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DIPLOMARBEIT

STRATEGIES ON SPRAWL –

Analyzing Urban Fringes in Europe and the USA
Case Studies: Vienna, Portland, Cincinnati

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Ao. Univ. Prof. Dipl. - Ing. Dr. Andreas Voigt
E 280 Department für Raumentwicklung, Infrastruktur- und Umweltplanung
Fachbereich Örtliche Raumplanung

eingereicht an der Technischen Universität Wien
Fakultät für Architektur und Raumplanung

von
Gudrun Maierbrugger
Matrikelnummer 0226472
Adalbert-Stifter-Straße 22/37-38, 1200 Wien

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“The forces of change
whose emblem is the bulldozer,
and the forces of preservation
whose totem is the tree,
are everywhere at war in this country.”

(Joel Garreau: “Edge Cities”)

Contents

0 KURZFASSUNG/ABSTRACT

Kurzfassung

Urban Sprawl kann als eine der zentralen Herausforderungen für die moderne Stadtplanung bezeichnet werden, da er die Nachhaltigkeit der ökologischen, ökonomischen und sozialen Entwicklung von Metropolregionen bedroht.

Aus diesem Grund untersucht die vorliegende Arbeit zuerst Ursachen und Auswirkungen von *Urban Sprawl*, sowie in weiterer Folge die unterschiedlichen Planungszugänge, die, abhängig von unterschiedlichen Rahmenbedingungen, die angewandten Gegenstrategien prägen. Dazu wird eine diesbezügliche Gegenüberstellung USA - Europa durchgeführt, die die Basis für die Analyse dreier Case Cities bildet: Wien, Österreich; Portland, Oregon, USA; und Cincinnati, Ohio, USA:

- Die Portland Metropolitan Area hat einen integrativen, für Städte in den USA sehr unüblichen Planungsansatz gewählt. Er basiert auf der Regionalregierung Metro, die direkten und detaillierten Einfluss auf die Entwicklung der Stadtregion ausübt. Das Thema *Urban Sprawl* zieht sich durch alle ihre Planungsdokumente und kann als „Overhead-Topic" bezeichnet werden. Die Einwohner der Stadtregion haben ausgeprägte Möglichkeit zur Mitgestaltung – beispielsweise durch Direktwahlen der Metro-Vertreter oder die Möglichkeit, Gesetzesinitiativen einzubringen.

- Die Region Wien setzt, in Ermangelung einer stadt-regionalen Verwaltungseinheit, auf Kooperation der regionalen Akteure. Neben der daraus abzuleitenden faktischen Unverbindlichkeit gemeinsam erarbeiteter Strategien ist auch eine unzureichende Thematisierung des Problemfelds *Urban Sprawl* in der Stadtplanung erkennbar. Der Fokus liegt hauptsächlich auf der weiteren Region Wien und deren Zukunft im globalen Städtewettbewerb. Ebenso ist das öffentliche Bewusstsein diesbezüglich nicht nennenswert ausgeprägt, was als wichtiges Handlungsfeld für die Zukunft identifiziert wird.

- In der Metropolitan Area of Cincinnati sind regionale Kooperation oder Regulative zu koordinierter Regionalentwicklung und *Sprawl*-Bekämpfung im Wesentlichen nicht vorhanden. Die Entwicklung der Stadtregion ist von Konkurrenz und individuellen Interessen bestimmt, was sich in dementsprechend problematischen Stadtstrukturen manifestiert.

In einem weiteren Schritt wendet sich die Analyse dem *Urban Fringe* zu, wobei die Annahme aufgegriffen wird, dass der gegenwärtigen, post-fordistischen europäischen Stadt ein konsensuales Erweiterungsmodell fehlt (cf. Fiedler 2004). Als Resultat entsteht eine „Zwischenstadt" (Sieverts 1997), die unter „Placelessness" (cf. Schönig 2004) und einem Mangel an Aufenthaltsqualität leidet. Strukturen folgen größeren Logiken und lassen hauptsächlich Ansammlungen von unverbundenen Einzelelementen zurück. Dies kann auch für Wien bestätigt werden und spiegelt sich in den Planungsstrategien der Stadt wider, die – anders als z.B. Portland – keine konkreten (i.S. von messbaren) übergreifenden Ziele für die Raumentwicklung in *Fringe*-Regionen, sondern hauptsächlich Regulative für Einzelprojekte festlegt. Die übergeordneten Strategien bleiben auf einer oberflächlichen, unverbindlichen Ebene.

Im abschließenden Kapitel werden aus Theorie und Case City-Analyse „Lektionen" abgeleitet, die als Diskussionsinput zum Planungsansatz der Region Wien bezüglich *Urban Sprawl* und *Urban Fringe* zu sehen sind.

Abstract

Urban Sprawl can be seen as one of the major challenges for urban planning today, as it threathens the sustainability of ecological, social and economic metropolitan development.

For this reason, the thesis at hand investigates drivers and effects of urban sprawl, as well as the different planning approaches that – influenced by different frameworks – mold the counter-strategies applied. A respective comparison USA-Europe is executed, which forms the basis for case studies in three cities: Vienna, Austria; Portland, USA; and Cincinnati, USA:

- The Portland Metropolitan Area chose an integrated approach, which is rather atypical for cities in the USA. It is based on the metropolitan government Metro, which enacts direct and detailed in-fluence on the development of the urban region. The issue of urban sprawl is addressed in most of the planning documents can be seen as "overhead topic". The inhabitants of the region have room for active policy shaping – through, e.g., direct elections of metro representatives or the possibility to put measures on the ballot.

- The Vienna Region – not having a city-regional administrative entity - relies on a cooperative approach. This results in factual non-commitment of developed strategies. Furthermore, insufficient thematization of the problem field urban sprawl in city planning is visible – the focus is rather put on the wider region and its future in global competition. Public awareness concerning the matter is not pronounced, which is identified as important field of action for the future.

- The metropolitan area of Cincinnati has no elaborate regional cooperation platforms or definite regulations about coordinated regional development or sprawl containment. The development of the urban region is characterised by competition and individual interests, which manifests in problematic urban structures.

In a second step, the thesis deals with the *urban fringe* and the diagnosis that the recent, post-fordistic European city lacks a consensual model of expansion (cf. Fiedler 2004). This results in the formation of "Zwischenstadt" (Sieverts 1997), which suffers from "placelessness" (Schönig 2004) and lack of amenity values. Its structures are based on larger scales and leave behind unlinked, singular elements. This can be also found in Vienna and is mirrored in the planning strategies of the city, which – other than, e.g., Portland – has not defined comprehensive objectives for urban development in fringe areas, but focuses on detailed regulations for singular projects. Superordinate strategies remain on a rather superficial, non-committal level.

The concluding chapter presents "lessons", deduced from theoretical and case study - analysis, which are designed as inputs for discussion about the planning approach in the Vienna Region.

1 INTRODUCTION

1.1 PROBLEM FORMULATION AND OBJECTIVES OF STUDY

Urban sprawl is a major challenge of urban development today. Although perceptions and ratings of the phenomenon vary due to different planning approaches, it can not be denied that sprawl produces problems in many fields and threatens the ecological, economic as well as social balance of metropolitan areas.
Sprawl poses new tasks to city-regional actors: it ignores administrative as well as professional borders and requires comprising efforts to efficiently counteract. This has been and is addressed differently in urban regions worldwide.

A special role in the sprawling process is taken on by the urban fringe. It might be even called the “urban frontier”: a vague, heterogeneous zone at the edge of cities, which is subject to dynamic forces and constantly being remodelled. Consequently, the attempt to define the exact borders of a city’s fringe can be seen as a rather useless undertaking. In one year’s time, the same area may have developed into something completely different; and a detailed, lot-precise distinction may be obsolete anyway.
So, the way to deal with urban fringes might have to be rather qualitative and descriptive, focusing on the special characteristics of these areas. Nevertheless, even this approach is challenging, as it has to answer the following questions: what is the exact character of the fringe? What is its purpose? And what will be its role in the city of the future?

Probably due to this vagueness of a definition, urban citizens perceive the fringe as a fuzzy and remote “end of the planet city” at the peripheries of their attention. In addition, even planning professionals tend to put their focus on other issues, which are known to be more important, more urgent and probably easier to deal with. Because: opinions on sprawl and the fringe are divergent, the actors involved are numerous, and the aim of action is unclear. This might bring along a risk: the fact that sprawl is a comprising phenomenon and shows its effects all over the urban region may conceal that the fringe is a special aspect of it, needs special consideration and joint, coherent strategies. Bearing in mind that in every moment, pieces of the city’s future are built in the fringe, not to follow an elaborate strategy can mean to simply put the city’s development at stake.

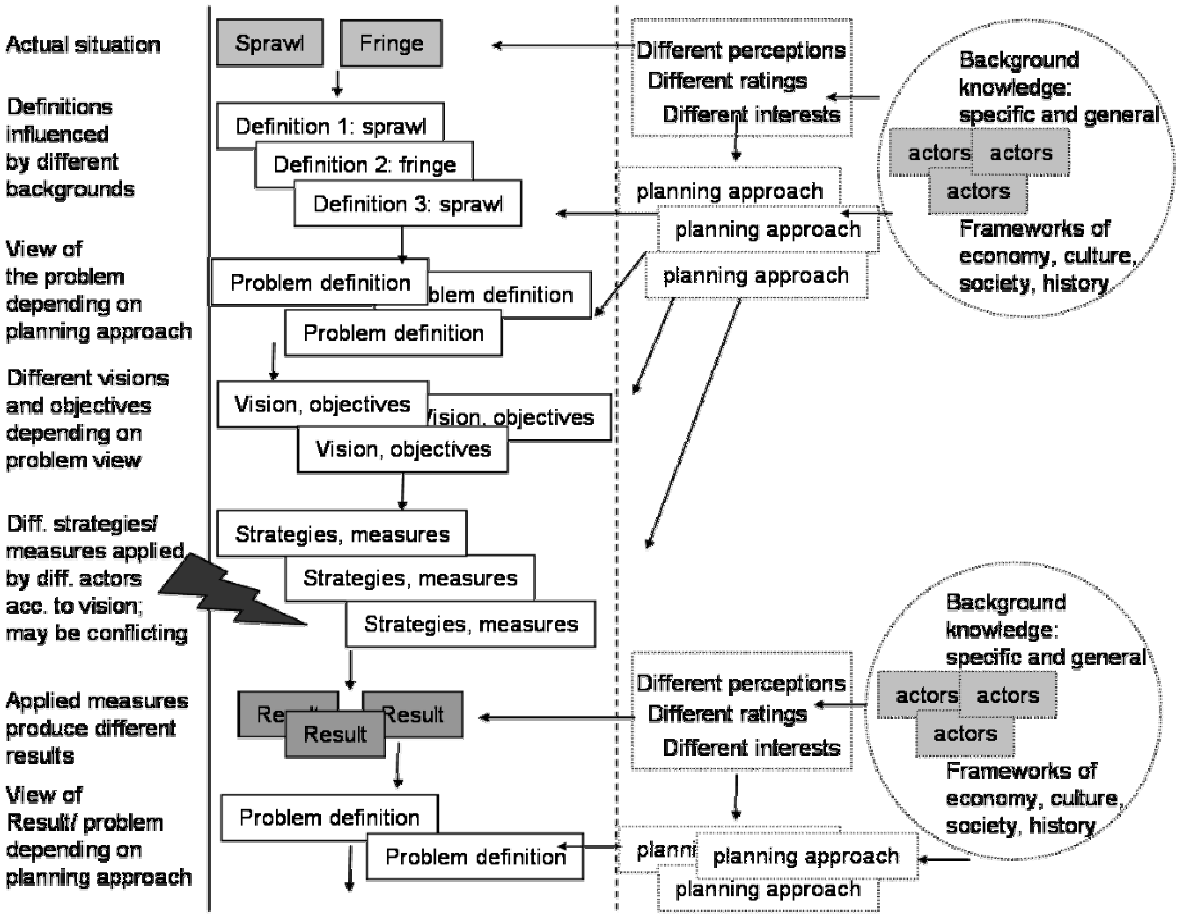
The lack of a specific development vision that takes the potentials and risks of fringe areas into account and defines their attempted role in the future might result from simply not being sure about how to define these aspects even right now. Which parts of the city are fringe areas and which are still city or countryside? What are fringe areas supposed to look like? Are there important preconditions to be set right now or will the area be entirely remodelled anyway? Those are questions that especially planners are facing, but often don’t seem to address in sufficient depth.

This thesis will not be able to answer comprising questions like the ones above completely, but seeks to contribute to the discussion process that has to be promoted.

It follows the **hypotheses**:

Hypothesis A: *In different case cities, different approaches towards sprawl are found. Their respective histories of urban development and specific frameworks (social-cultural, political and economic) influence planning approaches, problem definitions and planning objectives as well as deduced strategies and measures. This manifests in different powers of and priorities in planning, which again result in different urban structures, forms of sprawl and appearance of the fringe. Comparing different culture areas illustrates this issue clearly.*

Figure 1-1 Sprawl in the Planning Process



Source: after Schönwandt & Voigt 2005; additions by author

Hypothesis B*: Urban sprawl has become a substantial problem also in European metropolitan areas. Nevertheless, counteractive urban policies are often not sufficiently pronounced or take inadequate effect.*

Hypothesis C*: Fringe areas of European post-fordistic cities often suffer from low amenity values and the lack of high quality public space (cf. Fiedler 2004). Planning fails to apply efficient counter-strategies, which is probably due to missing definitions of what to achieve in this respect.*

To test these hypotheses, the following, more detailed **research questions** will be answered, by analyzing three case cities:

- Which differences in urban history and preconditions for urban development can be found between Europe and the USA? How does this influence the planning approach in general?
- What are the different preconditions and history of the case cities like? How does this specifically influence their planning approach and attitude towards sprawl?
- How has urban growth manifested in the urban fringes of the case cities, which functional and design structures have evolved and how do those differ between them?
- Which strategies did the planning authorities choose to oppose the problem? Which effects on "urban reality" did and do those strategies have?
- Are there „lessons learned" that can be extracted from the entire analysis and might be suitable for Vienna?

1.2 METHODOLOGY

This thesis was worked out in the following steps. For details, see below.

Basic knowledge (chapter 1-4):

- Definition of hypothesis and research questions (chapter 1.1)
- Analysis of literature: theory about urban development, sprawl, planning processes (chapter 2-3)
- Analysis of literature: empiricism Europe – USA (chapter 4)

Case Cities (chapter 5-7):

- Choice of case cities according to a defined set of criteria; focus: Vienna, Portland;
- Analysis of literature about case cities
- Empirical analysis of case cities (field trips, expert interviews, literature analysis; including research trip to the USA from May 2008 until August 2008)
    - *Functional level*: basic figures/indices about population development, land use etc.
    - *Form level*: urban form and urban design
    - *Policy level*: strategies and measures

Synopsis (chapter 8-10):

- Synthesis of findings from the case city analyses: urban forms and strategies (chapter 8)
- Summary and deduction of "lessons learned" (chapter 9)
- Synopsis of the most important expressions in a glossary (chapter 10)

This thesis is structured in 4 main parts:
The first part (chapter 1 – chapter 3) concentrates on the theoretical background. First, functional terms are defined and in a second step, expressions describing urban character and urban development are outlined. The third part focuses on the topic of urban sprawl and its causes and effects as well as positive and negative aspects. Special consideration is granted to the urban fringe.
The second part (chapter 4) sheds a light on the differences and similarities of urban growth in Europe and the USA.
The third part (chapter 5 – 7) contains the analysis of the case cities. The paper puts a focus on Vienna and Portland, whereas Cincinnati is analyzed less extensive.

The reason for choosing cities in the U.S. as objects of comparison with Vienna lies with the advanced forms that urban sprawl has reached in some American urban regions. It is not an objective of this thesis to conduct detailed efficiency analyses of the case cities' each and every measure, but rather to illustrate the different frameworks and their influence on urban planning and sprawl strategies. The comparison with Vienna as "old European city" shall - in an exemplary way – make the various forms and effects of and approaches to the problem area better accessible.
In general, it can be stated that the strength of sprawling forces in the U.S. is primarily due to the liberal conditions of its market-oriented political system. Decentralised distribution of political power and a dominant civil society are also highly influential (cf. Sieverts 2004a). Europe, having a completely different political basis and urban history, is (today) less oriented on market forces. Though, globalisation, European integration and lifestyle changes are also becoming manifest in a growingly scattered landscape – which is nevertheless still at an earlier step in the sprawling process than the American one.
As already mentioned, it is obvious that the fundamental differences of economy, society and value systems do not allow to compare the situations in a direct way. Furthermore, the way of dealing with sprawl differs substantially in the three cities. Due to this, certain aspects were not analyzed in the same depth in every city, to be able to highlight the respective "specialities". In some fields, different foci were also due to data accessibility.

The City of Vienna is characterised by its long history of urban development and strong tradition of top down planning. The global trends described above, though, have brought along urban reorganisation and growth, which have partly manifested in sprawled patterns. Although not outstandingly critical in European comparison, present city-regional dynamics have provoked concern about future developments.
This thesis analyzes the present situation and the counter-strategies elaborated against. Furthermore, the "lessons learned", given in chapter 9, should be seen as incentives and inputs for discussion about the future of the Vienna Region.
Portland, Oregon was chosen due to its outstanding approach towards urban containment. The urban region is well known for its elaborate top down planning and strict regulations in many fields - which is not at all characteristic for American cities. In the liberal and market-oriented setting of the United States, the Portland model rather has to face criticism. This field of tension between efforts towards sustainability and limits of controllability will be analyzed in chapter 6.
Cincinnati, Ohio represents a middle-sized American urban region with well-known sprawl characteristics. The agglomeration is reported to be severely endangered by sprawl and its side-effects and has to stand up to particular challenges due to stretching over three federal states. The region is presented in a shorter form in chapter 7, to illustrate another, more "averagely American" point of view and problem approach.

The fourth part contains a synthesis in chapter 8, where main points of comparison are presented in a compact, tabular form. This synthesis concentrates on the case cities. In chapter 9, as already mentioned, a general summary and deduced "lessons learned", which might serve as incentives for discussion in Vienna, are presented. Furthermore, an english-german glossary has been worked out in chapter 10.

Citations, if not originally made in English, were translated by the author. In case of extensive citations and such of special importance, the original German quote is given too.

2 THEORETICAL FRAMEWORK

In this chapter, relevant terms and models for urban development will be described. First, functional ones, and second, descriptive ones. For the latter, it is important to have historic evolvement of cities in mind: it is impossible to analyze present urban tendencies without considering their history. In a third part, different definitions for urban regions are given.

Definitions are an important element of the planning process: especially urban planners do not work with "reality" as such, but with descriptions of it that have emerged on the basis of thinking processes. These thinking processes are highly influenced by the respective background of social, cultural, economic and other frameworks. So, definitions are never "true" or "wrong", but always "true by convention" (BUNGE 1996 in ARL 2005, p. 420 et seqq.). As they are at the core of planners' actions and influence the result massively, precisitions are essential.

2.1 DEFINITIONS A: FUNCTIONAL TERMS

2.1.1 Problem

Problems in planning are unsolved tasks – either negative actual situations that have to be improved or positive ones that have to be maintained. The view of the problem, its description and solution is not objective, but depending on the underlying planning approach. This planning approach further consists of objectives, methods and technical and philosophical background knowledge (cf. Bunge 1996 in ARL 2005 p. 772). Theses facts are illustrated by the different situations in this thesis' case cities.

2.1.2 Strategy

The expression "strategy" is originally rooted in warfare. It is "*the art of warfare"* (Meyers Taschenlexikon 1999) or *"the art of planning and directing military activity in a war or battle"* (Compact Oxford English Dictionary).

In a more general sense, it is defined as *"the design and accomplishment of a general concept, through which the actor [in discussion with others] seeks to reach a certain goal"* (Meyers Taschenlexikon 1999). This definition is also suitable for urban planning.

An elaboration of the term "strategy" is "strategic planning", which is used in urban planning as well as for management or finance purposes. The following definition by SLA (Special Libraries Association) is targeted on planning of organisations, but, seeing the city as an organisation, this definition is very well suitable.

''Strategic planning is a tool for organizing the present on the basis of the projections of the desired future. That is, a strategic plan is a road map to lead an organization from where it is now to where it would like to be in five or ten years" (SLA n.d).

*S*o, strategic planning of a city would mean to elaborate a long-term vision and break it down into smaller and accomplishable steps, which are oriented on that long-term goal. This thesis examines the strategies of case cities in Europe and the USA concerning urban sprawl and sheds a light in how they try to reach their vision of urban growth.

2.1.3 Urban Containment

The expression urban containment is often used when talking about urban development and sustainability. Definitions tend to be extensive, as the following one shows:

"*Urban containment is an attempt to confront the reasonable development needs of the community, region, or state, and accommodate them in a manner that preserves public goods, minimizes fiscal burdens, minimizes adverse interactions between land uses while maximizing positive ones, improves the equitable distribution of the benefits of growth, and enhances quality of life. At its heart, urban containment aims to achieve these goals by choreographing public infrastructure investment, land use and development regulation, and deployment of incentives and disincentives to influence the rate, timing, intensity, mix, and location of growth. Broadly speaking, urban containment programs can be distinguished from traditional approaches to land use by the presence of policies that are explicitly designed to limit the development of land outside a defined urban area, while encouraging infill development and redevelopment inside the urban area*" (Nelson 2004, p. 237).

This definition emphasizes the necessitiy of integrated strategies and keeping the whole urban area in mind while definitely limiting expansion at the urban periphery. Concerning the case cities, this strategy is applied most prominently in Portland.

2.2 DEFINITIONS B: DESCRIBING URBAN CHARACTER

2.2.1 Driving Forces of Urban Development[1]

The development of a city is driven by several factors: Fassmann (cf. 2004, p.86 et seqq.) identified four main motors of a city's development and characterised them:

- Population and society
- Economy
- Traffic- and building technology
- Policy and planning

Their design and combination manifest in visible urban structures.

Population and Society

The society living in a city is one of its main development factors. The inhabitants "make use of" their city in terms of housing, living together and using public space. Its development is highly dependent on the fact whether the population of a city is growing or not. A growing population needs more housing space, public space and infrastructure, whereas a declining number of inhabitants will make it necessary to reorganise existing patterns. Nevertheless, there are urban areas which grow little in population but spread out over a wide area - those are usually subject to sprawl.

Furthermore, the values of a society can, to a certain extent, be retraced in the form of the city they are living in. The degree of "modernisation" a society has reached, is, at first glance, retraceable in the structure the city's elements: shopping facilities (shopping centres at traffic arteries vs. small shops and markets in the neighbourhood), traffic structures (pedestrian-oriented, car-oriented, public transport-oriented) or urban design (high rise-buildings, densities, state of the inner city). This makes inter-cultural comparison especially interesting.

[1] Urban development: "All time-bound processes that change the physical processes of a city" (Fassmann 2004, p.86).

Economy

This is the second determinant factor for urban development. A flourishing economy forms the precondition for a growing number of jobs and inhabitants (this again influences housing demand), and also more offices, production and trade facilities for expanding businesses.

The branch of the city's economy is also influential: a growing *industrial sector* has a bigger need for space and is more sensible in terms of location to housing areas. Industrial buildings, which are, for historical reasons, often located in the inner city, are pushed to the outside because of missing space for expansion or conflicts with inner city uses in general. *Deindustrialisation* leads to vacancies, unemployment and to unused industrial areas (brownfields), which are a dominant problem in the USA and also a big topic of urban development in Europe.

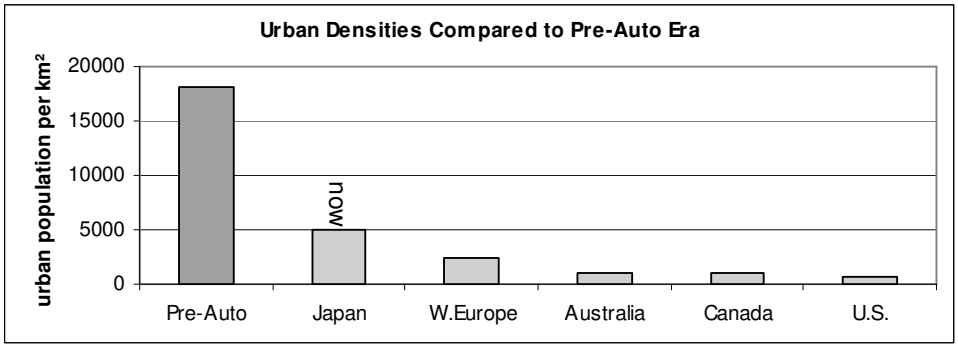
A dominance of the *business sector* focuses, on the first run, on the inner city. The displacement of housing areas and the development of shopping streets are main effects. In the second run, one can notice a movement towards the fringes: office buildings are an important factor of urban expansion if the areas available in the inner cities are not adequate enough (space, modernity, flexibility, prize etc.). This dynamic is visible in Vienna, due to historic building fabric in the center.

Transport and Building Technology

The development of transport has, throughout history, been intensely connected with the development of cities:

- The city of pedestrians and horse traps only allowed a densely populated and compact city, where the daily trips could be done on foot or by horse.
- The upcoming of means of mass transportation made it possible for housing and working spaces to be relocated over a wider area. The expansion concentrated alongside traffic arteries, which assured the best accessibility for the city centre.
- The relocation of a big part of public transport underground lead to a reduction of travel time, an extension of accessible places and an increase of public transport's attractiveness in general. The development impulses for settlement were no longer linear, but punctual around the underground stations.
- The most important step was, however, individual motorisation. In America, the automobile became affordable for a bigger part of society through fordistic mass production during the 1920´s. In Europe, this development started after World War II. The car made it possible to open up the areas in between the axes of public transport, as it is much cheaper to build roads than rails. The center, the area with the highest attractiveness before, lost some of its desirability, because of the lack of roads and (parking) space. The result was a decreasingly dense urban environment. Cox (2005) tried to visualize the impact of increasing mobility (see Figure 2-1).

Figure 2-1 Urban Densities Compared to Pre-Auto Era



Source: Cox 2005

- It is not yet exactly clear what effect Information and Communication Technology will have on the cities` structures on the long run. Of course, these technologies make it possible to reintegrate working and living sites and to choose them more independently from preconditions of traffic. It can be expected, to some extend, that ICT will foster diffuse growth of cities and urbanisation of rural areas (periurbanisation).

Policy and Planning

The influence of urban development policies depends on the socio-cultural and political setting of the urban region. American cities, for example, usually experience a much weaker form of public involvement and regulations, whereas European ones have significantly higher levels. Globalisation and global competition, though, tend to weaken the role of governments in favour of economic factors.

Nevertheless, policy and planning are specific factors for urban development. Their design and competencies vary due to different approaches and frameworks and can not be seen separate from society, economy and technology.

2.2.2 The Model of Cyclic Urban Development

After describing the forces driving urban development, its phases will be defined (cf. Fassmann, 2004, p. 103 et seq., Pacione, 2005, p. 83 et seq.).

Due to the complexity of the process, urban development can not be strictly categorised in cyclic steps. For the detection of partial processes, thus, cyclic models, like the one of Van den Berg (1982), can be used. He basically identified the densely populated core area and the functionally integrated area surrounding it (FUR – functional urban region) and defined 4 phases:

- Urbanisation
- Suburbanisation or exurbanisation
- Disurbanisation or counterurbanisation
- Reurbanisation

Table 2-1 Phases of Cyclic Urban Development

Phase	Type	Change of population			
		Core City	Ring	Urban Region	
Urbanisation	Absolute centralisation	++	-	+	Growth due to advantages of agglomeration, industrialisation
	Relative centralisation	+	+	+++	
Sub-urbanisation	Absolute centralisation	+	++	+++	Formation of peripheral housing areas, spatial separation of urban quarters
	Relative centralisation	-	++	+	
Dis-urbanisation	Absolute centralisation	--	+	-	Traffic jams, cost problems due to disadvantages of agglomeration
	Relative centralisation	--	-	---	
Re-urbanisation	Absolute centralisation	-	--	---	Breakdown of urban structures or new rise due to reforms or external impulses
	Relative centralisation	+	--	-	

Source: Van den Berg et al. 1982, p. 38, supplemented with Lichtenberger 1998, p.102 et seq.

Urbanisation is the oldest phase, describing population growth in the core, maximum exploitation of urban space and reduction of free space within the city. High densities lead to declining quality of life for inhabitants and to a lack of space for companies. These push-factors can lead to “suburbanisation”.

Suburbanisation describes the dislocation of uses and population out of the inner city, the rural area or other metropolitan areas into the hinterlands of a city. Friedrichs (1995 cited in Fassmann, 2004, p. 103 et seq.) sees a simultaneous reorganisation of the structure of uses and population in the whole area. He distinguishes between suburbanisation of population, suburbanisation of the secondary sector and suburbanisation of the tertiary sector. The main factors for suburbanisation are

- The motorisation of private households
- Enough building land in the urban fringe
- Growing prosperity that enables people to realize their desires (e.g. single-family-home with yard)
- New forms of retailing (shopping centres…)

The next step can be **disurbanisation**: an interregional process of deconcentration of population and companies observed over a wide area, which affects not only the central cities, but the whole urban region. The centralised city dissolves into a functional, interconnected net of nodes with different centralities. The profiting parties of this process are rural regions and smaller communities at greater distance from the big cities. Disurbanisation is not just pushing the urban rings further out, but means a disentanglement of the inner city. Hard location factors, which exist nearly area-wide, and soft factors of the remote areas (nature…) make this development possible.

The next phase is called **reurbanisation.** The intense traffic burden and costs of congestion lead to a resettlement and a relocation of businesses in the inner city.

Present developments in many cities are seen as shift “from suburbia to post-suburbia”: The distance decay [2] from the inner city to the outskirts is no longer such a valid factor. The city got (and is still doing so) more and more polycentric as it develops on from the historical form (core-fringe-decline: the centre is dominant in terms of trade, social life etc. and there is a decline in importance and socio-economic structures towards the fringe). This is dealt with in more detail in chapter 2.2.6.

In the next chapters, further important expressions used in this paper are defined by giving a short overview of the historic development of cities.

2.2.3 Urbanity: Pictures of the Historic City

Before analyzing urban structures, it is important to define what is meant by “urban”. This is particularly necessary because more often than not, the “creation of more urbanity” is set as a major objective for urban development - in the central city and particularly in the urban fringe.

So, how can “urbanity” be defined? As with many terms used in this paper, people have a certain idea and certain pictures in mind that describe an “urban” place, but when it comes to an exact, short definition, most attempts fail. In this respect, two dimensions have to be taken into account:

First, the area of discussion has to be defined: because “urbanity” in the inner city is something different than “urbanity” in the fringe.

Second, the character of “urbanity” has to be investigated bearing its historical development in mind (cf. Sieverts 2004b): Nowadays, the medieval city is usually referred to as being urban. It had all the elements usually seen as being part of “urbanity”. It was characterised by a very high density, a lot of movement and communication, a wide variety of functions and size compared to the surrounding countryside. Inhabitants and buildings had multiple functions as there were many uses in the same area.

[2] Distance decay: “A function that represents the way that some entity or its influence gets lower with growing distance from its geographical location.” www.pearsoned.co.uk/wps/media/objects/3133/3209133/glossary/glossary.html

Thus, “Urbanity”, has no short overall definition, but there are aspects, more or less strong, that make a place “urban” (cf. Fassmann 2004, p. 20). The existence of one of the criteria does not guarantee “urbanity”, it is rather a mixture of them all, depending on the special features of a place:

- Density (buildings, population)
- Size (population, expansion, buildings)
- Traffic/Movement/Communication (motorized, not motorized)
- Diversity (functions)

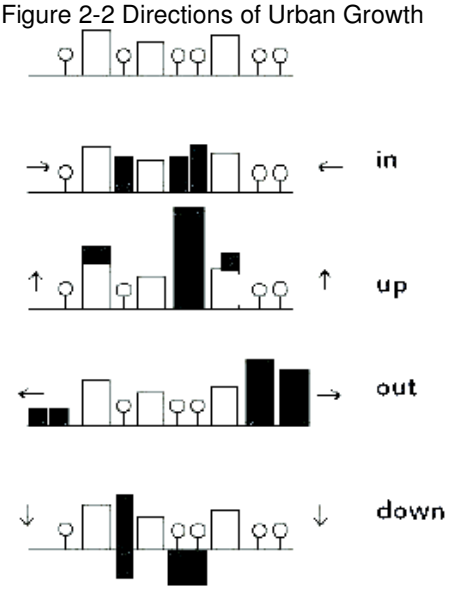
Th bustling density of the historic city had its disadvantages: Noise, pollution and congestion were the results of the enormous narrowness. Jessen (2004) criticizes today’s glorification of the historic city: the system only worked because people were “damned to being tolerant”. This consequently led to the development of a complex, culturally influenced “set of rules” which is referred to as “historic urban culture”: There were not less conflicts, but the existing ones were seen as integral part of “urban life” and thus accepted.
So, when glorifying the dense, “urban” historic city, one has to bear in mind that even then it was only tolerated, not yearned for: as soon as people got the chance to move out (through means of transport, see chapter 2.1), they did so. Siebel (2004) consequently labels the railway as “maker” of urban expansion and “breaker” of the continuing arrangement of the city.

