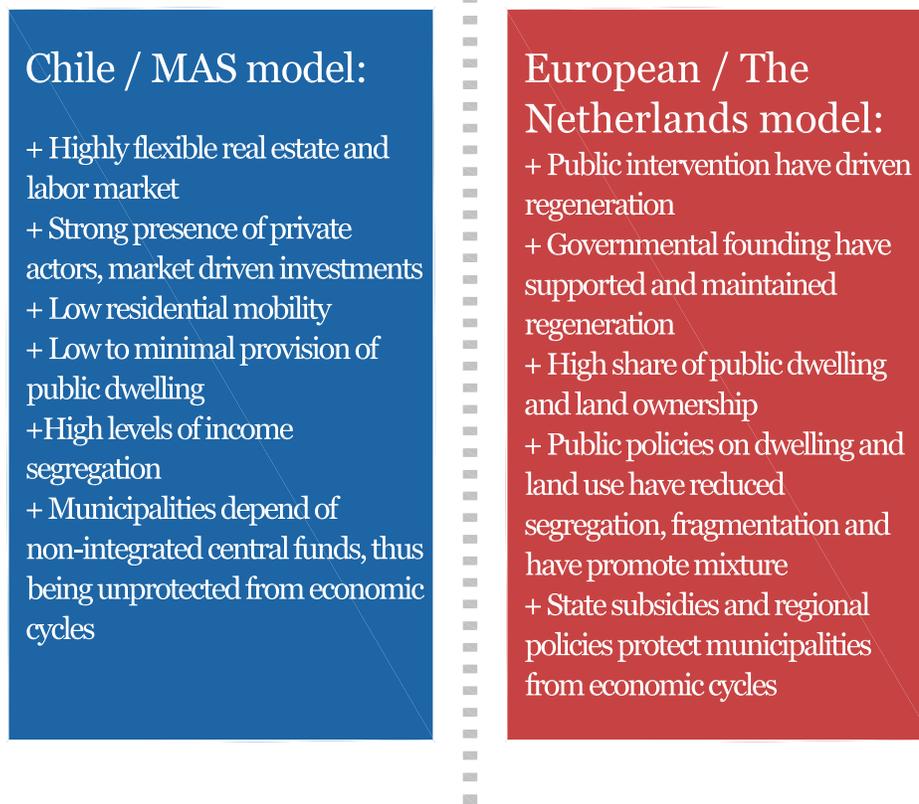


Image 6.4. Model's comparison: MAS / The Netherlands. Source: Made by the author

In Image 6.4 we can see some of the differences in the planning framework that have allowed cities in northwestern Europe evolve in a more integral manner than most Latin-American metropolis. Moreover it is important to notice some important differences such as the maturity of the country and the city, Chile with just 200 years of western colonization has grown at an incredible rate creating all the aforementioned socio-urban issues. Another big difference is scale, while in the Netherlands cities tend to keep human scale (except for Rotterdam) the MAS is a full grown metropolis with over 7.5 million inhabitants, half of the Netherlands complete population. Moreover, Latin-American metropolis tends to be highly dependent in business interest not as northwestern European cities. Likewise, they have a legacy of strong welfare states, where governmental action plays a more decisive role in expressly guiding spatial development (Lee, 2014). This illustrates how socio-political contexts have spatial impacts. In short, spatial plans and outcomes depend on how they intersect with existing institutional structures.

A brief summary of the definition raised by Bassett (2013, Pp. 2) on urban regeneration is given ahead: it aims to renew or redevelop areas in decline such as brownfields, industrial sites, or urban environments that experience multiple disadvantages. Much of the process encompasses social, economic, and/or physical policies and programs for physical improvement or economic opportunities; As described in policy documents (including the Urban Renewal Act in The Netherlands), Urban renewal looks 'to improve the livability and safety, to promote a sustainable development, to improve the quality of working and living, to strengthen the economic base, to enhance the social cohesion, to improve accessibility, to upgrade the quality of public space and to otherwise contribute to a structural increase of quality of the urban are' (Basset, 2013 quoting Kruythoff, 2003, p. 204).

6.2.4 Inter-municipal cooperation precedent, The French Community Solidarity Endowment [Dotation de Solidarité Communautaire]

France's Communautés d'agglomération and Communautés urbaines are good examples of metropolitan-wide inter-municipal joint authorities. As Parra (2010) describes, inter-municipal organisms were created in order to overcome municipal fragmentation and facilitate the territorialization of public policies. Apart from this first objective, this supra-municipal entities includes provisions for an intra-metropolitan equalization scheme, the Dotation de Solidarité Communautaire. This system works on economic incentives towards municipalities that are willing to work together and cooperate over major areas than their jurisdiction and to achieve greater levels of service delivery through cooperation. This system works even better when the member municipalities differ in socio-economic composition so when services used by both municipalities will share costs, equalizing the area. It is reasonable to consider that firms and people will be less likely to move from one area of the metropolitan region to another for purely tax reasons. The disadvantages are that tax-base equalization grants might be allocated based on political rather than economic grounds, may give municipalities less of an incentive to develop, since the wealthier they get the less they receive in grants, and may separate the costs and benefits of local public services, making it difficult for citizens to make informed public decisions (OECD, 2006).

6.2.5 Inter municipal authorities: The of Vancouver, Canada

Canada's Greater Vancouver Regional District (GVRD) is a voluntary organization that has achieved striking successes in the Vancouver metropolitan region to deal with such challenges as rapid growth and underinvestment in infrastructure. The GVRD is a partnership between the over 20 municipalities that make up the Greater Vancouver metropolitan area, which has formal responsibility in providing metropolitan-wide services such as drinking water, sewage treatment, recycling and garbage disposal, as well as regional planning and environment protection. It can also choose to take on other roles on a voluntary basis. This kind of associations have proven to be beneficial to finance small development projects throughout the it, and thus improve fiscal inequity among municipalities.

6.2.6 Sectorial joint Authorities: German Transit Federations

In Germany, transit federations are found in almost all large urban areas and involve participation of the central municipality, the metropolitan district (Kreise) and the Länder. They concentrate on planning and managing public transportation, which includes setting fares, administering subsidies, deciding service levels and managing the public and private transit operators. Some transit federations administer parking systems and are involved in land-use planning with the authority to oppose building permits or land settlements that would require overly complex or costly public transport development.

6.3 Metropolitan common challenges

As presented in the previous section, there are some global processes that relate to most metropolitan cities such as gentrification, climate change, immigration processes and globalized-sensitive economy. There is a generalized idea that dwelling and public policies are for always going to be sustained in industrial and economic growth however, eternal growth is neither sustainable nor realistic. The first common challenge is related to the necessity to achieve an integrated multi-level and multi-sectorial planning framework, this must be achieved in both vertical and horizontal axes in order to transform former institutional boundaries in to potentialities; in order to manage this change the second challenge raises which is changing the planning culture from the top and from the bottom, these must be achieved throughout transformation of the existing institution better than destroying the whole system in order to set a new one. In order to support this change, the third challenge raises, funds must be allocated in a way that they become available for all levels of policy makers in order to ensure a real accountability of all sectors and political levels. Thus, the fourth challenge would be to share in a public, accountable, easy-access way information related to such processes; important part of this process is education for all stakeholders and citizens in general. There is also the challenge of understanding cities as complex socio-political arenas where multiple systems interact, instead of the Keynesian view of the city as a layout for market development.

6.4 Holistic Regeneration Proposal Focus



Image 6.5. Regeneration strategy. Source: Made by the author

After decanting the analyses from the previous sections, Image 6.5 illustrates the scope and goals to be achieved throughout Holistic strategy. This strategy aims to transform current institutional framework into a New Urbanism-like approach focusing in the all named barriers and issues named through this thesis giving the same importance to both axes of integration. The three major focuses are set in the achievement of institutional and sectorial integration, applying successfully the New Urbanism and additional perspectives to the planning framework and stating general operational recommendations in order to ensure a successful operation of the framework.

In the following chapter a demonstration on how the Holistic framework should be applied is given for the previously presented SEAC.



Image 66. Micros Amarillas. Source: MTT2014



Image 7.1. Chapter 7. Source: MTT2014

Chapter 7. Holistic Regeneration model design and testing. The case of the Southeast Access Corridor (SEAC)

7.1 Introduction

As a way to test and test the feasibility of the Holistic framework, the SEAC is chosen as test-ground for the creation of concrete recommendations, strategies and projects aimed at achieving integral regional regeneration. First, The structure of the SEAC is presented, localizing it in the MAS and overviews the local transportation network and its usage. This is followed by a more detailed operational analysis where the current and future trends in mobility and socio-spatial composition are analyzed and evaluated as barriers or potentialities. After this exercise, the involved stakeholders are stated and grouped according to their interests in order to understand the current processes and today's vision for the SEAC. After creating a context scenario a governance structure platform is presented in order to define a new platform where the stakeholders interact in a more integrative way so as to achieve the Holistic Perspective. In order to operationalize this platform New Urbanism-like planning tools are presented and described. With these tools the framework is evaluated and benefits and deficits are recognized. In order to make even more realistic and concrete the Holistic Framework, Integral Inter-Municipal recommendations and guidelines are given; this recommendations and guidelines are based in a recapitulation of the framework creation process, where the inherent problem of the current planning framework of the MAS and the gaps that allow the significant deficiencies in the socio-urban spectrum and keep on delivering negatives social outcomes were stated.

A mapping exercise is delivered to evaluate the SEAC under the proposed strategies. The territory of the SEAC is analyzed in its current situation, highlighting the potentialities and weaknesses. This analysis is translated into a mapping exercise where the Regional Holistic Regeneration Strategy is given as a regional vision scenario for the metropolitan re-structure proposal.

A model for implementation with concrete strategies and tools is given in order to materialize the recommendations, guidelines and plans. Finally, technical recommendations for implementation which fall under the scope of this thesis are given.

7.2 Structure of the SEAC

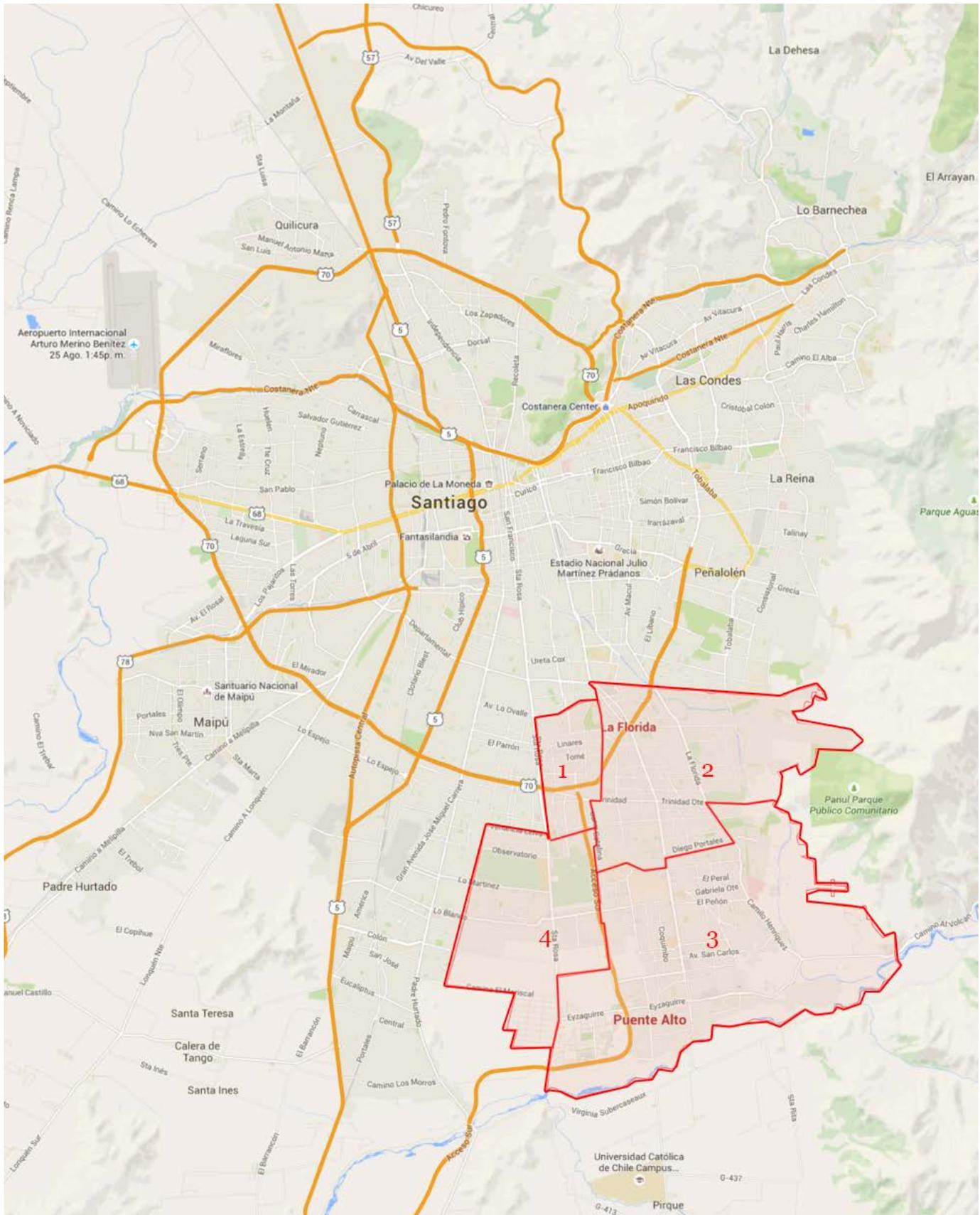


Image 7.2. Municipalities that form the SEAC. 1. La Granja; 2. La Florida; 3. Puente Alto and 4. La Pintana. Source: Made by the author / Google Maps.

