GROWTH CONTROL AT THE URBAN FRINGE: PLANNING AND POLICY INSTRUMENTS – THE CASE OF ANKARA

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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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ABSTRACT

GROWTH CONTROL AT THE URBAN FRINGE: PLANNING AND POLICY INSTRUMENTS – THE CASE OF ANKARA

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Urban growth dynamics play an important role in determining the future scenarios of cities and in the shaping of the urban form. Although spatial growth can be considered as an opportunity to provide new living and working places for growing populations, it is arguable whether all decisions aimed at physical growth are compatible with local dynamics. Even if growth is needed, considering the conditions of a locality, it is not always easy to control this growth and prevent it from turning into sprawl. Previous literature on urban growth and examples in many countries show that uncontrollable urban growth impacts mostly on life at the urban fringe. Growth decisions within the spatial plans of many cities have caused sprawl also in Turkey. Nevertheless, there are only a limited number of studies examining the tensions at the fringe arising from uncontrolled growth.

This thesis reveals the need for more effective planning and policy instruments to control growth at the urban fringe in Turkey, with emphasis on the change in definition and characteristics of the fringe concept. To this end, Ankara and as a significant part of fringe İmrahor Valley, have been chosen as the case study for an

elaboration of growth dynamics and problems. One of the important results of this thesis is that many strategies and tools have been produced for the control of urban growth since the 19th century up until the present day in Ankara. However, although the growth control strategies have been proposed in urban plans of Ankara, the thesis reveals that the tensions at the fringe have increased particularly after the 1980s due to the marked-led and partial planning implementations. It also emphasizes that the existing planning implementations have caused a constant change in the characteristics of Ankara's fringe bringing about a divergence from the theoretical meaning of fringe. The thesis concludes presenting the requirements of strong and consistent growth control.

Keywords: Urban Growth, Growth Control, Urban Fringe, Ankara, İmrahor Valley

ÖZ

KENT ÇEPERİNDE BÜYÜMENİN DENETLENMESİ: PLANLAMA VE POLİTİKA ARAÇLARI – ANKARA ÖRNEĞİ

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Kentsel büyüme dinamikleri, kentlerin geleceğinin belirlenmesinde ve kent formunun oluşmasında önemli yere sahiptir. Kentlerin alansal olarak büyümesi, artan nüfusa yerleşim alanları sunulması ve istihdam olanaklarının geliştirilmesi açısından fırsat olarak nitelendirilebilirse de, her büyüme kararının özgün yerel dinamiklerle uyumlu olduğu veya kent için gerekli olan ölçüde planlandığı tartışmaya açıktır. Büyüme kararları yerel dinamiklere uygun olsa dahi büyümeyi kontrol etmek ve büyümenin yayılmaya dönüşmesini önlemek her zaman kolay olmamıştır. Kentsel büyümeye ilişkin yazın ve ülke örnekleri, kontrolsüz büyümenin kent çeperindeki yaşamı büyük ölçüde etkilediğini göstermektedir. Türkiye'de de mekânsal planlarda öngörülen büyümeye ilişkin kararlar birçok kentin yayılmasına neden olmuştur. Ancak kontrolsüz büyümenin kent çeperinde oluşturduğu gerilimleri irdeleyen çalışmaların sayısı sınırlıdır.

Bu kapsamda, tez çalışması Türkiye'de kent çeperinin kontrolüne yönelik daha etkin planlama ve politika araçlarının gerekliliğini, çeperin tanımının ve içeriğinin değişime vurgu yaparak ortaya koymaktadır. Bu amaçla Ankara ve kent çeperinin

önemli bir parçası niteliğindeki İmrahor Vadisi, büyüme dinamiklerini ve sorunlarını incelemek amacıyla çalışma alanı olarak seçilmiştir. Tezin önemli sonuçlarından biri, Ankara'da 19.yüzyıldan günümüze kadar kentin büyümesinin kontrolüne ilişkin birçok strateji ve araç geliştirildiğidir. Ancak, Ankara kenti için oluşturulan mekânsal planlarda büyümenin kontrolüne dair stratejiler önerilmesine rağmen, tez çalışması özellikle 1980'lerden sonra artan piyasa odaklı ve parçacı planlama uygulamalarının kent çeperindeki gerilimleri artırdığını ortaya koymaktadır. Tezde mevcut planlama uygulamalarının Ankara kent çeperinin karakterinde sürekli değişime neden olduğu ve bu değişimin kent çeperini teorik anlamından uzaklaştırdığı vurgulanmaktadır. Tez, büyümenin istikrarlı biçimde kontrolünü sağlamaya yönelik gerekliliklerin sunulması ile sonuçlanmaktadır.

Anahtar kelimeler: Kentsel Büyüme, Büyümenin Kontrolü, Kent Çeperi, Ankara, İmrahor Vadisi

To My Family

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CHAPTER 1

INTRODUCTION

1.1 Aim of the Study

Cities tend to develop different land-use patterns and forms under the influence of their different demographic, economic, environmental and geographical characteristics. Throughout the 20th century, explanatory models have been createded to describe how urban areas grow and to analyse how the forms of cities change. Although these models make it easier to represent and understand land-use patterns in cities, they fail to explain the spatial development of all cities, since every settlement has diverse and specific characteristics. These models evaluate the socio-economic structures of cities by observing their physical settings, however the physical factors alone are not sufficient to find out the rationales behind urban growth, as socio-economic and political factors also play a role in the direction of urban growth.

"Fringe areas", which have a strong interaction with the city, have been directly affected by the changes in these dynamics since the beginning of the 1930s (Saxena 2010). The fringe is interpreted as a phase rather than a place, being a dynamic and heterogeneous zone of transition between urban and rural land-uses where changes occur on a continual basis (Pryor 1968, Marchand and Charland 1992, Nagy 1999, Heimlich and Anderson 2001), although there is no clear-cut assignation of the boundaries of the fringe due to its flexible structure and the influence of development pressure. Urban growth increases demand for various functions and development, especially at the fringe. It increases energy consumption,

infrastructure and transportation requirements, reduces environmentally productive lands, causes a loss of prime agricultural and environmentally significant lands, imposes stress on ecosystems and species through noise and air pollution, and increases automobile dependency (European Environment Agency 2006).

Policy makers and urban planners have used models that measure changes in land-uses to predict urban growth since the 1970s, hoping to learn about the potential impacts of urban growth and to see the effects of different policies in the future and take the necessary precautions over time. Modeling and measuring changes in land-use can also lead to a determination of the complexity of growth, and accordingly, can help in providing an understanding of growth dynamics and in the prediction of possible growth. The main reason for the use of models in urban studies is generally to avoid or limit the problems associated with rapid growth and sprawl, although they do not contain strategies for avoiding the negative results of sprawl and for the control of growth.

There are two types of policy and planning tools in literature for the control of urban growth and for the prevention of unintended spatial consequences and impacts on the fringe areas: 1) urban containment strategies, and 2) smart growth strategies. These tools aim to present alternatives to sprawl determining planning practices and principles for more efficient land-use patterns (Nelson and Dawkins 2004, Owusu 2013, Litman 2012). Among urban containment strategies, the greenbelt strategy came into the picture in the 1930s in London, while other strategies gained prominence as responsive management instruments from the 1950s onwards, particularly in the United States, Europe and Australia, and in some cities in Canada, following the effects of sprawl. Growth control evolved into more than just a reactive instrument for managing the effects of growth, becoming part of a proactive and strategic tool in the planning processes of the 2000s. In other words, growth control evolved from managing growth effectively to generate a more livable future. Literature on growth control indicates that the performances of growth control strategies depend on the growth policies of governments, urban plans, market forces, and marketization trends (Zhang 2000, Heimlich and

Anderson 2001, Cheng 2003, World Bank 2008, Johnson 2008, Zhoe 2009, Nyarko and Adugyamfi 2012, Wang 2014). Increasing the role of market forces and market-driven urban development came onto the scene after challenging realities related to uncontrolled growth and the commercial housing market caused an explosion of growth after the 1980s in many countries (Wang 2014). Market forces came to have a direct influence on development plans, and as a result, the allocation of land in the plans came to resemble a free market allocation. In such cases, planning practices may be defined as "trend planning" which the spatial plan reflects the trends of market (Pickvance 1982, 71), and so it can be said that the inefficiency of urban planning instruments facilitates the neutralization of the planning forces imposed by market forces. The lack of effective governance structures for the management of cities and the shortage of urban planning tools also increase the need for more effective and comprehensive instruments for the control of growth.

Turkey is a country that has faced challenges related to rapid growth and has tried to overcome the unexpected results of urban sprawl. The growth of cities and the effects of sprawl at the fringe have been influenced also by changes in the economic structure, political regimes, legislation and administration in different periods. With the foundation of the Republic of Turkey in 1923 and the declaration of Ankara as the capital city, the aim was to foster in a new lifestyle with the creation of a modern society. The creation of a new environment to match the new lifestyle brought about acceleration in migration, increasing the population of cities at a rapid rate. New legal and administrative arrangements were made to regulate planning practices, and planning tools started to be adopted for the control of growth in the mid-1930s. After the end of World War II, cities became points of attraction for capital and migration, leading to a rapid urbanization process. The economic and social utilities found in cities strengthened the migration, however low-income groups could not find affordable housing in the inner parts of cities, and so they resolved their accommodation problem by building temporary informal settlements at the fringes of cities. Tekeli (1998, 13) claims that this was the first emergence of uncontrolled growth in Turkey, although it has increased dramatically since the 1950s, with many legal regulations brought into force to cope with the

uncontrolled growth problem. These legal regulations affected considerably the structure of the fringes, as well as the cities themselves. By the 1970s, the restructuring of cities within the capitalist industrialization process caused to the increase in the number of car owners (Özler 2012). The relocation of heavy industries to the fringe (Yıldırım 2008, 62) led to an oil-drop form with increased density, and as unauthorized houses became commercialized, legislative efforts were not enough to resolve the sprawl process (Tekeli 2000, 30).

At the beginning of 1980s, rather than industrial investments, capital started to be invested into the built environment in major cities as part of the liberal economic program to open the Turkish economy to the Western world and to integrate it into the system of global capitalism (Yıldırım 2008, 63). The number of new laws and planning directives increased significantly starting from the 1980s, however the conflict between the authorities and the definition of responsibilities in the legislative regulations increased the sprawl, and created less controlled areas at the fringe.

A significant relationship has been established between the development plans and market forces, as indicated by Pickvance (1982, 71). Partial plans and amendment plans have exasperated the dispersed and fragmented form of cities, affecting in particular the fringe areas of metropolitan cities. The plan production and implementation processes have also become more partial, with authority confusion, partial plans and amendments, and the lack of land and housing policies that led to housing oversupply during the 1980s being major drivers of uncontrolled urban growth in Turkey (Ersoy 1995, 40; Ersoy 1997, 2; Çalışkan 2004, 175; Özdemir 2007; Yıldırım 2008, 69; Özler 2012; Balaban 2012, 34; Ersoy 2013, 21). The period after the 1980s became a turning point in terms of the growth of cities, although the current policy and planning instruments do not seem sufficient to control adequately the growth of cities, meaning that more effective growth control tools are needed.

Ankara, the capital of Turkey, has experienced significant tensions at its fringe, and many planning tools have been developed and implemented for the control of urban

growth since the first plans prepared for the city. These tools have changed gradually in response to the changes in the characteristics of the fringe, and considerable transformations have occurred in the urban area and at the fringe, a result particularly of the neo-liberal economic and political milieu that emerged in the 1980s. The legislation, partial plans and the rising influence of globalization on urban space has encouraged fragmentation at the fringe, while many strategies to control growth continue to be implemented. The more recent implementations have contributed to the present characteristics of the fringe and have brought about a divergence in its theoretical description, especially in terms of residential development. In line with existing literature on growth control, this thesis aims to elaborate upon urban growth, and the available planning and policy tools to control growth at the urban fringe in Ankara.

The hypothesis of the thesis is: "In a period of neo-liberal development, the effectiveness of urban planning efforts to control sprawl of Ankara decreased vis a vis the market forces". The study examines how the fringe of the city has developed over time and faced growth control problems, and how spatial plans and their implementations have affected the fringe in terms of growth control.

Accordingly, three research questions are posed to analyze this subject:

- How was the fringe controlled in different planning periods in Ankara?
- How have the characteristics of the fringe area changed over time in Ankara?
- Is it possible to control and manage growth at the fringe of a city when faced with the impacts of a market-led system?

The first question intends to identify the planning and policy tools determined by various authorities in different periods for the control of growth, and the successes and failures of growth control strategies implemented in each period are analyzed. The second question aims to examine the features of the fringe of Ankara in a historical manner through an analysis of maps, literature reviews and in-depth interviews. Finally, the third question focuses on the possibility of urban growth

control for cities under the impacts of global economic policies and marked-led system.

1.2 Content of the Study

The thesis comprises six main sections. Presenting the intention of my dissertation above, the introductory chapter of the study *(1st chapter)* explains the subject matter of the thesis in terms of its aims and research questions. The chapter also contains the methodological framework of the thesis, while the design and the individual stages of the thesis are explained related to the case study.

The second and third chapters take the form of a deep literature review related to growth control. After reviewing the demographic, social, environmental and economic perspectives of urban growth through the different explanatory models, the effects of uncontrolled urban growth and models for measuring and predicting growth are detailed. The definition of the fringe concept and the importance of planning tools for fringe areas are examined, and the models and policy tools are elaborated in such a way that the spatial forms and contents they recommend for controlling urban growth are revealed. The reasons for uncontrolled growth are investigated with global examples, and their growth control experiences are investigated. Planning tools for the control and management of urban growth at the fringe are also explained in these chapters.

The fourth chapter focuses mainly on the available legislation and policy instruments for the control of growth in Turkey. This chapter also identifies the obstacles of controlled growth, and provides justifications for the need for new policies related to urban growth control in Turkey.

In the fifth chapter the process of urban growth and the applied policy tools for the management of growth within the planning history of Ankara are examined. Five different periods are studied to evaluate the change of fringe characteristics, and to understand the failures and successes of the strategies for the control of growth at

the fringe. This chapter also elaborates on İmrahor Valley and the changes in the valley, having long been considered as a key ecological area in all planning efforts in Ankara. Requirements and proposals are put forward for the valley, based on the previous literature, researches and in-depth interviews in this chapter.

The final chapter introduces the findings of the literature review, and the case studies are discussed with reference to the hypothesis and research questions of the thesis. This chapter also presents the findings and highlights the important contributions of the study, with recommendations for further research.

1.3 Methodology

Researches on the control of growth in literature commonly make use of qualitative and quantitative techniques, while researches on explanatory models of urban growth tend to adopt qualitative techniques, those that measure land-use change use mostly quantitative techniques. Both kinds of researches are integrated to produce new models arising out of the cumulative knowledge. Qualitative concept refers to meanings and processes that are not measured in respect to the amount or frequency (Denzin and Ryan 2007, 583). Qualitative research techniques are essentially descriptive and inferential in character, as is necessary in scientific research (Gillham 2000, 10). These techniques have been at the forefront of explicit acknowledgment and engagement with the link between methodology –theoretical perspective of the social world– and epistemology –as the viewpoint on the social reality (Hessebiber and Leavy 2006, 74; Hessebiber and Leavy 2006, 19).

Qualitative methods enable the researcher to study things in their natural settings, to develop awareness of explanation and description of the kinds of data, to find out little known situations viewing the case from the inside out, to explore what really happens within the formal reality and to carry out the research into processes (Gillham 2000, 11; Denzin and Ryan 2007, 583; Gibbs 2007, 3). Qualitative researchers employ a variety of interpretive strategies emphasizing the inquiry's value-laden nature. Their researches stress the occurrence and meaning of social

experience (Denzin and Ryan 2007, 583). For these reasons, the qualitatively research technique is used in this thesis, with the research methodology pursued in this dissertation being the “case study approach”.

Case studies are often adopted for qualitative researches (Hessebiber and Leavy 2006, 19). Gillham (2000, 1) defines the term “case” as “a unit of human activity embedded in the real world that can only be studied or understood in context which exists in the here and now, which merges in with its context so that precise boundaries are difficult to draw”. “Case study” term has different meanings in different disciplines, such as city and regional planning, management studies, political science, sociology, and many definitions exist in literature. Case study is defined, in numerous fields as (Yin 1987, 13, 23; Merriam 1988, 16; Stake 1995; Gomm et al. 2004, Platt 2007, Wellington and Szczerbinski 2007, 91; 111; 2; Simons 2009, 1, 21): “a study of unique, particular and singular”, “an in-depth and multi-faceted investigation using qualitative techniques”, “an empirical inquiry that investigates a contemporary phenomenon within its “real-life” context when the boundaries between phenomenon and context are not clearly evident, and in which multiple sources of evidence are used”, “a strategy in which “how” and “why” questions are posed, in which the investigator has little control over the events”. In a case study, the data is often unstructured, and so a qualitative analysis aims to comprehend the case rather than to generalize an entire population (Gomm et al., 2004, 2). The primary purposes of a case study are (Simons 2009, 1, 21; Stake 1995) to explore the particularity and uniqueness of the single case, and to generate an in-depth understanding and knowledge of a specific topic. Cases can be chosen for study when they are deemed instrumentally useful in furthering the understanding of a particular problem, issue, concept, etc. A case study is useful for exploring and understanding processes and dynamics of change (Simons 2009, 23).

Single case or multiple cases constitute the case study. The “single-case in-depth” approach is analyzed in this thesis, representing a unique case, based on its ability to find out the correction of the propositions of a theory, or determine more relevant alternative explanations.

1.3.1 Selecting the Case Study

In choosing a case, there are a number of factors to be taken into account, and particular case may be selected for many intrinsic or instrumental reasons (Simons 2009, 30). The case in this dissertation has been determined based on many rationales related to the effects of sprawl at the fringe and the planning and policy instruments for growth control.

Fringe of cities are affected by political, economic and social trends of countries in different periods, and the cities in Turkey have also influenced from these factors. In Turkey, cities have become focus areas amid the economic and social crisis that emerged under the impact of liberalism and the implementation of a mixed economy in the 1950s. The rapid urbanism process affected especially İstanbul, Ankara and İzmir, all of which suffered poorly and faced the consequences of uncontrolled growth. As the rural population flowed into the cities, the characteristics of fringe areas began to change, and unauthorized settlements sprang up at the fringes in these years. Many laws were consecutively introduced to cope with these kinds of problems arising from the uncontrolled growth since the 1950s, and government policies for integrating the Turkish economy to global system were fundamental decisions at the beginning of the 1980s. The economy-based policies of this period directed investments towards large scale industries and built environments, both in the cities and at the fringe, resulting in a change of character in these areas. In this context, the Ankara case can be deemed worthy of examination as a result of the tensions that exist at the fringe as a metropolitan city. Although urban planning was a crucial tool in bringing about comprehensive change and the creation of a new lifestyle after the city was selected as the capital, the city came to be affected also by many political and economic aspects, and extended towards the fringe, changing its characteristics. Many planning and policy tools have been proposed and implemented over time in an attempt to control urban growth since the 1930s, however rapid growth has increased the demand for various uses and developments, bringing dramatic change to the fringe, particularly after the 1980s, along with ecological and socio-economic problems. This research aims to

identify the rationales behind these problems by investigating the urban growth process and the implementations of planning and policy instruments for the control of growth. The essential elements of the greenbelt and the wind corridor are affected by the fragmented form of the city. İmrahor Valley is one of the city's most substantial components in this regard, being an important part of the green system in the southeast of Ankara and a natural resource based on its microclimate, vegetation and landscape. The valley has long been a significant component of the green system, being referred to in the Jansen Plan and in all following plans as "the most important part of the greenbelt system" and as a primary conservation area. Despite this, construction has gone ahead in the valley through planning revisions after the 1990s and it has begun to lose its natural characteristics as a result. Accordingly, the changing characteristics of the fringe and the effects of growth control strategies are examined with a special reference to İmrahor Valley as a contemporary example of the problems encountered at the fringe of Ankara.

1.3.2 Stages of Research

The strategy for case study research begins with the collection of data (Gillham 2000, 19). The research is evidence-led (Wellington and Szczerbinski 2007, 92), with the raw materials of the research being evidence within in the case setting, which must be abstracted and collated to obtain the best possible answers to the research questions (Gillham 2000, 1). A case study involves a true mix of methods, including documentation, interviews, observation, field work, etc. (Denzin and Ryan 2007, 580; Wellington and Szczerbinski 2007, 92). Simon (2009, 33) indicates that three qualitative methods are often used in case study researches to facilitate an in-depth analysis, being document analyses, interviews and observations. In keeping with literature, the main research methods used in this study are documentation, in-depth interviews and field work (see Figure 1.1).

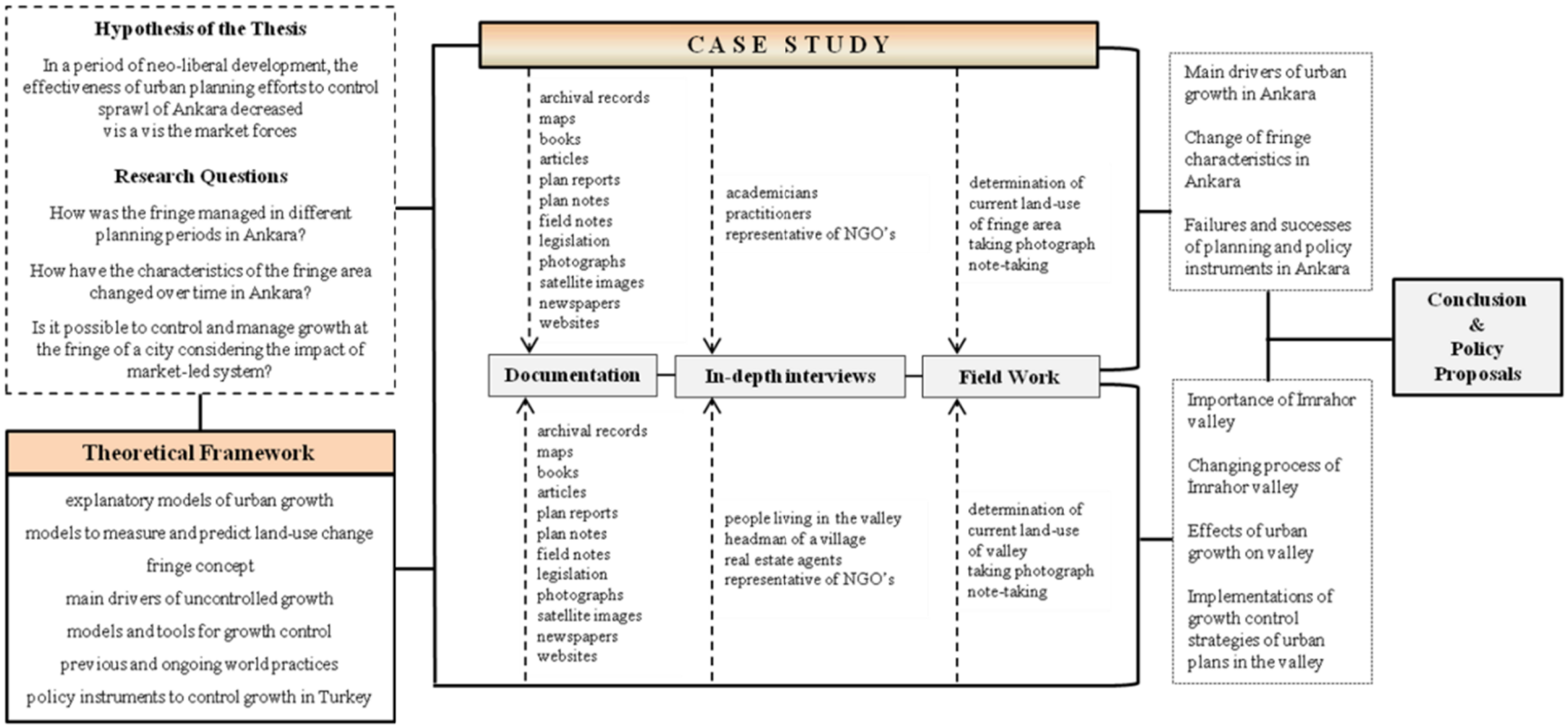

Figure 1.1 Research Design

Documentation: Documentation provides a formal framework to which the researcher may refer as an informal reality of written evidence for the case study (Gillham 2000, 21). A document analysis can often help as a precursor to supply a context for explicating the interviews and observational data (Simons 2009, 64). Documents can also be thought of as physical traces of a social setting, providing a mechanism and a vehicle for understanding and making sense of social practices (Coffey 2014, 367). In this thesis, written and visual documentation is carried out in two phases, namely, a review of the theoretical framework of urban growth, and a review of the urban growth control process in Ankara. A vast number of journals, articles and books on urban growth are investigated, and examples from around the world are examined to identify growth management tools and to understand their successes and failures in the control of growth. A large number of documents are also examined and organized to clarify the characteristics of the fringe in Ankara from the 16th century to the 21th century. Books and newspapers recalling memories of different periods in Ankara can be useful for garnering written and visual information, especially on the early periods of city.

Maps, plans, plan notes, reports and photographs are obtained from the history archives related to Ankara's fringe. Mutchnick and Berg (1996, 121) highlight the advantages of using archival records in case studies, claiming that they are a source of data that is immediately available to the investigator, one that does not require survey construction, pilot tests or similar concerns. Archival documents are non-intrusive, which means there is no chance of research reactivity or potential biasing effects when conducting archival research. The use of archival data alongside data collected through other techniques (e.g., surveys, observations, interviews) can augment and validate analyses and findings. In this regard, many documents have been provided by the archives of the Faculty of Architecture of Middle East Technical University and the Vehbi Koç ve Ankara Araştırmaları Merkezi (VEKAM) for this research.

The current maps, plans, plan notes and reports have been provided by the Ankara Metropolitan Municipality and District Municipalities, while reports are supplied by

the Chamber of City Planners and the Chamber of Architects, along with some maps related to İmrahor Valley by the Kavaklıdere Solidarity and Beautification Association. Shank (2006, 160) explains the extensive role of photographs and other forms of representation in qualitative researches. Visual data has played a major role in this study, and contemporary photographs were taken by the author during the field work to document visually the existing land-uses at the fringe.

In-depth interviews: Interviews are defined as one of the most essential sources for case studies (Yin 1987, 82). Interviews may take several forms, although most common are "open-ended" interviews, in which an investigator asks key people for facts related to a matter, but also for their opinions about on particular events. Key respondents are considerably important for success of case study providing with insight into an issue and initiating access to sources of corroboratory evidences (Yin 1987, 3). In-depth interviews are a common approach in data collection for a qualitative research, using respondents as a beginning point for research and supposing that respondents may have the important and original data which is ascertainable by interviews. In-depth interview process can be considered as a meaning making endeavor among the respondents and interviewer (Hessebiber and Leavy 2006, 119).

Qualitative research studies often provide guidance on different interview techniques, from structured to unstructured, and make proposals for each, suggesting the kinds of questions that should be ask in different types (Simons 2009, 43). "Semi-structured interviews" are more flexible, in that they are not wholly pre-determined (Wellington and Szczerbinski 2007, 84), allowing the interviewees freedom to explain what is important for them. While the researcher is asking a set of questions to respondents, they will allow the conversation to flow more naturally, and will permit it to go in new and possibly unexpected directions. Interviewees may often have information or knowledge that may not have been thought of in advance by the researcher, and when such knowledge emerges, the researcher can allow the conversation to develop, allowing an exploration of new topics that may be relevant to the interviewee (Hessebiber and Leavy 2006, 125).

Semi-structured interviews are extremely useful during fieldwork (Mutchnick and Berg 1996, 118).

The case study in this thesis is based on in-depth interviews. After the documentation phase, structured and spontaneous questions –prepared in accordance with the findings of the documentation analysis and field work– are asked to the interviewees. The interviews are conducted beginning with open-ended questions with the aim of understanding the reasons for change and tension at Ankara's fringe and in İmrahor Valley, and to obtain recommendations for the control of growth. The interviews were conducted between February and December 2015, while the narrative data on Ankara were obtained from planning experts involved in the planning process in Ankara, either academically or practically. These included an urban planner, architect and a professor who served in the Ankara Metropolitan Planning Bureau between 1970 and 1982 with interests in urban and metropolitan planning systems and organizations and urban transformation processes; an urban planner and professor who is an expert in physical planning and urban design, and participated the planning of Ankara in the 1980s; an urban planner and professor who is an expert in urban politics, physical planning and design policies; an urban planner who is a part-time instructor and who works also for non-governmental organizations; the head of the Chamber of City Planners since 2014; and the previous head of the Ankara Department of Chamber, and currently works in his planning office. The respondents were asked the following questions:

- How do you define the fringe concept?
- What factors have affected the content and characteristics of the fringe in Ankara?
- How would you describe the breaking points in Ankara in terms of the changes experienced in fringe area?
- What have been the successes and failures of the plans and plan implementations?
- What tools are used currently to control and manage growth in Ankara?
- What methods may be effective for the control of urban growth?

To obtain information and personal opinions on the changes that had occurred within the İmrahor Valley, interviews were conducted with the founder and former president of the Kavaklıdere Solidarity and Beautification Association, who had strived to protect İmrahor Valley; the headman of the Yeşilkent-Mühye neighborhood, who had witnessed the changes that had occurred to İmrahor Valley as a local delegate since 2009; two real estate agencies; and people living in the valley.

In summary, three main data sources have been chosen for study to answer the research questions; documentary materials, in-depth interviews and field work, conducted both in Ankara as a whole, and specifically İmrahor Valley. This thesis can be considered relevant due to the limited number of studies into the effects of uncontrolled growth at the fringe and urban growth control in Turkey. There have been many studies since the mid-2000s analyzing the consequences of urban sprawl in Turkey that have measured land-use change at the fringe with spatial and statistics models, and these have been aimed at forecasting urban growth through alternative scenarios. Different from the other researches, this thesis contributes at both theoretical and practical levels, investigating the rationales behind the realized and unrealized policies and planning instruments for growth control at the urban fringe, while at the same time suggesting policy proposals.

CHAPTER 2

MODELS THAT EXPLAIN AND PREDICT URBAN GROWTH

2.1 Concepts and definitions

Growth concept identifies an increase, as in size, number, value or strength. The dynamics or drivers of urban growth that play important role to shape the urban form are as follows:

- Demographic: population, population density, migration, fertility, birth and death rates, average household size
- Economic: land market, income, poverty, unemployment, housing stock, second homes, automobile ownership, low-cost cars, housing preferences, living standards
- Environmental: physical conditions, protected agricultural zones, areas of cultural and historic importance, transportation hubs and nodes like airport, bus terminal etc., public service accessibility, reclassification of rural areas as urban areas, residential densities, safety, lack of green open spaces inner city
- Political: the policies of national government, local governments, competition between municipalities, planning system, poor enforcement of existing plans.

Urban sprawl, however, is a specific form of urban growth which is only related to the physical enlargement of cities on space. It is criticized by many planners and expressed as an undesired form of growth because of many negative results. It increases energy consumption, automobile dependency, infrastructure and

transportation requirements, reduces environmentally productive lands, causes the loss of prime agricultural and environmentally significant lands, imposes stress on ecosystems (European Environment Agency 2006). On the other hand, besides the negative effects of urban sprawl, some people appear to enjoy the benefits of their large residences and socially homogeneous neighborhoods. Thus, urban sprawl is also being argued as the result of a lifestyle choice and cultural preference.

Table 2.1 Environmental impacts of sprawl (Heimlich and Anderson 2001, Fina et al. 2008)

Issue	Environmental Issue	Impacts
Haphazard expansion of suburban communities	Water runoff	Increased pollution of streams, rivers, and marine environments, loss of biodiversity in streams, soil erosion, lower drinking water quality
Poor land-use planning	Consumption of open spaces	Loss of contiguous green spaces, loss of natural habitats for native species, stressing of endangered species, loss of wetlands and forestland, health impacts from proximity to wild animals, loss of open space, higher temperatures or heat islands in metropolitan areas

It is possible to categorize the physical patterns of sprawl with respect to their typology from fairly compact to dispersed developments; compact, scattered, linear, poly-nucleated and leapfrogging. Unlike the development areas disconnected from the existing urban area, compact development differs greatly from sprawl by focusing on quality urban design, promoting urban intensification and increasing the importance of public transportation (Arbury 2005).

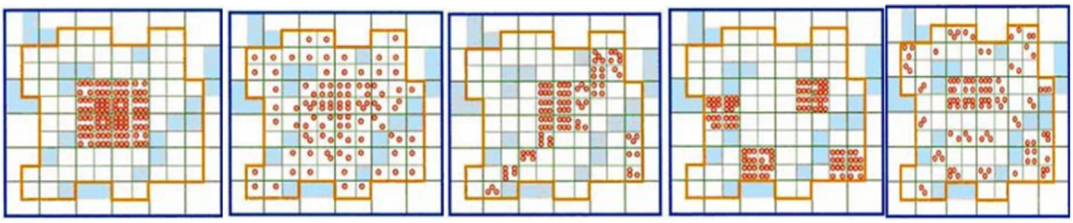

Figure 2.1 Physical patterns defining sprawl (compact, scattered, linear strip, polynucleated and leapfrogging in order) (Galster et al. 2001)

The main policies and strategies of compact city form are summarized in OECD Green Growth Strategies (2012) in detail. These strategies are to strengthen urban-rural linkage, help energy consumption, conserve farmland and natural biodiversity, increase the efficiency of infrastructure investment, create shorter travel distances,

promote high quality urban design and eventually improve the quality of life. From this standpoint, compact development appears to be an important tool for concentrating on the nature and quality of development, and ending the cycle of limitless sprawl. Urban sprawl generally occurs in urban areas that are experiencing rapid growth, but *slow growth* is also an alternative type of growth for cities. In a community focused on rapid growth and development, cities preferring to grow slower are often seen as unsuccessful and striving for growth. However, slow growth is a strategy itself and slow growth cities have different priorities and policies such as environmental and cultural protection and improvement instead of rapid economic development approach in their scenarios (Hall 2007, 19).

Table 2.2 Problems and opportunities of rapid urban growth and slow growth (Kötter 2004, Hall 2007, Bhatta 2010)

Situation	Problems	Opportunities
Rapid Growth	-Urban encroachment on prime agricultural land -Lack of financing basic services and amenities and decreasing quality -Difficulties to obtain a job, rising informal economy -Congestion of social and other services (traffic congestion, traffic management and transportation problems, lack of garbage collection and sewage system) -High price of housing and land, need for affordable housing, arising informal housing sector -Illegal changes in the spatial organization of land-use -Speculation and high expectations of land appreciation -Challenges of governability	-Provides a continuously increasing municipal tax base by attracting businesses and industries -Permits use of varied skills available and widens career opportunities and agglomerate qualified skilled labour -Expands variety of cultural and other services and facilities available -Wide range of social standards and social fragmentation -Attracts a varied population and age structure -Highly dynamic and complex interactions with the other cities
Slow Growth	-Uneven relationship between population decreases and expenditures on certain services while revenues decline -Per capita tax burden may increase for those remaining -Higher proportion of elderly -Continuation of household formation	-Avoids the problems of rapid growth -Chance to renew existing physical aspects and catch up on needs -Opportunity to expand and develop locally based industries and businesses -Manage land resources and innovate in urban design -Easier to solve pollution and other environmental problems

There is a significant relation between urban growth and population projections. The population forecast based on plan decisions affects the long term future of cities. Hence, projections of spatial plans and demographic changes may be regarded as other leading factors on urban growth and also important tools to prevent sprawl. Population forecasting, especially for long term, is one of the complicated issues for planners in recent years, since population projections should

be consistent with real population at the end of planning period. This consistency may prevent many problems resulting from rapid urban growth mentioned before. However, a common argument in most studies on growth is the inadequacy of existing projection methods to meet the requirements of varying demographic and unstable economic position of today's cities. It is difficult to know whether slower or more than expected urban growth has been consistent with economic trends, migration, changing demographic structure and national policies. Ultimately, it is needed to reassess the existing mathematical weighted projection models with the demographic and sociological parameters as well as economic components.

The reasons of inconsistency between projections and the real populations at the end of planning period overestimated or less are called as the *errors in forecasting* in the literature. The causes of these errors have been associated with unexpected rapidity of the transitional decline in fertility in many large developing countries and the unexpected persistence of high death rates from infectious diseases, in some developing countries (Singh 2013). The following factors come into picture as the elements changing existing demographic structure: Global decline in fertility (total fertility rate is 6.0 in 1969 and 3.0 in 1999), the decline in birth rates over the past few decades, altering age structure of the population, more employed women and parents choosing to have smaller families. The next few decades will witness the accelerated decline of population growth according to the most demographers (World Population Growth Report of World Bank, 2004)

2.2 Explanatory models of urban growth

Cities tend to develop different land-use patterns according to their economic system, population characteristics and environmental features. Land-use models are tools as simplified forms of representation to exhibit the pattern of land-use functions of a settlement. During the 20th century several models were developed to explain how urban areas grew. This part examines the main theories and models explaining urban structure. The models are examined under seven headings as

concentric zone model, central place theory, sector model, the Thunen model, multiple nuclei model, bid-rent theory and urban realms model.

2.2.1 Models of urban structure

The theories and models below present the spatial form of cities in relation to economic system, functions and transportation.

Concentric zone model: The concentric zone hypothesis was first suggested by Ernest Watson Burgess from Urban Ecological School of Chicago in 1923 as the first analytical model of the city. The theory shows the pattern of growth of the city in a set of concentric zones from the downtown to the suburbs. Burgess suggested the division of cities into a number of radial zones spreading outward. It is a growth model concerned with radial expansion as a concomitant process of urban growth. By a series of concentric circles he gave simple graphic representation to what he conceived to be the areal pattern of urban expansion.

Figure 2.2 Concentric zone model (University of Moratuwa 2010, Yator 2013)

The socioeconomic and demographic distribution has become ranged towards the periphery in this model. The model has been subject to several criticisms. Some of the most prominent are (Rodrigue et al. 2006); being limited to the applications, being demonstrated that pre-industrial cities, did not at all followed the concentric circles model (the model is consequently partially inverted), assuming the model a spatial segregation between work places and residences which was not generalised until the 20th century.

Central place theory: The theory was developed by Walter Christaller in 1933 to show how and where central places would be functionally and spatially distributed. Christaller assumed that a stable maximum distance or range of sale of goods or services produced in a centre would prevail in every direction from the center of city (Rodrigue et al. 2006). The model indicates that the places of same size with the same number of functions would be seperated the same distance apart. Although it provided a basis to understand the relationship between a central place and lower order places, the theory never suited to the real world situation.

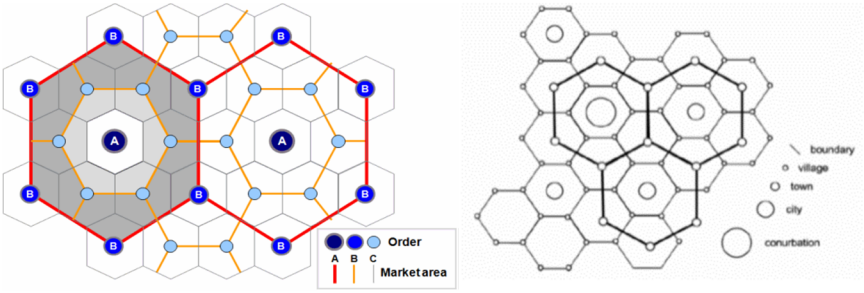

Figure 2.3 Central Place Theory (Rodrigue et al. 2006)

Critics of the model are mostly concerned with its assumptions like people do not always go to the nearest central place (they may chose a new edge of city), large areas of flat land rarely exist (mountains and hills distort transport routes), people and wealth are not evenly distributed, governments often control where new towns are located, not market forces.

Sector theory: Sector theory was developed in 1939 by land economist Homer Hoyt. The theory was emerged partially as a responce to the deficiencies of concentric zone model. While the infrastructure technology was improving, urban growth generated more of a pie shaped urban form. Hoyt explored that the land rent could remain consistent from city center to fringe. The theory propounds that the dominated form of urban growth is axial development shaping the settlements along the main transportation routes (Klaff and Schnore 1972, Kaplan 2012).

Figure 2.4 Sector model (Yator 2013, Rodrigue et al. 2006)

The limitations of the model can be summarized as being based on the 19th century transportation system and probability to restrict or direct growth along certain wedges of physical features (Kaplan 2012, Rodrigue et al. 2006).

Thunen model: Von Thunen, a German land economist, noticed that the rural areas regulated themselves in concentric rings of decreasing development intensity due to the decline of bid rent surfaces reflecting the value to agriculture of proximity to urban markets (Heimlich and Anderson 2001).

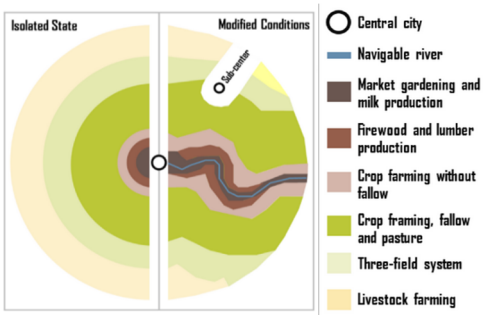

Figure 2.5 Von Thunen model, map of land-use zones (Rodrigue et al. 2006)

The model is a kind of illustration of the balance between land cost and transportation costs. Nevertheless, there are also some criticisms for the model besides its advantages. These are not taking into consideration differences in sites (local physical conditions) because of the isolated state identity, the land accepted completely flat and has no natural threshold to interrupt the terrain.

Multiple nuclei model: Chauncy Harris and Edward Ullman developed the model in 1945. These geographers suggested that the urban form was emerged in

accordance with several discrete nuclei. The model was developed with reference to the notion that the domination of city center was decreasing (Moratuwa 2010). According to the model, certain land-uses necessitate highly specialized facilities, industrial activities require accessible transportation and large areas are needed for residential (Rodrigue 2006).

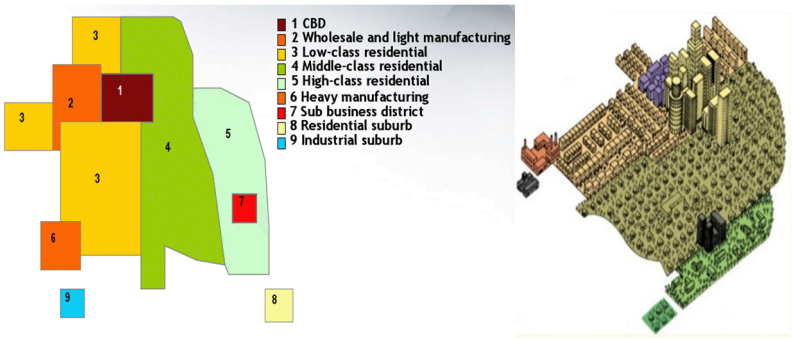

Figure 2.6 Multiple nuclei model (Yator 2013, Rodrigue et al. 2006)

The model has some common features with concentric and sector models. For example, focus on importance of accessibility and clear-cut boundaries between land-use zones and residential segregation. On the other hand, there are also differences of multiple nuclei models form others in terms of land-uses, enabling suburbanization, transportation structure and outward growth of city.

Bid-Rent theory: William Alonso popularized the bid-rent theory in 1964 suggesting an explanation for spatial distribution of Von Thunen model. Since transport costs rise with distance from the market, rents are in a tendency in fall in general, but different forms of land-use generate different bid-rent curves. Alonso compared the quantity of land needed and transport costs. The basic principle of Alonso was that if the amount of goods and services is kept constant, the price of land should decrease with increasing distance from the center and a residential pattern will occur. He illustrated how wealty people will choose the amenities of low-density housing at the edge of city while poor people live in high-density settlements closer to the city center (Ross et al. 2000).

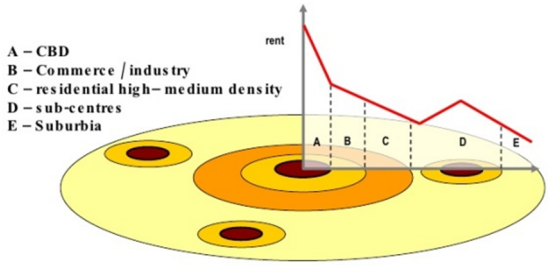

Figure 2.7 Bid rent theory and the variations of the theory (http://people.hofstra.edu/geotrans/index.html, 2012)

The assumptions of Thunen and Alonso are criticized because of exhibiting a simplified geographic and decision space that is far from reality. Nevertheless, these models represent many dynamics of urban morphology and the curves in bid-rent theory describe the emergence of these patterns.

Urban realms model: James E. Vance Jr. was created the urban realms model in the 1960s presenting the spatial components of a modern city. The realms of the model are used for varied purposes and linked each other.