Against this background, today’s suburbanisation can be understood as a partly “natural” phenomenon: as soon as people were able to, they fled the density of the core city. Nevertheless, suburbanisation’s negative aspects must not be denied (see chapter 3).

2.2.4 Suburbanisation and Urban Sprawl

The European Environment Agency (n.d.) defines **suburbanisation**, which is seen as main characteristic of the modern city, as follows: *“Migration from city centres to suburbs, often linked to the increase of business activities and decrease of population in the centres.”* So, the EEA sees it in close connection with a decrease of the urban core. Outward growth is nevertheless just one possibility of four:

Figure 2-2 Directions of Urban Growth



Source: EEA 2002, p.13

"Suburbanisation" and "sprawl" are mainly used to describe the same process. Sometimes, a slight variation is found, though: "suburbanisation" is usually more likely to be associated with the typical image of American housing suburbs (see chapter 3.4.2), whereas "sprawl" is used for urban encroachment – with all its functions - in general. Sometimes, "suburbanisation" is also used for describing the phenomenon with focus on the actors, whereas "sprawl" points at the physical patterns (see EEA definitions). The main difference nevertheless lies with the "wording":

Urban sprawl is a much more pictorial expression, as "to sprawl" means "wuchern" in German (to grow exuberantly). "Suburbanisation", on the other hand, has a rather "decent", middle-class flair, which is less suitable to picture the strong dynamics of the phenomenon. In this thesis, the two expressions are used synonymous.

Basically, there are two ways in which the expression "sprawl" can be used:

"To sprawl" is firstly seen as the dynamic process of cities growing over their boundaries. Secondly, "sprawl" is also used in a static way: Urban sprawl as the expression for the actual state a city is in when having expanded and sprawled.

In the following passages, some definitions by different sources are given and compared, to make the heterogeneous perception of this phenomenon visible. The way of describing and defining sprawl highly depends on the approach to it. Some institutions/sources focus on the quantitative aspect, such as the amount of space consumed by urban growth; others also consider the qualitative aspect, which means how it is consumed. The first, narrower approach is often used by environmental organisations, which are basically interested in measuring the loss of agricultural land through urban growth. The European Environment Agency, for example, defines sprawl consequently as *"…the physical pattern of low-density expansion of large urban areas, under market conditions, mainly into the surrounding agricultural areas"* (European Environment Agency 2006, p.6).

Sprawl City.org, an anti-sprawl organisation focusing on the environmental aspects, states that *"Sprawl is the spreading out of a city and its suburbs over more and more rural land at the periphery of an urban area. This involves the conversion of open space (rural land) into built-up, developed land over time."*

To make sprawl better measurable, e.g. Fulton et al. (2001, p.3) defined that a metropolitan region can be called "sprawling", if its growth rate of surface consumption exceeds the growth rate of its population. This definition already includes the fact that a city *has to* expand to a certain amount if its population is growing. Growth is thus not negative *per se*, just if it exceeds the growth rate which would be necessary. This is an aspect that the definition of Sprawl City, for example, does not consider at all. Nevertheless, it is still a restricted view: it does not mind the form of the surplus growth, which the EEA definition above however partly takes into account ("low-density expansion").

According to Anthony Downs (cited by the Richmond Federal Bank n.d.) of The Brookings Institution - which is a research organisation following a market approach - sprawl is a particular form of suburban growth. Downs reviewed literature and found ten characteristics that cause the criticisms on sprawl. These characteristics are:

- Unlimited outward extension of development
- Low-density residential and commercial settlements
- Leapfrog development
- Fragmentation of powers over land use among many small localities
- Dominance of transportation by private automotive vehicles
- Lack of centralized planning or control of land uses
- Widespread strip commercial development
- Great fiscal disparities among localities
- Segregation of types of land use in different zones and
- Reliance mainly on the trickle-down or filtering process to provide housing to low-income households.

Definitions like the ones listed above are also often used in press, because they are rather short and easy to understand (like the first ones given), or illustrative (like the last one by Downs). For an urban planner, though, they are still too narrow, which is why the definition of Ewing, Pendall & Chen (2002, p.6) will be used in this paper, which was created for a report of Smart Growth America - a pressure group for the sustainable growth of cities. They needed a measurable definition that comprised the many dimensions of sprawl. So they used the same quantitative departure as Fulton et al. did (growth rate of surface consumption exceeds the growth rate of population), but supplemented qualitative dimensions:

- Residential density
- Neighbourhood mix of homes, jobs, and services
- Strength of activity centers and downtowns
- Accessibility of the street network

This approach is suitable for an urban planner's purposes. It comprises measurable indexes and relations as well as the necessary levels of analysis. From the author's point of view, this definition suits the multidimensional nature of sprawl best among the ones given.

A detailed description of urban sprawl and its effects will be given in chapter 3.

2.2.5 Urban Fringe and Zwischenstadt

As already said, urban sprawl affects the whole urban area. Its actual "frontier", though, is found at its edges. But, what is the name of that place where urban sprawl is at work? How to define the area where the dense "urban" becomes the vast "rural"? The answer is not distinct: "urban fringe", "urban periphery", "outskirts", "rurban zone"…the expressions are numerous. In this paper, mainly "urban fringe" will be used, because it describes the character of a border zone between a city and its surrounding areas best.

Fassmann (2004, p.53 et seq.) describes it as follows: *"The historic model of a clear duality of city and countryside is no longer valid. Cities do not stop at their (no longer existing) city walls, and there are areas that can not be categorised clearly whether as city nor as countryside (the "urban fringe"). In fact, cities are continually growing into their hinterlands and have formed larger urbanised areas, which can be categorised differently."*

Thomas Sieverts (1997) created an expression for this area: "Zwischenstadt" ("in-between-cities"). He sees its problem in its unclearness, lacking memorability and replaceability. The fringe hosts individual elements that are logically functioning for themselves and but not interrelating with each other. So, the functional logics of big elements are dominating, which are often not compatible with the surrounding functions or elements of the city.

These characteristics result in a negative view of fringe areas - zones lacking atmosphere and having to be passed by quickly. Often, they are poor of design. Gallent et al. (2006, p.6) state that *"It may not conform to popular ideas of picturesque. On the contrary, it may seem desolate, forsaken and unconnected even to its own elements […].Tidiness is frequently absent […]. A further important aspect is its character as…dynamic environment, so what is urban fringe at one moment may quickly become urban area or countryside."* These facts result in people not knowing how to perceive and rate the fringe. Furthermore, its strengths and potentials are overseen (see chapter 3.4).

The urban fringe is difficult to define and consequently difficult to limit, especially as it often crosses administrative borders. Some concepts see it as a halo around the city, which does not consider its full character. It should rather be defined by its features, which makes it possible to realize that the fringe is not simply a ring. At some places, it can reach far into the city core while at others it may just be a small line between city and countryside. Furthermore, physically and historically, some parts of the central city can be seen as fringe too.

Gallent et al. (2006, p.4 et seqq.) use the British Countryside Agency's definition for the fringe as *"that zone of transition which begins with the edge of the fully built urban area and becomes progressively more rural whilst still remaining a clear mix of urban and rural land uses and influences before giving way to the wider countryside."* This definition is unclear when it comes to defining what the "fully built area" and the "wider countryside" are. It rather stresses the different land uses in the fringe area and the situation in between urban and rural. Gallent adds that the definition does not recognise the uniqueness of the urban fringe: it is not just a zone of transition, without sovereignty and offering nothing but functional scenery for driving through, but *"often contains just as much industrial, office and retail use as town centres and sometimes more"* (ibid.).

2.2.6 From Suburbia to Post-Suburbia

During the suburbanisation period of the 20th century in Europe, fringe areas remained functionally dependent from the urban core[3]. During the last decennials though, this "urban-rural-dichotomy" between city and countryside has started to diminish and an "urban-rural-continuum" started evolving instead: The gradient of centrality was no longer linear from the center to the fringe, but starting to dissolve over the whole urban area. Some former „suburban" quarters started losing their roles of supplements to the center and gaining central functions themselves. These processes made a polycentric system of functional nodes evolve. **Suburbia's emancipation of downtown** is the main characteristic of many fringe areas today, and the traditional search for the zoning scheme *center, periphery, urban zone, rural ring* has lost its meaning (cf. Borsdorf 2004).

Especially concerning housing, new segregation tendencies, sometimes even polarisation, can be observed. In the U.S. as well as in Europe, immigrants and long-established inhabitants tend to concentrate in separated areas. In this respect, the peripheries became newly attractive for established citizens, as they offer safe, healthy and green areas and the possibility to practise different lifestyles. The installation of certain infrastructure (education, service, commerce, entertainment centers et cetera) has made them even better living areas: new, highly specialised nodes are evolving, oriented on shopping centers, industrial parks, office centers, recreation centers et cetera, which offer more functions than just housing suburbia. Sometimes they are given names like Ikea Urbia, Golf Town, Aiport City or Knowledge City. These areas have become independent from the core, but are not as multifunctional as the traditional city centers.

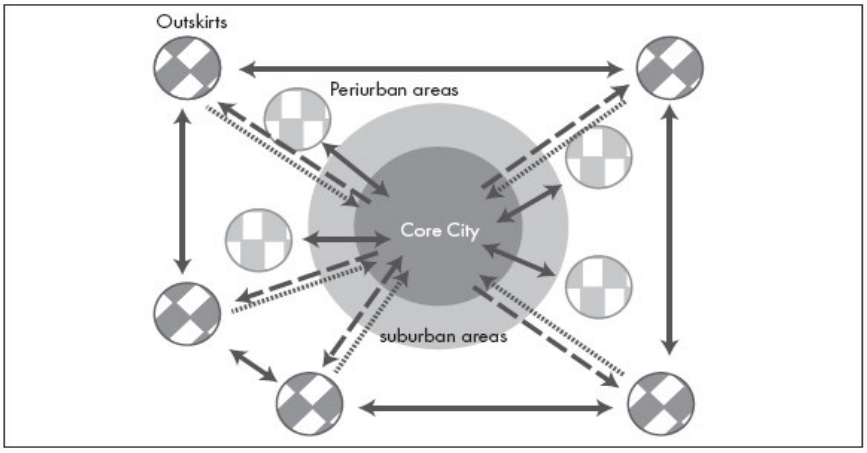
Borsdorf (2003, p. 1 et seq.) emphasizes that post-suburbia is something new, a breach of traditional spatial structures which illustrates the deep socio-economic changes at the end of the transformation process from an industrial society to a leisure time society. He reminds to realize that the new polycentric structures are the completely unintended results of revolutionary changes in the social, political, economic and even cultural systems.

He also states (2004, p. 11 et seq.) that "*Commuting, although still important, is no longer necessarily characteristic for the new outskirts: Many people live in the outskirts, get their supplies there, work there and entertain themselves in their leisure time. Outskirts have become attractive and lively districts*." The commuter streams outskirts - core city are not the dominating model any more and give way to a diffuse net of traffic.

Figure 2-3 tries to define the functions of each category in the urban-rural compound. The arrows symbolize the intensity of commuter streams.

[3] The functions offered by the center for a wider hinterland are called "central functions" (after Christaller 1933): the further the ways are that consumers have to go to reach a function, the higher is the function's (and consequently the city's) centrality.

Figure 2-3 Functions in the Urban-Rural Compound



Source: Borsdorf 2004, p. 10

Schönig (2004, p.22 et seq.) talks about a „naming game" for this phenomenon. „*Sub*urbia" describes an asymmetric relationship of central cities and suburban dwellings and implies a subordination of life outside the central cities. As described above, this perception is no longer suitable for describing many metropolitan fringes today: polycentric, highly independent from the central city, physically, ethnically and socio-economically segregated, politically fragmented, partially urban. The technical and socio-economic conditions of suburbia as part of the industrial, fordistic city, have lost their importance in times of post-fordism. Schönig further describes how different authors try to approach the definitions of these processes: some put an emphasis on the temporal aspect – *Postsuburbia* (e.g. Kling, Olin, Poster, 1995). Others (Fishman, Huxtable) try to define it functionally – *Technoburb, Slurb*. Some expressions have geographical background and imply a methaphoric meaning: *Outer City, 100-Mile-City, Urban Fields, Spread City, Nonplace Urban Field, Exurb, Edge City...*).

As a roundup, Table 2-2 seeks to compare the characteristics of Suburbia and Post-suburbia (based on research in European cities):

Table 2-2 Differences Suburbia - Poststuburbia

Characteristics	Suburbia	Postsuburbia
Impulses	Demographic growth, urban sprawl	Fall of the iron curtain, immigration from East and South towards core cities, individual mobility
Conditions	Housing demand, industrialised construction, low price levels, accessibility by public transport	Transformation, globalisation, social change, lifestyle diversity, segregation, polarisation, post-fordistic flexibilisation, motorisation
Image	Living with nature, escape from pollution	Living style, (post)modernity, sportsmanship, leisure orientation
(Infra)structure	Only basic infrastructure and few employment opportunities	Specialised infrastructure, employment opportunities, commerce
Forms and structure	Sterile architecture and green areas	Diverse architecture and green areas, but "ufos" and "clones"
Actors	Lower and middle class, young families	All classes, investors, developers, sports people, business people
Results	"Concrete Towers", "Dormitory Towns", "Green Widows", monotony	Social, economic and spatial fragmentation, multi-functionality, transformation of rural space, decline of centrality in central locations
Function	Supplementing the centre	Independent zones, neither urban nor rural

Source: Borsdorf 2004, p.12

2.2.7 Edge Cities

In 1992, Joel Garreau identified specific post-urban structures in America: Edge Cities. After suburbanisation of industry, trade, housing and recreation, a promoted migration of office uses from the core to the periphery and the formation of new, decentralised nodes were susceptible.

Garreau defined an Edge City as any place that:

- Has five million square feet or more of leasable office space – the workplace of Information Age.
- Has 600,000 et square feet or more of leasable retail space - the equivalent of a fair-sized mall.
- Has more jobs than bedrooms. Commuters move in, not out.
- Is perceived by the population as one place.
- Was nothing like "city" as recently as thirty years.

He quotes that even in 1992, two thirds of all American office buildings were in Edge Cities and 80% of them had materialised in only the two decades before. Most of metropolitan Americans´ trips already completely skirted the old centers: *"Take the traditional measure of size-population. The out-counties where Edge Cities now rise are almost by definition larger than the cores they surround. After all, these places we thought of until recently as suburbs are where the majority of Americans have been living for decades [...]. Ninety-two percent of the people in the New York metropolitan area do not live in Manhattan"* (Garreau 1992, p.5 et seq.).

In Europe, this trend is not that distinct. Lichtenberger (2002, in Gollner & Wimmer 2003) states that the development of Edge Cities in the USA is connected to the exorbitant real estate prices in American downtowns - the vertical structure of the skyline represents the height of the real estate prices. In Europe, thus, due to monument protection, skyscrapers are usually situated within a certain distance from the center. Nevertheless, some forms of Edge City development can be identified, which makes it important to investigate their characteristics.

Garreau also discusses whether this development is to be judged good or not. *"The raging debate over what we have lost and what we have gained, as we flee the old urban patterns of the nineteenth century for the new ones of the twenty-first, is constant. Are we satisfying our deepest yearnings for the good life with Edge City? Or are we poisoning everything across which we sprawl? ... Nowhere in the American national character, as it turns out, is there as deep a divide as that between our reverence for `unspoiled´ nature and our enduring devotion to `progress´"* (Garreau 1992, p.12).

To answer this question, he cites Robert Fishman, a Rutgers historian: *"All new city forms appear in their early stages to be chaotic"* (Garreau 1992, p. 9). So, is (post-)suburbanisation just a step in development which we have to accept and will turn out to be good? Do we have to accept the present development, foster it and make the best out of it? He states that the question is whether this disorienting expectation gap is permanent or simply a phase – *"…a function of how fast we've transformed our world"* (Garreau 1992, p.10).

He sees similarities of post-suburbia with Frank Lloyd Wright's Broadacre City (Garreau 1992, p. 10) but grants the Broadacre City concept a better planning and more green space. He cites Lloyd Wright's statement that *„Their skyskraper-by-skyskraper is…the gravestone of…centralization".*

In general though, he appears to be in favour of this development: *"...For that is precisely the significance of Edge Cities. They are the culmination of a generation of individual American value decisions about the best way to live, work and play – and how to create home"* (Garreau 1992, p.7).

Garreau further describes the Edge City development full of pathos, talks of a historic step into the future, comparable with the Pilgrims in 1620 and the Virginia Cavaliers in 1607. *"It suggests that the world of the immigrants and pioneers is not dead in America; it has just moved out to Edge City, where gambles are being lost and won for high stakes. That is why one day Edge City, too, may be seen as historic. It is the creation of a new world, being shaped by the free in a constantly reinvented land"* (Garreau 1992, p.15).

2.2.8 First Suburbs

The expression "first suburbs" has its origin in the older ("inner ring") suburbs of American cities, being home to nearly 20 percent of the U.S. population (2000 census). Puentes and Warren (2006, p.1) define them as *"… those places that developed first after their center city, before or during the rapid suburban expansion right after World War II, and before the newly developing suburbs of today. They are usually in the first ring of communities very close to the metropolitan core and often began as bedroom communities for professional, white, downtown commuters…"*

First suburb settlements are now often endangered by the lack of public and private investments and resulting decay. Wealthier groups move away as poorer groups, often immigrants, move in. Again, there is not exactly the same, pronounced development in Europe, but Borsdorf (2004, p.11) also identified problems of this kind in European cities: In the first decades of rapid suburbanisation (1960-1980), architectural, social and psychological problems arose in many of the suburbs. Monotonous architecture, low quality building materials, sterile green areas or lack of infrastructure are blamed.

As first suburbs play an important role in American urban development and resembling problems are arising in European cities, it is important to consider them when talking about urban expansion. In the case city of Cincinnati, those first suburbs are particularly found and even have formed a "First Suburb Consortium" to articulate their needs.

2.3 DEFINITIONS C: EXPRESSIONS FOR URBAN REGIONS

In this chapter, different models for urban regions are described. Some have already been addresseded in the previous chapters, so this can be seen as a roundup (after Fassmann 2004, p 53 et seqq.). It starts with the historic city-region model and then mounts in size from agglomeration to megalopolis. The transitions between the phases are – of course – blurred. The expressions are also only a selection of many existing ones – wich are varied like cities themselves.

The bigger the urban agglomeration gets, the less distinct are its boundaries. When talking about statistics, it is important to keep that in mind - figures about developments in metropolitan areas should be handled with care.

The City-Region

Boustet`s (1970) city region – model (or core-periphery - model) basically identifies the inner city and an immediately adjacent extension area. These two form the core area which is surrounded by a ring-shaped area consisting of an urbanised zone, edge zone and finally the hinterland. In this hinterland, satellite cities can be found, which are much more integrated with the inner city than with the surrounding hinterland. The basic features are a stepwise change-over from the city to the countryside, functional networks (through commuters) and the specific settlement structure.

This is a centralised system with a clear core-periphery-gradient. It is a traditional, in some terms outdated model, because it does not foresee the new urban forms of post-suburbia.

The Agglomeration

The expression “agglomeration” does not imply a core-periphery-gradient and is therefore more useable for polycentric urban regions. It describes an accumulation of cities that lie next to each other and form an urbanized area together (including areas without urban character), consisting of the contiguous built-up areas and peripheral zones which are closely bound to the centre (commuter belt). There are certain thresholds that are defined differently in certain countries: In Germany, for example, there has to be a centre with at least 300.000 inhabitants and a population density of at least 300 inhabitants/km².

The Metropolitan Area

The next step is a “metropolitan area”: It is an extended agglomeration that has some very densely populated areas and also some peripheral areas and is functionally integrated. It can be seen as a big agglomeration spread out in the surrounding region (e.g London metropolitan area, not to be confused with Greater London urban area). The core cities in a polycentric metropolitan area need not be physically connected by continuous built-up development. The biggest city of a metropolitan area –which has to be at least 100,000 inhabitants large - is called *central city* (cf. Fassmann 2004, p. 24).

The Megalopolis

Another category is the megalopolis. This is the “other end of the urbanisation scale” and defines a widely urbanised settlement area with varying densities. J. Gottman (1961, in Fassmann 2004) defined it as an area with a high number of inhabitants, grown together, comprising single metropolises and large cities. A typical example for a megalopolis is the dense area between Boston and Washington, where, physiogonomically borders can no longer be identified. This is not so much a European phenomenon - in Europe one would rather refer to metropolitan areas. Randstad could, though, be called a megalopolis.

The use of the expressions varies from country to country, as they are not defined very strictly. Concerning the case cities, Vienna is at present closest of all three to the core-periphery model, Cincinnati to the metropolitan area. Portland is in between.

3 SPRAWL MATTERS: A DESCRIPTION

In this chapter, a detailed description of the reasons and effects of sprawl in general will be given (for definitions, see chapter 2.2.4). That done, the characteristics, weaknesses and potentials of the urban fringe, as the frontier of sprawl, will be described.

3.1 REASONS FOR SPRAWL

Schönig (2004, p.59) sees sprawl as the result of an uncoordinated development driven by many forces acting individually. She furthermore emphasizes its integral character and the need for a regional perspective: *"Talking about sprawl implies talking about an ongoing process in the whole region, which is a result of many, mostly uncoordinated decisions of single actors and can be addressed only integrally when looking on the development of the whole region and all affected interests."*

There are "push"- as well as "pull" – factors in metropolitan areas. The European Environment Agency (2006, p.17 et seq.) gives a detailed list of the reasons for sprawl in Europe, called "drivers of urban sprawl". With some exceptions (e.g. European Integration), they can be identified in all sprawling "first world" nations.

Drivers of Sprawl

Macro-economic factors

- Economic growth
- Globalisation
- European Integration

Globalisation and economic growth go along with fundamental structural changes which become manifest in changing physical and economical patterns. They are also fundamentally interrelated with information and communication technologies, which will probably drive cities towards an even more sprawled future.

European Integration has removed barriers between European Member States and fostered the emergence of sprawling "super regions" transcending national boundaries. It also tends to support the development and growth of capital cities and erodes the competitive position of smaller cities and towns. Integration through Trans-European Transport Networks funded by the EU usually attracts new development alongside new motorways. On the other hand, there are EU programs that try to oppose sprawl – e.g. the revitalisation of central cities through structural funds, which basically fosters more compact cities.

Micro-economic factors

- Rising living standards
- Price of land
- Availability of cheap agricultural land
- Competition between municipalities

People want to act out their living standards (e.g. big house, own yard) and find cheap land for this in the fringe, where often competition between municipalities hinders coordinated development.

Furthermore, there can be added the

- restructuring of urban economies

which makes companies move out for various reasons (more space, suitable neighbourhood..).

Demographic factors

- Population growth
- Increase in household formation

Population growth no longer determines disproportionate urban growth. Couch & Karecha (2006, in EEA 2006, p.20) even state that the measurable shrinking of household size will result in a slowing down of the suburbanisation movement, as elderly people and young singles prefer to stay in urban centers.

Housing preferences

- More space per person
- Housing preferences

Much more important than growth of population is the individual desire for more space. A detached house in the fringe of the city, close to green space, is often an important aim in life. Furthermore, properties on the peripheries of cities are considered to be better investments because land prices are cheaper but expected to rise.

Inner city problems

- Poor air quality
- Noise
- Small apartments
- Unsafe environments
- Social problems
- Lack of green and open space
- Poor quality of schools

Negative features of the inner city often push wealthier families out. This leads to a downward spiral, because missing investments in the centers lead to further and further decay. In extreme cases, city centers can become very run down and a source of criminality, which again is an obstacle to revaluation.

Transportation

- Private car ownership
- Availability of roads
- Low cost of fuels
- Poor public transport

As already mentioned, car ownership and the availability of roads foster sprawl strongly. In the U.S, fuel is much cheaper than in Europe, which leads to a much more frequent use of cars. But as the mounting share of car drives in Europe and the growing numbers of cars with high fuel consumption show, European fuel prices are still not high enough to be able to efficiently contain car use. In the U.S., a beginning change of mind is to be witnessed: high fuel prices make people start to cut down their driving.

Regulatory frameworks

- Weak land use planning
- Poor enforcement of existing plans
- Lack of horizontal and vertical coordination and collaboration

As mentioned in the first chapter, regulatory frameworks are an integral part of sprawl dynamics. A main problem is competition and lack of coordination between many municipalities. Others follow engaged aims, but do not sufficiently enforce their plans. In general, a lack of cooperation in critical issues can often be stated.

3.2 THE BAD ABOUT SPRAWL

After having explained the reasons for sprawl, this chapter illustrates why sprawl should be contained and already gives hints how this could be possible.

There are basically four areas dominating the criticism on sprawl: (cf. Schönig 2004, p. 72 et seqq.)

- The social injustice of the regionally disperse development
- The ecological effects of sprawl and its missing sustainability
- The effects on traffic
- Insufficient urban design leading to a loss of urbanity and community

The view on sprawl and its criticism depends on – as already mentioned – background knowledge, planning approach, and attitude towards the field of tension between sustainability, economy and individual freedom. As problems are never "absolute", but "true by convention", it is important to clarify the perspective on which the cities' strategies are analyzed, to make the basis for criticism clear. Problems have to be denominated and defined, to create common grounds for discussion ("problems first" – planning; cf. Schönwandt, Jung & Bader 2008, p.2 et seqq.). The following aspects illustrate negative results of sprawl and serve as reasons for counteractions.

The Social Injustice of the Regionally Disperse Development

This field of criticism is resulting from socio-economic analysis of big metropolitan areas in the USA and their regional disparities:

First, sprawl leads to a greater dispersion of jobs (jobs being pulled to already existing centers) and consequently pushes jobs for the insufficiently qualified beyond their reach. These groups usually can neither afford to commute the distance every day nor move to the job centers, where cheap living space is rare. As a consequence, poor and unemployed agglomerate in the inner city and first suburbs, where jobs for them are hard to find (cf. Powell 2002 in Schönig 2004, p.74).

Second, growing fiscal disparities are damaging the quality of public infrastructure in the center and the first suburbs. Inhabitants of the inner cities contribute their part for financing new infrastructures on the outskirts but usually do not profit from the benefits. On the other hand, the ecological costs produced by sprawl have to be carried by all citizens (cf. Graham 2002 in Schönig 2004, p. 74). Furthermore, this process reinforces regional disparities by advancing the decline of settlements with weak preconditions (this means the old, former industrial suburbs close to the city center). The vicious circle leads to a lack of money for public services and finally affects schools and other basic infrastructure, meaning damage to equal opportunities. In the USA, this affects Afro-Americans (who are the majorities of poor people in those areas), in a disproportionate way. Furthermore, a strong concentration of poverty in inner cities has severe effects on the education of young people (cf. Rusk 2001 in Schönig 2004, p. 73) *"Sprawl is thus not only a consequence, but also a further reason of social and ethnic segregation"* (Orfield 2002 in Schönig 2004, p. 74).

In this respect, it is important to investigate the whole metropolitan area and its strong intra-regional interactions. From a regional perspective, the competition between municipalities is a waste of resources and harmful to the regional economy. The way out of these problems lies in regional reforms with the creation of strong regional cooperation or governments, strong regional planning, regionally coordinated education policies and regional tax adjustments which is only possible through redesigning legal basics. Due to the different situation in every state (in America and Europe), suggestions for reform have to be newly designed in every federal state (cf. Schönig 2004, p. 74).

The Ecological Effects of Sprawl – Missing Sustainability

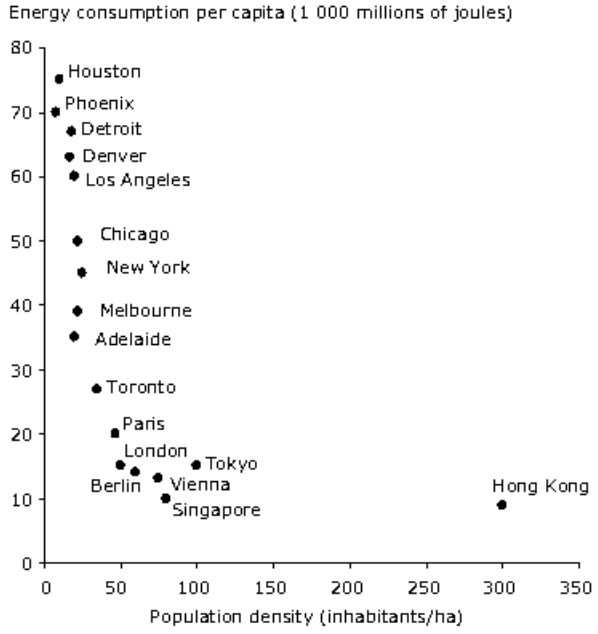
This field stresses the inevitable need for conservation of natural resources and to stop the uncontrolled use of natural areas for settlement, traffic and economy as well as tourism and agriculture.

The European Environment Agency (2006, p.28 et seqq.) states that urban development in general involves substantial consumption of numerous natural resources. Land and soil are of particular concern as they are mostly non-renewable resources. Transformation for housing or traffic is permanent or reversible only at high costs. Sealed soil can not carry out its natural functions, which leads to a disruption of sensible eco-systems.

In general, the need for transport in sprawled regions is higher because functions are wide-spread, which produces a higher demand for energy. The negative effects of mounting transport are dealt with below.

Figure 3-1 shows that, especially U.S. cities have low population densities and high energy consumption per capita. Other selected world cities (e.g. Hong Kong) have much lower energy consumption and partly higher densities (which favours public transport).

Figure 3-1 Population Density and Energy Consumption



Source: EEA 2006, p.30

In this respect it is important to recall that urban growth is not said to be bad *per se*. The aim should be sustainable and organised growth through a reform of land use laws, growth restrictions and a less auto-dependent design of settlements (cf. Schönig 2004, p. 75).

Proposed measurements in this respect are, depending on the region: Greenbelts and Urban Growth Boundaries (to protect land which is used for agriculture), or Urban Service Areas (growth corridors and centers to concentrate settlement). Some kind of regional planning must exist as a basis (cf. Schönig 2004, p. 76). Concerning the case cities, especially Portland and Vienna have applied respective measures. They are very different, though.

The Effects on Traffic

Traffic is dominating public debates about sprawl in America: policies of the nation, the states and municipalities are highly criticized. The knowledge that one is "getting nowhere fast" due to the high number of traffic jams is sensitising the population. The traffic problem is combined with the settlement structure of suburban areas, where public transport is not payable and every trip has to be gone by car. In addition, the separation of uses forces people to drive to get from home to work to free time-uses or shopping and back. This raises fuel use and emissions and makes groups not capable of driving a car (elder, young, poor or ill people) highly dependent on those who can drive (cf. Schönig 2004, p. 76). The missing concentration of activities makes it impossible to implement public transport.

Compared to the USA, the European policies are much more focused on public transport, but, as already mentioned in the earlier chapters, cars are catching up rapidly (see chapter 4.1).

Proposed strategies against these problems are the creation of settlements around nodes of a system of public transport (Transit-Oriented-Developments - "TODs"), the creation of pedestrian – friendly quarters ("Walkable Communities"), tax incentives for redensification or conversions (e.g. old airports) and higher fuel prices combined with a better system of public transport. Furthermore, a shift of money from car subventions to public transport is claimed (mainly in the U.S.).