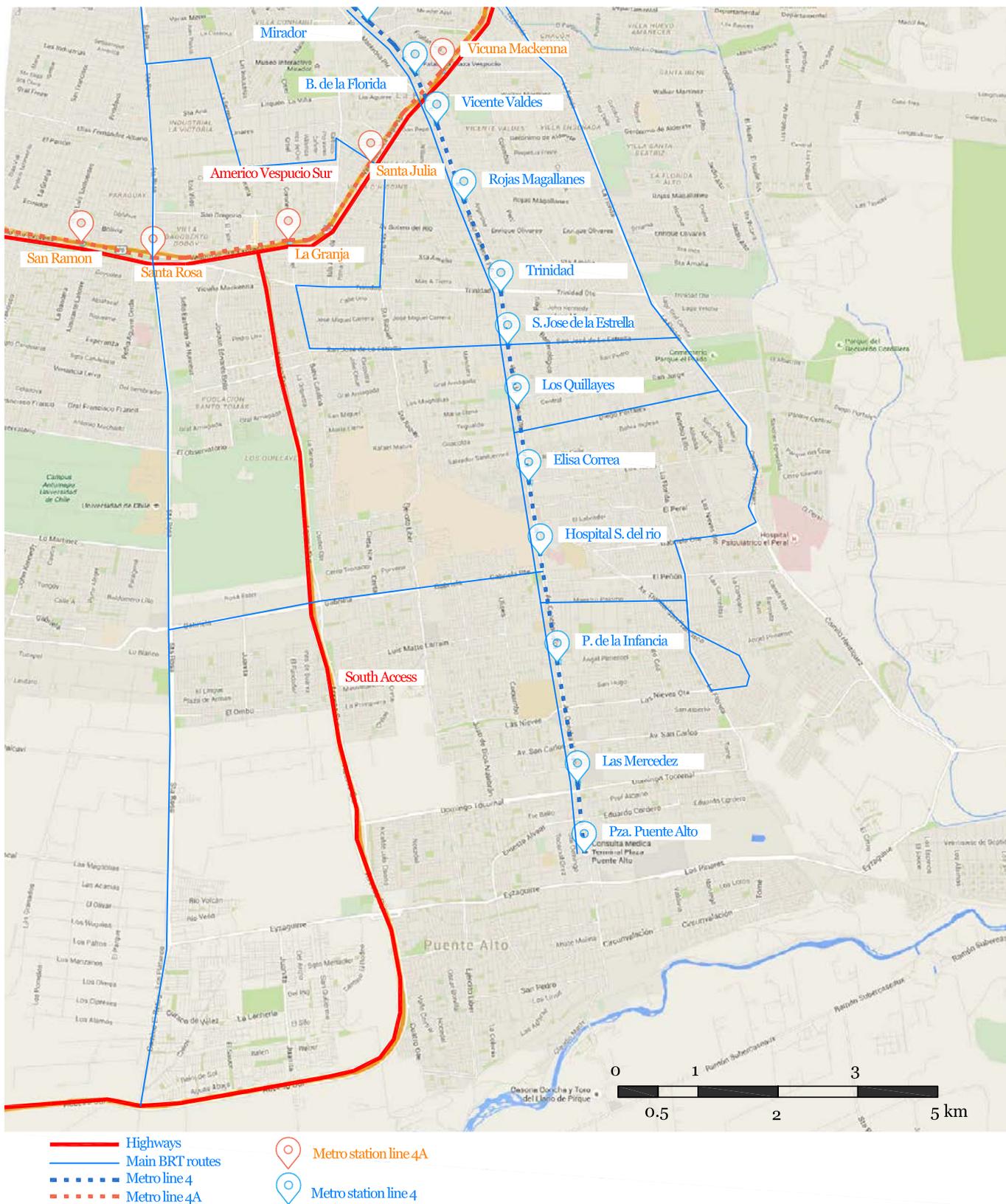


Image 7.3. Existing mobility network in the SEAC. Located in the Southeast of the MAS, Puente Alto and La Florida are among the municipalities with more commuters. The SEAC has also consolidated as one of the main corridors of immigration from/to the MAS; it is also a crucial transition area between the low-class and high densities of the periphery and the middle/upper class gated communities with low density in rural areas outside the MAS. Source: Made by the author / Google Maps.

7.3 Operational Analysis of the SEAC

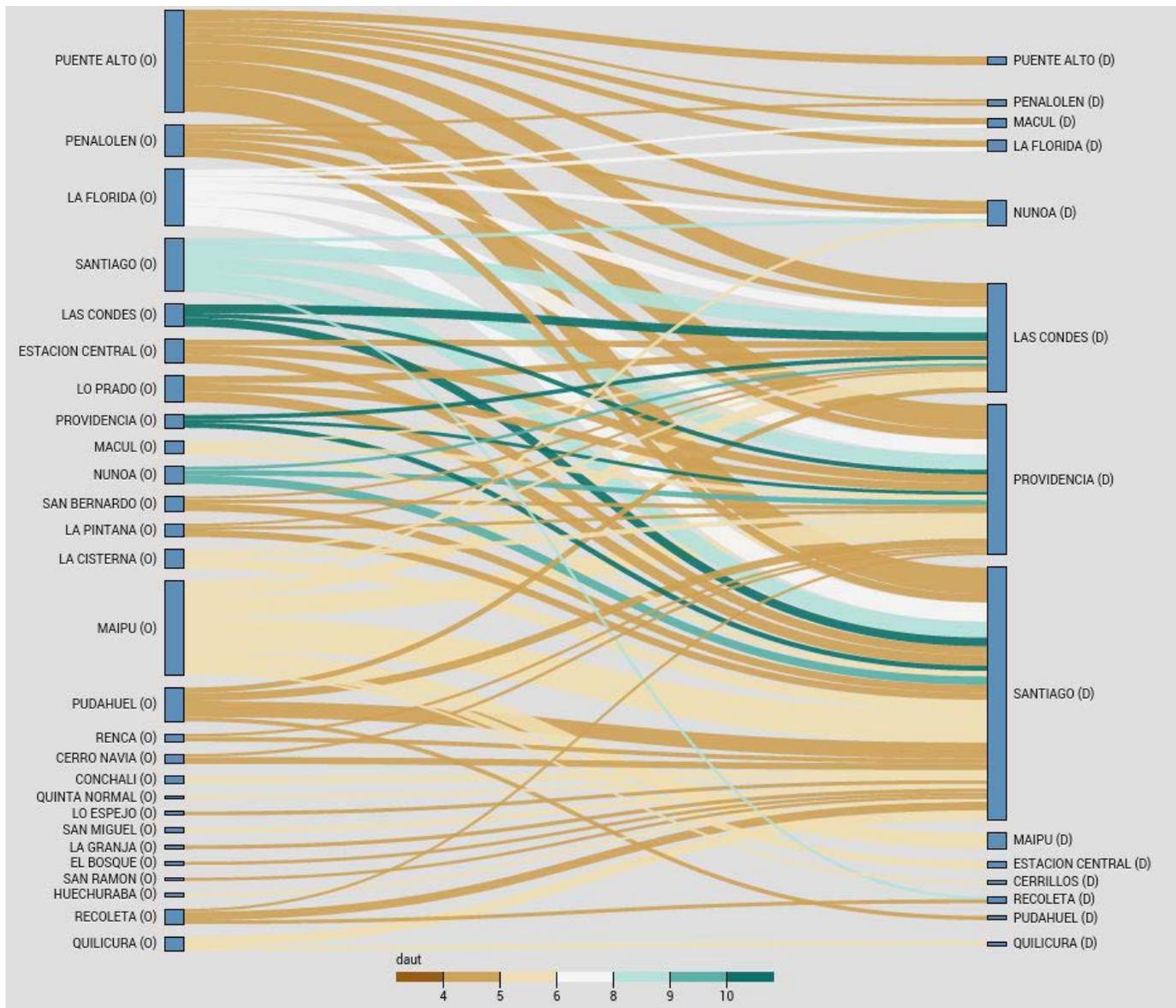


Image 7.4. Commuters flow chart between home Municipality and Municipalities of destination. Travel started between 6:30 a.m. and 8:29 a.m. Note: This graph represents commuters flows between different Municipalities. The left side represents the Municipality of origin and the right one the destination Municipality. Each connection between both sides of the graph represents the flow between the two corresponding municipalities. The more people commute, the thicker the arch flow. In addition each arc is assigned a color representing the decile (median) of the Municipality of origin (the lower the decile, the poorer the Municipality). Note 2: Santiago (Municipality), Providencia and Las Condes concentrate the most economic activities (CBD) Source: <http://dcc.uchile.cl/egraells/abrecl/> [Accessed the 26/05/2015].

Located in the southeast of the MAS, SEAC and its surrounding represent an important corridor and a regional getaway line with extensive infrastructural and economic interregional connections to the MAS. This corridor has been shaped mostly by market pressures concerning real estate development and interregional transport issues leaving most of the planning to the central government. On the other hand, the low power municipalities that form it and its inhabitants which poses little or no political or economic networking assets have seen the degradation of their environment without being able to act upon market pressures. As seen in Image 7.4 this area is a complex transitional zone where the Holistic Framework could have significant implications for urban regeneration. Moreover, it has the SEAC has potential to serve as testing ground for the different strategies and paradigms of the proposed framework.

7.3.1 SEAC's potentialities applied the Holistic Framework

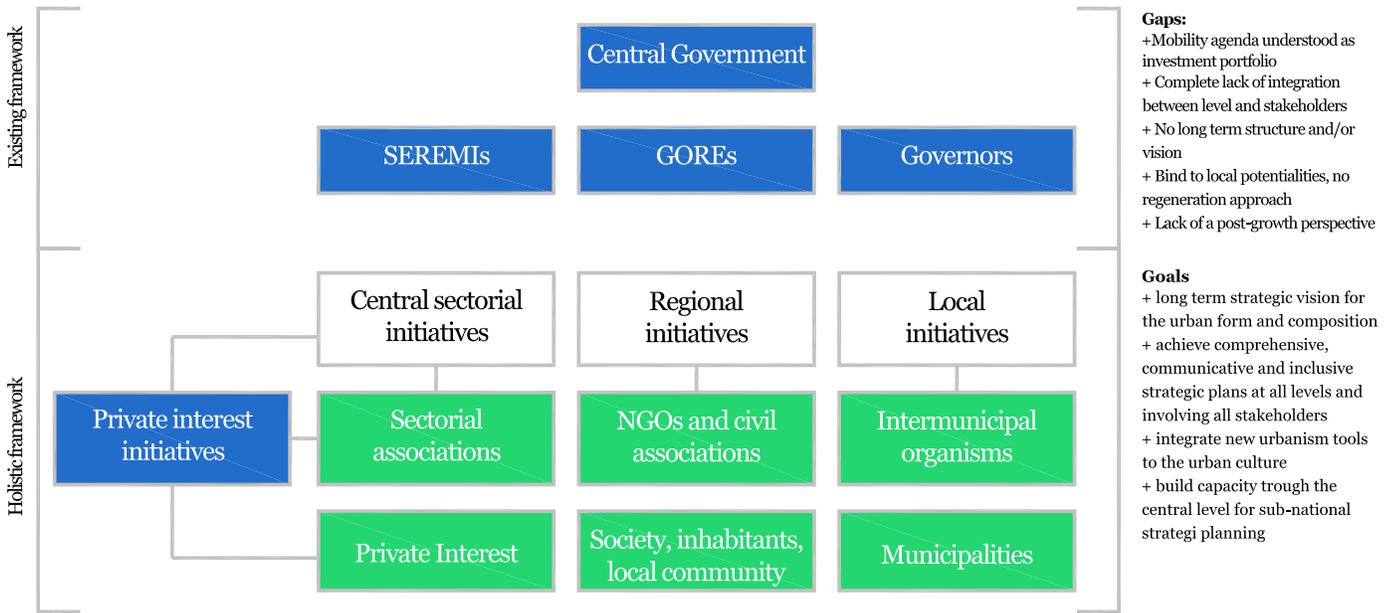


Image 7.5. Composition of the governance structure platform framework. Source: made by the author

The current development of the area reflects the general sociopolitical fragmentation of the metropolis and the political framework stated in the previous chapters. A key example of these is how the current planning policies have failed to recognize local socio-urban complexity and, instead, has maintained a mono-centric perspective of the MAS. This is demonstrated by the previous section showing that existing possibilities are now being overlooked by the current planning framework for the southeast of the MAS. There is a clear connection between the described barriers and operational gaps and the current overlooked potentialities; moreover, these potentialities validate the Holistic Framework's focuses in the integrative New Urbanism and the additional perspectives and the need for institutional and sectorial integration.

7.3.2 Changing demographic composition

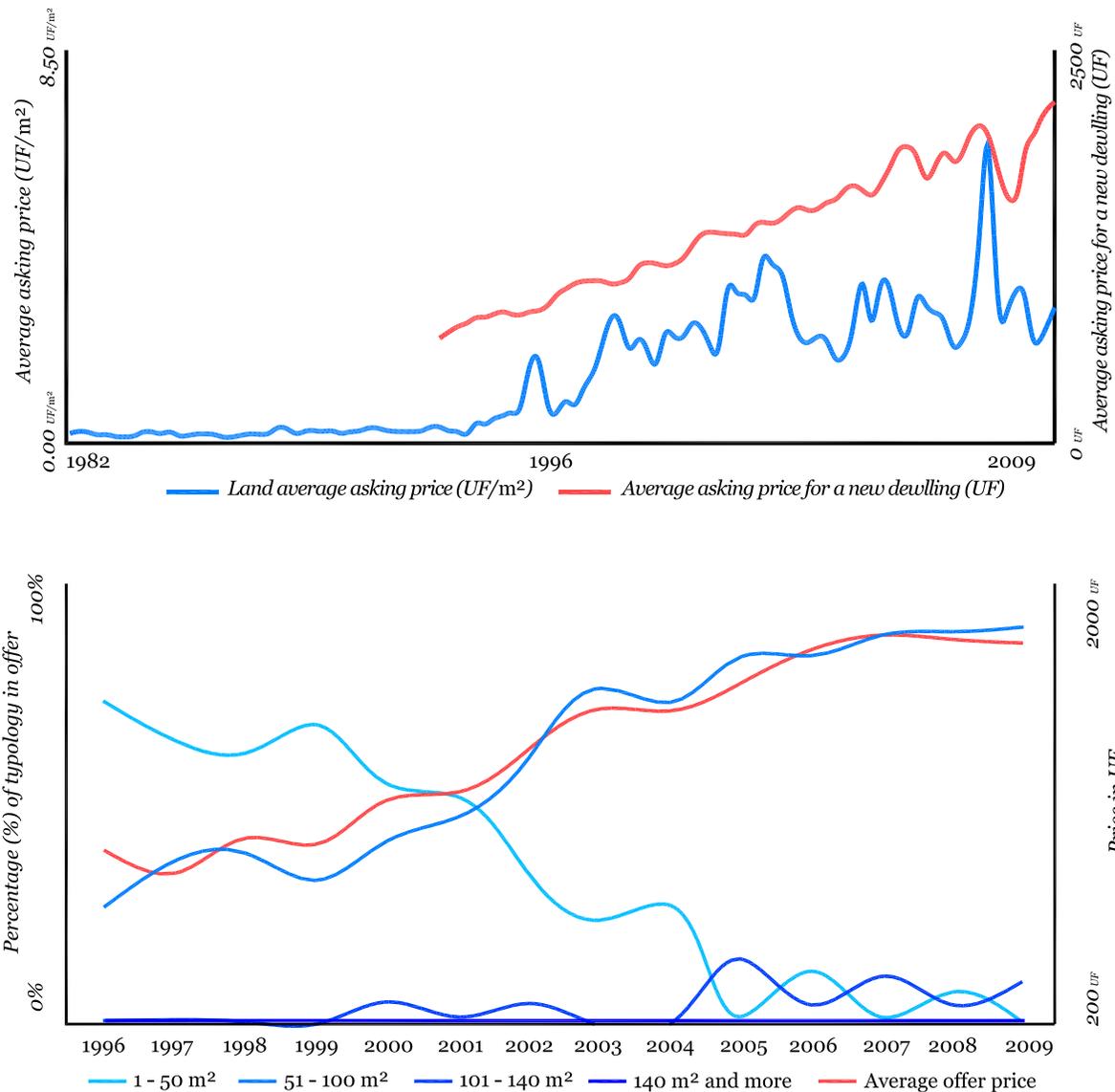


Image 7.6 (top). Average asking price for new dwellings and average asking price for land in Puente Alto from 1982 to 2009. Source: Trivelli 2011. Image 7.7 (bottom). Percentage by size typology of dwellings and asking price in Puente Alto from 1996 to 2009. Source: Trivelli 2011. Note: The UF [Unidad de Fomento] is a monetary unit used in Chile readjusted daily according to inflation

The explanatory memoir for the PRMS 100 (MINVU, 2015) states that one of the major changes observed in the last years concerning real estate development in the MAS is that there are an increasing number of projects aimed at middle/upper class buyers in popular -low class- municipalities and neighborhoods. The southeast municipality of Puente Alto serves as an illustrative example of this phenomenon. As shown in Image 7.6 before 1994, Puente Alto served exclusively for social dwelling and since 1994, developers started developing projects where dwells where aimed to a more middle/upper class buyer thus incrementing the UF/m² of land. Trivelli (2011, pp. 182) explains this phenomenon: The price of any given land is determined by its real estate development potential of the use of land that is willing to pay the highest bid. Thus, as more expensive dwelling are constructed, which are able to pay higher prices for the land, the owners of the surrounding land, which are still vacant, have a clear possibility to increase the asking price of their land. So, the increase in the price of the land and the market pressures is making every day harder to build social dwellings. This can be seen in Image 7.7 how dwellings with less than 50m² decreased from 70% in 1996 to 10% in 2009; at the same time, dwellings with surfaces from 51 m² to 100 m² increased from 30% to 90% in the same period; and since the 2000's the appearance of new typologies including dwellings of 140m² and more. These phenomenon have change the demographic composition of the southeast periphery of the MAS making it more socio-economic divers and thus attractive to New Urbanism-like planning frameworks.