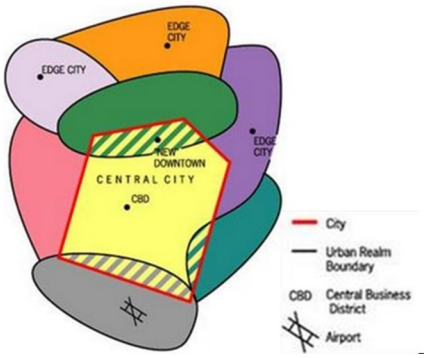

Figure 2.8 Urban realms model (https://mhsaphuge3.wikispaces.com 2012)

Each realm services separately with different aims and edge cities[1] are arised in some realms. The central business district is not the only center according to the model. Terrain, accessibility, amount of economic activity and the size of metropolis shape the character of each realm (https://mhsaphuge3.wikispaces.com 2012). The model forms the latest step to describe and model the American urban

[1] The edge city was coined by Washington Post journalist and author Joel Garreau in 1991. These new suburban cities are home to glistening office towers, huge retail complexes, and are always located close to major highways. Edge cities represent the third wave of people's lives pushing into new frontiers in this half century (Rodrigue, 2006).

structure (Karakuyu 2011). The main challenge issue of model that the city has been decentralized and that edge cities are becoming the center of realms which surround the city. Eventually, the main CBD is no longer as influential as it once was.

2.2.2 Inferences about the urban growth models

The explanatory models make it easier to represent and thus understand the pattern of land-use distribution of the cities. All the models took into account the limitations and negative aspects of preceding models and made new recommendations considering the conditions of the time. Having evaluated these models, the following inferences come up:

- the most important factors that determine of spatial locations and urban form are intensity of commercial relations, land prices and transportation in all the models
- some of them have so restricted assumptions that do not overlap with the real world (eg. large areas of flat land rarely exist, market conditions do not effect settlements)
- the cities having more compact form aim to protect environment and reduce costs and cities offering axial development towards periphery accelerate urban sprawl
- the models cannot explain spatial development of all the cities since every settlement has its diverse and specific characteristics
- another drawback of the models is that they evaluate socio-economic structure of cities just by observing their physical settings.

2.3 Models that measure and predict growth

All techniques for modeling urban growth examined here aim to determine the land-use change of cities and estimate the urban growth categorizing the land-use changes. Cheng (2003) collects urban growth under five headings as policy, pattern, process, actor and behavior. He accepts policy as the driving force of urban growth on the macro scale and pattern as a directly observable outcome. While process

refers to the sequence of changes in space-time and indicates the dynamics of urban growth, behavior states the actions of the actors involved. Thus, especially process, pattern and behavior become the key levels for modeling urban growth. It is also possible to categorize the growth as temporal, spatial and decision-making processes for understanding the complexity. Modeling urban growth and measuring changes in land-use aim to determine this complexity of cities and accordingly help to comprehend the growth dynamics and predict possible growth. Policy makers and urban planners may use the models to learn the potential impacts of growth and also see effects of different policies in future and they can take precaution on time. Models examined in this thesis are separated into two groups on the basis of modeling methods and tools they use: Euclidean and Geographic Information System (GIS) based simulation models and spatial statistics models. Then the models are compared according to their advantages and disadvantages.

2.3.1 Euclidean and GIS based techniques and simulation models

Euclidean geometry examines the root of square differences between coordinates of a pair of objects. It segregates land-uses through the use of zoning districts, limiting the activities within each district in a manner which does not combine dissimilar land-uses (Suebsing 2011). With the increased computational evolvement and availability of spatial data representing and simulating the complexity of the urban growth Euclidean model has been used in combination with the other method, Geographic Information System (GIS). GIS is an efficient tool using the spatial and statistical data for urban and regional modeling which is used as an analysis and modeling instrument. There are six models created to measure and predict growth examined below including cellular automata based modeling, agent based modeling, fractal based modeling, artificial neural network modeling, remote sensing and SLEUTH model.

Cellular automata based modeling*:* John von Neumann, Alan Turing and Stanislaw Ulam pioneered the Cellular automata (CA). CA ensures a laboratory for complex spatial systems to test the decision-making processes suggesting a new

way of thinking (Cheng 2003). For Colonna et al. (1998), CA, as a tool for urban modeling, gain a big popularity, because they imply inputs and outputs in a qualitative and cartographic form, which is, for urban planners, more usual than numerical representations. CA examples include urban land-use dynamics, the prediction of future urbanization patterns and long-term simulation of sprawl.

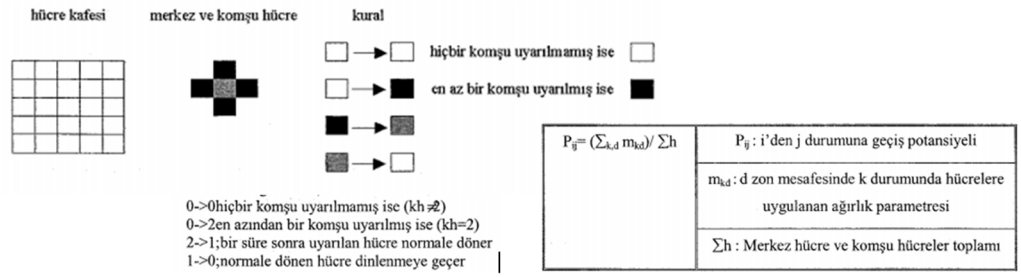

Figure 2.9 Scheme-simulation for an application of cellular automata (Yüzer 2006)

The decentralized approach, the connection which is provided to the complexity theory, the link of form and function and process and pattern, their affinities with geographical information systems and remotely sensed data can be summarized as the advantages of CA for modeling urban phenomena. The model is used to find out self-organizing features of urban systems and experiments with fractal geometry and feedback mechanisms (Milea et al. 2011, Cheng 2003). The primary disadvantage of model is focusing on the simulation of spatial patterns rather than on the interpretation of the spatio-temporal processes of urban growth. The common critics of model are defined as its simplicity and simulating relatively small cities (Reinau 2006, Cheng 2003).

Agent based modeling*:* Agent-based modeling provides some new features for traditional land-use models. The applications of these kinds of models for studying dynamics of urban have increased consistantly over the last 20 years (Huang et al. 2014). Cheng (2003) explains that the foremost advantage of model is to associate the factors of game theory, computational sociology, emergence, complex systems, evolutionary programming and multi-agent systems. Besides, the approach can locate agents and other resources of environment in space and involve the influences of space on the behavior of the agents and the effects of the agents on the

environment. For the urban system the model is an important tool for representing mobile entities in urban environments, e.g. people, households, vehicles etc. Although agent-based models are often regarded as more close to reality, these models have also many criticisms on its methodology. The researchers aim to comprehend how individual behavior leads to global outcomes rather than in the modeling of the real world per se (Benenson 1998, Cheng 2003).

Fractal based modeling*:* Fractal concept was defined in 1975 by Benoit Mandelbrot as a set of topological dimension and irregular, self-similar and scale-independent spatial objects. Michael Betty was the first to comprehensively examine the use of fractal analysis to investigate urban structure. Betty (1986) identifies the fractals as shapes with fractional or non-integral dimension.

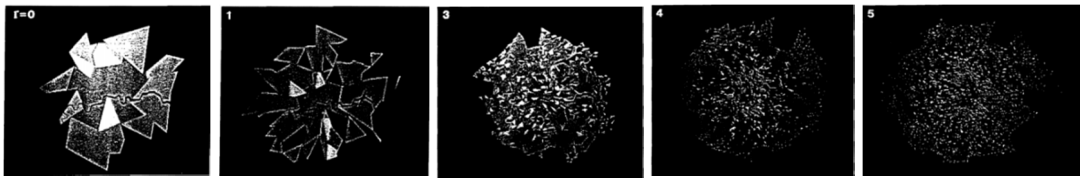

Figure 2.10 Simulations of the land-use-activity structure in a large city at different levels of recursion (Batty and Longley 1987)

Fractal analysis was grounded in chaos theory and the analysis has found that the urban areas have patterns which can be perceptible quantitatively (McAdams 2008). There are many advantages of fractal based modeling to determine the urban growth in the cities as providing a more certain approach and a better description for analysing spatial structure and complex spatial phenomena, and giving more insight into the usefulness of fractal dimensions to model urban growth with fractal dimension index (Cheng 2003).

Artificial neural network modeling*:* The artificial neural networks (ANN) performances calculating and processing by simulating the brain neural network of human (Guan et al. 2005). Maithani (2007) remarks the ANN is not dependent on particular functional relationships and this independence makes the ANN a powerful instrument to explore the non-linear complicated matters as urban growth.

ANN modeling aims to constitute a functional connection between a set of spatial predictor variables that are used to predict the change in urban landscape.

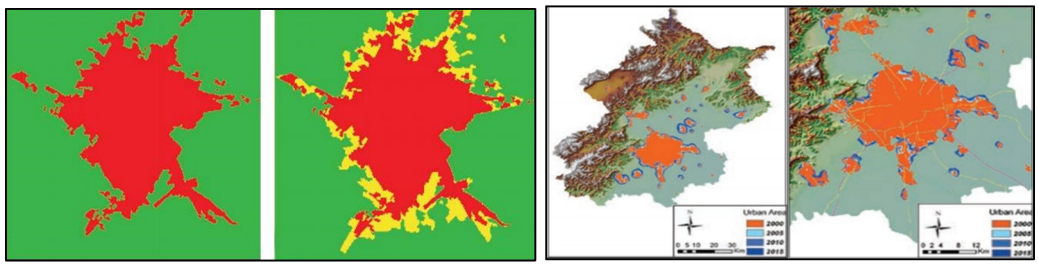

Figure 2.11 Forecast of Saharanpur (1993-2001), Beijing urban growth (2001-2015) (Maithani 2007, Cheng 2003)

Tu (1996, 1225) summarizes the advantages of modeling method quite obviously. ANN modeling has ability to detect non-linear relationships between dependent and independent variables indirectly, requires less formal statistical training and available for multiple training algorithms. For Cheng (2003) and Tu (1996, 1229), the drawbacks of ANN are its stability and black box nature, which limit the method for modeling urban growth process, greater computational burden, proneness to over fitting and the empirical nature of model.

Remote sensing*:* Remote sensing is considered as one of the important tools providing a view of spatial and temporal pattern in a time series of urban change. The spatial inversion of cities can be described, measured and modeled by remote sensing modeling.

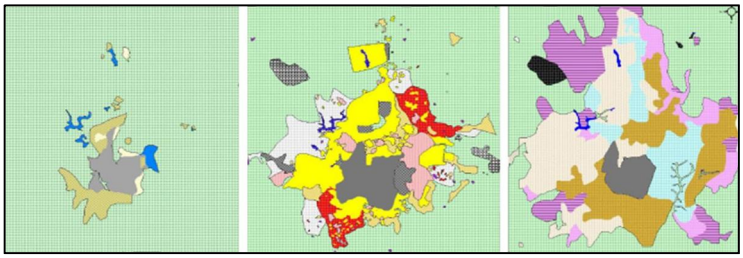

Figure 2.12 Land-use change between 1972-2003 determined by remote sensing modeling

There are several model combined with remote sensing approach (Table 2.3) in the literature. These models aim to measure urban growth, the effects of development

policies on land-use and understand the interactions of activities, residential areas, transportation and environmental resources in general. Each model has different time steps related with case area and the context of argument. Most of the models not only analyze the current situation but create the projections for future of cities.

Table 2.3 Examples of models developed based on remote sensing (Herold et al. 2001)

Model Name / Developer	**Purpose of the Model**	**Temporal Framework**	**Representation of Urban Land-uses**
CUF 2- California Urban Future 2 / Landis and Zhang 1998	Modeling framework for simulation of how growth and development policies might after the location, pattern and intensity of urban development	5 or 10 years	-residential, commercial, industrial -topography, transportation infrastructure
LUCAS - Land-use Change Analysis System / Berry et al. 1996	Examining the impact of human activities on land-use and the subsequent impacts on environmental and natural resource sustainability	Variable,100 years prediction in 5 year time step	-residential, divided by density -topography, population density, transportation infrastructure
What if / Klosterman 1999	Supporting traditional planning activities such as land-use planning, urban modeling and emerging modes of collaborative planning	25 years prediction, 5-10 years' time steps	-residential, divided by density, commercial, industrial -topography, transportation infrastructure
UPLAN - Urban Growth Model / Shabazian and Johnston 2000	Land-use evaluation and change analysis tool to help communities to create alternative development patterns based on local land development policies	Variable time steps, 20 to 40 years of prediction	-residential, divided by density, commercial, industrial -topography, transportation infrastructure
UrbanSIM / Wadell 1998	Modeling system for integrated planning and analysis of urban development, incorporating the interactions between land-use, transportation and public policy	Variable, 1 year time steps	-parcel level attributes: intensive amount of parameters -several biophysical and socioeconomic parameters
SLEUTH or Clarke Urban Growth Model / Clarke et al. 1998	Understanding how expanding urban areas consume their surrounding land and local environment	90 years of future prediction, 1 year time steps	-several urban land-use classes -topography, transportation infrastructure

Techniques of remote sensing may be thought as an essential data source of several model parameters. A significant demand also exists for the integrated use of modeling in urban planning and remote sensing. Remote sensing data is helpful to describe the urban form however; it is less useful to understand the functional characteristics of urban growth (Herold 2001, Cheng 2003).

Sleuth model: Sleuth is the acronym of slope, land-use, exclusion, urban extent, transportation and hillshade, the layers of model uses in gridded map form. Sleuth model belongs to the cellular automata class of models and shows the capability of the combined remote sensing approach. Urban growth process and the predictions of land-use for future can be represented with Sleuth model. The model constitutes the urbanization probabilities. The representation of growth process is especially

important for the scenarios focused on environment protection and the researches aim to manage urban growth. The Sleuth analysis of Herold (2001) reveals the change of urban area in Santa Barbara (see in Figure 2.13) and predicted the growth limits of city. The results of analysis are included in research cooperations with Santa Barbara urban planners to support the planning of region (1930-1950-1970-1990).

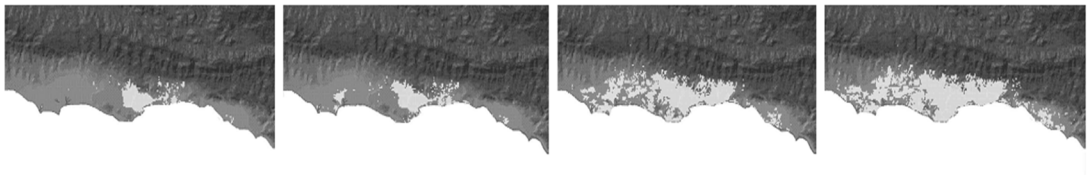

Figure 2.13 Historical growth of the urban area (shown in light gray) in the Santa Barbara (Herold 2001)

Figure 2.14 Predicted urbanized areas in the 2050 (lighter gray) (Herold 2001)

The Sleuth model, which is strongly supported by literature about its effectiveness on urban growth prediction, is used to simulate influences of various future scenarios on cities briefly.

2.3.2 Spatial statistics models

In several land-use models statistical methods are being used to analyze spatial data. Statistical models represent the observations with regards to the random variables that can be used for interpretation, estimation and prediction based on probability theory (Pasztor and Toth 1995). Some of the traditional statistical models, e.g. regression analysis, factor analysis, principal component analysis, Markov chain analysis, logistic regression have been considered successful in interpreting land-use changes related with urban growth according to the literature. Markov chain analysis has been widely used for modeling urban growth. The technique is also one

of the application change detection techniques. The method is constituted based on the possibility that a given piece of land will change from one mutually exclusive state to another. These possibilities are originated from the changes in past and then applied for prediction of the changes in future (Hermawan 2011, 13). Logistic regression model has been the most commonly used statistics model for modeling land-use change. When Hu and Lo (2007) analyzed this technique in many cases they inference that the model fit spatial processes and outcome of land-use change acceptedly well. Despite the strengths of model, it suffers the limitation in paying regard to the other factors that may have effects on the urban growth such as regional development policies and household preferences for locations. However, except the lack of temporal dynamics in model, it is convenient for multi scale analysis and lets deeper comprehension of driving forces of urban growth (Hu and Lo 2007).

2.3.3 Inferences about the models that determine urban growth

When the techniques to measure land-use change and predict urban growth are analyzed, the first crucial requirement is bringing the time and space dimensions into urban modeling. Additionally, the integration with GIS, complexity and non-linearity theories of modeling seems very important to understand the complexity of growth. Recent studies show that the use of high resolution dataset for modeling, observing patterns in the spatio-temporal situation and analyzing past urban changes in detail facilitate the prediction of land-use changes according to several scenarios. To establish the link between empirical observation and mapping with urban theory is also one of the important points in modeling growth.

Table 2.4 General features of the models

Models	Base of the Models	General Features of the Models
Cellular Automata	Euclidean based simulation model	A simulation model for predicting urban growth trend; estimation to the land according to the functional relations & economic activities between cells-long term simulation of sprawl
Agent Based Modeling	Euclidean based simulation model	Model shows that the magnitude of land rent distribution can vary according to the interaction between buyers and sellers as well as in terms of buyer preferences on proximity to the CBD or other local green amenity
Fractal Based Modeling	Uses fractal geometry	Model gives a different perspective on studies of urban density. the complex spatial phenomena associated with actual urban systems are better described using fractal geometry consistent with growth dynamics
ANN Modeling	GIS based simulation model	A neural network model requires the specification of a network topology
Remote Sensing	Satellite data and GIS based simulation model	Remote sensing techniques can provide spatially consistent datasets that cover large areas with both high detail and high temporal frequency, including historical time series
SLEUTH Model	Satellite data and GIS based simulation model	The growth process as well as future predictions of land-use change can be well represented and show the capability of the combined remote sensing/modeling approach

Remote sensing technique, fractal based modeling and Sleuth model have prominent roles in determining urban growth. They examine the past and current situation of land-use changes for proposing alternative growth scenarios with generated maps and other forms of representations. These techniques are effective tools for modeling urban growth and assisting urban management studies. It should also be noted that there is a clear demand for the combined use of these methods in urban management and planning as stated in most of studies about urban sprawl and growth management.

2.4 Overall evaluation on the explanatory and predictive models

Urban structure models show the pattern of land-use functions of a settlement. Explanatory models are created based on the economic system, functional distribution and transportation networks. When the models are analyzed in terms of urban growth and sprawl, it is possible to separate the models into two groups. Sector model, multiple nuclei model and urban realms model are more expansionist models, while concentric zone and Thunen models are suggesting more compact urban form. In the expansionist models, transportation links and sub-centers occurring at the fringe areas accelerate sprawl. In contrast, the models offering

compact form give more importance to protect the natural resources on the periphery, concentrate building in the inner city and prefer to reduce transportation costs.

The methods in the second part of the present chapter contribute to the literature by determining different parameters and techniques to measure land-use changes of cities according to the spatial and temporal attributes and categorizing these changes. The results of existing growth trend and the effects of proposed growth scenarios on the cities and fringe areas are tested for projected years based on the determined change of land-uses. These efforts generally aim to attain efficient and effective urban forms in terms of socio-economic and environmental structures. On the other hand, the models reveal the positive and negative effects of plan decisions (the locations of activities, transportation links, densities of building areas, etc.) on physical environment in the process of this change. Most of the models are related to each other and the new models arise from the cumulative knowledge of modeling urban growth. The major reason for using this kind of tools and techniques in urban studies is generally avoiding or minimizing the problems arising from rapid growth and sprawl. In this context, the need for a new management model in order to reduce the negative effects of urban sprawl is also emphasized in the literature. Nevertheless, the excessive rationalization in the models can be a problem. Most of urban growth models have an inadequacy in terms of including the social dimension of cities, thus representation and prediction of model only depend on the physical and economic parameters. From this point of view, a question arises here: how the future of city can be predicted correctly and realistic if the social structure or characteristics is excluded? Consequently, it is clear that a new view highlighting the integrity of social, cultural, environmental and economic dynamics should be developed or current techniques should be adapted.

CHAPTER 3

POLICY INSTRUMENTS TO MANAGE AND CONTROL URBAN GROWTH

Rapid growth increases high demand for various uses and developments especially in the fringe areas so it becomes difficult to draw a line between the city and the towns surrounding it. As a result of uncontrolled and unplanned sprawl of the cities, the rapid growth causes various ecological and socio-economic problems as mentioned before. Kötter and Friesecke (2009) state that especially megacities run high risks considering the population size and high density combined with the accelerated urban growth.

Many researches claim that there is an apparent need for better planning tools, forceful urban management and long term land policies (Hare 2001, Bourne et al. 2003, Anthony 2004, Kötter 2004, Arbury 2005, Pallagst 2007, World Bank 2008, Pollock 2008, Dierwechter 2008, Fig Commission 2010, Choi et al. 2015, Miller et al., 2015). This chapter first puts forth the tensions arisen from uncontrolled growth and the effects on fringe, and explains the need to manage the urban growth. Following that, planning tools to control growth are examined with examples from many countries. Thus, the characteristics and key elements of effective growth management are revealed.

3.1 The need to manage urban growth

Growth management has been thought as a responsive instrument adressing various issues that arose progressively from the 1950s particularly in the US. The central

principle of much of growth management practice globally has been supplying accessibility and quality of public services and facilities through coordinating the provision of infrastructure, services and facilities with urban development (Johnson 2008). Another issue is that the growth management does not mean anti-growth. Hare (2001) explains that it does not refer less land is consumed by urban area however, indicates better use of land, balanced consideration of urban form, environmental value and land economics. Growth management protects natural resources and rural landscapes considering environmental, social and economic priorities, ensures better conditions to live for communities, and fosters partnerships and cooperation among citizens, governments and entrepreneurs. There are some social, economic and ecological indicators to help achieving the purposes of managing urban growth. These parameters are especially important for managing metropolitan cities.

Table 3.1 Main indicators of urban growth management (Kötter and Friesecke 2009)

Social indicators	**Economic indicators**	**Environmental-Ecological indicators**
-Population growth rate -Population density -Life expectancy rate -Migration rate -Social polarization rate -Crime rate -Dimension of housing shortages; ghettos, slums, squatters -Rate of people with unhealthy living conditions -Suburbanization rate -Mortality rate -Poverty rate, at-risk-of-poverty rate -Urban governance	-Development of the local economy/economic structure -Real GDP growth rate -Unemployment rate -Inequality rate of income distribution -Accessibility of public transportation infrastructure -Quality of transportation network -Infrastructure deficiencies; overtaxed infrastructures -Risk of economic loss in case of a disaster	-Air pollution -Groundwater and drinking water pollution -Quality of sewage treatment -Capacities of waste collection and disposal services -Land sealing rate -Suburbanization rate -Number and dimension of brownfields -Destruction of original vegetation; deforestation; damage to flora, fauna, biodiversity per year -Risks to natural disasters or industrial accidents -Change of land-use

3.1.1 The concept of fringe and the importance of planning tools for fringe areas

During the last few decades many scholars and analysts have studied definition and limits of "fringe". The term fringe, also known as *rural-urban fringe* and *peri-urban fringe* in planning literature, has been defined in many different ways since the

beginning of the 1930s. Fringe concept was first used by T.L. Smith in 1937 regarding the population change and built-up area just outside the city in a study of Louisiana. His definition was constituted on the demographic characteristics of the area, thus it was regarded as a general description rather than a specific conceptualization. However, after the 1940s, many researchers contributed to the definition of fringe considering the functional characteristics and areal differentiations of these areas. Major definitions of fringe are summarized as follows:

- the area of mixed land-uses lying beyond the sections of the city that are customarily serviced by urban utilities and transport systems (Wehrwein 1942)
- the lands adjacent to large urban centers (Harris 1964)
- a socially and demographically transition zone between continuously built-up urban areas and rural area (Pryor 1968)
- a process-response system which results from two interacting sets of forces, namely the centrifugal and centripetal forces of urbanism. Within this system, urbanization evokes rural response and transformation as well as creating urban forms (Marchand and Charland 1992)
- a dynamic zone where changes occur on a continual basis and where rural responses, land-use competition and the associated transformation of rural structures are prevalent (Marchand and Charland 1992)
- a transition area through the expansion of settlements and the shrinking of the cultivated area, a periphery tied to the city through a set of social and economic relations (Nagy 1999)
- a transition zone that begins by being predominantly urban and ends up as mainly rural (Heimlich and Anderson 2001)
- the part of metropolitan counties, been called the planning's last frontier, which has not enough density to be called as urban (Heimlich and Anderson 2001)
- a complex process involving various concerns as land transfer process, types of development, change in landownership pattern, regulatory measures and their enforcement (Masum 2009)

Despite the fringe areas vary from one city to another and one time to another, most of the definitions contain similar notions and parameters as stated above. In the light of these descriptions and according to the common qualifications, fringe can be interpreted as follows: A dynamic and heterogeneous zone of transition between urban land-uses and rural uses where changes occur on a continual basis. It is a place where there is interaction between centrifugal and centripetal forces of urbanism. Above all, the fringe is depicted as *a phase rather than a place*.

The fringe area contains different urban and rural land-use activities. Major land-use categories in the fringe are (Marchand and Charland 1992, Nagy 1999, Heimlich and Anderson 2001); waste management facilities (ex-mineral sites, redundant sites or buildings), recreational land-uses (canals, regional parks etc.), transport infrastructure (orbital and arterial roads, railways etc.), conservation sites (historical, archaeological places etc.), energy production and distribution, commercial development (service functions, light industrial areas etc.), housing (low-density residential developments typical of the suburbs (i.e, single family dwellings on relatively small lots), farming and forestry. Population densities in the fringe are higher than their surrounding rural areas but lower than their urban counterparts.

Some researchers have also contributed to the fringe studies by differentiating fringe as "urban fringe-rural fringe" and "inner fringe-outer fringe". Andrews (1942) categorized fringe into two groups as *urban fringe* and *rural fringe*. The urban fringe is the active expanding part of the compact economic city and the rural fringe lies adjacent to the periphery of the urban fringe (Andrew 1942 cited in Lal 1987). For Marchand and Charland (1992) the fringe is also composed of two spatially discernible areas; *the inner fringe* and *outer fringe*. These areas are essentially differentiated on the basis of degree of interpenetration of urban built form. The inner fringe is the area for additional development exhibiting an advanced stage of transition from rural to urban uses. Competition for land-use is high in the inner fringe and a large proportion of the land is already converted to

urban uses or is intended for urban uses. In the outer fringe, pressures for land conversion from rural to urban uses are lower than in the inner fringe. No large scale urban land development is anticipated in short term in this subzone.

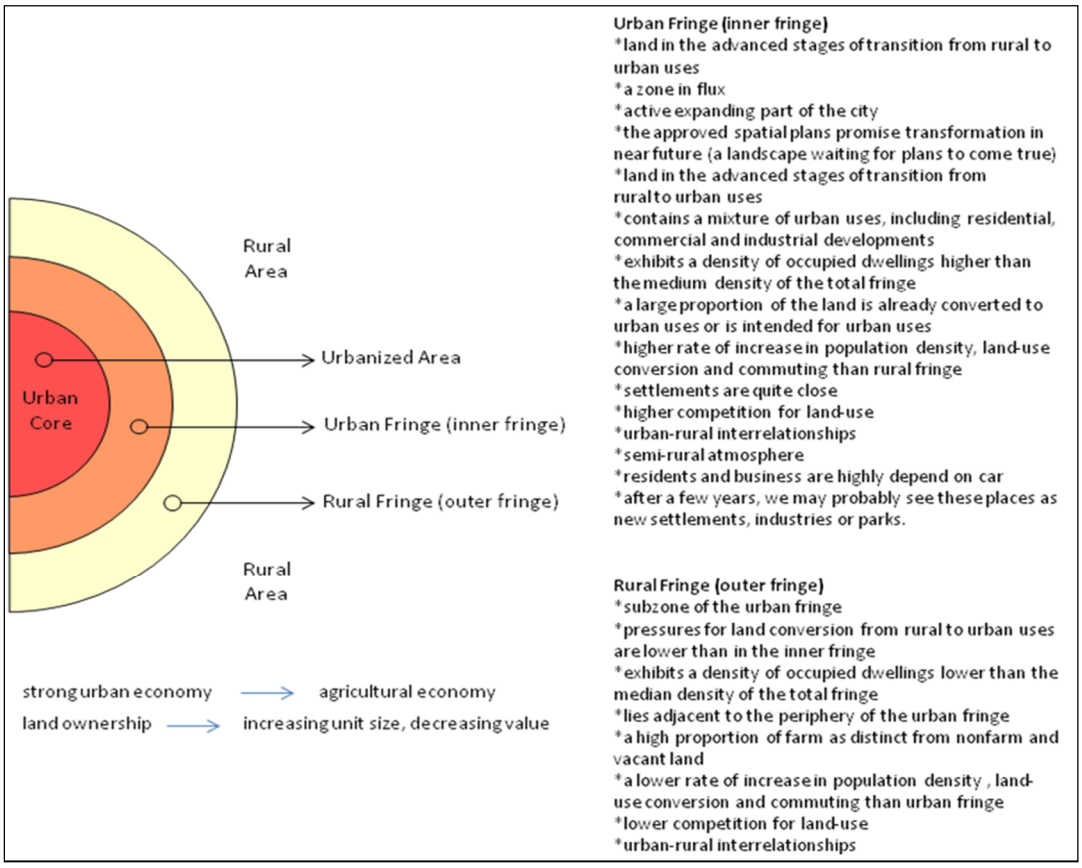

Figure 3.1 Features of urban fringe and rural fringe

Although it is possible to define land-use change and the characteristics of different zones at the fringe with many techniques as remote sensing images, satellite and GIS Technologies, t-test etc., there is not a clear-cut assignation about the inner and outer boundaries or limitations of the fringe. The main reasons may be the flexible and relative structure of fringe for each settlement and the development pressure they faced. In this study, the fringe term represents the *rural-urban fringe area* as integrated. The study intends to investigate the planning and policy instruments for these areas.

3.1.2 Tensions led by the drivers of urban growth

The literature survey reveals three major drivers that create tensions for growth control; namely, market forces and marketization trends, growth policies of governments and urban plans. The performances of urban growth control also depend on these factors (Zhang 2000, Heimlich and Anderson 2001, Cheng 2003, World Bank 2008, Johnson 2008, Zhoe 2009, Nyarko and Adugyamfi 2012, Wang 2014).

Market forces and marketization trends: Market and state-market relationship have fundamental role to change urban growth pattern of cities. Zhoe (2009) highlights the marketization process as its huge effects on growth management performance in developing countries. Increasing power of private sectors feeds the marketization process especially in developing countries, combined with the effect of global investments. Some researchers argue the growth control performance considering the increasing tendency towards market-led urban development. Housing market can be thought as an economic and physical growth engine triggering the pressure on fringe in this context. In many countries, the commercial housing market investments caused explosive growth after the 1980s. Most cities now represent an agglomeration economy with the construction activities. Prior to the comprehensive reforms in urban housing, most housing projects have been realized by state as part of socialist welfare package or by local governments as public housing. Thus, this system caused the unsustainable housing provision and inefficient land-use patterns prioritizing production overconsumption (Wang 2014).

Growth policies of governments: In recent years, researchers focus on the link between government and urban growth in terms of organizational structures of government and their contribution to urban sprawl. Zhang (2000) claims the impact of local government jurisdictions on sprawl. He states that sprawl arises more often in fragmented metropolitan areas where numerous government jurisdictions have power over zoning regulations and land-uses. He adds that transportation and infrastructure investments and housing policies have also substantial impacts on the

emergence of urban sprawl. There are criticisms about the lack or failure of governments and local authorities on controlling urban growth. Nyarko and Adugyamfi (2012) criticize the institutions of government for being unable to provide an effective control on transition from fringe to cities. Local governments usually remain incapable to plan and growth control until it is too late for effective development (Heimlich and Anderson 2001).

Urban plans and the role of urban planners: Local and regional planning strategies have shifted in the last two decades in the face of negative impacts of growth. States began to use a coordinated planning approach for controlling growth and its costs in the 1980's. Communities have increasingly used planning as an instrument for preventing or reducing the negative results of growth rather than reacting to growth by addressing the problems it creates (Heimlich and Anderson 2001). Urban plans and urban planners have become instrumental in addressing uneven urban growth within urban areas through growth management and growth control measures. Urban planners have tried to control urban growth in a more efficient manner to minimize negative effects like sprawl, encroachment onto agricultural land, the extensions of services and infrastructure through the strategies of plans. Predicting the trend of land-use transition is an important subject in the field of urban planning. Cheng (2003) stresses here prediction without a scientific understanding of the system and risky decision-making may increase the uncertainties and may cause environmental and economic losses.

In conclusion of this part, the problems of growth control can be summarized into two title; lack of effective governance structures to manage cities and lack of planning tools for growth control addressing the needs of fringe and rural areas. World Bank (2008) recommends these main inferences below to create more comprehensive and effective management strategies: strong growth control and management involves guiding growth not just mitigating its effects; strategies need to identify a clear implementation way including "how, by whom, by when"; costs of implementation need to be calculated and funding sources identified; different social, cultural, economic and environmental policy areas should be joined-up into

investment programmes; monitoring and evaluation need to be included; and there needs a larger and more professionally trained planning staff.

3.2 Planning tools to manage and control growth

Explanatory models and predictive models are emerged through the past and current structure of cities. Explanatory models are created to show the existing pattern of land-use functions of a settlement. Predictive models are used to measure the land-use changes of cities and predict the possible results of propose growth scenarios. However, they do not contain the strategies to avoid the negative results of sprawl and direct growth. The study focused on the planning tools to manage and control growth of cities at this point. Two types of strategies become prominent in the literature as the effective models; urban containment strategies (greenbelt, urban growth boundary, urban service area) and smart growth strategies. The reasons for the creation of models, the policies to avoid sprawl, the countries have been used the models, basic policies and strategies, the role of market, the operational tools to realize the strategies are analyzed for each model.

3.2.1 Urban containment strategies

The aim of urban containment is to transform the expansion into the urban areas defining a boundary. According to Nelson and Dawkins (2004) and Owusu (2013) the containment strategies are differentiated from traditional approaches. Urban containment policies are clearly designed to limit the development of land outside a defined urban area and to encourage development inside the urban area. Successful implementations of urban containment strategies reduce urban sprawl, include predictability of development process, encourage infill, provide more cost-effective public services and protect environmental resources. For these reasons, urban containment strategies are traditionally been known as the planning tools to control growth in the literature. These strategies can be analyzed into three types; greenbelt policy, urban growth boundary and urban service area.

Greenbelt policy: The origins of greenbelt concept can be traced back as far as the sixteenth century but are more usually associated with Ebenezer Howard, the idea of "country belts". He was concern about the spread of large cities and proposed shaping a pattern of smaller satellite garden cities (Herington 1990). Greenbelt similarly represents a response to the pressures on land for peripheral development. The fundamental aims and proposals of greenbelt are expressed as (Department for Communities and Local Government, 2006, World Bank 2008, Zhoe 2009, Cadieux et al. 2013, Jinjun 2012) preventing sprawl keeping land permanently open, retaining land in agricultural, forestry and related uses, assisting in moving towards more sustainable patterns, providing outdoor activities close to urban areas, protecting the original character of historic towns and maintaining the landscape setting of towns. They also benefit a largely urban public whose quality of life is based on the clean environment ensured by greenbelt. The other positive effects of greenbelt are amenity value related to recreational opportunities and scenic views, environmental benefits associated with bio-diversity protection, flood control and air purification. Greenbelt policy is also mentioned in the researches related to the "*negative planning approach"*[2] recently. Negative planning policies include greenbelts, green wedges, and conservation of primary environmental areas.

London is the first city to gain a greenbelt. Great London Regional Planning Committee adopted a policy for creating greenbelt in 1935 (Herington 1990). Amati (2008) claims that greenbelt policy was the most restrictive technique among the tools which was introduced firstly in the late 1930s. Since a greenbelt was enabled in London, it has occupied a central position in the planning system of England. Aim of the greenbelt is stated in Planning Policy Guidance as checking the unrestricted sprawl of large built-up areas, safeguarding the surrounding countryside from further encroachment, preventing the mergering of neighboring towns, providing access to open countryside for recreation and outdoor leisure. Greenbelt is used a kind of separator with urban and fringe area, and represented in upper-scale maps as seen in figure below.

[2] Siedentop et al. (2016, 73) explains that negative planning excludes certain land uses (especially environmentally sensitive areas) from urbanization and most other types of construction activities.

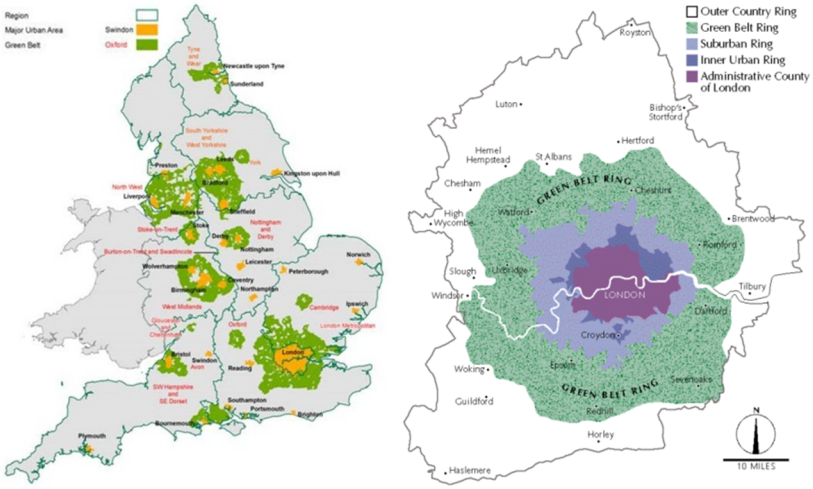

Figure 3.2 Greenbelt map of England and Great British anti-sprawl crusade, Greater London Plan, 1944 (Amati 2008, Herington 1990)

Toronto region also comes to the forefront with greenbelt implementations. Ontario government legislated Greater Golden Horseshoe (GGH) Greenbelt in 2004 including 730,000 hectare area. Landscape of fringe was rebranded countryside with the creation of greenbelt (Cadieux et al. 2013). Greenbelt of Ontario is one of the largest and well known examples of greenbelt in the world.

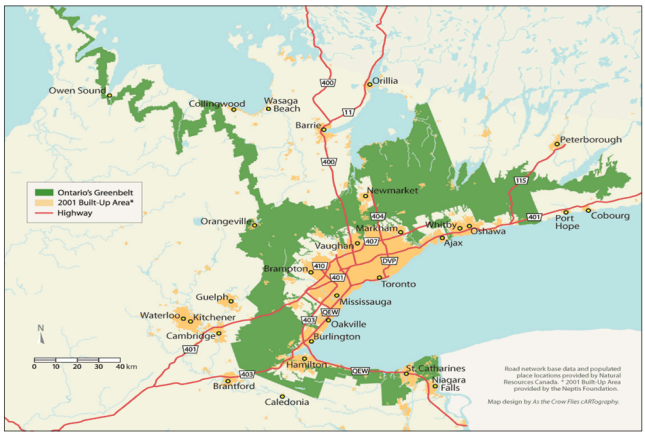

Figure 3.3 Ontario, Greater Golden Horseshoe Greenbelt Plan Area, showing Protected Countryside, from the Greenbelt Plan (Cadieux et al. 2013)

Many cities in China have been also applied strict control on the population and built-up area size. These cities made Green Space Planning combining with forest gardens (Songling 2011, Zhao et al.2009). Beijing has witnessed implementations of urban containment strategies since the 1980s. Zhao et al. (2009) summarize that

the aim of containment strategies of Beijing has been enhancing the compactness of urban form and preserving agricultural land from rapid urbanization.

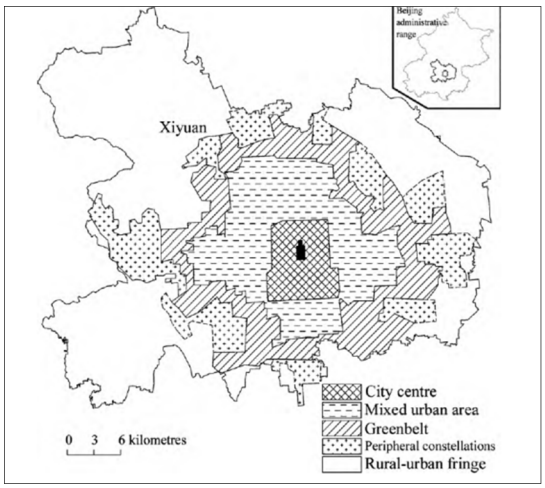

Figure 3.4 Decentralized concentration strategy in Beijing, 1991 (Zhao et al., 2009)

The inferences about the greenbelt practices can be determined from the literature as below:

- greenbelt plan builds upon the existing policy framework, planning acts, national and regional policies. Accordingly, the greenbelt plan has an integrated structure with the other level regional or land-use plans. The strategies are consistent with the policies, regulations and standards of other related plans,
- the greenbelt documents are generally prepared as a strategic plan and include basic requirements of a strategic plans such as vision, mission, goals, policies, implementation tools, monitoring phase and performance measures,
- most of the plans are represented in structural form or schematically in regional plans and sub-regional plans. The supportive schemes contain sub-policies, key features and determine the details about prime agricultural and ecological areas,
- market mechanism is an important decisive of the sustainability of greenbelt, because the demands and expectations of land developers and land owners increases the pressure on the greenbelt areas.

There are also many criticisms of greenbelt strategy in the literature. Some urban economists emphasize the negative consequences of greenbelt as rising housing and land prices, restriction of property rights for landowners and greenbelt residents, and increasing transportation costs arising from leapfrog development (Jinjun 2012). From another view (World Bank 2008), the greenbelts are criticized to create inefficient land-use patterns because of cutting across rather than following ecological systems.

Urban growth boundary method: The second technique to manage growth is Urban Growth Boundary (UGB) which defines the limits of urban growth and a type of growth-phased program. In UGB method, the government does not promote development for a specified period of time. Urban growth is promoted inside the defined boundary with development friendly policies (Nelson and Dawkins 2004). The purposes of UGB are supporting contiguous and compact development patterns to provide public services effectively, reducing urban infrastructure costs, pre-serving environmentally sensitive areas and to using the land more efficiently (Nelson and Dawkins 2004, Dierwechter 2008, Tayyebi and Pijanowski 2011). UGBs are generally determined by predicting urban growth pattern with the techniques to model urban growth as cellular automata, artificial neural networks, fractal, GIS and remote sensing.

Many countries have been implemented the UGB method. They have been extensively studied and applied in the USA as an effective tool to avoid sprawl. UGBs are used in various ways in the United States generally guided by state policies. Jun (2004) states the first urban growth boundary in USA was implemented in Lexington, Kentucky, in 1958. UGBs have been one of the most well-known growth management instruments in time and more than a hundred cities had adopted UGBs by 1999 in the USA.

Portland's UGB strategy is another popular example in urban studies. State Land Conservation and Development Commission was approved UGB strategy in 1980. The aim was controlling urban expansion and distributing the urban services more

efficiently. The strategy covers 24 cities with 1.3 million residents in 2000. Throughout the 1980s, UGB program was considered successful at its primary goals, however, it should be noted that the UGB's boundary has changed about three dozen times.

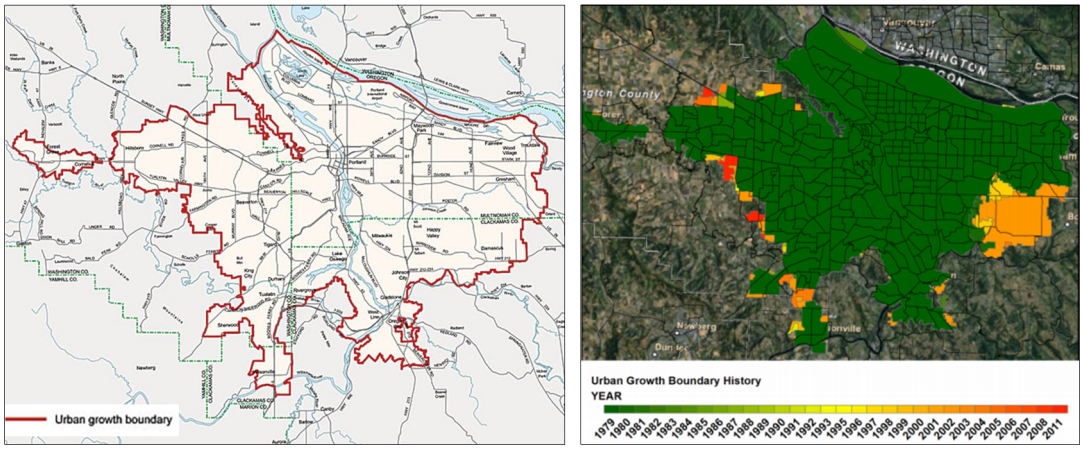

Figure 3.5 Urban Growth Boundary and the expansions in Portland (Dierwechter 2008, Bolen 2013, Moulton et al. 2013)

Melbourne, Australia is another prominent example using UGBs as a tool to avoid sprawl and manage growth. According to the Plan Melbourne 2030 (2013) the strategic framework includes regional growth plans, developed for eight sub-regions and which will accelerate and manage growth in regional cities. The objectives are increasing the compactness of city, providing efficient use of transportation infrastructure, encouraging walking and cycling, increasing green areas, reorganizing energy and water supply, preserving biodiversity, constituting strong partnerships and good governance.