Insufficient urban design leading to a loss of urbanity and community

Most of the sprawled regions in the U.S. lack a structure of centers and a net of regional traffic solutions. There are no hints for orientation and identification. They are not perceivable as "entity" or "space" due to their amorphous, unstructured form (cf. Calthorpe & Fulton 2000 in Schönig 2004, p. 81). Jane Jacobs (1961) called it "missing human measures" in modern urban design. The decline of inner cities and inner ring suburbs going parallel with the urbanisation of new space at the fringe is resulting in "spacelessness". That is a reason why the fringe can not settle as "space" for regional reforms in peoples' minds. Public space is not respected and architecture is often lacking fantasy and character.

The condition of American Society is seen in close relation to the physical form of their cities: non-existence of high quality public space and centers to create urbanity and to foster community, settlements and traffic structures emphasising individualism and urban development aiming at racial segregation (cf. Schönig 2004, p. 78).

The criticism on physical form (in America mainly conducted by the Congress for New Urbanism) and urban design are baselines and result of the criticism on sprawl, bearing the form of the whole region in mind. The New Urbanists' aim is to improve the design of concrete dwellings and also implement a "Regional Design" integrating many facettes: ecology, economy, history, policies, regulatory systems, culture and social structure of a region.

3.3 THE GOOD ABOUT SPRAWL

Despite the negative effects which can not be denied, there are some arguments in favour of sprawl. Some are obvious, some can be criticised. Again, it depends on frameworks and (planning) approaches.

Space for people's individual preferences

It is, to a certain extent, obvious, what most people want and where they can get it: their own home in a nice, quiet, green neighbourhood, buyable in suburbia. Because of this, counter-sprawl regulations and incentives have only limited effect. Rules are bent and development objectives neglected, because first of all, people tend to follow their own desires and maximize their own results; only afterwards, public goods are taken into account. NIMBYism ("Not-in-my-backyard"-thinking) is common. Some call it an illusion to believe that personal preferences can be influenced to such an extent to make people change their habits and dreams.

Shorter distances of commuting and transport

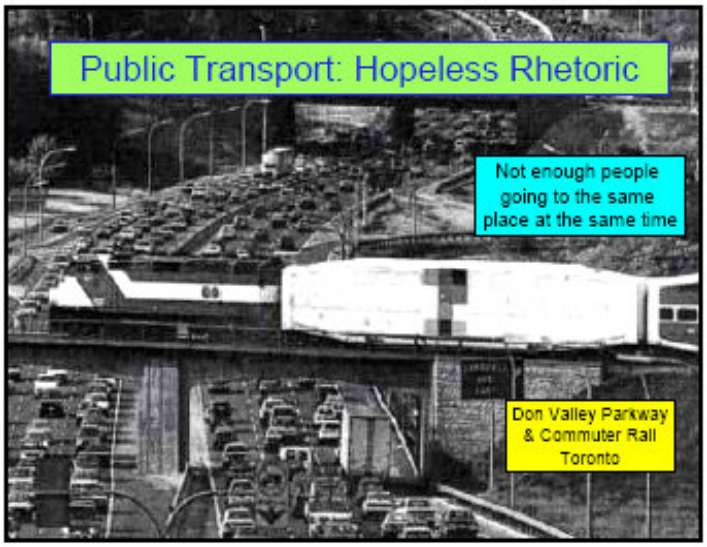
Wendell Cox (2005) states in a presentation on demographia.com, that the higher the densities in urban areas are, the more hours are spent per day in traffic. This is possibly a too easily achieved conclusion, but in general, it can be stated that the accommodation of too many people on restricted space causes congestion problems. Cox also stresses the positive aspect of decentralisation of employment: more suburbanised cities would have shorter commute times due to the greater proximity of workplaces and homes. He undermines this with the fact that about 18% of the Americans decide to move to the suburbs to be closer to their jobs. Glaeser & Kahn (2004, p.4) agree with that: *"…The commute time differences are also dramatic. While congestion may be slowing commutes in some edge cities, in most cases, the car-based urban frontier has far shorter commutes than the old public transportation cities (Gordon, Kumar and Richardson 1991). Cars are just so much faster than public transportation that commutes in the old dense cities are almost always much longer than in their newer, sprawling competitors*." It is a narrow view to postulate that every suburban worker lives near his/her place of work. In reality, due to housing prices and diffusion of jobs over wide areas, there are often long ways to be gone, which again causes traffic problems.

Third, there is the argument *that "Car-based edge cities feature only one mode of transport and hence have less segregation"* (Glaeser & Kahn 2004, p.4 et seqq). They state that around multiple transport nodes, segregation is naturally higher, as richer households use the car and poorer live in areas with access to the cheaper, slower (public) mode. This argument does not consider that without public transport, no mobility would be possible at all for those people. Furthermore, the impact of different scales of analysis is not taken into account.

Efficient public transport for everyone is an illusion

This thoroughly reasonable argument of Cox (2005) deals with the fact that in many parts of urban areas, public transport is not attractive enough. Densities are too low to establish even approximately cost-effective public transport, which results in cutting down public transport facilities outside the center. So, competition against cars can not be won in most of the cities outside downtown. Sprawl is a natural outcome of society's choices.

Figure 3-2 Public Transport vs. Individual Transport



Source: Cox 2005

Growth restrictions result in higher housing prices

Urban growth boundaries usually lead to a shortage of land which again can result in mounting prices for housing. Cox states that this fact is threatening the democratisation of prosperity. The ownership of a single-family house is actually a prestigious thing in the USA: even president George W. Bush declared June 2002 as “National Homeownership Month 2002” and called house ownership to be an integral element of the American Dream (cf. Schönig 2004, p.22). This explains the contained attitude of Americans towards densification and living in multi-family houses. Owning a house with yard is a much more important part of culture than in Europe.

Growth restrictions retard economic growth

One of the strengths of liberal economies are said to be “competitive intensity”: Restricting urban growth would mean restricting growth of the local economy (and, consequently, to everyone (cf. Lewis 2004 in Cox 2005).

3.4 RESULTS OF SPRAWL: FORMING THE RURAL-URBAN FRINGE

Sprawl affects the whole urban area. Its influence can be seen in deteriorating city centers, space-wasting urban encroachment on fringe areas, separation of functions all over the urban area, traffic problems etc. As already said, this paper puts a focus on its effects on the urban fringe.

As defined in the earlier chapters, the urban fringe can be characterised as a highly functionalised, widespread area that is a picture of a society's needs and desires. In the fringe, "form follows function", which results in a lack of structural and design quality and amenity values in general. Fringe areas often seem to be replaceable, as repetitions of well-known objects. They are a very heterogeneous and vary in size and distance to the urban core. They differ from historical core areas by lacking their continuity and structure and from the more monotone housing suburbs by having a lot of diverse, unstructured functions, changing rapidly and having a more "urban" character.

Gallent et al. (2003, p.4) identified the types of land use in the (European) fringe – not all of them have to be present. Couch, Leontidou & Arnstberg (2007, p. 15 after Duany et al. 2000) did the same for American fringe areas. The following list has been worked out by joining these two approaches:

Elements of the fringe:

- Low-density office, retail and industrial premises including warehousing; shopping centers accessible by car
- Housing subdivisions, sometimes misleadingly called villages, towns and neighbourhoods. They consist of residences only.
- Essential service functions (or major infrastructure), without which neither town nor country could exist. (e.g. electricity substations, motorway interchanges et cetera)
- Recreational functions (e.g. golf courses, equestrian centers...)
- Farmland and unused land (more fragmented than in the countryside)
- Civic institutions such as churches, schools and places where people go for municipal services and cultural events, are spread out and located nowhere in particular.
- Roadways, miles of sealed surface, necessary to the functioning of urban sprawl.

3.4.1 The Urban Fringe of Post-Suburbia

The change from modern to post-modern cities has also resulted in new forms of suburbia. To characterise the particular nature of port-suburban peripheries, Borsdorf (2003) cited Frankhauser (2003) and Schumacher & Koch (2004), who stated that not only in the hinterlands of European cities, but also at their fringes, fractal structures can be found. The result is a structure of ″urban perforations″, which, developed as "fractals", serve as evidence for the development of chaotic post-modern structures.

Borsdorf (ibid.) describes further important elements of post-suburbia: "ribbons", "clones" and "ufos". Ribbons connect the elements of the chaotic structure, which contains "cloned", repetitive elements: housing areas made of single-family houses or industrial areas, whose uniformity is a clear contrast to the wish of their individualisation. Schumacher & Koch call the clones "the prairie of wishes", where the inhabitants express, in a very radical from, how they want to live, without recognising the homogeneity and boredom of these wishes. They see bays, winter gardens, British lawns, swimming pools et cetera as symbols of the disability of creating the people's own styles beyond modernism. Clones have already characterised suburbia before post-modernism – Borsdorf calls it the "nearly unbearable repetition of the trivial", which is nothing new in modern cities.

These are, of course, judgements of urban design experts. Many people living in these areas do not rate the situation that negative. They are satisfied with individualisation on smaller scale (inside, yards etc.) and do not refer to their houses as "clones". They have realised their major wish to live in a self-owned

home with a yard, which is justified. Furthermore, some areas do indeed have considerable amenity values. As already mentioned, judgement of those areas depends on the point of view, background and scale of analysis.

Something particularly new with post-suburban fringes are the big, solitaire elements that are situated without connections to their neighbourhood. They could as well be somewhere different - it would change nothing besides their presence. The expression used for them is “ufo”, because they have landed somewhere, will stay some time and then probably go away again – like shopping malls, entertainment centers, office buildings of big companies, business parks et cetera.

3.4.2 Northern America’s Housing Suburbia

As wide-spread areas of mono-functional housing use are typical for many cities in the U.S., this chapter shortly describes their features. They are sometimes seen as “fringe areas”, but, actually, they are rather just a part, if not a very specific form of them. Because, some characteristics associated “fringe” are not appropriate for wide parts of housing suburbia: having rapid and massive scale shifts, high complexity and missing clarity, a broad mix of functions, which are usually not compatible with housing functions, placelessness. Housing suburbia is, in wide parts, rather monofunctional, uniform, simply structured (“clones”) and sometimes offers certain amenity values. The character and design usually associated with “fringe areas” – multiple uses, traffic, movement, scale-shifts etc. - is mainly located alongside main streets and strip malls.

The majority of American suburbs is not conceptually planned, but rather an enlargement and repetition of the same pattern with little variations: single-family houses (with varying social status depending if the investor is institutional or private) varying in size and style, sometimes town houses, but mostly free-standing. They, privately owned, are main elements of the American dream. Social housing only forms a marginal part.

As already said, housing suburbia is highly monotonous in function, but (as the European one) can not be described as homogeneous in terms of building types – it’s a patchwork of different forms of architecture and urban design from different eras standing next to each other, mixing and overlying. It shows the development of planning regulations over the last 100 years, of Utopias and experiments trying to make the American Dream accessible for a large share of the population (cf. Schönig 2004, p. 139). The various forms of housing mirror, to a certain extent, the diversification of lifestyles.

Growing orientation on private life can be detected in the inward-orientation of the buildings and the garage as dominating element and often entry to the house. Public space is generally not available. Most of public life happens in the “neighbourhoods”, a special element of American suburban settlements of post-war-time. They are coined by “Cul-de-Sacs”, rolling streets which are strictly separated between abutter and transit traffic: this creates separated spaces for the people passing through and the people living there (“neighbourhoods”). Following the Radburn[4]-Idea, these areas offer high privacy and high social control for the inhabitants.

Another specific element of America’s suburbia are Planned Unit Developments (PUDs) or Cluster Zonings. These are areas developed by private enterprises, with the municipality only having fixed basic regulations. Planning – including schools, streets etc. – lies with the private developer. This is a common way of transferring public duties to privates.

In many suburban areas, even the “public works” (infrastructure like street lightning, schools, garbage collection) have been privatized. The counties only provide the main road net, whereas homeowner associations receive permissions to raise taxes for their services.

[4] Radburn-Settlements are elaborations of Ebenezer-Howard´s “Garden City” concept.

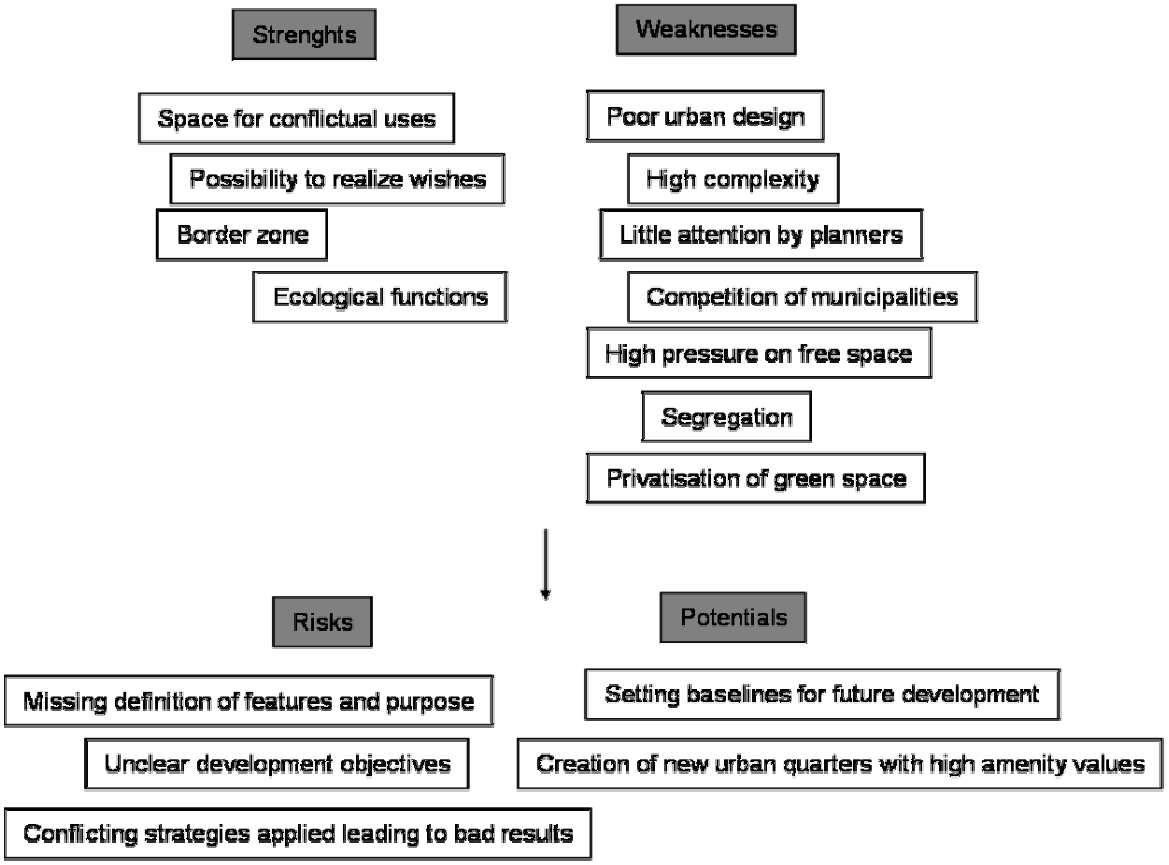
Due to the low density of suburban buildings, the settlements are not connected to public transport and so there is a strong need for a car. Even for very short distances one has to use highways, because lower priority streets are often missing (cf. Schönig 2004, p.44). As the dwellings are oriented on life on the private lot, streets in some areas are seldom used by pedestrians – in some cases there isn't even a sideway.

3.4.3 Strenghts and Weaknesses of Fringe Areas

The features of urban fringes must not be measured with traditional concepts that are based on the historical, dense core city, because they do not apply there. Criteria and measurements have to be adapted to an area where structural preconditions have changed (cf. Poppe 2001, p.21).

The urban fringe has strengths as well as weaknesses and offers potentials and risks. The following pages will give a compact description of these.

Figure 3-3 Strenghts-Weaknesses-Risks-Potentials of Fringe Areas



Source: author

Strenghts

The strengths of the urban fringe are:

- Space and tolerance for uses that do not find it in the urban core
- Possibility for people to realize their wishes (e.g. own house with big yard)
- Preserving free space in the city (ecological functions)
- Areas open for multiple uses
- Being a border zone between city and landscape and area of urban development

Space and Tolerance for Uses that do not find it in the Urban Core

The density of the urban core does not allow certain functions to develop, which is simply due to a lack of space. Furthermore, some uses are just not compatible – loud, space-consuming functions, or such linked with intense traffic, have to give way and settle further outside. Because these functions are necessary for the survival of a city, a clear strength of the fringe is its capability to hold them.

Possibility for people to realize their wishes

Rainer (cf. 1998, p.78) states that evidently, a 60-75% share of the population (European, author's note) want to own single-family houses and are willing to make considerable sacrifice to get it. He calls it the oldest and most wide-spread form of housing in the world and an ideal environment for children. The urban fringe offers space to realize it (more or less) close to an urban center.

The wish for an own single-family house has been existing for a long time in human history and will thus not be completely effaceable by urban planning and its concepts. The challenge is to channel this desire in the most sustainable way by reasonable planning and information of the public.

Being a Border Zone between City and Landscape and Serving Ecological Functions

Urban fringe areas offer a greater percentage of vast land than inner city areas. These unsealed, not specifically used spaces are important for biodiversity, micro-climate, soil balance et cetera. They pull bits of the surrounding countryside into the city.

The closest parallel in urban planning to the fringe belt is the green belt, which is much more envisaged as a planning tool (cf. Whitehand & Morton 2003, p.836).

Areas open for multiple uses

Fringe areas offer a higher percentage of not specifically used land. As the pressure on space is not as high as in the center, there are areas that can be individually adopted for certain uses that have not been foreseen.

<u>Weaknesses</u>

Presently, unplanned and rapid developments are moulding the urban fringe. This leads to several weaknesses:

- Poor urban design
- High complexity and missing clarity
- Diffuse structures and missing canalisation of traffic
- Too little attention by urban developers/planners - unplanned developments
- Difficulties in coordinating development, because it often crosses administrative boundaries
- Competition of municipalities
- High consumption of space – high pressure on free space
- Segregation tendencies
- Growing privatisation of green and public space

Poor Urban Design

Garreau (1992, p.9) describes why the urban fringe is perceived so negatively by "urbanites" – they do not know how to handle these new structures, forms and aesthetics: "*Traditional-downtown urbanites recoil because a place blown out to automobile scale is not what they think of as 'city'. They find the swirl of functions intimidating, confusing, maddening. Why are these tall buildings so far apart? Why are they juxtaposed, apparently higgledy-piggledly, among the malls and strip shopping centers and fast-food joints and self-service gas stations? Both literally and metaphorically, these urbanites always get lost*." This description gives good ideas on how to explain the unconfident handling of fringe areas by stake-holders as well as inhabitants.

High Complexity and Missing Clarity, Diffuse Structures and Missing Canalisation of Traffic

The variety of uses, a missing hierarchy and new network structures lead to a great complexity of fringe areas that can not be overlooked easily. Combined with poor urban design, this offers little possibilities for identification and orientation. The high segregation of uses results in a high share of traffic, which itself promotes the missing clarity and results in often poor environmental quality.

Too Little Attention by Urban Developers/Planners

Rainer (1998, p.83) states that the many years and high spendings which have been used for urban renewal (in Austria), have brought no improvement of urban areas, no breaking-up or recovery of living space. He adds that these years are now missing in the preparation and the coping with a task that we have been facing inevitably – urban growth. He diagnoses a default in planning and developing the urban fringe according to its needs.

Fringes have been “side-effects” of urban development, modernisation and economic growth for a long time. Not until sustainability became more and more popular, the urban peripheries got little attention from official planning as well as the public. The character of a city was mostly linked to the historic core, which got the most attention.

Difficulties in Coordinating Development, Competition of Municipalities

The peripheries of a city often cross municipal boundaries. This makes it particularly difficult to coordinate development, as planning procedures, often also aims and measures, differ. More often than not, neighbouring municipalities are in severe competition against each other. To attract companies and citizens – and consequently get money - they often take decisions that are negative for the development of the urban area as a whole. For one municipality, they seem best, but seen on a regional scale, decisions and development are often suboptimal or even negative.

High Consumption of Space – High Pressure on Free Space

In fringe areas, there is usually more free space than in the inner cities. This leads to an irrational handling of space and a space-consumption which is higher than necessary. The result is growing pressure on space and an irreversible transformation of original strengths of the fringe (ecological diversity, unspecifically used areas...) into badly used, sealed areas.

Segregation Tendencies and Growing Privatisation of Green and Public Space

First, the strong growth of households pushes free space further and further out and makes it more and more difficult to reach. Second, the growing privatisation of space forwards segregation processes. The collective aspect of spatiality is declining, the primary aspects lies with individually designed private property (cf. Poppe 2001, p.142).

The segregation of functions goes along with a segregation of inhabitants, showing that social polarisation is becoming manifest in the whole urban area.

3.4.4 Risks and Potentials of Fringe Areas

Risks in Future Development

Poppe (2001, p.142) puts the risks in future fringe development that way: *"The most important aspects of dissatisfactory development of settlements lie with the missing efforts of integrating existing potentials and fragments, defining transition zones and borders and creating structural preconditions that emerge socio-spatial arenas*."

Wrong handling by urban planners results from not taking the special features and preconditions of fringe areas into account. This is probably due to confusion about what the fringe is and what it is desired to be in the future. Fringe areas are often not recognised as entities which are becoming more independent from the inner cities and need special, farsighted planning. They are peripheral in situation and in planning perception.

The missing definition of qualities and features of fringe areas and visions for the future leads to unclear development objectives. These produce conflicting strategies, which often entail bad results. Planners have to be aware of those risks.

Potentials for Development

For future development, it is important to recognise the forces that are present in today's urban development: rationalisation and differentiation.

The development on the "outside" has to be seen as a building block of the overall development and the needs of the population living in this area have to be articulated. For planning, the area has to be perceived as a whole. To handle the dynamics at the fringe properly, it is not the right way to just expand the existing structures: changing preconditions make that impossible. There is the need for a proper new interpretation of these zones and consequently the creation of adequate planning instruments (cf. Poppe, 2001, p.21). Measures, planning concepts and visions should be designed particularly for specific urban areas and out of specific problems. They can be communicated better if they are not just general phrases but locally bound (cf. Poppe, 2001, p. 16).

Many recent strategies have tried to solve the problem by assigning density, which is suitable for urban cores, but not the urban fringes of the 21st century. There, space for personal and economic evolvement is much more available and should be used in a qualitative way. The loss of urbanity can not be compensated by just increasing constructional density (cf. Sieverts & Wick 1996, p.64).

The potential of fringe areas as new city quarters that can (and have to) offer high amenity values and the chance to set good baselines for long-term development have to be kept in mind when planning urban expansion.

3.4.5 Strategies on Sprawl and Their Effects on the Fringe

The urban fringe, as multifaceted as it is, has a special function as "urban frontier". There, urban encroachment and sprawl become visible first and very clear. For designing strategies on sprawl though, it is necessary to keep more than just "the fringe" or "the city" in mind, but to look at a wider region of complex functional relations. Interventions and effects may not occur on the same place and in the same field, but induce processes affecting development in the whole region. There is no "specific anti-sprawl measure" as such; every single action has to be embedded in a toolkit of wide-spread strategies. Nevertheless, this toolkit has to be well-defined and specific.

4 URBAN GROWTH IN THE USA AND EUROPE

Having outlined some urban theory, this chapter will focus on empiric data about sprawl development in Europe and the USA. The different histories of urban evolvement, the different socio-cultural and economic frameworks and the different planning approaches open up very different fields for urban development. First, general differences and similarities will be described (this is no exhaustive enumeration) and afterwards, European and American sprawl will be dealt with in greater detail. This will create the basis for the analysis of the case cities in chapter 5-7.

4.1 DIFFERENCES AND SIMLIARITIES OF SPRAWL IN THE USA AND EUROPE

Sprawl is usually seen as in a sense mainly American phenomenon. In fact, the degree of sprawl, of socio-economic and spatial polarisation and political fragmentation of some American metropolitan areas are (still) not found in European cities (cf. Schönig 2004, p.126). Glaeser & Kahn (2003, p.2) state that "*In 2003 America, urban growth and sprawl are almost synonymous and edge cities have become the dominant urban form".* This is not the situation in Europe. Bodenschatz (2007) describes the European (German) sprawl as "… *contained decently in borders and with a certain density – these are the characteristics of the German sprawl which still have to be reached in the USA and are just a sub-ordinate target there, which gives us a weary smile [...] well-planned sprawl, which is not expanding like an oil stain, but rhythmically, step by step…".* In the US, market forces and similar city-shaping processes had much more drastic effect. Bodenschatz (ibid.) thus describes European sprawl as more planned and supervised, but also mentions that it is nevertheless expanding continually and becoming a concrete problem in Europe. Bruegmann (2005, in Rybcinski, 2005) states that the situation in Europe is becoming critical: "*As cities across Europe have become more affluent in the last decades of the twentieth century, they have witnessed a continuing decline in population densities in the historic core, a quickening of the pace of suburban and exurban development, a sharp rise in automobile ownership and use, and the proliferation of subdivisions of single-family houses and suburban shopping centers*." Wendell Cox (1999) reports that since the 1950s, Paris has suburbanized as much as Philadelphia and that similar transformations are underway in Stockholm, Toronto, Tokyo and other places.

Couch, Leontidou & Arnstberg (2007, p. 16) notice that the European situation is more complex. There can be found similar characteristics – like inner districts with poor housing conditions and socially excluded residents or sprawled suburbs, but rarely on the scale of US cities. The grade of social-spatial polarisation, low density or car dependency is much more extreme in American cities. Furthermore, European cities face a return of population and, in some areas, rapid gentrification of the central city and regenerated areas such as former docklands. To illustrate the difference better, Liu & Katz (2007, p.2) shall be cited, describing the need for policies against sprawl in the USA. It indirectly emphasises how promoted American polarisation and fragmentation already is in some areas. "*Transportation strategies must meet the real need of firms and workers in rapidly decentralising economies. In Washington, D.C., as in other metropolitan areas, express bus service from labour markets in central cities to job centers in suburbs is rare*." The fact that there has to be a bus service installed getting people out of the center to suburban job nodes is, presently, not imaginable in European cities like Vienna.

To describe the difference between European and U.S. sprawl, also a statement of Christ (in Schönig 2004, p.157) seems suitable:" *If you are moving outside from downtown of an American city, you are usually heading towards open land. If you do the same in Europe, e.g Frankfurt, you come across a wave of Zwischenstadt, compact city, Zwischenstadt, compact city et cetera. You can meet areas with 50 years of age and areas that are 200, 500, 800 years of age. In the European metropolitan region, the old towns are surrounded by areas of Zwischenstadt*." This statement illustrates the different forms of urban regions in Europe and the USA: American cities having larger structures and huge areas of homogeneous uses and designs whereas European cities have a more distinct system of sub-nodes and are built of more heterogeneous, smaller blocks.

4.2 REASONS FOR DIFFERENCES

Werner's (2000) list of the reasons why sprawl is more pronounced in the U.S. than in Europe (which were identified by Nivola and Chen at a congress of the American Energy Study Institute in 1999), was used as a basis for the following passages together with Cullingworth & Caves (2003, p.18 et seq.). Main additions have been made by the author.

Figure 4-1 Different Preconditions Influencing Urban Sprawl in Europe and the USA

Source: Werner 2000, Cullingworth & Caves 2003, p.18; additions by author

Geography – amount of land

The pure existence of more vast land in the USA (which is of 3.5 billion square miles of land) encourages sprawl. Nivola pointed out that if Arizona continues its current urbanization pace of 50,000 acres per year, only 2 % of the state will be developed by 2020. But in Holland, at just 10 % of Arizona's size, there simply is no room for a place like Phoenix. Couch, Leontidou & Arnstberg (2007, p. 19) state that urban areas occupy only about 1% of the total land area of the USA. The overall population density of the USA is 31.6 persons per km² and there is little sense of a shortage of land. The population density of most European countries is many times higher (averagely 117.5 persons per km²) (Eurostat 2005). Urban areas occupy nearly 10% of the total land area of Germany and 7.5% in the UK.

Attitude towards Property and Land

A main feature of American society is the emphasis on individuality and property. Property is under individual control: "*…and if one person saw fit to destroy the environment of his valley in pursuit of profit, well, why not? There was always another valley over the next hill*" (Cullingworth & Caves 2003, p. 18). This

can also be recognised in some parts of Europe, but the difference lies with the attitude towards the necessity of preserving land. In the USA, land is regarded as commodity, just like any other. Speculation was never frowned upon and has been a natural feature of the economic landscape. During the last years, containment attempts have come up, but have not been very successful due to the strength of forces which are at work and the limited power of governments trying to handle it.

Urban Structures

Couch, Leontidou & Arnstberg (2007, p. 20) also state that few U.S. cities contain a traditional inner core of sought-after middle class housing, like many European cities do, in addition to large areas of heritage sites and listed buildings. In general, European downtowns are more historically formed. The sprawling suburbs around the typical U.S. cities are often bigger than their European equivalents; they are growing faster and the divergence in living conditions between suburbs and downtown are relatively greater.

The following table shows the estimated densities in urban areas and their suburbs worldwide. Europe's numbers are several times higher than the U.S. ones.

Table 4-1 Urban Densities Worldwide

Density: km²	Urban Area Population Density	Core Density	Suburban Density	Suburban Compared to Core	Cases
Australia & New Zealand	1,400	2,300	1,150	50%	6
Canada	1,750	4,400	1,400	31%	6
Japan	4,650	8,500	2,800	33%	8
United States	1,200	2,950	1,050	35%	30
Western Europe	3,150	7,250	2,400	33%	41
Outside United Kingdom	2,950	7,800	2,050	26%	35
United Kingdom	4,150	4,200	4,600	109%	6
Overall	2,400	5,400	1,850	34%	91

Source: www.demographia.com

U.S. cities are generally car-based and characterised by larger structures. Another important difference is the pronounced polarisation of American cities that is not (yet) found at such intensity in European cities (cf. Lenger 2006). Whereas European suburbs remain more oriented on the city centers and its functions, average American suburbs have made quicker steps towards postsuburbia. They have developed around shopping malls or highway crossings and are much more independent in their functions (e.g. technoburbs, edge cities…). There, traffic streams do not necessarily go center-suburb, but suburb-suburb. Transport connections seem to be very important for those suburban centers: it is the beltways around cities which influence decision about location and allow the technoburbs to be more strongly dependent on each other than on the center. According to Lenger (2006), similar location decisions in Europe have not initiated such impulses for new settlements. He finds the reasons for this in the higher densities of European agglomerations and the better accessibility due to (comparably, author's note) better developed public transport.

While tramway lines in Europe have historically been operated by the municipalities, tramway associations in the USA were also developers for the lots alongside their lines. Usually, the lots most distanced to the core were sold first, as bigger distances meant higher transportation fees. This is said to be another major reason for the far-stretched settlement structure of American cities. As fordistic mass production of cars arose in the 1920s, but did not result in high demand, car producers started to take over tramway associations and continually closed down line after line (cf. Seiss, 2005).

Demographics and Culture

Werner (2000) states that U.S. population has grown much more rapidly than the European one. American families were younger and larger and needed more space, and suburbs offered the best buy in terms of land and homes. Americans also tend to be much more flexible in terms of relocation than Europeans.

The U.S. population has also been more racially diverse and the need to assimilate many ethnic groups has led society to "*…spread everybody out rather than pack them all in*" (Couch, Leontidou & Arnstberg 2007, p. 14). The current picture of middle-class suburbs in nice neighbourhoods are in general the product of "White Flight" - the movement of white, middle-class families out of more run down parts of the core city into the urban fringe, where there is usually less crime, less pollution, more green space and better schools. Palen (1995, in Schönig 2004, p.21) describes this as the post-war phenomenon of „Middle-Class-Mass-Suburbia": inhabitants of the core cities tend to be not as well educated, poorer and more ethnically mixed (cf. Schönig 2004, p. 136).

European cities have also seen polarisation trends, but in a less intense way. The concentration of poorer groups in the central cities is not that strongly pronounced. Tendencies of polarisation and the problems going along with it are nevertheless getting more and more visible (e.g. riots in the immigrant satellite cities of Paris starting in 2005).