7.3.3 Existing mobility network

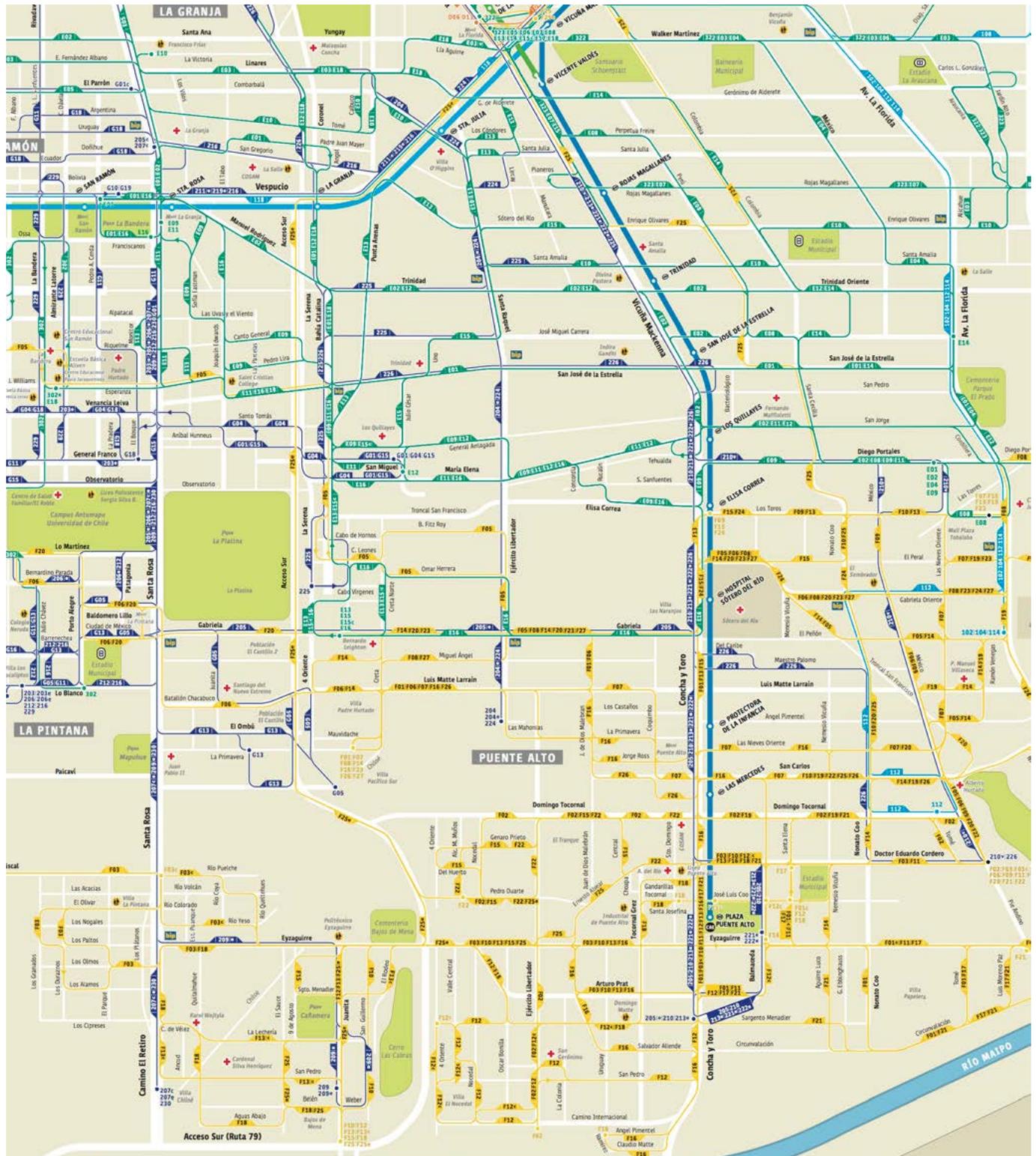


Image 7.9. Existing metro and bus lines in the southeast area. In light blue: Line 4 Metro In yellow: BRT Transantiago lines F In green: BRT Transantiago lines E Source: Transantiago.cl, 2015

Even when the mobility infrastructure is not well integrated, it presents potential to become a highly complete mobility network. There are two BRT Transantiago main bus operators in the area, namely STP Santiago S.A. and Las Araucarias S.A, with 617 bus and 47 lines (E and F lines); these bus lines are connected with Metro lines 4 and 4A which are interconnected with other 4 lines and soon other 2 that are under construction. Besides the public transportation systems there are two major highways concessions: Americo Vespucio sur and Acceso sur (South Access).

7.3.4 Planned mobility network

In the Transport Masterplan for Santiago 2025 (see chapter 2) are presented a series of investments on the behalf of the state and privates related to mobility. In this section a brief summary is presented in order to understand the future and planned potentialities of the SEAC.

+ **Bike lanes:** The masterplan considers 800 km of new bike lanes, new parking spaces and public bikes connected to other transportation systems.

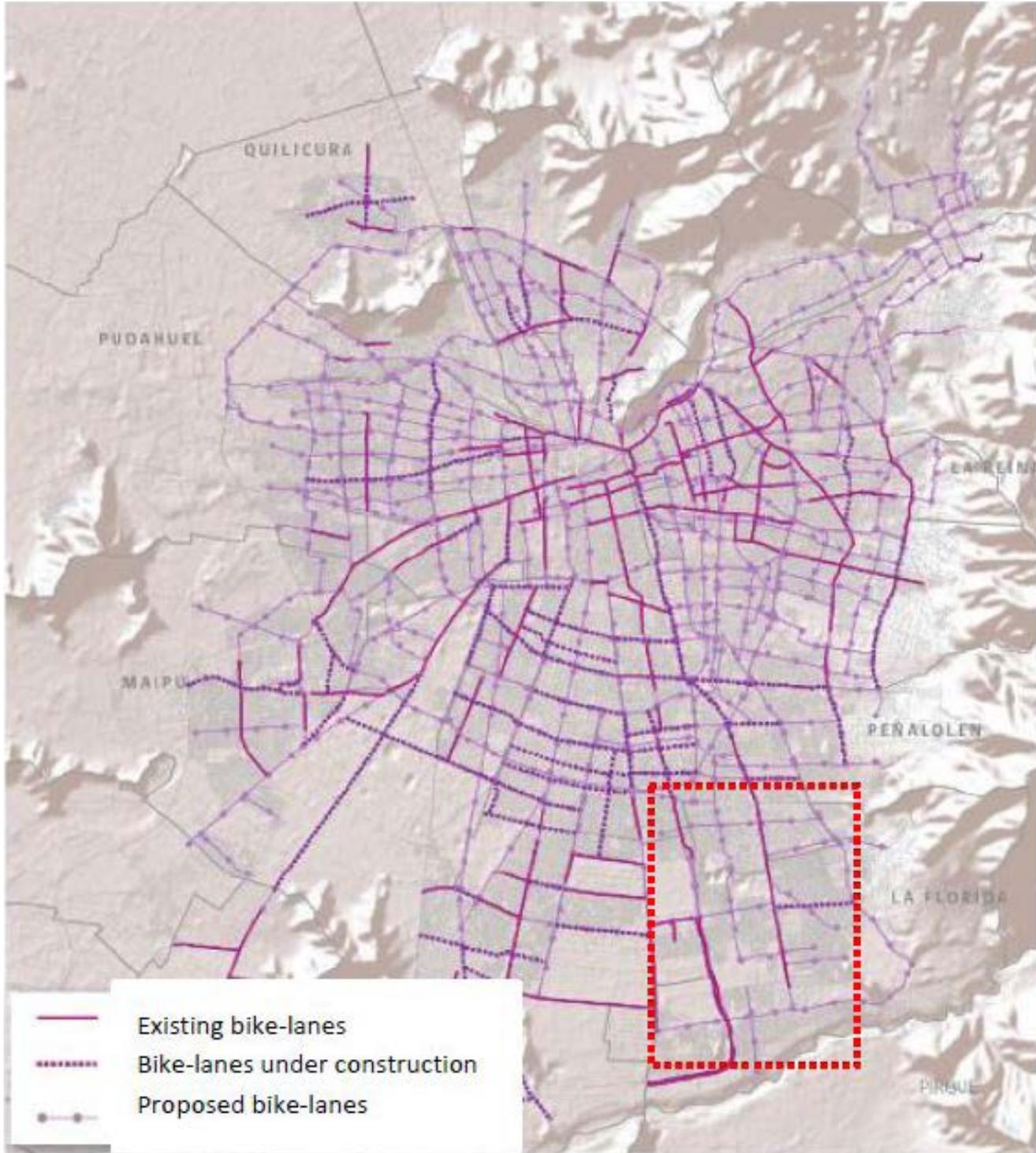


Image 7.10. Existing and proposed bike lanes / Transport Masterplan for Santiago 2025. Source: MOP (2012). It is important to state that the MAS have a highly irregular geography, so riding a bike in many times involves great efforts.

+ **Public transportation system:** considers two new metro lines (currently under construction), two suburban light trains and two pre-metro projects. Regarding BRT, the masterplan considers increase the network, the fleet and the service quality.

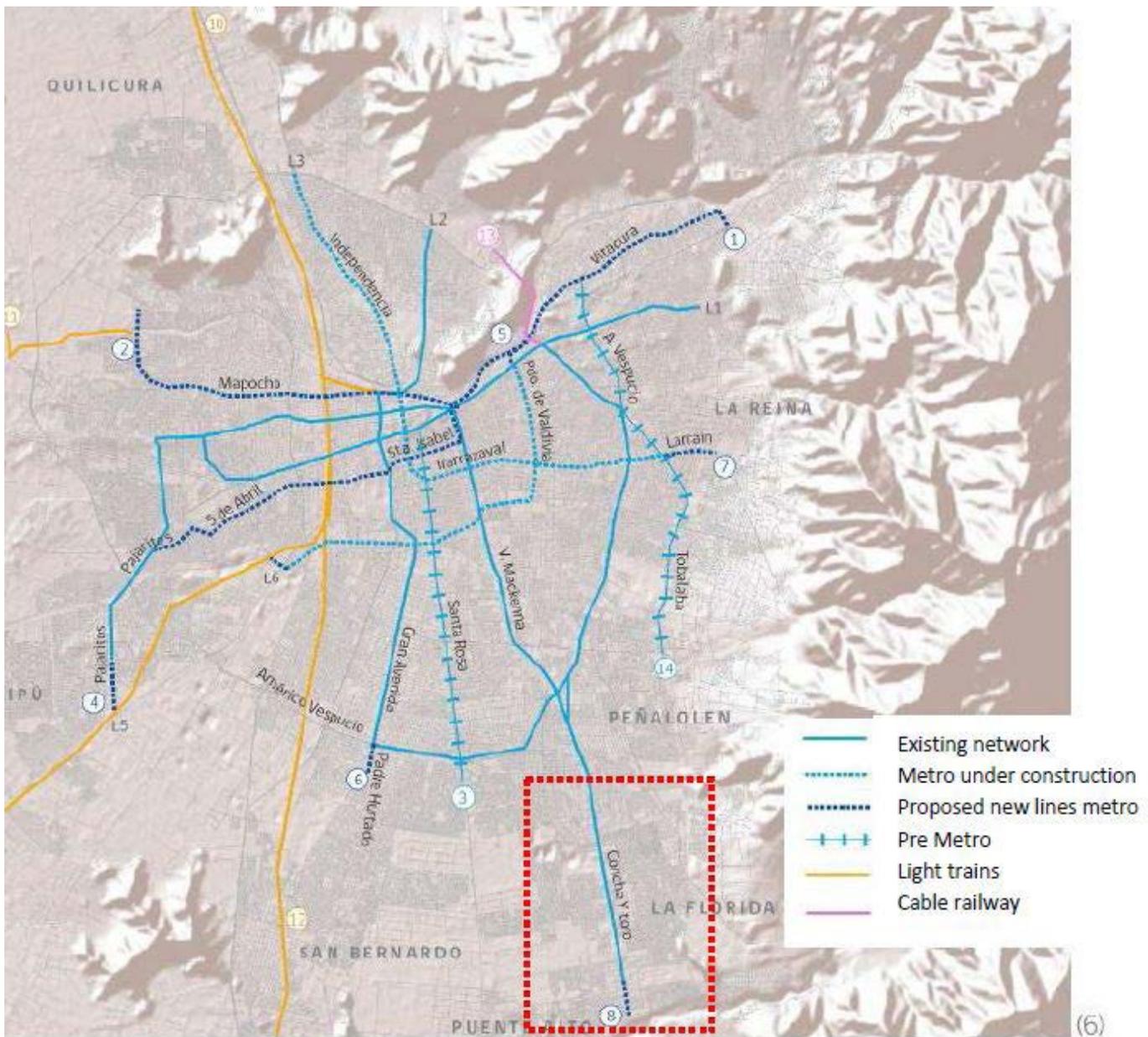


Image 7.11. Existing and proposed metro lines, light trains and pre-metro / Transport Masterplan for Santiago 2025. Source: MOP (2012). As displayed in the image, the southeast access is not considered in the new railways/metro projects.

+ **Roads network:** The masterplan considers an increase in the concessions of inner city highways complemented by state developed road infrastructure. There consideration for local mobility which will be improved in the shown areas.