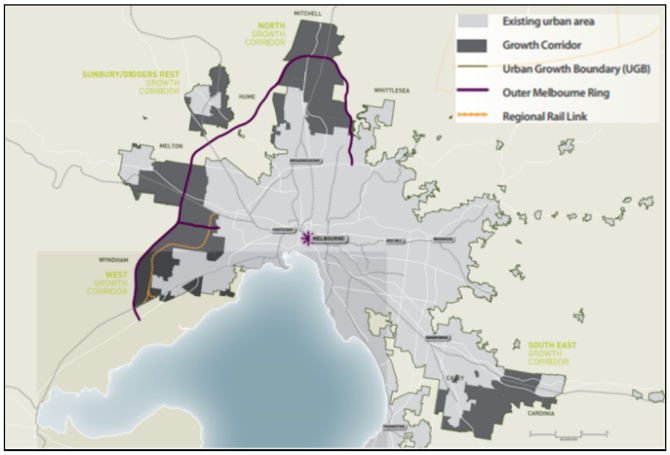

Figure 3.6 Urban growth boundary and corridors in Melbourne
(Plan Melbourne 2013)

The studies on urban growth boundaries have shown these common inferences:

- regional and sub-regional plans include UGBs and there are many documents, schemes and maps to represent the boundary. The schemes generally contain the boundary, existing urban area, main roads, railways, city center and growth zones, corridors or wings
- the documents are prepared as a strategic plan and include vision, principles, policies, objectives and phases
- it has a positive influence on public health
- it requires a partnership and participation between local decision makers, urban planners, environmental agencies and other related institutions and actors in planning process.

There are also criticisms on urban growth boundaries. Setting the correct size of UGB is important for protecting the economic viability of community. Cost of development can be increased if enough land does not provide in the boundary. If the boundary involves more than adequate land, the method will not be an effective instrument to achieve its goals (Nelson and Dawkins 2004).

Urban service area method: The third instrument to manage urban growth is Urban Service Area. The method essentially directs growth into the defined area where urban services have previously provided. Any land outside of these areas

does not receive public financed infrastructure, rather the developer must pay for it (Yıldırım 2008).

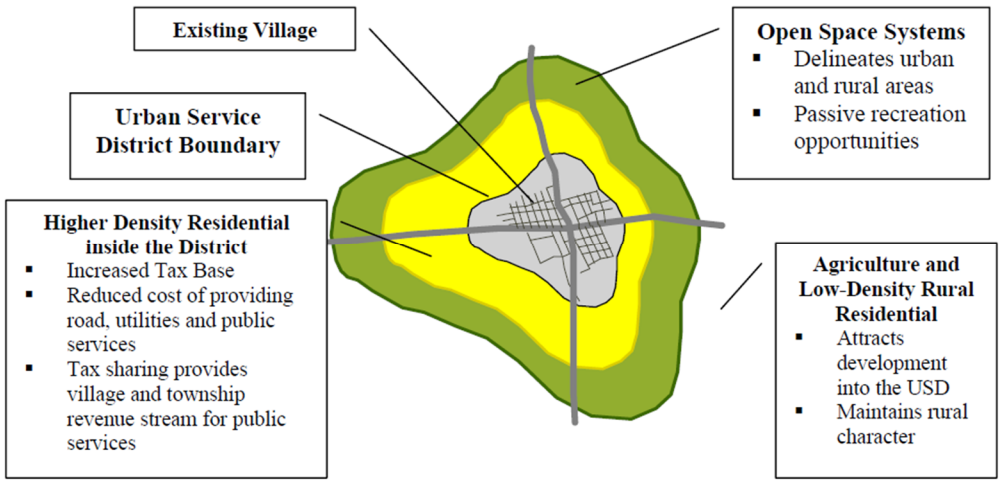

Figure 3.7 Urban Service Area Diagram
(Washtenaw Planning and Environment Department 2004)

Urban service area method gained popularity in the 1970s. Dane County, Madison, USA is defined as a significant example used this method. The Commission of Dane County Regional Planning introduced the concept of urban service area in the first land-use plan in 1973. They separated the service area into three types as special facilities (landfills, recreational and tourist facilities such as golf course clubhouses, etc.), institutional uses and existing development (Dane County Department 2013).

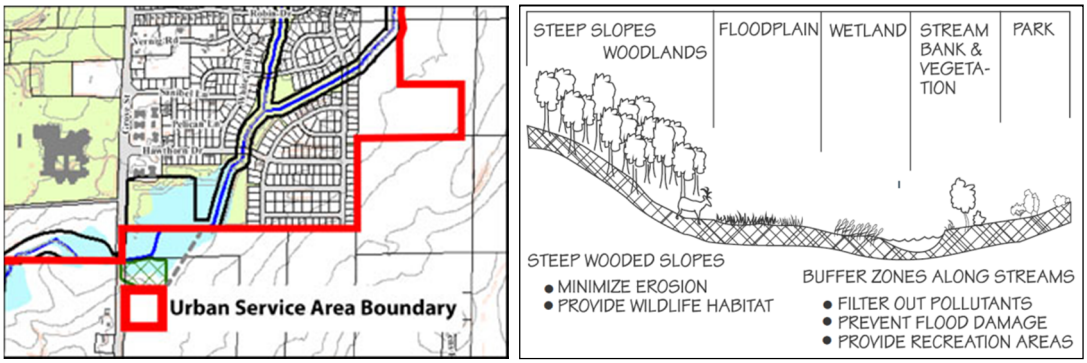

Figure 3.8 USA in Dane County and the schematic diagram depicts the typical environment corridor (Dane County Department 2013)

Missoula, Montana is another example for application of urban service area method. The Urban Fringe Development Area Project was undertaken by Missoula Office of Planning and Grants Urban Initiatives Division in 2007 involving the lands in Urban Service Area boundary (http://www.co.missoula.mt.us 2013).

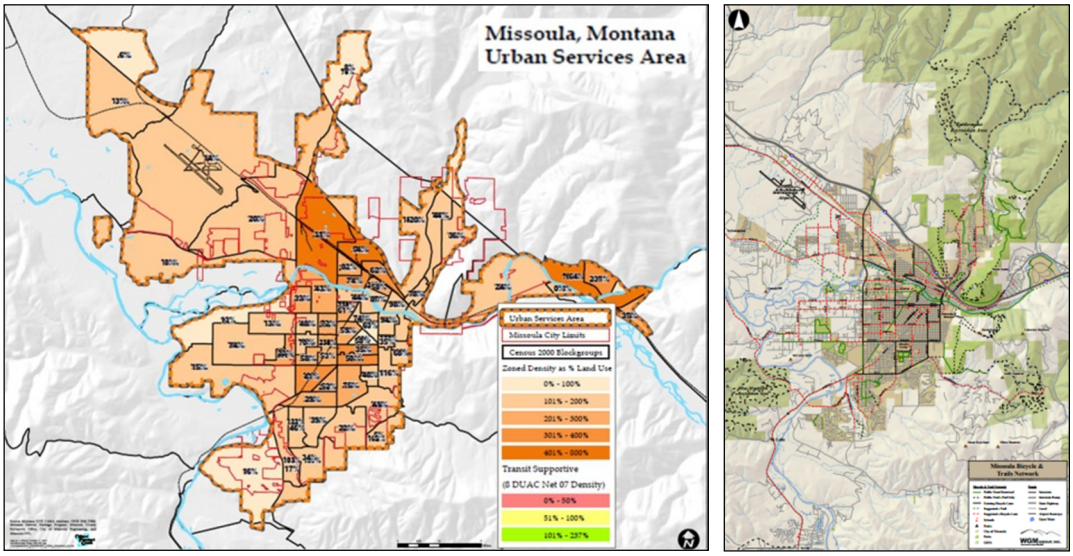

Figure 3.9 Urban Service Area in Missoula (http://www.co.missoula.mt.us 2013)

The Missoula urban service area overlapped with Missoula City Waste Water Service Boundary. The area is defined by lots of suitability analysis; water lines, sewer access, transportation, bike routes, sensitive lands, open spaces and wildlife.

Common inferences can be summarized as follows:

- their major principle is managing growth by protecting environment and reducing the service costs but it also restricts the potential developable land
- they are prepared according to the national legislation and regional planning frameworks
- there are several documents including the management principles
- the schemes in reports contain the current settlements, service area boundary, main transportation routes, phases (short range and long range) and the jurisdictions

- it requires the participation between local decision makers, urban planners, environmental agencies and other related institutions and actors in planning process same as the previous management methods.

There are numerous benefits of USAs such as providing the services efficiently, promoting infill development, minimizing negative effects on natural resources and open spaces and enabling the ability to plan for provision of high quality services (Washtenaw Planning and Environment Department 2004). The disadvantages are stated as the probability of legal challenges if the district is not administered properly and administive difficulties if there is no cooperation between jurisdictions.

3.2.2 Smart growth strategy

The other planning tool to control growth is smart growth (defined in the US) that includes a wide range of features as efficient use of land resources, design for walkable neighborhoods, conservation of open space, support of a mixture of uses and transportation options and provision for affordable housing (Hare 2001). Smart growth aims to encourage development in designated areas (Heimlich 2001), is seemed as a vital strategy in energy consumption (Veerbeck et al. 2011) and refers to low-density land-use patterns being an alternative to sprawl (Litman 2012). Smart growth emphasizes accessibility, supports alternative transportation modes, reduces distances between activities and results in shorter and slower trips. However, sprawl increases automobile dependency resulting in longer but faster automobile trips (Litman, 2012).

Table 3.2 Comparison of smart growth and sprawl (Litman 2012)

	Smart Growth	Sprawl
Density	Higher-density, clustered activities	Lower-density, dispersed activities
Growth pattern	Infill (brownfield) development	Urban periphery (greenfield) development
Land-use mix	Mixed	Single use, segregated
Scale	Human scale. Smaller blocks and roads. Attention to detail, since people experience the landscape up close, as pedestrians	Large scale. Larger blocks and wide roads. Less detail, since people experience the landscape at a distance, as motorists
Public services	Local, distributed, smaller. Accommodates walking access	Regional, consolidated, larger. Requires automobile access
Transport	Multi-modal transportation and land-use patterns that support walking, cycling and public transit	Automobile-oriented transportation and land-use patterns, poorly suited for walking, cycling and transit
Connectivity	Highly connected roads, sidewalks and paths, allowing more direct travel by motorized and nonmotorized modes	Hierarchical road network with many unconnected roads and walkways, and barriers to nonmotorized travel
Street design	Streets designed to accommodate a variety of activities. Traffic calming	Streets designed to maximize motor vehicle traffic volume and speed
Planning process	Planned and coordinated between jurisdictions and stakeholders	Unplanned, with little coordination between jurisdictions and stakeholders
Public space	Emphasis on the public realm (streetscapes, pedestrian areas, public parks, public facilities)	Emphasis on the private realm (yards, shopping malls, gated communities, private clubs)

Smart growth has five operational tools and regulatory strategies for turning these aims into reality; transfer of development rights (TDR), transit-oriented development (TOD), traditional neighborhood developments (TNDs), priority funding areas (PFAs), urban consolidation /intensification and infill development.

Transfer of development rights: Frenkel (2004) defines the transfer of development rights (TDR) strategy as "the separation of the development rights of land from its ownership, thus enabling the transfer of these rights from the place where development is undesirable to other, more preferable and suitable places". TDR is an instrument shifting future development potential from one property to another. This strategy is mostly used to conserve forestlands, agricultural lands and open space. Designation between sending –market supplying– and receiving –market demanding– areas is the main idea of TDR (Dierwechter 2008).

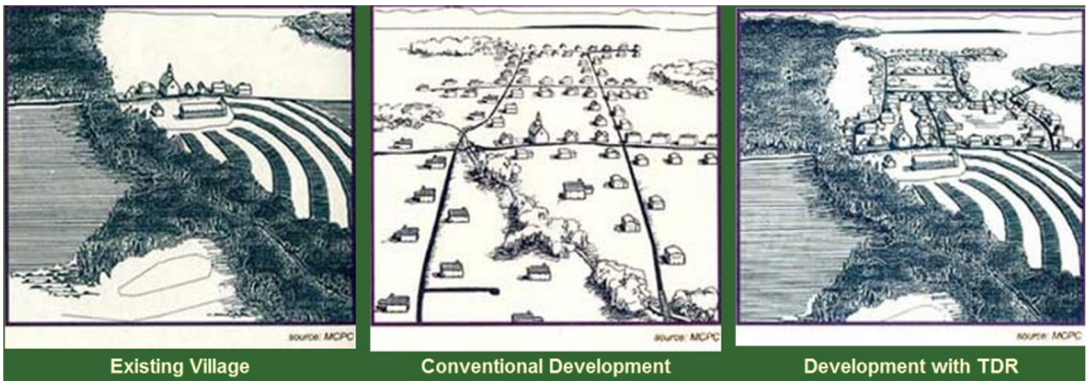

Figure 3.10 Example of TDR applications (Smart Growth Network 2010)

New Jersey Pinelands is a sensitive and ecologically unique area under the pressure of development. Federal and state governments worked with seven counties and 53 municipalities to develop a market-based TDR program. Property-owners derived a profit by selling development rights while the developers buy rights to build the designated areas for growth and the community knows that the green areas will be preserved (Smart Growth Network 2010). Woolwich, New Jersey, is another example of cities applying the TDR strategy. In 2005, the Office of Smart Growth selected Woolwich for TDR Demonstration Project. The plan incorporates a grid network and pedestrian-friendly features for making the new community oriented to people rather than automobile (New Jersey Future 2013).

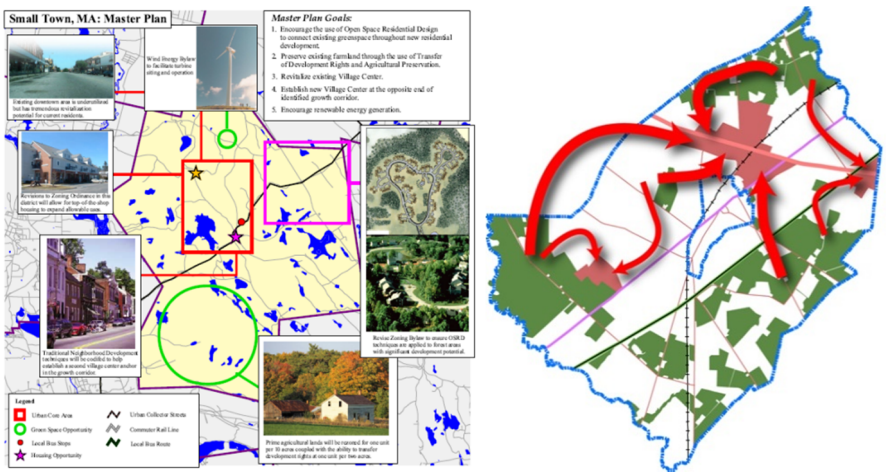

Figure 3.11 Comprehensive Smart Growth Strategy and TDR policies of Massachusetts and Woolwich (Massachusetts EEA 2013, New Jersey Future 2013)

In this regard, the conclusions about transformation of development rights are outlined briefly as follows (Smart Growth Network 2010, Dierwechter 2008, Massachusetts EEA 2013):

- TDR requires a proper participation and management of public sector
- Successful TDR programs are also institutional designs of state to shape the land markets
- The strategy represents an innovative technique for directing urban growth away from the areas that should be protected
- The authorities related to the TDR program should have a clear understanding about the program guidelines
- Establishing of a TDR Credit Bank may be beneficial for a community
- The communities in sending areas should clearly defined the resources they want to preserve.

Shunai (2008) states two reasons for the government to promote transferable development rights: First, TDR can protect land or cultivated land at low cost without considering supervision cost, compared with existing cultivated land protection policies. Second, TDR system provides a policy tool based on the market mechanism to distribute, manage, and protect cultivated land, which can minimize or avoid social welfare loss and economic efficiency reduction resulted from strict policies for land protection.

Transit-oriented development: Transit-oriented development (TOD) refers to a development that involves a mix of uses as working, residential and entertainment areas within walking distance of a transit station. The main goal of TOD is to increase location efficiency. TOD strategy aims to create walkable neighborhoods, generate lasting value for community, to provide transportation, housing and shopping choices and to supply cultural and recreational destinations (Ratner and Goetz 2013).

The New York State Housing Finance Agency targeted concentration for future growth closer to the rail and transit hubs promoting TODs. The State of Connecticut

has introduced the concept of TOD in late 2007 working with local governments, metropolitan planning organizations and private developers to develop TOD plans. The State coordinated the efforts to revive the cities, build strong communities and protect natural resources through establishing the Office of Responsible Growth in 2006 (MTA 2008). In Portland, Metro TODs Program is a prominent example which was created based on Metro's growth management plan for 2040. The focus of the program is providing growth around transit to preserve agricultural land and forest from development. Mixed-use urban density, walkable centers and corridors are targeted with TOD strategy (MTA, 2008).

General aspects of transit-oriented development have these common features below (Arbury 2005, Dierwechter 2008, Ratner and Goetz 2013):

- TOD aims to improve quality of life and create more socially, environmentally and economically sustainable environments
- The strategy tend to invite residents and workers to ride transit more and drive their automobiles less
- TODs focus on to identify activities and corridors in close proximity to public transit
- It puts forward the mass-transit investments as a smart growth instrument to restructure the urban form and increase diversity and justice
- TOD aims to create positive social effects on people with providing daily face-to-face contact.

Traditional Neighborhood Developments (TNDs): TNDs are one of the typical smart growth development alternatives which emphasize walking rather than auto-dependence, traditionally narrow roads, mixed land use, neo-historical housing on small lots and common greens and squares. Most TNDs have been developed on green fields. In fact, that constitutes the main critiques towards TNDs. Not being an infill development, it is accused of promoting a new kind of sprawl by consuming open land without a regional planning framework. Hence, there is no broad planning frame in TNDs projects, unlike other smart growth development approaches. Most realized examples of TNDs are in failure of achieving mixed

land-use objectives. They are generally under the dominancy of residential development. Also, targeting the same economic groups with car-dependant suburban community they are in difficulty to create a more walkable type of urban space (Çalışkan 2004).

Priority Funding Areas (PFAs): The strategy aims to direct growth by identifying where state spending from certain state programs can and cannot go (Dawkins et al. 2012). PFAs are defined as one of the most significant management instruments (Dierwechter 2008). State government used PFAs being a primary policy instruments in Maryland. The Priority Funding Areas Act of 1997 followed up on the smart growth initiative by focusing state funding for highway, office buildings, sewer and water, and State leases toward areas designated to be priority funding areas (Maret 2011). Maryland Department of Planning purposes to reduce the pressure of development on natural resources areas by encouraging development in already settled areas and preserving existing communities through PFA strategy (Dawkins et al. 2012).

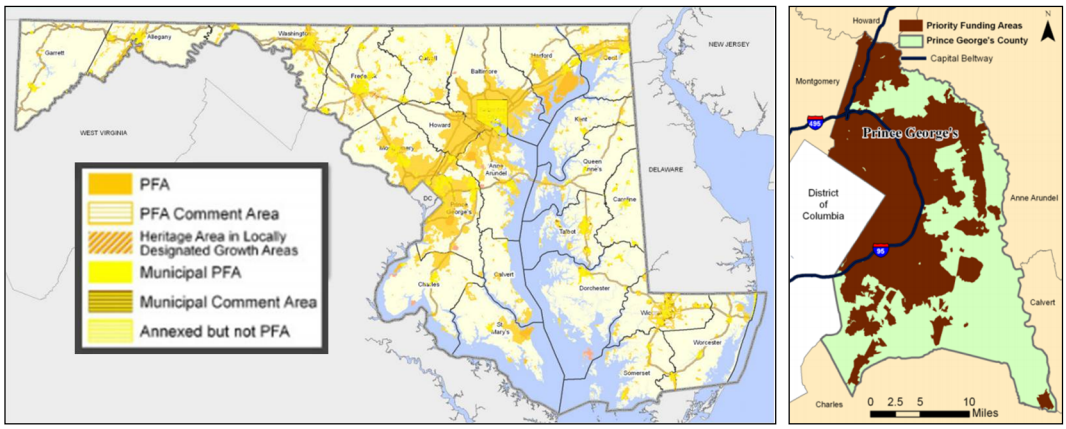

Figure 3.12 Maryland's currently designated Priority Funding Areas (Dawkins et al. 2012)

Common inferences about Priority Funding Areas can be summarized as follows:

- PFAs are generally identified in the comprehensive plans
- the strategy is more efficient when local jurisdictions have lower impact fees and faster approval processes inside PFAs
- PFAs encourage the development with existing infrastructure

- the incentive-based system of PFAs is not effective to avoid development from arising outside PFAs due to the development is not forbidden outside of PFAs.

The policy of PFAs is not very effective on new housing development because of limitation of incentive-based policy, strong development pressure (housing demand), statewide trend heavily influenced by trends of suburban counties and different evaluations depending on the policy goal (Knaap 2013).

Urban Consolidation/Intensification and Infill Development: Infill development is underutilized lots in the established neighborhoods or new construction on scattered vacant and business districts of a community. Infill areas are located near city center and these areas are already served by public infrastructure (Georgia Department of Community Affairs 2013).

A significant number of well-designed infill projects can go a long way toward helping meet air quality goals at the regional level. Infill development aims to reduce consumption of agricultural land and forest, to make better use of urban land and infrastructure, to lower costs of public services, to increase the access of people and to renew older housing stock. It replaces brownfields and abandoned industrial areas with functioning assets. Brownfield's redevelopment programs fund the clean up and redevelopment on industrial sites that have been contaminated with hazardous waste (US Environmental Protection Agency 2007, Georgia Department of Community Affairs 2013).

3.3 Overall evaluation of policies and management tools for urban growth

Urban growth and land-use change models have been expanded and have become more important during the last years. This development was mainly driven by usability of multiple spatial datasets and increased resources. Consensus-building efforts and community-based collaborative planning have also been associated with urban planning at the local level (Besussi 2010). The models have shown potential

to support planning and management decisions in understanding of the dynamics of the urban system, providing knowledge, forecasting future changes, trends development trends and assessing impacts of future development. The models and tools of growth management generally include the strategies for providing the infrastructure required to service growth then focus on controlling the growth pattern.

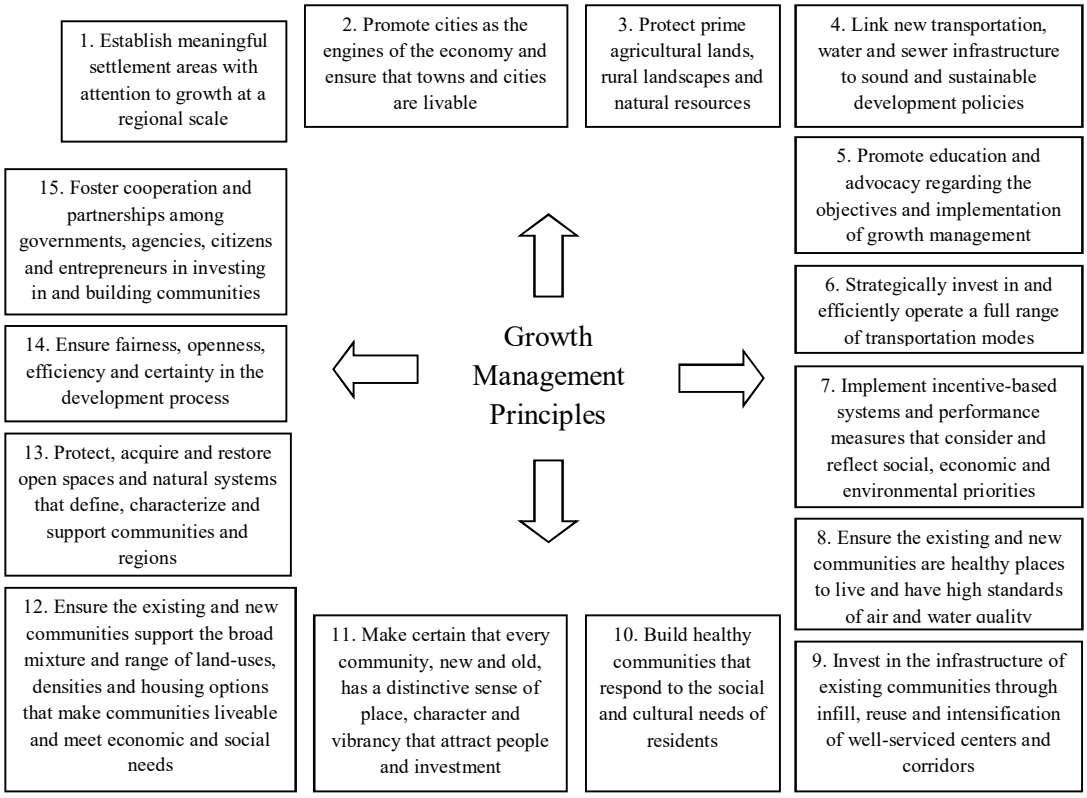

Figure 3.13 Growth management principles and the key ingredients (Hare 2001)

The main challenging issues about managing urban growth are seem to be managing land, physical infrastructure provision, provision of livable and affordable housing and good governance. The reasons of these contradictions can be summarized as (Cheng 2003, University of Moratuwa 2010):

- urban growth process has complicated understanding and complex spatial representation
- interaction between process, pattern and their spatial relationships is nonlinear and dynamic
- neighborhood sizes are locally and spatially varied,

- land conversion includes probability, density, intensity, function and structure and each may have its distinct spatial dependence
- decision-making behaviors are subjective and fuzzy.

According to the literature review successful planning tools to manage and control growth include the factors below (Hare 2001, World Bank 2008):

- a clear vision and a multi-layered comprehensive strategy
- a greater level of cooperation, collaboration and a clarity in definition of the roles of key stakeholders
- innovations in policy frameworks and financial commitments
- flexibility and accessibility
- significant commitment in both time and investment
- financial commitments to support growth management
- limiting large-scale development at the fringe
- providing affordable housing policies for promoting housing choice and diversity
- creating and adhering the policies to protect natural resources
- designating green spaces.

CHAPTER 4

A HISTORICAL REVIEW OF LEGISLATION AND POLICY INSTRUMENTS FOR THE CONTROL OF URBAN GROWTH IN TURKEY

One of the major challenges to be dealt with by cities in Turkey is the control of urban growth and overcoming the unexpected results arising from urban sprawl. This chapter focuses on the legislation and policy instruments directing urban growth and growth control in Turkey. After explaining the relevance of legislation and policy instruments in the context of urban growth, the chapter will present legislation and policy instruments to control growth, major factors influencing the characteristics of fringe, concluding remarks and recommendations including the obstacles of controlled urban growth in Turkey.

4.1 The Relevance of Legislation and Policy Instruments in the Context of Urban Growth Control in Turkey

Successful urban growth control depends upon the predictability of the development process, the protection of agricultural land and environmental resources, demands the reduction of urban sprawl and the more cost-effective provision of public services (Nelson 2004, Owusu 2012). These instruments favor the support of pedestrian-friendly and mass transit development and encourage mixed-use development while protecting environmentally sensitive resources, open spaces and rural character. Urban plans and planning legislation have been the principal instruments to control growth and direct the change of land-uses since the beginning of the last century (Heimlich 2001). Johnson (2008, 2) and Hare (2001) highlights

the importance of a legislative framework, a holistic planning approach and collaboration between key stakeholders in successful urban growth control.

- The legislative framework should permit for a comprehensive implementation mechanism to be used for controlling urban growth
- Legislation should be sought that take into account short term and long term projections for growth, coordinated allocation of resources and financial mechanisms related to development
- Growth control strategies should be regional in focus and should consider the areas beyond juridical boundaries examining the urban area and fringe in a holistic manner
- Multi-layered and coordinated growth control strategies should be prepared for the cities which have rapid growth with a market-led approach. Coordinated and clearly defined roles of key stakeholders have proven to be imperative for effective growth control. In this regard, local jurisdictions should have resources and capacity for implementing growth control strategies.

Legislation and policies are the main instruments for the control of urban growth in many countries. Different parts of the national government administer the land-use related laws while local-level governance provides an effective control system. Urban growth is controlled by the regulations set out in respective laws, such as Nature Conservation Law, Natural Park Law, Agricultural Promotion Areas, Forest Law, Air Pollution Control Law, etc. (Okata 2011, 20). Many countries adopt a strong state-led approach to addressing the challenges of rapid rates of sprawl. For instance, the State of Maryland in the United States introduced Smart Growth Legislation, which is based on limiting state funding to smart growth areas and initiatives. Many state programs such as historic preservation, highway improvements, job creation, brownfield sites, etc. were affected from the “priority areas” concept for state funding and support by the legislation enacted in late 1998 (Dierwechter 2008, 36). The City of London in the United Kingdom, on the other hand, has activated a new policy framework, as well as financial initiatives and

incentives to promote growth control. The city acknowledges that the market forces will be the main driver of development, however, proposes a policy framework for directing growth (Hare 2001). In 1990, Washington State in the United States enacted the Growth Management Act that aims to minimize environmental impacts and land conversion by concentrating growth. Local jurisdictions were needed to work together for preparing comprehensive plans, designating long-term growth control strategies and providing public services and affordable housing (Robinson et al. 2005, 53).

Turkey is a country that has faced challenges related to rapid growth, and which has tried to overcome the unexpected results of urban sprawl. The growth of cities and the effects of sprawl at the fringe have been influenced also by changes in the economic structure, political regimes, legislation and administration in different periods, and so urban growth control has become an increasingly important issue in metropolitan cities that are experiencing rapid growth. The following section examines the legislation and policy instruments related to growth control and investigates the obstacles in the way of successful urban growth control in Turkey.

4.2 Legislation and Policy Instruments to Control Growth and Major Factors Influencing the Characteristics of Fringe in Turkey

The growth of cities in Turkey has been impacted by the changing economic structure, the different political regimes, administrations, population increase and the related need for new development. The foundation of the Republic of Turkey in 1923 ushered in radical reforms in every field. The declaration of Ankara as the capital city, the railroad policy and the establishment of factories across the railroad network after the Great Depression (1929) were important components of urbanization in the Early Republican Period of the country. Urban development was crucial for the realization of the modernization efforts (Tekeli 1998, 1). Ankara was chosen as the capital city, and was earmarked for comprehensive change to create a new lifestyle in accordance with the drive to build a modern society. The urbanization of Ankara was to be an ideal model for all cities in the country, and the

new Republican regime spent significant efforts in other Anatolian cities in order to increase integration at a national level (Şengül 2001, 75). After Ankara became the capital city, urban migration accelerated, driving up the population figures, and to control this growth, the Directorate of Development of Ankara[3] was established in 1928. Ankara was the center of institutional planning, and the experiences gained from the Ankara practices were to be made widespread through the "Law of Building and Roads[4]" in the 1930s. New arrangements were made to regulate planning practices and to increase the role of central institutions in the mid-1930s, with planning units founded under the Ministry of Interior and the Bank of Municipalities[5] established to prepare development plans in the name of the municipalities. Development activities were taking place only within the municipal boundaries, with no precaution taken in this period to direct developments outside the municipal boundary of the cities (Yıldırım 2008, 56). The main problems encountered were the lack of readiness of the administrators for unexpected and uncontrolled growth and the poor economic conditions of the time. Municipalities lacked resources, and so the plans could not be properly put into action (Tankut 1993, 159).

Land expropriation was used as an instrument by the government to control urban growth providing land for future extension. Land expropriation is defined as the compulsory acquisition of private property by the state, according to the strictures of the law, and refers to the acquiring of privately-owned land by a public entity. Governments maintain a provision for land expropriation in case they need to make land available for the public interest. Expropriation should be realized through specific and clear state laws, and these laws should include sufficient safeguards for ensuring the expropriations do not occur arbitrarily. Such expropriations are only permitted in order to satisfy a public interest, and should be used in a fair and transparent manner (Mkhize et al. 2009, 23; Land Expropriation in Europe 2013). Ersoy (2005, 3) also highlights that expropriations should only be made in

[3] Ankara İmar Müdürlüğü
[4] Belediye Yapı ve Yollar Kanunu
[5] İçişleri Bakanlığı ve Belediyeler Bankası

situations that are in the public interest.[6] In Turkey, Municipal Expropriation Law (Law no.583), approved in 1939, was one of the most effective laws for the control of urban growth, and served for the creation of a new city in Ankara, with 400 hectares of vacant land being expropriated for the future extension of a new town. Despite the difficulties in paying for the expropriation, the instrument increased the land stock under public ownership, making the Expropriation Law one of the most effective tools in the conversion of the fringe area. That said, it also faced criticism (Köktürk 1997, 15) for being expensive and difficult for the public sector, time-consuming and the inequalities it caused among individuals.

After the end of World War II, the country went through political, economic and social changes. On the urban side, industrial activities were increasingly privatized, turning cities into points of attraction for both capital and migrants. Land reforms, and the mechanization and modernization of agriculture reduced the need for rural labor, beginning in the 1950s, and the economic and social utilities of the cities strengthened the migration, bringing about a rapid urbanism process. The concentration of social and economic activities in İstanbul, İzmir and Ankara made these the most attractive cities for migrants in this period, and unable to find affordable housing in the inner cities, the low-income groups resolved their housing problem by building temporary unauthorized settlements at the fringes, generally on public lands. Tekeli (1998, 13) states that this massive migration brought about the formation of squatter settlements at the fringes of cities in Turkey, referring to this as "the first period of emerging uncontrolled growth" in the country.

Uncontrolled growth has increased dramatically since the 1950s, and new legal arrangements have been unable to cope with the problem. While urban sprawl tends to signify suburban development in developed countries, it generally means unauthorized housing development by low-income groups in Turkey. The Law of Building and Roads failed to resolve the problem, and so the Development Law (no.6785) was entered into force in 1957, giving the central government the leading

[6] The Decree on Expropriation in the Name of Public Interest (Menafi-i Umumiye için İstimlak Kararnamesi), enacted in 1879, was the first comprehensive law on expropriation, and saw continued use in the Republican Era for many years.

role in planning practice. In a further step, the establishment of the Ministry of Development and Housing[7] in 1958, as the main central institution in the planning process, accelerated planning efforts after it was given the power to plan areas both in cities and villages. Yıldırım (2008, 59) explains that efforts to resolve the development problems faced by the larger cities at this time included extending the boundaries of the plans beyond the municipal boundaries into adjacent areas, including also the surrounding areas. The larger cities in Turkey, and Ankara in particular, had to cope with an unprecedented rate of urbanization. The cities were not prepared for this level of migration, and the state was unable to control the migration or provide enough new houses, which led to the first sprawl movements in the form of unauthorized housing in the period.

The principles of a planned economy were approved to permit structural modifications at the beginning of the 1960s, and the concept of a social and welfare state were introduced. An import-substituting industrialization model was implemented to drive the economic development of Turkey (Yıldırım 2008, 60), with Metropolitan Planning Bureaus established in İstanbul, Ankara and İzmir in 1965. The bureaus were given the responsibility of preparing urban plans, although large-scale migration from the rural to urbanized parts of the country continued in this period (Tekeli 1998, 16).

The Law of Property Ownership,[8] enacted in 1965, and the Squatter Law[9] (law no.775), enacted in 1966 aimed to find a long-term solution to the unauthorized housing problem. The laws were transformative interventions, aimed at rehabilitating the existing unplanned housing areas, cleaning them when upgrading was not possible and preventing further sprawl through the establishment of Illegal Housing Prevention Zones. Unauthorized settlements were legally defined in Turkey with the Squatter Law. The Law of Property Ownership affected the number

[7] İmar ve İskân Bakanlığı
[8] Kat Mülkiyeti Kanunu
[9] Gecekondu Yasası

of permitted stories on a building, and the build-sell production method, yapsatçı[10] in Turkish, gained popularity. Accordingly, the low-rise housing stock was replaced by high-rise apartments within a few years, and the share of small-scale house builders in the production of housing increased in a short time. The enactment of these laws affected considerably the current structure of fringe, as well as the city center.

Starting from the 1970s, the restructuring of cities began as part of the capitalist industrialization process (Özler 2012). New structural changes occurred with the beginning of car production in Turkey, which led to an increase in the number of car owners, and production activities began to move from the city center to join the heavy industries located at the fringes (Yıldırım 2008, 62). The decentralization of industrial areas and services was an important factor affecting urban growth, with especially the urban fringes of metropolitan cities being affected by travel behaviors. Tekeli (2000, 30) refers to the cities in these years as having an oil-drop form with an ever-increasing density, and highlights the problems of infrastructure and traffic congestion that continued to exist and increase, especially up until the mid-1970s.

The beginning of the 1980s saw an economic crisis in the country that brought about a Re-Adjustment Decision inciting economic liberalization, and the Turkish Armed forces intervened (Tekeli 1984, 232). The economic liberalization, backed by structural adjustment policies, demanded greater involvement in the industrialization effort, and this shift in economic policies led to the urban space being more open to the manipulations and speculations of capital. After such a transformation in economic strategies, investments into large-scale industry were abolished and capital started to be invested into the built environment in the country's major cities (Yıldırım 2008, 63).

[10] Middle-income families could not afford to build 1–2-story houses by themselves, which encouraged the rise of the build-sell system. Individual production of multi-story apartments by private developers ended with multiple ownership of one building plot (Çalışkan 2004, 164)

The number of new laws and authorities related to planning increased significantly, beginning in the 1980s. The Mass Housing Laws,[11] 1983–1986 Building Amnesty Laws[12] and Development Law[13] were enacted during the 1980s, and different institutions were given authority over the same areas as a result. The Mass Housing Laws were enacted to address the decreasing housing demand that accompanied the economic crisis in the housing sector. In line with the law the Ministry of Development and Housing was to oversee the construction of mass housing projects, and the sale of housing units through fund loans. Cooperatives were able to gain financing as a result of this law, but the system did not work properly due to the financial problems. Consequently, a subsequent law, namely the second Mass Housing Law (law no: 2985) was enacted in 1984 after the election of the new liberal government (Altaban 1996, 33). Şenyel (2006, 62) states that the second Mass Housing Law saw the granting of credits to cooperatives alongside producers and individuals, and consequently, thousands of cooperatives and individuals applied for mass housing fund, bringing about rapid rise in the number of new houses in a short notice. In this way the housing cooperatives pioneered suburbanization by implementing mass housing projects at the urban fringe.

The Amnesty Laws enacted between 1983 and 1986 allowed many people to own their own property, however this transformation occurred in an unhealthy way, as no land was allocated for green spaces, roads, squares, etc. In 1984, a new administrative order was introduced in the metropolitan cities named as Greater Municipalities with law no.3030. The metropolitan areas considered the boundaries of the greater municipality. Yıldırım (2008, 65) claims that the boundaries were not defined considering any scientific aspects, and the metropolitan area of influence was not taken account when they were being determined. The boundary definition excluded several settlements that should have been in the metropolitan area in terms of their economic and social relations. The Development Law, enacted in 1985, defined the fundamental principles of urban planning, and gave direction to a solution to the problems. Approval authority was given to the Municipality for areas

[11] Toplu Konut Yasaları
[12] 2205, 2981, 3290, 3360, 3364 ve 3366 no'lu Af Yasaları
[13] 3194 sayılı İmar Kanunu

within the boundaries of adjacent areas, and to the provincial governorship outside the adjacent areas.

Balaban (2012, 28) notes the rapid urbanization between 1950 and 1985 in Turkey, when the population more than doubled in cities, causing a dual spatial structure in which informal and formal settlements existed side by side. Nearly half of the built stocks in Turkey's largest cities have been built illegally and informally, it is commonly accepted, and many unauthorized houses have become a commercial asset. Amnesty implementations and the provision of municipal services led to the construction of unauthorized apartment blocks by small-scale speculative house builders, and the legislative efforts have not been enough to resolve the sprawl problem, with cities beginning to give off signals of congestion at the beginning of the 1980s. Before 1980, the urban fringe was opened for settlements generally with migration, but since 1980 these regions have become targets of the cooperative housing demands of the middle-income groups in metropolitan cities (Günay 2007, 37).

In the 1990s, the policy of privatization gained importance. The Privatization Law[14] enacted as a major step in the privatization of state-owned lands and state enterprises. The Law, while transferring planning power over privatized lands to the Privatization Administration, had affects that challenged the nature and content of planning processes. Although the planning powers of the Privatization Administration in certain cases resulted in disagreements between municipalities and administration, municipalities welcomed the investments in general, which are generally into the production of built environment and large shopping malls. Privatization began with the privatization of public services in the mid-1980s and extended to state economic enterprises in the 1990s (Keskinok 2015, 92). Keskinok (2006, 106) criticizes that privatization and planning brought about two opposing forms of development. While the former promotes the unequal development of the market, the latter seeks to control the planning and organization of development in an equal way for the public interest. This law and institution are in conflict with the

[14] Özelleştirme Kanunu

planning system, in that with the privatization, common property and lands have been sold to big capital holders, meaning that the law created an environment that was suitable for speculation. Similarly, Yıldırım (2008, 66) suggests that local government started to open to development more land than was needed, and tried to make urban land more attractive to big construction firms. The urban space was perceived as a commodity with a high exchange value, with plots of land becoming suitable for land speculation and sprawling of cities started to become uncontrolled rather well.

The decentralization of large-scale investments and the site selections of high-income groups were the major factors influencing the characteristics of the fringe areas during the 1990s. Large enterprises increased their power making large-scale investments into the building of edifices such as shopping malls, five-star hotels and business centers, making major Turkish cities a market of speculative profits (Şengül 2001, 89). Traditional Central Business Districts (CBD), as a consequence, have become partially less attractive for new generation of investors. CBD was becoming increasingly densed, leading the investors to prefer to locate their offices and new shopping centers along these corridors (Kocabaş 2004, 118). Social mobility also influenced the characteristics of fringe areas, as explained by Yıldırım (2008, 66) and Günay (2007, 38), who state that people with high incomes began to look for a new lifestyle, leaving the city center and settling around the urban fringe in more luxurious homes and more secure communities, referred to as gated communities, that were isolated from the other parts of the city. The increase in car ownership played an important role in these decisions.

As neo-liberal policies began to impact upon urban areas, new legal arrangements were put in place that changed the boundaries of cities and the authorities of municipalities. The Metropolitan Municipalities Law[15] (law no. 5216), the Provincial Local Administration Law[16] (law no. 5302) and the Municipality Law[17] (law no. 5393) were granted approval in 2004 and 2005. The boundaries of

[15] Büyükşehir Belediyesi Kanunu
[16] İl Özel İdaresi Kanunu
[17] Belediye Kanunu

Turkey's greater municipalities were expanded as a result of the implementation of the Metropolitan Municipalities Law, and the responsibility for preparing 1/1000-scale Implementation Plans as local plans were given to the district and town municipalities. The law gave local authorities responsibility over public lands, while the Provincial Local Administration Law stated that "the provincial land use plan is to be prepared by greater municipalities and the provincial local area administration under the coordination of the governor, and will later be subject to the approval of both the municipal and provincial councils". Keskinok (2006, 56) claims that the Municipality Law could be perceived as the beginning of a process of privatization of the municipalities. According to this law, Municipalities could establish enterprises and go into debt for works needing foreign resources by taking the permission of the Undersecretary of the Treasure. The other legislation affecting the fringe to a significant degree was the change in the Mass Housing Law. The authority for preparing the plans on lands was given to Mass Housing Administration[18] (MHA) with law no. 5162 in 2004, a result of that large amount of mass housing projects were began to be constructed in almost every city and at their fringes by the MHA, in the wake of the legal and institutional changes.

The lack of control and participation related to this point is emphasized by Ersoy (2007, 78), who (2013, 10) indicates that 13 provinces were declared as metropolitan municipalities in addition to the existing 16 metropolitan municipalities with Law no. 6360[19] in 2012. The boundaries of metropolitan municipalities were extended to the provincial border. Accordingly, 1022 town municipalities were closed and their planning authorities were transferred to metropolitan and district (ilçe) municipalities. Planning at an upper-scale by a single authority was deemed an appropriate approach to prevent fragmented development, while also strengthening the authority of metropolitan municipalities with Law no. 5216. This transfer of planning authority was criticized in terms of its connection to the planning principles, and due to the need to prepare the implementation plans by the local municipality as the closest unit to the community.