Importance of the Individual

American culture (and, consequently, planning) is based on the belief in the individual and its personal rights. Individuality and self-realisation as well as freedom of choice and individual property are main aspects of American culture. Americans usually do not accept strong government influence, which makes planning particularly difficult. On the other hand, self-organisation of citizens (neighbourhood associations...) have made institutionalisation of public participation easier.

Europeans are more used to bigger influence of government and tend to accept top down regulations more. Nevertheless, the role of individual actors is being redesigned in many countries.

Economics and Transport

Werner (2000) also states that, after World War II, while American cities got their profiles from economic and demographic expansion, many cities in Europe were rebuild from zero. In this time span, the United States "…*went on a home-buying spree that had absolutely no parallel in Europe*".

Couch, Leontidou & Arnstberg (2007, p. 19) emphasize that the Gross Domestic Product per capita, which in the USA is around 140% that of the EU average. Considering housing costs as approximately comparable, more money rests for travel or purchase of cars, houses and land. Combined with an open attitude towards consumption and loans, this encouraged sprawl.

According to Werner (2000), the automobile played (and still plays) a main part forming urban structures: in 1928, about 80% of the world's cars were located in the U.S. "*Fifty percent of American families owned a car by the mid-1920´s, a figure no European country even approached until well after World War II*".

According to Schönig (2004, p. 76), 69% of the American population do not use public transport, 42% do not even have access to it. In Europe, the share is better, but tendencies to restrict public transport outside of urban centers become stronger. Rybczinski (2005) notes that each American citizen drives on average 12,336 km a year, a European just 5,026 km. But while the share of private car transport in the USA is a lot higher, but growing slower, the European shares are "skyrocketing", while public transport remains flat. This is further evidence for Europe catching up with trends usually being considered as "American".

Table 4-2 shows that the Americans use their cars much more frequently, but railway many times less than Europeans. Thus, the car ratio is declining, indicating a strong growth of car use in Europe.

Table 4-2 Modal Split in Europe and the United States

Ratio of United States to European Union Market Share	Auto	Bus	Railway	Airline
1970	1.23	0.22	0.09	3.18
1980	1.17	0.27	0.08	3.03
1990	1.09	0.35	0.09	2.58
1997	1.08	0.37	0.08	2.21

Source: www.publicpurpose.com

Government Structure

The pattern of sprawl is highly influenced by planning systems. Both the EU and the U.S. have no integral spatial planning competence at national (EU) level. In both, the main planning power lies with the (federal or national) states, who have handled it differently. Many have passed it on to lower levels of government, like counties and municipalities. In general, though, " … *the structure of local government appears more robust in Europe than in the USA, with greater dependence on higher tiers of government funding. This gives central and regional governments in Europe more control over local authorities and brings greater cohesion and direction to public policy. The European Union (EU) also has a binding effect*" Couch, Leontidu & Arnstberg (2007, p. 18).

The **European Union** has no formal competence in the field of spatial planning as such. It can only give advice, propose guidelines and do research. Sectoral competences are present in transport policies (e.g. TEN networks) or agricultural policies, and through these, the Union influences the spatial development of the member states. Other tools are subsidies, which are very extensive concerning regional development and also cross-border cooperation. But still, the main formal competence lies with the member states and in many cases, cross-border cooperation is weak, although there are some courageous examples (e.g. Oeresund-Region). Every member state has different regulations, some are more centralised, some do not have national land use planning at all (like Austria).

The **USA** as a nation is highly federalised, the nation influences spatial development via nationally subsidised (suburban) housing as well as national infrastructure politics (cf. Schönig 2004, p. 140). The main part of planning is conducted on local level, as many states have weak planning laws. Zoning is a task of the local municipalities, and there is usually no check from higher levels of government. In many states, the counties have established governments, which also influence spatial development. As already described in chapter 3.4.2, privately governed elements have been formed, being (still) a speciality of the U.S.

Regional Planning

Since the 1960s, every metropolitan area is bound to install a Metropolitan Planning Organisation (MPO) in order to get national subsidies for traffic infrastructure. Their competences differ, but the vast majority has no strong power in planning (cf. Schönig, 2004, p.30). Regional Planning in metropolitan areas is often too weak and not sufficient. An exception is Portland's Metro, which will be described in chapter 6.2.

Local Level

Many states do not have elaborate laws about spatial development (exception: Oregon, which in fact has the strictest laws in the U.S.). Due to this, municipalities decide autonomously and independently from each other and usually are in competition about location issues (as in Europe too). The fact that municipalities often have tax power over important fields – e.g. labour – reinforces competition. In the third case city, Cincinnati, this has become a serious problem (see chapter 7).

Government Policy

Nivola (in Werner 2000) states that the effects of government policies - direct or indirect - are the final important piece of the sprawl puzzle. He noted that U.S. suburbanisation would be inconceivable without the existing massive public investment in roads. About 85% of American funds go towards road construction, while in Europe, about 40 – 60% go towards railroads and mass transit.

Indirectly, *tax policies* have also played an important role. American taxes hit earnings and savings more than spending. Thus, they are encouraging consumption, especially of things like spacious housing and prodigious use of energy resources. Compared to the American system, taxation of gas and housing is much more an obstacle to sprawl in Europe. Also, agriculture subsidies are higher which results in better preservation of farmland at the urban fringes.

Furthermore, the *mix of uses* is much more integrated and compact in Europe than in the U.S., as European regulations tend to protect small shops more (e.g. by prohibiting round-the-clock opening hours). These regulations are increasingly getting under discussion in Europe and it is likely that they will be weakened step by step.

Couch, Leontidu & Arnstberg (2007, p. 18) also state that policies in the USA seem to be embedded into *a deep believe in the market and market-led solutions*. European politics and society accept government's interventions on the market more, while Americans tend to believe in "small" government and are used to significantly lower levels of taxation and public spending. Most European countries have had relatively strong planning systems for a long time…" *which have not allowed the problem of urban sprawl to get out of control to the extent that it appears to have done in some US cities*" (ibid.).

Planning Ideals

Another big difference is noticed with planning ideals, which have always been different, as well as urban theory. In the USA (and Great Britain), the principle of separation of uses (Charter of Athens) has been followed much more intensely. Furthermore, Howard´s "Garden City" concept "*struck a chord with professionals and public alike*" (Couch, Leontidu & Arnstberg (2007, p. 18) and was further elaborated into the "Radburn" idea. Since the 1920s, U.S. urban planners tried to implement these ideas because beautiful, healthy and clean cities were said to foster the spirit of community and the positive development of individuals. This concept serves as basis for some of today's Smart Growth neighbourhood designs in the USA (see chapter 3.4.2). Continental Europe was more into the "Radiant City" vision of Le Corbusier who focused on increasing densities in the urban cores instead of dealing with the suburbs. Although it was never implemented itself, the concept remained having effects on European planning (cf. Couch, Leontidu & Arnstberg 2007, p.16).

Concerning concentric development and greenbelts, Whitehand & Morton (2003, p.820) found out that "*In the United States, the high incidence of car ownership already in the 1920s and the relative absence in many cases of significant spatial constraints on the physical growth of cities meant that growth was diffuse during nearly all the 20th century […] Concentric growth phases were generally less clear in the landscape than in the United Kingdom, where mass car ownership occurred later and the outward growth of the major cities was constrained by green belts from mid-century onward*". Concentric development has never been a vision for planning in the U.S. – the cities are younger, with rectangular structure and less core-oriented.

Public Debate

The last big difference important to be mentioned is the state of public debate. Schönig (2004, p.15 et seq.) sees a broad discussion of the topic in the USA, whereas in Europe, the debate is narrow concerning content and participants. In America, networks against sprawl have developed - the "Anti Sprawl Movement" or "Smart Growth Movement" – comprising various institutions, politics, organisations, civilians etc. at the local, state and national level. This is also rooted in a greater pronunciation of the "do-it-yourself"-approach.

In Europe, this debate is primarily limited to inter-communal cooperation (by politicians), mostly very sectorally restricted and often lacking integration. Actors of civil society are seldom included in the discussion process.

The promoted public debate in the U.S. is, on the one hand, due to the strategies, the forms and projects of the Anti-Sprawl-Movement and, on the other hand, to a concerned civic society. Especially the inhabitants of suburban rings are afraid of losing the qualities that have once driven them to the cities` outskirts. Furthermore, socio-economic problems that were once typical for inner-city areas are stretching out to the older, first-ring suburbs, making inhabitants alert. In Europe, processes like this are also existing, but too isolated and disaggregated to make society as a whole concerned about it. In future, though, it can be expected to become a more popular topic.

4.3 A SHORT HISTORY OF URBAN SPRAWL IN EUROPE

The last chapters have given a description of general trends in urban development – which basically are "cities turning inside out" and post-suburban fragmentation – as well as the difference between European and American sprawl. As already mentioned, knowledge about historical preconditions is important to understand present dynamics. This is why below, a short history of European sprawl is given, followed by a chapter of more detailed description of basically quantitative dimensions.

First sprawling movements in Europe could be stated as early as the beginning of the 19th century, where industrial cities like London or Paris were fled (cf. Couch, Leontidou & Arnstberg 2007 p. 7 et seq.). Control of urban sprawl was in fact one of the earliest reasons for the emergence of modern town planning in Europe (e.g. 1909, where legislation in Britain gave town planners an opportunity to determine and manage the pattern and form of urban development). Right after World War II, many European governments tried to handle urban growth by planning freestanding new towns (especially in Britain and France) or peripheral extensions to existing urban areas, generally with low density: now it is often referred to as "planned urban sprawl" (ibid. p.20 et seq.).

In the last decades of the twentieth century, after the initial phases of reconstruction after World War II, urban growth came along with economic growth. According to the MOLAND[5] project (cited in EEA 2006, p.10 et seq.), the growth of built-up areas in Europe reached its peak in the 1950s and 1960s with an annual average growth rate of 3.3%. Since the mid-1950s, European cities have expanded on average by 78%, whereas population has grown by only 33% (which indicates sprawled low-density development). Between 1990 and 2000, the growth of urban areas and associated infrastructure throughout Europe consumed more than 8000 km² (a 5.4% increase during the period).

From the 1930s to the 1960s, European Governments had to face old, run-down and problematic inner city districts which were fled by their inhabitants. The attempted solutions to this problem were slum clearance programmes that sought to reduce urban density and provide replacement housing with good living conditions on the outskirts. The costs of these programs and the un-traditional new form of settlement that it produced though quickly became criticised. The response to this was a new policy – urban regeneration. This policy is characterised by area improvement and new sets of managerial and fiscal measures also prominently applied in Vienna.

A specific aspect of European development was (and is) the fall of the iron curtain in 1989, which exposed cities of former socialist countries to rapid and massive dynamics of change. The migration of people from Eastern and Southern Europe to the Central European cities also put some of their housing markets under pressure. Nevertheless, not every country had to deal with strong population growth, what can explain that in some cities, very dense social housing projects were erected and in others, space was used for low-density private dwellings.

[5] "Monitoring Land Use/Cover Dynamics, a research project of the European Commission

The general experience of European urban agglomerations in the 20th century is continuing suburbanisation and sprawl. The European Environment Agency (2006, p. 17 et seq.) emphasises that European residential sprawl and economic activities, linked to the development of transport networks, are the main factors of expanding cities. The attractiveness of city centers has fallen while the quality of life associated with the suburbs has increased. Even extensive public transport systems do not impede population loss in the central city and suburban explosion. Furthermore, agricultural land is cheap and the extension of trans-european transport networks forced.

4.4 EUROPEAN SPRAWL IN DETAIL

Population and Metropolitan Areas

More than 70% of the European population are urban, and more than 25% of the European territories have population densities above 100 inhabitants per km² (Lavalle et al. 2004, p. 4). With 455 million people in 2005, the average population density is about 117.5 inhabitants per km² (Eurostat 2005). The population numbers are expected to grow only moderately in the next 20 years, whereas the share of people living in urban areas is likely to rise from 73.3% in 2005 to 87% in 2025 (United Nations 2004).

In large urban agglomerations, lower income groups tend to be concentrated in inner-city areas and/or extensive peripheral estates, sometimes in substandard dwellings, which are found throughout Europe (WHO 1997 [sic] in European Commission 1996, p.19). The European Commission (ibid.) states that more and more, peripheral areas and post - 1960s - settlements on the urban fringe are now home to poorer groups and places of low environmental quality. "*In some cities there is a direct link between urban regeneration schemes fostering central area reurbanisation and social problems; low income residents and low value-added economic activities have been squeezed from city centres".*

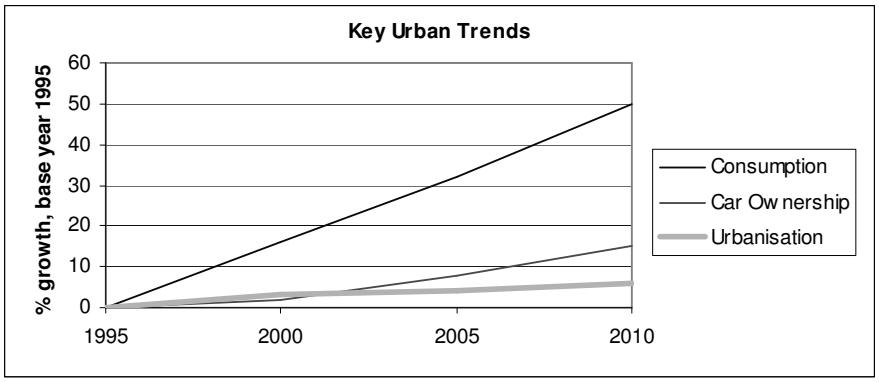
Urban Fabric

In Europe, 917 224 hectares of land were converted into urban fabric between 1990 and 2000. This represents 0.3% of the total territory and means an average increase in urban areas per year of 0.7% (EEA 2005, p.308), but is varying a lot among the different national states. 48% of all areas converted into urban space were agricultural land. About half the increase of urban space has been driven by housing areas, about 39% were used for industrial or commercial areas.

Commute and Traffic

The European Environment Agency (1999, p.324) stated that car ownership is to rise steadily alongside with consumption and urbanisation (Figure 4-2). Urbanisation is here expressed as the fraction of individuals residing in urban areas (74.5% in 1999).

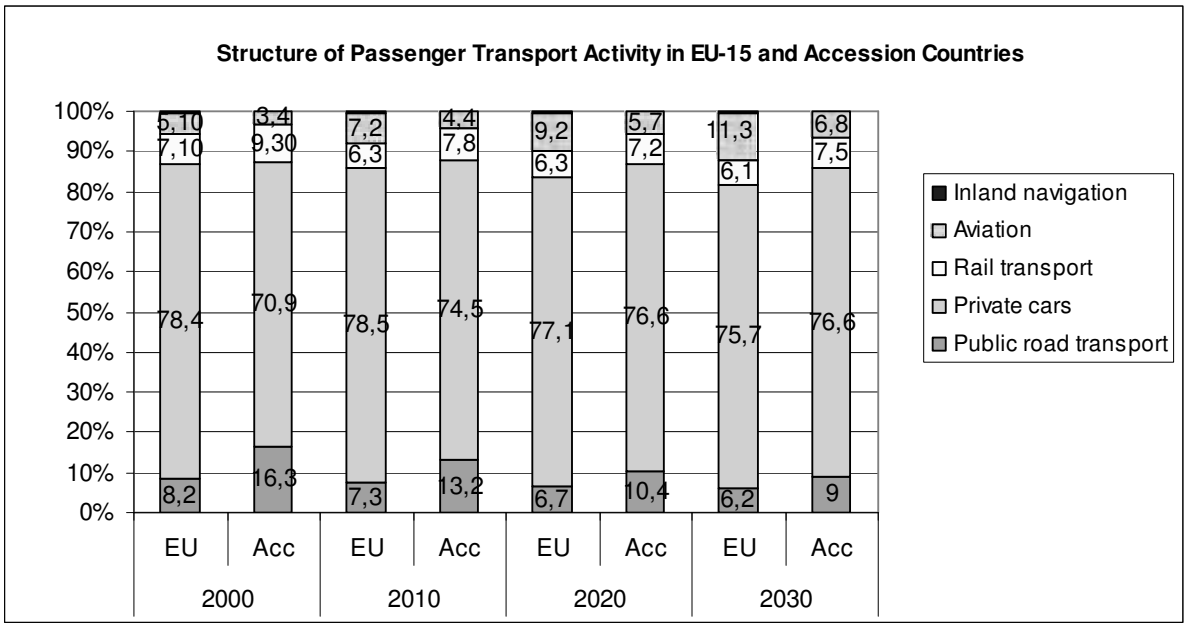
Figure 4-2 Urban Trends in Europe



Source: EEA 1999, p.234

The EU-25 Transport and Energy Outlook 2030 (European Commission 2003, p.11) stated that between 1990 and 2000, a transport demand growth rate of 2.0% p.a. has been detected in the EU 15 and the accession countries. Strong growth is expected to continue, especially in the new member states. Passenger rail transport has grown 0.3%, public road transport 0.2%, whereas car and motorcycles have instead grown 1.8%. Since the 1970s, rail's share of passenger transport has fallen from 10 to 6%. Considering the high sum invested in rail transport, this growth can not be called satisfactory. Instead, car use is growing radically: 80 % of all trips are gone by car, 8 % by bus and 6% by rail. Every year, 3 million more cars are bought (European Commission 2003a, p.7 et seqq.).

Figure 4-3 Detailed Modal Split in the European Union



Source: European Commission 2003, p.120

Trends

In general, the areas with the most visible impacts of sprawl are situated in countries with high population density and economic activity (e.g. Belgium or the Paris region) or rapid economic growth (e.g. Portugal or the Madrid region). New developments can be discovered along transport corridors and along many parts of the coast usually connected to river valleys (cf. EEA 2006, p. 9).

European cities are remarkably diverse in respect of urban residential densities. Generally, densities are falling towards the north and west of Europe, although there is no tendency for urban sprawl to vary with the density of cities. Ott 2001 and Nuissl & Rink 2005 (cited in EEA 2006, p. 15) state that the former socialist cities are, for historic reasons (strong centralised planning, strong reliance on public transport), compact and of high densities, but facing the same threats of rapid urban sprawl as the Southern European cities.

The continuing enlargement of the European Union causes strong dynamics to many cities: former East-Bloc cities expect rapid growth and urbanisation, whereas the cities of the EU-15 in general experience de- and already reurbanisation - both trends going along with sprawl. There are still strong disparities in European GDP and accessibility (east-west and core-periphery) and a strong migration from East to West.

The TEN (Trans-European Transport Networks) – a road and rail system all over Europe, which is being constructed since the 1980's, also have strong influence on (sub-)urbanisation patterns as it is fostering integration and economic development.

Subsuming, the following main general urban trends can be found, according to the European Environment Agency (1998, p.26):

- Decentralisation of economic activities traditionally located in inner cities
- Suburbanisation combined with growing numbers of car ownership
- Separation of urban functions and splitting up in areas for housing, shopping, industry and recreation

4.5 A SHORT HISTORY OF URBAN SPRAWL IN THE USA

The process of urban sprawl in the USA appears to have its origins in the early years of the twentieth century with the expansion of bus services, the electric streetcar and metropolitan railway systems, making daily commuting possible. Later, the automobile played an important part (cf. Couch, Leontidou & Arnstberg 2007, p. 13). The planning approach of many American cities – the Charter of Athen's segregation of uses - has also pushed conflicting uses further and further apart.

Urban regeneration was and is also implemented in the USA and began with the destruction of large areas in the central cities (from the 1940s onwards). In 1974, the Community Development Block Grant Program started the era of "softer" renewal focusing on the redevelopment of existing neighbourhood properties (cf. US Department of Housing and Urban Development).

Though in some cases, urban containment measures had been applied already before, their modern form arouse as recently as the 1950s. The process of sprawling has intensified, though. Still in the 1950s, a concept for financing a nation-wide highway system was developed ("Metropolitan Freeway System") and made it possible for suburban residents to commute to their places of work in the central cities. This was one of the major pushers of sprawl. Whereas before, mostly wealthier classes had moved out, suburbs now became inhabited by the middle class.

Further important motors of this development were not only the White Flight especially in the 60s (race riots, decline of central cities), but also the marriage-boom-generation's need for housing space. The Government's strategy - subsidising the suburban single-family-house and expanding an automobile-based infrastructure - channelled this development into the suburbs. There, in contrast to the central cities, cheap housing space of comparably high quality could be provided (cf. Couch, Leontidou & Arnstberg 2007, p. 22). Social housing remained concentrated in the inner cities (ibid, p. 60). This phase was also the starting time of the Anti Sprawl Movement.

Between 1950 and 1990, massive suburban low-density development occurred all over the U.S, mainly driven by affluent households. Metropolitan areas in the U.S. expanded by 181% whilst the metropolitan population increased by only 128%. This represents a fall in density from 1054 to 854 persons per km² (Squires 2002 in Couch, Leontidou & Arnstberg 2007, p.13). There are urban areas that both decline and sprawl: between 1970 and 1990, the population of e.g. Detroit, Michigan, declined by 8% while its land area increased by 28%.

In 1970, the percentage of inhabitants living in suburbia (37.6%) was about twice as much as in 1940. However, the central cities comprised about 31.4% of the population (Schönig 2004, p. 20). Between 1970 and 1990, the inner-city population in the U.S. was reduced by 23% in favour of the suburbs (Simmons & Lang 2001 in Couch, Leontidou & Arnstberg 2007, p.14).

Schönig (2004, p. 22 et seq.) also states that, over the last 20 years, the area of metropolitan settlement outside of American central cities has diversified significantly. The form of living connected to the expression „suburbia" - the nuclear family, nourished by the father, is still existing, but no longer the dominant form in the hinterlands of American cities. Various life style concepts, DINKS (double income no kids), big families, communities with diverse ethnic roots and people of different social status are found here.

A main characteristic of American post-suburban space is fragmentation, especially concerning housing. In the last years, segregated forms of housing have become enormously popular, which are not yet this modern in Europe:

Gated Communities

They are homogeneous, highly segregated and protected areas which allow middle and high income classes to settle increasingly curt space. Migration into private communities is one of the most important trends in USA today. Between the 1970s and 2000, about 47 million residents have moved to private communities (Treese 1999 in Gordon & Richardson 2004, p. 228). Special forms of them are, for example, Life-Style Communities, Retirement Towns or Golf and Leisure Communities (cf. Schönig 2004, p.46).

Other specific suburban elements are (cf. Schönig 2004 p. 50):

Traditional Neighbourhood Developments

These are settlements built in neotraditional style with strong regulations on design and social life which are often controlled by a *Homeownership Association*. In general, design regulations are rather strict in America´s suburbia – this gives a certain guarantee for a stable worth of the dwellings.

Transit Oriented Developments

During the last years, more and more projects are built according to the rules of Smart Growth. They are named, e.g., *Mixed Use Developments* and *Transit Oriented Developments (TOD)* and developed on green- and brownfields. TODs are designed around stations of public transport (e.g. Orenco Station in Portland).

4.6 AMERICAN SPRAWL IN DETAIL

Population and Metropolitan Areas

The USA host 281 million people on about 9.6 million km² of space, which means a population density of about 13 persons per km². America comprises 276 metropolitan areas, which host 80% of the population (2000). Population numbers are growing strongly – in the 1990s, the growth rate was 13.2 %, immigration playing an important role.

In 2000, 50% of the whole US-American population was living in sub- or exurban territory. 30% had their houses in central cities, 20% in the rural parts of the country. Between 1990 and 1999 the population in suburban areas has grown 14%, whereas the central cities have only grown 4%. "*Most of the large cities did not keep up with the national pace although most of their suburbs grew at least fast, if not faster*" (Gordon & Richardson 2004, p.217).

"*Population growth was faster than national growth in the suburbs of the largest metropolitan areas, in the non-core counties of the largest metropolitan areas, in the small metropolitan areas and in exurban counties adjacent to the larger metropolitan areas. This is clearly a pattern of continuing dispersion*" (Gordon & Richardson 2004, p.221 et seq.). As the suburban population is growing much faster than the core population, it is predicted that soon, a vast majority of the Americans will live in the urbanised hinterlands of their cities. Post-suburban territory will be the living space of most of the Americans (cf. Schönig 2004, p.25).

As already mentioned, American sprawl has a strong racial dimension. Between 1990 and 2000, the 100 largest cities in the United States transitioned from being majority non-Hispanic white to 'majority minority' (whites went from representing more than half to less than half of the overall population of these cities). Their combined share of white population dropped from 52 percent in 1990 to 44 percent in 2000 (Berube, & Katz 2006, p.39).

Poverty also tends to move to the suburbs: The poverty rate in cities (18.4 %) remains more than twice as high as in suburbs (8.3%), but the city-suburb poverty rate gap narrowed slightly in the 1990s (Berube & Katz 2006, p.49).

Urban Fabric

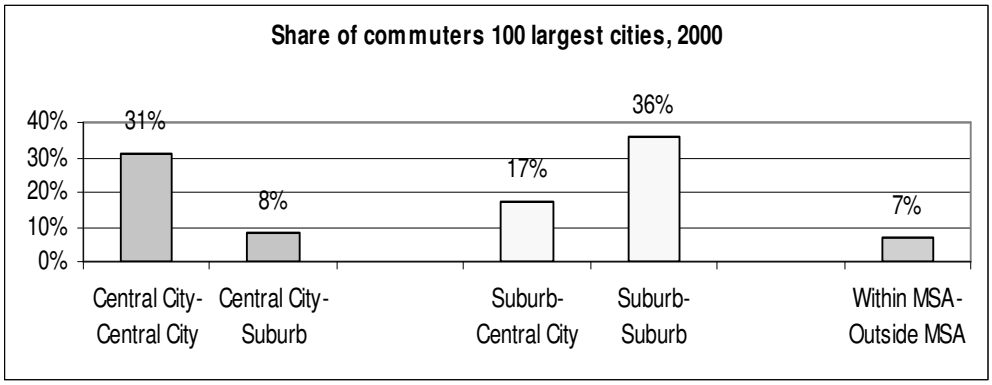
The growth of urban areas exceeds the growth of population nationwide: between 1982 and 1997, urbanised land grew 47% (from 20.4 million hectares to 30.4 million hectares) (Schönig 2004, p. 140). Annually, more than 7800 km² of land are converted to residential development over half a hectare in size (Nelson 2004, p.1). Total built space will grow from an estimated 27,000 km² in 2000 to 40,000 km² in 2030 (ibid. p.3)

Commuting and traffic

As already mentioned, 69% of the American population do not use public transport, 42% do not even have access to it. In Europe, the share is better, but tendencies to restrict public transport outside of urban centers become stronger as well as car use is rising (cf. Schönig 2004, p. 76). The USA have no more than 5% of the world's population, but consume a quarter of the worlds' oil. More than 60% of this oil is used for transport (Couch, Leontidou & Arnstberg 2007, p.14).

Katz (2004a) undermines the assumption that the majority of commutes take place within the suburbs. Commuting from the suburbs into the central city exceeds the forthcoming streams.

Figure 4-4 Commuter Streams of Central Cities and Suburbs



Source: Katz 2004a

In general, the USA can be described as extraordinarily mobile compared to other nations: at least 50% of all inhabitants change their domiciles within 5 years and 50% of all homeowners move once in 8 years (Lucy, Phillips 2000 in Schönig 2004, p. 62). This dynamic can be seen as another piece in the sprawling puzzle.

Trends

By analysing density developments in most metropolitan areas in the United States between 1982 and 1997, Fulton et al. (2001) revealed many trends. Below, excerpts are given:

- Most metropolitan areas in the United States are adding urbanized land at a much faster rate than they are adding population. In the Northeast and Midwest, metropolitan areas have consumed extremely large amounts of land for urbanization in order to accommodate very small quantities of population growth.
- Metropolitan areas tend to consume more land for urbanization - relative to population growth - if they are already high-density metro areas and if they have fragmented local governments.

- The metropolitan density of the United States declined from 5.00 persons per urbanized acre in 1982 to 4.22 persons per urbanized acre in 1997. Urban land density nationwide dropped by over 20 %.
- Nelson (2004) predicted the following trends in American metropolitan areas:
- In 2030, about half of the buildings in which Americans live, work and shop will have been built after 2000. This contradicts the argument that most of the built environment is already in place and there is little use of trying to influence future building patterns.
- Most of the space between 2000 and 2030 will be residential space.
- Overall, most new growth will occur in the South and West.

5 CASE-STUDY: VIENNA

The next chapters will focus on case studies: the European agglomeration Vienna and the north-western American metropolitan area of Portland will be analyzed in detail concerning their metropolitan patterns and strategies on sprawl. As the Portland model is rather unusual for an American city, Cincinnati is shortly presented as excursus afterwards, illustrating a different, more "averagely American" approach.

As already mentioned, due to fundamental differences in history, society and economy, the situations in the case cities can not be compared directly in many aspects. What is outstanding in an American city may rather be self-evident in an European one or vice versa. Even the two American case cities have substantial diversities concerning their urban patterns, policies and attitudes towards planning. Due to this, the structure of analysis has been adapted to the specialities of each city, and different foci have been set.

As urban sprawl in the Vienna Region goes far beyond the boundaries and competencies of the city, a wider region - comprising the hinterlands - is analysed on the structural level. Nevertheless, as this functional region is not represented by an authority that has legal competencies, the policy analysis is conducted from the city's point of view.

5.1 FACTS ABOUT VIENNA

5.1.1 Basics

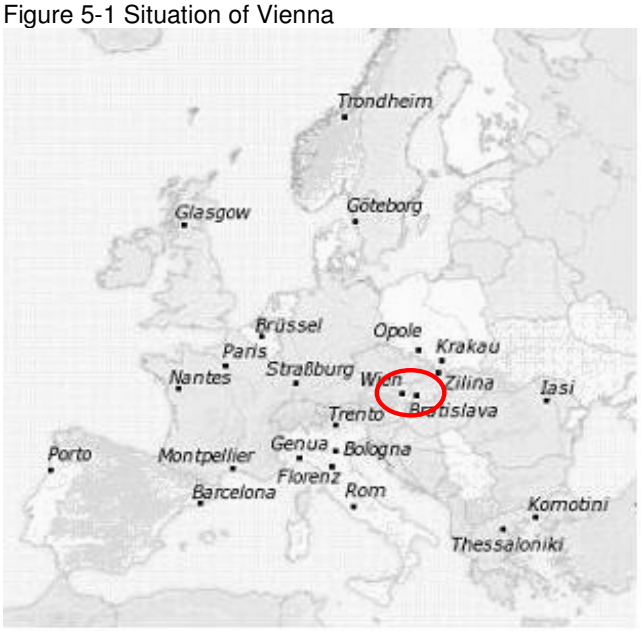
Vienna is the capital city of Austria and comprises 1.5 million inhabitants within its administrative boundaries (Stadtentwicklung Wien 2005a, p.19). In Austria, it is by far the most important urban center - concerning population (the second largest city, Graz, has only about 300.000 inhabitants), but also concerning urban functions (administration, universities, culture…). Due to its high rank in the national urban system, immigration (national and international) is a main motor for urban development. It is municipality and federal state at the same time and surrounded by the federal state of Lower Austria.

The city of Vienna is characterised by large landmarked areas in the central city, a high share of green space, strong interventions in the housing market by the municipality and a growing dynamic in retail and office development concerning "urban international style".

The situation of the city - 40 km west of the border to a former socialist country (Slovakia), which entered the European Union in 2003 – has crucial impact on its development. The area between Vienna and Bratislava (capital city of Slovakia – 70km away) has been developing rather slowly up to now, but is expected to face growing pressure.

Suburbanisation was no problem in the post-war area, as reconstruction was first priority. Alongside with economic growth and "motorisation" (and public subsidies) though, it became possible for more and more households to relocate their domiciles. Cheap land prices and improvements in transport infrastructure also influenced this development. Today, it has become a crucial dynamic in the metropolitan area.

Figure 5-1 Situation of Vienna



Source: http://www.ing-international.rub.de, adapted

5.1.2 Urban Structures

This chapter is based on an analysis by Fassmann & Hatz 2002 (p.11 et seqq.) adapted by the author.

The center and the former suburbs

Vienna - with its 23 districts - has grown in a quite concentric way. The 1st district – the **Inner City** – is surrounded by a ring road, which was erected there after the destruction of the city wall. The Inner City comprises most of the governmental facilities, cultural locations and many representative buildings and institutions of the republic. It is still – although some polycentric efforts have been made – the main center of the city. This is also influenced by the transport system, which is oriented on the 1st district.