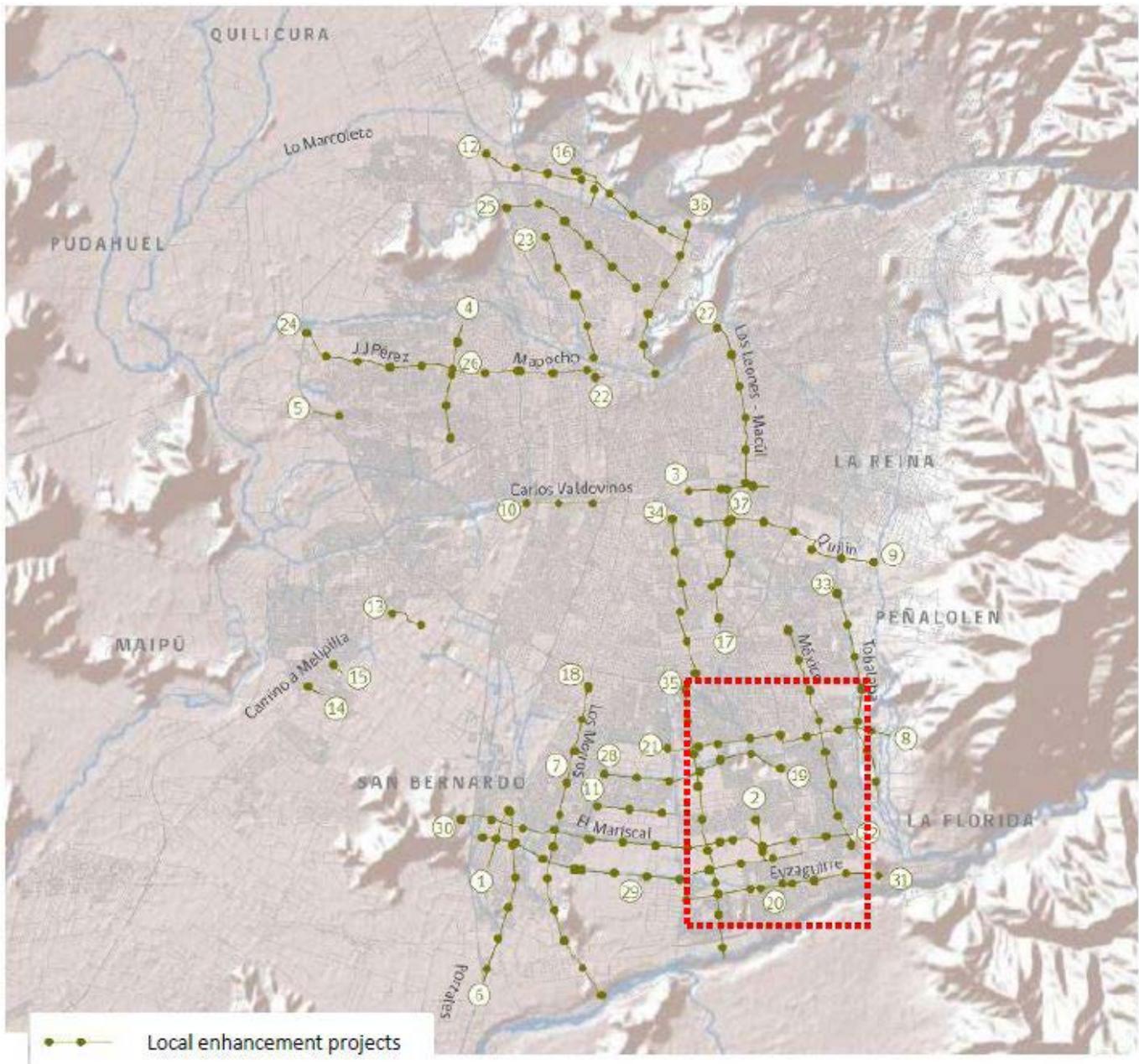


Image 7.12. Local improvement network / Transport Masterplan for Santiago 2025. Source: MOP (2012). The picture reveals that there is awareness of the mobility issues in the southeast access corridor, none the less they are conceived as local and not as a regional issue.

7.3.5 Room to grow

Taking La Florida y Puente Alto as references, for being the bigger and more important municipalities in the SEAC, a growth analysis is performed. According to the report 'Origin/destination pole' [Encuesta Origen Destino de Viajes 2012 de Santiago] (SECTRA, 2012) while in La Florida there are 168 car per 1000 inhabitants, in Puente Alto, there are 126/1000 which is in line with the average of the MAS of 175/1000. This means that there is around an 80% on the inhabitants of these municipalities that do not possess a car. None the less, the pole reveals that on working days, the people from La Florida and Puente Alto (LF/PA) commute according to the following percentages: Public transportation, this is bus and metro: 34.7% in LF and 38.4% in PA which combined can be decomposed into: 52% bus, 22% metro and 26 combination of both; Private transportation: in LF 32.5% and in PA 20.8%; Other ways of transportation: LA 3.8% and PA 5.9; while non-motorized commuting is: 29.0% in LF and 34.8% in PA.

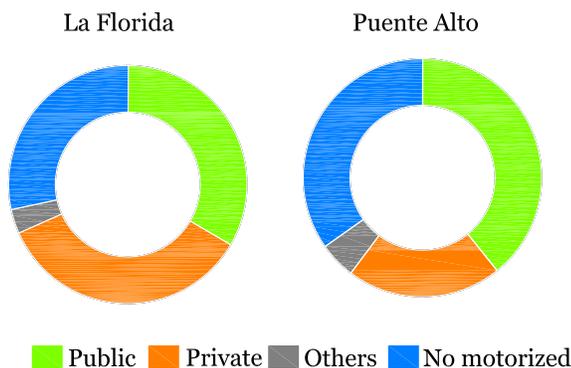


Image 7.13. Distribution of ways of commuting in a working day in the municipalities of Puente Alto and La Florida.
Source: Made by the author based in data from SECTRA 2012

There is also the spatial distribution of the commuters, which is represented in Image 7.12. There are several studies regarding the commuters time from different areas of the MAS towards the CBD. The results for public transport vary from a min of 65 minutes minimum to a maximum of 127 minutes while for private transport the vary from 50 minutes to 63 minutes.

From this data we can conclude that there is a large amount of demand that is not being satisfied by public transportation, even not by private transportation considering that in average 26% of the trips are made by car non the less, in average, only 14% of the population of these municipalities owns a car. We can also see that there are several trips towards the CBD (east and center in Image 7.14) that require long commutes. This added to the fact that there is a decrease in public transportation demand that is close to -0.05% (Cooperativa, 2014) supports the thesis that the southeast corridor requires an intervention in order to develop further the potentialities of the area and to integrate the existing transportation system.

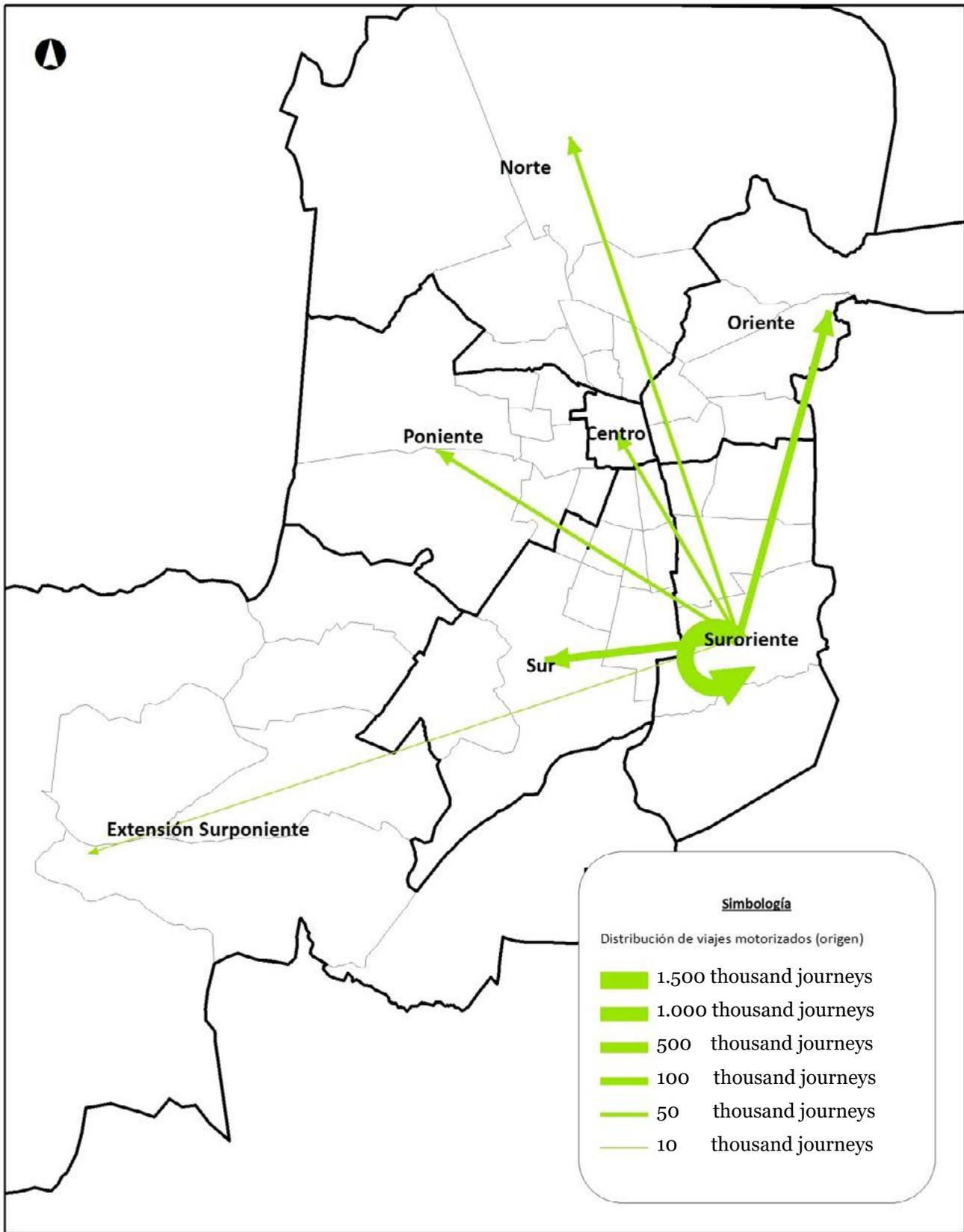


Image 7.14. Spatial distribution of the commuters of the southeast area in a working day; the wide of the arrow represents the amount of trip. Source: SECTRA (2012)

7.4 Involved Stakeholders

In order to achieve successful implementation for the Holistic framework, early involving of all stakeholders is a key aspect. The broader the spectrum, the more likely a plan will be successful (see the Dutch area development). In This section stakeholders are grouped and named in order to identify their role and their needs. Note: Transantiago, Metro and Infrastructure Concessions are formed under Private Public Partnership (*):

Public sector:

- +Municipality of Puente Alto
- +Municipality of La Florida
- +Municipality of La Granja
- +Municipality of La Pintana
- +Chilean Association of Municipalities
- +MINVU
- +MTT
- +MOP
- +MMA
- +GORE RM
- +SEREMIS (MOP, MMA, MTT, MINVU)
- +Transantiago*
- +Infrastructure Concessions*
- +Metro*

Private Sector:

- +College of Architects
- +Chilean Chamber of Construction
- +Sectorial Associations
- +Regional and local business
- +Private real estate developers
- +Banks and Financial Institutions
- +Transantiago operators*
- +Metro*
- +Infrastructure Concessions*

Civil Society:

- +NGO's
- +Local residents
- +Local groups and associations

Academia and Multilateral institutions:

- +Universities
- +Urban and economic laboratories

7.5 Current processes and (lack of) vision for the Southeast Access Corridor / Findings

The lack of attention given to the area's regeneration potentialities is rooted in the existing planning framework for the MAS, which reflects the sectorial, market driven, path dependent framework implemented in the Southeast Access Corridor currently. Upon reviewing and decanting the presented information in this chapter, the planning framework and processes presented in previous chapters and the overall reach of this thesis, the following operational gaps are identified:

1. **Focus on efficient metropolitan mobility:** the MAS planning framework, concerning several stakeholders focuses mainly in achieving intra-metropolitan mobility and solving 'symptoms' more than the actual causes of the issues; for example, adding lanes or making concessions for new highways in order to solve long commuting times instead of promoting public transportation. Moreover, the mono-centric perspective of the current framework fails to recognize and address the necessity for a multi-actor and multi-sectorial framework to successfully coordinate future regeneration of the corridor on a local and regional scale.

2. **Socio-urban complexity overlooked:** the current planning mechanisms for public transportation and urban development of the MAS, even when having good intentions, have failed to implement a successful system that allows communities to commute and develop in an organic way resulting in the new mobility practices explained in previous chapters and in inorganic growth of the area lacking support of infrastructure and services. There are also several socio and urban phenomenon changing the inner structure of the SEAC that is currently being overlooked in the planning framework.

3. **Lack of inter-municipal arrangements:** Inter-municipal arrangements can be effective at managing the impact of administrative fragmentation, particularly for service delivery. Depending on their structure and competence attribution, they may also help address the challenges associated with institutional fragmentation. Inter-municipal arrangements are used in OECD countries to build scale for the delivery of services (OECD, 2013. pp. 169). This is one of the more evident operational gaps in the SEAC; the lack of formal mechanisms for cooperation between municipalities in order to address inter-municipal issues. Thus, each municipality will see fit how to solve their inner and external problems reducing the possibilities to actually mitigate it, considering that may be produced or well may impact neighbor municipalities.

4. **Lack of financial management and autonomy of the municipalities:** the lack of revenue-raising capacity of municipalities tends to create disparities at the local level. Evidence suggesting that metropolitan areas with greater control over their finances tend to be more successful than those areas with less control is likely to hold true for regional and non-metropolitan local authorities as well.

5. **Unfit alignment of resources regarding competence allocation:** there is a need to introduce mechanisms to address the misalignment between resources and ascribed competences at the local level. These can include creating incentives for horizontal co-operation in service delivery; transferring select competences to a higher level of government; create different categories of municipalities and ascribing competences based on the municipality's level, with smaller authorities having fewer high-cost responsibilities than larger ones.