[18] Toplu Konut İdaresi Başkanlığı (TOKİ)

[19] On Üç İlde Büyükşehir Belediyesi ve Yirmi Altı İlçe Kurulması İle Bazı Kanun ve Kanun Hükmünde Kararnamelerde Değişiklik Yapılmasına Dair Kanun

4.3 Concluding Remarks and Recommendations

The administration, planning legislation and policy instruments have a major role to prevent sprawl and to direct urban growth. In accordance with literature on urban growth in Turkey and the in-depth interviews with planning experts, the difficulties of growth control and the obstacles of controlled urban growth can be inferred as authority confusion, partial implementations in planning, lack of land management policies and housing policies that lead to housing oversupply examining a historical perspective. This section explains these matters including recommendations gathered from several researches in literature and the in-depth interviews.[20]

4.3.1 Authority confusion

Despite the legislation and policy instruments aimed at growth control, confusion exists among both the central authority and the greater city municipalities and the different ministries due to the division of responsibilities in the legal arrangements related to the planning process. The problems continue in the implementation and monitoring phases of such regulations (Altaban 1996, 35; Çalışkan 2004, 175; Yıldırım 2008, 65): The greater municipality had the responsibility of preparing or the development plans, or for having them prepared. For the areas outside the boundaries of the greater municipality, the town municipalities were responsible for providing planning approval of locally prepared plans, but in practice, conflicts emerged at this point. The local plans prepared for the town municipalities did not consider upper-scale policies, and planning authorities were diversified and metropolitan areas were fragmented within boundaries of the greater municipalities. Provincial governorships acted independent of the upper-scale plans under the power of the law, and also built residential areas and working fields outside the adjacent area as they saw fit. The laws accelerated the settlement process outside the determined boundaries of plan, and plan production and implementation processes became more partial than they had been in the previous period. Çalışkan (2004, 175) emphasizes that the urban forms in Turkish cities could not be shaped

[20] Özdemir 2007, İnşaat Mühendisleri Odası 2011; Özler 2012; Ersoy 1995, 40; Yıldırım 2008, 69; Ersoy 1997, 2; Ersoy 2013, 21; Balaban 2012, 34; Turkey Habitat-III National Report 2014, 13

and controlled by a holistic framework for this reason, and this confusion has increased sprawl and created less controlled areas at the fringe.

4.3.2 Piecemeal implementations in planning

Piecemeal implementations through partial plans and plan amendments are factors that accelerated uncoordinated development within cities and triggered urban sprawl. Such plans increased the dispersed and fragmented form of cities, affecting particularly the fringe areas of metropolitan cities, and Ersoy (1997, 2) mentions that 20,787 amendment plans were approved between 1965 and 1978 in Turkey. In the 1980s the concept of competitive cities and regions was introduced as an external intervention under the impact of neo-liberal policies. Özler (2012) commented that the enactment of new laws after the 1980s in line with the neo-liberal policies reflected a new liberal ideology. As a result of the new policies, the number of amendment plans increased significantly after the 1980s with the transfer of authority to local governments (Ersoy 1997, 2), and the production of urban space began to be directed through piecemeal urban plans. Central and local governments promote urban redevelopment projects and new mass housing areas and cooperatives at the fringe through upper-scale plans, partial plans[21] and amendment plans, which were generally prepared by private planning bureaus and approved by the central government (Özler 2012). The private sector dominated and focused on housing production in the country, and as a result, the housing sector continued to be one of the most important sectors in the integration process of the neo-liberal economy and privatization.

Ankara has witnessed housing and infrastructure investments at the fringe through piecemeal implementations from the beginning of the 1930s. While the initial partial plans proposed low-density residential developments, the ones that followed in the 1960s exceeded the boundaries of the planned areas (Şenyel 2006, 86). The application of partial plans, partial plan revisions and amendment plans accelerated

[21] There no statistical data or records explaining how many partial plans and amendment plans have been made in Turkey since 1985, since these plans are both made and approved by the municipalities. Furthermore, no extensive research into this subject has been made (Ersoy 1997, 2)

the uncoordinated development of the city, especially after the 1980s, contributing to the urban sprawl.

Considering the piecemeal development practices, monitoring and recording partial plans and plan amendments emerges as an important issue, and the lack of a monitoring process in the application phase of urban plans has been criticized as one of the most significant deficiencies in the Turkish urban planning system (Kentges 2009, 9; Ersoy 2013, 11; Yazar and Dede 2012, 43). Ersoy (2013, 11) points to the lack of control mechanisms and an official body for controlling and monitoring planning implementations as one of the main problems in the current planning system, citing judicial control as the only control mechanism in this regard. He highlights the role of expert witnesses (bilirkişiler) in the judicial process in dealing with disputes related to urban planning. Obtaining approval of partial and amendment plans should be limited and planning documents should be archived for these reasons.

4.3.3 Lack of land management policies

One of the most important roles of public land is as an instrument for the control of growth. There is an obvious need within countries for long-term land policies that provide better urban development strategies, while long-term land policies need reliable economic conditions and authoritative legal regulations. If an adequate institutional, legal and political framework has been created, civil society can play an enabling role in implementation of the land administration and land policy (Kötter 2009, 6). In Turkey, land policies related to the control of urban growth have not been determined clearly in legislation, and it is possible to see that less-controlled areas have become preferable for developers in terms of land speculation.

In the Turkish case, planning practices and institutions have become more market-oriented with short-term perspectives given the increasing power of market forces from 1980 onwards. The strategic role of land management has increased. Land management without a planning framework and proper urban policy isolated the

very aims leads to the collaboration with deregulation policies and with narrow criteria of the market, i.e. the loosening of planning controls over land development. Under deregulation policies, the movement of capital into the real estate activities in accordance with the profitability criterion has resulted in development of land based on the assignment of overabundant development rights to privatized state-owned real estate. Turkey's larger cities in particular suffer from excessive planned lands problems and there has been a change to management oriented land development from policy oriented development planning, which is based on the narrow and short-term rationalities of market. Rapid, unforeseen and unprecedented urbanization dynamics shape the urban development characterize in the country. That said, planning is a task aiming not at short-term rationalities, but rather at long-term rationalities to achieve rationalities for human societal development and social development objectives. Such a case in planning conflict with the land development strategies identified by deregulation policies, which alongside the loosening of zoning controls has resulted in a planning framework based on a narrow rationality of real estate markets, and thus uncontrolled urban growth at urban and regional levels (i.e. urban sprawl, production of excessive planned land, etc.). Local government policies has promoted this growth, and the resulting local government-supported and uncontrolled urban growth patterns have brought about unsustainable and irrational land-use patterns in Turkey's larger cities (Keskinok 2015, 90).

Despite the lack of efficient land management policies, the infrastructure for the better management of lands has continued as stated in the KENTGES Report (2010). This report indicates that the works in Turkey to establish an information infrastructure, as one of the main elements of land management, are quite advanced, while related institutions are fulfilling works for the digitalization of the cadaster information and land registry to manage better the urban and rural lands. Spatial Real Estate System and Land Registry and Cadaster Information System are being used for the aim of defining problems and identifying answers through analyses of land registry and cadaster services across the country through a land information system and a geographical information system. This has converted the cadaster services and land registry into a standard electronic form, providing public

organizations, public institutions and local administrations with reliable, up-to-date and correct information. Real Estate Databank was also constituted involving the digitalization of the records of public lands, and now the supervision, management and control of all operations connected with this real estate is applied through the National Real Estate Automation Project. Municipalities continue working to generate urban information systems for managing urban land by accessing urban information. A data standard for urban information system has been produced by Ministry of Environment and Urbanization for permitting the compatible implementations of these practices with reference to the data standards and guidelines (Kentges 2010).

Renewing suitable areas in the existing city may prevent the urban sprawl, while enabling transfer of conservation zones and public service areasto public interest should remove the current pressure of development in these areas. Municipalities should be given the power to control and regulate rents in urban area for social purposes, and the transfer of property rights should also be exercised. It should be probable to define such areas as historical and natural protection areas, recreation sites etc. as preservation districts through TDR. Service provision methods should be also considered from a new perspective to facilitate accesssing the services in metropolitan municipalities, decreasing the costs of infrastructure services and protecting ecologically sensitive zones, agricultural lands, forests and pastures within expanding service areas.

4.3.4 Housing policies that lead to housing oversupply

Real estate and construction activities impact upon the population in fringe areas. While housing shortages were a major problem in the 1950s, with new transportation and service infrastructures at the fringe, an oversupply of housing has occurred in the 2000s, increasing the building and population densities at the fringe area. The applied policies caused unlimited growth in cities, and the natural characteristics of the fringe were affected by these changes, where more than adequate housing has been produced encouraging sprawl.

Balaban (2012, 26) explains that the construction sector is generally accepted as the engine that triggers economic growth because of forward linkages with other sectors and it's strong backward. Nonetheless, a rapid increase in construction activity can also bring about a range of challenges in spatial, environmental and economic terms. An overexpansion of construction activity can cause negative environmental and spatial impacts, including intensification of environmental deterioration as a result of urban sprawl, pollution and the destruction of vegetation. He remarks that 2002 and 2007 saw a construction boom in Turkey in which the share of construction sector in GDP increased consistantly after 2001 to reach a peak of 6.5 percent in 2007. The public sector also contributed to construction activities, with the government taking outstanding steps to encourage private developers and public agencies to initiate large-scale urban redevelopment projects. The boom in the 2000s could be differentiated from the boom realized in the 1980s, which was caused by domestic forces, in that it was capital inflows and foreign demand that had the significant role in the recent boom.

In the 2000s, the construction boom occurred in an unplanned manner to a large extent and little attention paid by national and local governments to manage in more sustainable and planned ways. All duties of former Land Office were transferred to the MHA, providing it with 64.5 million m² of public lands that could be used to develop housing projects. In the following period, a considerable number of mass housing projects were occurred in almost all cities by the MHA. Mass Housing Administration built 445,000 housing units from 2003 to 2010 (Balaban 2012, 29), and many of these projects were proposed on lands with no building stock, or very few, if any, at the fringe. The most important consequences of these projects were increasing urban sprawl and the creation of high-density developments at the fringe, contributing automobile-reliant life.

Figure 4.1 Mass Housing examples of MHA in Turkey
(http://www.toki.gov.tr/uygulama/illere-gore-uygulamalar, December 2015)

Monotype projects have been located at the fringes of different cities in standardization and excluding manner of existing lifestyles. The pressure on natural resources and the damage inflicted on the natural ecosystems have seemed to continue to increase with the spatial project area proposals of upper-scale plans and partial planning approaches.

Rehabilitating and renewing some parts of the existing housing stock in the city should prevent the emergence of new high-density residential areas at the fringe area. There is a need for housing policy to minimize the environmental footprint of housing construction in Turkey. In this regard, it should be provided that the public sector follows the principles of sustainable construction in its actions and construction should be mainstreamed into public policy-making (Balaban 2012, 34).

4.4 Recent Studies into Growth Control

Alongside the changing legal framework and the implementations of plans, there have been many studies analyzing the consequences of urban sprawl since the mid-2000s.[22] These analyses have sought to measure land-use change at the fringe and to project urban growth using alternative scenarios. By modeling urban growth and

[22] Yüzer et al. 2005, Yüzer et al. 2006, Doygun et al. 2006, Şevik 2006, Terzi et al., 2006, McAdams M.A. 2007, Karakuyu 2007, Terzi et al., 2008, Sancar et al., 2009, Çubukçu et al., 2009, Ayazlı et al., 2010, Dubovyk 2010, Turan et al., 2010, Dubovyk et al., 2011, Oğuz 2011, Terzi et al., 2012, Oğuz 2012, Akın et al., 2013, Nurlu et al., 2013, Baysal 2013, Hepcan 2013, Atak et al., 2014, Erdoğan et al., 2014, Büyükcivelek 2014, Ayazlı et al., 2015, Kowe et al., 2015, Akın et al., 2015, Öztürk 2015, Bozkaya et al., 2015, Terzi 2015.

measuring changes in land-use, it is possible to comprehend the growth dynamics and predict possible growth, and planning authorities can use these models to understand the potential impacts of alternative growth scenarios, and also to see effects of different policies in the future, and so take the necessary precautions in a timely manner. That said, the modeling of urban growth has been largely ignored by planning authorities, although it had featured in scientific researches up until the mid-2000s in Turkey, most of which aim to measure the growth of the urban area, to categorize the land-use, to generate new ideas to understand the process of urban change, and to test the effects of possible predictions and scenarios. The growth of the city is analyzed, and the causes and effects of growth are investigated using satellite data. Recent studies show that the use of high-resolution datasets for modeling, observing patterns in the spatio-temporal situation, and analyzing past urban changes can facilitate the prediction of land-use changes according to multiple scenarios. Previous literature has found that fractal-based models, remote sensing techniques and the Sleuth model can be effective in the modeling of urban growth, and the combined use of these methods in growth control and planning are also stated in most studies on urban sprawl and growth management. Planning practices in Turkey need such instruments to avoid the possible problems that can arise as a result of sprawl and its negative effects.

CHAPTER 5

URBAN GROWTH PROCESS AND GROWTH CONTROL AT THE URBAN FRINGE: THE ANKARA CASE

This chapter elaborates upon the urban development process in Ankara in a historical manner, with particular emphasis on its fringe, i.e. how the urban fringe has been characterized in different planning periods. It aims to identify the growth control strategies of different plans for the city, and evaluates whether these strategies (including the proposals for the fringe areas) were performed effectively, while seeking to identify any influential factors in their implementation.

5.1 Urban Growth and Policy Instruments to Manage Growth in Ankara

The fringe area of Ankara can be described in five periods. The first period, which begins in the 16th century and lasts until the early 20th century, refers to an era prior to any urban planning efforts. The following periods, meanwhile, are identified with reference to different planning experiences, strategies and policy tools for the control of growth, as well as legal arrangements and implementation processes:

- Vineyards, gardens and agricultural fields at the fringe: The period prior to urban plans
- Expropriation, new city beyond natural thresholds and greenbelt policy: The early planning period – The Lörcher and Jansen Plans (1924–1957)
- Concentration in the topographic bowl: Yücel-Uybadin Plan (1957–1977)
- Decentralization policy and growth along the corridors: Ankara Metropolitan Plan 1990 and partial plans (1977–2006)

- Large-scale partial plans and urban transformation projects at the fringe: Ankara 2023 Master Plan (2006 onwards)

5.1.1 Vineyards, gardens and agricultural fields at the fringe: The period prior to urban plans

Ankara, located in northwest Central Anatolia, is situated upon a rocky hill surrounded by low mountains. The region is characterized mainly by a continental climate, and the prevalent vegetation consists of steppes. In its thousand-year history a wide variety of civilizations (Hittite, Phrygian, Hellenistic, Roman, Byzantine and Ottoman) have settled in Ankara.

The 16th century was an important period for Ankara due to its developed market economy based on agricultural production and husbandry. The city played a significant role in the food and textile trade, with the predominant production being mohair. During this period, Ankara was a second-level province (sanjak) in Anatolia, and the city saw a broad range of ethnically diverse cultures. Fişek (2003, 176) states that there were 2,000 Muslim, 120 Christian and 30 Jewish houses in the city.

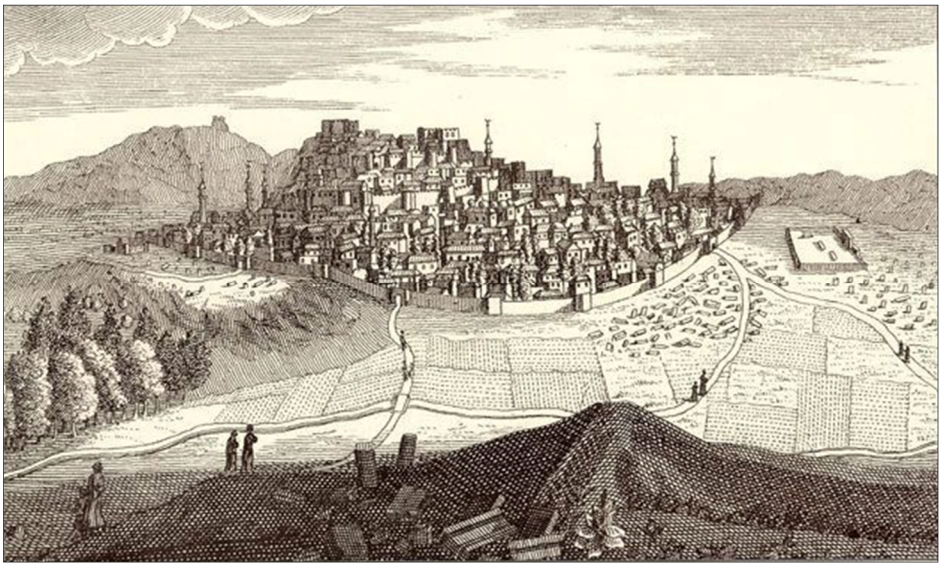

Figure 5.1 Ankara in 1711
(Illustration by Joseph Pitton de Tournefort, Tunçer 1985)

In the 17th century, Ankara continued to exist as a center of manufacturing and trade, confined within the Citadel walls. The Bendderesi creek and Altındağ hill were the thresholds to the north and north-east, which created a valley. The city walls and Bendderesi were major boundaries of the settlement. The residential area was in the Citadel and in the Hisar district, and the adjacent 5 ha area around the Citadel. Agricultural and commodity markets such as Atpazarı, Koyunpazarı and Samanpazarı, as well as the older neighborhoods, were located to the south of the Citadel, while the fringe comprised agricultural lands, hills and cemeteries.

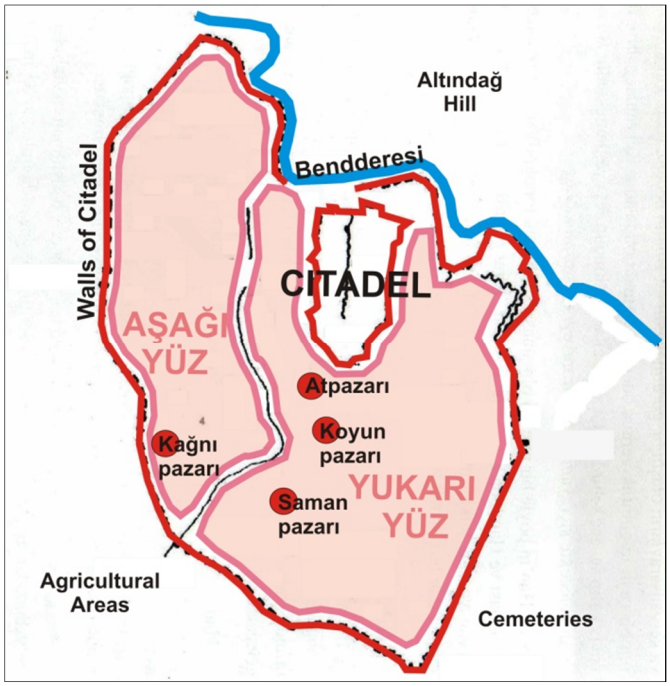

Figure 5.2 City walls and Bendderesi as the threshold of the settlement in the 17th century

The city maintained its multicultural structure into the early 1800s, and its multiculturalism increased with the migration of 20,000 Armenians from İstanbul to Ankara in 1829. Aktüre (2001, 38) claims that Turkish-Muslim, Catholic-Armenian, Orthodox-Armenian, Greeks and Jews lived together within the city. Of the 86 neighborhoods outside the Citadel, 54 were home to Muslim residents, while 16 hosted non-Muslims. A further 16 neighborhoods were home to both Muslims and non-Muslim residents.

The demolition of the 300-year-old outer walls of the Citadel and the arrival of the railway to the city led the growth towards the plain in the 1890s. Consequently, the walls were no longer the boundary of the city, although Bendderesi and Altındağ Hill continued to be the limits to the north. New land-use patterns emerged at the fringe, such as the grid-formed Bosnian neighborhood in the east of city, the railroad district and the vineyard houses in Dikmen, Çankaya, Keçiören and Etlik.

Figure 5.3 Walls of Citadel (left) and Bendderesi (right)
(Vekam Archive 2015, 0232, 2532)

Aktüre (2001) and Güçhan (2001) discuss three major reasons for the increase in the number of vineyards and vineyard houses at the fringe, with the first of these being the Ottoman Land Code[23] of 1858 that classified lands and defined the rules of use and transfer, and gave the right to ownership of private property to small farmers. The second reason was the cancellation of the restrictions on real estate acquisitions by foreigners and a rapid exchange of agricultural areas around the city. The third reason was the arrival in Ankara of the railway in 1892. In addition to being residential, the vineyard houses were also used for production, bringing a new source of income to families, who produced cereals, fruit and vegetables as the commercial product in their vineyards. As a result, viticulture surpassed the textile trade, and the vineyards become a significant part of the fringe area. Şenyapılı (1985, 11) claims that the area was home to almost 2,000 vineyard houses in this period. According to Georges Perrot, who visited Ankara in 1861, the vineyard

[23] Osmanlı Arazi Kanunnamesi

houses were inhabited by all segments of society, whether Muslim or Christian, rich or poor. Ortaylı (1990, 64) suggests the people who owned the vineyards in Dikmen and Çankaya were able to tolerate the north wind, while those who had vineyards in Keçiören and Etlik preferred the softer air.

There were 11,646 Armenians in the city in 1914, but the majority lost their homes to the fire of 1917, and they migrated to İstanbul, İzmir and other provinces (the 1927 census puts the number of Armenians living in Ankara at 705). Aktüre (2001, 55) indicates that the "commercial bourgeoisie", namely the Armenians, left the city, causing a proportion of the vineyards in Keçiören and Etlik to be left empty or to change hands.

In summary, as seen in Figure 5.4, the fringe area comprised the Bendderesi, swamp lands and Altındağ Hill (natural and topographic thresholds) to the north, the agricultural areas (producing cereals and tobacco) through the plain extending to the southern and western sides of city, and the gardens and vineyards on the northern, south-eastern and southern sides of city at the beginning of the 1900s.

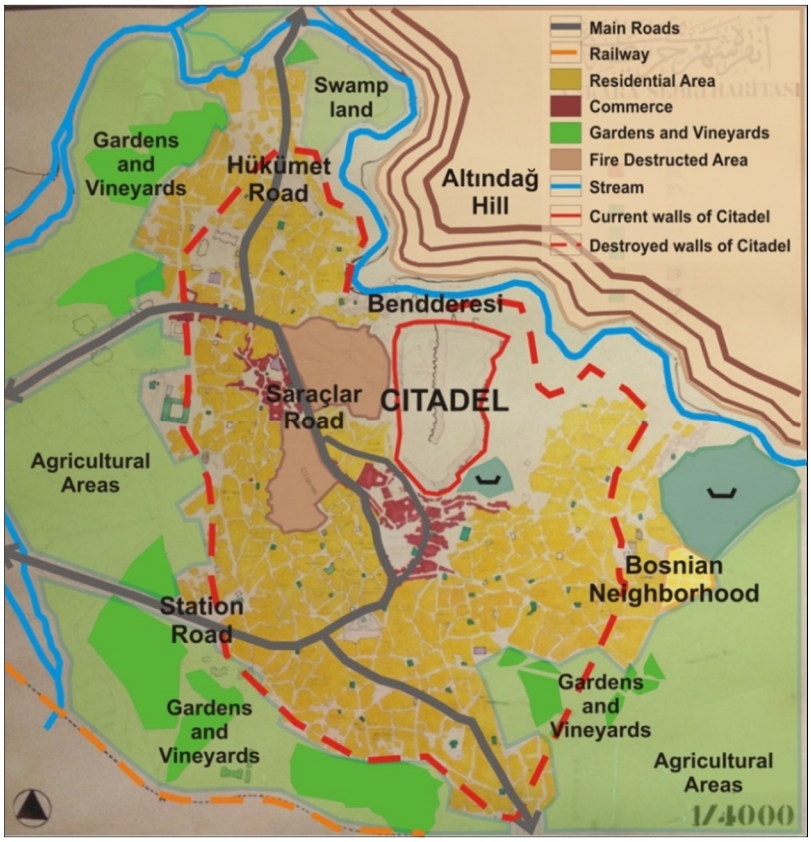

Figure 5.4 Settlement and fringe of the city at the beginning of the 1900s (schema drawn by author over the 1924 Şehremaneti Map)

The year 1923 was significant for the political and spatial structure of city. The founders of the Republic chose Ankara as the capital of the new Republic, given its equidistance in terms of transportation and communication from all parts of the country. Tankut (1993, 46) claims that the motivation behind this choice was the need to move away from the old capital and the concentration of colonial-imperialist influence, and the proclamation of the Turkish Republic on 29 October, 1923 underlined the beginning of a new era in the new capital city of the young Republic. The primary concern of the first planning efforts was to produce a new and exemplary physical environment related to a new lifestyle.

5.1.2 Expropriation, new city beyond natural thresholds and greenbelt policy: The early planning period – The Lörcher and Jansen Plans (1924–1957)

After Ankara had been selected as the capital city, the first concern of the administrators was to establish an organization to coordinate implementations in the

physical environment. Accordingly, the existing municipality was transformed into the Ankara Şehremaneti[24] with the Şehremaneti Law (law no.417) in 1924, which defined the city of Ankara as the area including vineyards, gardens, agricultural fields and pastures within the limits of the surrounding hills. This boundary was determined on a 1/4 000-scale Şehremaneti map in 1924, and after the determination of the municipal boundaries, the first urban planning attempts came to the agenda. Urban planning was a crucial tool for comprehensive change and the creation of a new lifestyle, in line with the primary goal of the state to create a modern society.

The population of Ankara was around 25.000 in the early 1920s and the city was largely dilapidated as a result of the fire. The rapid increase in state employees highlighted a problem with housing supply, and the responsibility of resolving the problems of housing and construction was given to the Ankara Şehremaneti. The first plan was prepared by German planner Carl Christoph Lörcher in 1924 involving the old part of town. However, the plan was rejected because of the design ideas to transform the historical urban fabric. A year after the Lörcher plan, the Municipal Expropriation Law (law no.583) was enacted and 400 hectares of vacant land to the south of the railway was expropriated by the government for the future extension of a "new town". The Expropriation Law was one of the most effective tools in the conversion of the fringe area, and Altaban[25] (2015) claims that it was quite important in terms of its role in the creation of the new city and in providing public interest through the tax value.

In the same year, to create a new plan for the land which had been expropriated to constitute the new town, Lörcher was invited and the plan was approved immediately by the Municipal Commission in a bid to overcome the housing crisis. The plan displayed Garden City characteristics, featuring low density housing with gardens and a grid street system, and the Citadel was considered a focal point and

[24] Şehremaneti was the name of the institution that provided municipal services in the Ottoman era. The organizational and legal aspects of urban planning and development were established by this institution.
[25] Interview date: 02/26/2015

an active symbolic component, beside its historical characteristic. Two-story houses and narrow streets were planned for the old city, and a new administration area was proposed in Çankaya. A prestigious axis in an east-west direction was proposed for ceremonial purposes.

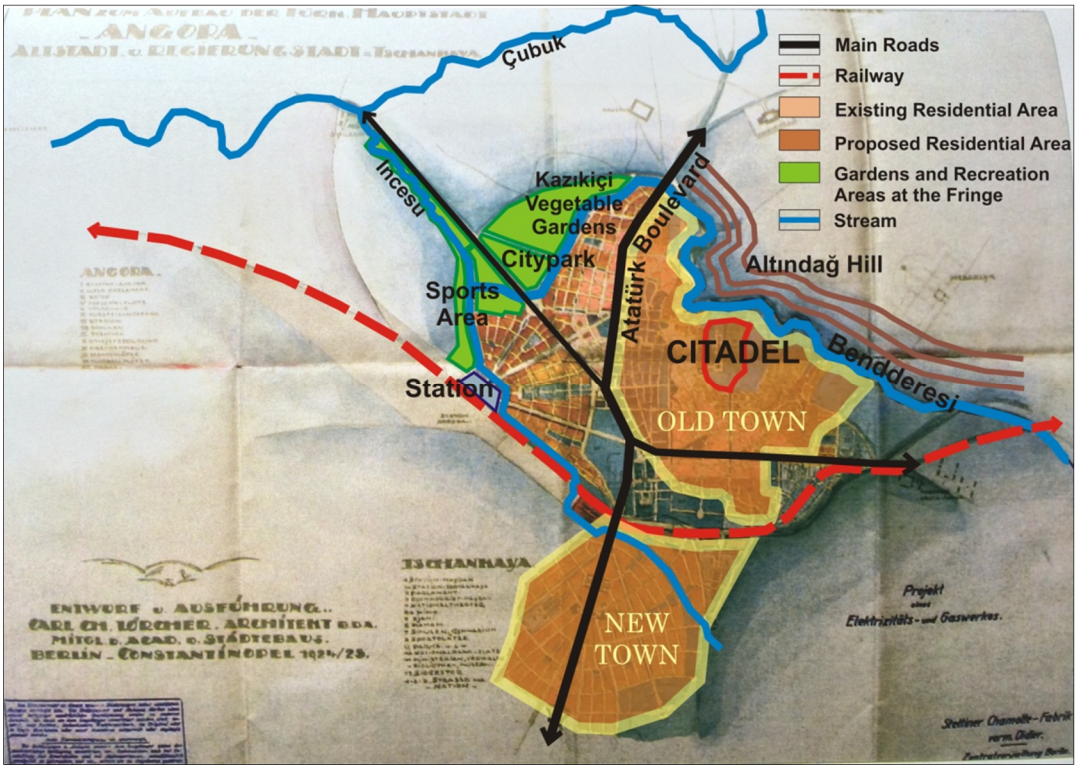

Figure 5.5 Thresholds and plan decisions at the fringe in the Lörcher Plan (schema drawn by author over the Lörcher Plan)

Although Bendderesi and Altındağ Hill at the north-east of the city continued to be the thresholds of the city, as in the previous period as seen in Figure 5.5 above, İncesu stream no longer formed the northwest and southern boundary of the city after Kazıkiçi vegetable gardens (allotment gardens, both for urban aesthetics and economic value), sports grounds and a city park were proposed beyond the stream. The railway also lost its status as a threshold to south of the city, with governmental buildings and residential areas planned in the expropriated land to its south. Some of the agricultural lands of the previous periods were opened to development with this plan.

The population of the city was divided into four community types with the effect of proclamation and Lörcher's plan (Aktüre 2001, 61): the national bourgeoisie, military staff and civil servants, artisans and unskilled labor. The four communities lived side-by-side, but were immiscible. Military staff and civil servants accounted for around 50 percent of the population, and most settled in the south of the city; however the rapid population growth led to a significant housing shortage in the city. The vineyard houses at the fringe played an important role in meeting the housing demand in the early years of the Republic, changing hands and turned into permanent residences, unlike in the previous period. The people who moved to the vineyard houses can be categorized into three different groups: Those who sold their houses in the city and moved to their vineyard houses due to the housing need (Ergir 2004); the bourgeoisie who preferred to decant to the Keçiören vineyards as a lifestyle choice; and those who could not find affordable housing in the city, and who settled in the vineyard houses that had previously been occupied by Armenians (Özgönül 2001, 270). In this way, the vineyard houses closer to the city became part of daily life, especially for the "new citizens of Ankara", during these years.

Figure 5.6 Vineyards in Keçiören and Etlik (Vekam Archive 2015, 2451)

With the ongoing mobility related to the vineyards, a new settlement district was developing in the city. The Ankara Municipal Committee[26] determined "a border" according to the topographic thresholds and other natural resources in 1926, which was an essential and important decision in the management of both the city and the

[26] Ankara Belediye Encümeni

fringe area. Construction became the most dynamic sector in the city, which resembled a construction site in these years. Aktüre (2001) mentions that 940 new buildings were constructed between 1926 and 1929[27].

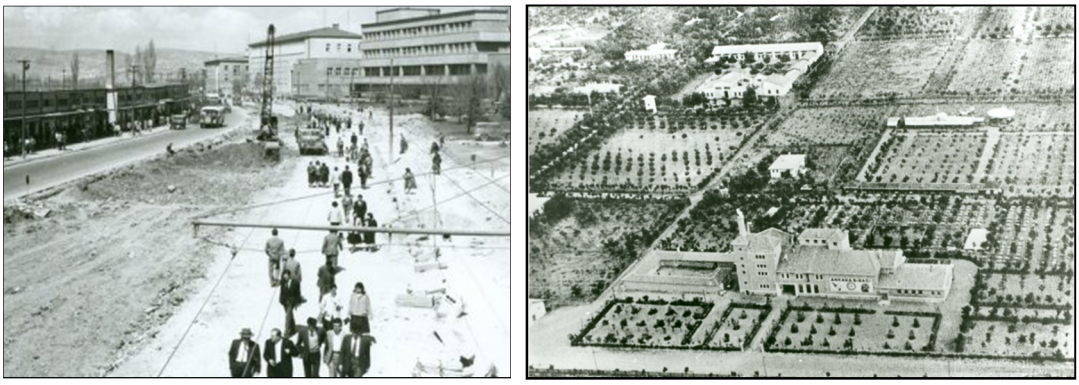

Figure 5.7 Construction of the Boulevard in the 1920s and the Gazi Forest Farm (Vekam Archive 2015, 0052)

These growth decisions in the early 1920s extended the city towards the fringe area and led to land speculation, especially in the areas surrounding the transportation corridors. Şenyapılı (1985, 23) provides an example of this land speculation, citing a very large plot opposite the Town Hall. The land was to be sold for 5,000 liras at the end of 1922, but this extremely high price could be afforded only by a group of 25–30 people who pooled their resources. The same piece of land was sold 50,000 liras a year later, and then for 500,000 liras to the Ankara Officers Cooperative 12 years later. Aktüre (2001, 59) provides a similar example to explain the speculation in these years. The lands along the two sides of the boulevard between Ulus and Çankaya were sold very cheaply to the government officers and parliamentarians who had come to Ankara from other provinces. The new owners sold these lands to brokers for 20 times more (1,000 liras), who then sold them on for 30,000–35,000 liras after just a few hours.

The Lörcher plan was criticized for being a timid attempt at the creation of a new town. Tankut (1993, 59) remarks that foreign and domestic press criticized the municipality and architects for their failure in this regard, and also for their courage

[27] The embassy buildings began to be built in the south; Ankara Conservatory was built in Cebeci in the east; the Gazi Forest Farm was founded at the west in 1925; and the Ankara Wholesale Market was established near Bendderesi in 1926.

of doing lots of things even they did not know. Despite these criticisms, the Lörcher Plan served as a guide for subsequent plans with its design principles.

Towards the end of the 1920s a planning competition was organized by the Ankara Urban Development Council to find a solution to the increasing land speculation, to address the housing shortage and to create a modern capital for the new Republic. The plan of Hermann Jansen, a German planner, was selected for its recommendations for a modern urban structure and lifestyle. The aim of 1928 Jansen Plan was to establish the city in accordance with the new regime of the country, for which Jansen prioritized historical areas, urban aesthetics, the natural environment and green areas. The objectives of the plan were to develop new areas towards the south of the city, to minimize the motorized traffic routes and to transform the rural landscape into an urban entity. The boundaries of the plan were the Eskişehir highway to the south and the Dikmen highway to the west. Following the Lörcher Plan, Jansen Plan also defined the main routes as the north-south Boulevard and the east-west axis of city. Atatürk Boulevard connected the new governmental quarter to the old city, and the east-west axis followed the same direction as the railroad. To the north of the railroad, the Old Town was kept mostly intact. Jansen's approach was based on the principle of providing three necessary elements to ensure human health: light, air and green areas. He used the existing green spaces and the banks of the stream comprehensively, proposing a green structure that comprised natural features, green corridors, allotment gardens and sports fields at the fringe. Bendderesi and Altındağ Hill to the northeast and İncesu stream to the south were thus no longer thresholds of the city, and in fact the boundaries of the city were no longer natural features. The Çubuk stream was only a restrictive element as part of the green structure to the northwest of city, with the neighborhood units and functional districts being designed beyond the natural thresholds and connected with green corridors (Figure 5.8). Locating the airport at the fringe was considered one of the most important decisions of the plan.

Figure 5.8 Thresholds and land-uses at the fringe in the 1928 Jansen Plan (schema drawn by author over the 1928 Jansen Plan)

Although the 1928 Jansen project was not exactly an implementation plan, the administrators hastened through its construction. As a result, the city witnessed several problems as the lack of land-use and cadastral maps, the shortage of professional staff and experience among the administrators, and the personal interests of parliamentarians, bringing pressure mechanisms of the people living in Ankara. Many of the roads were planned and buildings constructed based on the competition project prior to the approval of the implementation plan.

In 1928, a new organization named Directorate of Development of Ankara[28] was established as a governmental office after the Şehremaneti proved to be technically incapable. The Commission of Development Management[29] was responsible for managing the implementation of the plans, and took over the responsibilities of the

[28] Ankara İmar Müdürlüğü
[29] İmar İdare Heyeti

Şehremaneti. However, Tankut (1993, 80) states that the works of the commission occasionally contradicted those of other administrative departments, which was detrimental to the planning process, and although Nevzat Tandoğan, the Governor and Mayor, was an important actor who adopted the planning and application of planning decisions, his lack of confidence among foreign experts and his inability to deal with illegitimate implementations proved to be a stumbling block.

The characteristics of the fringe area changed partially at the end of the 1920s. There were still vegetable gardens at the closest places on the northern side of the city (Kazıkiçi gardens on the Bentderesi route) and the vineyards were in the north direction and also vineyard houses were beyond Kavaklıdere. The villages close to city, such as Mamak in the east Kayaş valley and the Kayaş agricultural settlement, 10 km from city, were engaged in agricultural production.

Jansen's implementation plan was approved in 1932. The population of the city was 75,000 in the 1920s, and the population projection of plan was 300,000 within 50 years. According to Jansen (1937, 11), the duty of urbanism is to establish a network of green area composed of natural features as lakes, forests, cliffs and gardens linked with green strips. Accordingly, an open system plan scheme was considered in accordance with the definition of public health as a social policy. The creation of a greenbelt was the main strategy of the plan related to the fringe, comprising agricultural lands, vineyards, allotment gardens[30] and recreation areas. The purpose of the greenbelt strategy was to prevent urban sprawl and to keep development within the planned area, but also to provide opportunities for outdoor sport and recreation close to the urban areas, as well as environmental benefits related to air purification, flood control and bio-diversity protection. Although the plan aimed to avoid sprawl and emphasize the importance of natural features, which areas "can move or cannot move"[31] at the fringe, and how extension areas were to be determined were not identified in the plan document. Important natural features

[30] The Allotment gardens were agricultural lands for cultivation by those who rented them to meet their own needs.

[31] Dijk (2009; 343) uses the "cannot move" term to refer to the non-movable areas at the urban fringe, including those with ecological and agrarian value, and the "move" term to indicate movable areas that have no priority of protection.

such as bodies of water (rivers, streams, river beds; İncesu, Çubuk, Hatip, Hacıkadın, Macun and Kutuğun), farmlands (Forest Farm), valleys (Kayaş, İncesu, Çubuk), gardens, vineyards and significant agricultural areas were denoted as *cannot move areas* in this period.

According to the plan, the recreation areas and gardens at the fringe were major components of the green structure, with the diagonal green strips linking the neighborhoods in the city. Bendderesi and Altındağ Hill to the north-east remained as thresholds, as in the Lörcher Plan, and a Workers' Neighborhood (Amele Mahallesi) was created between the Kazıkiçi vegetable gardens and Çubuk Stream. The airport to the west, the transmitter station to the north and the College to the southeast were the restrictive elements at the fringe, as can be seen in the Figure below.

Figure 5.9 Thresholds and land-uses at the fringe in the 1932 Jansen Plan (schema drawn by author over the 1932 Jansen Plan)

To keep construction within the planning border a Construction Border Plan was prepared by Jansen and the city was divided into two, being “internal and external expanding areas” (Jansen 1937, 41). The internal areas were neighborhoods with an area of up to 1,000 m2 that were relatively expensive. As can be seen in Figure 5.10, the internal area was between the newly formed Bahçelievler and Cebeci, and the vineyards in Keçiören, Etlik, Mamak and Dikmen. The two-story houses (mansions) in these areas had their own large gardens in which vegetables were allowed to be grown. The external expansion area was between the New City and Çankaya.

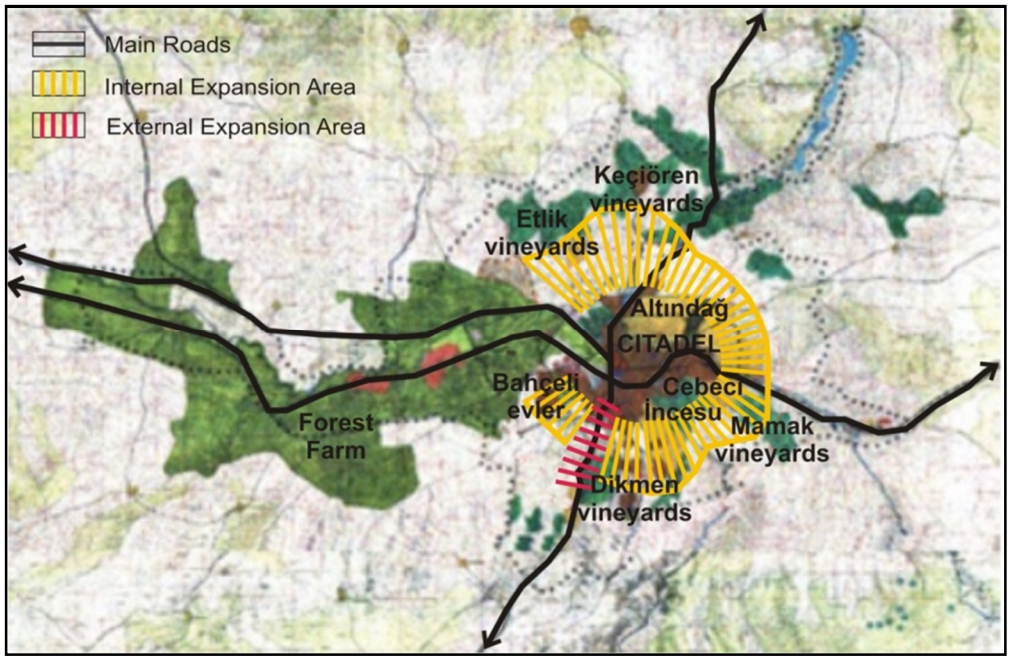

Figure 5.10 Internal and external expansion areas at the fringe

Although these strategies were supposed to prevent sprawl, most of them failed in this regard. The construction of New Town increased land speculation and pressure towards the vineyards while reducing the pressure on the Old Town. Ortaylı (1990, 64) claims that the vineyards were used continuously in both summer and winter. Similarly, Özgönül (2001, 271) mentions that the areas of vineyards and vineyard houses became small centers containing shops and casinos after 1930. Cengizkan (2002, 131) refers to the vineyard houses of this period as transition products that merged the new lifestyle of the new city with the traditional vineyard culture. While the characteristic of the vineyards was changing on one side of the fringe, a

different type of growth was occurring on the other. As immigrants could not afford to purchase the existing houses, illegally developed settlement areas began to spring up at the fringe. The north side of the old town and the closest place to city, Altındağ Hill, was the first area to witness this trend (937 of 17,372 houses were unauthorized in 1935), and the city began to sprawl beyond the limits of the Jansen Plan on the Cebeci side. A further 210 illegal houses were built in the green area belonging to the colleges in Cebeci, at the end of the 1930s.

The difficulties faced in house acquisition and the lack of housing supply became prominent problems. In order to overcome the housing need, Bahçelievler (151 Houses Cooperative) was organized as the first housing cooperative in 1935, and was the first planned settlement at the fringe, created through a partial plan drawn up by Jansen. However, Bahçelievler, which had been developed especially for civil servants, was a low-density residential development area that could not withstand the increasing rent pressure, and consequently failed to alleviate the problem of unexpected growth.

New functions continued to locate at the fringe of city in accordance with the plan decisions. The hippodrome was opened in the northwest, the Language-History and Geography Faculty was established in the southeast and Tandoğan Airport was built to the west of the city in 1936.

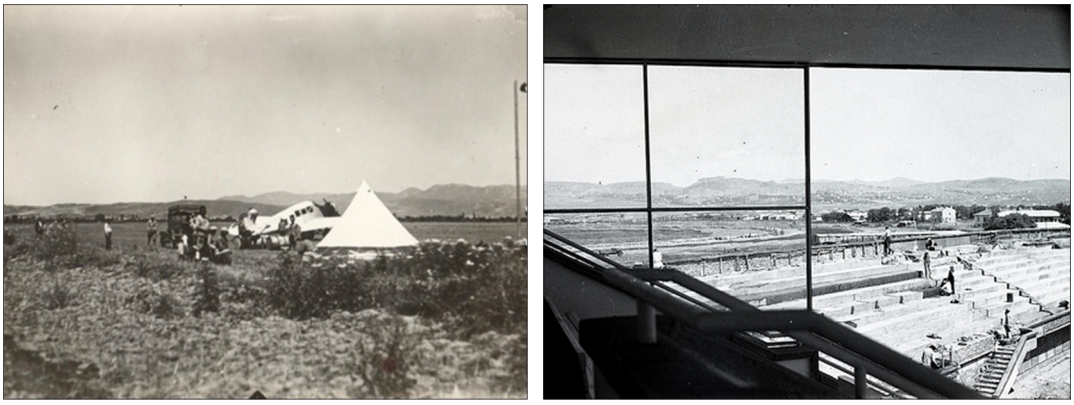

Figure 5.11 Tandoğan Airport (left) and the Hippodrome (right) in the 1930s (http://www.milliyet.com.tr, March 2015)

In 1937, the Atatürk Forest Farm, one of the most important components of the green system, was gifted to the Treasury, along with other farms, by Mustafa Kemal Atatürk, and the farm became affiliated with the State Agricultural Management Organization.[32] The status of farm was changed to "sellable" upon a decision of the institution in 1938, and began to lose a considerable amount of land.