Around the Inner City, the **former suburbs** are located in a ring-like shape. They are again limited by a second ring road ("Gürtel"), a broad former boulevard of the proletariat. In this area, housing, commerce and trade are found and many of the districts have a high living quality. Though, a center-periphery gradient is visible: the areas closer to the center are of higher prestige than the areas closer to the "Gürtel". The built structure is very dense and characterised by perimeter block development out of "Gründerzeit"[6]. Intense traffic, out-migration of middle-income groups and in-migration of non-Austrians have led to the need for urban regeneration measures. They were undertaken by the municipality and led to gentrification in some areas, when higher income groups moved in and pushed lower social groups out.

The urban fringe

The areas outside the "Gürtel" are much more heterogeneous concerning urban design, building patterns, functionality and social structures. The west of the outer districts is characterised by housing functions, mixed with trade and commerce, with buildings mainly from the 19th century. The districts in the south and east comprise younger buildings and are dominated by publicly subsidised housing. Remarkable characteristics are many prestigious projects in these districts aiming at branding Vienna as an international city. There is criticism that, especially in these areas, the lack of a consensual model of urban expansion (for the post-fordistic city in Europe) is visible. Traditional perimeter block development is not used often any

[6] "period of promoterism": phase of rapid economic development from the beginning to the middle of the 19th century in Austria and Germany.

more due to suboptimal orientation, and consequently has left a gap in the formation of public space. Public housing has attempted to close this gap with large tract houses while the free market mainly produces free-standing single-family-houses, which are both not suitable for creating new public space in expansion areas (cf. Fiedler 2004).

The districts north of the Danube have witnessed the most intense dynamics in development. They contain the most heterogeneous mix of building types and many space-consuming urban functions (e.g. shopping centers) have found space there.

The social gradient of Viennese fringe areas is no center-periphery one, but rather showing that the more affluent households have settled in the urban periphery while ethnic minorities and poorer groups live closer to the center. The center as such is one of the most expensive areas.

Main "natural" constraints for urban growth are the protective regulations for "Wienerwald" – "Viennese forest" - in the West and the Danube (crossing the city from Northwest to East) and its National Park in the East. This is why the main growth of Vienna takes place towards South and North.

The metropolitan area

Around the outer districts (which is outside of Vienna's administrative boundaries), an urbanised zone has developed. Alongside traffic arteries, former rural municipalities have been transformed into fringe and suburban areas which have the characteristics described in the earlier chapters. This development was especially intense to **the South**, were the population of some cities has doubled since the 1960s (cf. Fassmann & Hatz 2002, p. 285). Alongside the highway and railroad, a settlement ribbon has stretched out, including former rural small cities. This area has become highly integrated with the core city.

Social gradients run alongside traffic arteries and decline from the areas near the core city to peripheral areas. In **the West** and the South-West though, in an appealing scenic environment close to the Wienerwald, more affluent households have settled. Growth of built-up land has been contained in these areas due to nature protection regulations. These areas have been settled in a more compact and homogeneous way and usually, one would not speak of "fringe areas". They have no good mix of functions, though.

Since the 1980's, suburbanisation has spread into the areas in between the traffic arteries, as the land prices around the axes of transport increased. This was also the time when **the East** of the city was developed with high intensity. It is characterised by a large oil refinery and the airport, which made and makes this side of the city less attractive.

The East and **the North** of the city do not provide scenic environments as attractive as the West and South, so these areas got developed later. In the areas in greater distance to Vienna, settlements mainly spread out around traffic nodes and arteries. They are mostly mixtures of single-family houses and row-houses and, especially in the north, often established as bedroom communities. Amenity values are often low.

All over the metropolitan area, secondary and weekend homes are important elements.

From the middle of the 1970s, industry and service started to move to the urban fringe due to high land prices and limited possibility for growth inside the city. Municipal competition made it easy for shopping centers, industry and service to find cheap, developed land, which lead to intense development of those hinterlands. Suburbanisation of offices is existing, but not that pronounced in Vienna as it is in American Edge Cities. Large suburban shopping centers, though, are a hot topic.

Main elements of the Viennese fringe are secondary homes, which are very popular among citizens of Vienna who wish to enjoy proximity to nature on the weekends.

Figure 5-2 shows the structure of centers in the city, as well as the densely settled (darker brown) and the sparsely settled (light brown) areas. The main center is still the Inner City, but efforts have been made to establish certain subcenters inside the administrative boundaries. In the hinterlands, existing town centers

partly serve as regional subcenters. The figure also shows the development axes to the south and the north as well as the results of urban containment by nature protection especially in the east and west.

Cross – border development

Due to the fall of the iron curtain in 1989, the border between Austria and Slovakia and their capitals Vienna and Bratislava was deleted, but for many years, little effort for integration (e.g. no major street or rail projects) was taken. Now, since the entry of the Slovak Republic to the European Union, efforts have been increased and "Twin City" -visions for joint development elaborated. Settlement pressure on the areas between the cities is expected to rise: this is particularly delicate as much of these areas are part of a national park. Up to now, they were "periphery" due to their situation near the border, but in the future, the expected forces put their sustainable development at stake.

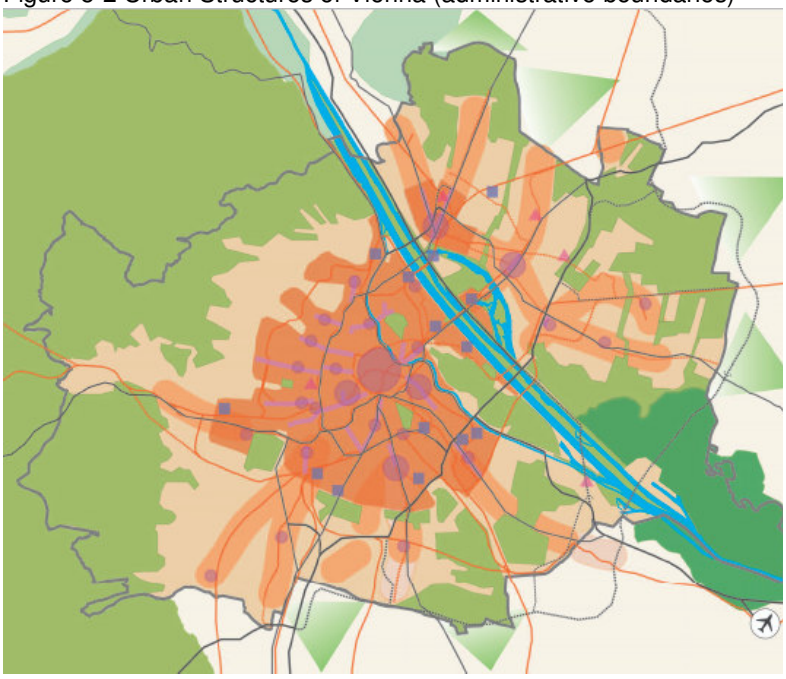
Concerning institutional design, the Office of the Deputy Prime Minister (2006) diagnoses that "*Overall, political institution-building has not kept pace with the functional integration of the region and this has limited the region's response capacity to deal with change. The key question is now how to enhance this response capacity and how to strengthen the collective efforts to make this important region at the heart of Europe 'future-proof '. A more flexible, long-term, multi-layered governance arrangement is needed. Sustainable transport policies would be a logical beginning for such an arrangement*".

Structure of Centers and Urban Functions

Vienna has a (comparably) strong central city and a distinct amount of subcenters throughout the urban area. Decentralised concentration as well as polarisation is visible, resulting in growth of already strong central and subcentral areas and decline of average and weak areas. Within the compact urban body, urban functions tend to be within walking distance respectively accessible by good public transport. Nevertheless, polarisation and expansion tendencies are threatening this.

In the outer areas of administrative Vienna (light brown areas below), urban structures and supply functions are more ample. In the hinterlands, outside of town centers, supply is very weak and car dependant.

Figure 5-2 Urban Structures of Vienna (administrative boundaries)



Source: Stadtentwicklung Wien 2005a, p.197, adapted; scale: ~1:286.000

5.1.3 Population

Besides the 1.5 million inhabitants of the core city, there are 600.000 people who live in the inner hinterlands of Vienna (categorisation after Lengauer 2004, p.4). The outer hinterlands comprise about 460.000. Lengauer's categorisation is based on a core-ring concept and divides this ring into sub-categories (the inner and outer hinterlands). He also defines several categories of outer edges of the urban region covering much of Lower Austria and Burgenland. Although it is necessary to take those outer regions into account, as they are getting more and more integrated into the Functional Urban Region, they will not be included into detailed analysis here, as the focus of this paper lies on the Viennese urban fringe. The detailed regional classification is found in Appendix II.

There are numerous other concepts of spatial categorisation for the metropolitan region of Vienna – some relevant ones are described below[7]. For this thesis, Lengauer's is suitable and will be used, combined with the "official" concepts Vienna Region and Centrope Region. Nevertheless, it has been necessary to access data from studies based on other spatial categorisations. This will be pointed out in the text.

Table 5-1 Spatial Categorisations of the Vienna Region

Area	Population (2001)	Name used in this paper
Inner districts of Vienna: 1-9, 12-20 (Lengauer)	973.198	Inner city
Outer districts of Vienna: 10,11,21-23 (Lengauer)	576.925	Outer districts
Within the administrative boundaries of Vienna	1.5 million	Vienna core city "Vienna"
Inner Viennese hinterlands in Lower Austria (Lengauer)	596.326	Closer/Inner hinterlands (Appendix II)
Outer Viennese hinterlands in Lower Austria and Burgenland (Lengauer)	459.077	Outer hinterlands (Appendix II)
Official concept: Core city and NUTS[8] Vienna-Umland North, Vienna-Umland South, Burgenland North (Austrian Statistic Service definition)	~ 2.3 million	"Vienna Region – core", consisting of the core city and the hinterlands (~ Core City and Lengauer's closer hinterlands)
Vienna, Federal State of Lower Austria, Federal State of Burgenland	~ 3.5 million	"Vienna Region"
Federal provinces of Vienna, Lower Austria and Burgenland, South Moravia Region, Bratislava and Trnava Regions as well as Györ-Moson-Sopron County	6 million	"Centrope Region"

Since the 1970s, the hinterlands ("Umland") of the city have grown stronger than the core city. The intra-urban patterns of population development are quite diverse, the older, dense "Gründerzeit"-areas are losing population, while the "newer" districts on the periphery have gained during the last years. The following table shows detailed growth shares (after the concept of Lengauer 2004):

Table 5-2 Population Growth in Vienna Subareas

Change in %	1971-81	1981-91	1991-01	1971-2001	Share of Vienna Region 1971	Share of Vienna Region 2001
Inner districts	-11.7	-1.18	-4.35	-15.94	34.95	28.85
Outer districts	8.59	4.11	10.44	24.85	13.95	17.10
Inner hinterlands	4.13	7.99	8.88	22.43	14.70	17.68
Outer hinterlands	-1.84	1.68	4.41	4.21	13.30	13.61

Source: Lengauer 2004, p.7

From 1971-2001, the inner districts lost population, whereas especially the outer districts (comprising large urban expansion areas in the East and South) and the closer hinterlands grew. This hints at a re-

[7] The population numbers are taken from Lengauer 2004, p.4, respectively from www.viennaregion.at and www.centrope.org
[8] NUTS-regions are statistical entities defined by the European Union

allocation of population in the urban region, with more than a million people living in “fringe areas” (outer districts and inner hinterlands) in 2001. The outer hinterlands also comprise about half a million people, and numbers are indicating growing trends.

Growth has not so much happened in regional centers, but has rather followed the logic of real estate prices and the availability of land (cf. Stadtentwicklung Wien 2005a, p.28). These shares are not as dramatic as in other European cities, but nevertheless a factor to be surveyed.

Fassmann (2002, p. 26) hints at a specific aspect of Viennese urban development: the administrative boundaries once reached far beyond the built-up fabric and comprised large amounts of free building land. So, suburbanisation tendencies were not visible at first, because they took place within the boundaries (in the outer districts) and reached the hinterland areas with a “delay”. Only then, they were truly noticed. Still today, large land reserves are available within the core city.

After a desurbanisation phase in the 1970’s – absolute decentralisation with losses in the inner city and gains in the ring – Lengauer (2004, p.8 et seq.) states that there has not been clear reurbanisation afterwards: the inner city did not grow stronger than the ring (which is a precondition of reurbanisation). Vienna rather went directly into a strong suburbanisation period, with growing population shares of fringe areas. In 2001, for the first time, more people were living in fringe areas than in the inner cities.

Prognosis

Until 2035, the population of Vienna is said to rise from 1.5 million now to 1.96 million then, with the main growth in the next 20 years. The Europaforum Wien (2002, p. 195 et seq.) states that the general demographic changes will influence the different area types in Vienna differently. During the first decades of the 21st century, growth will concentrate on the suburbs, while the urban center and “Gründerzeitgebiete” face stagnation or population loss. Wien Umland, the hinterlands of Vienna (NUTS concept), are expected to grow about 25%. Between 2011 and 2021 population growth is expected to reduce its intensity in the areas of strong growth and partly shift to areas closer to the center. Also concerning age structure, there will be a shift: The “young” areas of urban expansion of the 90s will hold increasing numbers of elderly people whereas the areas of younger immigrants (close to Gürtel) will account for the oldest urban regions (with a 28% share of elderly people).

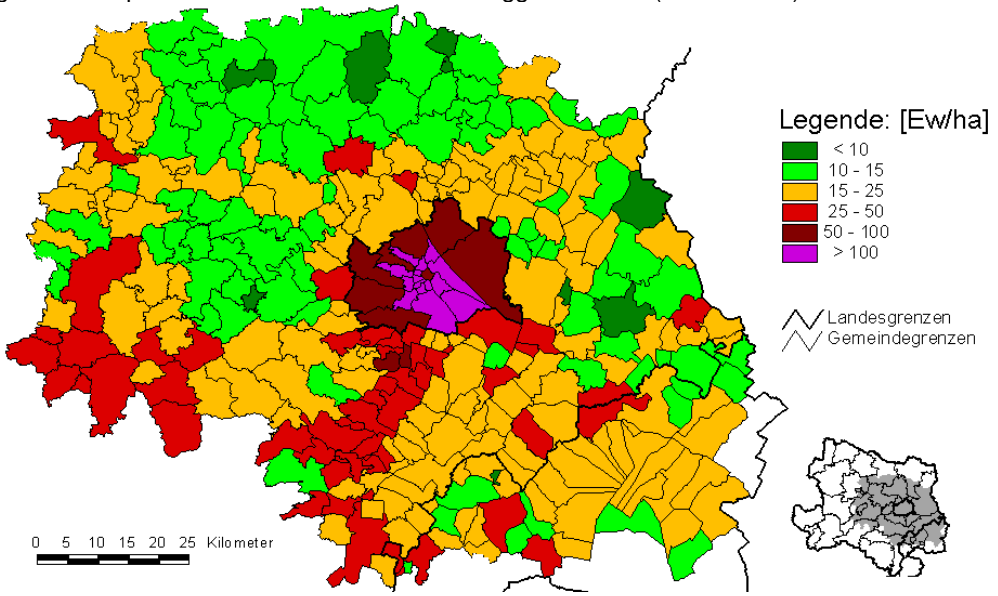
Strong immigration and growing life expectancy also lead to a change of population structure in the fringe: In “Wien Umland-Nord”, the share of foreigners is expected to triple to 44% in 2035 (Stadtentwicklung Wien, 2003).

Population densities

The administrative boundaries of Vienna comprise about 415km²; population densities vary within the city. They are comparably low in the city center, not due to low constructional density, but the high share of office, retail and gastronomy use. The highest density is found in the 5th district in the South of Vienna (171.2 inhabitants/m²). The newer, outer districts are also comparably low in density.

The next figure describes population numbers per hectare of building land. It is clearly visible that the districts of the inner hinterlands have smaller population densities than the outer Viennese districts. The outer hinterlands in the north are less dense than in the south. The settlement axis to the south along road and rail has become one of the densest parts of suburbia.

Figure 5-3 Population Densities in the Vienna Agglomeration (district level)



Source: Steinnocher, Köstl & Kressler 2004 [9]

Migration patterns also show movements from the core city to the hinterlands:

Table 5-3 Migration from and to Vienna, 1991-2001

	Migration to Vienna	Migration from Vienna	Migration balance
To/from hinterlands of Lower Austria (NUTS concept!)	85,924	124,772	-38,847
To/from Austria	248,373	247,249	1,124
Worldwide	617,880	497,639	120,241

Source: Bauer-Wolf et al. 2002, p.2

Considering the whole migration from Vienna to Austria, the migration to the hinterlands (NUTS concept) made for 49% - mounting tendency. The in-migration from the hinterlands to Vienna remained quite stable over the last 10 years, while out-migration has about doubled over this decade (Bauer-Wolf et al. 2002, p.2).

Lengauer (2004, p. 8) also states that, whereas the inner city loses population due to out-migration and low negative birth rates, the outer districts and the inner hinterland (Lengauer concept) have strong in-migration and comparably high birth rates (suggesting a high share of young families).

Immigration

The share of foreign persons in the city of Vienna has grown from 12.8% in 1991 to 16.4% in 2001 and 19% in 2006 (Fassmann & Hatz 2002, p.290, Stadt Wien 2007, p.398).

Non-Austrians concentrate mainly in inner city working class areas, as well as the 2nd and 20th district. The lowest shares of foreigners in the inner city are found in the western upper class neighbourhoods as well as the central 1st district. Especially in the urban extension areas of the 21st and 22nd district north of the Danube and the 23rd in the south-west of the city, the share of non-Austrians is comparably low. This is due to the fact that until 2006, immigrants had no access to publicly-subsidised housing – which is done mainly in these areas. This resulted in mainly Austrian middle-class districts north of the Danube

[9] For this figure, another spatial categorisation has been used. It comprises vast parts of Lower Austria and includes most of Lengauer's "Outer Hinterlands". This map is based on district level, though. For more details see Steinnocher, Köstl & Kressler 2004, p.20

and a concentration of foreigners in small segments of the inner city providing cheaper accommodation (e.g. the 20th district, areas around the Gürtel). This will continually change. The hinterlands are gaining foreigners too, but no at such a high rate as the inner city does.

Table 5-4 Share of Non-Austrians in Urban Sub-Areas, 1971-2001

	1971	1981	1991	2001
Inner City	4.2	8.9	15.5	19.2
Outer districts	2.8	4.4	7.4	10.5
Inner hinterlands	3.5	4.3	6.5	8.4
Outer hinterlands	1.2	1.9	4.3	5.7

Source: Lengauer 2004, p.12

5.1.4 Housing Types

Central Vienna is a dense area with multi-storey “Gründerzeit” - buildings that reach until far beyond the Gürtel. They mark the characteristic appearance of the city (about 70% of the buildings in Vienna) and descend in height from the center to the periphery.

Figure 5-4 Dense Historic Center of Vienna

Source: Stadtentwicklung Wien 2005, p.55

At the edges of this dense structure, old town centers can be found. They have a specific small scale and still “rural” character, which is influenced by their history and agricultural use. Nevertheless, they are completely integrated into the urban body.

The outer districts of Vienna, especially in the North (across the Danube) and the South, are characterised by a mixture of results from different planning concepts: garden cities, large-scale settlements, single-family houses, theme-projects et cetera. They vary a lot in size, form and economic function and, together, make up the heterogenity of the fringe (selection of pictures see next page).

Figure 5-5 Garden City Dwelling in Vienna

Source: Stadtentwicklung Wien 2005, p.58

Figure 5-6 Urban Expansion of the 1990s

Source: Stadtentwicklung Wien 2005, p. 59

Figure 5-7 Single Family Dwellings

Source: Stadtentwicklung Wien 2005, p. 59

Office buildings – usually as skyscrapers – and industry and commerce buildlings mix with housing uses all over the urban area. Their newer and dominant buildings are found at greater distance to the center, as this area is under monument protection.

In the outer districts, the share of privately owned homes is bigger than in the inner districts (11.8% resp. 5.4%), rented flats have the biggest share in both areas (~72%). It is a striking fact that the inner hinterlands have a large share of privately owned houses (60%), the outer hinterlands even more (69%),

whereas rented flats are about 20%. This very clearly illustrates political influence: inside Vienna, publicly subsidised rents often do no make it necessary to buy a home, whereas Lower Austria subsidises single-family houses (cf. Lengauer 2004, p.20). Ground rent plays a distinct role in settlement development and social segregation (cf. Jäger 2001 in Lengauer 2004, p.21): Settling in the suburban areas usually requires ownership of house or flat and therefore rests mainly with middle or upper class.

In the south of the agglomeration, where suburbanisation is more pronounced and people are already becoming sceptic about further enlargement, housing prices are about ¼ higher than in the north, where the municipalities try to promote in-migration, especially of young families. As demand is rising, housing prices are rising too (cf. Ebenkofler 2007).

5.1.5 Economy

The main branches in Vienna are trade, customer related services and health. The tertiary sector held 83.5% of the Viennese GDP in 2007 (Stadtentwicklung Wien 2007), the secondary sector 16.3% and the primary sector 0.2%. The shift towards the tertiary sector in the last decennials resulted in relocation of industries and brownfield areas left behind, which are partly being redeveloped.

The city and its hinterlands are intensely interwoven in their labour markets. Huber 2000 (in European Commission 2003b, p.75) discovered that nearly 12% of persons employed in Vienna live in the hinterlands and 20% vice versa. Suburbanisation of jobs is happening: The inner districts have fewer jobs now than in 1973 (40%), although there have been gains since 1991. The urban expansion areas in the outer districts, though, have gained most jobs. There, the mismatch of population and jobs seems to adjust.

Table 5-5 Job Shares in Subareas

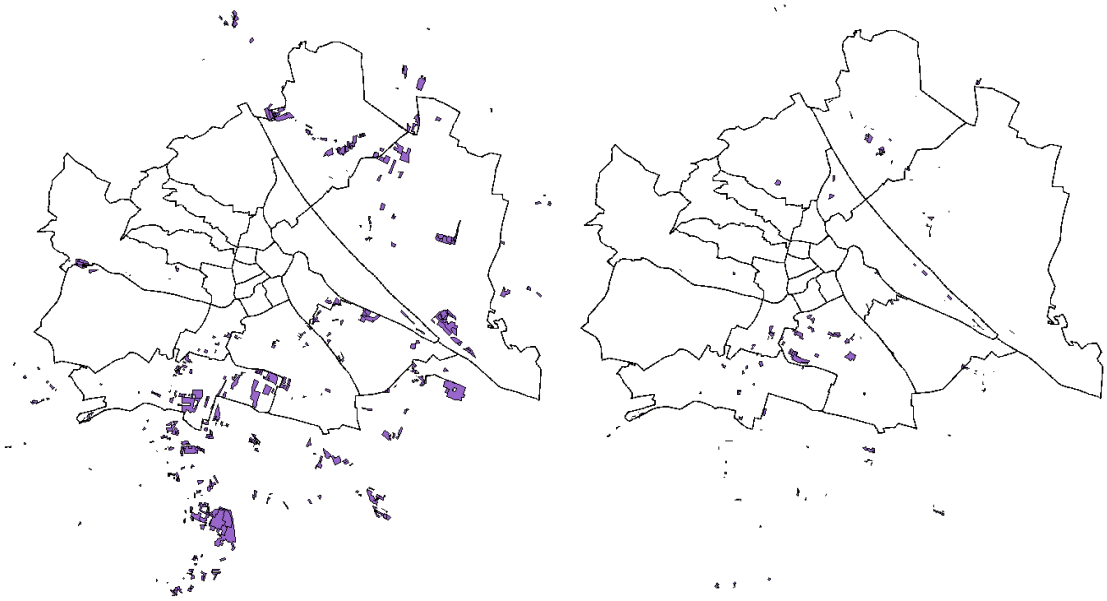
	Job Share of Vienna Region		Index			
	1973	2001	1973	1981	1991	2001
Inner districts	50.3	40.1	100	88.1	88.0	94.1
Outer districts	11.9	16.2	100	110.4	133.7	160.2
Inner hinterlands	12.3	15.2	100	105.9	120.6	146.1
Outer hinterlands	9.5	10.1	100	100.9	105.8	125.0

Source : Lengauer 2004, p.31

In the outer districts, trade is the strongest sector (27% of the jobs), followed by industry and social, personal and public service (each ~19%). The inner hinterlands have the same structure, the shares are 23% / 20% / 21%. Industry is declining in all areas, whereas the other two branches are growing. The leadership of trade, a branch tending to form large agglomerations, especially in “fringe areas”, suggests growing polarisation development.

Processes of restructuring are clearly visible in the Vienna agglomeration: although industry has lost importance in terms of jobs and GDP over the last decades, industrial areas have increased in size, especially in fringe areas in the south and the northeast. Simultaneously, smaller areas closer to the center have diminished. The large agglomeration of industry south of Vienna in Lower Austria (“SCS” a large industry and trade area) is appalling in the next figure.

Figure 5-8 Increase (left) and Decrease (right) of Industrial Areas in Vienna from 1958 to 1997

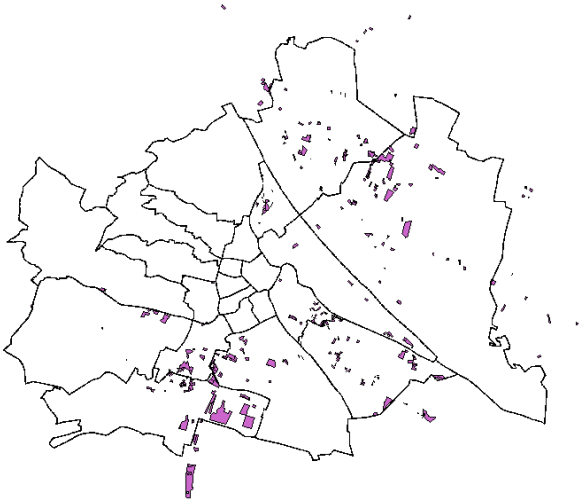


scale: ~1:476.000

Source: Steinnocher et al. 1999

An analogue picture can be found when looking at the development of commercial areas: fringe areas in the south and northeast have had the most substantial gains. The biggest trade agglomeration in the fringe is, too, the SCS, whereas currently, another big shopping center in the north is being projected. The inner districts and the older and upper class areas in the northwest have had no gains.

Figure 5-9 Increase of Commercial Areas in Vienna from 1958 to 1997



scale : ~1 :476.000

Source: Steinnocher et al. 1999

5.1.6 Commuting

As already said, the urban region of Vienna is strongly interwoven – there is a job deficit in many areas of Lower Austria and Burgenland on the one hand and a strong dependency of Viennese economy on non-substitutable employees living in these areas on the other. In 2001, more than 208.000 people were commuting to Vienna - 28% more than in 1981 (Stadtentwicklung Wien 2003a). In 1981, 35,487 persons commuted out of Vienna, in 2001, the number was 82, 368. This is an increase of 132%.

The commuting balance is still distinctly positive for Vienna, indicating a strong regional center-orientation. The inner hinterlands have the highest shares of people commuting to Vienna, but have also become an in-commuting region: more people of other federal states are working in the inner hinterlands than in the outer districts of Vienna.

Table 5-6 Regional Commuters (absolute numbers)

	In-commuters from another federal state	Out-commuters to another federal state	Commuter balance (from/to another f.s.)
Inner districts	146,798	49,282	97,516
Outer districts	51,782	28,522	23,260
Inner hinterlands	60,395	115,773	-55,378
Outer hinterlands	18,185	55,880	-37,695

Source: Lengauer 2004, p.17

It is striking that out-commuters have a significantly higher income than the average (cf. European Commission 2003b, p.74)

In the inner hinterland districts Wien Umgebung and Mödling, 72% of the working population are in-commuters, in Korneuburg the share is 40%. Simultaneously, a 55% resp. 65% share of the resident population is commuting out. In Wien Umgebung, ½ of the in-commuters are from the core city of Vienna, and 80% of the out-commuters are working in Vienna. This is a sign for strong interdependence of Vienna with these suburbs and a mismatch of jobs and workforces in those areas. Especially the higher qualified are commuting to the third sector metropolitan area of Vienna – which indicates that residential and economic suburbanisation are not the same thing (cf. Lengauer 2004, p.18).

An important aspect is the commuting inside Vienna. In the 1990s, social housing projects of the city focused on the “new” districts north of the Danube (21st and 22nd district), especially in the north-east of the 22nd district. Over the past 15 years, the population mounted 37% in these districts, but just 7% in Vienna as a whole. Jobs and public infrastructure, though, did not grow accordingly. These settlement areas had no proper access to transport infrastructure and the commuters used the A23 (a tangential route) to get from their housing areas in the north to their jobs in the southern commerce areas. Today, this highway is the most jammed transport route all over Austria. Now, a further ring around Vienna is built (see S1 – chapter 5.1.10).

5.1.7 Land Use

Vienna is divided into 32% building space, 49% green space, 14% areas for traffic and 5% covered by water (European Commission 2003b, p. 32). The share of urbanised area increased from about 30% in 1950 to about 40% of the total area in 1990[10]. Compared to other European cities, Vienna ranks among the average concerning sprawl[11] (European Environment Agency 2002, p.13).

In the MOLAND project (European Environment Agency 2002, p. 112), a 36.6% increase of sprawl between the 1950s and 1990s was diagnosed. The agricultural land lost due to sprawl accounted for about 20%. Bearing the weak population growth over those four decades in mind, the growth of built-up areas suggests weak implementation of sustainable growth principles during that era.

Nevertheless, compared to some other European cities – like Bratislava, which had an over 100% growth of sprawl – Vienna ranked quite well (European Environment Agency 2002, p.55).

Table 5-7 Development of Sprawl Categories in Vienna

	1950	1990
Total area (km²)	841.8	841.8
Urbanised area (class 1) vs. total area: %	29.7	40.5
Residential areas class 1.1:km²	164.7	197.5
Percent of green urban area within total urbanised area	5.9	5.7
Urban Sprawl: Increase in artificial area (%)		36.6
Loss of natural land due to sprawl		11.6
Total agricultural area vs. total area (%)	30.8	28.5
Loss of agricultural land due to sprawl		19.9
Road network density (km/km²)	2.1	2.6
Sealed area vs. total area	28.7	39.0
Rail network density (km/km²)	0.3	0.3

Source: European Environment Agency 2002, p. 112

Figure 5-10 (see next page) shows the development of the Vienna agglomeration from 1958 – 1997. Settlement has stretched mostly to the south of the urban area (outside the city boundaries) and the northern districts of the city. Commerce and trade have developed most intensely in the southeast and the northeast. The majority of newly consumed land in the fringe resulted from industrial areas.