7.6 Proposed governance structure platform for the MAS

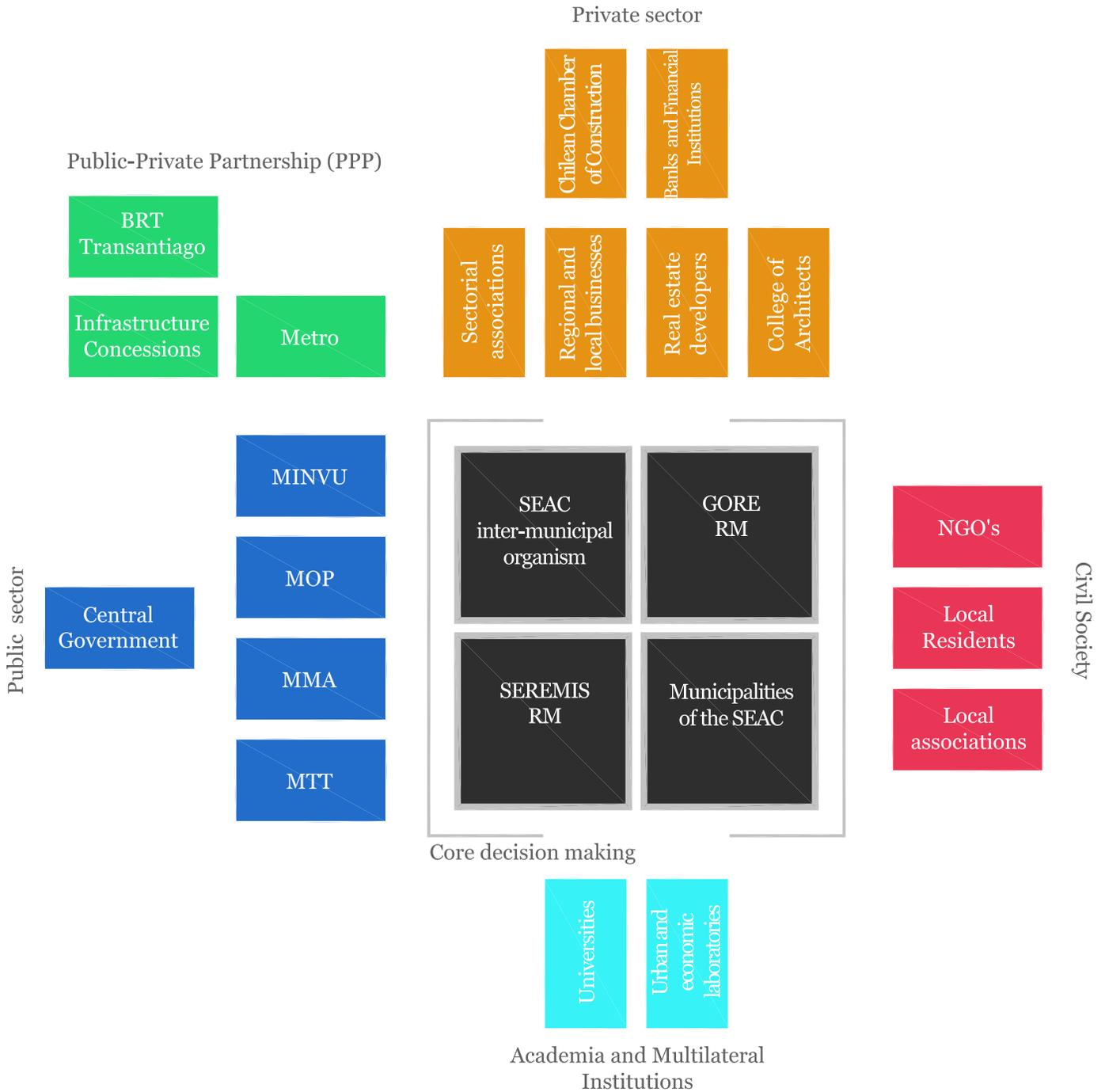


Image 7.15. Proposed regional planning platform. Source: made by the author

Based in the Holistic Framework recommendations, and adding lessons learned from the additional perspectives from around the world such as the Dutch Area-development and the French Community solidarity, Image 7.15 presents a proposed planning and governance platform for the Southeast Access Corridor of the MAS. The main goal is to create a policy and planning structure to create a governance culture that aims to achieve integrative regeneration at a local and regional level. In order to achieve this, the proposed regional planning platform addresses the operational gaps named in previous sections incorporating a cross-sectorial, cross-level, inclusionary, integrative process. These processes are called to fill-in the opportunities created by the gaps in the current system, utilizing New Urbanism techniques for implementing a Holistic Model as part a comprehensive and equitable regeneration model that will be able to detect and exploit local amenities and potentialities at the local and regional scale, responding to the inherent demands of each scale. Legacy and Leshinsky (2013) draw on the neoliberal and equity planning literature (Tiesell and Allmendinger's, 2005) and define four categories of planning tools, recasting the instrumentality of planning tools by examining what opportunities exist to foster more transparent and inclusive management of the urban change process, both from theoretical and practical perspectives; these tools aim to achieve more diversified, equitable and just socio-spatial outcomes in planning. The tools are described as follows:

1. Shaping tools: Planning instruments, including regulatory plans, implementation plans and other guiding documents that provide an overarching context within which planning decisions and market transactions take place.

2. Regulatory tools: Law and more particularly, regulation, strive to provide order, certainty and consistency. Regulatory controls, such as land-use codes and planning schemes, dictate the manner in which a parcel of land can be used and developed by its owner.

3. Stimulation tools: Stimulation tools seek to spark the economy and to steer consolidation towards designated growth areas. Market based tools, such as density bonuses, inclusionary zoning and development contributions, may be used to deliver a social outcome (e.g. more affordable housing). Other tools such as tax incentives and subsidies may encourage development in areas not considered before by developers.

4. Capacity building tools: To accommodate growth and the changing demographics in cities, urban managers continue to look to urban intensification policies to meet the growing need for housing and infrastructure. Developing cities more intensely has consequences for the residents (current and future). Tensions may arise from existing residents about how development might meet their current and future needs and the needs of future residents (e.g. providing access to jobs, social services, low-cost transport, affordable housing, parks, and other infrastructure) and engaging them in the process.

This approach does not only offers benefits to a limited set of large-scale stakeholders, but directly involve all current and future stakeholders who are most heavily affected by future regeneration impacts. As stated, one of the major problems of the local level is the incapacity of fund raising, thus, along with the proposed organizational platform another key component to the model's success is integrating the now sectorial public financing process, specifically the flow of funds from the central government to the local levels, with inter-municipal platforms serving as the critical link.

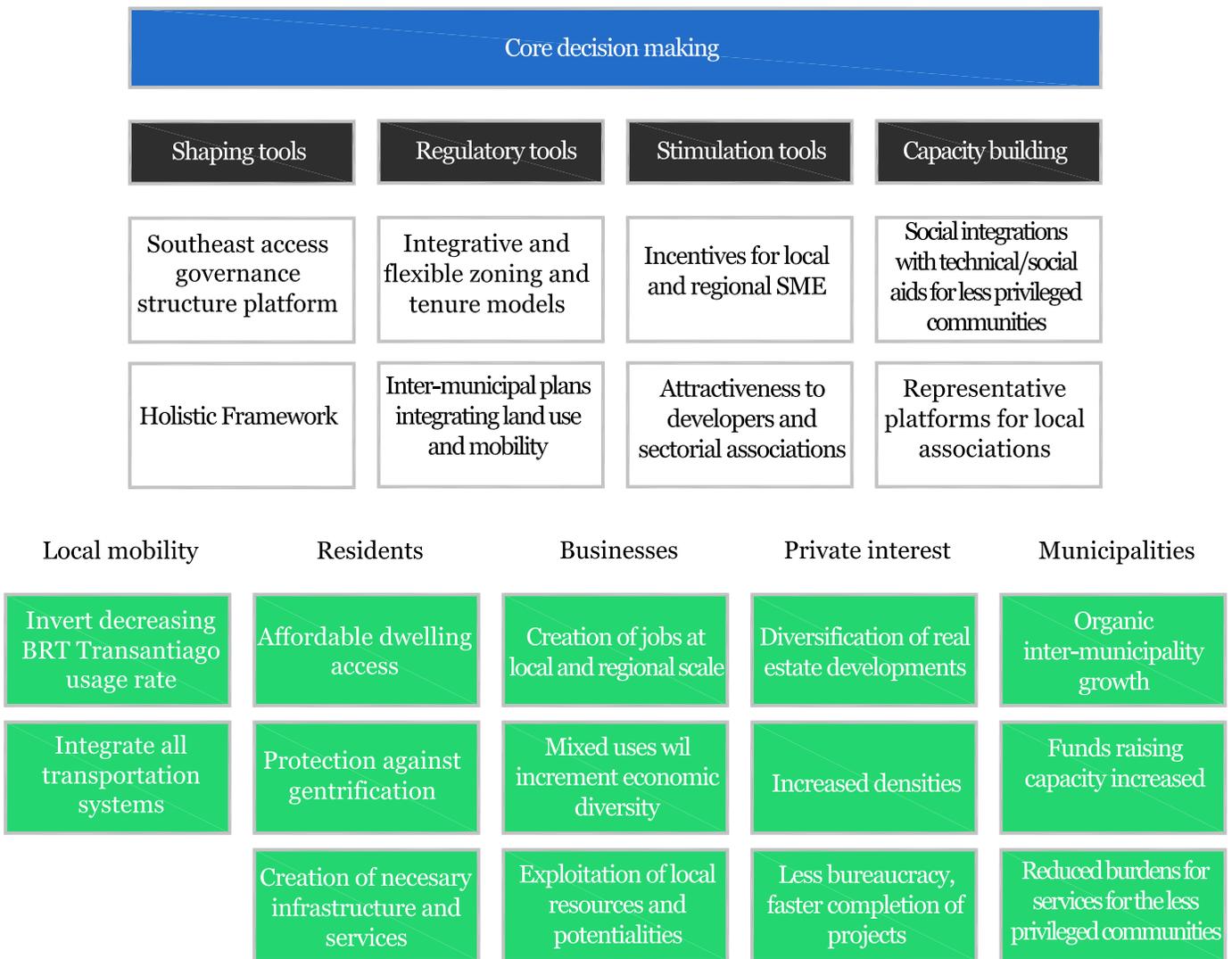
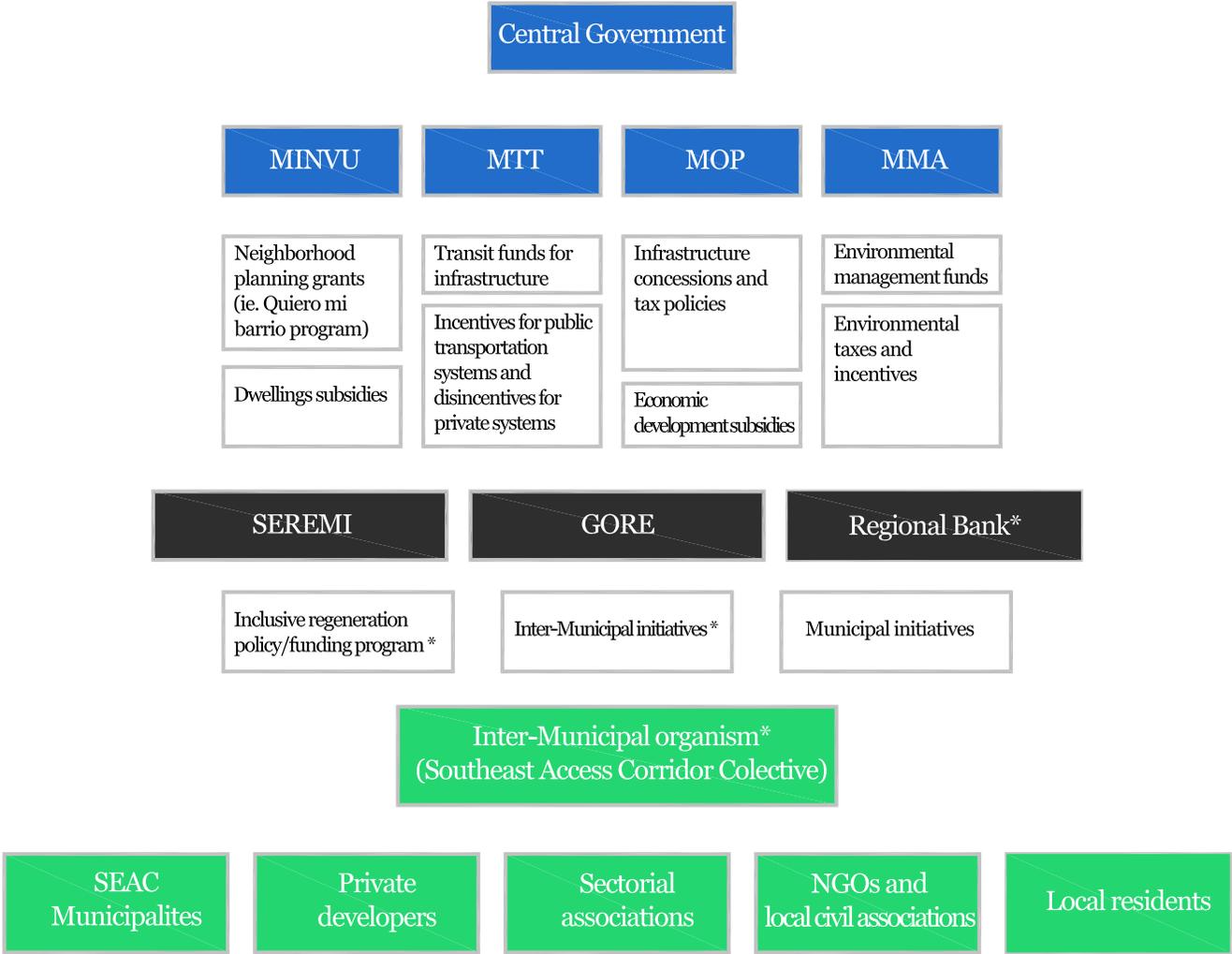


Image 7.16. Shows how the proposed planning tools will deliver benefit to the stakeholders of the southeast access corridor of the MAS. Source: made by the author

This regional-scale platform, concerning inter-municipal planning and development issues does not only offer benefits at the regional-scale, but at the local scale will allow opportunities to create horizontal platforms with all economic and social stakeholders for local-scale planning issues.

Critical for this platform to work is the autonomy of the inter-municipal organism (named Southeast access corridor collective) which must act as a bridge, balancing inter-municipal, municipal and communities demands. Is important to understand municipalities as part of a regional, even national, network where each municipality plays a unique role within local, regional and local perspectives; thus, the inter-municipal organism must achieve these transformations maintaining each municipality's identity. Puente Alto, La Granja, La Pintana and La Florida municipalities play different roles in within the MAS and show a diverse range of functional and spatial characteristics that differ from each other and the characteristic CBD image of the MAS, as well as the one as a the image of a generic sub-urban town absorbed through conurbation.



Central level.
 Combination between direct central government funds and sectorial funds throughout the ministries to implement general programs towards centralized goals such as more equitable regions, affordable housing, transit integration, regional and local incentives, etc.

Regional level.
 Redirect SEREMIs and GOREs attention towards an integration link between the central level and the local level. Creation of a special fund for regeneration purposes. Creation of a regional bank for allocation and holding of such funds.

Local level.
 Coordinate local stakeholders to ensure that all local needs and demands are fulfilled and the potential developed. Incentives to achieve integrations and increase economic diversity, making the area more resilient to changes in the economic cycles. Integrate land use and all transportation systems in order to achieve prosper development

Image 7.17. Integral funding structure. As shown, there is a transformation of the existing institutions and some new institutions are added (*) in order to ensure integral funding. Source: made by the author

The implementation of the proposed plans, strategies and actions has to be evaluated under this paradox of the local-regional scale role, which refers to the specific role within a network context. The New Urbanism tools implemented in this proposal, TOD and Smart Growth, incorporate in a multilevel approach that incentivizes simultaneously regional and local growth in a sustainable, resilient manner, complementing both perspectives with each other. On the other hand, and as stated, there is a local identity that must be conserved and potentiated, so the regeneration perspectives must be founded in the local potentialities, prioritizing inclusionary, long term strategies with a clear final scenario.

7.7 Operational recommendations



Image 7.18. Integral Inter-Municipal recommendations (one dot), guidelines (two dots) and systems (three dots). Source: made by the author

In order to operationalize the proposed institutional and policy model, strategic recommendations are given. As shown in Image 7.18, this recommendations and guidelines are based in a recapitulation of the framework creation process, where his thesis has defined the inherent problem of the current planning framework of the MAS and the gaps that allow the significant deficiencies in the socio-urban spectrum and keep on delivering negatives social outcomes. In order to address and revert such gaps, the given inter-municipal recommendations and guidelines support the proposed inter-municipal New Urbanism-like platforms for the Southeast Access Corridor. Thus, recapitulating, the main goals is to prove that the existing planning framework of the MAS, the current path-dependent processes

in real estate development and the market driven urban growth can be overcome by incentivizing inter-municipal cooperation in order to achieve regional regeneration sustainable in time and with a post-growth perspective, all of these achievable throughout all the named strategies, tools and frameworks. The next step is to analyze the next scale, the municipal-scale policy and spatial design; this is reflected in the guidelines shown next to the recommendations. In order to achieve this successfully, a local architecture study must be conducted and a Manual for architecture, urbanism and construction implemented.