The greenbelt strategy meant that the new urban form would not be an oil-drop form; however this opportunity to control and manage urban growth could not be applied effectively or strategically. Some parts of expropriated areas were sold to the private sector through auction, and although the municipality bought these lands notably cheaper and made a profit by selling them on to individuals, in the implementation period many parcels had to be re-expropriate for a higher price than they had been sold.

The major problems faced were a lack of readiness of the administrators for unexpected and fragmented growth, the disregarding of the illegal constructions at the fringe, the location of functions without planning consultation, changes made to the plan decisions rather than paying the cost of expropriation, the expanding of the existing borders into unauthorized areas and the absence of a land-use map. In brief, the importance of technical proficiency and the principles of the actors and the restrictive and directive legal arrangements came forward from these experiences. Besides, although the plan proposed a green structure for the fringe area, a distortion of the green system occurred. Below is a detailed summary of the encountered problems (Tankut 1993, 159-171; Önge 2007, 80; Şenyel, 2006, 82; Türel 1986, 56).

Technical deficiencies:

- (continued) absence of land-use and cadastral maps
- lack of knowledge of exact locations of plots
- failure to consult Jansen, and site selections without plan consultancy

Poor economic conditions:

[32] Devlet Ziraat İşletmeleri Kurumu

- economic policy (cuts in expenses, difficulties in payments for expropriation)
- changes to plan decisions rather than paying the cost of expropriation

Legal arrangements:

- the Law of Building and Roads was not effective enough for the implementation of the Jansen plan

Administrative problems:

- the private sector began to force public sector (the green areas were cropped in order to increase development rights, city blocks were divided, story heights were increased, base areas of buildings were extended)
- the people of Ankara did not follow the plan, and did not hesitate to distort it to protect their personal interests
- the ecological balance of Jansen plan was destroyed

Unauthorized development and urban sprawl:

- difficulties in house acquisition and lack of housing supply
- low-density residential area decisions failed to satisfy the need resulting from unexpected growth
- unauthorized development at the fringe was detrimental to the substance of the plan, unauthorized constructions inside the city distorted the principles of plan and reduced environmental quality
- the city began to sprawl towards the Cebeci side
- cooperatives permitted outside the planned area (Bahçelievler Housing Cooperative)
- illegal construction in green areas (210 illegal houses constructed in the green areas belonging to colleges in Cebeci in 1939)
- land prices increased in a completely speculative way, encouraging unauthorized development

The implementation of the Jansen Plan continued between 1932 and 1938, however a holistic and integrative framework for both the existing settlements and fringe area could not be created. Önge (2007, 80) explains that the government decided in

September 1938 to expand the the development plan's boundary from 1,500 ha to 16,000 ha through partial implementations within the plan boundaries. This was called as the greatest achievement of speculators consisting of the members of Parliament, civil servants and the wealthier residents of Ankara. Municipal Commission cancelled the contract of Jansen in December 1938, following the decision to expand the boundaries of the city. Another perspective in literature suggests that Jansen resigned as consultant and left the duty to the Development Directorate due to the differences between the 1928 competition and 1932 implementation plans, and the increasing value of land-rents as a result of migration. A year after Jansen's resignation, a monumental mausoleum was built for Atatürk in Rasattepe (today's Anıttepe) and the construction of the station building came to an end.

The 1940s were endured under the threat of war and many economic and social problems. The economic repercussions of World War II that began in 1939 had made the negative conditions of the 1929 crisis even worse. Nevertheless, Ankara was growing faster than the average rate of urbanization in Turkey with the acceleration of being a new capital city. In these years, there was no clear state approach to the housing production. There were no laws regulating land prices for the public interest, and no organization existed for the production of affordable housing or encouragement for co-operatives.

The population living in urban areas can be segregated into three different socio-spatial profiles in the 1940s (Şenyapılı 1985, Büyükyıldız 2008). The first group was the "citizens of Ankara who live inside the Citadel walls and in the neighborhoods surrounding the Citadel", who lived together in the Old Town. These people were ethnically diverse, being Muslims, Armenians, Jews and Greeks, although most of the Jews emigrated in the late 1940s with the establishment of the State of Israel. The second group consisted of the "national bourgeoisie and civil servants" who came from other provinces. Members of this group participated in the international tennis tournaments in Ulus, went skiing in Dikmen and Elmadağ, rode horses and hiked in Keçiören and Etlik, watched horse races in the

Hippodrome in their most stylish clothes on Sundays, engaged in biking and bike racing at the fringe, went ice-skating on Marmara Pool and on the pool in Gençlik Park, and spent time in the station casino in the evenings. This group lived in the New Town or in the vineyard houses and would go to the fringe area for recreational purposes in general. The image of women in the city came to resemble that of women in Paris, in a marked contrast from the women who could be seen washing their laundry in big boilers at İncesu and Bendderesi 20 years earlier.

Figure 5.12 Horse riding in Keçiören and women watching the horse races in the Hippodrome in the 1940s (Büyükyıldız 2008, 50, 72, cited from Ulus Newspaper Archive, 1940)

The final group lived under very different conditions from the other two, being "people living in unplanned and unauthorized settlements". Şenyapılı (1985, 80) categorizes these people who occupied the unplanned areas at the fringe as:

- office workers from low-income groups, and people who migrated from different regions of country and from the villages around city following natural disasters or construction transactions. They settled in Altındağ, Atıfbey and Yenidoğan, as the areas closest to the city and its infrastructure
- people living in the surrounding villages who would find temporary employment in the city. They constructed buildings of a lower quality than the first group
- unemployed and homeless people who made shelters for themselves.

Figure 5.13 Examples of unplanned and unauthorized settlements in the urban fabric of Altındağ (Faculty of Architecture Archive, METU, 2015)

Under the impact of the migrated population, in 1944 the area of city had spread to cover 1900 hectares and the population had increased to 220,000. The Çubuk stream was no longer a boundary at the northwest of city, as the growth area expanded beyond the limits of the plan. New settlements were built outside of the plan area under political and speculative pressure. (such as the Demetevler neighborhood). Many functions were relocated to the fringe at this time, alongside the residential areas, including facilities for education (Faculty of Political Sciences and Faculty of Law in Cebeci) and military use (Dikimevi military area) in the southeast, as a well as cemeteries (Karşıyaka Cemetery in northwest and Cebeci Asri Cemetery at southeast) and prisons (Ulucanlar and Mamak Prison to the east). Saraçoğlu (currently Namık Kemal) is an important example of a neighborhood unit located next to the Ministry area in New Town, with 150 housing units built for Parliamentarians in 1945. This was a unique area from the Republican Period in terms of its architecture and the available facilities, which included a library, theatre, etc.

The illegal construction accelerated to the edges of İncesu, Akköprü and Altındağ in these years, and the axis connecting Keçioren and Etlik to Atıfbey also came to be surrounded by illegal constructions between 1945 and 1950. Ergir (2004) explains that many migrants even lived illegally in single-room dwellings in the Kazıkiçi

vegetable gardens. Under these conditions, laws no. 5218[33] and 5228[34] were enacted in 1948 to address the issue of unauthorized housing. Parcel allocations were made in Yenimahalle, where the first implementations were generated towards the north-west fringe (created in the period of Mayor Ragıp Tüzün between 1948 and 1950), and in the Etlik neighborhood. The laws were criticized legalizing the current unauthorized housing and spreads unauthorized areas. Türel (1986, 56) indicates that in addition to the previous legal regulations, Law No. 5431[35] was enacted in 1949 to prevent the loss of property rights, to prevent the construction of squatter housing and to demolish the existing illegal constructions, although it failed to achieve its goals.

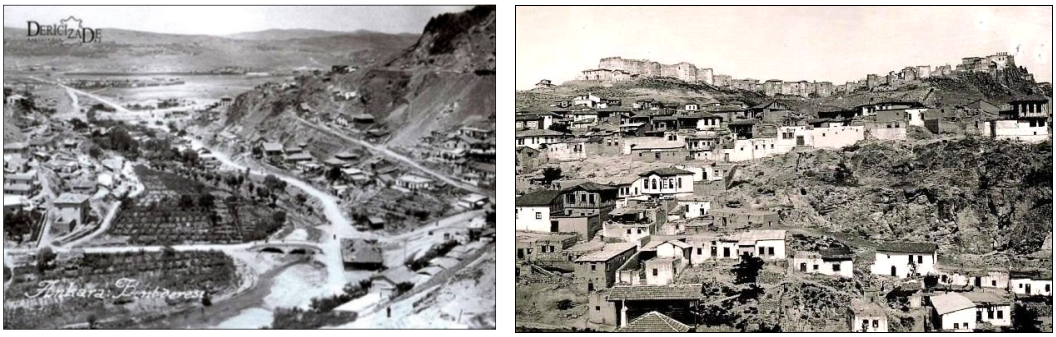

Figure 5.14 Kazıkiçi Vegetable Gardens (Dericizade Archive) and unauthorized settlements of Altındağ in the early 1940s (Ankara Metropolitan Municipality 2012)

Temporary Parceling was also one of the main reasons behind the sprawl, with the granting of permission to settle outside the plan boundary accelerating sprawl at the fringe. Şenyapılı (1985, 105) points out that the spread was concentrated in the Old Town and along two extensions of Yenişehir, namely Bahçelievler and the Cebeci-Mamak axis. Building density became more intensive also along the Kavaklıdere-Çankaya axis, resulting in bidirectional growth, both from the center to the periphery and vice versa, between 1940 and 1950.

Most of the proposed strategies to control the fringe area were ineffectual in this period. As a result, the characteristics of fringe changed, with infrastructure such as

[33] Law no.5218: Ankara'da Belediye ve Devlete ait Arsaların Mesken Yapacaklara Tahsisi Hakkında Kanun
[34] Law no.5228: Bina Yapımını Teşvik Kanunu
[35] Law no.5431: Ruhsatsız Yapıların Yıktırılmasına ve 2290 sayılı Belediye Yapı ve Yollar Kanununun 13.maddesinin Değiştirilmesine Dair Kanun

the airport, faculties etc. and illegal settlements becoming fringe components, in addition to the gardens, vineyards and agricultural areas. Many actors played a crucial role in these processes, but the efforts of local government and related actors with planning process remained insufficient. While the Directorate of Development directed and controlled the implementations, the Municipality joined the implementation phases. The people living in the city had the most detrimental effect on the planning process, preventing the realization of many strategies, along with administrative actors. The municipality sold off parts of the expropriated lands, reducing public control of lands at the fringe. The natural features of the city and the fringe that Jansen had emphasized in the plan report began to be damaged. Law no. 5659[36] was enacted with the objective of protecting the further reduction of the Atatürk Forest Farm land, but despite this specific regulation, the farm continued to be fragmented. Furthermore, illegal constructions began to appear in the green areas, some parts of stream banks were taken into canals and the green system began to destroy.

5.1.3 Concentration in the topographic bowl: Yücel-Uybadin Plan (1957–1977)

The 1950s are considered to be a breaking point in terms of urbanization in Turkey, both politically and economically. In the 1950s, although it had not entered World War II, Turkey was affected by the outcomes of war. Political and economic changes brought considerable transformations to the urban sphere in the post-war years, with mass rural-urban migrations occurring as a result of the mechanization of agricultural processes. Ankara was one of the most affected cities affected in this way, with migration coming especially from the east of country and also the country's least developed parts. Huge numbers of people left rural areas and migrated to the city in search of work, and 8,730 people migrated from the Balkans to Ankara between 1950 and 1970. The population of the city reached 455,000, far exceeding the projections of the Jansen Plan, resulting in an urbanization rate that was more than twice the national rate. The unpreparedness of city for newcomers and the rapid population increase caused many problems within the city, and also at

[36] Atatürk Orman Çiftliği Müdürlüğü Kuruluş Kanunu

the fringe, and so an international competition was organized to come up with a new development plan for the city. The Directorate of Development prepared a more comprehensive specification document than the one prepared for the previous competition, making certain demands. The cultural and historical identity of Ankara as the capital was to be emphasized and the expansion of city was not required further.

The proposal put forward by Nihat Yücel and Raşit Uybadin was awarded first prize in the competition in 1957. The plan aimed to create a compact city along the garden city concept lines, with all people living within the municipality boundaries. The transportation network (motorways surrounding the city and secondary roads within the city) was seen as the main factor that would determine future development of the city. The Konya-Samsun highway was a major decision in the plan in its influence on the urban form and its effect on the characteristics of the fringe. The plan called for the removal of the industrial areas and large machinery parks from the city, along with any facilities that did not require public interaction, as well as public institutions, including research centers, to the fringe area as a campus, thus creating a cultural, administrative, commercial and residential area. Integrating the residential areas with the workplaces located on the eastern and western edges, preventing unauthorized settlements, highlighting the corridors of the Jansen plan and organizing open spaces were other notable decisions of the plan. Development was kept within the topographic bowl, as seen in Figure 5.15, and the Atatürk Forest Farm was protected in the west and Hacettepe Park was proposed in the east of city. These were restrictive factors aimed at keeping the city within the recommended boundaries. On the other hand, the Kazıkiçi vegetable gardens, located between the workers' neighborhood and city center in the previous plan, were transformed into a small industrial zone. The conversion of the gardens into an industrial area, ignoring its cultural significance, led to the loss of an important asset of the city.

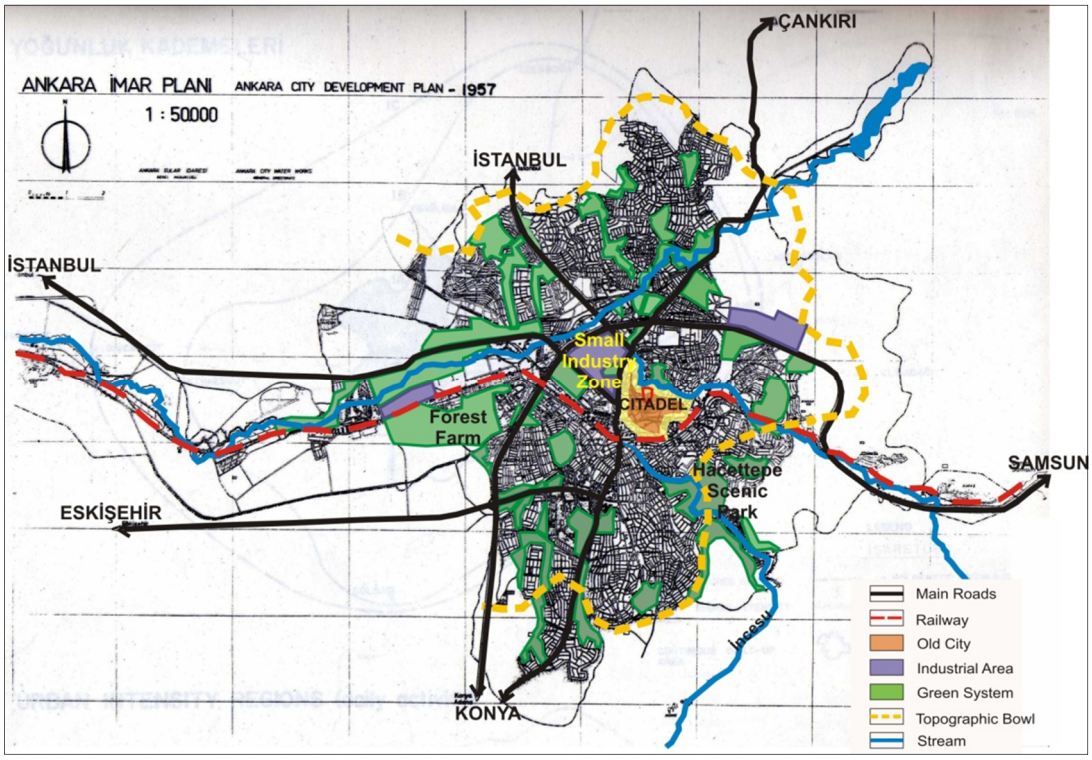

Figure 5.15 Topographic bowl, transportation network and green system of the Yücel-Uybadin Plan (schema is drawn by author over the Yücel-Uybadin Plan)

The enactment of the Development Law (no. 6785) in 1957 and the establishment of the Ministry of Reconstruction and Resettlement[37] in 1958 accelerated planning efforts, giving the Ministry the responsibility of planning areas from cities to villages. Some two years after the approval of the Yücel-Uybadin plan, the governor and mayor submitted a plan revision proposal entitled the "District Height Regulation".[38] The proposal made no changes to the existing infrastructure, but doubled and even tripled building heights in the form of high-density apartment type housing. This was described as a positive response to the density requirements, by granting additional development rights in the form of increased height, especially in Bahçelievler, Emek, Yukarı Ayrancı, Maltepe, Küçük Esat, Çankaya and Aydınlıkevler. The net density level in these districts had been set as 200–350 people/ha in the Yücel-Uybadin Plan, but was thus increased to 600–650 people/ha. The city once again resembled a construction site in the years that followed, during which the three- and four- story garden houses in the New Town were demolished and rebuilt with increased densities. The Konya-Samsun highway, other new

[37] İmar ve İskan Bakanlığı
[38] Bölge Kat Nizamı

arteries and the widening of existing roads produced a demand to increase building heights along the arteries, which served both the planned and unauthorized housing settlements along their routes. The new urban fabric, which had been developed according to garden city principles, was transformed into a high-density high-rise fabric with buildings of six to nine stories.

While the city was changing as a result of these new regulations, the fringe area was also seeing a change in character, with the gardens and vineyards at the fringe being influenced negatively. The Kazıkiçi vegetable gardens, had been the boundary of the city to the north in the previous planning period, was transformed into a small industrial zone. The vineyards began to be abandoned at the end of the 1950s (Ortaylı 1990, 63), and the Etlik vineyards that had been home to wealthy Armenian merchants until the 1950s were turned into concrete blocks. The majority of vineyards in Keçiören were destroyed after the implementation of the District Height Regulations and the advent of apartment housing in these areas. Housing cooperatives emerged, with middle-class housing cooperatives choosing locations at the fringe, including the Subayevleri and Gazi districts, although the unauthorized areas at the fringe were continuing their spread. Şenyapılı (1985, 146) indicates that unauthorized settlements developed to the east and south of Cebeci, Atıfbey, Yenidoğan, Altındağ, Keçiören, Etlik, Dikmen, Mamak and Kayaş in this period, and the area adjacent to Cebeci was surrounded by squatter housing. The Mamak-Üreğil-Kayaş axis was one of the most intensive areas of unauthorized settlement, as can be seen in the figure below.

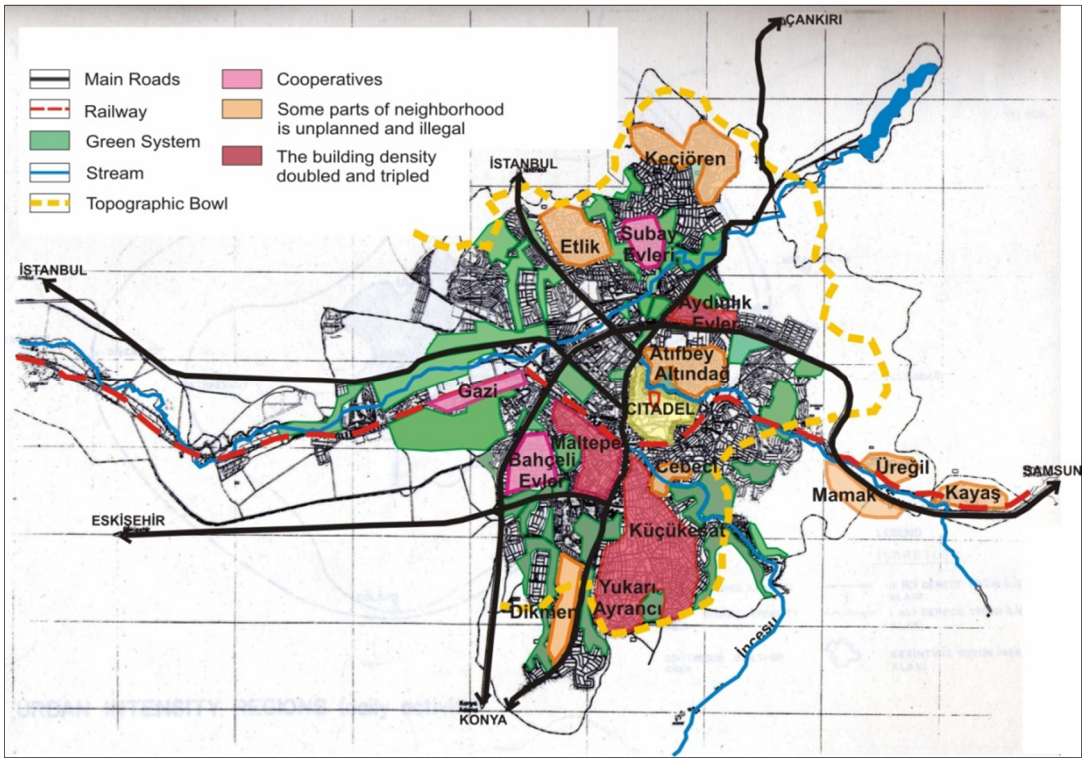

Figure 5.16 Developments at the fringe after Yücel-Uybadin Plan and District Height Regulation in the 1960s (schema drawn by author over the Yücel-Uybadin Plan)

The other major decisions affecting the characteristics of the fringe were the establishment of industrial areas, the airport and university campuses. The construction of Esenboğa Airport was completed in 1955, and the facility opened for business to the north of the city. The large machine parks and research centers, as facilities that did not require proximity to public institutions, began to move to the fringe area and private sector industrial investments were attracted to the Esenboğa highway, İstanbul highway and Konya highway. Saner (2004, 33) provides an explanation for the decentralization of the industrial areas. The first reason was related to the unexpected development of the city. The industrial district of the city, which had been planned at the outskirts of the city, was no longer distant from the residential areas, but had come to be in the middle of a housing area at the beginning of the 1950s. The district lay between the old center, Ulus, and the newly developing center, Kızılay, where relevant functions were to be located to replace the outgoing industrial facilities. The other reason was related with environmental factors. The industrial facilities were threatening public health, and there was an increasing consciousness of the pollution they created, and so the decision was

taken to relocate industrial functions to the fringe, where new industrial sites[39] were established between 1964 and 1965. Middle East Technical University, founded in 1956, was the other institution established as a campus on the Eskişehir highway, and was the first such university campus in the country.

Implementations based on the new legal arrangements after 1965 marked the period, with the Law of Property Ownership[40] and the Squatter Law[41] in particular changing the characteristics of both the city and the fringe. Şenyel (2006, 57) states that the Law of Property Ownership, enacted in 1965 resulted in an increase in the number of stories of buildings in urban areas, and low-rise housing stock being replaced by high-rise apartments within a few years. This transformation was realized mainly by small-scale house builders following a "build-sell" construction mode. The share of small-scale house builders in the production of housing increased in a short period of time, as the law facilitated the construction of single parcels, affecting considerably the structure of the city today. The Squatter Settlement Law (law no. 775), enacted in 1966, was another transformative intervention aimed at rehabilitating the existing unauthorized settlements, clearing them when upgrading was not possible and preventing further illegal constructions by creating Illegal Housing Prevention Zones[42] (IHPZ). After the first implementations in Aktepe, the Sincan I and Sincan II Projects were realized. Tekeli (1986, 98) makes an interesting point in stating that the number of squatter houses increased to 175,000 in the 1965–1980 period while many IHPZ projects were on the agenda. According to Türel (1986, 62) this is evidence of the fact that these projects were unable to convert the squatters into authorized buildings, and actually increased the stock of public land that could be taken over easily for the construction of squatter houses.

In addition to the applied legal arrangements, these years were also notable due to the establishment of two essential organizations that directly affected the fringe in

[39] Yeni Sanayi Çarşısı, Büyük Sanayi Çarşısı, Ata Sanayi Çarşısı, Demir Sanayi Çarşısı, Mobilyacılar Sitesi
[40] Kat Mülkiyeti Kanunu
[41] Gecekondu Yasası
[42] Gecekondu Önleme Bölgesi

the following period. In order to determine land policies and to prevent land speculation, the General Directorate of the Land Office[43] was established in 1965, and has played a decisive role in the country in terms of urbanization since its establishment. The Ankara Metropolitan Plan Bureau[44] (AMPB) was founded in the same year under the Ministry of Reconstruction and Resettlement, and was charged with the development of a master plan for the coming period.

While the structural, legal and institutional implementations were continuing, the Yücel-Uybadin Plan was subjected to many criticisms, as Bademli (1986, 86), Tankut (1993, 203) and Şenyel (2006, 56) explain:

- the plan had underestimated population growth (the projection was 750,000 by 1977, but the population had reached nearly 1.5 million by the end of the 1970s)
- the plan, on the whole, protected the main ideas of the Jansen Plan, and failed to come up with new ideas to resolve the existing problems, and so failed to find solutions to the real social needs and demands
- although it aimed to create livable garden cities, a high density and monotonous pattern emerged, and unauthorized settlements covered the fringe in time. These settlements came to surround the north, east and south of city due to the inadequacy of housing supply, and comprised 60–70 percent of total housing stock
- the plan had a narrow point of view that could not evaluate the past nor direct future development.

The plan aimed to create a substantial city form by controlling spread; however the city had a dense structure and an oil-drop form. The planners warned of the potential negative outcomes of this city form, such as increased concentration at the center provoking a build-sell type of construction, and not allowing the green corridors and green areas in the urban fabric. The lack of land policies, alongside vertical development and increased densities, resulted in many environmental

[43] Arsa Ofisi Genel Müdürlüğü
[44] Ankara Nazım İmar Plan Bürosu

problems. The productive agricultural areas were opened for urban development, and some of the conservation areas, including water basins and lakes, faced construction pressure (Tunçer 2013, 9). The Directorate of Electricity, Gas and Buses and the Directorate of Water Affairs were established to deal with the increasing infrastructure and transportation problems. The water resources and microclimates were destroyed in the city center, and the green system was thoroughly detached, making the city center even more barren. As a result, many land-uses started to settle in the productive agricultural areas, the greenways along the river banks turned into streets. Ankara River was also turned into streets along some of its route. Madran (2001, 156) remarks that Bendderesi could be seen openly until the 1960s. Air pollution was one of the most important problems at the end of this period, with the main culprit being the residential areas rather than industry. The areas most affected by air pollution were Sıhhiye, Yenişehir, Maltepe, Cebeci, Küçükesat and Kavaklıdere, where the maximum urban densities were defined in 1957.

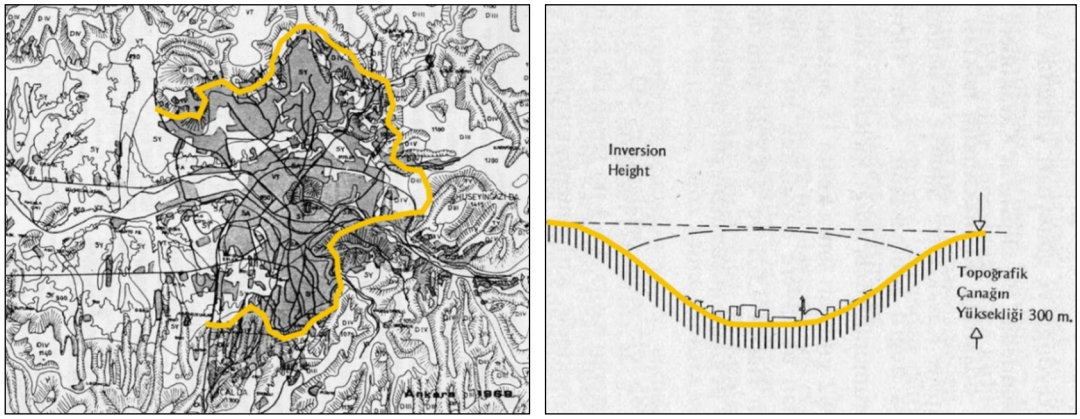

Figure 5.17 Topographic bowl and the settlement of the city in 1969 (Tekeli 1986)

The city experienced significant land speculation within the boundaries of the planned areas as a result of demolition-reconstruction processes and an urban expansion beyond the boundaries following the adoption of the "Partial Development Plans"[45] (Şenyel 2006, 86). According to statistics from the time, the total urban area, which had been 1,500 ha in 1924, had increased to 16,000 ha by

[45] Mevzi İmar Planları

1938 and to 31,000 ha by 1970, representing a 20-fold expansion over a 46 year period, as can be seen in the Figure below.

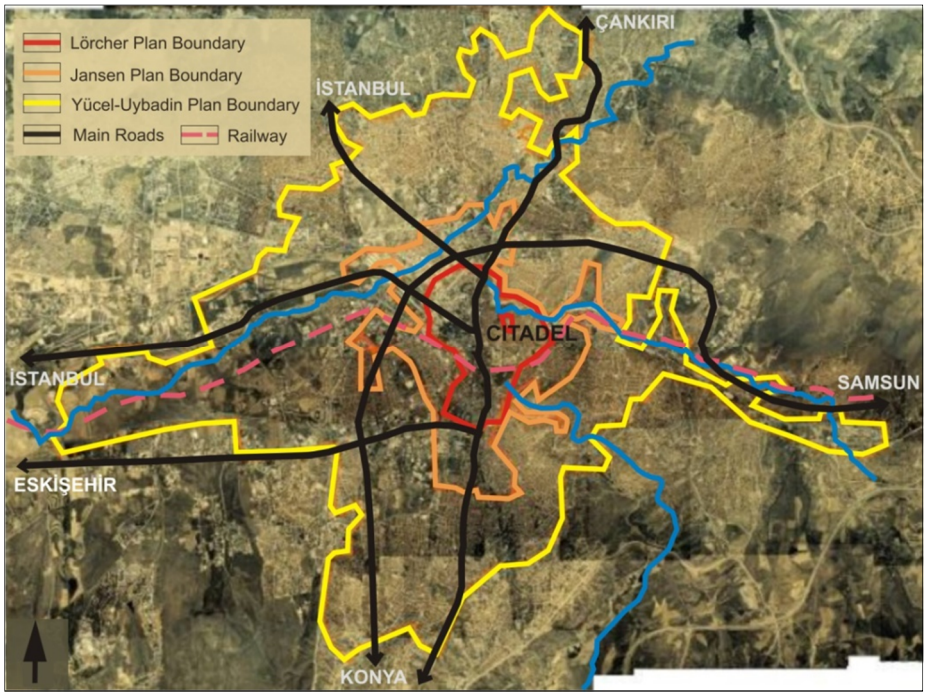

Figure 5.18 Boundaries of Lörcher, Jansen and Yücel-Uybadin Plans

The population exceeded 1 million in 1969 and urban densities increased both within the city and at the fringe. The area between the leaped land-uses (such as cooperatives, industries, etc.) and the city began to fill, as can be seen in the land-use map of 1970 in Figure 5.19.

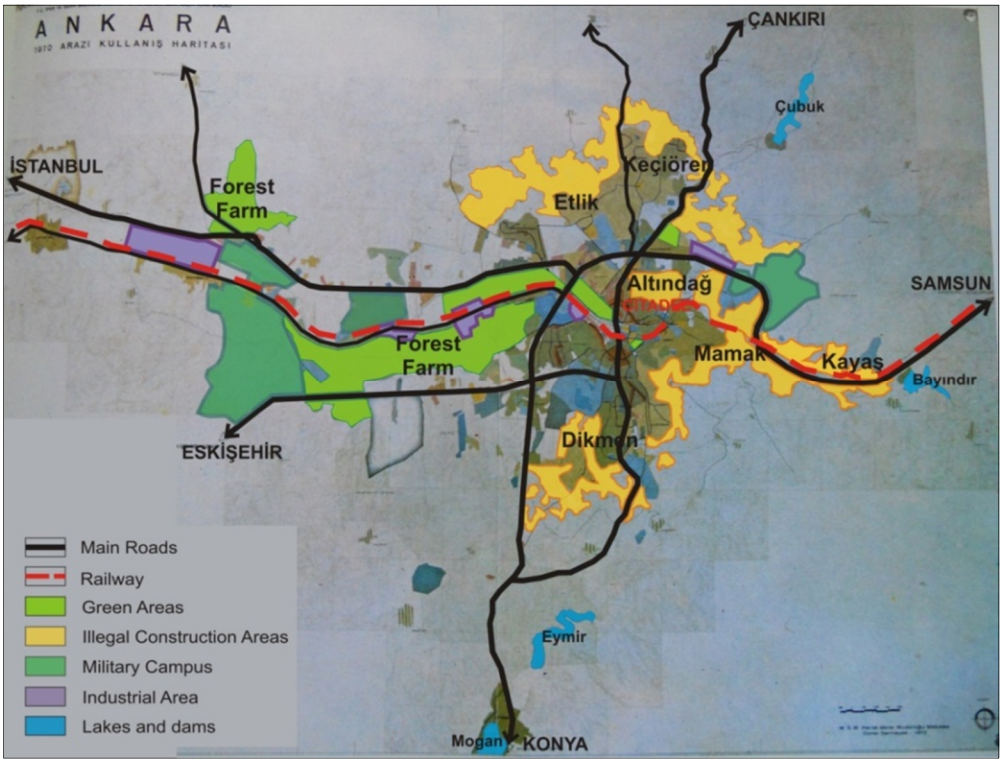

Figure 5.19 Land-use of Ankara in 1970

By the end of this period, the urban image envisaged by Jansen for the city and the fringe was completely lost, and Ankara lost its intrinsic specialties status as the first planned city of the Republic. The city began to be formed and directed according to the interests of land speculators and their collaborators, civil servants and politicians.

5.1.4 Decentralization Policy and Growth along the Corridors: Ankara Metropolitan Plan 1990 and Partial Plans (1977–2006)

Planning practice in this period can be considered important in the context of the urban fringe for two reasons. The first of these was that the planning approach and proposals differed from previous plans in the form of the structural plan; and secondly, controlling and managing growth at the fringe was, for the first time, the primary objective of the plans. The period has been analyzed in two sub-terms, being the period of the Ankara Metropolitan Planning Bureau (hereafter AMPB) and the years between the closure of the AMPB and the approval of the 2007 Capital Ankara Plan.

5.1.4.1 The Period of Ankara Metropolitan Planning Bureau: 1977–1984

The city form grew into a network that has been very expensive to operate since the 1970s. The city was surrounded by illegal constructions to the north, east and south, and by the topographic thresholds on the same sides. Unfavorable conditions such as inadequate infrastructure and services arose mirroring the previous periods, which necessitated new and manageable planning decisions to relieve the core and the fringe of the city. Accordingly, the AMPB prepared a framework plan scheme between 1977 and 1982 known as the "Ankara Metropolitan Plan 1990". The 1/50 000-scale plan defined the principles and the structure of the city, and differed from other plans, in that it was prepared as a "structural plan". It was granted approval in 1982 following a five year analysis. According to the Urban Development Strategy Report (1978) the AMPB represented a new framework, bringing together different actors within the planning process. Altaban, an urban planner and architect who served in the AMPB between 1970 and 1982, explains the planning efforts of the AMPB in the interview as follows:

> *"... the planning team began the process with the tools of comprehensive planning. They dedicated a great deal of time to the collection of data from various institutions and for the making of surveys. They prepared a comprehensive land-use map, made social surveys, transportation surveys, habitability and a threshold analysis before determining the alternative schemes. Ten alternative proposals and development schemes were produced, and after all of the alternatives were evaluated, the corridor scheme was accepted as the most feasible option. Professionals from the universities, chambers and institutions worked together with politicians in the preparation and implementation process of the plan. Many meetings were organized with the participation of the planning team, government and academicians throughout the process. These efforts can be considered as the first detailed and comprehensive studies and the most participatory process in the planning history of Ankara"* (interview with Altaban, February, 2015)

Altaban also states in the interview that the plan was considered as the main tool for the control and management of the fringe, with the other tools being the limitations of infrastructure, transportation and services.[46] The main aim of the chosen plan was

[46] The policy of limiting infrastructure and services is similar to the Urban Service Area tool, one of the urban containment strategies mentioned in the fourth chapter. This tool directs growth to a

to guide and manage the development along the western corridor through *decentralization*. Altaban (2015) remarks that the priorities of the Municipality in creating the "Akkondu Project" were to provide an alternative to the squatter areas, to create a rail transport system in the city, to take precautions, to prevent air pollution, to avoid increases in urban densities and to generate a greenbelt. The plan targeted a reduction of environmental pollution by supporting the strengthening of the green system, and the protection of natural and cultural heritage, with priority given to urban mass transportation (mass transportation was one of the prime decisions for the control of growth). These policies seem to be directly related to the fringe, with two main corridors suggested towards the south-west and north-west directions. New neighborhoods were proposed outside the city in the form of specialized sub-areas and multiple centers. As seen in Figure 5.20, the Batıkent, Eryaman, Sincan and Fatih neighborhoods were built around the İstanbul highway on the northwestern side of the city; while the Or-An, Koru, Konutkent, Mesa and Çayyolu neighborhoods were built up along the Eskişehir highway. It is obvious that it was the infrastructure and transportation structure that determined the form of city and the fringe, as had been the case in previous periods.

geographically defined area that is planned for urban services, rather than allowing growth to happen where no urban services are planned for the immediate future.

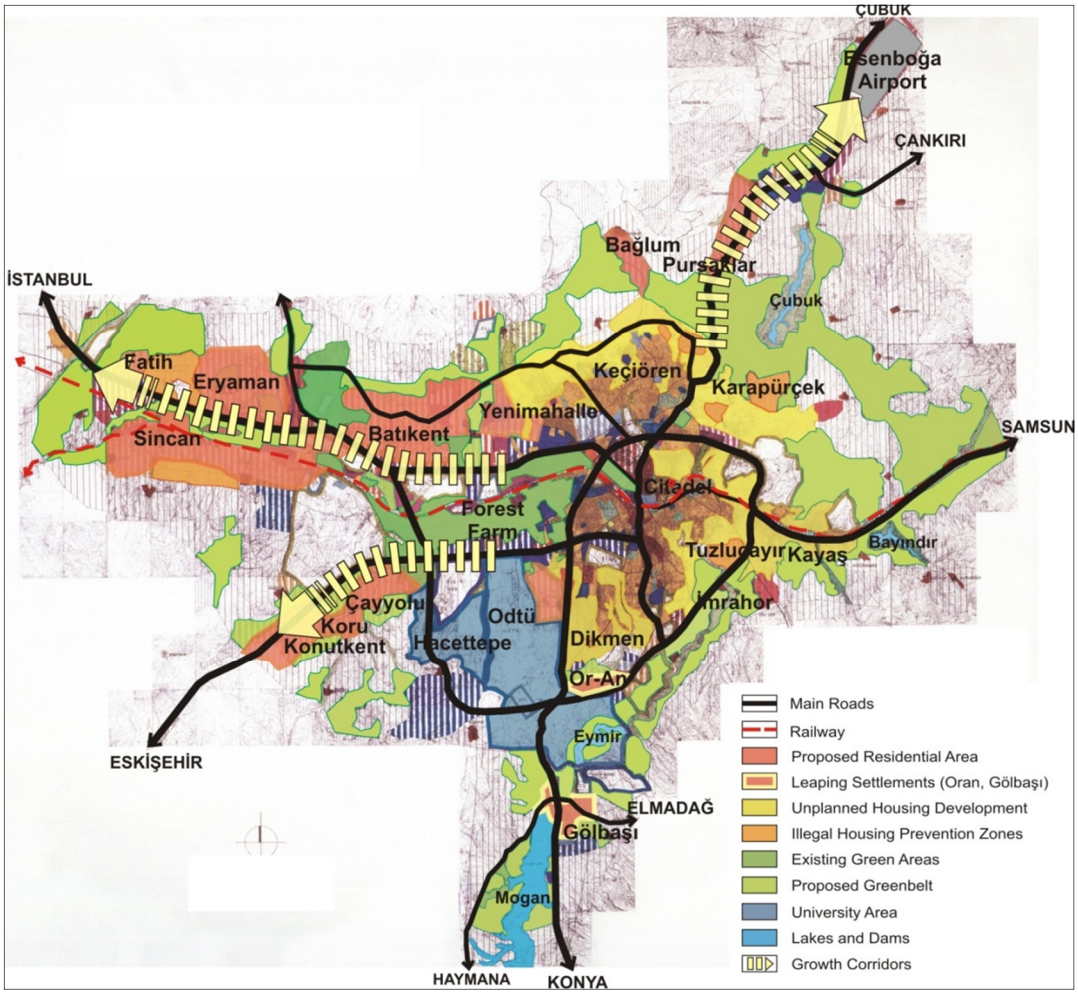

Figure 5.20 Development corridors and greenbelt of the Ankara Metropolitan Plan 1990 (schema drawn by author over the Ankara Metropolitan Plan 1990)

The other important strategy affecting the characteristics of the fringe and controlling the expansion of city was the *greenbelt*. The administration owned large amounts of land and launched a project to "create a greenbelt" (around 23,408 ha) around the city, as one of its most significant efforts. Unclaimed and unregistered state-owned lands, recorded on behalf of Treasury, were allocated to the Ministry of Agriculture and Forestry for afforestation, as stated by Tekeli (1986, 96). According to the plan, the restrictive elements at the fringe controlling sprawl were the existing and proposed green areas (such as forest lands and afforestation lands), being parts of the greenbelt to the north and east, Esenboğa Airport to the north-east, İmrahor Valley to the southeast and university campuses in the south of the city. Development in the west and southwest directions were proposed to be kept and managed by generating new neighborhoods along the transportation routes.

Batıkent, as the first cooperative housing application of the period, was one of the most important projects in the city, located 11 km away from the center of the city on the Ankara-İstanbul highway. Altaban states that the Batıkent area had been agricultural land that was allocated to immigrants prior to the project (interview with Altaban, February, 2015). The earliest version of the program for Batıkent was called the Akkondu project, instigated by Mayor Dalokay (the project name changed in 1976) for the supply of homes to low-income families, however the Squatter Settlement Law was inadequate for its realization, and the financial conditions were not sufficient for expropriation. Due to the lack of a credit system and related legal regulations the people living in unauthorized areas were unable to settle in this area. Later, the Municipality expropriated 1,035 ha of land in 1975 and a cooperative union, Kent-Koop, was established with the participation of civil organizations to assist in its implementation. The essence of the organizational model of the Batıkent cooperative housing project lies in the individual cooperatives and their cooperative union, which benefit from the solidarity that exists among civil organizations, associations and chambers, and the financial opportunities they provide to their members. The plan called for the creation of two neighborhoods, including schools, parks, playgrounds and squares, along with proposals for the construction of 40 nurseries, 27 schools and four health centers, and 20 square meters of green area per person. The smallest neighborhood unit comprised 300 houses, a social center and commercial facilities, while population densities were set at 600 p/ha, 425 p/ha and 350 p/ha. The plan called for two types of residential buildings, built as one or two-story duplexes and multi-storied blocks. The total implementation period of the project was 18 years (Göksu 1997; 87). Today, Batıkent is an inner district rather being part of the fringe.

Figure 5.21 Partial Plan of Batıkent
(http://www.kent-koop.org.tr, May 2014)

The fringe comprised natural resources, residential areas and infrastructures adjacent to the city until the realization of the Ankara Metropolitan Plan in 1990; however, leaping settlements[47] were also created beyond the topographic bowl to the south of city, the first of which were Or-An and Gölbaşı. In both cases, the settlement lands were purchased outside the boundaries and permission was obtained through Partial Plans. In this way, large-scale residential developments were realized by companies, with the Or-An Project, for example, created 10 km from the city and comprising around 7,000 housing units and 30,000 residents on an area of nearly 110 ha (Şenyel 2006; 94).

Figure 5.22 Settlements in Batıkent and the terraced houses in Or-An
(www.turkkonut.com.tr, www.oranterasevler.com, April 2015)

[47] The leaping settlements are defined as “leap-frog type of sprawl" in previous chapters.

The year 1980 was marked by a military intervention, after which the political milieu in the country transformed into a more neo-liberal form in line with the prevailing approach in Europe and the United States. The changing economic and political structure continued to affect the spatial organization and socio-economic pattern of the urban areas. The legal arrangements were the main drivers of the change at the fringe in the 1980s, with the Mass Housing Law", "1983–1986 Building Amnesty Laws" and "Development Law" having a direct effect on the fringe area.