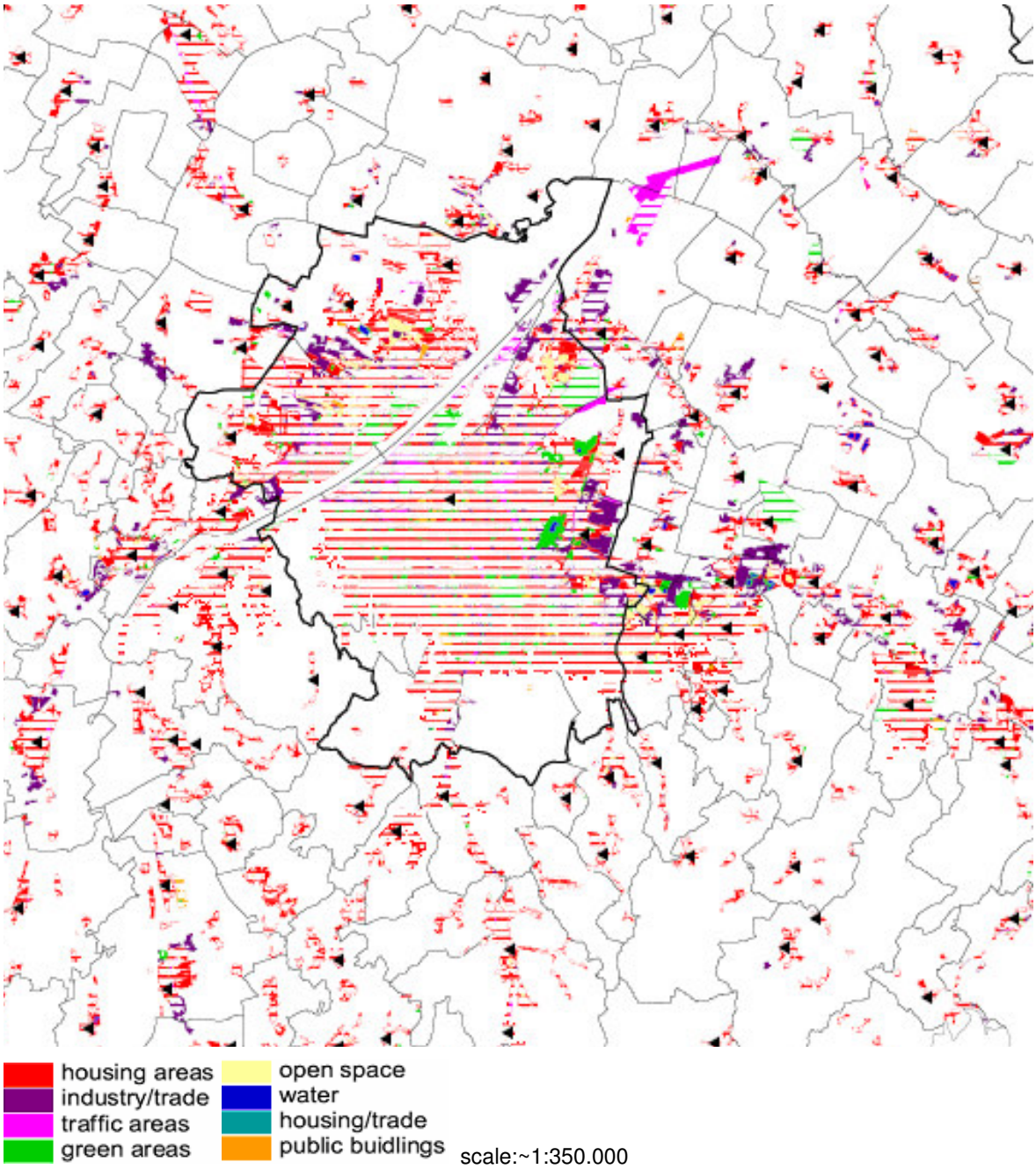
Loibl & Tötzer 2001 (in Steinnocher & Köstl 2002) state that over the last 30 years, the per-capita use of space in the Vienna agglomeration[10] has grown about 25% (with variations from -50% to +200%). They relate this to the fact that suburbanisation has induced massive building activities, especially in the southeast and mainly in free-standing forms. They see the reason in the flat topography and missing restrictions of those areas. The municipalities in the Wienerwald, though, could reach substantial densification.

[10] This is another spatial categorisation: It comprises the built-up area of Vienna according to CORINE land cover plus a peri-urban buffer zone. Altogether, the area is about 700km². See Steinnocher et al. 1999, p.3.

[11] In this EEA analysis, "sprawl" is used synonymous with urban growth. The further levels (see 2.2.4) are not taken into account. This is due to EEA's environmental approach and focus on land loss.

[10] This is another spatial categorisation: It comprises the built-up area of Vienna according to CORINE land cover plus a peri-urban buffer zone. Altogether, the area is about 700km². See Steinnocher et al. 1999, p.3.

Figure 5-10 Development of Land Use in the Vienna Metropolitan Area (1968, 1999)

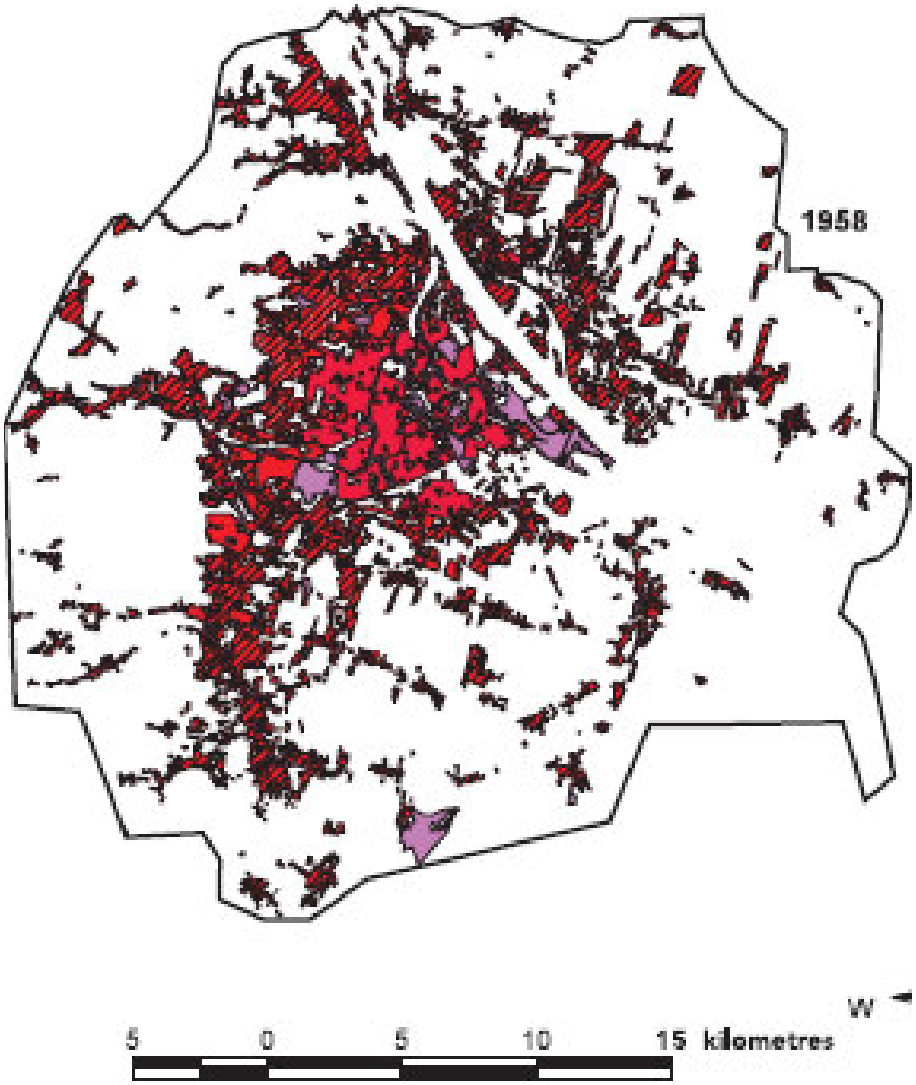


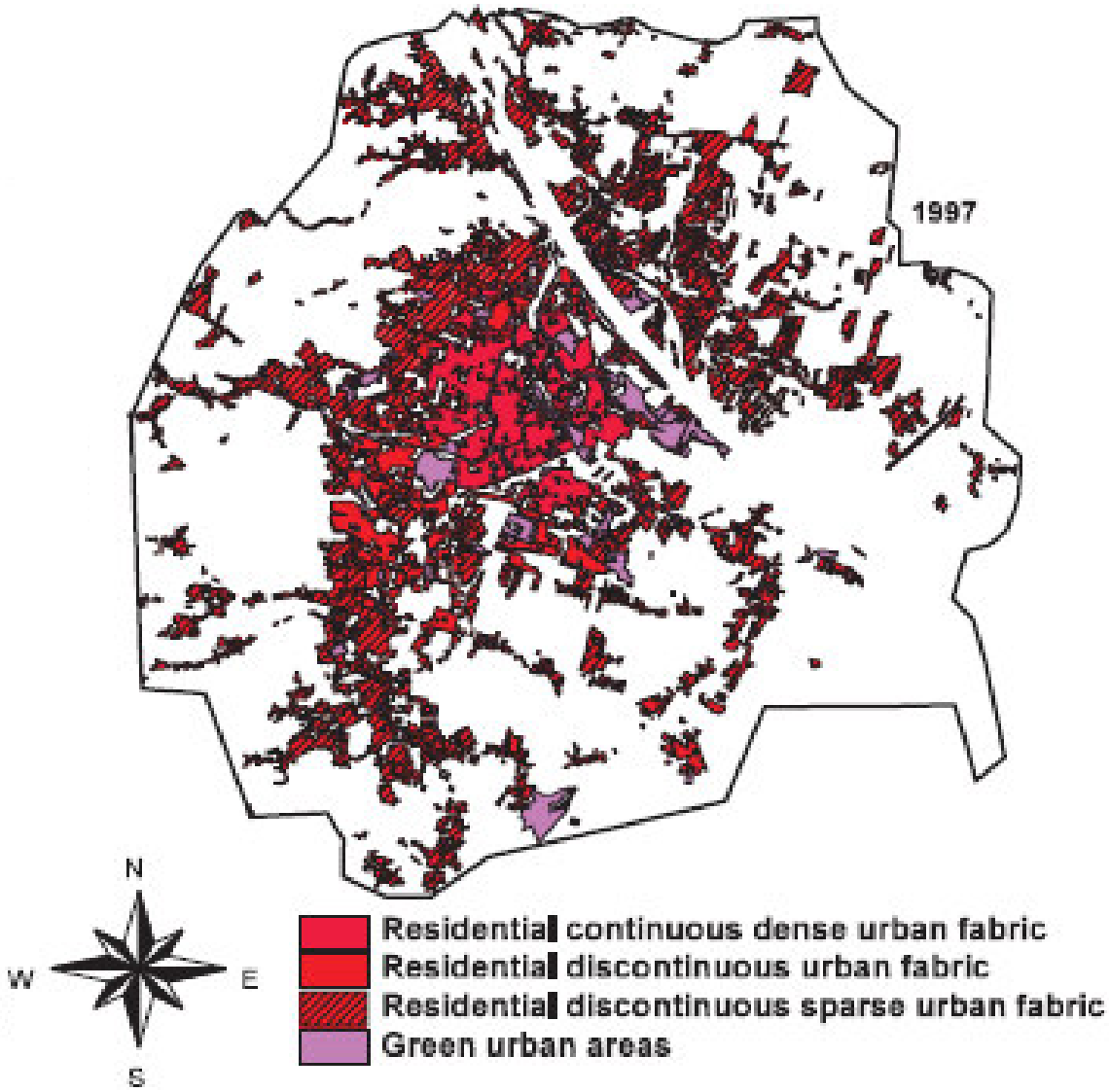
Source: Steinnocher, Köstl & Kressler 2004

Note: Striped colour marks settlement areas of 1968, full colour areas developed between 1968 and 1999. Black triangles mark cities.

When analyzing the development on a larger scale (Figure 5-11next two pages), the strong development of housing in the South and the North is clearly visible as low density one (“discontinuous sparse urban fabric”). The majority of newly covered space has nevertheless been occupied by industrial areas.

Figure 5-11 Development of Settlement Densities in the Vienna Metropolitan Area (1958, 1997)



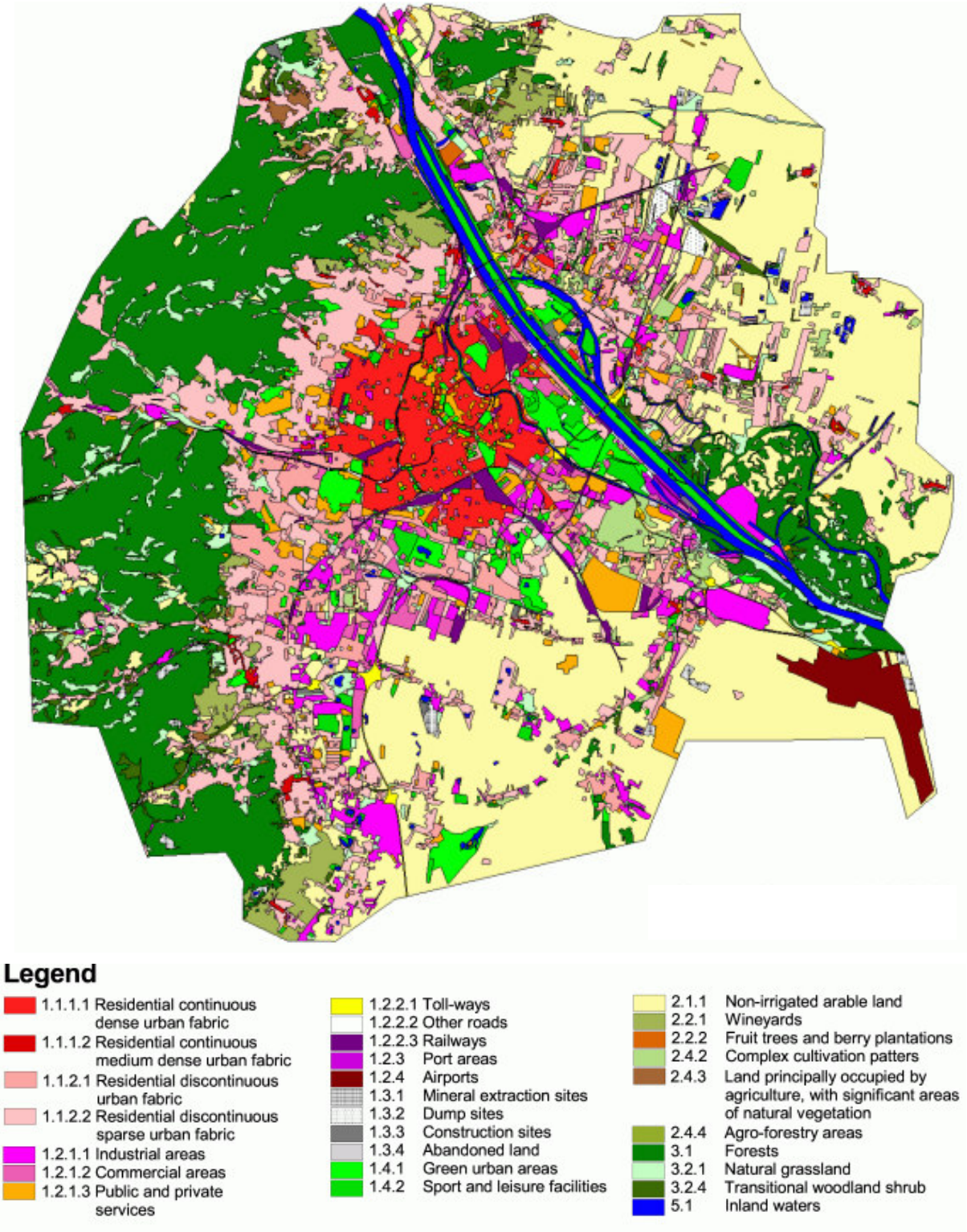


Source: EEA 2002, p.63[12]

The next figure gives a detailed map of the land use situation of Vienna in 1997. It emphasises the finding that dense urban fabric is located in the inner districts, whereas broad discontinuous and sparse settlement is found in the outer ones. The urban expansion areas in the districts north of the Danube are much more fragmented than the areas in the western fringe. To the West, the city has kept its center-periphery gradient of settlement density: the further out, the sparser the settlement is. The “Transdanubian” districts, though, do not have such a gradient. In most areas, they are rather sparsely settled, the denser parts are situated around former neighbouring towns. Also the south is settled that way, but having more commerce and industry areas. Industry and commerce areas concentrate mainly in a bow from the south to the northeast.

[12] For explanation of the categories see Steinnocher et al. 1999, p.4. Minimum mapping unit was 1 ha for artificial surfaces and 3 ha for non-srtificial surfaces.

Figure 5-12 Land Use in the Vienna Metropolitan Area, 1997



Source: Steinnocher et al. 1999a

5.1.8 Transport Infrastructure

Vienna's road system is characterised by the same ring-radial structure as the public transport system. The "ring road" forms the inner ring the "Gürtel" the outer one, there is a tangential road (very high traffic pressure) in the South East and arterial roads to the South, the East and the Southeast. Currently, a freeway ring around the city is being completed.

The first underground in Vienna was built in 1969. Currently, a northwards extension of the underground net is being constructed and a southwards extension is under discussion.

In 1974, the "Verkehrsverbund Ost-Region" was founded – a public transport cooperation between Vienna, Lower Austria and Burgenland.

Concerning environmentally friendly transport within the city, it can be stated that about 35% of the in-commuters use public transport. Traffic to work, though, accounts for only 22% of all trips in Vienna (Stadt Wien 2005, p.66 et seq.).

Public transport has overtaken car transport in 2007: 35% of daily trips are done by public transport, 34% by car (driver and passenger), 27% on foot and 4% by bike (Stuhlpfarrer 2008).

The next table gives a more detailed spatial analysis of the daily transport choice in Vienna (in 2003). Transit's share is growing which is possibly due to improvements of the system and out-reaching marketing. The public transport system is good in the center, but the challenge will be to make and keep it competitive in the fringe areas and the hinterlands. In the table below, it is visible that the lowest share of transit use occurs in fringe districts. Further out, crossing administrative boundaries, the share is even less.

Table 5-8 Use of Public Transport in Vienna (all days)

	1993	2001
Vienna	29%	34%
Dense districts (1-9), 20	33%	35%
"Fringe" districts (11, 13, 21-23)	27%	29%
"Mixed" districts with dense and sparse settlement	31%	33%

Source: Stadtentwicklung Wien 2003a

5.1.9 Green Space

Besides many small green areas throughout the city (except the Inner Districts – there is less free space), the main green zones are the Wienerwald (1250km² of wood in Vienna and Lower Austria, big parts are under protection) in the West, the Donauinsel (island in the river Danube, 21km long) and the Lobau national park (along the Danube in the East of the city). They are embedded in the Viennese Green Belt, which was first established in 1905, but weakly implemented. In 1995, the "Grüngürtel Wien" was fixed, protecting a ring of green space around the city. The intensity of protection varies within (see chapter 5.2.3). Most of the European cities are surrounded by some forms of green belts. In Central Europe, the conservation of rural landscape close to cities has become a major planning objective.

Further specific elements of Vienna's green space are the "Schrebergärten" - small gardens throughout the city (35.000, organised in small settlements) with origins in post-war times, when they supplied their owners with fresh fruit and vegetables. They are distinct elements of the Viennese green structure and changed significantly in 1991, when the city of Vienna allowed permanent housing on these areas. This has been criticised among experts (see "Further Measures of Vienna", chapter 5.2.4).

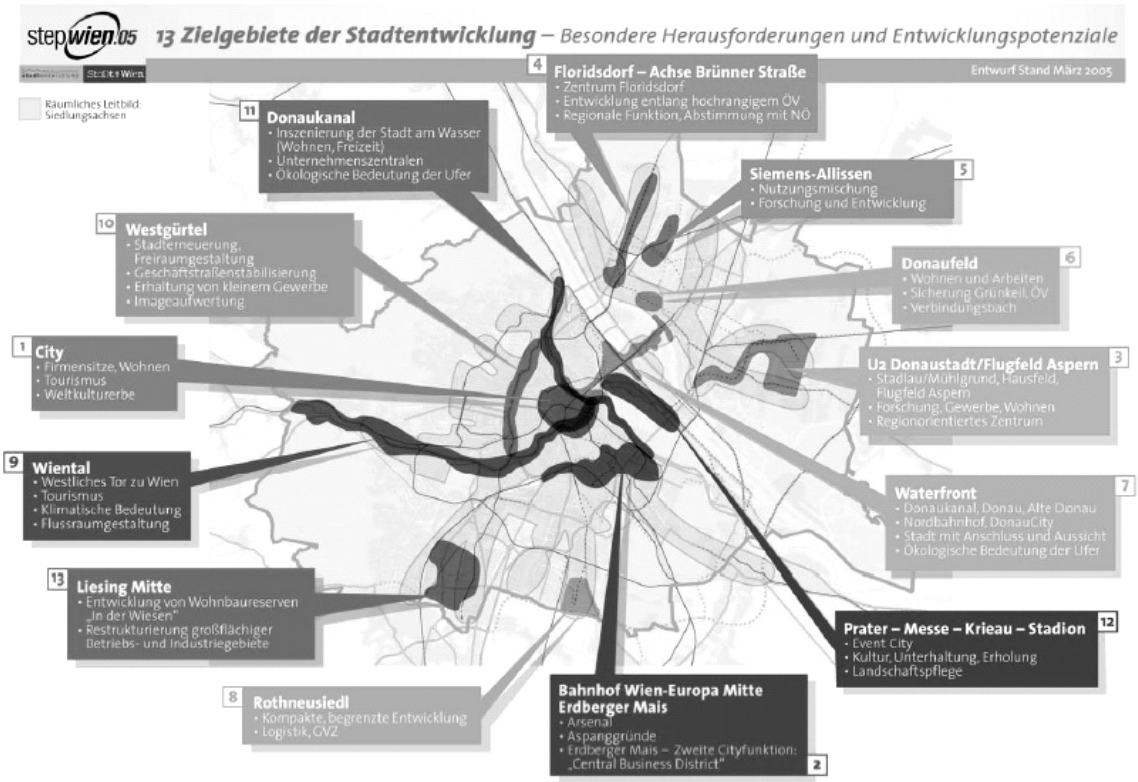
5.1.10 Present Developments in the Fringe

Main traffic developments are the enlargement of the underground to the north to better access the trans-danubian districts (U2) and the completion of a motorway-ring (S1) around Vienna, which is currently under construction. The new part leads through presently not or only punctually settled land in the northeast of the city, along the administrative boundaries of Vienna. It was planned as transit and commercial freight route, but the fact that it accesses the biggest urban expansion projects in the city, Flugfeld Aspern and Rothneusiedl, suggests that it is also used for opening up those areas. There is fear that alongside this motorway, sparse, uncoordinated development based on cars will appear and the state of Lower Austria has reacted with building bans (cf. Seiss 2007, p.172).

In general, the development strategy of the city (STEP 05) defines 13 “Zielgebiete” (target areas) of urban development, 4 of them are situated in the fringe:

- Liesing Mitte (13)
- Rothneusiedl (8)
- Flugfeld Aspern (3)
- Siemens-Allissen (5)

Figure 5-13 Target Areas for Development in Vienna (administrative boundaries)



Source: Stadtentwicklung Wien 2005, p. 265

Rothneusiedl and Flugfeld Aspern are the more controversial projects. Flugfeld Aspern, a former airport, is 240 hectares large and the biggest land reserve of Vienna. It is being connected to public transport (U2), highways (S1) and is already connected to rail. It shall be developed into a regional centre of 8.000 living units and 20.000 workplaces. Just recently, the masterplan has been designed and the realisation is projected for the next years. As it is a massive development on the north-eastern fringe of Vienna, it is seen as a major incentive in and for the Centrope region. Due to its size, urban design has been man-

aged by master planning. It is a dense, multifunctional new city quarter that will influence the urban structure of Vienna intensely.

Rothneusiedl is a rural area of 105 hectares and seen as “development option” in the STEP. Presently, though, it has become subject to a distinct large-scale planning process, including a projected extension of the U1. The large development on the fringe has been criticised among the public, even the STEP sees that “*dynamics of development not compatible with the priority spatial aims of urban development*” have to be expected (Stadtentwicklung Wien 2005, p.291). Vienna has been criticised for definitely negotiating the development of a football stadium and a large shopping center (in addition to housing, office and a cargo transport center) with an investor, which would actually counteract the principles the city defined in its strategic documents (which are: protecting the “Wald- und Wiesengürtel”, containing peripheral development, strengthening of existing centers, inner city brownfield development). The exact character of the project is not yet fixed.

Especially Rothneusiedl is seen as an example of today’s determinants in urban development – investors and politics - and how intense their influence on actual planning is.

5.2 PLANNING AND SPRAWL CONTAINMENT IN VIENNA

5.2.1 Legal Framework for Planning

Vienna is one of the 9 federal states and also one of the 2359 municipalities in Austria. This is a unique situation in the national state, as it gives the city a lot of liberties (see below).

National Level

There is no binding competence for spatial planning as such at the national level of Austria, but sectoral legislative powers (e.g. transport, water, forestry etc.) which influence spatial development. The coordinating body for spatial planning on the national level is the ÖROK (Austrian Conference for Spatial Planning), which consists of representatives from all three political levels. Nevertheless, it is only a coordinating and advising institution and has no legal competence.

State and Local Level

The main competence (legislative power) for spatial planning in Austria lies with the federal states. They design regional development plans which are legally binding for the local level and are also the controlling institutions for plans of the local level. The local level is formed by the municipalities, which are responsible for local planning in their territories. Though, they are bound to the guidelines and plans of the federal states, which can also dismiss the local plans if they do not accord to their demands (what does not happen often).

So, the federal states design plans for the whole territory according to their state law (every state has such a law and every state decided to write the necessity of a spatial development state plan in it) and many of them also wrote down the necessity of regional or sectoral plans (legally binding) or concepts (recommendations). There is no distinct “regional” planning level in Austria, but, in some cases, regional plans are created and enforced by the federal states. This basically requires the “region” to be situated in only one federal state.

As already mentioned, Vienna has a special status as municipality and federal state, which results in the fact that Vienna does not have to stick to prescriptions from any other body except the sectoral prescriptions from national level (e.g. national parks, TEN).

Local Level - Vienna

In Vienna, the local development scheme is called STEP (see next chapter) and it is worked out by the department for urban development and urban planning (MA 18). The zoning plan and the building regulation plan (which are one document) are worked out by the department for district planning and land use (MA 21). These planning departments work out the plans and documents which are enacted by the city council. This offers a possibility for political influence.

The department for architecture and urban design (MA 19) mainly prepares design concepts for public spaces and buildings. There are even more departments dealing with urban issues - e.g. the departments for monument protection, the department for urban renewal, the department for public parks etc. – which makes it very difficult to coordinate and cooperate. Furthermore, there are the 23 districts constituting Vienna, each having their own legal competencies (e.g. parks or street design).

Table 5-9 Planning System in Austria

Level	Institution	Instrument	Legal Effect
National	ÖROK	Austrian Spatial Development Perspective	Guidelines and recommendations for planning
	National Ministries	Sectoral plans	Binding for planning on state, regional and municipal (local) level
State	9 Federal States	State development plan Sectoral state plans	Binding for regional and municipal planning
Region	9 Federal States	Regional development plans Sectoral regional plans	Binding for local planning
Local	2359 municipalities	Local development scheme Zoning plan Building regulation plan	Binding, but very general framework for zoning and building regulation plan Binding for landowners

Source: European Commission 1999, adapted

5.2.2 Local Scale Planning in Vienna

As there is no regional level of planning with legal competencies and due to the fact that Vienna is state and local level all - in - one, the city has great power over its territory. The surrounding state of Lower Austria is at the same legal level. Consequently, there is no “overhead” planning authority besides sectoral regulations by the national state. All planning and coordination on regional scale is based on goodwill and voluntariness and has no legal power on its own – which creates problems of joint development.

Instruments for Urban Planning

The topic of sprawl has become more prominent through the last decades, but is still not very intensely dealt with in the official planning documents of Vienna (compared to, e.g., Portland). This chapter will therefore outline the city’s planning documents (in the narrower sense) in general. The instruments on sprawl will be listed and described afterwards.

<u>The Urban Development Plan (STEP)</u>

This is a legally non binding concept dealing with the long-term development of the city. It is designed for 10 years and produced by the MA 18 – “Department for Urban Development and Planning” and enacted by the city council. It defines development areas, green-areas, higher-level infrastructure for traffic as well as strategies for social infrastructure and housing policy. It also tries to give guidelines for coordination between the city and its surroundings. The STEP can be seen as a framework for the design of more detailed plans and regulations as well as decisions about finance and infrastructure. There have been 3 STEPS up to now, the last one released in 2005. The last STEP (STEP 05) is to be seen as a step towards dialogue with citizens, investors, NGO´s and opinion-leaders, what should result in a better implementation than the ones before. It is also the first (!) STEP dealing with cross-border development concerning Slovakia and The Czech Republic.

<u>The Strategy Plan for Vienna (STRAP)</u>

The Strategy Plan (by the city’s MA 18) is less broad and distinct than the STEP and focusing on strategies concerning: “Vienna within Europe and the region”, “Perspectives for the economy and the labour market”, “Promotion of science, education and culture”, “Preserving and improving natural and urban spaces”, “Developing the quality of life and the environment”. It is a very general plan without legal power, dealing with economic positioning and not delivering many distinct aspects. Sprawl issues are basically not addresseded.

The Land Use Plan and Building Regulation Plan

The Viennese Building Law (Vienna can design its own building law as it is a federal state) regulates the content and the role of the Land Use Plan and the Building Regulation Plan (which are one document), as well as the development procedure of these plans. The Land Use and Building Regulation Plan (made by MA 21) is legally binding and is/should be the first implementation tool of the STEP's and STRAP's strategies. It manages the allocation of uses of Vienna's territory and also urban design (in the building regulation plan).

5.2.3 Other Relevant Instruments

There are other relevant instruments not specifically dealing with "urban planning", but having influences on the spatial structure and sprawl. Some of them are not even in the field of competence of the city, but nevertheless influence spatial development to a substantial degree. This is why it is important to give a short overview of them:

Monument Protection

In Vienna, large areas mainly in the center are under monument protection (state regulations). Massive projects in these areas and also in their environments are basically not possible. This results in large projects being realized closer to the fringe, where design restrictions are not that strong.

Urban Renewal

Urban renewal is closely connected to Vienna, as the city (via various instruments) is very active in this field. The re-design of run-down inner city areas promotes their attractiveness and is an element of anti-sprawl measures.

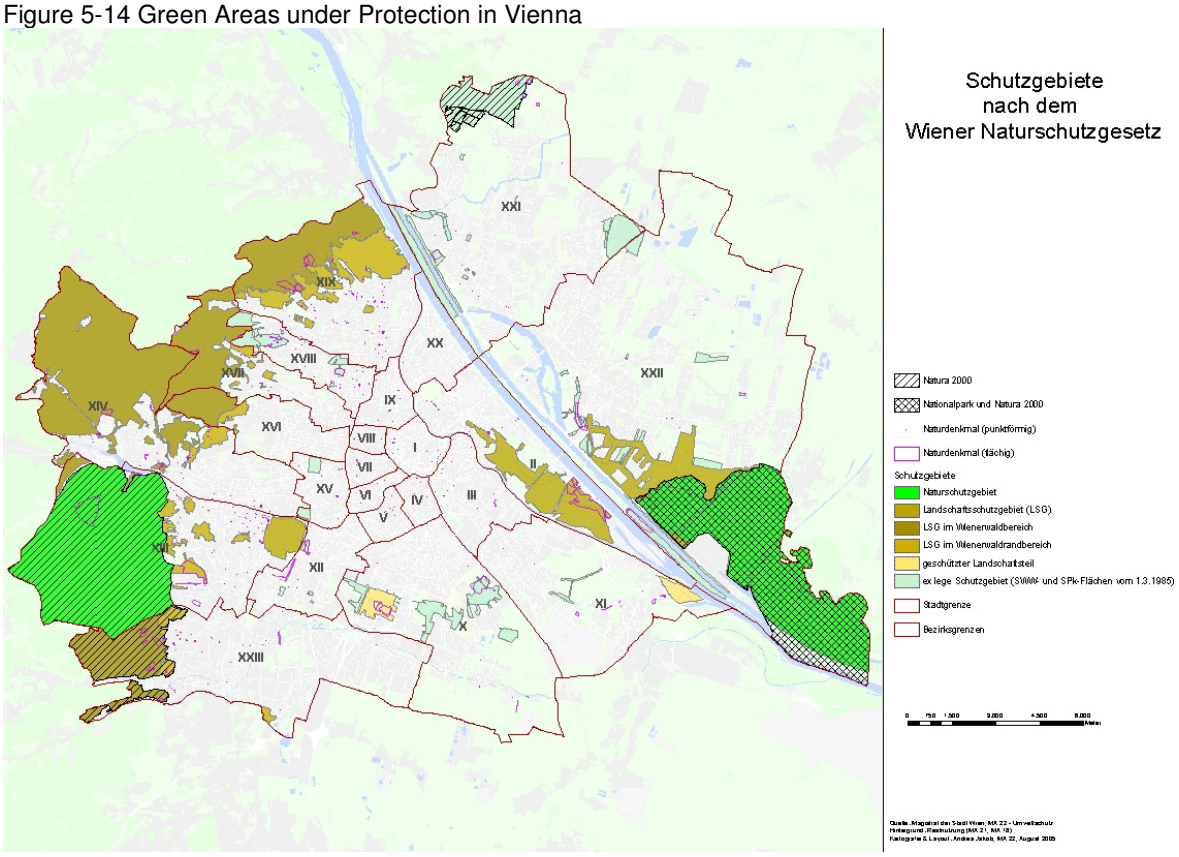
The Green Belt

The Green Belt ("Wald- und Wiesengürtel") is the main part of the "1000 hectares-program" which was created to preserve about 1000 hectares of green space through public purchase, land designation and design. As the Green Belt is a legally non binding concept, just some parts of it are effectively under protection (indicated in the map below) and the grade of protection varies within. In most of them, building is generally not allowed, but exceptions are possible. So, in the areas under nature protection, urban containment has been realised successfully. Especially in the Wienerwald areas, strict protection has resulted in densification of settlements rather than spreading out (see Figure 5-11).