In order to establish a direct link between the inter-municipal scale and the Municipal scale, guidelines are given in order to ensure that the recommendations become operable. Planning, urban and policy guidelines are given in order to promote sustainable, resilient and organic development. As stated in previous sections, each municipality's identity is an asset that should be kept and promoted, this guidelines serve as a bridge connecting local and inter-municipal needs and goals; this allows an holistic approach towards urbanization challenges at both scales; this demonstrates one of the premises first stated that in order to achieve a more just, mixed and integrated urban scenario one of the main goals is to achieve integration at all policy levels and between all stakeholders. The proposed recommendations are tangible strategies in order to achieve a New Urbanism-like development that is specific in time and space, adaptable to the potentialities, demands and realities of the Southeast Access Corridor. These tangible recommendations, when translated to the municipal-scale allow all stakeholders and policy makers to see and understand how the Holistic Framework enables local regeneration policies that will directly and visibly improve the existing urban and socio-economic structure of the area.

Image 7.18 shows how the recommendations and guidelines can be translated to urban, architectural and design principles. This, yet more, tangible form allows municipal-scale stakeholders to use a visible framework to show the involved developers and interested parties how the New Urbanism-like regeneration framework shape the development of the urban form and composition into more positive outcomes. As Chilean planning culture is tightly ligated to an architectural framework, the morphological framework is easier to implement among the developers and stakeholders in general. In other words, the Holistic Model offers a concrete methodology to improve not just operational processes but also the existing spatial structures within the Southeast Access Corridor. In the following section, a selection of different infographics illustrates the context in which the proposed integral framework will operate within, as well as a regional perspective for the transitions management dynamics.

7.8 Existing situation in the SEAC / Findings

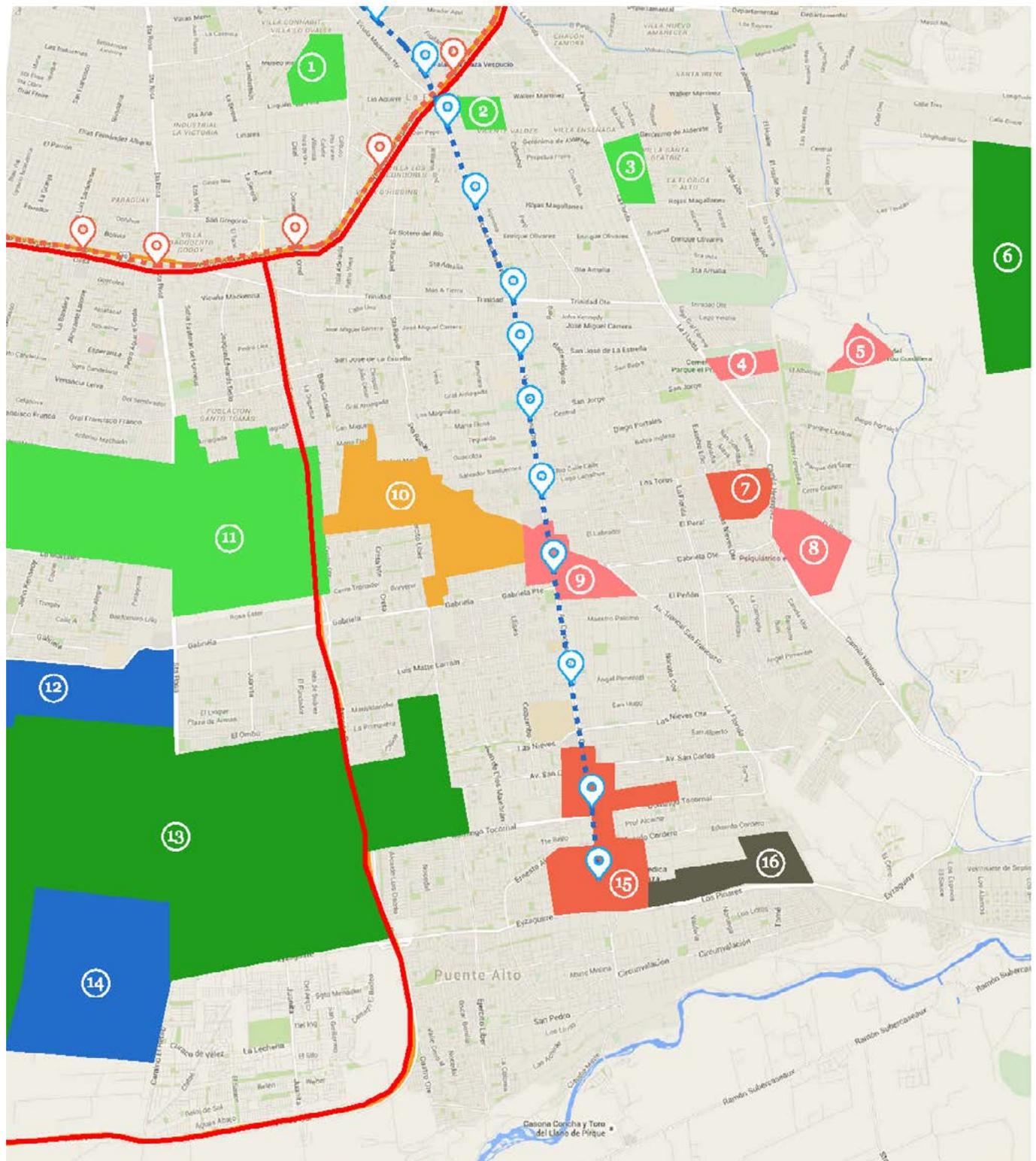


Image 7.19. Existing situation in the SEAC / potentialities. Source: made by the author / Google maps

1. MIM – Interactive Museum
2. Schoenstatt Sanctuary Park
3. Verbo Divino Religious Seminar
4. Cemetery
5. Cemetery
6. El Panul Forest Ecological Reserve
7. Mall Plaza Tobaraba

8. El Peral Hospital
9. S del Rio Hospital
10. Ex sand Pit (available land)
11. University of Chile Campus
12. Huertos familiares 1
13. Wine yards
14. Huertos Familiares 2

7.8.1 Potentialities:

There are especial areas that represent the local identity of the inhabitants and of the region and of the SEAC. These areas have the potential to become strong moorings so that future developments don't displace local residents and the area can keep key aspects of the SEAC identity.

1. Universidad de Chile / Campus Antumapu



Image 7.20. U Chile. Source: Google maps

This campus of the University of Chile is mainly focused in agro-environmental sciences. It is an important 'green lung' for the area as there are mainly crops and vegetation. This campus has strong ties with the community and has conducted urban gardens for the community and scholar trips to know more about the agro-processes that are studied in there.

2. Huertos Familiares



Image 7.21. Huertos Familiares. Source: Google maps

Huertos familiares is translated to English as Family orchards, this self-explaining name is the name of the sector where families try to live as sustainable as possible. In this area there is a great sense of society. The internal network is strong and has a physical manifestation in the structure of the neighborhood.

3. Plaza de Puente Alto



Image 7.22. Plaza de Puente Alto. Source: Google maps

Plaza de Puente Alto or the Main Square of Puente Alto is the ex-parade ground of the town of Puente Alto before this was absorbed through conurbation to the MAS. In this sector traditional Puente Alto is still recognizable. Maintains part of the traditional Spanish architecture and all the main municipal activities are held here.

4. Sotero del Rio Hospital



Image 7.23. Hospital Sotero del Rio. Source: Google maps

With an assigned population of 1.5 million people is the most visited hospital in the country. It has facilities to deal with high complex procedures that are why it was designated base hospital for all of the southeast of the MAS, serving the municipalities of Puente Alto, La Florida, San Ramón, La Granja, La Pintana, San José de Maipo y Pirque.

5. Vineyards



Image 7.24. Vineyards. Source: Google maps

The SEAC used to cover by vineyards, today, only the most famous and respected vineyards were able to survive the real estate developments pressure. They keep an important part of the SEAC's agricultural identity.

These areas and neighborhoods located within the SEAC present themselves as potential starting points for future developments. They present local particularities that have social, economic and environmental potentialities. They can also be considered as anchor areas in order to develop in between them, giving more attractiveness to the developments between them.

There are also that present special potential for development, these areas are underdeveloped and/or not consolidated and in within the urban fabric of the SEAC. They present a unique opportunity as testing ground to implement the stated strategies and recommendations in order to analyze the reaction of all stakeholders and re-evaluate the strategies and the set instruments.

6. Ex sand-pit



Image 7.25. Ex Sand-pit. Source: Google maps

This former sand-pit represents a unique opportunity for testing the strategies and recommendations stated in this chapter. This terrain of about 190 hectares is rooted in the urban fabric of the SEAC and presents the possibility to create an inner corridor to connect the South Access Highway to the Metro Line 4 and Vicuna Mackenna main street, The University of Chile Campus and the Sotero del rio Hospital as well.

7. La Ballena hill



Image 7.26. Cerro la Ballena. Source: Google maps

La Ballena hill is located in the east of the SEAC, is still under development so it presents a great deal of potentialities for applying the named strategies and recommendations.

8. Vicuna Mackenna crossroad with Americo Vespucio Sur



Image 7.27. Vicuna Mackenna crossroad with Americo Vespucio Sur. Source: Google maps

Implementing New Urbanism strategies, so as the Holistic Framework is more challenging when the territory is consolidated and has a strong identity, none the less it is necessary to do so. The crossroads of Vicuna Mackenna and Americo Vespucio Sur, two major automobile arteries crosses line 4 and 4A of the Metro, this represents a major potential location to implement such plans and the holistic framework.

7.8.2 Weaknesses

1. Consolidates areas

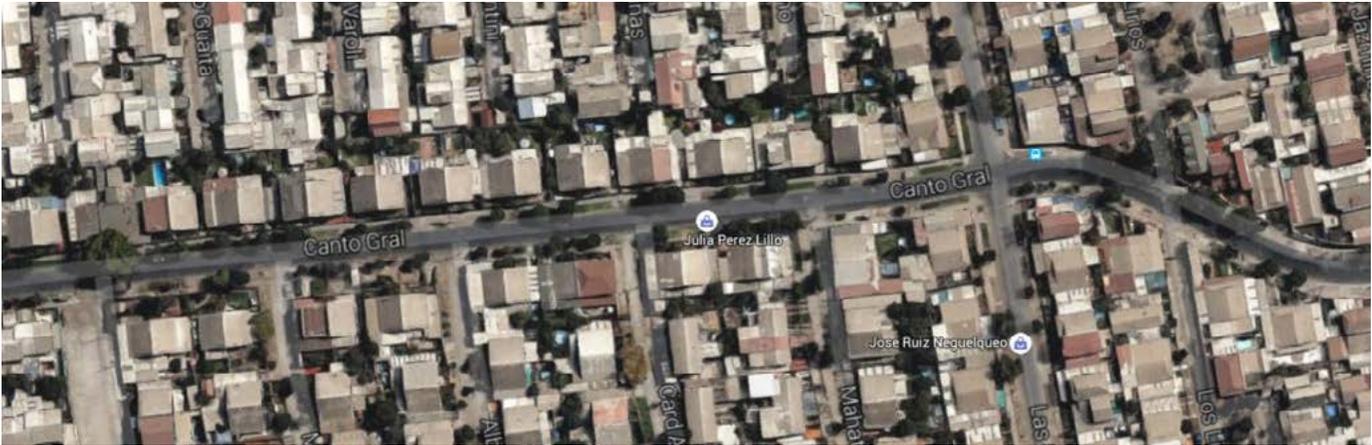


Image 7.28. Consolidated area in the SEAC. Source: Google maps

Implementing the Holistic Framework in consolidated areas will mean encountering more obstacles for implementation and more powerful institutions and organizations (local, formal or informal). This can create delays that are directly detrimental to the proposed framework.

2. Rapid sprawl



Image 7.29. New development in the SEAC. Source: Google maps

The SEAC is under a huge real estate pressure, the measures to ensure the correct operation of the holistic framework must be applied fast in order to avoid implementing an obsolete plan. There is also the problem that it is harder to implement the Holistic Framework in consolidated areas.

3. Informal settlements / campamentos (slums)

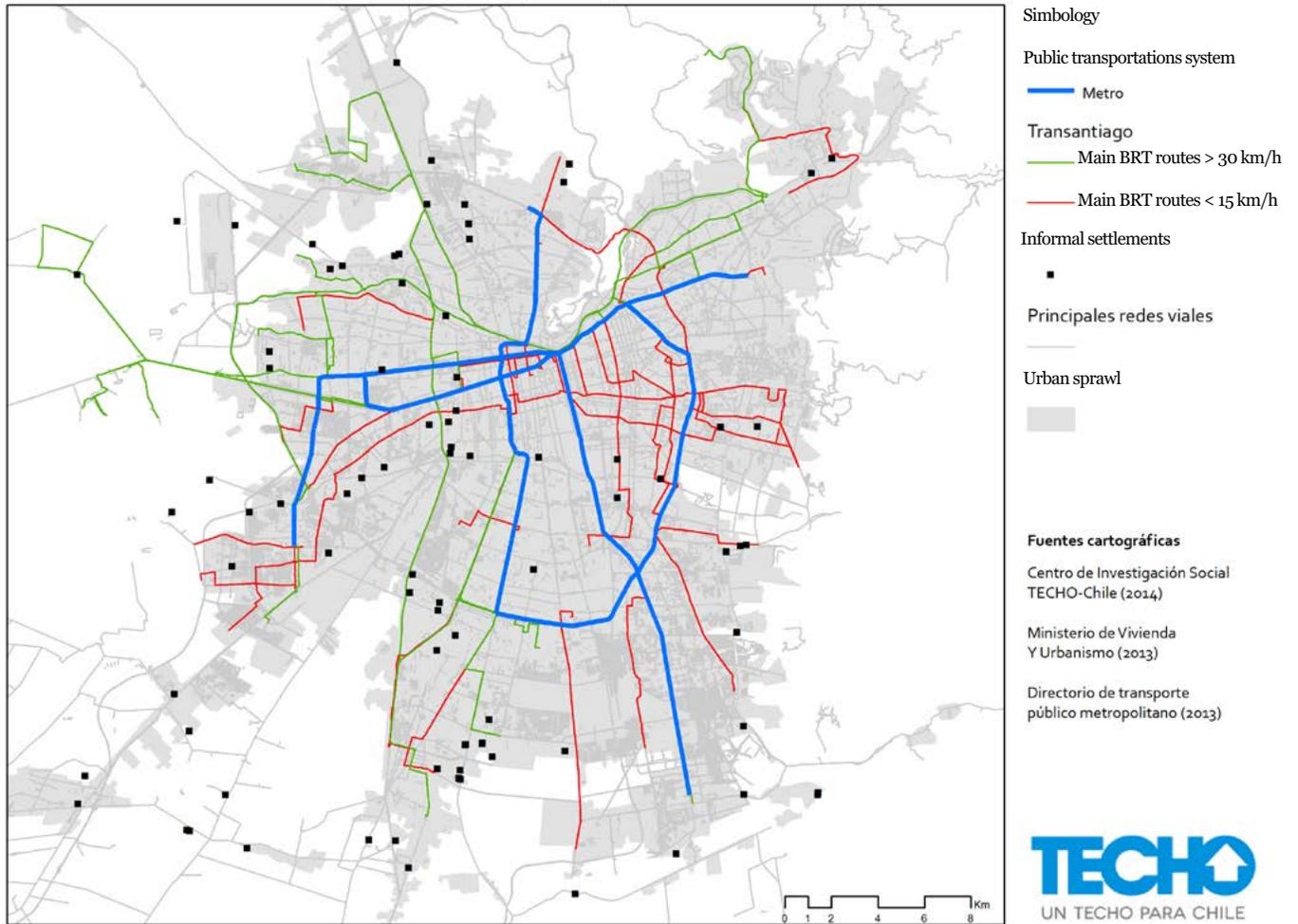


Image 7.30. Informal settlements in the MAS. Source: Techo, 2014

There are 5 informal settlements in the area of the SEAC, even when this is part of most Latin-American metropolises they represent a hazard for development as they are usually associated with risk practices such as drug dealing, crime and anti-hygienic practices. As the settlements are illegal it is really difficult to re-locate people living in these areas as there are few legal basis to deal wh

7.8.3 Summary of findings

As displayed in the last two sections, there are several areas in the SEAC that present and represent the inherent value of the corridor, none the less, this areas are dispersed and do not communicate with each other emphasizing the fragmentation. There is a lot of regional scale infrastructure and facilities that is being lost due to this fragmentation, so are many unique places with a great deal of identity lost in the regional scale due to the same phenomenon. The presence of BRT Transantiago, highways concessions and the metro lines present a strong opportunity to create mobility integration point that may allow these different places to create an interconnected urban fabric that will potentiate social and economic growth and equity, leveling the 'loser and winning' spaces into a more just region. This would also help state a regional identity, today not present due to the fragmentation of the region.