The Mass Housing Laws of 1981 and 1984 were enacted with the decreasing housing demand caused by the economic crisis in the housing sector. This led thousands of individuals and cooperatives to apply to the Mass Housing Fund for financing, resulting in a rapid increase in the number of new housing starts in a short period of time, and the housing cooperatives consequently pioneered suburbanization by implementing mass housing projects at the urban fringe. The Amnesty Laws enacted between 1983 and 1986 allowed many people to purchase their own homes, although this transformation occurred in an unhealthy manner as no land was allocated for green areas, roads, squares, etc., as stated by Altaban (1996, 35), and apartments were built even on cadastral parcels. While the Ankara 1990 Plan proposed the opening of 9,000 ha of planned area, 13,000 ha of unplanned area was opened for settlement with the Amendment Plans.[48] The Building Amnesty Law (no. 2981), enacted in 1984, aimed to restructure the squatter areas through urban redevelopment projects, unlike the previous amnesty acts. The intention in this regard was to gather together small parcels of squatters and construct apartments on them. In this way, squatter areas were replaced by apartment blocks and residential densities were increased, although the infrastructure, which was already inadequate in the previous period, was put under even more strain. These laws also determined the tasks of the Mass Housing Administration (MHA), leading to a steady increase in mass housing projects. The Development Law, enacted in 1985, was another important piece of legislation that played a major role in guiding subsequent implementations. The Law served as a

[48] Islah Planları

framework defining the fundamental principles of urban planning and giving direction to the solution of the ongoing problems. Responsibility for the granting of approval was given to the Municipality within the boundaries of the adjacent areas, and to the provincial governorship outside the adjacent areas, although giving authority to the governorships led to problems, as they were not sufficiently organized to deal with the issue (Altaban 1996, 35).

In accordance with these legal arrangements, it was mass housing projects that defined the character of the fringe in the 1980s. Ground was broken on the Eryaman Mass Housing Project nearly 18 km away from the city in 1985 on an area located on the north-west corridor of the city. The MHA was the decision-making body in the project, which was built on 1,100 ha with multi-story blocks, and was to provide homes for 210,000 residents in neighborhood units of 5,000–8,000 people, mainly from the middle and lower income groups (Altay, 2004; 50). Çayyolu is another important project that was developed in to the south-west of the city, having been undertaken by Türkkonut with the support of the Ankara Metropolitan Municipality. The project was launched in 1985 and was run in two phases, containing both low-rise and high-rise buildings. The plan envisaged the building of 4,735 low-rise housing units and 9,096 apartment blocks (Zeka 2011; 6).

Figure 5.23 Settlement examples from the Eryaman and Çayyolu Mass Housing Sites (http://eryaman.bilgiemlak.com.tr, www.turkkonut.com.tr, April 2015)

Altaban indicates there were no adequate legal tools to control growth at the fringe in this planning period (interview with Altaban, February, 2015). Although the policies were explicit, there were no tools for the management and control of

construction. For instance, many areas could have been declared as nature parks, the level of afforestation could have been controlled, etc. Increasing the stock of urban land under public ownership is one of the most important means of reducing land speculation. The AMPB used this method in the 1990 Plan, bringing large quantities of land into their possession; however, the tools to direct rent and land speculation could not be created.[49] The development of public lands in line with the plan was delayed and unplanned private investment began to shape the city. Another critical issue was the population of the city. The Amnesty Laws were not envisaged in the plan, and so their effects were not taken into account in the population projections. It should be noted that other actors also played an important role as legislators in this process, with the Land Office, MHA, Municipality, Governorship, Directorate of Development[50] and citizens of Ankara all asserting influence, along with the AMPB. Altaban emphasizes the importance of Land Office in the success of the plan, underlining the cooperation between the AMPB and the Land Office (interview with Altaban, February, 2015). Geray (2000, 12) highlights the role of the Directorate of Development, but states that the compatible and coordinated working of the AMPB and Directorate of Development sometimes failed as a result of interventions by the Ministry and pressure from interest groups. Altaban states that the plan of the AMPB comes to the fore in many respects when the plan was compared to other plans, in that it provided for the development of the city for a considerable time. Some 60 percent of projects in the west and along the southwestern corridor were created by the public sector (interview with Altaban, February, 2015). While the organized and ingrained system of the AMPB was continuing, the Metropolitan Planning Bureaus were closed by the central government in 1984,[51] and their responsibilities transferred to the Metropolitan Planning Agency founded by the Metropolitan Municipality.

[49] Although there was no controlling mechanism, the AMPB directed or encouraged investments in accordance with the plan. The Ostim Industrial Site and the Mesa Housing Projects were directed in this way (Altaban, 2015).

[50] The Directorate of Development served for 57 years until l985, directing planning efforts and implementations based on the 1932, 1957 and 1975 plans.

[51] Altaban (2015) explains that although the AMPB closed in 1984, Raci Bademli was convinced to pursue the policies and plan decisions of the 1990 Plan as the Director of Development until 1990. The AMPB team was removed from the planning process with the end of previous mayorship period in 1994.

In this period, the city sprawled from the city center to the fringe along the west corridor, expanding to an area of 27,000 ha in 1985. The greenbelt also emerged in these years as a result of expropriation policies; although Tekeli (1986, 171) underlines that these efforts were not enough to affect the lives of people living in the city. On the other hand, unauthorized settlements sprawled to the Çubuk Reservoir in the east and to İmrahor Valley in the south, while unlicensed multi-story constructions sprang up along the Çankaya-Or-An route. At this point, "a duality" occurred at the fringe, where a low-rise medium to high-density pattern of squatter areas and high-density high-rise pattern of mass houses could be found (Çalışkan 2004, 169).

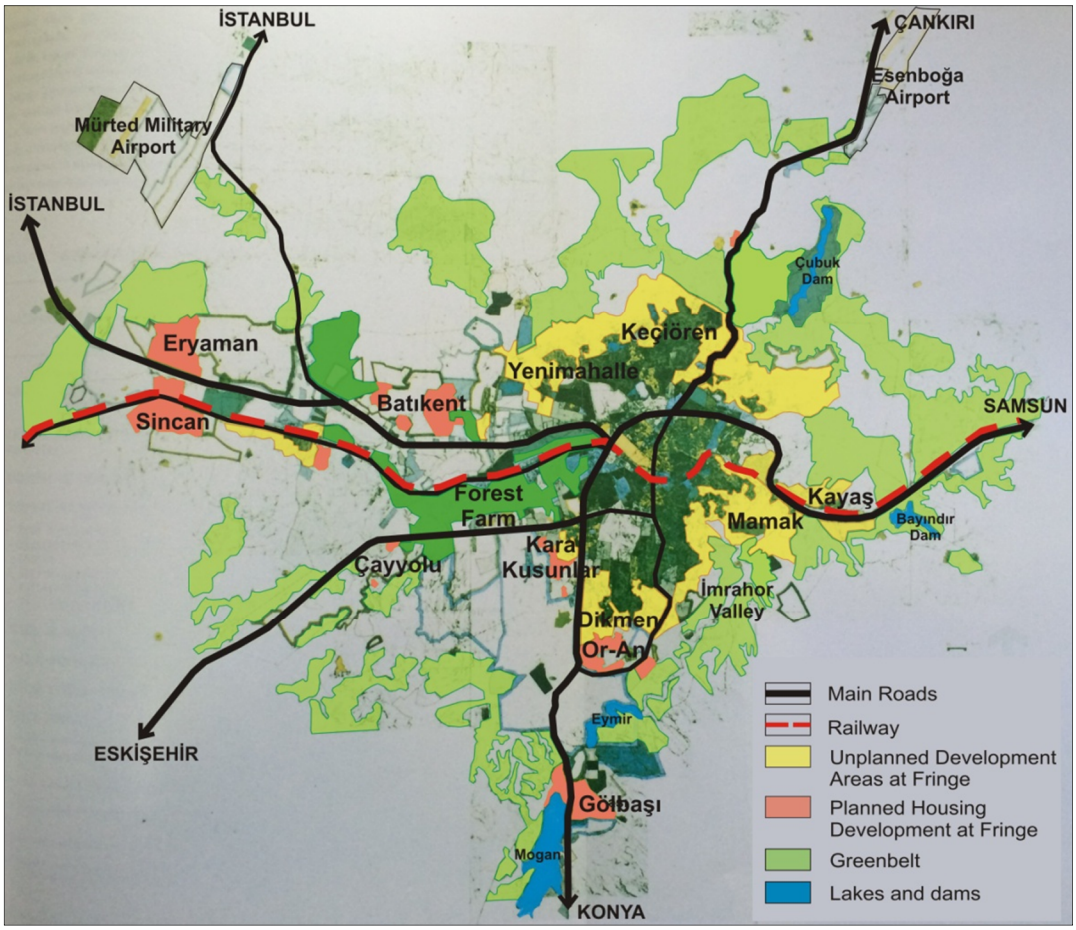

Figure 5.24 Greenbelt and housing development at the fringe in 1985

The improvements within the city and at the fringe caused many changes in environmental terms. For instance, the wind corridors and drainage channels of the previous period that were protected in the plans were significantly destroyed by the

new constructions. Furthermore, the settlements outside the existing bowl of the city leading up to the Çubuk Plain in the north caused the destruction of much productive agricultural land, which were opened up for construction, especially in the north of the city and to the north of the İstanbul highway.

5.1.4.2 The Period of 2015 Structural Plan: 1985-2006

The applications of partial plans accelerated the uncoordinated development of the city from the mid-1980s onwards, and it was under these conditions that a team from Middle East Technical University, Department of City and Regional Planning prepared a public transport investment plan at a 1/100 000 scale that contained policies for 2015. The plan projected a population of 5 million and covered an area that extended beyond boundary of the Ankara Metropolitan Plan 1990, including Elmadağ, Kazan, Çubuk, Akyurt, Temelli and Ahiboz (Ankara Metropolitan Municipality, 1986).

At the time, two major policies were proposed that would affect directly the characteristics of the fringe; decentralization and greenbelt. The plan recommended decentralization and the extension of the districts lining the transportation corridors surrounding the existing urban fabric. Air pollution constituted one of the justifications for the need to decentralize beyond the topographic bowl where, in accordance with the plan, new residential areas would be developed to house a maximum of 300,000 people. The proposed decentralization would be achieved through an intensification of the existing settlements within the 35–40 km ring, where diversified employment opportunities would also be created. Decentralization would not rely on the use of private cars and support sprawl, but would be in a star-shaped form, and would promote the use of public transport. Another policy of plan was to support and improve the greenbelt system to facilitate air circulation within the urban form. In order to ensure the desired effect of microclimates, an 8–10 km wide greenbelt system[52] was planned, increasing the

[52] The proposed Greenbelt system was began in the southern part of the city and extended to the west; Ankara University Research and Application Farm (4,200 decares on Haymana way), Anadolu Botanic Garden (1,350 decares), Mogan and Eymir Lake in Gölbaşı, Gölbaşı Special Environmental

width of the existing one, and aimed to take into consideration the protection of the city's environmental aspects as a whole. New transportation arteries[53] were proposed linking the city center to the fringe, for which a suburban line was required linking Elmadağ, Hasanoğlan and Kırıkkale direction in the first stage, and Temelli, Maliköy and Polatlı in the second stage (Ankara Metropolitan Municipality, 1986).

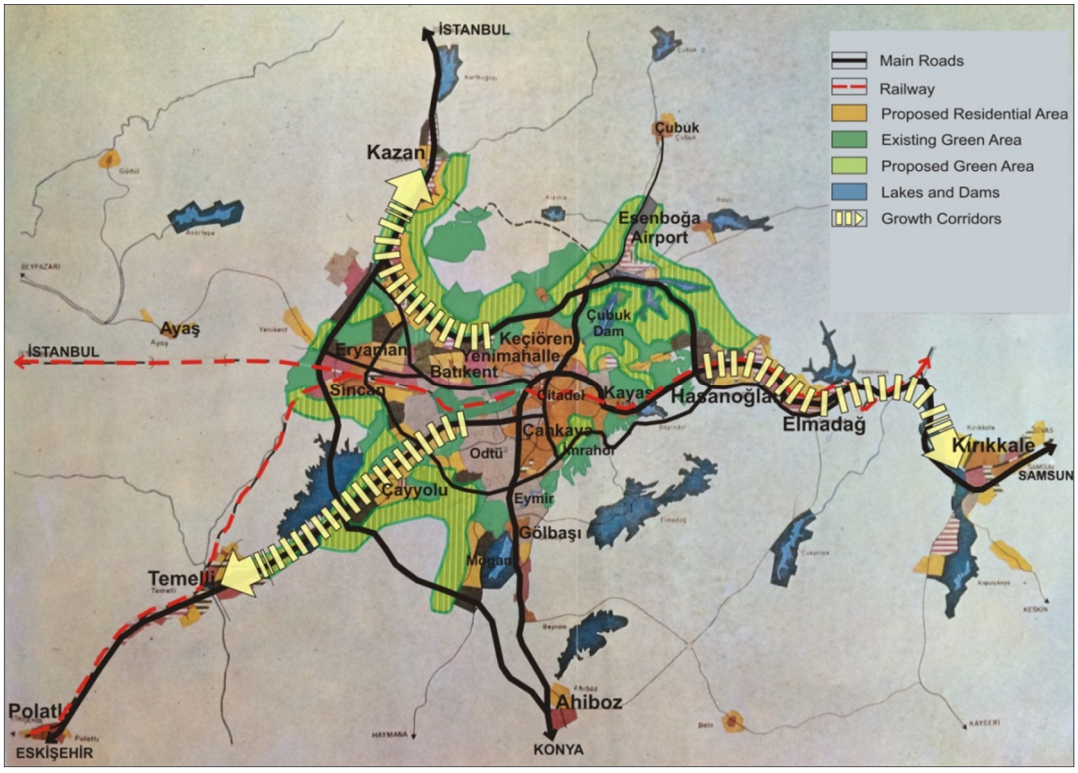

Figure 5.25 Green system and growth corridors in the Ankara Development Plan 2015 (schema drawn by author over the Ankara Development Plan 2015)

Although the 2015 plan was not approved, the plan collected considerable data related to the capital and contributed to the transportation system of the city. The foremost impact of these years was the influence of globalization on the urban space after the 1990s. The regulatory and interventionist roles of the State weakened with the new era, particularly in the economic arena, and the Turkish economy gained a neo-liberal, foreign oriented character in which privatization

Area, İmrahor Valley, Cebeci 50.Yıl Park, Kurtuluş Park, Abdi İpekçi Park, Atatürk Culture Complex, Atatürk Forest Farm, Municipality Olympic Games Area, Hipodrom, Zir and Mürted Plains (İmrahor Brochure 2002)

[53] 57 km along the north motorway, 69 km along the west motorway, 36 km along the south and southeast motorway

came to prominence. The new system encouraged the private sector to make investments in a variety of fields, including housing (Şenyel 2006, 66).

The population of city increased by about 100 times and reached 4.8 million between the 1920s and the 1990s, and city sprawled to 80,000 hectares from 250 hectares (about 320 times) in the same period. Migration from rural areas and other provinces began to decline and the natural rate of increase of the population decreased to below the country average (Ankara Metropolitan Municipality 2006, 179). Despite the decreasing values in the demographic structure of the city, building densities continued to increase and the pressure of private entrepreneurs grew in the first half of the 1990s. Many former squatter zones were transformed into areas of multi-story apartment blocks, and an increasing pressure was seen in the unbuilt areas at the fringe. Under these circumstances and the tendency to grow in the south-east direction of the city, the scope of the 2015 plan was extended, and the "Ankara Development Plan Scheme 2025" began to be arranged at the beginning of the 1990s by the Department of Housing of the Ankara Metropolitan Municipality. According to the 2025 Plan report, the population of the city was expected to reach 7.2 million in 2025. Decentralization returned as a key strategy in the new plan, new development areas were emphasized and eight decentralization corridors were planned, as can be seen in Figure 5.26.

The plan also foresaw regeneration and transformation projects within city, and a decentralization of industry, military areas and campuses to the fringe. Providing greenbelt system, encouraging highly qualified sub-centers, creating new business districts, developing settlements in the south-east direction along Eskişehir Highway and relocating public areas towards the Samsun axis were other key features of the plan (Ankara Metropolitan Municipality 1998).

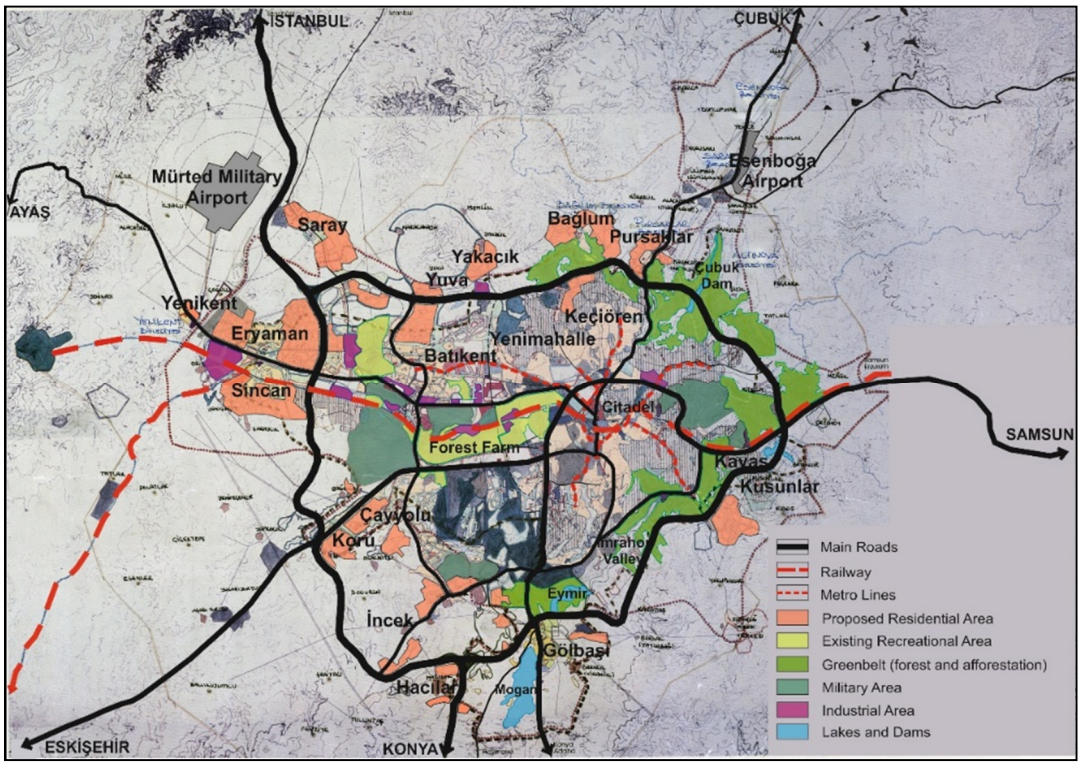

Figure 5.26 Greenbelt system and growth corridors in the Ankara Plan Scheme 2025

The Plan for 2025 was criticized in many aspects. For instance, a large amount of agricultural areas (105,962 ha) were to be developed along the Eskişehir axis and on the Esenboğa Airport road (Sezgin and Varol 2012, 275). The star-shaped development pattern began to deform and a clear urban form could not be identified. Land values reached high levels at speculation areas, and many partial plans and amendment plans were made, all of which contributed to the triggering of urban sprawl (Çalışkan 2004, 156).

The municipality of Gölbaşı, as an example of a leaping development, was brought within the boundaries of Ankara Metropolitan Municipality in 1991, bringing about rapid housing development. As a distinctive area with natural resources, a 1/25 000-scale Environmental Plan was prepared in 1992 for Mogan Lake, which was declared a Natural Preservation Area, permitting only low-rise development in Gölbaşı, turning the area into a satellite town in the south side of city.

Urban Redevelopment Projects can be thought as another significant factor bringing about change within the city and at the fringe. Portakal Çiçeği Valley, Dikmen Valley, Geçak and the Doğukent Southeastern Ankara Development Project are the best known examples of these, aiming to eliminate squatter areas and control development within the city, while also providing better urban amenities. As a result of these projects, modern houses have replaced squatters, the household pattern has changed and high-income people have started to live in the prestigious houses. The Dikmen Valley Project came to the fore due to its impact on an essential part of the wind corridor and greenbelt, while İmrahor Valley is another substantial component of the green system, being referred to in the Jansen Plan and in all following plans as "the most important part of the greenbelt system". The changing process and the current status of İmrahor Valley are investigated in the following section of the thesis in this context.

Vineyards, one of the main components of the fringe in the earliest planning periods that began to be turned into apartment blocks at the end of the 1950s, totally disappeared in these years.[54] Since the mid-1990s, the construction of the Ring Road, Organized Industrial Zones and shopping centers have triggered new residential areas at the fringe. The south-west corridor began to be settled rapidly with the arrival of luxurious housing for higher income groups, and to support the housing development many shopping centers were located along the same corridor.

At the beginning of the 2000s, European Union accession took prominence in almost every policy sector, resulting in a rapid decentralization, liberalization and privatization in the public sector when compared to the 1980s and 1990s. The number of large-scale projects increased, and the urban form began to be shaped in accordance with the mass infrastructure and transport projects that were springing up, funded by both national and international capital. Tuçaltan (2008, 109) indicates that 30 percent of the provision was unnecessary when adding the number of unregistered housing to the registered supply, and claims that the growth was

[54] Ortaylı (1990; 65) states the locations of the last remaining vineyards in the 1990s as Kızlarpınarı Road, Ahmet Şefik Kolaylı Street, Ardahan Street, Aksaray Street and around the Keçiören Nursery School. Other vineyards were turned into blocks before the 1990s.

proceeding like “the city has no external borders”, especially towards the southwest corridor. Cities sprawl as a result of the construction of powerful actors, and such a change leads to a significant transformation in rent types and land value shares. Although the public sector possessed a large stock of land, these areas could not been used rationally (Tekeli 2000). In 2001, a 1/50 000-scale Partial Revision of the Ankara Metropolitan Plan 1990 was approved for the south-west corridor, prepared through the cooperation of the municipality and the ministry. Çalışkan (2004, 156) claims that revisions for the south-west corridor reached 107, many of which were for areas of less than 2 ha.

New legal arrangements were made in 2004 and 2005 altered the boundaries of the city and the authorities within the municipalities. The boundaries of municipality changed with the Metropolitan Municipalities Law numbered 5216 in 2004. This change meant that the Ankara Metropolitan Municipality now covered seven district municipality, 17 towns and 282 villages, and its territory expanded from 200,000 ha to 750,000 ha. In the following year (2005) the Municipality Law numbered 5393 was enacted, assigning municipalities with the authority to conduct “urban transformation projects”, thus bringing urban transformation within the legal system, and giving municipalities authority in urban transformation projects for the first time.

The Ankara Metropolitan Plan 1990 remained in force until 2006 due to upper-scale problems, the surpassing of population projection values and unpredictable development outside the requirements of the plan. It should be noted, however, that the population projection was more accurate than that of previous plans.

5.1.5 Large-Scale Partial Plans and Urban Transformation Projects at the Fringe: Ankara 2023 Master Plan (2006 onwards)

The most recent master plan, the (Capital) Ankara 2023 Master Plan[55] at 1/25 000-scale, was prepared in 2006 by the Ankara Metropolitan Municipality Directorate of Development and Urbanism.[56] The plan aimed to manage the development process, to investigate compact form options that would allow the efficient use of resources, and to produce different settlement options limiting or freezing the tendency to destroy protected areas. The plan contained two main strategies that would directly affect the fringe: "integrated urban form" and "improving public transportation opportunities". An integrated urban form was considered to be the most convenient, since it could manage the growth, protect natural resources and steer corridor development, including the sub-centers integrated with the center. The population projection was almost 6 million people for 2023 based on the downward trend of population growth over the last 20 years (Ankara Metropolitan Municipality 2006, 15).

The fringe is not clearly defined in the plan report, however there are many directives to control growth at the fringe (Ankara Metropolitan Municipality 2006, 16, 90):

- producing different urban form and settlement options that limit or freeze the tendency to destroy protected areas;
- prioritizing compact urban form options;
- leaving behind partial plans that expand the city and create an oil-drop form;
- preparing strategic environmental impact assessment analyses;
- directing land-use location to prevent damage to protected areas; and
- designing the corridor developments to include mixed use, working areas, residential and recreation areas, and creating livable, healthy and high-quality rural and semi-rural environments.

[55] 2023 Başkent Ankara Nazım İmar Planı
[56] Ankara Büyükşehir Belediyesi İmar ve Şehircilik Dairesi Başkanlığı

The objectives related to the green system are mainly:

- defining a management mechanism for the green areas by creating a continuous urban green system;
- determining the principles of a greenbelt;
- generating aerial corridors as parts of the green system and evaluating these areas in the context of the potential for possible disasters;
- leaving forest, forested areas and agricultural areas out of settlements as parts of the greenbelt;
- protecting water resources, wetlands and the elements of wetland systems;
- building a development area by protecting agricultural lands, watersheds and forest areas.

The objectives related to infrastructure are envisaged as:

- limiting individual transportation and increasing pedestrian zones;
- improving subway, commuter train and the other public transportation opportunities;
- constituting a commuter line on the Elmadağ-Temelli route; and
- preventing urban sprawl so as to minimize the cost of water supply in the south and southwest of the city.

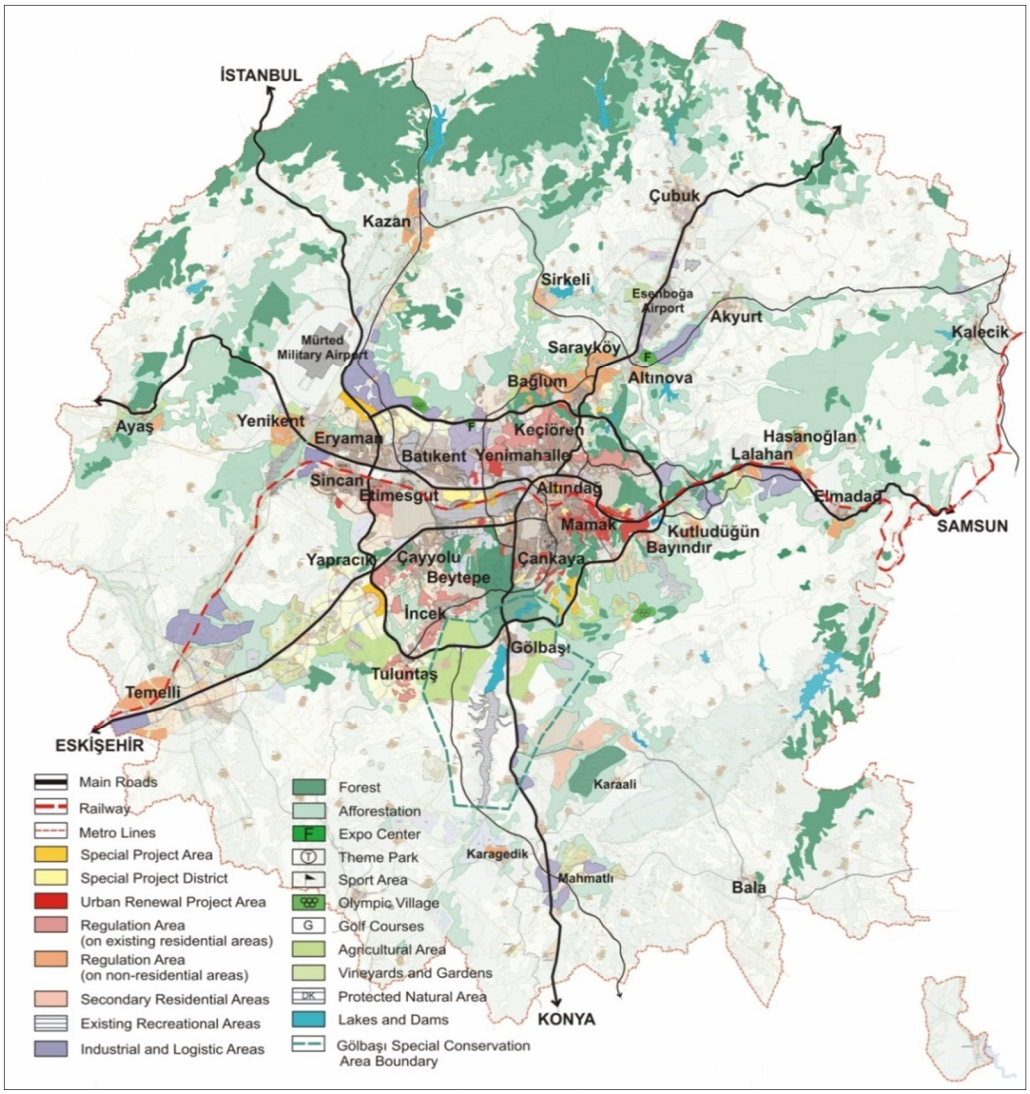

Figure 5.27 Plan decisions in the Ankara 2023 Master Plan

The 2023 Plan was the first plan to include urban transformation areas in its objectives. These areas are labeled as KD in the plan legend below.

Figure 5.28 KD area examples in Yenimahalle
(Ankara Metropolitan Municipality, 2006)

The planning area is divided into six planning districts, being the central, west, south-west, south, east and north districts. The approved plans for these areas (Figure 5.29) are the Gölbaşı Special Conservation Area Environmental Plan, the Kazan-Sarayköy Environmental Plan, the Temelli-Malıköy Environmental Plan, the Çubuk-Akyurt Environmental Plan, the Partial Plan of 1990 Plan Revision and the South-East Ankara Metropolitan Development Plan.

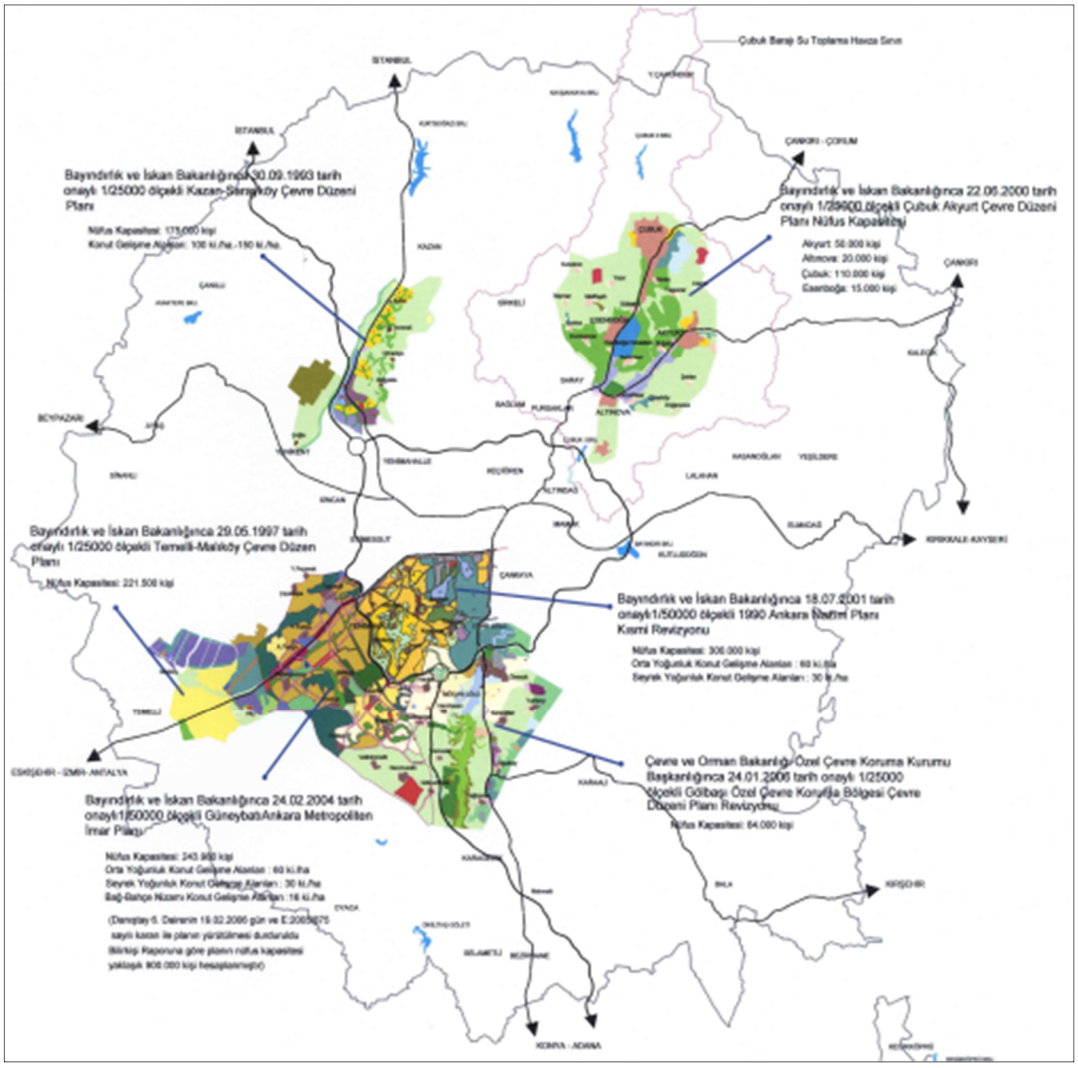

Figure 5.29 Environmental Plans and the Plan Revisions
(Ankara Metropolitan Municipality, 2006)

Although highlighted in the plan strategies, no large-scale green system including green corridors or a relation with the fringe is set out in the plan schema. Many parks have been established over the last 15 years, such as Göksu Park, Gölbaşı

Park and Wonderland, although some major parts of the green system at the fringe started to lose their original structure. The Chamber of City Planners highlighted some contradictions between the plan report and the physical plan document, and objections have been raised related to some 634 issues, including transportation and density decisions, the siting of industrial areas and construction decisions in agricultural zones by a number of different institutions, organizations, universities and chambers.

Towards the end of the 2000s, changes to the fringe in Ankara began to pick up pace, overlapping with the unsteady character of the fringe explained in Chapter 3. The fringe has been interpreted by some as a phase rather than a place, a dynamic and heterogeneous zone of transition between urban land-uses and rural uses where changes occur on a continual basis (Pryor 1968, Marchand and Charland 1992, Nagy 1999, Heimlich et al. 2001), and this is valid also for Ankara, where there is no clear-cut assignation of the boundaries of the fringe due to its flexible structure and the influence of development pressure. It can however be said that the recent planning implementations have brought about a divergence in the theoretical descriptions of fringe characteristics, especially in terms of residential development. The major land-use categories at fringe have been defined in literature as waste management facilities, recreational land-uses, transport infrastructure, conservation sites, energy production and distribution, light industrial areas, low-density residential developments, farming and forestry (Marchand and Charland 1992, Nagy 1999, Heimlich and Anderson 2001). For the specific Ankara case, the present characteristics of the fringe[57] comprise prestigious high-rise and low-rise residential areas, high-rise mass housing areas, low-rise rural settlements, squatter areas, some educational and state campuses, recreational areas, industrial areas, afforestation areas, agricultural fields, sand quarries and brick kilns (Figure 5.30).

[57] Land-uses at the fringe were determined and the photographs taken during fieldwork on 03/23/2015

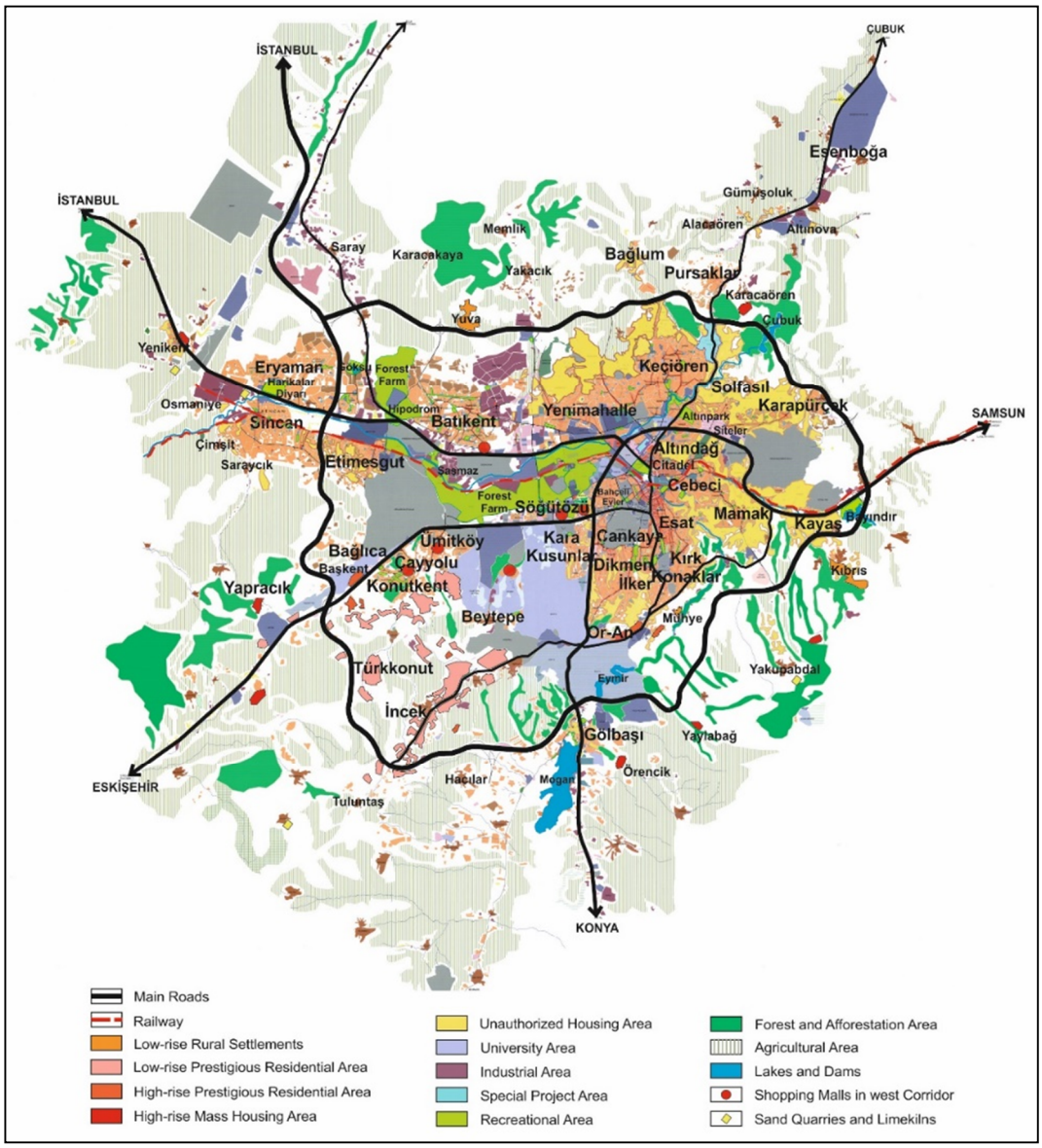

Figure 5.30 Present Characteristics of the urban fringe in Ankara
(schema drawn by author over the Ankara 2005 land-use map)

Prestigious high-rise and low-rise residential areas: High-rise prestigious residential areas located especially along the west and south-west corridor. Other high-rise projects are in a southeast direction, and include construction in the İmrahor Valley and Doğukent Project. The construction of residential, commercial, tourism and recreational areas continue in İmrahor Valley, while the Doğukent Project is yet be realized, but is set to include commercial areas, a hospital and a bus terminal together, as well as housing.

Figure 5.31 Construction along the Eskişehir Highway
(www.turkuazvadisi.com.tr, April 2015)

Figure 5.32 Construction at the south-west fringe of the city (personal archive)

Figure 5.33 Construction in İmrahor Valley (personal archive)

Low-rise prestigious residential areas can be found mostly in the south-west of the city, which was part of the greenbelt in the 1990 Plan period, and include villas and low-rise cooperatives, built through the application of Partial Plans since the beginning of 2000s.

Figure 5.34 Low-rise prestigious residential areas at the southern fringe of the city (personal archive)

High-rise mass housing areas: The government has engaged directly in the production of mass housing through Mass Housing Administration and initiated large-scale transformation projects in the form of redevelopment projects in informal housing areas and new development projects at the fringe (Çalışkan 2009, 43). These kinds of settlements can be found not only in a single place, but at different places in the city. There are many mass housing areas that have been produced by the private sector, however, most of the mass housing areas are produced by Mass Housing Administration. Most of the high-rise mass housing projects are located next to the agricultural areas and pastures at the fringe, as can be seen in the photographs below.

Figure 5.35 Examples from the high-rise mass housing areas (toplukonut.org.tr 2015)

Low-rise rural settlements: There are rural settlements that have maintained their rural characteristics, especially in north and south-east direction from the city, although some are currently coming under pressure from high-rise apartments.

Figure 5.36 Settlements in Yuva and Mühye (personal archive)

Squatter Areas: With the recent urban transformation projects the number of squatter areas has decreased, although it is still possible to see such areas interspersed between high-rise blocks, like in Karapürçek in the north of the city.

Some Campuses: Military campuses, university campuses and governmental institutions cover expanses of large land at the fringe. The universities are located generally on the south-west side of city.

Recreational areas: Recreational areas can be found mostly around the lakes and reservoirs. Mavigöl to the east, the Gölbaşı Mogan and Eymir Lakes to the south, and the Atatürk Forest Farm and Göksupark to the north-west are the largest recreational areas at the fringe.

Figure 5.37 Eymir Lake and Göksupark (personal archive)

Industrial areas: There are many industrial areas at the fringe, most of which are detached one another. Factories are located mostly to the north and north-east of the city. The southern part of fringe also features some factories and excavation areas along the transportation route in İmrahor Valley, while a recycling plant can be found in Mamak. The Sincan Organized Industrial Sites are to the west, and a series of factories can be found along the Konya Highway, on the Ayaş route and at the eastern entrance to the city.

Figure 5.38 Industrial areas and recycling plant to the north of city (personal archive)

Afforestation areas, agricultural fields and pastures: These are still important components of the fringe and can be seen in almost every direction of the city, although it is remarkable that there are a number of high-rise housing projects located right next to agricultural areas and pastures at the fringe. The fields near the motorways leading in almost every direction are afforested, although there is no intense vegetation at the fringe, aside from along the Gölbaşı corridor.

Figure 5.39 Afforestation along the Ring Road (personal archive)

Figure 5.40 Agricultural fields and pastures under pressure from construction (personal archive)

Sand quarries and limekilns: There are working sand quarries and limekilns at the fringe, especially to the west and south-east of the city.

Figure 5.41 Sand quarries and limekilns at the fringe (personal archive)

The transport investments and the market-oriented planning approach have had a significant effect on the city and fringe, especially since the 1980s. As a consequence of leaving the urbanism process to market forces, the city has continued to be built up, destroying the natural value of the previous periods. The characteristics of the fringe have changed, though not in such a way that creates public value, and building stock has increased in every direction from the city. Large amount of lands located at the fringe have been opened to urban renewal and development projects, particularly around the Eskişehir, Konya and Istanbul highways. These renewal projects are proposed on lands that have no or very little building stock at the fringe, which Sargın (2012, 1) describes as converted projects, and a systematic tool has been established that allows the rooting of the policy and

the planning process demanded by the neo-liberal approach. Shopping malls and disconnected facilities have also accelerated urban sprawl over decentralization. After all these developments the form of the fringe has become a comprise of the fragmented structure of the transformation areas and the roads connecting them.

5.2 Overall evaluation of the periods and recommendations on the growth control of Ankara's fringe

Rapid growth increases demand for various uses and developments, especially in fringe areas and as a result of urban sprawl, rapid growth has brought with it ecological and socio-economic problems. On the contrary, growth control protects prime agricultural lands, rural landscapes and natural resources, while also considering social, economic and environmental priorities, ensuring high standards of air and water quality, and fostering cooperation and partnerships among actors (Hare 2001, Kötter and Friesecke 2009). That said, market forces, marketization trends, growth policies of governments and urban plans are revealed as major drivers in the creation of tension related to growth control (Zhang 2000, Heimlich 2001, Cheng 2003, World Bank 2008, Johnson 2008, Zhoe 2009, Nyarko and Adugyamfi 2012, Wang 2014). Many planning tools have been created to reduce the tension at the fringe and to avoid any unintended spatial consequences and impacts on the fringe cities. Furthermore, two types of tools have become prominent in the more effective models, being urban containment strategies (greenbelt, urban growth boundary, urban service area) and smart growth strategies (transfer of development rights, transit-oriented development, traditional neighborhood developments, priority funding areas, urban consolidation-intensification and infill development). Urban containment strategies are traditionally known as planning tools for the control of growth, with the intention being to transform the outward expansion into urban areas defining a boundary (Nelson and Dawkins 2004, Owusu 2013). Smart growth strategies refer to the principles of development and planning practices which create more efficient development patterns. These offer alternatives to sprawl conserving environmentally sensitive resources, encouraging mixed-use development and

supporting pedestrian-friendly development (Litman 2012). Determining a clear vision, defining the roles of key stakeholders, ensuring flexibility and accessibility, linking new transport modes and infrastructure according to sustainable development policies, limiting large-scale development at the fringe, establishing and adhering to natural preservation policies and designating green spaces are the common principles of growth control strategies.

Urban growth control has been a leading issue in Ankara, and many of the planning tools mentioned above have been proposed and implemented in an attempt to control urban growth since the first plans were drawn up for the city. These strategies have witnessed constant change in parallel with the change of fringe characteristics, and this section presents the factors that affected the current picture of the Ankara fringe based on a literature survey and interviews[58] with planning experts involved in the planning process in Ankara, either academically or in practice. In this context, the most effective factors affecting the fringe can be categorized as changes in the economic sphere, planning approaches and plan decisions, legal arrangements, land policies and the roles of actors.