In general, the Green Belt is situated rather close to the existing urban body and serves as settlement boundary. For the areas not under nature protection (south, north-east), protective regulations were fixed in the land use plan; there, decisions about allowing or prohibiting settlement are taken for each individual project (cf. Rosenberger Michael, MA 18, personal interview on August 14th, 2008).The boundary can not be seen as strict line (as in Portland, for example), but rather as orientation or zone. This makes proper implementation of principles and strategies particularly important.

This settlement boundary just relates to the city of Vienna and is enacted by the city council within its boundaries. For the wider region, containment of settlement is much more complex and difficult (see next chapter).

Figure 5-14 Green Areas under Protection in Vienna



Source: Stadtentwicklung Wien 2005, p. 184

Rezoning to Greenland

In the 1990s, the Federal State of Lower Austria introduced the possibility of rezoning building land into green land (without compensation), to prevent the stocking of building land.

Vienna's Interventions on the Housing Market

Social housing

60% of all Viennese households live in houses or flats subsidized by the city. Vienna even owns and hires out flats, where 220,000 needily people live at a lower rent (cf. Förster n.d.). Through this, the city of Vienna massively influences the housing market and also has crucial impact on the socio-spatial distribution of its inhabitants. Furthermore, by providing affordable housing in the cities, out-migration (of a certain social group) can be moderated. Most projects of social housing are situated in the outer districts of the core city, especially in the districts north of the Danube.

Land stocking by the Wohnfonds Wien

Since 1984, the wohnfonds_wien (former Wiener Bodenbereitstellungs- und Stadterneuerungsfonds) deals with real estate management and project management for social housing and urban renewal politics. It is an important actor on the Viennese land market, as it stores land for later development.

Wohnbauförderung

About 90% of the present housing developments inside Vienna are realized through Wohnbauförderung (cf. Rosenberger Michael, MA 18, personal interview on August 14th, 2008). This is a financial support system by the Federal State of Vienna for the construction of new housing space. To be able to get this support, the projects have to meet certain criteria, which the state (=the city) has fixed. This is an important steering tool, as here, influence on the market (design, density etc. of the projects) can be enacted

very intensely. This applies to big projects as well as smaller, singular ones. So, besides regulating plans, the city has an effective tool of influencing new development via financial support. Again, this just applies within Viennese boundaries.

Housing Policies of Austria´s Federal States

Also the other federal states of Austria provide subsidies for people building their own homes. In Lower Austria, a combination of object and subject subsidies has been developed, which, in the last years, has been redesigned into the direction of energy sustainability. This is a positive change, but nevertheless, these subsidies tend to support sparse, space-inefficient development, as free-standing houses in remote areas are subsidized as much as multi-story buildings with connection to public transport (cf. Land Niederösterreich n.d.). Altogether, these subsidies make it cheaper to build a house in the Viennese hinterlands of Lower Austria than in Vienna.

Taxes

In the Austrian fiscal system, the municipalities receive money from municipal taxes, which account for 40% of the municipalities' income, and from the fiscal compensation system (~60%). Municipal taxes are land taxes and wages for public service, as well as the specific "municipal tax" (3% of the total wage sum of every firm). The special status of Vienna as city and federal state makes it lose taxes on municipal and on state level in case of out-migration.

Through the financial compensation system – reallocation of money through the national state - poorer municipalities shall be supported. Nevertheless, competition for firms and inhabitants stays a problem, as they are a substantial part of the municipalities' income. Since 2005, inter-municipal fiscal compensation is possible and can be applied by urban regions.

The Commuter´s Tax Allowance (Pendlerpauschale)

The National State of Austria as well as some federal states (including Lower Austria) subsidise commuters. The *national* subsidy is two-parted and comparably complex, as the sums differ depending on the distance and the availability of public transport. It is noticeable that from the distance class of 20km, the subsidies for commuters not having access to public transport is considerably higher than the sums for commuters able to use mass transit. This, to a certain extent, supports settlements in peripheral regions and promotes auto-dependent developments close to cities. The subsidies of Lower Austria are 20% higher for mass transit commuters (cf. Land Niederösterreich 2008).

Commuter subsidies by Austria and Lower Austria are important determining factors for settlement structures and can not be influenced by Vienna. They are criticised for having historical reasons (support for poor people forced to commute to find work) and being outdated today.

Transport

The Transport Masterplan, released in 2003, does not specifically consider the hinterlands of Vienna. More important in this respect is the Transport Cooperation East (Verkehrsverbund Ost-Region - VOR), comprising the provinces of Lower Austria, Vienna and Burgenland. Inside Vienna, lines operated by the National Government (railway, regional bus service) and the City of Vienna (metro, tram, bus) are joined in cooperation (Wiener Linien). The VOR mainly deals with offering traffic solutions to the commuters in the region.

5.2.4 Strategies and Instruments on Sprawl

Sprawl and the STEP

The fight on sprawl as such is no very prominent topic in the STEP, as there is not even a specific chapter. In general, issues of city-regional development are dealt with in the chapter "Regionale Entwicklungskonzeptionen und Strategien" (cf. Stadtentwicklung Wien 2005, pp.97-108). It contains sustainability strategies for metropolitan development at varying grade of specifity and states that the current development can not be controlled by conventional planning instruments – a new understanding has to be developed concerning inter-municipal cooperation.

The fact that statements on the problem field and sprawl in particular are not bundled, but rather diversed over the whole document, suggests that the issue is not seen as being of highest priority. There are foci set – the "target areas" (Stadtentwicklung Wien 2005, p.257 et seq.) – which are partly situated in the fringe, as well as there are various other areas addressed, but there is no comprehensive view on the state of sprawl or thematisation of the topic in particular.

Nevertheless, the strategies given follow sustainability goals. In this respect, it is important to recall that the STEP itself has no legal effect.

The planning principles (that the city set itself) concerning city-regional development are the following (Stadtentwicklung Wien 2005, p. 97 et seqq):

- Development of settlement with decentralised concentration
- Centers of mixed-use development around public transport nodes
- Elaboration on concepts against sprawled development fostering development in centers
- Clear growth boundaries
- Coordination concerning the development of shopping centers and industrial areas (creation of integrated areas)
- Conservation of green space in between the settlement nodes
- Redesign of framework regulations also influencing sprawl (hosing and infrastructure policies, land policies, financial compensation)

Furthermore it is stated that the following principles have to be followed simultaneously (Stadtentwicklung Wien 2005, p. 211):

- Renewal of inner areas and densification
- Brownfield development before Greenfield development
- Expansion on sites which are suitable for balanced development and have suitable location factors

In the English Short Version of the STEP (cf. Stadtentwicklung Wien 2005a, p.46), there are also density prescriptions – voluntary benchmarks – depending on the spatial category. They give a basic view of densities in Vienna. The density of built-up areas is measured by net floor space index (floor space attainable in relation to net area of land zoned for building - NFSI).

- Densely built-up urban area should at least have an NFSI of 2.0; central areas accessible by high-capacity public transport an NFSI of 3.0
- Settlement axes/settlement concentrations: NFSI at least 1.0; in central areas close to public transport up to around NFSI 2.0
- Remaining area zoned for building: In core areas and if corresponding infrastructure exists, NFSI up to around 1.0; in smallholdings, NFSI should not exceed 0.5

The regulation of higher densities around transport nodes is a concept also applied in Portland (see chapter 6.2.4).

The STEP 05 also contains a regional spatial vision (cf. Stadtentwicklung Wien 2005, p.117) which defines development centers, corridors and growth boundaries in the wider region. It is based on the CENTROPE Region (see p. 78) and has thus a broad focus. There is another “Szenario polyzentrische Struktur”, worked out by the PGO in 2004, that also deals with this broader region.

For the closer city-regional areas, there is no concept given. There is just a hint on the “Siedlungspolitisches Konzept Ostregion” worked out by the PGO in 1994 and its insufficient implementation (cf. Stadtentwicklung Wien 2005, p. 103). Furthermore, there is short criticism, that present spatial development in the “Umland” hardly takes place in regional centers (ibid.) and that forms of “Zwischenstadt” have been emerging.

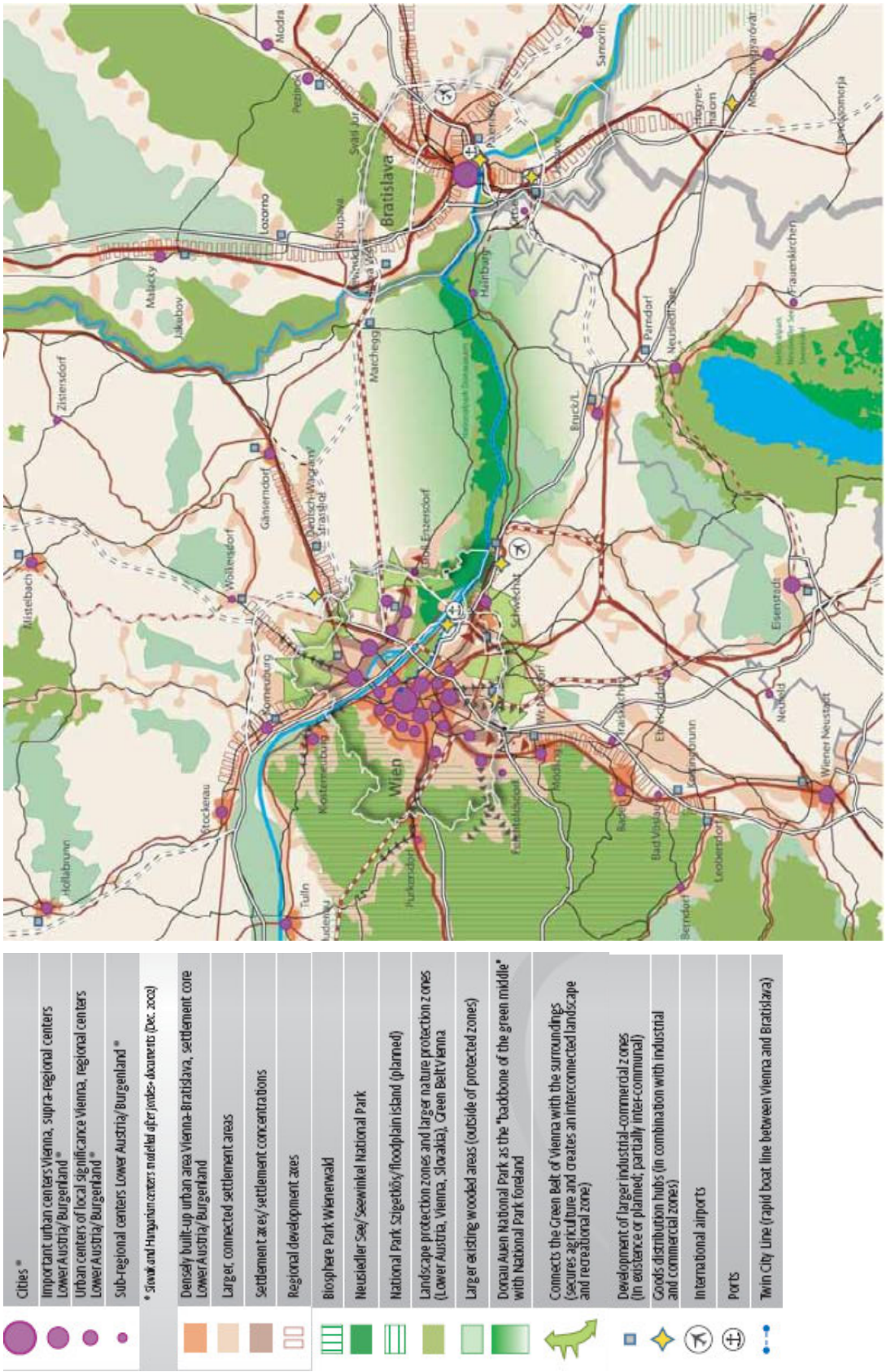
The SUM as possible instrument is (ibid., p.105, p.112) mentioned, as well as another set of planning principles, that are basically the ones already given in slightly higher grade of detail (ibid., p.105).

In the next subchapter, there is another set of general city-regional development guidelines and strategies (p.108) that are general too, but seem to have a focus on economic issues. It also contains a table of distinct city-regional measures to foster development, e.g. cooperation measures like a development of a joint concept for retail. It also suggests the implementation of Regional Impact Analyses for big projects with integration of the regional cooperatives (see below) (cf. Stadtentwicklung 2005, p.112).

Afterwards, CENTROPE and the development of the wider region are addressed again.

In general, the “regional” chapter is rather confusing, especially when trying to extract distinct statements. Sustainable strategies are being repeated several times at different places and various concepts are introduced. The focus obviously lies on the CENTROPE region, whereas city-regional development is addressed only very shortly.

Figure 5-15 Regional Spatial Development Scheme for Vienna



Source: Stadtentwicklung Wien 2005, p. 117

Regional Cooperation

There have been several bodies formed for regional cooperation. They all act on different scales and with different focus. As there is no regional legal platform, all of them work on cooperative basis.

CENTROPE

The CENTROPE Region comprises the eastern part of Austria and parts of the Czech Republic, Slovakia and Hungary and focuses on cross-border-development between these states. It is a large – scale cooperation platform caring about the promotion of coordinated and joint spatial, transport and economic development. As it has a rather large scale focus and mainly concentrates on economic issues, it will not be described in further depth here. In urban development policies of Vienna, though, it plays a main role.

The PGO

The PGO (Planungsgemeinschaft Ost, Planning Co-operation East) was established in 1978, with the aim of improving the infrastructure in the eastern part of Austria. The cooperation is made up by the federal provinces, without involvement of the municipalities and its main concerns are traffic planning, infrastructure and spatial planning. The organisation does research work, elaborates concepts and recommendations, but nothing of legally binding character. Decisions within its decisive board are made unanimously which leads to ignorance of important critical topics like the fiscal compensation system (cf. Urbs Pandens 2002, p.23). Critics also claim that it is a political rather than a professional board and that when it comes to economically relevant decisions, cooperation is abandoned (ibid.)

The PGO created and creates joint documents, the most important one is the Settlement Policy Plan for the Eastern Region (Siedlungspolitisches Konzept Ostregion) published in 1994, as well as transport concepts or the Wienerwald-Declaration 1997 and 2003.

The Settlement-Policy Plan for the Eastern Region intended to promote “peripheral concentration” within the region of Vienna. It contained measures for restriction of settlement in the south and southeast and suggested a settlement boundary. This should result in a reorganisation of commerce and industry centers (e.g. business-parks oriented on public transport). The concept was not very successful due to the lack of implementation (cf. Stadtentwicklung Wien 2005, p.103). Tough, it is being redesigned right now: “*In a perennial project, regionally effective steering mechanisms for a sustainable development of settlements and active impulses in the field of spatial order in cooperation of the federal states Vienna, Lower Austria and Burgenland shall be developed*” (Stadtentwicklung Wien 2007a).

As already mentiones, the current focus seems to lie on economic issues: a “Regionales Organisationsmodell Siedlungs- und Verkehrsentwicklung und Wirtschaftsbeziehungen” was worked out in 2004 and defines two development perspectives in the CENTROPE Region based on the situation of economic hot spots.

Regional Managements

The “*Landesentwicklungskonzept 2003“* of Lower Austria is a general development concept for the whole Federal State of Lower Austria, also dealing with spatial development. It has legal power, but is of general character though. As the City of Vienna is also a federal state of its own, Lower Austria can not overrule Vienna. At present state, the only way for a coordinated development is cooperation.

There are *Regional Managements for the 5 sub-regions* of Lower Austria which are also supported and partly financed by the European Union, 3 of them bordering the city of Vienna. Their tasks are to implement the SKO and to found local associations to promote cooperation (cf. European Commission 2003b, p.24). The responsibility lies with the departments for spatial planning in Vienna and Lower Austria. To coordinate this better, a *Small Regional Management* has been created in this area by Lower Austria and Vienna: the SUM (see below).

These regions produce "Regional Development Concepts on Small Level" to do coordination work on a even small, "daily" scale: the districts of Vienna and the surrounding municipalities.

There are four of these concepts:

"*Region Korneuburg - Stockerau"* to the North-West of Vienna

"Wien Nord – Marchfeld West" to the North of Vienna

"Wien Donaustadt – Marchfeld Süd" to the North-East of Vienna

"Mödling" to the South

They often have a special focus (e.g. tourism, agriculture, spatial development) and try to integrate a broad group of relevant actors into the process of preparation. So, they are no specific instruments against urban sprawl, but cooperation platforms influencing spatial development. The results of the cooperation work (concepts) should be integrated in the legally binding instruments of the respective bodies.

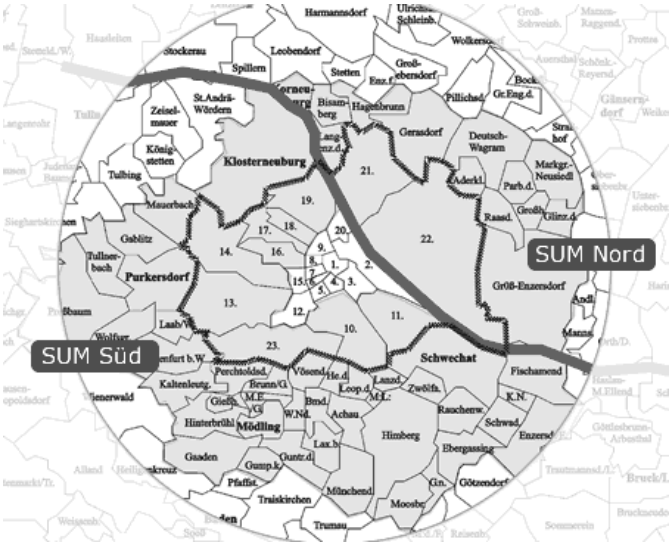
Stadt-Umland-Management (SUM)

The Stadt-Umland-Management ("core-hinterlands-management", SUM) is a cooperative body acting on small scale. It is the body for "civilization" of fringe development and intended to be a new instrument of intermunicipal cooperation in the future (cf. Stadtentwicklung Wien 2005, p. 104). It should steer cross-border coordination between Viennese fringe districts, small regions, municipalities of Lower Austria and the 5 regional managements. In 2005, it has substituted the "Regional Management Wien Umland Nord".

The focus lies on fostering cooperation concerning location decisions, infrastructure and green space planning. The defined aims are to balance the various interests, the development of joint projects and the search for joint solutions to problems. The SUM has no legal planning competences, but is a platform for cooperation and coordination of small-scale development. It also aims at integrating the inhabitants into the development processes.

The main elements are the Stadt-Umland-Management Süd to the South and the Stadt-Umland-Management Nord to the North. Each has a Stadt-Umland-Forum (where representatives of Viennese fringe districts and suburban municipalities of Lower Austria meet to discuss) and furthermore, there is a steering group for both, which is connected to PGO. The steering group consist of the heads of the planning departments of Lower Austria and Vienna as well as representatives of Vienna's fringe districts and neighbouring municipalities. The integration of planning officials (city, federal state, municipalities) into the steering groups shall foster the implementation of the concept and coordination work in the respective legal documents.

Figure 5-16 SUM Vienna



Source: www.stadt-umland.at

The SUM is seen as one step into the direction of a City-Regional-Association (cf. Stadtentwicklung Wien 2005, p. 112). The establishment of SUM is expected to make implementation of laws and incentives easier.

Further Measures of Vienna

The City of Vienna (MA 18) is developing the **Wiener Bauland Check** (Vienna Building Land Check). This is a model for assessment and estimation of building land and should give indications on options for the development of settlements. Based on the STEP and population prognosis, the areas available and necessary for urban expansion shall be assessed on a yearly basis. Respecting the growth boundaries defined in the STEP 05, building land reserves for 6.500 housing units/year for the next 10-15 years are available within the city. When applying densification in urban expansion areas, even higher demand could be met (cf. Rosenberger, Michael, MA 18, email interview on May 10th, 2008).

The **Wiener Planungswerkstatt** is a tool for public relations and information management. This year, the topic "region" will, for the first time, be picked up for an exhibition. The Instruments SUM, PGO and CENTROPE shall be put in closer contact with the citizens.

From the end of the 1990s on, the "**New Settler's Movement",** oriented on the "Settler's Movement" of post-war times described in chapter 5.1.9, was created by the city of Vienna. In the years before, the shape of these huts had changed continually as they, once used for storing tools and as weekend shelters, one by one got bigger and more comfortable. So, in 1991, the City decided to allow living in these buildings the whole year round and to expand them accordingly. Furthermore, about 3500 living units have been and are being created all over the city: one third of them in the former "Schrebergarten" - areas, the rest on building land with a "*minor part of free-standing single-family houses*" (Presseinformation der Stadt Wien, 4/4/2006). The majority should be in compact low rise buildings and town houses. The City of Vienna saw it as a tool to cope with the strong immigration from Eastern Europe and to stop suburbanisation. Especially the latter is a very controversial statement, as even the planning department of Vienna argued that the land use plan was only being adjusted to what had happened anyway (cf. Seiss 2007, p.158). Through these regulations, 20.000 huts, partly in the Greenbelt and at a big distance to transport facilities, were transformed into permanent settlement areas not at all oriented on public transport or dense forms of housing. Often, this is mentioned as example of political clienteleship influencing urban planning in Vienna to a significant extent (cf. Seiss 2007, p.158). It actually contradicts aims of the STEP and can be seen as an actual example of how everyday politics are (not) bound to goals and strategies defined by planning.

Implementation

As already said, many principles, goals and measures have been formed. The pivotal point is, though, implementation: more often than not, existing guidelines and strategies are not or insufficiently implemented. Even in the STEP it is stated that the main regional development concept (SKO 1994) suffered from "inactive" implementation (Stadtentwicklung Wien 2005, p. 113), or settlement does not sufficiently concentrate around existing nodes (ibid. p.103), as one strategy of the STEP is claiming. Sometimes, actual developments even contradict defined strategies (New Settler's Movement, Rothneusiedl).

Proper implementation is hindered, firstly, by the fact that the functional urban region of Vienna, which is much wider than the administrative city, contains many players with many, often conflicting interests. These should collaborate in order to reach the best regional result, but usually act from their own points of view. And secondly, even within the city boundaries, sustainable visions and strategies often have to retreat when it comes to practical politics and decisions about economic development.

The principles and strategies given in the STEP are positive and "sustainable" as such. Nevertheless, they do not go beyond a certain grade of detail and specificity. There are no benchmarks or quantitative objectives that make it possible to measure their implementation. The structure and processes of decision

making beyond the strategies are not identifiable. In this respect, space for maneuver is created, which does not have to be justified.

There is a claim for monitoring of the STEP's implementation ("Stadtentwicklungsbericht") (Stadtentwicklung Wien 2005, p.8). The first evaluation of the STEP 05 is thus to be expected in 2010. This report shall be presented to the city council and deal with the achievement of the STEP's objectives. This is a big possibility for Vienna's urban planning to present the importance of the implementation of its sprawl strategies. Nevertheless, this will depend on the focus of the report. There is the possibility/risk of reporting mainly on "target areas" and leaving "regional development" or "sprawl"only as a side topic, if dealt with at all. As there are no clear benchmarks to be measured, performance is difficult to be rated. And, as sprawl is a very comprising topic which is hard to be surveilled by "non-experts", those will probably accept what is presented. Furthermore, "urban sprawl" is no big topic in public discussion in the Vienna Region and thus easy to be overseen by the public.

5.3 OVERVIEW: URBAN FORM AND THE FRINGE

Urban Form

The state of the Vienna metropolitan area can be described as "in suburbanisation phase", according to the model of cyclic urban development. After a disurbanisation phase in the 1970's, Vienna basically skipped the process of reurbanisation and went directly into a suburbanisation period (cf. Lengauer 2004, p.8 et seq.). The type can be described as relative centralisation, as the ring is the area with the strongest growth, while the core city is losing population[13].

Table 5-10 Phases of Urban Development: Vienna

Phase	Type	Change of population			
		Core City	Ring	Urban region	
Urbanisation	Absolute centralisation	++	-	+	Growth due to advantages of agglomeration, industrialisation
	Relative centralisation	+	+	+++	
Sub-urbanisation	Absolute centralisation	+	++	+++	Formation of peripheral housing areas, spatial separation of urban quarters
	Relative centralisation	-	++	+	
Dis-urbanisation	Absolute centralisation	--	+	-	Traffic jams, cost problems due to disadvantages of agglomeration
	Relative centralisation	--	-	---	
Re-urbanisation	Absolute centralisation	-	--	---	Break down of urban structures or new rise due to reformes or external impulses
	Relative centralisation	+	--	-	

Source: Van den Berg et al. 1982, p. 38, supplemented with Lichtenberger, p.102 et seq.; adapted

So, although the center is very dominant, it is losing population, and suburban rings have been and are evolving in the closer and more distant hinterlands. These sprawl rings – supplied by migration out of Vienna and in-migration from other areas - are spreading out strongly and forming a continuously growing functional urban area. There is a distinct density gradient from the center to the periphery, and the administrative border between Vienna and Lower Austria is visible as well: whereas the Viennese part is characterised by larger-scale structures, mainly densificated public housing projects and the rent sector, the areas in Lower Austria are settled by single family houses, which are predominantly privately owned. The middle and upper class dominate the inner hinterlands, especially the areas in the south, whereas the working class settles in the outer districts of the city. This is mainly due to land prices and interventions on the housing market.

The main development axis of Vienna is north-south: the east is witnessing weaker dynamics, as the raffinery and the airport diminish its attractivity for housing. Development in the west is restricted by the Wienerwald. So, growth occurs mainly in the north and south. In general, the south is more "built out" and better developed. A partly "postsuburban" area has developed, which is stretching far into Lower Austria and also Styria. Nevertheless, it can not be called an "Edge City", because the dependance on the core and other areas of the Vienna Region is too intense. There is a job mismatch and the area is dependant on in-commuters, whereas a big part of the resident population is commuting out. Though, it is much more multifunctional, contains more uses than the areas in the north and is consequently less "sub"urban. The northern areas of Lower Austria are less developed economically, more dependant and often bedroom communities.

Main metropolitan tendencies are separation and polarisation. These can be witnessed all over the metropolitan area, but are especially visible in the hinterlands, where large-scale big box developments are continuing to emerge. This polarisation occurs particularly in retail and trade, where peripheral agglom-

[13] Of course, the borders between the single phases and types are not to be seen strict, but as zones.

erations have damaged the mix of uses in existing town centers and the core city. They leave behind former main streets in the core city abandoned by retail and supply large monofunctional housing areas in the hinterlands.

The structure of centers will change significantly in the next years. Major projects are being constructed, each of them highly influential on the peripheries and, accordingly, on the city. The motorway ring will be completed, going along with a large shopping mall in the north, and a main development project in the northeast (Aspern) and possibly also in the south (Rothneusiedl). Furthermore, the construction of the motorway heading north towards the Czech Republic is already inducing dynamic development alongside the route and will distinctly influence the development of the Vienna Region. (Central) European integration will be the overhead development force.

The urban fringe

As already stated, the functional urban region of Vienna covers a vast area, including large areas of suburban housing in mainly Lower Austria and Burgenland. At this point, the distinction between “urban fringe” and “suburbia” used in this paper has to be made clear again: “suburbia” as homogeneous, more or less uniformous housing areas at the edge of the FUR, being very dependant on the urban core; and the “urban fringe”, the areas at the edge of the urban core, in between the central areas and suburbia, being much more heterogeneous concerning form, functions, scales, design, uses, state of development et cetera. As this paper concentrates on the point of view of Vienna as well as the character of the “urban fringe”, location and characterisation of “suburbia” are not dealt with at greater depth here.

Figure 5-17 tries to give an idea of the location of fringe areas in Vienna: due to constant remodelling and change, their exact limits are impossible to define. So, the yellow areas are rather to be seen as basic indications. Nevertheless, it can generally be stated that, as soon as the historic “Gründerzeit” areas are left, “fringe” characteristics appear. One is reminded again that European urban development is criticised for not having a qualitative model of expansion: historic perimeter block development seems to be outdated, and free space is filled by large scale public housing on the one hand, as well as mainly free standing single family housing - produced by the free market - on the other (cf. Fiedler 2004). Framing urban design, high quality public space and amenity values often get lost.

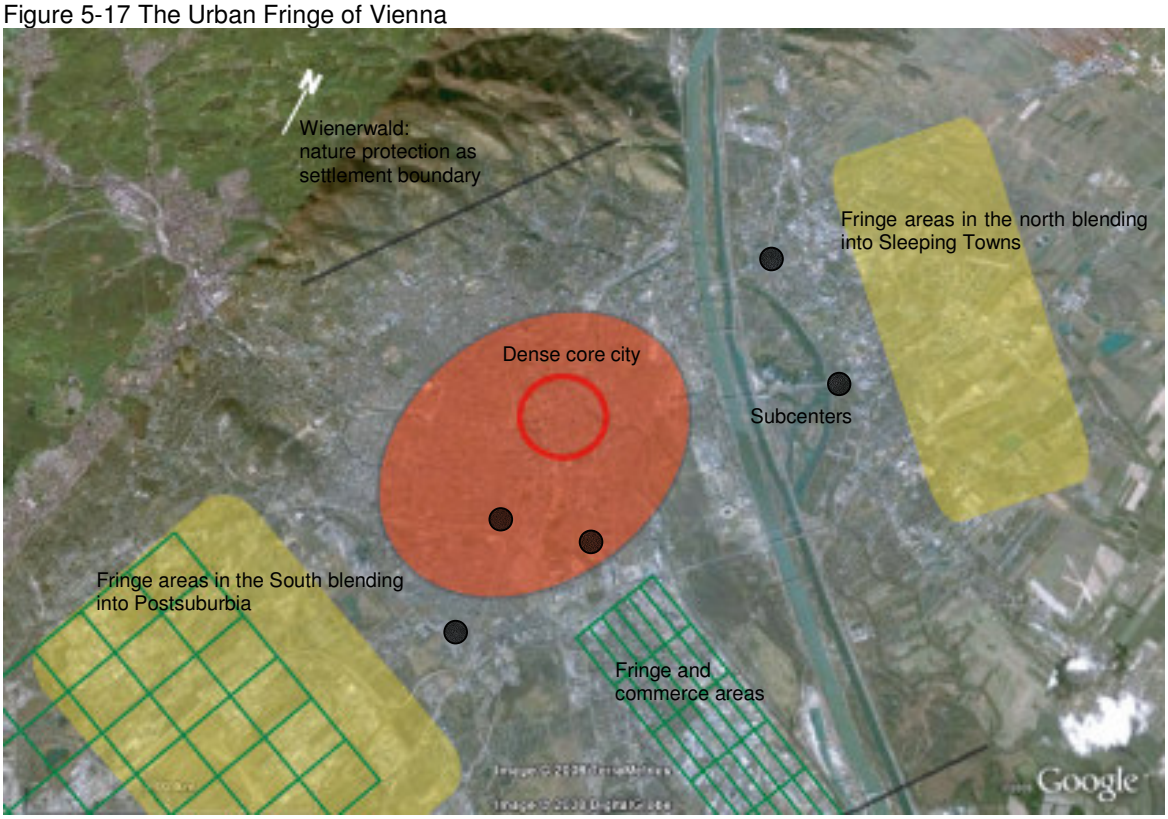
Fringe characteristics can mainly be found in Vienna’s areas of strong growth: the northern districts as well as the southern and some eastern ones. In the areas with strong growth restrictions and older building fabric – e.g. the Wienerwald areas – fewer “fringe” characteristics are present.