Upon the review of the existing planning tools and developments trends in the SEAC it is clear how the stated policy and planning gaps manifest themselves in the urban fabric. There is a recognizable and tangible lack of communication between levels and sector which is detrimental for the regeneration of the area. On the other hand, there are interesting potentialities to initiate regeneration projects which may act as starting point for the Holistic Regeneration Vision. It is key to the success of the Holistic Framework applied to the SEAC that all stakeholders and political networks are aligned and to translate this alignment into tangible plans that work and build over the existing urban fabric, recognizing the presence of all physical and social networks in order to achieve successful regeneration. In the following section an overall Holistic assessment is given highlighting the potentialities and weaknesses of the SEAC expressed in a map.

7.9 Regional Holistic Regeneration Strategy: Regional Vision Scenario

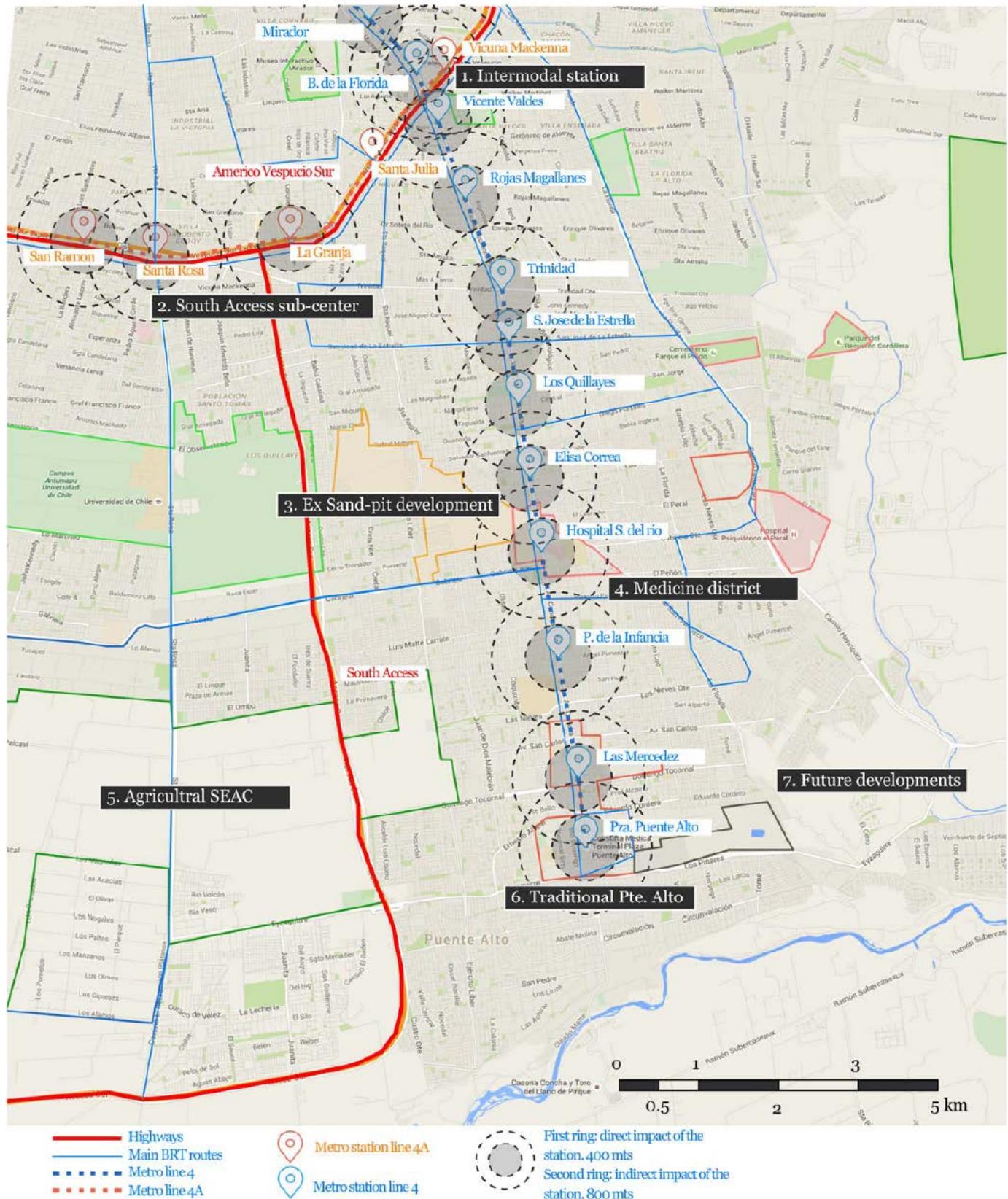


Image 7.31. Regional Vision Scenario. Source: made by the author / Google maps

Using the Holistic Regeneration framework regional assessment for the SEAC, an economic-spatial analysis was performed in order to determine local potentialities based in the functional characteristics and spatial design of the existing urban structure. Under the scope of this analysis a proposed set of development typologies are defined as a tentative aim goal to define the different areas in within the SEAC, this typologies aim to strengthen local potentialities and to make the most of all present infrastructure and services available and to encourage public transportation use. Seven typologies are defined:

1. Intermodal station.

Located in the crossroad of Vicuna Mackenna and Americo Vesputio Sur, two major automobile flow arteries of the MAS, in this point the also encounter Lines 4 and 4A of the Metro. Moreover, it is located 1.5 km from the extreme of the South Access Highway which connects the MAS with the southern part of the country. This strategic point in the SEAC has the potential to create a big scale intermodal station combining interregional buses going/coming from the south, Metro lines, BRT Transantiago, Americo Vesputio and South Access Highways, bicycles for local use, Taxis and at the same time support all the necessary services this require, becoming a potent local regeneration point.

2. South Access Sub Center.

This typology is aimed at creating a supply point before leaving the MAS to the south. It is contemplated to have gas stations, supermarkets, restaurants, bathrooms and automobile services; this can also be a first stop for all buses going south from (1) the Intermodal Station to pick up more passengers. This sector is currently lacking a great deal of services so this typology would also support local neighborhoods.

3. Ex Sand-Pit Development.

This proposed typology has unique potential as testing ground for the proposed strategies and recommendations as is the only big scale land available for development. In this terrain of 189 hectares is aimed to be developed under the Holistic Regeneration Framework and to create an internal corridor from the University of Chile (west) to the (4) Medicine District (east). The regeneration strategy would be most visible in this point so it is recommended to be taken as a flag project to present the benefits of the proposed framework to the society and to politicians.

4. Medicine District.

The Sotero del Rio Hospital and the Peral Hospital are both highly frequented hospital being S. del Rio Hospital the busiest of all the country; There are plans to upgrade and to expand the hospital in order to support the growing population. All of the aforementioned gives this area a potential as Medicine District where all associated companies (insurances, pharmacies, etc.) can create an intrinsic network of services around medicine becoming a regeneration agent for the area.

5. Agricultural SEAC.

The agricultural SEAC area present unique tourism potentiality as it maintains the local identity from previous centuries. The vineyards and the Huertos Familiares area are unique urban typologies in the MAS, this should be capitalized and transformed into a tourism attraction aimed at regenerating the area and protecting the local identity at the same time. Due to its large extension this typology can have a major impact I its surrounding being beneficial for the entire corridor.

6. Traditional Puente Alto.

The center of Puente Alto still keeps the traditional architecture and activities from when it was a town, yet not absorbed by conurbation by the MAS. This typology aims to capitalize this traditional town-like architecture and social activities placing Puente Alto Square as a 'Traditional town' inside the metropolis. This will enable it to maintain its identity, regenerate itself and its surrounding and become a major enclave in the regeneration process of the SEAC.

7. Future developments

The main goal of this typology is to revert the current development typology where there are not mixed uses, lack of infrastructure and lack of services available for the new constructed developments. The overall aim is to implement the Holistic Framework into all new developments in order to test the proposed framework in order to analyze its responses and society's response in order to refine it into the needed framework under all changes in time and space.

7.10 Model implementation

In order to assess the successful implementation of the Holistic Model there are two main concepts that will validate its feasibility and correct implementation. The first one is to develop and implement a time table, preferably one that allows different scenarios as the ‘Dynamic adaptive policy pathways’ (Haasnoot et al. 2013) to guide the transition from the Top down–central–mono centric perspective of the territory towards the all levels–all sectors–regional–multi-centric perspective of the Holistic Framework. This time table must be constructed considering all levels and stakeholders in order to ensure its success. The second one consists in matching the specific tools for each level of governance in order to allow them to involve and make accountable all stakeholders within the SEAC, thus ensure cooperation and accountability.

Stakeholders’ relational proposal:

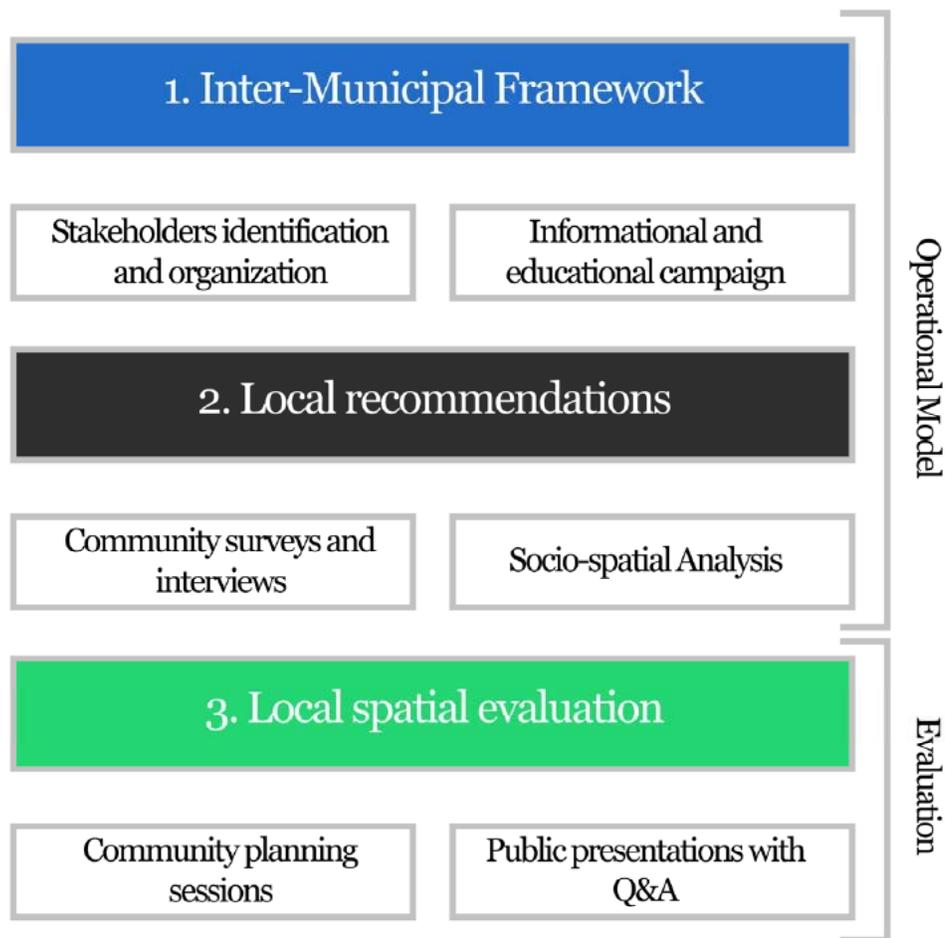


Image 7.32. Stakeholders’ relational proposal. Source: made by the author

The Stakeholders’ relational proposal mechanism works as a tool to translate all the strategies and recommendations from the Holistic Framework into tangible, visible planning initiatives which can be evaluated. The main goal of this mechanism is to bridge all levels and sectors and to make them accountable for their participation in the planning process. Furthermore, these tools are implemented according to the three major implementation phases of the Holistic Framework, as shown in Image 7.32. The responsible for implementing this mechanism is the inter-municipal organism, the South Access Corridor Collective, which will have a leading role in coordinating inter-municipal efforts and serving as a link between all sector and all levels involved in the planning framework of the SEAC.

The phases and engagement tools are described in greater detail as follows:

1. Inter-Municipal Framework.

The first key to successful implementation of the holistic framework is to establish the inter-municipal cooperation platform. The main goal is to organize all sector and policy levels around the issue of regional scale New Urbanism-like regeneration. In order to achieve this, the following tools are proposed;

1.1 Stakeholders' identification and organization:

The alignment of all interests and capacities is key to achieve successful integration and regeneration. If all sectors and policy levels are accurately represented less resistance will be met so implementation will be faster and more successful.

1.2 Informational and educational campaign:

The lack of a planning culture in Chile in general has been stated several times in this thesis, in order to revert and change this situation an educational and informational campaign will help introduce the concepts and strategies to be used in the SEAC making emphasis in the benefits at short, medium and long term. Furthermore, upon identifying the leading and/or most impacted inter-municipal and local stakeholders launch informational campaigns and platforms (e.g. website) to raise public awareness of the Holistic Framework proposal. The primary goal is to incentivize potential stakeholders to participate in future planning efforts, ensuring the successful formation of the South Access Corridor Collective.

2. Local framework development.

Upon the creation of the South Access Corridor Collective the next step is to assigning it the corresponding task of gathering and organizing all sector and levels in order to define the first strategies, goals and planning scenarios and to ensure collaboration and accountability of all parties, all of which must be founded in accurate, complete information on economic, social and environmental conditions of the SEAC. The spatial analysis is one of the main tasks of the SEACC. Using current operational weaknesses as a starting point, existing knowledge gaps can be filled through the following tools which seek to incorporate both qualitative and quantitative data:

2.1 Community surveys and interviews:

The communicative approach is key to a successful implementation, knowing the local needs and demands will allow the SEACC to fulfill and integrate these goals into others. Policy entrepreneurs should be encouraged to pursue their goals with regional support, this also becomes a valuable source of human resources for the SEACC, this form of integrations allows to reach the most vulnerable and marginalized groups of the SEAC.

2.2 Socio-spatial analysis:

as stated, the creation and analysis of information is one of the main tasks of the SEACC. Here, a combination of digital crowd sourced mapping and field surveys are utilized. The aim is to create a comprehensive overview of the area's morphological structure, acting as a starting point for proposed spatial improvements (Lee, 2014).