5.2.1 Changes in the Economic Sphere

Many of the most prominent problems related to growth control were a result of the economic conditions of different periods. In the first period, the leading economic factor affecting the fringe was the limits on expropriation due to savings policies and changing plan decisions, rather than the cost (Tankut 1993, 159). The 1950s were a turning point for the country and also for Ankara in the aftermath of World War II as agricultural production underwent modernization and mass migration brought about many political and economic changes. Considerable transformations occurred in the urban area and at the fringe, with Ankara being one of the most affected cities in this regard. Lacking the resources to buy the existing houses, the migrants started a boom in illegally developed settlement areas at the fringe that

[58] Interview dates: Özcan Altaban: 02/26/2015, Baykan Günay: 03/02/2015, Çağatay Keskinok: 03/09/2015, Orhan Sarıaltun: 05/12/2015, Ömer Kıral: 05/29/2015

came to flank the city to the north, east and south of city, comprising 60–70 percent of the total housing stock right up until the 1980s. That same year was marked by a military intervention that resulted in neo-liberal economic and political milieu that also brought about change in the spatial pattern of cities. Settlement lands were purchased outside the boundaries of the city and building permission was obtained through Partial Plans, bringing about a rise in large-scale residential developments at the fringe in these years. Following that, the rising influence of globalization on urban space after the 1990s heralded in a more foreign-oriented system that encouraged private investment. The free-market mechanism became one of the most important directors of urban growth, with Organized Industrial Zones and shopping centers attracting new residential areas to the fringe of Ankara. Land values peaked in speculative areas and the demands of housing cooperatives increased. Marketization and privatization gained speed in the 2000s, when the market-oriented character of planning had a mostly detrimental effect on the fringe. This was a result mostly of the efforts of investors and powerful bureaucratic actors in making it easier to snap up large tracts of lands at the fringe.

5.2.2 Planning Approach and Plan Decisions

Right up until the last planning term, the control of growth was always one of the main concerns, and many strategies to control growth were implemented, to varying degrees of success. Directing the growth of Ankara came to the agenda with the first planning efforts after the proclamation of the Republic. “Expropriation” and “increasing the land stock in public ownership” constituted the first efforts to direct the growth of the city, with 400 hectares of vacant land to the south of the railway being expropriated by the government for the future extension of a New Town. The first attempts to create a green system also arose in this period, carrying on the garden city principles of the Jansen Plan. The “greenbelt” that emerged at this time as a result of expropriation policies has been the only consistent tool in the urban plans since the first planning attempts. The initial intention of the greenbelt was to control sprawl and to protect the natural resources at the fringe, however the actual implementation saw only the planting of trees, with little attempt made to use the

belt as a planning instrument or to create a recreational system at the fringe. In the 1950s, the Yücel-Uybadin Plan aimed to create a compact city in which the entire population would live within the municipality boundaries. The plain suggested "concentration in the topographic bowl" as its main tool to control growth, while the transportation network was to be the main factor determining the future development of the city. Despite the proposed concentration in the topographic bowl, increased building heights along the Konya-Samsun highway and other arteries affected the characteristics of the fringe, and the city came to be surrounded by illegal settlements, taking an oil-drop form in the 1960s. The AMPB prepared a framework plan scheme in the 1970s in which controlling and managing growth at the fringe was the major objective. The "greenbelt", "decentralization" and "the limitation of infrastructure, transportation and services" were the main tools for the control of growth until the 1990s, corresponding to the Urban Containment Strategies found in the literature. The plan proposed two main corridors in a south-west and north-west direction, and new neighborhoods were proposed outside the city in the form of specialized sub-areas. The period since the mid-1990s has seen the construction of the Ring Road, Organized Industrial Zones and shopping centers, all of which have triggered new residential areas at the fringe. The characteristics of fringe began to transform once again, with many luxury housing settlements being created by private construction companies. In this way, the city started to be restructured by powerful actors in a fragmented way, and recent planning approaches have led to incremental, piecemeal and uncoordinated development since the 2000s. While the topography, streams, vineyards, gardens and agricultural areas were once the thresholds of the city that defined the fringe, they have over time been exceeded, with infrastructure and transportation investments now being the main determinants of growth. The number of partial plans[59] and large-scale projects has increased rapidly at the fringe, and the character of the fringe changed once again, taking the form of a dispersed structure of different urban land-uses in amongst pastures and agricultural areas. This has led to a rise in tension between the urban and rural. The following suggestions of how to

[59] For instance, as Özler (2012; 166) states during eighteen months between 2007 and 2008, 60 partial plans were made at the southwest part of fringe.

reduce this tension have been garnered from literature, fieldwork and in-depth interviews:

- Alternative planning scenarios should be created for the control of growth
- Relation between demographic and social factors and urban growth should be analyzed
- The fringe should be interpreted as part of the natural system
- Plans should be controlled and monitored consistently
- Partial plans should be limited, and any increases to the fragmented structure of the fringe should be prevented
- Increases in densities at the fringe should be terminated
- A diversity of public spaces should be created in terms of open and green areas at the fringe

Alternative planning scenarios should be created for the control of growth: Decisions related to growth should not be confirmed without looking at alternative proposals. A final selection should not be made without analyzing the possible consequences of these alternatives. For example, the AMPB put forward 10 alternative proposals and development schemes for the 1990 Ankara Metropolitan Plan. After evaluating all alternatives and parameters, the Corridor Scheme was accepted as the most feasible option. Altaban (2015) claims in the interview that this was a substantial and beneficial approach in the planning of Ankara.

The planning approach is also an important factor in the control of growth, and strategic plans and structural plans are used in many countries in this regard. Well-rooted legal frameworks, organizational structures and experience are required for the success of such planning approaches.

Relation between demographic and social factors and urban growth should be analyzed: Land values rise along transportation corridors, and the sector theory continues to be realized in Ankara today. Urban growth is influenced by both the spatial site selection of different social classes and physical parameters. Social mobility is an important factor in the emergence of changes at the fringe, and it is

possible to say that the site selection of different social classes along the transportation corridors plays a significant part in this. Accordingly, the demographic and social reasons behind the physical data in planning should be well understood.

The fringe should be interpreted as part of the natural system: The catchment basins should be taken into consideration as a system in planning efforts, and upper-scale plans should not be restricted by the administrative boundaries of the province in this sense. Decisions related to the basin level at the upper-scale should be represented at the lower scales of the cities and fringes as a part of a system. Preparing upper-scale plans considering basins is very important for Ankara. For instance, İmrahor Valley, located in the southeast of Ankara, is a major part of a system that begins at Salt Lake in Central Anatolia and extends to the Eymir and Mogan Lakes. However, the importance of the valley is not reflected in a protection order based on planning decisions for the entire system, including the basin.

Plans should be controlled and monitored consistently: Associated with the decrease in concern about the control of urban growth after the 1980s, housing has been produced in the city that far exceeds the city's needs. The current economic and political sphere encourages production today, while transformation project activities are continuing at full speed in the city and at the fringe. The project locations of Mass Housing Administration have also had a negative effect on the growth monitoring and control processes. Putting together a plan-program-budget system for specific periods to ease the monitoring and control of implementations is also important.

Partial plans should be limited and any increases to the fragmented structure of the fringe should be prevented: The existence of partial plans is one of the major problems in Ankara in terms of growth control. Many are confirmed in a very short time without due consideration. Partial plans detract from the idea of an integrated plan and create a fragmented city form. There are major interventions in the recent Ankara plan, including "special project areas" and "urban renewal areas",

which are increasing the fragmented structure of the fringe. Some of these implementations are in conflict with the principles and policies of the upper-scale plan, but these contradictions are eliminated with later plan revisions. The existing problems of the fringe should be resolved before the integration of new parts through partial plans.

Increases in densities at the fringe should be terminated: The population and the settlement densities are increasing at the fringe as a result of neo-liberal policies, and these densities are further increased through partial plans and plan changes. Policies related to housing need to be reorganized in this sense.

A diversity of public spaces should be created in terms of open and green areas at the fringe: The planning of Ankara should be approached as the "planning of a capital city", for which creating a public sphere is crucial. The state-owned lands at the fringe should be identified, and these lands should be utilized for public interest.

5.2.3 Legal Arrangements

Legislation has initiated change at the fringe in all periods of the city. It is possible to summarize the most important legal arrangements related to the urban fringe: The Expropriation Law (1925), one of the most effective pieces of legislation for the conversion of the fringe area, and the Law of Building and Roads (1933), were not far-reaching enough for the implementation Temporary Parceling and the granting of permission to settle outside the plan boundary has accelerated sprawl, while adjustments to the District Height Regulation have doubled and tripled densities and have increased air pollution. The Law of Property Ownership and the Squatter Settlement Laws (1965–1966) facilitated the build-sell construction model, and the Mass Housing Laws (1981, 1984), Building Amnesty Laws (1983–1986) and Development Law (1985) defined the fundamental principles of urban planning and gave authority to the governorship outside the adjacent areas. With enactment of the Metropolitan Municipalities Law (2004), the boundaries of the municipality were expanded and urban transformation took its place in the legal system and liberalized

planning authorization in the provinces. Legal regulations are one the most important instruments for the control of planning, and it was because of the inadequacies of the administrative and legal mechanisms that illegal and unplanned construction became so widespread in Ankara. In this regard, the ability of political power to control the tensions at the fringe is important in this sense.

5.2.4 Land Policies

One of the most important roles of public land is to guide growth and to serve the public, however land policies and legal tools aimed at the control of growth were not determined clearly in any of the planning periods of the city. The Land Office was one of the main institutions for the direction and managing of growth, while the Emlak Bank was a prominent actor in terms of land policies. In the most recent periods of the city, Mass Housing Administration has played a leading role in identifying land for development, although the public land stock seems to be treated as a fund to meet the deficits of the administration. This approach increases land speculation and the value of both land and buildings. The following recommendations regarding land policies come to the forefront:

- Instruments for the management of land speculation should be created
- Land and taxation policies should be established to control the growth of the city
- No more than the necessary lands should be opened to construction

Instruments for the management of land speculation should be created: The sprawling of the city has become an industry in Ankara. The city is in a permanent cycle of raising rents and possessing the rent then. Fragmented development occurs at the fringe, and the lands between these fragmental parts turns into developments, the prices of these lands rise, the partial development occur again and this process continue as a cycle in this way. Kıral (2015) remarks in the interview that “non-stop sprawl” transformed into a “wavy sprawl” and a new social class has formed generating income by the land speculation.

The city should be managed with more effective land policies, with different policies created for different sectors and for specific issues, such as greenbelt, housing, tourism, industry, etc. Public lands should be managed in the most rational way targeting the public interest. An organizational structure should be established to control planned development by stockpiling land, guiding decision-makers and controlling the appropriateness of investments through planning.

Land and taxation policies should be established to control the growth of the city: The Transformation of Development Rights (TDR) is an effective instrument for growth control that is used in many countries involving taxation policies, plans and programs. TDR is considered an effective tool for the protection of rights in the natural areas at the fringe, and the need to apply such control should take into account whether public interest has been affected after the transfer of property rights. The taxation of income from land speculations and land values outside the boundaries of the planned area should also be controlled.

No more than the necessary amount of land should be opened for construction: The rapid production of the built environment as a result of neo-liberal policies results in excessive growth in cities and opens more lands for development than is necessary. The unregistered real estate system and the social and economic structure behind it have caused the city to spread, affecting also the characteristics of the fringe in a negative way.

5.2.5 The Roles of Actors

The actors in the planning process include those who play a key role in the realization of strategies for the control of growth and the key contacts who at the same time subvert the principles of the plan. Governments, the planners of urban plans, the Directorate of Development, the AMPB, the Land Office, the MHA, the citizens of Ankara and investors from the private sector have all been major actors in the changing process at the fringe. Many problems in the early periods came about due to the actions of several stakeholders involving a lack of communication,

interview pressures of the people living in Ankara, etc. It was through cooperation with investors in the public sector that the green areas were cropped in order to increase development rights, and the plan was thus transformed into means of increasing land rents. The cooperation between the AMPB with Land Office, despite the pressures along the southeast corridor in particular, can be considered a success in the 1980s. However in the recent period, large-scale construction companies have become the major actors in space production with large development projects. Such kinds of projects have resulted in struggles between professional organizations and municipalities.

Having adopted the plan, the key to success in its implementation to ensure it is followed by planners and planning teams. The participation of the general public in Ankara is also highly important. Adopting the bourgeoisie to the principles of plan, related to the public interest and the protection of cultural and environmental values at fringe particularly, can play an advocator and controller role on growth as the manner of proletariats in greenbelt case of England. Transparency is another factor determining the success of growth control. Lack of transparency can bring about fragmented development, as has been the case in the city in recent years, and to address this, the following recommendations can be made:

- Central and local authorities and residents should not prioritize rent
- Planning efforts should be realized through participatory processes
- Public interest should be the priority of tools aimed at monitoring and controlling growth

Central and local authorities and residents should not prioritize rent: Opportunities in the real estate sector have developed throughout many periods in Ankara. The strategies should not be developed through such kind of opportunities. The spread of the city should not become a source of income. While the characteristics of sprawl in Ankara have changed over time, the mentality in the rental sector has not changed. The middle class is also important in this process. Controlling urban growth at the fringe requires the middle class to play a conscious role in dominating and controlling speculative market mechanisms. The attitude of

the middle class is an essential aspect in the protection of the greenbelt. The United Kingdom is a successful example in this regard, where private property has been maintained in the greenbelt and where the middle class plays a major role in ensuring its sustainability.

Planning efforts should be realized through participatory processes: Planning practices should steer clear of political populism and be resistant to the administration when necessary. The authority and practices of Mass Housing Administration are criticized in this sense as encouraging sprawl and changing rent distribution in the city and at the fringe. In terms of the reconciliation of the actors, the practice of the AMBP between the 1970s and 1990s is highlighted. Altaban (2015) states that although there were no instruments to control growth the policies were explicit in their intention. Planning efforts were realized in a more participatory and transparent nature in cooperation with Emlak Bank and the Land Office. Such a process would result in more controlled growth today.

Public interest should be the priority of tools aimed at monitoring and controlling growth: The need for an organizational mechanism that prioritizes public interest is indicated by all experts in the interviews. Such a tool should be an important part of policies in terms of public oversight. This mechanism should control the decisions of administrations on behalf of the public and direct the investors to prevent the unlimited supply of land.

5.3 İmrahor Valley as a Significant Part of the Urban Fringe

Valley areas have different characteristics to their environs with regard to the variety of climatic events, including temperature, moisture, fogging and insulation, depending on the morphological structure. They are natural drainage canals for water and important wind corridors, and play a role in protecting the ecological balance and preventing the loss of open space in urban and fringe areas. Green areas in valleys are also significant in terms of the climatic and visual aspects of their biological diversity (Öztan et al. 2001, 19; Koç 2006, 1). The planning of valleys is

crucial in this sense, being very important for cities as a part of a green system and their suitability for recreational use. Protecting valleys should be a priority in planning so as to improve environmental quality, provide options for recreation, and ensure the continuity of functional and aesthetic aspects.

İmrahor Valley, located in the southeast of Ankara, forms part of the urban fringe with its landscape and natural features, although it has begun to lose its natural characteristics under the effects of market forces and partial plans. For these reasons, İmrahor Valley is discussed in this section as a contemporary example of changes at the fringe of Ankara.

5.3.1 General Features of İmrahor Valley

The valleys in Ankara constitute a system with a radial character. İmrahor Valley, one of the most important elements in this system, has an effective role in shaping the form of Ankara. It covers approximately 3,526 ha area, has a length of 8 km and width of 300–400 m. The valley is actually a major part of a water basin at an upper scale, starting with Salt Lake in Central Anatolia and leading into the Eymir and Mogan Lakes in the south of Ankara (İmrahor Vadisi Açıklama Raporu 2002).

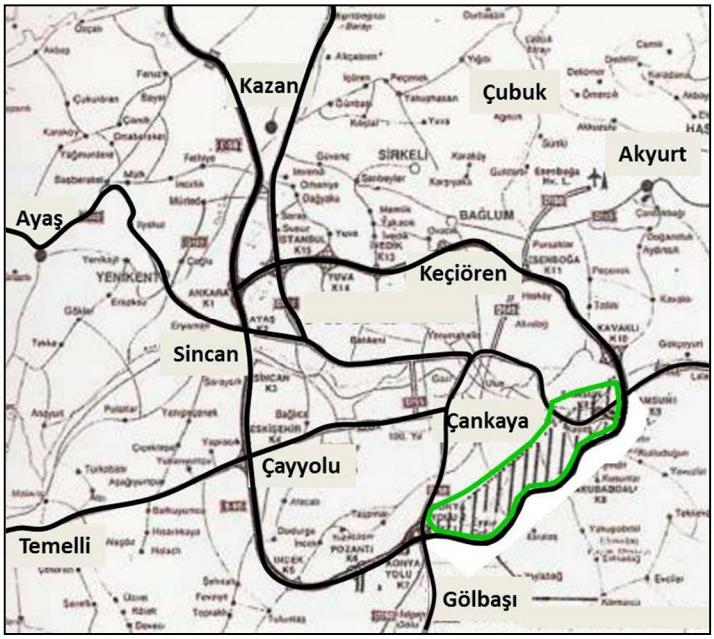

Figure 5.42 Location of İmrahor Valley in Ankara

The topographical structure of the valley comprises a valley plain, slopes and ridges, creating a wind corridor that has a positive impact on the microclimate of the city. The Sazlık (İmrahor) stream is also an important part of this natural structure, passing through the valley and flowing into Eymir Lake, enriching the valley landscape. Although the stream bed runs dry for much of the year, the stream rises after heavy rains. The natural vegetation in the valley includes a rich collection of herbaceous, shrub and tree species that in a study by Şağban (1998) included 550 plants, 238 genera and 387 taxa belonging to 70 families (İmrahor Vadisi Açıklama Raporu 2002, 6).

Figure 5.43 General view of İmrahor Valley in the early 2000s
(http://www.imrahorvadisi.com August 2015)

Kurttaş (2002, 3) and Erol (2002, 5) noted the existence of many fruit trees and willow groves in the valley, where vegetable and grape cultivation was carried out extensively until the 1990s. The villagers in the valley had long been engaged in agriculture on their own lands, but according to the interview with one of the headmen of the villages in the valley (December, 2015), the brick kilns that opened in the 1970s damaged large tracts of agricultural lands, and more agricultural lands were lost to the illegal dumping of construction debris from the city until the end of 2000s. Brick kilns affected considerably the natural structure of the valley. Deep pools formed where soil was removed to produce bricks. Öztan (2001, 45) indicates that although the valley is rich in underground and groundwater, the balance of

groundwater has deteriorated as a result of the brick kilns in the valley, preventing the sufficient use of groundwater in agriculture.

Figure 5.44 Pools and debris dumping areas in the valley
(Öztan 2004, İmrahor Vadisi Açıklama Raporu 2002)

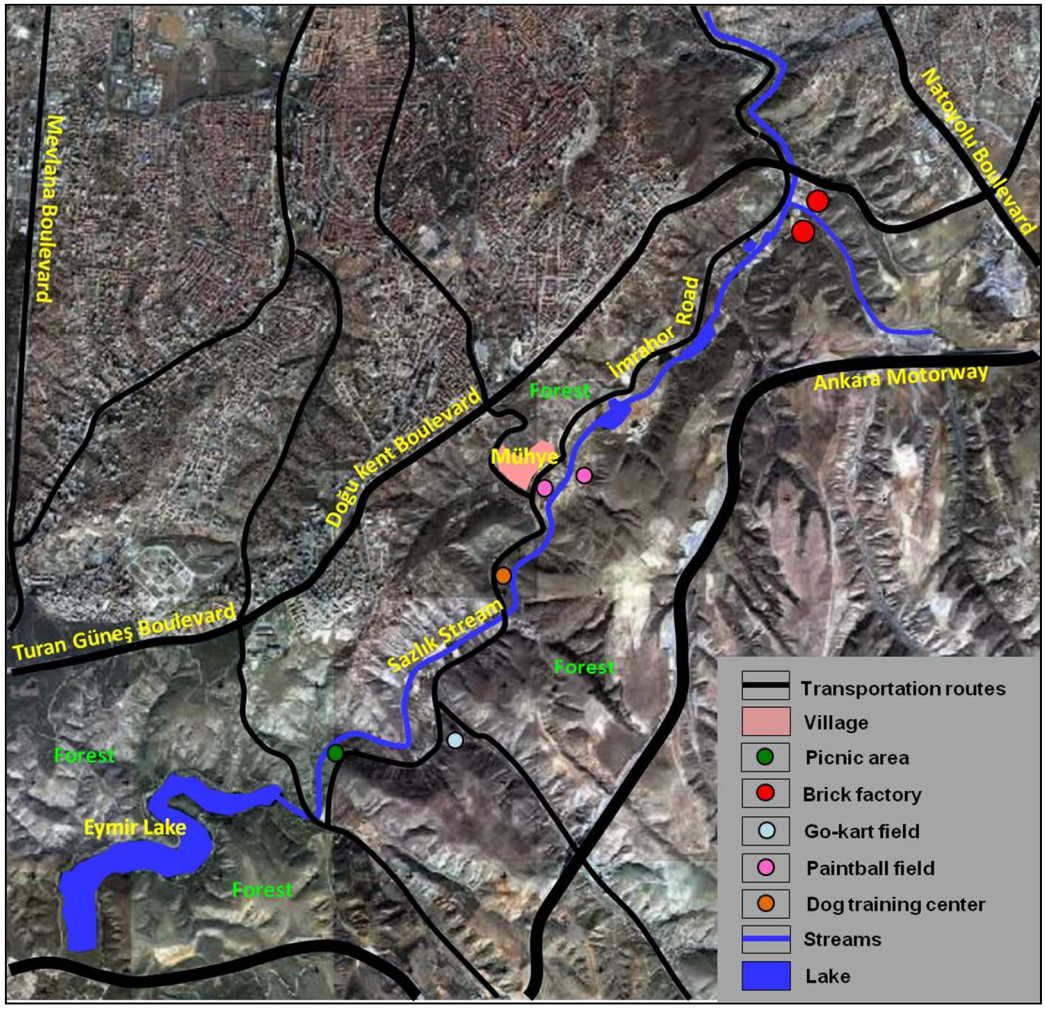

Figure 5.45 Topographic Structure, Streams, Transportation and Land-uses in 2015
(schema drawn by author over the Iconos satellite image generated by Koç 2006, 17)

In summary, İmrahor Valley, covering the largest part of the southeast of the fringe, is one of the most important components of the city. It forms part of the watershed feeding the water sources of Mogan and Eymir Lake and bringing richness to the natural vegetation, while also acting as a wind corridor providing air circulation to city and offering areas for recreational use.

5.3.2 Changing Process and Current Situation of İmrahor Valley

İmrahor Valley has always been recognized as one of the most important ecological areas, beginning from the earliest plans for Ankara, and has been considered a particularly important part of the greenbelt at the fringe. The plans and implementations effecting İmrahor Valley are examined in this section.

Jansen, who prepared the first spatial plan for Ankara in the early Republican Era, referred to Ankara as "the city of valleys" in the 1937 Ankara Development Plan. While the boundaries of plan did not contain the İmrahor Valley, Jansen defined the landscape of İncesu Valley in the plan report as follows[60] (1937, 26):

> *"The land in the İncesu valley turns into a flower carpet for a short time in the spring. The valley looks like heaven and the colors of trees change to red and white. The east of Yenişehir and the south of Cebeci do not accept comparison with the other parts of city in terms of beauty."*

Jansen proposed a green structure consisting of natural features, green corridors, allotment gardens and sports fields at the fringe. The plan was implemented between 1932 and 1938, however the implementations of plan failed to provide a holistic and integrative framework for the fringe area at the time.

The Yücel-Uybadin Plan aimed to keep the development within the topographic bowl, with İmrahor Valley and Eymir Lake recognized as the southern boundary of the plan where development was not recommended. The plan led to an increase of

[60] İncesu stream passes through Ulus, Cebeci, İmrahor Valley and joins Mogan Lake. As the İmrahor Valley is on the route of İncesu Stream, many documents accept that the description of Jansen for İncesu Valley in the plan report is valid also for İmrahor Valley.

density in the city, and efforts to manage sprawl failed, leading the city to spread outside the topographic bowl and the continued growth of unplanned areas at the fringe. The Mamak-Üreğil-Kayaş axis was the site of one of the most intensive unplanned settlement areas at the north of İmrahor Valley, but outside the borders of the valley.

The characteristics of the valley in the early 1970s were described as follows by the headman of a village in the valley in an interview: "People were engaged in agriculture on their own lands. The economic income of the people living in the valley came from brick kilns, agriculture and husbandry. There were 25 brick kilns in the valley, and brick factories were established in these years, employing many villagers in the valley. Besides, off-roads were held and flower sale places located in the valley. The wardens were even employed in the valley.

The Ankara Metropolitan Planning Office (AMPB) prepared the 1990 Ankara Metropolitan Plan in the 1970s, as the first comprehensive master planning effort to include the İmrahor Valley. The AMPB made years of research to determine areas suitable for settlement. The topography, land capability, geology, geomorphology, hydrology, climate, landscape, archeology, ecology, rural settlements and life characteristics of the city were investigated to a radius of around 50 km surrounding the city, and many surveys and threshold analyses were made and a comprehensive land-use map was drawn up prior to the creation of alternative schemes. In the 1990 Plan, the objectives for valleys of the city were as follows:

- avoiding increases to urban density and the generation of a greenbelt
- the consideration of the İmrahor Valley, Gölbaşı and the Bayındır Dam as parts of a system
- the preparation of plans to conserve recreation areas at the fringe
- the creation of recreational areas between the Eskişehir Highway, Çayyolu and Konya Highway to restrict urban development
- the protection of the valleys as wind corridors.

The greenbelt idea was one of the most important proposals of the 1990 Plan. According to the literature part, greenbelt similarly represents a response to provide environmental benefits and support recreational opportunities preventing sprawl (Department for Communities and Local Government 2006, World Bank 2008, Zhoe 2009, Cadieux et al. 2013, Jinjun 2012). In accordance with these aims, the greenbelt around Ankara was proposed to protect the natural structure of the valley, to prevent development at the fringe, to consider the valley as a part of a green system, to increase recreational areas, to reduce air pollution and to protect the city from floods. The plan shows the İmrahor Valley, Eymir and Mogan Lakes connected to the urban green areas, forming a continuous green corridor. The Çubuk, Hatip and İmrahor stream basins were also proposed as components of the green system for the city, and were later afforested as part of the Greenbelt Afforestation Project explained below.

The Ministry of Forestry General Directorate of Afforestation and Erosion Control[61] started to implement the Ankara Greenbelt Afforestation Project in 1983 in accordance with the 1990 Plan. Afforestation was considered in three sub-zones (AMPB Urban Development Strategy Report 1978): The first greenbelt proposal started in the south of Ankara at the Atatürk Forest Farm and continued through the Middle East Technical University (METU) afforestation area, taking in the Eymir and Mogan Lakes, the water reservoir basins and İmrahor Valley, before passing Hüseyin Gazi Mountain, Çubuk Dam Lake, Bağlum, İvedik, some parts of Macunköy, and ending again in the Atatürk Forest Farm. The second belt was proposed as a continuation of the first belt, and comprised Bayındır Dam Lake, Nenek, Tatlar, Mahmudiye and some parts of Susuz village, Sincan, Osmaniye, Elvan, Bağlıca and Alacaatlı. The third greenbelt proposal comprised Elmadağ, Hasanoğlan, Kırıkkale, Kurtboğazı Dam Lake and its environs, the slopes of Kızılcahamam, some parts of Haymana and Beynam Forest.

The greenbelt afforestation project of the AMPB covered an area of 24,408 ha, and was one of the most important initiatives of the ministry related to property transfer

[61] Orman Bakanlığı Ağaçlandırma ve Erozyon Kontrolü Genel Müdürlüğü

at the fringe, with all unclaimed and unregistered lands transferred to the Ministry of Agriculture and Forestry for afforestation (Tekeli 1986, 96). The afforestation efforts continued until 1997, although the process of implementation was criticized due to its scope. The content of the greenbelt project was limited to the planting of trees in the city and at the fringe, which contributed to the natural structure of city, however the greenbelt was not used as a "planning tool", in that it failed to include and integrate also agricultural areas, valleys, water surfaces, natural conservation areas and recreational areas. Instead, the afforestation project was implemented in a fragmented and disconnected manner, and the greenbelt plantations had almost no relationship with the other open and green spaces in the metropolitan area. As a result, the idea of creating a green system could not be realized, and as an additional blow, insufficient funding could be sourced for the afforestation activities of the Ministry of Agriculture and Forestry (Çulcuoğlu 1997, 109).

Despite the conservation priority of the 1990 Plan and the significant quantities of land accumulated by public authorities, there was, according to Tekeli (1986), a deficit of efficient land policies. As a result, the first residential development occurred as unplanned settlements in the southwest of valley in the 1980s, with people constructing unauthorized housing and dairies on their own lands (interview with a headman, December, 2015).

The greenbelt policy was also a priority of the Ankara Development Plan 2015, prepared within the context of the Ankara Transportation Master Plan by a team from METU in 1985. In order to ensure the desired effect on the microclimate, the width of the greenbelt system in the previous plan was increased to 8–10 km, with the idea being to protect all environmental aspects as a whole. The decisions for the valleys were:

- to accelerate greenbelt implementations in the metropolitan area,
- to protect the İmrahor-Mogan watersheds, and
- to create large parks in the city and at the fringe.

İmrahor Valley was considered an important part of green system in the 2015 Plan, and while the plan failed to gain approval and be converted into a legal document, it showed the continuity of the greenbelt decision at the fringe as an upper-scale strategy.

In 1988, as the afforestation of İmrahor Valley was continuing, the Doğukent Project came to the agenda at the southeast of the valley, outside its boundaries. The project gained approval in 1991 from the Ankara Metropolitan Municipality, with the aim being to direct urban growth in an easterly direction. Residential uses, recreation areas and other urban services are proposed in the project, and while it has yet to be realized, the project encourages development in a fragmented manner and leads to sprawl along the side of İmrahor Valley.

Figure 5.46 Views from Doğukent Boulevard
(http://www.ankara.bel.tr, August 2015)

Ankara Afforestation Master Plan[62] (AKAP) was designed and approved in 1990 as a complementary plan to the Ankara Greenbelt Afforestation Project (1983), and was to lead to the afforestation of 500 ha over four years with the following objectives (Çulcuoğlu 1997, 88):

- the creation of passive green areas through the afforestation of valleys, the environs of highways and railways at the fringe, and in the roads and streets of the city, and

[62] Ankara Kenti Ağaçlandırma Ana Planı.

- the creation of active green areas through the afforestation of parks, green fields, school gardens and housing gardens.

The Afforestation Master Plan was implemented by Ankara Metropolitan Municipality, and saw some parts of İmrahor Valley, Pursaklar, Eymir Lake and its environs, the Çubuk I, II and Bayındır Dams and Hacıkadın Valley being afforested in the mid-1990s.

The importance of the valleys in Ankara was emphasized also in the Ankara Development Plan Scheme 2025, which was prepared in the early 1990s but not put into force. The valleys were set aside for the recreational needs of the city, and the İmrahor Valley was highlighted as the most important part of metropolitan area recreation system. The plan aimed to create a green axis that would permit the creation of multi-purpose recreation environments, and would integrate the Atatürk Forest Farm, İmrahor Valley, Mogan and Eymir Lakes into each other. The objectives of plan related to the valley were as follows:

- protecting the natural character of the valleys;
- considering the valleys as part of the greenbelt and wind corridors;
- creating new green areas by protecting stream beds and water resources;
- designing Special Project Areas in the valleys to satisfy the recreation needs of the city; and
- removing the sand quarries and brick kilns from İmrahor Valley.

İmrahor Valley was a significant factor in the recreation projects of the Ankara Metropolitan Municipality resulting from the planning efforts of the 1990s (Çulcuoğlu 1997, 88). Accordingly, a 1/5 000 scale İmrahor Valley Recreation Area Master Plan was prepared by the Municipality in 1992 that was the first specific plan for the Valley, aiming to conserve its natural identity. The targets of plan are as follows (İmrahor Vadisi Açıklama Raporu 2002, 14):

- opening the valley plain for recreational use and low-density construction;
- taking hydrological measures in the valley;
- modernizing the characteristics of villages;

- removing the brick kilns and transferring them to another location in the city; and
- opening the forest areas for recreational use.

In the plan, green areas were protected as a part of an open system, a large park was created in the valley plain, a limited size of social and commercial centers, a limited size of residential areas, and a limited size of commercial recreation area were proposed (İmrahor Vadisi Açıklama Raporu 2002, 14).

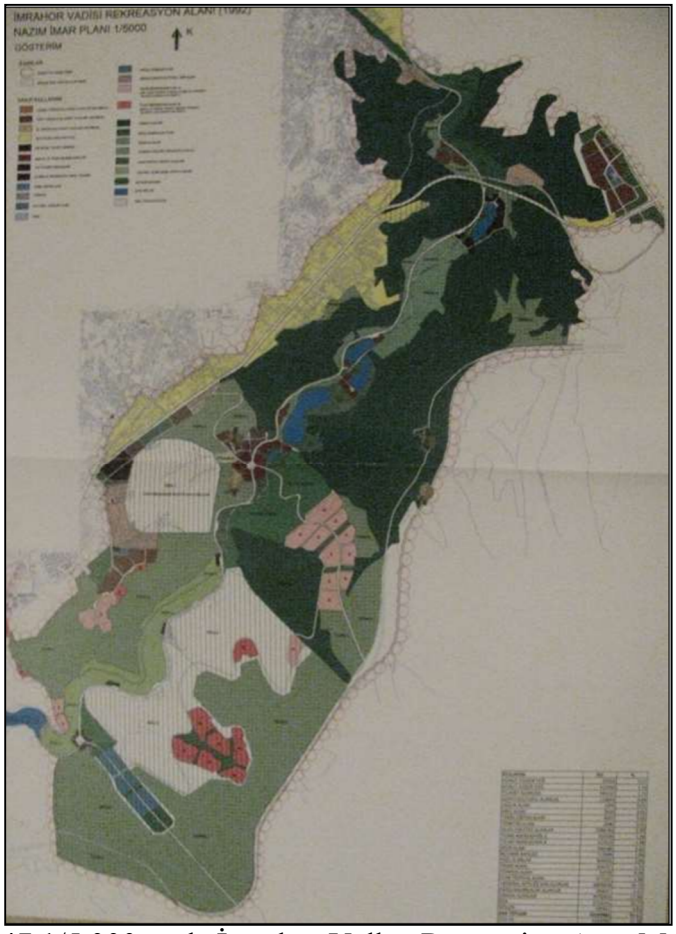

Figure 5.47 1/5 000 scale İmrahor Valley Recreation Area Master Plan (Ersoy et al. 2014, 10)

The plan proposals and implementations received many criticisms. The criticisms highlight the importance of the valley for Ankara, and note that the Master Plan did not meet the real needs of the city, but was designed with the aim of stopping speculative demand and illegal constructions in the valley (Bademli 2002, 2;

İmrahor Vadisi Açıklama Raporu 2002, 3). Taking a different perspective, Kurttaş (2002, 20) states that without a master plan, the situation in valley would be even worse, and in this regard, the plan could be referred to as "better than nothing".

In the same year that the approval of the Master Plan was granted, Gölbaşı and its environs were declared a "Specially Protected Area" to the south of İmrahor Valley. The aim was to protect the Mogan and Eymir Lakes, the watersheds and the reaches feeding the lakes, and to meet the recreational needs of the city (İmrahor Vadisi Açıklama Raporu 2002, 13). A 1/25 000-scale Gölbaşı Specially Protected Area Plan was prepared by the Institute of Specially Protected Areas[63] in 1992, with the 245 km^2 planning area, 20 km from the city center, containing 10 villages, Mogan Lake, Eymir Lake and a part of İmrahor Valley.

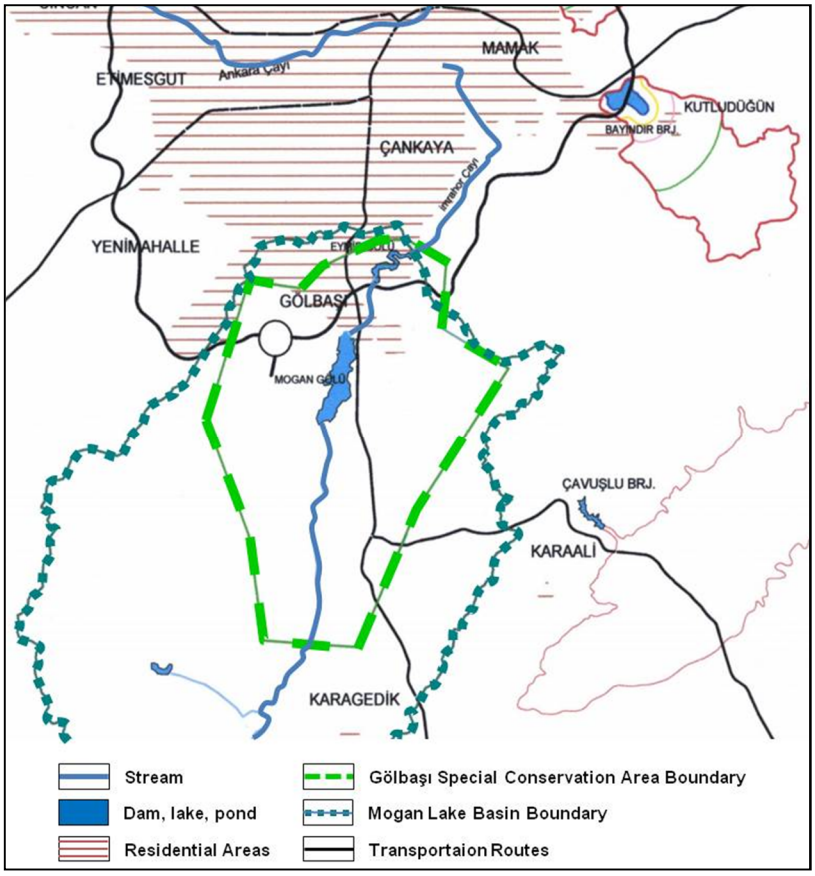

Figure 5.48 Gölbaşı Specially Protected Area Boundaries (2023 Ankara Master Plan Report, 2007)

[63] Özel Çevre Koruma Kurumu

In the mid-1990s, İmrahor Valley was home to villages, unplanned settlements, brick kilns and factories. Şağban (1998, 5) indicates that the brick factories began to depart from the valley in these years, and the headman of a village in the valley explains that a period of economic difficulty began for people living in the villages of the valley. The closure of the factories increased unemployment of these people, and employment in gardening and farming was also reduced at the time, in a large extent due to the damage of gardens and excavations in the valley (interview with the headman, November, 2015).

The year 2002 was significant in terms of the efforts to protect İmrahor Valley. A working team was created with the members from the Kavaklıdere Solidarity and Beautification Association[64] and the Mamak Mass Organizations Platform,[65] professionals from the Chambers of Architects, Landscape Architects, City Planners and Environmental Engineers, and academicians from Ankara University, Bilkent University, Middle East Technical University and Gazi University. The team was charged with highlighting the ecological characteristics of the valley. Many seminars, weekly meetings and trips were arranged, with two important meetings in particular realized in 2002 under the titles "The Present and Future of İmrahor Valley" and "İmrahor Valley Activities". A symposium was organized, exhibitions were staged and trees were planted on the sidelines of the meetings, and the efforts were covered in both the visual and written media. At the end of the meetings, an İmrahor Valley Explanation Report[66] was prepared as a base report emphasizing the ecological significance of valley and explaining the motivations for its protection. Based on this report an application was made to Cultural and Natural Heritage Preservation Board of the Ministry of Culture, aiming to have the valley registered as a Natural Preservation Site to prevent its ecological destruction. Following the application, the area, containing the Mogan and Eymir Lakes, was registered as a "Specially Protected Environment Area", although only a minor part of İmrahor Valley was included in the protected area (interview with the former president of the Kavaklıdere SBA, November, 2015).

[64] Kavaklıdere Dayanışma ve Güzelleştirme Derneği
[65] Mamak Kitle Örgütleri Platformu
[66] İmrahor Vadisi Açıklama Raporu

The other project application was presented to the European Commission Program for Local Civil Initiatives Micro Projects, and was aimed at realizing a more permanent and comprehensive project. The project intended to integrate the valley with the city, raising the quality of life in the villages of the valley by providing a local organizational structure, but without affecting its character. The former president of Kavaklıdere SBA states that:

> *"Protecting and creating rural life at the fringe was the main objective of the project. The suggestions put forward in the project were the continuation of rural life in the valley, the preparation of village breakfasts by women living there, providing them with an income, and making observations with a platform and a lab. The participation of these villages in urban life was another objective, although without damaging the ecological characteristics of the valley"* (interview with the former president of the Kavaklıdere SBA, November, 2015)

In the end, the project proposal was rejected by the European Commission Program.[67] The president of the Kavaklıdere SBA interprets the results of the efforts to protect İmrahor Valley as follows:

> *"The efforts inspired many studies of İmrahor Valley, and the number of people working on this issue increased. These project development processes were successful in terms of fostering collaboration among different parties in the framework of conservation. In addition, the attempts experienced in İmrahor could serve as an informative example not only for the natural environment in Ankara, but also for other metropolitan fringes. As a consequence of the rejection of the year-long efforts related to İmrahor Valley and the mentality of the government, the motivation of the working team took a significant hit, and the work remained at an academic theoretical level and stayed in theory. The team became dispersed, with many switching their focus towards the Atatürk Forest Farm conservation efforts. However, the analysis and report prepared by the working team formed the basis and served as a guide for ensuing studies"* (interview with the former president of the Kavaklıdere SBA, November, 2015)

The last plan, which remains in force today, is the 1/25 000 scale (Capital) Ankara 2023 Master Plan that was approved in 2007. The plan has many strategies related

[67] Project applications were accepted only from the southeast of the country (The former president of the Kavaklıdere SBA, 2015)

to the valleys, such as creating a continuous urban green system and generating aerial corridors as part of the green system, in line with green corridor and greenbelt approaches, and protecting watersheds and forest areas from local pressures and ensuring their continuity. The main strategies are represented with a schema in the plan report. KY and YS codes are proposed for the İmrahor Valley according to the schema, as can be seen in Figure 5.49. The YS coded areas aim at protecting İmrahor Valley, and the Mogan and Eymir Lakes, ensuring the continuity of the green system, increasing recreational facilities and removing factories from the valley. The areas coded as KY refer to existing residential areas (Ankara Metropolitan Municipality 2006, 619).

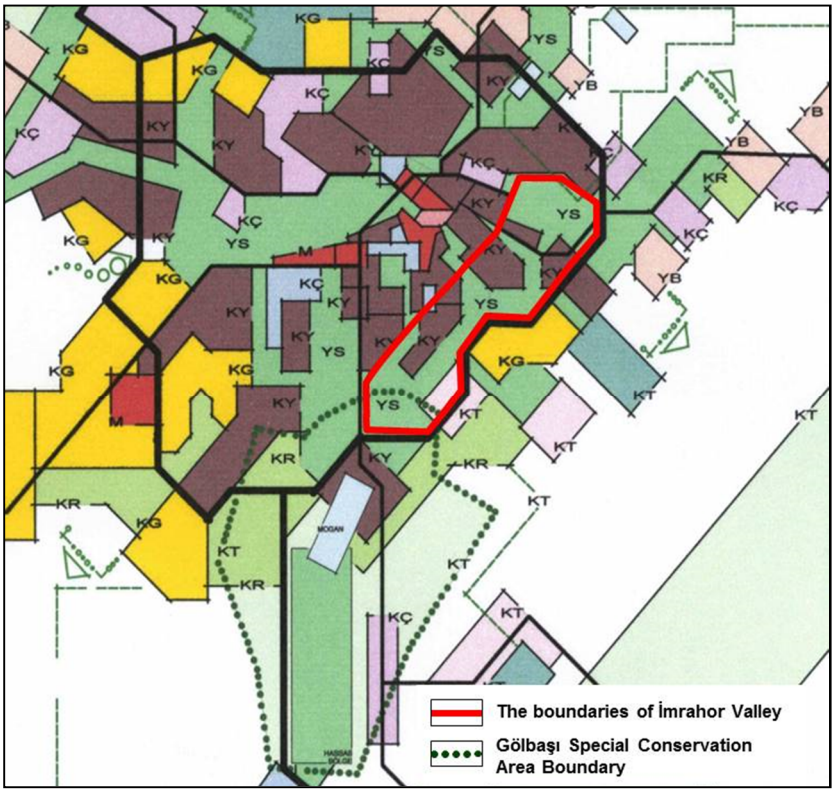

Figure 5.49 Schema of the Ankara 2023 Master Plan Strategies (Ankara Metropolitan Municipality 2006, 706)

Although not denoted in the schema, some codes in the 2023 Master Plan allow a certain degree of construction in the valley in the urban renewal project area (RP), special project area (SPA) and special project district (SPD) (see Figure 5.50), and

the existing villages in the valley are defined as urban renewal project areas.[68] Special project areas and districts refer to "residential and/or commercial areas and the required social and technical infrastructure" (Ankara Metropolitan Municipality 2006; Ersoy et al. 2014, 14).

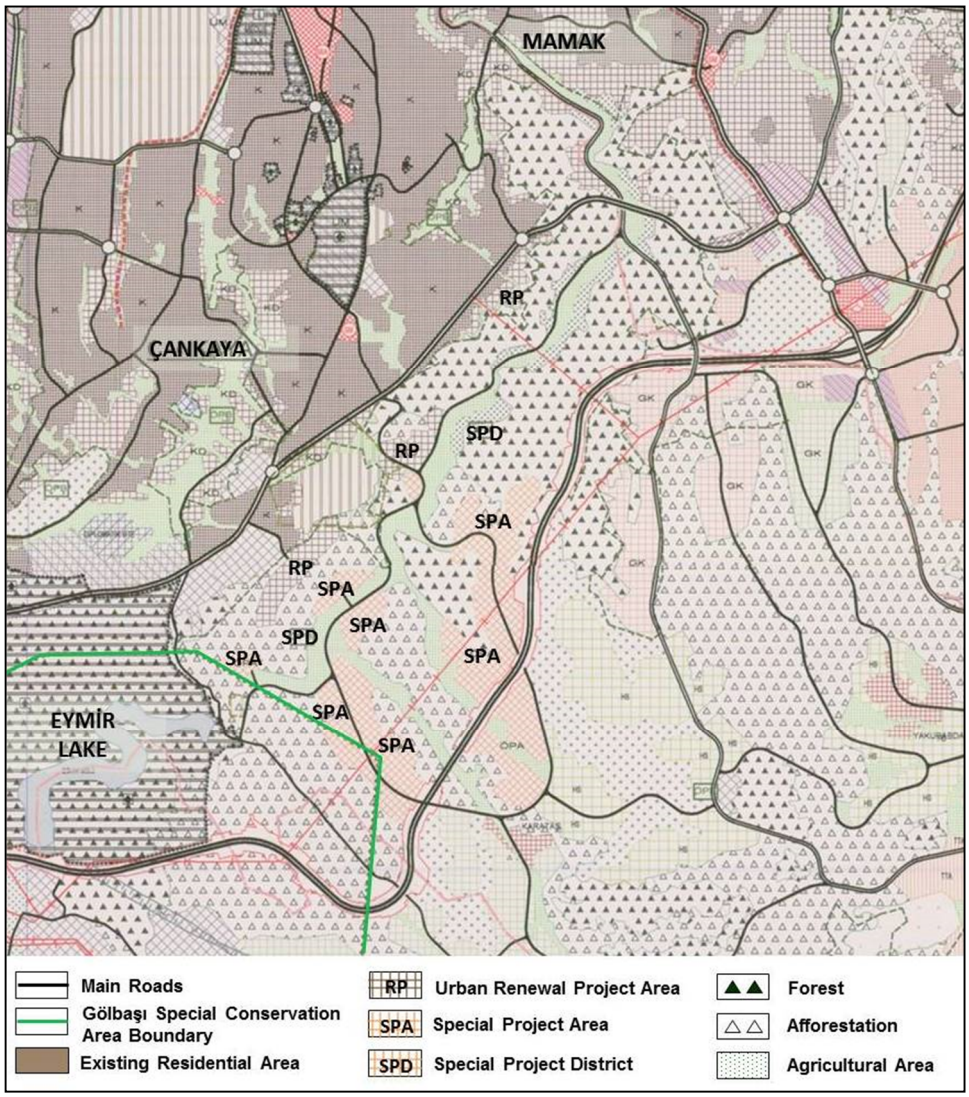

Figure 5.50 1/25 000 scale Ankara 2023 Master Plan decisions for İmrahor Valley (Ankara Metropolitan Municipality, 2006)

Following this plan, two major plan revisions were approved in 2013 for İmrahor Valley based on the 2023 Master Plan proposals. These are the 1/25 000 scale

[68] The valley contained approximately 500 unauthorized houses in the 2000s, and the unauthorized housing area in the valley could only be the urban renewal area due to its necessities. However, in the 2023 Master Plan, all exiting residential areas in the valley were assigned as urban renewal project areas. Designating the whole area for urban renewal is controversial (Kimyon 2014, 149).

(Capital) Ankara 2023 Master Plan Revision[69] and the 1/5 000 scale Karataş-Mühye-İmrahor Master Plan Revision. The 1/25 000 scale plan revision involves 624.36 hectare area in İmrahor Valley as the new focus of development at the fringe, with 155 p/ha housing density for approximately 96,700 people. Tourism and commercial areas are also proposed in the valley plain (Ersoy et al. 2014, 15).

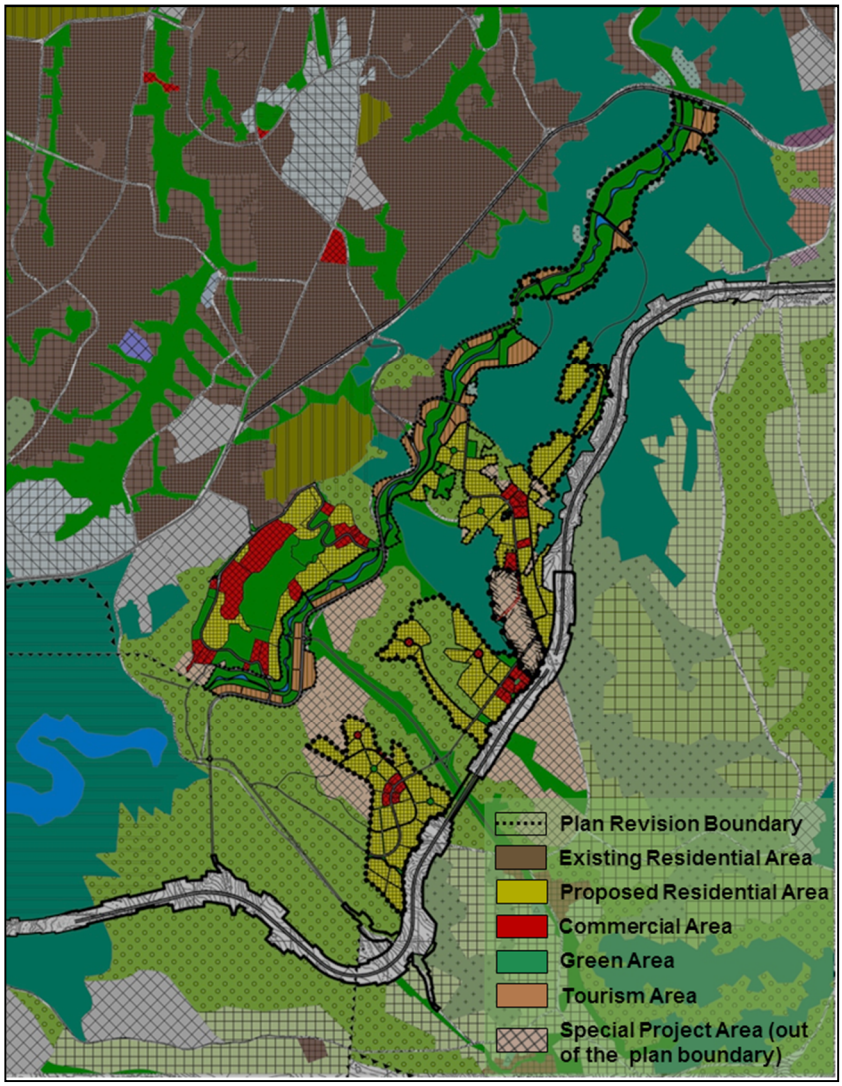

Figure 5.51 1/25 000 scale Ankara 2023 Master Plan Revision (Ersoy et al. 2014, 15)

According to the expert report by Ersoy et al. (2014), the revision plan is inconsistent with the principles and main strategies of the 2023 Master Plan in terms of the protection provided to the ecological system of the valley. Furthermore,

[69] 2023 Başkent Ankara Nazım İmar Planı Revizyonu

the new development focus proposed in the revision plan for the valley contradicts all plans made for the city since 1970. The valley has never been the direction for urban growth, and creating a new focus of development in this direction was not proposed in any of the plans. The housing and population densities and the population projections are criticized as being inappropriate for the fringe area. The expert report also states that tourism and commercial areas are proposed in the valley plain, although the realization of such facilities on the boundary of flood plain poses a risk for those people using these areas. In addition, some parts of the Special Project Areas in the valley (see Figure 5.51) are excluded from the revision plan boundaries, and the uncertainty of the land-use decisions related to these areas, it has been suggested, constitutes a fragmented approach.

The 1/5 000-scale Karataş-Mühye-İmrahor Master Plan Revision (2013) and the 1/1 000 scale Implementation Plan[70] (2015) propose residential, commercial, tourism and recreational areas along a canal (see Figure 5.52), however the Chamber of City Planners (2015) stresses that the revision plans and the implementation plan contradict the upper-scale plan decisions. According to the Chamber, they will increase construction in İmrahor Valley, destroy an important natural habitat and affect the ecosystem negatively. The wind corridor leading to the city center will also be blocked with the implementation of these revisions and plans, and as a result, air pollution will increase.

[70] 1/1 000 ölçekli Uygulama İmar Planı. The plan was approved in January 2015 by the Ankara Metropolitan Municipality.

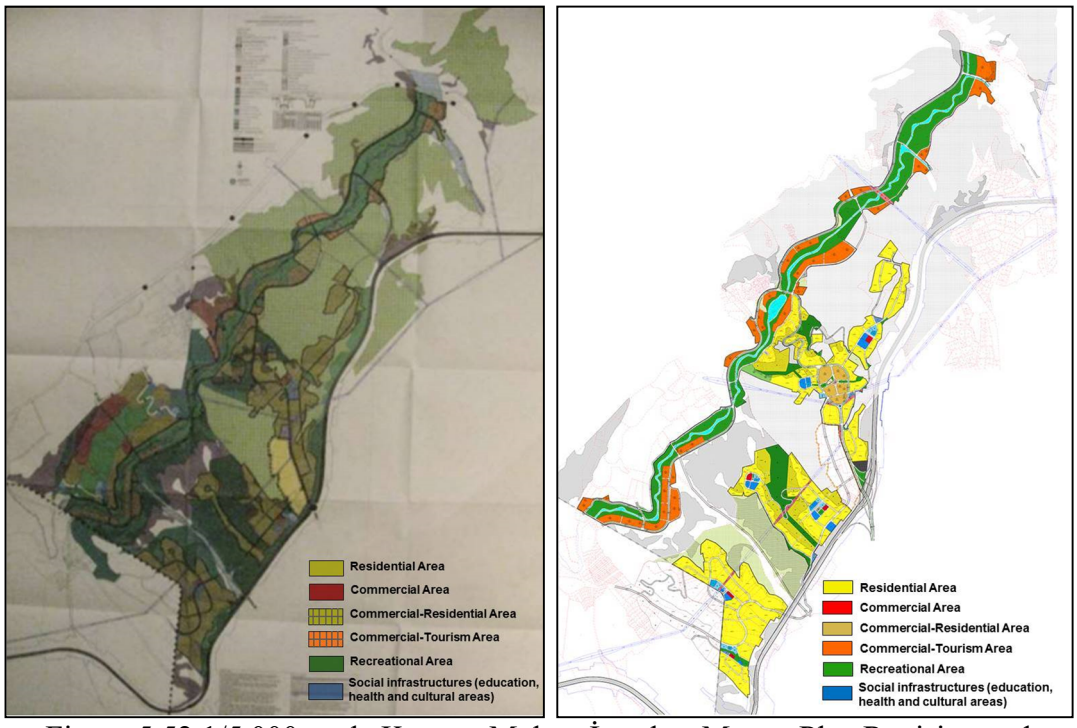

Figure 5.52 1/5 000-scale Karataş-Mühye-İmrahor Master Plan Revision and 1/1.000-scale Implementation Plan of İmrahor Valley
(Ersoy et al. 2014, 16; www.imrahorvadisi.com November 2015)

After the approval of the plan revisions in 2013, the Ankara Metropolitan Municipality signed a contract with a construction firm and some parts of the area started to be developed by the firm in accordance with the revision plans (Ünal 2014, 98). Criticisms were raised of the site selection and densities of construction. Kimyon (2014, 149) explains very high-density settlements are being created in the area, despite its specific spatial characteristics, while Ünal (2014, 98) adds that air, light and views are restricted at higher elevations due to the distance between buildings being less than requisite and the heights being too high.

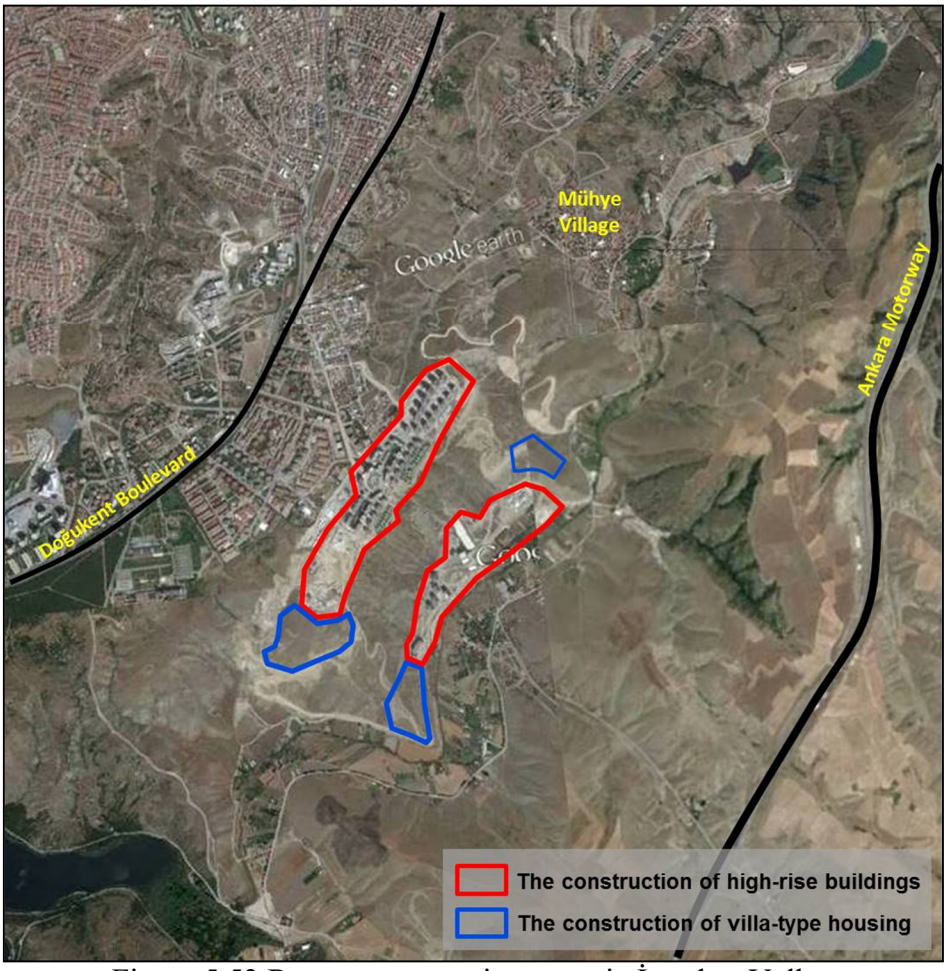

Figure 5.53 Recent construction areas in İmrahor Valley

A headman, people from real estate agencies and the village residents voiced the demands of people living in the valley in the interviews (December, 2015), remarking that the majority of landowners want the valley to be opened for construction, and request the granting of permission for multi-story buildings. They also look forward to the realization of these building activities, especially for the employment possibilities they will bring. Furthermore, they highlight their expectations related to the arrival of commercial and social amenities, which they believe will improve their quality of life, although according to the real estate agents, many people have sold their property and have moved to other parts of the city. These remarks can be considered important in understanding the effects of investments in the valley from the point of view of its residents.

5.3.3 Evaluations and Recommendations for İmrahor Valley

Protecting İmrahor valley as a part of green system has been a primary objective since the first plan of Ankara, the Jansen Plan (1932), which aimed to conserve all of the valleys around the city. In the Yücel-Uybadin Plan (1956), İmrahor Valley was defined as an afforestation area, and as a recreation area in the İmrahor Valley Recreation Area Master Plan in 1992. The 1990 Master Plan, 2015 Structural Plan and 2025 Metropolitan Area Master Plan all defined the valley as part of the green system of the city and fringe. All of these indicate that İmrahor Valley has long been considered an important part of the green system of the city, and many strategies have been proposed to protect this natural area at the fringe. The afforestation was realized in the valley based on Greenbelt Afforestation Project and Ankara Afforestation Master Plan until 1997. That said, the İmrahor Valley Explanation Report (2002, 19) claims that the natural structure of valley has been damaged in part by the discarded waste of the brick factories and brick kilns, and by the dumping of debris.

Some parts of the valley were opened for development in the 2023 Master Plan and in Master Plan Revisions after the mid-2000s, driven by new plan decisions for the valley, market forces and speculative pressure, all of which increased the tension at the fringe and paved the way for construction. As a result, the valley has been damaged, along with many other parts of fringe. After an analysis of literature and interviews conducted in the İmrahor Valley, the following requirements are inferred:

A greenbelt regulation can be defined: To ensure the continuity of greenbelt projects, “a greenbelt law” should be drawn up, giving a clear description of the role and objectives of the greenbelt. Development plans should contain no unspecified areas, nor should they encourage partial plans. Ensuring public support is one of the most important factors in ensuring the continuity of the greenbelt, and the people living in Ankara should be encouraged to adopt the idea of the protection of the valley. Civil Society Organizations also should be involved in this respect. As

Bademli (2002, 9) noted, responsibility-ownership mechanisms should be established for the conservation and management of such areas, and this mechanism should be based on a legal framework. Challenges and opportunities can be identified, strategies and projects can be created and financial resources can be found and used in a reasonable manner through such a mechanism.

The valley should have a legally defined boundary that is drawn with respect to geographical features: Determining a boundary for the valley has been emphasized by many researchers (Bademli 2002, 7; Çulcuoğlu 1997, 122; Cinoğlu 2002, 10; Öztan 2002, 25; Şahin 2002, 15; Kurttaş 2002, 21; İmrahor Vadisi Açıklama Raporu 2002, 19), and is essential in clarifying the areas of responsibility of the many actors in the valley. Analyzing the characteristics of ecosystems is also important in determining the boundary of the valley, while the careful location of entrances to the valley may make it easier to control day-night use and may prevent the illegal dumping of debris.

The natural characteristics of the valley should be protected with plan decisions, taking into account its relationship with upper-scale ecological systems: The microclimate, topography, wind corridors, water surfaces, vegetation, forests and afforestation areas in the valley need to be protected to ensure the maintenance of the ecological system. These natural features at the fringe also benefit the environment and increase quality of life in the city. Elmadağ, İmrahor Valley, the Mogan and Eymir Lakes, and Gölbaşı are integrated as parts of a water basin. Many studies highlight that such a natural relationship should not be interrupted with urban activities and settlements (İmrahor Vadisi Açıklama Raporu 2002, 3; Öztan et al. 2001, 127; Çapanoğlu et al., 2002, 7; Çulcuoğlu 1997, 111; Cinoğlu 2002, 10), and these studies suggest the valley as "Natural Protected Area Statute" for this purpose.

As the valley is part of the greenbelt, the functions should include only passive and active green areas that do not destroy the ecological balance: The afforestation efforts have affected the valley positively in many respects, such as in

preventing erosion and unplanned development (interview with a headman, December, 2015); however the greenbelt efforts have included only the planting of trees in the valley, and have not been used as a planning tool for the creation of a system of recreational areas at the fringe. Accordingly, many recommendations are proposed for İmrahor Valley, the common point of which is the need for recreational facilities in the valley. The İmrahor Valley Explanation Report (2002, 3) suggests new afforestation areas and places for camping, picnicking and agricultural activities. Öztan et al. (2001, 128) made recommendations for sports fields, horse riding, picnic areas, botanical gardens, an arboretum, thematic gardens, multidimensional open places (for festivals, concerts, etc.), events and courses to be held in the villages (to teach the making of carpets, rugs, pottery, baskets, etc.), water gardens (light, sound, water shows), terraces and walking paths in the valley. Koç (2006, 23) suggests many alternatives for the valley based on a survey, including horse riding, hiking, agricultural recreation for scientific purposes, camping areas, hobby gardens, picnic areas, cultivation, viticulture, paintball and a kite hill, while Çulcuoğlu (1997, 121) proposes agricultural recreation programs, and steps to encourage biking, jogging and fishing in the valley.

Land policies for state-owned lands should be produced to protect the valley: Legislation should include long-term strategies to prevent land speculation. Policies can be created for the control of state-owned lands at the fringe to sustain the planning, implementation and management process of the greenbelt.

CHAPTER 6

CONCLUSION

Uncontrolled and unplanned growth of cities causes urban sprawl, leading to various ecological and socio-economic problems. Uncontrolled growth increases energy consumption, infrastructure and transportation requirements, causes loss of agriculturally and environmentally significant lands, generates stress on ecosystems and increases automobile dependency. The control of growth requires many instruments to bring an end to sprawl, increase the quality of life and protect natural resources. It is apparent in existing literature related to growth control that there is a need for forceful urban management, long-term land policies and better urban development strategies for cities that suffer from uncontrolled growth. This thesis has aimed to examine the planning and policy instruments put in place in Turkey to control growth at the urban fringe, and discuss the fringe concept with particular emphasis on the case of Ankara, and more specifically, the İmrahor Valley, as a contemporary example of the problems encountered at the city's fringe. This chapter presents a summary of the literature review and discusses the findings of the case study, while also explaining the contributions of the study and making recommendations for further research.

6.1 Findings and Final Remarks

This thesis aims to elaborate upon urban growth, and the available planning and policy tools to control growth at the urban fringe of Ankara. The main argument of the thesis is structured around the claim, "In a period of neo-liberal development, the effectiveness of urban planning efforts to control sprawl of Ankara decreased

vis-a-vis the market forces." The study examines how the fringe of the city has developed over time and charts the problems that arose related to growth control, showing also how spatial plans and their implementations have affected the fringe in terms of growth control. The analysis of the main issue puts forward three specific questions that are to be addressed: 1) How have the characteristics of the fringe area changed over time in Ankara? 2) How was the fringe managed in different planning periods in Ankara? 3) Is it possible to control and manage growth at the fringe of a city when faced with the impacts of a market-led system?

The first question introduced the theoretical explanations related to the change in the fringe concept, and also examined the features of Ankara's fringe in a historical manner through the analysis of maps, in-depth interviews and a literature review.

In previous literature, the "fringe" has been interpreted as a dynamic and heterogeneous zone of transition between urban and rural land uses where changes occur on a continual basis, and the is considered a phase rather than a place (Pryor 1968, Marchand et al. 1992, Nagy 1999, Heimlich et al. 2001). The main land-use categories at the fringe have been identified as waste management facilities, transport infrastructure, conservation sites, energy production and distribution areas, light industry, low-density residential development, recreational land use, farming and forestry. Population densities at the fringe are higher than in their surrounding rural areas, but lower than in their urban counterparts.

As far as Ankara is concerned, the city walls and Bendderesi were the major boundaries of the settlement in the 17th century, and the fringe comprised agricultural lands, hills and cemeteries. The demolition of the 300-year-old outer walls of the Citadel and the arrival of the railway to the city led the growth towards the plain in the 1890s, and the walls were no longer the boundary of the city, although Bendderesi and Altındağ Hill continued to be the limits to the north. New land-use patterns emerged at the fringe, such as the Bosnian neighborhood, the railroad district and the vineyards, with almost 2,000 vineyard houses existing at the fringe, inhabited by all segments of society, whether Muslim or Christian, rich or

poor (Şenyapılı 1985, 11). These vineyard houses played an important role in meeting housing demand in the early years of the Republic, when they changed hands and were turned into permanent residences (Aktüre 2001, 61). In the mid-1920s, construction became the most dynamic sector in the city. Growth decisions extended the city towards the fringe area, passing Bendderesi, Altındağ Hill and İncesu Stream as the former thresholds of the city, and the boundaries of the city were no longer natural features, although there were still vegetable gardens and vineyards at the fringe. The vineyard houses in this period were transition elements that merged the new lifestyle of the new city with the traditional vineyard culture, and were being used continuously in both summer and winter by the end of the 1930s (Cengizkan 2002, 131; Ortaylı 1990, 64). While the characteristic of the vineyards was changing on one side of the fringe, a different type of growth was occurring on the other. As immigrants could not afford to purchase the existing houses, unauthorized settlement areas began to spring up at the fringe, and the city began to sprawl. New functions continued to locate at the fringe of city, including educational facilities and Tandoğan Airport.

The fringe of city was used diversely for the population living in urban areas in the 1940s (Şenyapılı 1985, Büyükyıldız 2008). The nation's bourgeoisie and civil servants started visiting the fringe area for recreational purposes, while migrants from different regions, office workers from low-income groups, people from the surrounding villages seeking temporary employment, unemployed and homeless people began to settle at the fringe. Many functions were relocated to the fringe at this time alongside the residential areas. The sprawl was concentrated in the old town, and building density became more intensive along the southern axis of the city (Şenyapılı 1985, 105). As a result, dual settlement patterns emerged between the new town and old town at the end of 1940s. The city began to change as a result of these new regulations, and the fringe area also witnessed a shift in character, at the expense of the gardens and vineyards that had long existed there. The vegetable gardens were transformed into a small industrial zone and vineyards began to be abandoned at the end of the 1950s (Ortaylı 1990, 63). The bowl-shaped topographic threshold was exceeded, and the majority of vineyards were all but gone by the

1960s. Housing cooperatives emerged at the fringe in these years, although the unauthorized areas at the fringe were continuing their spread. The establishment of industrial areas, the airport and university campuses also affected the character of the fringe. Urban densities increased both within the city and at the fringe, and the area between the leaped land-uses (such as cooperatives, industries, etc.) and the city began to fill. It was the infrastructure and transportation structure that determined the form of city and the fringe, as had been the case in previous periods.

Leaping settlements were created beyond the topographic bowl, and large-scale residential zones began to be developed by companies in the 1970s. In the 1980s, the legal arrangements were the main drivers of change at the fringe, with new laws causing a rapid increase in the number of new constructions in a short period of time. Housing cooperatives became the pioneers of suburbanization at this time, implementing mass housing projects at the urban fringe, which came to define the character of the fringe in the 1980s. Unauthorized settlements continued to sprawl to the east and to İmrahor Valley, while unlicensed multi-storey constructions sprang up along the northern route. At this point, a duality occurred at the fringe, with a low-rise medium- to high-density pattern of squatter areas and high-density high-rise pattern of mass houses found alongside each other (Çalışkan 2004, 169). The population of city increased by about 100 times, reaching 4.8 million between the 1920s and the 1990s, and city sprawled to 80,000 hectares from 250 hectares (about 320 times) (Ankara Metropolitan Municipality 2006, 179). Building densities continued to increase under the pressure of private entrepreneurs, extending also into the unbuilt areas at the fringe in the 1990s. Partial plans and amendment plans contributed to the triggering of urban sprawl and a star-shaped development pattern began to form.

Urban redevelopment projects can be thought as another significant factor that drove change both in the city and at the fringe. It was under such projects that modern houses replaced squatters, changing the household pattern, and high-income people started to opt to live in more prestigious houses. The construction of the Ring Road, Organized Industrial Zones and shopping centers has triggered new

residential areas at the fringe. At the beginning of the 2000s, the urban form began to be shaped in accordance with the mass infrastructure and transport projects that were springing up, funded by both national and international capital. The south-west corridor saw a rapid rise in settlement with the arrival of luxurious housing for the higher income groups. The table below summarizes the change of fringe characteristics in Ankara including the land-uses in fringe according to the different plan periods.[71]

Table 6.1 Change of fringe characteristics

	The early planning period-Lörcher and Jansen Plans (1924-1957)	Yücel-Uybadin Plan Period (1957-1977)	AMPB Plan Period (1977-1984)	2015 Structural Plan Period: 1985-2006	Ankara 2023 Master Plan (2006 onwards)
Vineyards	+	+			
Vegetable Gardens	+				
Agricultural fields	+	+	+	+	+
Pastures	+	+	+	+	+
Forests	+	+	+	+	+
Afforestation areas			+	+	+
Valleys		+	+	+	+
Cemeteries	+	+	+	+	+
Educational areas	+	+	+	+	+
Airport	+	+	+	+	+
Industrial areas		+	+	+	+
Unauthorized housing areas	+	+	+	+	+
Housing cooperatives		+	+	+	+
Mass housing areas			+	+	+
Prestigious residential areas				+	+
Urban renewal project areas				+	+

[71] The green colored land-uses in the first column overlap with the main land-use categories at the fringe which have been identified in literature while the yellow colored land-uses are outside of the fringe's definition. Unauthorized housing areas are evaluated in the main land-use categories of fringe due to their low-density building characteristics. The plus sign refers to the existence of the land-use as a part of fringe in the specified period.

The socio-economic and political structure, urban plans and related legislation can be considered as the main factors affecting the fringe in Ankara. The protectionist attitude of the state, state-based policies, the threat of war and its economic repercussions, the negative conditions of the 1929 crisis, and migration from rural areas, other cities and the Balkans increased the population from 25,000 to 220,000 between 1923 and 1944. The 1950s are considered a breaking point in the urbanization of Ankara, both politically and economically. Although the country refrained from entering World War II, its cities were affected by the outcomes of the war. Political and economic changes brought about substantial changes in the post-war years, with Ankara being one of the cities most affected by the migration from especially the least developed parts and the Balkans. The population of the city reached 455,000 in 1955, far exceeding the projections of the Jansen Plan, and lacking the funds to buy the existing houses, the migrants started a boom in illegally developed settlement areas at the fringe.

The year 1980 was marked by a military intervention that resulted in a neo-liberal economic and political milieu that also brought about changes in the spatial pattern of cities. This study has shown how the increasing role of market forces emerged as a challenging reality related to sprawl, especially after the 1980s. Settlement lands were purchased outside the boundaries of the city and building permission was obtained through partial plans in this period, bringing about a rise in large-scale residential developments at the fringe. The demands of the housing market were an economic and physical growth engine, and investments within the commercial housing market caused remarkable growth at the fringe. The rising influence of globalization on urban space after the 1990s heralded in a more foreign-oriented system that encouraged private investment, and the free-market mechanism became one of the most important directors of urban growth. Marketization and privatization gained speed in the 2000s, when the market-oriented character of planning had a mostly detrimental effect on the fringe. This was a result mostly of the efforts of investors and powerful bureaucratic actors to make it easier to snap up large tracts of lands at the fringe. The population of city increased from 2.3 million

to 3.5 million between 1986 and 2000, and reached 5.15 million in 2014 (tuik.gov.tr 2015).

Urban plans and legislation have also played a role in bringing about change at the fringe in Ankara, and the second question of the research relates to this point: How was the fringe managed in different planning periods in Ankara? The question aims to identify the planning and policy tools determined by various authorities in different periods for the control of growth, and to analyze the successes and failures of the growth control strategies implemented in each period.

Previous literature has claimed that these strategies were put in place mainly to avert any unintended spatial consequences and impacts on "cannot move" areas[72] at the fringe. The central focus of these strategies changed to how to create a more desirable future from how to effectively manage growth, and this is grounded in the concepts of quality of life, ecological sustainability, social, environmental, and economic wellbeing (Yıldırım 2008, Johnson 2008). Right up until the last planning term, the control of growth was always a leading concern, and many strategies to control growth have been implemented throughout the years. Although can or cannot move areas were not separated distinctly in most urban plan documents for Ankara, the protection of natural resources was one of the main proposals in all periods. The vineyards, agricultural areas, pasture, vegetable gardens and valleys were the places at the fringe that can be defined as "cannot move" in the early planning period of Ankara. Many strategies have been proposed for growth control, from the earliest period, as seen in the table below.

[72] Dijk (2009; 343) uses the "cannot move" term to refer the non-movable areas at the urban fringe, including ecological and agrarian values; and the "move" term to indicate the movable areas that have no priority of protection.

Table 6.2 Planning and policy instruments to control growth

The early planning period-Lörcher and Jansen Plans (1924-1957)	Yücel-Uybadin Plan Period (1957-1977)	Ankara Metropolitan Plan 1990 and partial plans (1977-2006)	Ankara 2023 Master Plan (2006 onwards)
*Expropriation *Greenbelt policy *Creation of a boundary for the settlement *Separating the settlement into districts *Construction Border Plan *Determination of internal and external expansion areas	*Greenbelt policy *Concentration in topographic bowl *The transportation network as a major factor to determine future development *Increasing building densities in city	*Greenbelt policy *Expropriation *Decentralization policy *Growth along the corridors *Limitation of infrastructure, transportation and services *Encouraging mixed-use development	*Greenbelt policy *Integrated urban form strategy *Separating the settlement into districts

Increasing the land stock in public ownership with land expropriation constituted the first efforts to direct the growth of the city. Land expropriation was quite important in terms of its role in the creation of the new city. However, implementation problems were occurred due to technical deficiencies, poor economic conditions, legal arrangements, administrative problems and unauthorized developments especially in the early planning period.

The first efforts to create a green system also began in the early planning period, essentially protecting the garden city principles of the Jansen Plan. The idea of a greenbelt has been the only consistent tool proposed in the urban plans, starting from the first planning attempts. According to literature, the greenbelt proposals prevented urban sprawl by keeping land permanently open, securing nature conservation interest, retaining land for forestry and agriculture, restricting sprawl of development and providing opportunities for outdoor recreation. The greenbelt also provides scenic views and environmental benefits related to air purification, flood control and biodiversity protection, and benefit a largely urban public whose quality of life is based on a clean environment. In Ankara, the plans proposed a greenbelt to prevent sprawl and to protect the natural assets at the fringe, however the actual greenbelt implementations included the planting of trees, with less efforts made to encourage the recreational use of the fringe. The implementations often remained as incremental interventions rather than a holistic approach.

In the 1950s, the Yücel-Uybadin Plan proposed a compact city, suggesting concentration in the topographic bowl as its main tool for the control of growth. Despite the proposed concentration, increased building heights along the highways affected the characteristics of the fringe, and the city came to be surrounded by unauthorized settlements, taking an oil-drop form in the 1960s. The Ankara Metropolitan Planning Bureau plan period differed from other periods in its extensive use of data and surveys, the alternative proposals and development schemes put forward, the evaluation of different alternatives based on many parameters and the preparation of a structural plan. Controlling and managing growth at the fringe was for the first time the main objective of the plan, with the greenbelt, decentralization, and limitations on infrastructure, transportation and services being the main tools for the control of growth, corresponding to the Urban Containment Strategies found in the literature. The AMPB plan period can be considered a substantial and beneficial asset to the planning process of Ankara in terms of directing growth and avoiding the effects of sprawl.

The legal arrangements were the main drivers of change at the fringe in the 1980s. A series of laws, including the Mass Housing Law, the Building Amnesty Laws and the Development Law, were passed, establishing a central housing administration and a funding institution, and providing the framework for a new state approach to housing development. The new laws had a direct effect on the fringe, defining the fundamental principles of urban planning, and gave authority to the governorship outside the adjacent areas. The frequent changes to the municipality boundary, the confusion in authority and the lack of land policies made apparent the need for more effective growth control strategies in the 1980s. In accordance with these legal arrangements, it was mass housing projects that defined the character of the fringe in the 1980s. The period since the mid-1990s, on the other hand, has seen the construction of the Ring Road, Organized Industrial Zones and shopping centers, all of which have triggered new residential areas at the fringe, and the character of the fringe began to transform once again, with the emergence of many luxury housing settlements, built by private construction companies. In this way, the city has started to be restructured by powerful actors in a fragmented way, and recent planning

approaches have led to incremental, piecemeal and uncoordinated development since the 2000s. Such planning efforts as revision plans, partial developments plans and amendment plans affected the structure of fringe by increasing the population and building densities through mass housing cooperatives, urban redevelopment projects and large scale projects. The form of city has taken on a dispersed structure of different urban land uses in among the pasture and agricultural areas, which has led to a rise in tension between the urban and rural. Increasing unit sizes and decreasing values are defined for the characteristic of fringe in literature, however the land speculation and site selection for the many prestigious housing projects along the transportation corridors have reversed this definition for some parts of the fringe of Ankara.

The implementations of the planning and policy instruments have actually caused much environmental destruction at fringe, increasing sprawl. In the early planning period, many of the strategies for the management of the fringe could not be implemented due to technical deficiencies, poor economic conditions, legal arrangements, administrative problems and unauthorized developments. Sprawl concentrated around the old city exceeded the plan boundaries, and land speculation and pressures increased towards the vineyards, while a considerable amount of land was lost in the Atatürk Forest Farm.[73] The Yücel-Uybadin Plan projected a population of 750,000 in the city in 1977, but it had reached nearly 1.5 million by the end of the 1970s. The vineyards, gardens and productive agricultural lands at the fringe began to be destroyed, construction pressure increased on the water basins and air pollution increased in these years. Entering the 1980s, the pressure of private entrepreneurs grew, aerial corridors were blocked, productive agricultural areas were destroyed at to the north of the city and on the north side of the İstanbul Highway, and some parts of the greenbelt lost their natural features to urban renewal projects. The territory of the municipality expanded from 200,000 ha to 750,000 ha in the 2000s and urban sprawl passed beyond the boundaries of the Metropolitan Municipality. Renewal project area, special project area and special

[73] Atatürk Forest Farm land decreased from 52,000 decares to 33,487 decares between 1925 and 2004 (Atak and Şahin 2004, 81)

project district proposals in the 2023 Plan allowed a certain degree of construction at the fringe. Building stock has increased in every direction of city. Productive agricultural areas transformed into settlements along the Eskişehir axis to the west of city and along Esenboğa highway to the north. The Yücel-Uybadin Plan allowed 1,569 hectares for construction on agricultural area while Ankara Metropolitan Plan 1990 allowed 54,423 hectares and Ankara 2023 Master Plan allowed 49,970 hectares (Sezgin and Varol 2012, 278). Some parts of greenbelt have lost their natural features as a result of the recent projects at the fringe.

The errors in population projections of urban plans, the unpreparedness of city for newcomers and the rapid population increase has also been a leading factor in increasing sprawl. The population projections were not consistent with the real numbers at the end of the planning periods.

Beside the inadequacies of planning and legislation implementations, certain successes in growth control have been achieved in Ankara. A Garden City character was proposed for the city and the fringe was designed as part of a green system in the early planning period, with the main ideas of the Jansen Plan were protected basically by Yücel-Uybadin Plan. Controlling and managing growth became the major objective of the plans for the first time in the 1970s, and the plan was considered to be the main tool for the control and management of growth for the AMPB. The creation of a greenbelt was partially achieved through afforestation that is continuing even today, and many parks have been created at the fringe. However, they often remained as incremental interventions rather than a holistic approach.

This study has put forward a new argument related to the issue of growth control, and the third research question emerges at this point: Is it possible to control and manage growth at the fringe of a city faced with the impacts of a market-led system?

Brenner and Theodore (2002, 368) claim that cities appear to have become increasingly important spatial objectives for a variety of neoliberal policy

experiments, from urban development corporations, place-marketing, enterprise and empowerment zones, public-private partnerships. The overarching aim of such neo-liberal urban policy experiments is to mobilize urban space as an arena for market-oriented economic growth within consumption practices. Neo-liberalism can be viewed as a restructuring of the relationship among the state and private capital-owners, allowing a rationalization and promotion of urban growth. Much urban planning is seen as a distortion of market mechanisms, and thus as a threat to private motivation and an efficient allocation of resources (Sager 2011, 149). Pickvance highlights (1982, 71) that market forces have a direct influence on development plans, and so that the allocation of land in those plans may be very similar to a free market allocation. When this is the case, planning may be described as "trend planning", since the development plan reflects market trends in the allocation land, and plans are amended and adjusted to correspond to changes in market forces.

Güzey (2014, 96), summarizing the experience of Turkey, claims that in addition to the rise of new urban consumer groups in the 1980s, the country experienced a shift towards urban-focused economic strategizing and a diversion of capital to assist markets and property development. The state played an active role in securing markets and defining the elements of place marketing via a socio-spatial and economic reorganization of metropolitan space, while local authorities adopted a more proactive and entrepreneurial approach, aiming to identify market opportunities and assist private investors with the objective of revaluing prime urban land. In this environment of partial plans, planning follows market demand, plan conditions depend upon the area in which investments are to be made and increased demand expectations are decisive (Güzey 2014, 96). The literature review, field study and in-depth interviews all indicate that Ankara is a significant case in terms of the direct effects of market forces. The changing social and economic conjuncture, the huge market demand and the pressure for urban growth have reinforced the role of development plans in Ankara. Urban plans have been impacted by the demands of global economic policies and market forces, especially since the 1980s, and planning efforts have been used in line with the demands of the

market-led system. The real estate sector has been equipped with entrepreneurial qualities in the shaping of the fringe area, and partial plans and plan amendments have made the fragmented implementations legitimate.

Urban containment strategies, to a large extent, are realized through urban plans aimed at limiting the development of land outside a defined urban area by providing principles and planning practices that result in more efficient land use, protecting environmental resources and presenting alternatives to sprawl (Nelson 2004, Owusu 2012, Litman 2012). However, although urban plans of Ankara aimed to avoid sprawl and emphasize the importance of natural features in the proposed growth control strategies, the actual experience reveals that the capabilities of the urban plans and urban planners remained limited in proposing and implementing urban growth control strategies vis-a-vis the entrepreneurial municipality approach. The study confirms the hypotheses: "In a period of neo-liberal development, the effectiveness of urban planning efforts to control sprawl in Ankara decreased vis-a-vis the market forces".

It seems possible to control growth at the fringe of a city faced with the impacts of a market-led system by "strong growth control" policies. Strong growth control guides growth, not just mitigates its effects. Urban planning has generally been used as an instrument to restore the negative consequences of previous urban plans in Ankara case. Growth control strategies identify a clear means of implementation that include answers to the questions "how?" "by whom?" and "when?". The costs of implementation also need to be calculated and funding sources identified. In Ankara, despite the growth control strategies, there has been authority confusion due to the definition of responsibilities in the legal arrangements on the planning process. The problems continue to appear in implementation and monitoring phases of such regulations. Putting together a plan-program-budget system for specific periods to ease the monitoring and control of implementations is important for Ankara. Partnerships and participation between local decision makers, urban planners, environmental agencies and other related institutions and actors in the planning process is also crucial.

Strong growth control requires the specific plans, programs and guidelines such as nature protection plan, green network plan, green infrastructure plan, agricultural, open space and watershed protection programs, protected areas guidelines etc. It also determines management zones in upper-scale plans to decrease tensions at the fringe (World Bank 2008). In this context, upper-scale plans should not be restricted by the administrative boundaries of the province in Ankara considering the characteristics of ecosystems. Decisions related to the basin level at the upper-scale should be represented at the lower scales of the cities and fringes as a part of a system. It is important that the planning of Ankara need to be approached as the "planning of a capital city", managing by specific plans, programs and guidelines to provide strong growth control, creating a public sphere is crucial and utilizing the state-owned lands at the fringe for public interest.

6.2 Further Researches

Although there is an obvious need for more effective growth control strategies in Turkey, only a limited number of studies exist analyzing the effects of uncontrolled growth. The thesis addresses this lack of research into the effects of uncontrolled growth at the fringe and urban growth control in Turkey. It contributes at theoretical and practical levels by investigating the rationales behind realized and unrealized strategies and policies aimed at controlling the fringe, and puts forward policy proposals for the urban fringe and for urban growth control. The thesis is also important as a comprehensive research examining the changing characteristics of the fringe area by revealing the conceptual, temporal and spatial changes in this field. The changes undergone at the fringe of Ankara between the 16th and 21st centuries is investigated in the thesis, and the study goes on to highlight the need for efficient growth control strategies, presenting policy proposals to control growth at the fringe.

The findings and discussions of this thesis may be improved with the following additional research fields. Further researches may be conducted in other cities that are experiencing the tensions that accompany uncontrolled growth in line with this

research. Depending on the scope of the research, various contemporary qualitative and quantitative research methods and models may be used to define the spatial and socio-economic changes in Ankara. A common argument in most studies on growth control is the inadequacy of existing population projection methods to meet the requirements of the varying demographics and the unstable economic position of today's cities. The inconsistency between projections and actual figures at the end of planning period increase sprawl and so it is necessary to reassess the existing mathematical weighted projection models, and to take into account demographic and sociological parameters, as well as economic components. Such studies would unearth valuable information and would address the lack of articles on the urban growth control, smart growth and urban containment strategies in Turkey.

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PUBLICATIONS

1. Sınacı, F., Büyükgöçmen Sat, N.A., Kapsamlı Planlamadan Stratejik Mekansal Planlamaya: Türkiye Örneği, Seksen Sonrası Mekan ve Planlama, Gazi Üniversitesi ŞBP-30.Yıl, Ankara, 2015.
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