3. Local framework development.

With the information collected from the upper levels, a baseline is drawn in which the SEACC will create clear planning strategies, goals and scenarios. For the municipal scale the idea is to define broad guidelines so municipalities do not lose autonomy, being able to reach such goals and scenarios in the way they see fit. This will allow each municipality to explore different options and to have multiple testing grounds for different approaches towards a same expected outcome. In order to achieve this, the proposed tools are:

3.1 Community planning sessions:

As stated, the communicative approach will allow the SEACC to interact with all socio economic groups of the SEAC, giving voice and empowering those who need it the most. These sessions can take different forms as public assemblies or municipal workshops where all stakeholders

will help shape the policies that will affect them directly, making them accountable for the decisions taken in order to achieve integrated regeneration strategies.

3.2 Public presentations:

The SEACC has to ensure that all plans regarding the Holistic Model regeneration perspective are known to all stakeholders and by all the community of the SEAC in order to avoid unsuspected resistance when implemented.

These public presentations are aimed at creating feedback for the local and regional strategies; feedback from these sessions can serve to inform the content and goals of ongoing or future community planning initiatives.

The previous section summarizes how the Holistic Framework proposal can be translated into an operational model to concrete the planning goals and scenarios. As shown, there are several stages where all stakeholders are to be grouped, organized and make accountable in order to achieve substantial and successful regeneration in the SEAC.

7.11 Final recommendations for implementation

In order to ensure successful implementation, this thesis has created a model that goes from the most general issues of the MAS towards the more specific tools for regional regeneration in the SEAC, none the less this is still far away from a real regeneration-conductive plan, the following recommendations are outside the framework of this work so they will be only named in order to leave room for personal exploration and so they can change according to the findings made by the researcher.

1. Create an open source mapping system: This kind of mapping system allows several users to interact at all scales with the mapping process. A good example of this is www.wikimapia.org where all users are helping map the whole world with local knowledge.

2. Create accurate socio-economic maps of the area: The last census in Chile was known to be fundamentally flawed, so for the next 10 years (period for censusing) planners will be working with flawed information, thus not being able to know the reality of the SEAC.

3. Analyze the development of real estate developments historically: as stated in this thesis, Chile has a strong market-oriented policy framework imposed by the dictator Pinochet during the 80's. Analyzing the historic growth of the city and the typologies can give interesting insides on how will be the future of the SEAC.

4. Analyze flooding problems in the MAS: the rapid growth and urban sprawl has created flooding problems in places where historically this has never occurred, analyzing past events and geographical conditions there is a possibility to anticipate these problems.

5. Respect for local identity: this will allow faster, more committed and more successful implementation. An architectural analysis of the SEAC will allow architects and designers respect the urban image of the SEAC.

6. Map both physical and social networks: in low income sectors social networks are usually more important than physical networks, thus they become highly important when implementing a plan.



Image 7.33. SCL airview. Source: MTT2014



Image 8.1. Chapter 8. Source: MTT2014

Chapter 8. Conclusions

8.1 General conclusion

Described in the proposal premise and approach for this thesis, the main goal was to take on an academic research to see how integrative strategies (New Urbanism tools) can aid in metropolitan planning/sustainable development. The aim was to re-structure the planning governance system in order to overcome the operational gaps that have led to the fragmented area the MAS is today. The main focus is to develop strategies to sustain urban regeneration throughout building upon potentialities of each area strengthening sub-centers currently located in transit corridors. The approach was to focus on the deficiencies of the current planning system and revert them using TOD & Smart Growth perspectives in order to generate a starting point for shaping a more inclusive, socio-spatially resilient urban structure for the MAS.

In this context, the research questions were set as:

Main question: How can New Urbanism strategies (particularly TOD and Smart Growth)/integrative planning strategies contribute to metropolitan planning for sustainable development in Santiago de Chile?

Secondary questions:

1. What are the current context and the context-specific barriers for sustainable development in Santiago de Chile?
2. How can integrative planning instruments address the various context-specific barriers?
3. What are the possible effects of applying integrative planning strategies to the case of Santiago de Chile? Moreover, how is this process going to affect SCL's urban morphology and structure?

The Holistic Framework presented in this thesis validates the proposal's premise that improving existing operational gaps in the MAS planning framework potentially can lead to improved socio-spatial outcomes. The proposed framework aims to recognize and further develop local and regional potentialities offering a multi-sectorial / multi-level approach for the regeneration based in Municipal and Inter-Municipal cooperation strategies and policy recommendations. The Holistic Framework works from the general basis of the territory, the MAS, towards the most specific context-specific localities, delivering a coherent planning framework for all levels and stakeholders. Throughout the proposed planning framework, the lack of Chilean planning culture can be reverted and the gaps and negative outcomes can be identified and fixed, transforming barriers to incentives.

The self-catalyzing structure of the Holistic Perspective serves as a starting point for developing a new planning culture for the MAS and Chile in general. As the catalyzing effects are measurable in regeneration initiatives and / or in tangible and concrete operations and their following indexes such as mobilization, housing, employment and environmental indexes the Holistic Framework serves as a first approach towards the creation of a planning framework which is measurable and evaluable in order to improve and mutate it in time and context in order to fit the changing scenario of the MAS and Chile.

The thesis' operational models achieved empowering and making accountable all level and sector stakeholders in an equal manner in order to engage in the policy-making process in order to achieve better socio-spatial outcomes from a more integrated perspective achieving a fast-adapting, resilient model for the SEAC in order to achieve substantial and fast change in the face of complexity, uncertainty and a fast moving, globalized world where context is changing rapidly everywhere.

8.2 Proposal conclusions

The proposal premise states:

'The MAS future development stability depends on a more coherent and integral regional and local planning framework reinforced by governance integration in both vertical and horizontal axes. A change in perspective is needed away from the mono-centric way the MAS is understood to a more complex system of sub-centers with a more local scale that will support regenerative growth to the peri-centric and peri-urban areas of the MAS. In order to achieve this, the plan is to build upon the real potentialities of each area, involving and making accountable all involved stakeholders in order to achieve organic, sustainable development.' (Chapter 1)

Under this definition, the authors evaluation is positive as the Holistic framework so as the operational model presented achieves a complete, coherent and integrated platform for the development of a regenerative and catalyzing planning framework which aims to erase the mono-centric view of the MAS, recognizing the context-specific potentialities of each area in within the SEAC which served as testing ground to analyze the proposed framework. The local analysis allowed the author to recognize context-specific barriers, potentialities and involved stakeholders this lead to a complete operational model which developed concrete and specific operational measures in order to achieve the named goals.

Regarding the thesis contribution, the author's assessment evaluation is positive as the presented evaluation framework to recognize contexts-specific barriers, potentialities, phenomenon and stakeholders allowed a tailor-suited, context-specific operational model for the SEAC thus the author infers that this evaluative framework should suite other metropolises, especially in the South-American region.

8.3 Research questions achievement

The main question:

'How can New Urbanism strategies (particularly TOD and Smart Growth)/integrative planning strategies contribute to metropolitan planning for sustainable development in Santiago de Chile?

The author's assessment for this question is positive and thinks that the question has been answered throughout the creation process of the Holistic Framework and the regenerative and catalyzing strategies. The framework evaluation in the SEAC showed that nor the top-down approach nor the liberal-market driven economy are the complete responsible for the fragmentation of the MAS, moreover is the combination of these two variables added to high de-regulation on the government's behalf; the existing planning framework of the MAS, the current path-dependent processes in real estate development and the market driven urban growth can be overcome by incentivizing inter-municipal cooperation in order to achieve regional regeneration sustainable in time and with a post-growth perspective, all of these achievable throughout all the named strategies, tools and frameworks. The design exercise displayed as a tangible form of planning allows municipal-scale stakeholders to use a visible framework to show the involved developers and interested parties how the New Urbanism-like regeneration framework shape the development of the urban form and composition into more positive outcomes. As Chilean planning culture is tightly ligated to an architectural framework, the morphological framework is easier to implement among the developers and stakeholders in general. In other words, the Holistic Model offers a concrete methodology to improve not just operational processes but also the existing spatial structures within the Southeast Access Corridor and extrapolated to the MAS.

For sub-question 1: What are the current context and the context-specific barriers for sustainable development in Santiago de Chile?

The overall assessment is positive as the author was able to create a chart defining all local barriers and to classify them accordingly in order to better face the challenges they carry. This step was key in order to further develop the holistic framework as it serve for basis to find similar examples that were reverted and led to urban regeneration, identifying key strategies and learning from their lessons; they now support and further validate the thesis statement on the linkage between operational planning processes and socio-spatial outcomes.

For sub-question 2: How can integrative planning instruments address the various context-specific barriers?

As presented in chapter 7, four categories of planning tools are presented, recasting the instrumentality of planning tools by examining what opportunities exist to foster more transparent and inclusive management of the urban change process, both from theoretical and practical perspectives; these tools aim to achieve more diversified, equitable and just socio-spatial outcomes in planning. The design exercise aswell presents further potentialities as Chilean planning framework has always been associated with visual and architectonic references The overall assessment for this sub-question is positive as well.

For sub-question 3: What are the possible effects of applying integrative planning strategies to the case of Santiago de Chile? Moreover, how is this process going to affect SCL's urban morphology and structure?

Integrative planning strategies, TOD and Smart Growth aim at solving some current problems such as:

+Social dwelling keeps on being pushed away from the city center because of the pressure from the real estate marketers.

+The unprivileged are not the only ones moving towards the periphery, the privileged are moving towards the periphery as well.

+These phenomena have created an intra-metropolitan migration where inhabitants are moving from the inner city towards the periphery.

+‘Richer and poorer neighbors locate closer to one another but this results in ‘tectonic’ juxtapositions of polarized socioeconomic groups rather than in socially cohesive communities’ (Livert & Gainza; 2014. Pp. 5882).

+Because of land scarcity, higher and lower income households are getting closer, this is mostly related to high income groups moving into working class municipalities. It is important to state here that this phenomenon is not leading to a social mixture, just a reduction of the geographical scale of segregation

+Densities and socio spatial patterns are being balanced by all the above mentioned phenomenon’, this means that the city is transforming from a municipality-wise fragmented city towards an inner fragmentation that do not respect political limits as low-density high-income gated communities are being placed next to high-density low-income communities.

And aim to achieve some other such as:

+Location efficiency – transit nodes are embedded in mixed-use, pedestrian friendly places where people can have the choice to work, shop, and play close to home.

+Value recapture – good transit means less is spent per capita on transportation, including those costs beyond the individual.

+Livability – quality of life factors are enhanced (e.g., cleaner air, more open space, greater mobility and access to services).

+Financial return – mixed-use should provide flexibility and opportunity for return on investment (public or private).

+Choice – in-city transit offer greater choice (e.g., in housing, transport, shopping) than the suburban model of development.

+Efficiency – the holistic framework can help create more efficient regional land-use patterns that can yield benefits such as more open space, shorter commutes, less traffic, and cleaner air.

All of the above will have a physical impact in the current urban structure of the MAS and the SEAC. As stated several time throughout this thesis, Chilean planning culture is highly ligated to design and architecture, so it is foreseeable a change in the visual dynamic of the city that will most likely be related with higher densities, lower constructions, wider streets, more green elements (trees, grass), will tend towards connectivity and towards integrative spaces, social and use mixture.

Upon the review of the existing planning tools and developments trends in the SEAC it is clear how the stated policy and planning gaps manifest themselves in the urban fabric. There is a recognizable and tangible lack of communication between levels and sector which is detrimental for the regeneration of the area. On the other hand, there are interesting potentialities to initiate regeneration projects which may act as starting point for the Holistic Regeneration Vision. It is key to the success of the Holistic Framework applied to the SEAC that all stakeholders and political networks are aligned and to translate this alignment into tangible plans that work and build over the existing urban fabric, recognizing the presence of all physical and social networks in order to achieve successful regeneration. The SEAC example for the MAS allowed the author to analyze the outcomes in a context-specific area; throughout the mapping exercises spatial outcomes are shown at different scales and the analysis of the proposed actions, plans and strategies allowed the reader to understand the socio-economic impact of the Holistic Framework. It is important to state that for every context-specific application of the Holistic Perspective the outcomes will be different. The assessment for this question is 80% achieved as the SEAC served as testing ground and allowed to understand a great deal of the MAS’s complexity; none the less the MAS is a highly complex scenario and is not represented by the SEAC, thus leaving the analysis incomplete.

8.4 Final reflection

The biggest achievement of this thesis, from the author's perspective, is the proposed planning approach aimed at a comprehensive, holistic and coherent approach throughout all sectors and policy levels. It is now visible how New Urbanism tools aimed at regeneration and synergies impulse allows the creation for more just, inclusive and diversified urban fabric. At the local scale, enhancing and empowering municipalities and local institutions and organizations has allowed a clear definition of the local demands and needs. At the regional / inter-municipal scale, is it now seeable that the SEAC has the potential to become a dynamic and competitive sub-center for the MAS relieving the CBD from market pressures and strengthening existing communities while capitalizing on their access to larger regional networks. Finally at a metropolitan scale, the unique position of the SEAC in within the MAS enables it to become a critical example for small city / sub-urban regeneration in the MAS's periphery; this will end as a more equitable, resilient metropolitan structure that enhances the socio-economic and physical potentialities of the region, in place of offering benefits for only a select few.

The possibilities for this regeneration proposal to succeed are directly proportional to the political willingness of the involved institutions and stakeholders. It is wise to understand that even when architectural and urban design can improve several aspects of daily life in the metropolis; lasting game-changing initiatives are related to political changes in the status quo. The integral approach will only flourish under this scope and with real commitment from all sectors and political levels. This is especially difficult in a conservative society like Chilean society.

One of the main factor to achieve successful regeneration will be he internal dynamic of the SEAC, being an underprivileged area, political and economic networks are not strong at a metropolis scale. This is understood by the author and taken by the author as a main design issue for the proposal: the Holistic Framework offers a tangible, step by step planning methodology in order to ensure accountability for all stakeholders in order to directly improve upon the SEAC's current urbanization and transit paradigm. This will open the door for academic discussion on re-conceptualizing the periphery of the MAS and will set guidelines for the 'how' to engage in coherent and integrative planning frameworks.

TOD and Smart Growth present potential to solve urban issues, none the less they still lack successful operational examples to support their thesis. It seems like several processes have commenced, but due to market pressure have transformed their initial intentions towards more profitable projects leaving aside socio, economic and environmental advantages. From the author's perspective, it is the duty of the governments to force the implementation of such practices as it is not the responsibility of real estate developers neither to ensure better urban practices nor to assure a livable city, even when it should be binding trough a moral code for urban developers. Under this statement the results of this thesis may look contradictory as real estate developers will always aim towards the more profitable project, which in Chile is where the land is cheaper and the density is the highest, if this changes, the SEAC could be 'abandoned' once it becomes more 'popular' and increases the land value; this is why the political structure must ensure long term plans with constant investing, reinvesting, organizing, reorganizing, inventing and reinventing.

8.5 Further research

This thesis is developed under the current situation of SCL and the changes in mobilization and dwelling expressed by the current government. As Chileans lack a planning culture this thesis aim and contribution is to further research on the linkages between New Urbanism tools and urban regeneration. As described in the first chapter, the 'how' of Smart Growth and TOD is still quite fuzzy, and the existing literature is related with Europe and the USA, little or nothing is available for the fast growing Latin America. The hope is to start academic discussion and to further seed this ideas in the academic arena as to in the near future evolve to the actual policy making and implementation for the whole Latin American region.

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