In those urban expansion areas, modern history of urban development can be witnessed: they contain elements of strong building activity from the 60s to the 90s, where sustainable use of space was often secondary (due to large reserves) , large scale developments next to single family town houses, transport or commerce, free space and other uses. New housing developments, though, tend to be at higher densities, whereas industry and commerce have developed antipodal: their land consumption per entity has grown substantially.

Compared to Portland (see chapter 6.3), where the fringe (as characterised by this paper) is very much concentrated striplike alongside main roads and clearly separated from housing suburbia, the fringe of Vienna is more spatially distributed and more visible all over the urban area. This is mainly due to the differences in age and tradition of urban development and the stronger success in decentralised concentration of uses.

At present, the Viennese fringe has mainly left the phase of “expansion”, where free space is built over, and has entered the phase of “Stadtumbau” (remodeling), where new waves of development change existing forms and “refill” free space. This is a chance and challenge (see next chapter).

Figure 5-17 The Urban Fringe of Vienna



Source: basic map: Google Earth; adapted;

5.4 CRITICISM ON THE VIENNA MODEL

Insufficient Regional Approach and Weak Implementation of Existing Strategies

Measures addressing sprawl require a regional approach, also in the Vienna metropolitan area. Nevertheless, the planning system in the Vienna Region makes it difficult to implement such a regional view, as there is no administrative body dealing with the whole functional urban region. The City of Vienna's competencies are limited to the territory within its administrative boundaries, as well are those of Lower Austria. Furthermore, there is no controlling body on higher level. All that can be done to address urban sprawl issues at present state has to be based on voluntary agreements and cooperation.

Several cooperation platforms have been formed, producing engaged guidelines and incentives, but when it comes to implementation, results are often weak (which is even admitted in the STEP, see p.80 et seq. of this paper). With critical decisions, competition is often not overcome. This can be called the main failure of the "Vienna Model": despite the fact that sustainable strategies exist, they are usually not or only weakly transformed into practice. This questions the entire logic of the model.

Furthermore, political influence on planning decisions appears to be rather strong in the Vienna Region. As many of the produced strategies and measures are of basically non-binding character, the city council and the federal state government rest with the task of implementation. Their decisions sometimes appear to be influenced by other than sustainability reasons and often clearly mismatch strategies and commitments of planning documents (such as the STEP). This results in a weak position of city planning, especially when confronted with politics and investors.

Making Urban Sprawl an Issue

Besides the missing implementation of (existing) sustainable anti-sprawl strategies, there is the lack of compact, bundled formulation of these, also by the City of Vienna (e.g. in the STEP). Although regional development concepts are named as one "field of action", the dynamic and threatening situation of urban sprawl in the region is not addresseded. The term is not even prominently used in the paper. There are several pages enumerating strategies and guidelines for regional development, but those stay at a superficial and rather general level, procedures beyond that remain "in the dark". There are no measurable objectives or benchmarks set, which underlines the non-binding character of those strategies, although they are positive as such. In addition, the respective chapter is very confusing and makes it hard to extract distinct statements, especially about city-regional development. Those are rather defined for particular projects – e.g. the target area Floridsdorf – Achse Brünner Straße.

A reason for this may be that planners would shift attention to the topic by "giving the problem a name" and consequently would have to face pressure to take action against it. Considering the difficulties of practical policy inside Vienna and the wider region, urban planning would consequently might have to admit certain powerlessness. So, the planning focus is laid on other "target areas", like the central city or economic development. Those are issues with clear contours and competencies and projected to be the main content of the monitoring report 2010 - "Stadtentwicklungsbericht".

Nevertheless, it would be important to thematise the problem more, especially to raise awareness among the inhabitants of the region. Due to present global dynamics, the receptivity would probably be high. And, it has to be mentioned again, inhabitants and their individual priorities and decisions are a main influential factor of the problem. To raise respective awareness and to convey alternatives of action is a main key. The argument that sprawl is the result of modern society's dynamics is reasonable, but must not serve as rectification for not trying to counteract. Possibilities of steering on behalf of planning are limited, so the problem has to be approached comprehensively. This requires the courage to address it clearly and the ability to convey the awareness for personal responsibility in the process.

Participation in Urban Planning Issues

In general, public participation in urban planning issues can be characterised as „in the beginnings". Over the last years, there have been efforts to create a participative culture in Viennese urban planning, although it is not yet considered as truly "functionable": on the one hand, Vienna has been criticised for permitting "information" rather than "participation", and on the other, participants are often driven by individial interests rather than concern about the development of Vienna as a whole.

In general, it can be stated that often, there is an acceptance of top-down planning, resulting from its long tradition in Vienna. Nevertheless, criticism towards government is growing and may result in growing interest and participation in urban development issues too. This might serve as starting point for building more awareness concerning sprawl.

The Urban Fringe as "frontier"

Inside Vienna's administrative boundaries, a special facette of sprawl has to be dealt with: forming and designing the "urban fringe". The Viennese fringe has special characteristics - it consists of mainly autarc entities, which produce a special type of "urbanity": its elements are unlinked and oriented on different scales. They may have high amenity values for themselves, but fail to connect and to create qualitative public space in between them. This makes the form-follows-function character of the fringe as a whole perceptible: its role is to mainly offer space for all urban functions, like housing (now, mainly at higher density), industry, commerce, transport and other uses. This is, of course, appropriate and justified, but has lead to an overlooking of the necessity to create high quality public space in between. Also in fringe areas– as they are main parts of our cities today and in the future – attractive urban space has to be created.

In this respect, the present phase of "remodelling" has to be seen as chance and duty: It is necessary to design and guide these redevelopment waves in a way that creates amenity values and a character other than that of an area for driving through. This requires a definition of which kind of city urban expansion is capable of creating, and how it can be influenced by urban planning in order to reach the best possible result. This is important for keeping Vienna's urban quality for its inhabitants as well as offering appealing alternatives to moving to suburbia.

5.5 CONCLUSION: VIENNA

5.5.1 Urban Structure and the Urban Fringe

In European comparison, the Vienna region was rather successful in keeping sprawl at bay and ranks averagely. Nevertheless, the metropolitan region has witnessed strong growth over the last decades and is expected to grow very dynamically in the future. Present tendencies (population loss in the inner city and strong growth of suburban rings), combined with actual or planned projects (e.g. S1, Rothneusiedl, A5…) are provoking worries about the sustainability of future development.

The metropolitan region is characterised by the dominance of Vienna's city center, situated in a compact ring of dense, historic "Gründerzeit" – buildings. These grant the city its special character and are often referred to as being "urban". Most of the areas surrounding the compact center (Vienna is and has been growing in a axis-ring-shape) have been initially developed in the second half of the 20th century and are now in a process of redevelopment. This happens mainly to the north and south, as growth is restricted by nature protection in the east and west. These redevelopment areas have initially been built-up in no space-saving way, as there was seen no need for it due to large land reserves inside Vienna's boundaries. Now, being in a process of remodelling, they are mainly densificated and "refilled", predominantly by public housing projects.

These areas are here referred to as "fringe areas" according to the definition used in this paper. They are mainly situated within the boundaries of Vienna and can consequently be influenced by the city's measures.

Outside of these fringe areas, suburban rings have developed, penetrated by traffic axes to the north, south and west. The areas in the north can mainly be characterised as housing "sub"urbia - bedroom communities that are higly dependant on the central city. The areas in the south, though, have developed "postsuburban" characteristics: they have gathered a diversity of functions that could enable them greater independence from the core city. Nevertheless, they have also developed a job mismatch – meaning that a large part of the resident population is commuting to Vienna, whereas the local economy is dependant on in-commuters from the metropolitan area. This impedes the formation of a genuine "postsuburban" area.

The suburban rings of Lower Austria can clearly be distinguished from the ones inside Vienna concerning socio-economy and design. They are characterised by mainly privately owned, free-standing single family homes, whereas the Viennese part mainly contains larger – scale public housing projects in the rent sector.

In general, affecting the whole metropolitan area, polarisation and concentration tendencies are visible, mainly of economic sectors (trade, commerce, industry, office), but representing a segregation of functions in general.

5.5.2 Planning Policies

The metropolitan region of Vienna has a main weakness concerning its planning structure: measures against sprawl can only be taken on voluntary basis. As there is no body with legal competencies covering the functional uban region, cooperation is the only possibility to implement strategies on sprawl. As there is no Austrian planning law to provide a backup for a legal regional platform, several collaborations have been formed in the closer and wider region. The main focus of these collaborations is joint steering of regional development, but due to difficulties of practical policies, implementation of existing agreements and strategies is insufficient.

The main cooperative body dealing with fringe development has been formed in 2005: the SUM, which strength is its level of action. It is dealing with everyday politics on small scale by involving the heads of the Viennese districts and the adjacent municipalities of Lower Austria. It is obviously seen as the main key to a form of city-regional platform in the future and has respective potential for it. Right now though, it can not produce any legal document and concentrates on fostering cooperation. This again leads to the pivotal point of implementation.

On behalf of the City of Vienna only, there have been strategies and instruments on sprawl formulated – concerning the city and also the wider region. Nevertheless, they have not been worked out or published in a concentrated, bundled form. Many aspects and goals – positive and “sustainable” as such - are defined in the STEP, but they are quite dispersed over the document and hard to access. There is a chapter about “regional development strategies”, but strategies and measures mentioned there stay at a level that does not allow to definitely claim distinct action or results. The focus seems to lie more with economic issues - European and global competition (CENTROPE etc.).

Nevertheless, there are even concrete instruments (Green Belt, Bauland Check…) which serve as measures against sprawl or target areas in the fringe (e.g. Florisdorf – Achse Brünner Straße), but are not explicitely related to the topic in the planning document. This may result from the awareness that a pointed definition of goals and strategies is likely to induce the demand for acting accordingly. Due to the fact that the STEP has no legal character and that planning has a weak position when it comes to practical policies, this might be something to avoid on behalf of the planning department. In general, the thematisation of sprawl issues in the public is weak. In order to raise awareness and to induce more sustainable behaviour, this fact has to be improved.

5.5.3 Results

The Vienna Region has a different approach towards dealing with regional development than Portland. There are no or few comprehensive legal benchmarks for development, the focus lies on the formation of project-specific regulations and cooperation platforms. This gives planning geater flexibility over this issue, but also opens up space for influence (of whatever source) and makes assessment of results more difficult. Flexibility, though, can also develop negatively into disregarding self-made principles (e.g. Rothneusiedl, Neue Siedlerbewegung). Furthermore, as there is not even a real regional anti-sprawl strategy, its impact or results are even harder to assess. “Urban sprawl” is not even addressed as problem in the STEP. Instead, strategies remain general and at a low level of specifity. This has its strengths (flexibility) and weaknesses (political influences, intransparency).

Concerning implementation of the SKO – the Settlement Concept for the Eastern Region – though, it can be stated that the realisation of strategies and measures was too weak. This is even admitted by the STEP. The implementation of the new one, which is currently under development, might eventually be more fruitful as dynamics have accelerated. The result of any regional strategy will have to be assessed by its ability to deal with important actual developments like the motorway ring or the new malls alongside it.

The first evaluation of the STEP projected for 2010 might play a crucial role, as it is said to be monitoring the achievement of the STEP's results. Nevertheless, there is the risk of either ignoring the sprawl topic in this report or using the non-existance of quantifiable benchmarks for "muddling through". Again, its handling on behalf of Viennese urban planning is a main factor.

As a focus of this paper lies on the urban fringe, the strategies and measures of Vienna shall be assessed in this respect. The urban expansion of Vienna in the second half of the 20th century can be described as sprawl. At first, urban growth mainly stayed within the city's boundaries (due to large land reserves) and it was not recognised as sprawl. Only when it started to affect the wider region – in the end of the 80s – experts became aware. Now, dynamics have intensified to such an extent that it has become a main issue of city-regional development. With the second development wave of the fringe right now, the trend towards higher densities is visible, at least in the housing sector. So, the goal of economic use of land is generally achieved concerning housing. In industry and commerce though, the trend is rather heading opposite. But, the task in the fringe is much more than just space saving: it is the creation public space with high amenity values, and to create new, high quality parts of the city. Many singular projects manage to create high quality living space for themselves (city's influence through "Wohnbauförderung"). The task for the city will be – besides setting the guidelines for each individual project – to create the "missing link" between them that makes new parts of the city liveable. Success will be measured by the people chosing to live in these areas instead of trading them off for suburbia.

Nevertheless, there will always be the danger of unpredictable, politically influenced decisions (like, e.g., the New Settler's Movement). The city council (who enacts planning decisions) does after all not have to justify its actions towards the public, by means of measurable benchmarks and clear objectives (like in the Portland area). Again, the STEP's evaluation in 2010 might be a possibility for spatial planning to address this issue.

6 CASE-STUDY: PORTLAND

6.1 FACTS ABOUT PORTLAND

6.1.1 Basics

Portland is the largest city of the Federal State of Oregon, comprising about 562,000 inhabitants (Portland Development Commission 2007, p.8) within the city boundaries. It is though the center of a much bigger metropolitan area: the Portland-Vancouver, Oregon-Washington Metropolitan Statistical Area (MSA), also known as the Portland Metropolitan Area or Greater Portland, which crosses the border of the U.S. States Oregon and Washington. It is relatively young, incorporated in 1851 (City-Data.com)

Figure 6-1 Situation of Portland in the USA

Source: Portland Development Commission 2007

The MSA spreads to most of Washington County (there is Washington State and County), and western parts of Clackamas County in Oregon (see Figure 6-2). The area extends north across the Columbia River (which is the State border) to include southern parts of Clark and Skamania Counties in Washington State. The central city of Portland is mainly situated in the county of Multnomah. Compared to other American cities, Portland has a very strong center and relatively little sprawl. Compared to Vienna, though, the areas outside the central city are much less densely settled and more monofunctional. There are several subcenters in the metropolitan area, each of under 100,000 inhabitants.

Figure 6-2 The Portland Metropolitan Area

Source: Institute of Portland Metropolitan Studies 2007, p.1; scale: ~ 1: 860.000

The Portland metropolitan area comprises about 1.9 million inhabitants in 2006 (Institute of Portland Metropolitan Studies 2007, p.7) and is the state's hub for trade (as it is a major port), transportation, and business. It is characterised by mainly white population (and a growing number of immigrants, mainly Mexican), as well as relatively high shares of unemployment due to economic restructuring.

Sprawl has been a problem like in every other urban area in the United States. Though, Portland has the reputation of being a prime example for engaged and courageous urban planning. It has a long history of regulatory measures concerning urban development, New-Urbanist-planning, and a high degree of civic engagement and direct votes. The basis of pro Smart-Growth Oregon State laws is also very important. During the last decades, some path-breaking decisions against main extensions of the road system (Mt. Hood Freeway and Harbour Drive, see below) and for upgrading of transit have been taken (also by public direct votes). Nevertheless, the Portland model has to face criticism (explained in the last chapters).

6.1.2 Urban Structures

Portland is situated along the Willamette River near its confluence with the Columbia River. It has a distinctive urban center, but there is no concentric urban form like in Vienna, rather a typically American grid system. This makes it hard to define fringe areas similar to Vienna, as there is no real center-periphery gradient that "starts" in the center and "ends" in the fringe. Portland has a different structure, comprising downtown, with a sharp drop in densities and change of design at its boundaries. The adjacent suburban housing areas spread out all through the urban region and change little in style and density. They are pervaded by arterial roads with urban functions, comprise singular malls and, due to Portland policies, concentrated development alongside light rail lines.

The City of Portland

Downtown Portland lies in the Southwest section of the core city between the freeway loop and the Willamette River. Downtown and many other parts of inner Portland have compact square blocks and narrow streets (cf. Portland Alliance 2002, p.42), a comparably pedestrian-friendly combination. Many of Portland's recreational, cultural, educational, governmental, business and retail resources are concentrated downtown and at present, a lot of building activity is going on. Downtown Portland is full of urban functions and a vibrant place, especially for American standards. An important element of Portland urban development is also located downtown: the Tom McCall Waterfront Park, a formerly 6 lane street converted to a park by public vote in 1978.

North Portland is a mixture of residential, commercial, and industrial areas. It includes the cargo facilities of the Port of Portland and the University of Portland. Building densities have abruptly declined and the style changed to free-standing single family houses. Broader streets, larger lots and lower densities characterise this area and the adjacent areas inside the central city but outside of downtown.

Northeast and Northwest Portland contain a diversity of neighbourhoods, comprising expensive as well as working class neighbourhoods. Many of them were and are in need of renovation. This has been done successfully in, e.g., the Pearl District or China Town, which are now bustling and creative areas with Victorian or Post-Victorian housing. The NW 23rd neighbourhood is now the densest area of the metropolitan region. Like in many other cities, renovation has brought along gentrification.

Southeast and Southwest Portland initially tended to be inhabited by mostly blue-collar workers, but, with its lower real-estate prices, attracted a broader mix of inhabitants since. Well-maintained Victorian housing of lower density is visible.

Inner single-family neighbourhoods are basically "built out". They experience only slight changes in population. Main changes occur in suburban single-family neighbourhoods (cf. Metro 2004b, p.53).

Metropolitan Structure (cf. Abbott 2004, p. 87 et seqq.)

Portland's suburbs are sometimes called "**Silicon Suburbia**" (Abbot 2004, p. 108), due to the electronics industry, which has driven the recent growth into the communities around Portland. The manufacturing and software jobs are thickest on the **west side** in an arc from Hillsboro to Willsonville. Clark County, Washington comes next, followed by Gresham (eastern suburb) and Portland. "*The tilt toward the western suburb has run counter to the older eastward expansion that began wit the streetcar suburbs of the early 20th century*" (Abbot 2004, p. 109). Among those arcs, middle class housing (mostly typical one storey free-standing single family houses on large lots with front and back yard and garage) is visible. These have developed particularly in the Beaverton area, in a modern version of nineteenth century immigrant communities. Along the traffic arteries, strip malls have emerged, behind which large areas of low density middle-class single family housing stretch out.

The triangle Beaverton-Tigard-Tualatin or the I-5 corridor from Tigard to Wilsonville are sometimes called "edge city", respectively "suburban activity centre". According to Abbot (2004, p. 112), this part of the town has not yet emerged as an "edge city", because the central city still remains the main hub for cultural life and public facilities.

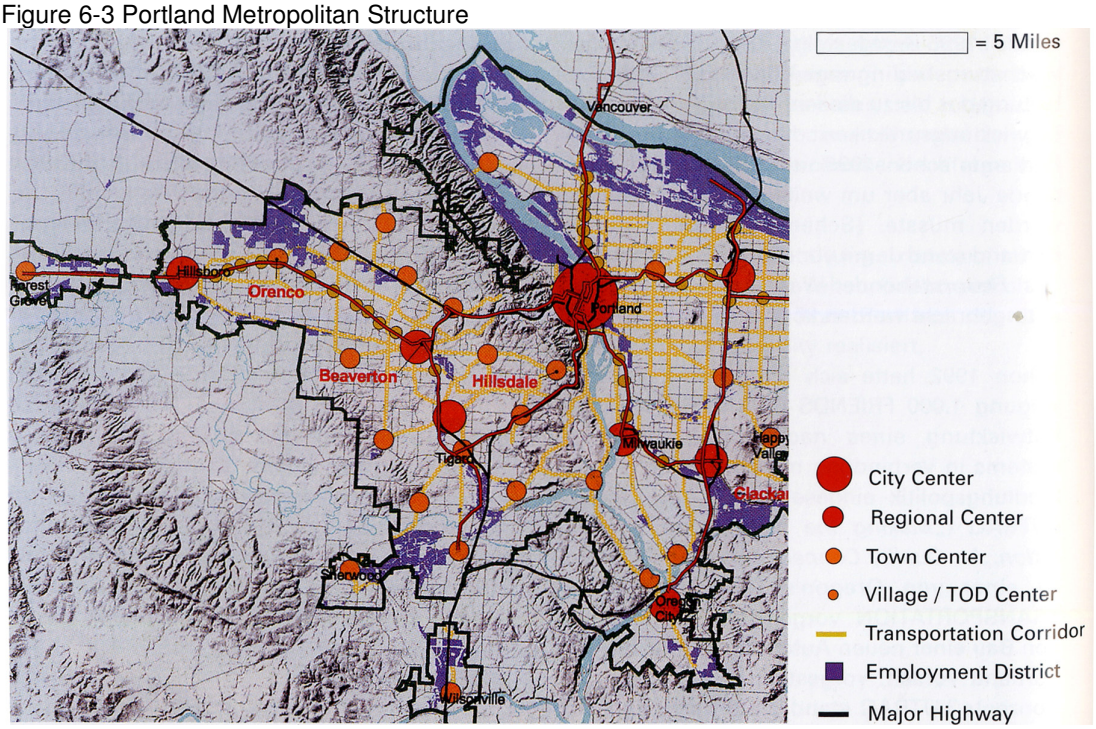
Further out, closer to the rural areas, the less wealthy classes have settled. "*In most metropolitan areas [in the US], the low property value suburbs are ageing communities adjacent to the aging central city. For Portland, in contrast, they are mostly towns on the farm-forest fringe…"* (Abbott 2004 p.114). Close-in neighbourhoods in Clackamas and eastern Multnomah Country – Parkrose, Lents, Brentwood-Darlington -are "*areas of mobile-home parks, self-built houses and unpaved streets […] There, a concentration of immigrants is visible: About half of Multnomah County's foreign born live in "mid-east*" (ibid.).

Upper middle class neighbourhoods are situated on the **suburban east side,** dating back to the first quarter of the twentieth century. The east side boomed in this era, especially after WW II, where they developed as bedroom suburbs.

The **West Hills** blend into high status suburbs close to the central city. "*The last two generations of automobile-based growth have added medium priced over-the-hill neighbourhoods on the west side such as Hillsdale and Burlingame…Residents of these districts are easy to caricature as quality-of-life liberals"* (Abbot 2004, p.87). Highway building shifted growth to the west in the 1960s, where better equipped single-family houses were placed into areas that lacked sideways or street lightning. The predominance of the west side remained until the 90s, until Clark County, Washington, took over first place.

There are efforts to concentrate axes of development along the MAX light rail lines, which has taken visible effect up to now. At present state, those development nodes (TOD, see below) are mainly monofunctional housing areas, with some exceptions (e.g. Orenco Station), where other functions (daily supply, restaurants) could be integrated.

Figure 6-3 Portland Metropolitan Structure



Source: Schönig 2004, p.94

The North

North of the central city, still in Oregon – which means south of the Columbia River – more affluent households have settled. In general, these are spacious houses on very large lots with massive setbacks, usually comprising two garages.

What is not addressed in the map above is the fact that Vancouver (and Clark County as a whole), Washington – north of Columbia River - , has become a substantial part of the metropolitan area. Some even call Portland and Vancouver “Twin Cities” (cf. Abbott & Seltzer 2004). The situation reminds of the Vienna Bratislava “Twin Cities”, especially as they are both models with a state border in between. The difference is that the Portland – Vancouver region is smaller (1.9 million, whereas Vienna-Bratislava accounts for about three million), with less (spatial and historical) distance in between and a better inter-linkage in economical and social terms.

Vancouver is usually seen as part of the metropolitan area, as it experiences strong growth in terms of population and functional importance. At present, these areas north of the Columbia river are highly dependant on the functions offered by central Portland situated further south. Concerning urban design, sprawl was kept less at bay as in the Portland area. This results in large low-density housing areas at big distance from other urban functions. Most of the jobs are situated in central Portland south of the river.

Structure of centers and functions

The urban region as a whole has a very strong urban center and vast, monofunctional housing areas on the outside. Urban functions other than housing are concentrated in the city center (mainly downtown), in malls and alongside arterial roads. Within the city center of Portland, public transport is well developed and downtown, most of urban functions are within walking distance.

Urban subcenters throughout the metropolitan area do not concentrate a considerate amount of diverse urban functions, which is different to Vienna. Subcenters like Beaverton or Hillsboro are – at present state - not multifunctional and important enough to serve as regional subcenters or linchpins of decentralised

concentration. Malls and arterial roads have taken over many of their functions. From this point of view, these can be characterised as fringe areas according to the theory described in the first chapters.

6.1.3 Population

Between 1990 and 2000, the population of metropolitan Portland-Vancouver increased by almost 27% (the United States average was about 13%), which is a substantial number. By 2000, the total population of this area was 1.9 million, about 82% living in Oregon (Institute for Metropolitan Studies 2007, p.7). The "5 county region" (without Clark County) is expected to reach the 3 million mark by 2030 (Metro 2000a, p.6). The next figure gives a short overview of the area and the different spatial categorisations[14]:

Table 6-1 Spatial Categorisations of Portland Metropolitan Area

Area	Population	Name used in this paper
Within the administrative boundaries of the city of Portland	568,380 (2007)	The city of Portland, "Portland"
Within the UGB	1.3 million (2000)	Portland-UGB, area within the UGB
Area governed by METRO (24 cities and areas in Clackamas, Multnomah and Washington)	1.4 million (2000)	METRO-area
Portland-Vancouver, Oregon-Washington, Metropolitan Statistical Area (MSA) (includes Oregon counties of Clackamas, Columbia, Multnomah, Washington, and Yamhill – and Clark County in Washington State)	1.9 million (2000)	Portland-Vancouver MSA, Metropolitan Portland-Vancouver
Portland – Salem OR-WA CMSA[15] (Portland-Vancouver MSA and Salem MSA. Salem is the capital city of Oregon and situated south of Portland)	2.2 million (2000)	Portland-Salem MSA

The City of Portland is mainly situated in Multnomah. Clackamas and Washington are both rapidly urbanising suburban rings around Portland (the Tri-Metropolitan Area), whereas the counties of Columbia and Yamhill (to the Southeast and the Southwest) make up the rural fringe of the PMSA. The suburbs are growing faster than the central city, which seems to be a general trend all over the United States. This is due to the high mobility of Americans: they are likely to relocate and prefer higher similarities and predictability of suburbs to the differences and individuality of central cities (cf. Seltzer, Ethan, Portland State University, personal interview on May 29, 2008).

It is a striking fact that Clark County, Washington, experienced the most rapid population growth during the 1990 to 2000 period (45%), considerably greater than Washington State's population increase of 13% (Table 6-2). The higher rate of growth in Clark County affected the total Portland-Vancouver growth rate. This is an important aspect, as the strict regulations of Oregon and Metro do not reach Clark County, because it is situated in Washington State. Critics say that Clark County is getting the spill-over that the strict regulations of Metro and Oregon push out. The areas north of the Columbia River are definitely more sprawled than those in the Oregon part (more in chapter 6.4).

[14] The data was collected from the homepages of the respective administrative bodies.

[15] CMSA's are groups of MSA's that are socially and economically interrelated. A PMSA is the name for an MSA that is part of a CMSA (www.judydiamond.com/msa.html). As soon as a metropolitan area stretches beyond the boundaries of a county, the whole county is part of the MSA. Before the recent redefinition of metropolitan boundaries, the Portland Consolidated Metropolitan Statistical Area (CMSA) included the Salem MSA (Marion and Polk Counties) situated south of Portland. Salem is the county seat of Oregon, with mostly governmental and agricultural functions. The MSA of Salem comprises 380,000 people (2007) and is situated 35 miles south. The Salem MSA has been excluded.

In Oregon, Washington County was the fastest growing county in metropolitan Portland in both absolute and relative terms. Washington County population increased by 43% between 1990 and 2000, Yamhill County was the second fastest growing county in relative terms (increasing 30%). The "center county" Multnomah grew by 13%, which was the smallest change in relative terms of metropolitan Portland counties (Institute for Metropolitan Studies 2007, p.8).

Table 6-2 Population Growth in Portland Metropolitan Area[16]

County	Population in 2000	% Change 1990-2000
Clackamas	338,391	21.4
Columbia	43,560	16.0
Multnomah	660,486	13.1
Washington	445,342	42.9
Yamhill	84,992	29.7
Clark (Washington)	345,238	45.0
Total Portland-Vancouver PMSA	1,918,009	26.5

Source: Meyer & Provo 2004, p. 11

Population Densities

Population densities vary over the metropolitan region. Downtown is very dense and "urban", but densities tend to fall immediately after leaving the downtown area. The outer areas of the central city have densities which are comparable to or slightly higher than those of suburban areas at the metropolitan periphery. These are made up by well-known suburban neighbourhoods, but newer, dense infill developments, are visible. The most radical changes can be found in Transit Oriented Developments (see chapter 0). Table 6-3 gives an overview of the densities in selected neighbourhoods:

Table 6-3 Population Densities in Portland Metropolitan Area

Established Neighbourhood or Locale	Persons per Acre 1990	Persons per Acre 2000	% Change 1990-2000	description
Beaverton	10.4	11.7	13%	Subcenter in the West
Gresham	5.8	7.5	29%	Low density suburb in the East with high density infill
Hawthorne	15.2	14.6	-4%	Dense district in the central Southeast
Hillsboro	6.3	7.1	13%	Subcenter in the West
Hillsboro new neighbourhood	1.9	9.4	395%	TOD in the Northwest
Irvington	14.0	13.5	-4%	Mid-status neighbourhood in the eastern rural fringe
NW 23rd Avenue	33.2	37.0	11%	New Urbanist development in the central Northwest
Oak Grove	5.5	5.8	5%	Low density rural fringe suburb in Clackamas County
Outer SE Portland	9.5	10.7	13%	Middle Class suburbia adjacent to the center
Pearl District	4.8	10.7	123%	Urban renewal district in the center
Sherwood	0.7	3.0	329%	Low density upper class neighbourhood in the South

Source: Metro 2003 p.5, adapted

[16] The "center" counties (Tri-Met) are marked grey.

Migration

Migration accounted for more than two-thirds of the area's population increase from 1990 to 2000 and provided more than half of the increase for each of the area's counties. The following table sheds a light on the numbers of in- and out-migration between 1995 and 2000. The center, Multnomah, is the only county with a negative net migration of 55,885 people between 1995 and 2000. The strongest in-migration was found in an urban fringe area: Clark County, outside Metro's boundaries.

Table 6-4 Migration in the Portland Metropolitan Area

	To	From	Net Migration
Clackamas County	80,465	68,021	12,444
Columbia County	9,647	8,504	1,143
Multnomah County	130,037	185,922	-55,885
Washington County	111,386	79,300	32,086
Yamhill County	20,489	16,046	4,443
Clark County	95,722	55,631	40,091
all	447,746	413,424	34,322

Source: US Bureau of the Census, migration data 1995-2000

Concentrating on out-migration from the Oregon counties of the MSA to Clark County, it is a striking fact that substantially more people move to Clark County than vice-versa. It is also remarkable that especially the more wealthy households move out. One reason may be that Washington has no income and property tax as Oregon has, whereas Oregon has no sales tax like Washington. By living and working in Washington and shopping in Oregon, the "best tax case" can be reached. Job/population balance, though, is not projected to be reached in Clark County (see Table 6-7).

The average household income from Multnomah-Clark movers was about 25% higher than that of the Clark-Multnomah movers (Portland-Multnomah Progress Board 2000, p.1)

Table 6-5 Migration from and to Clark County (1995 – 2000)

from	to Clark County
Clackamas	3.418
Multnomah	13.475
Washington	4.544
Yamhill	319
Columbia	414
all	22.170
from Clark County to	
Clackamas	1.379
Multnomah	4.855
Washington	1.722
Yamhill	325
Columbia	233
all	8.514
Net migration	13.656

Source: US Bureau of the Census, migration data 1995-2000

Immigration

The metropolitan Portland area population has a less diverse population than other major population areas in the United States or on the West Coast. Metropolitan Portland's minority population constituted 20% of the metropolitan population in 2005. For metropolitan areas with population greater than one million, the U.S. average was 36%. There have been gains in the minority population in every county in the metropolitan area since 1990, though. Especially the Asian Population is growing intensely due to inmigration, but other racial groups are doing the same. In general, distribution over the metropolitan area has become less concentrated over the last years.

6.1.4 Economy

The Portland-Vancouver metropolitan region operates as a regional market for labour, housing, entertainment, goods and services. The communities are dependent on each other to provide workers, jobs, goods and the like. The main branch is trade, transport and utilities, followed by professional, business & other services. Electronics and high tech industry are a growing sector and pushing manufacturing and public service jobs. "*All in all, the suburban industrial profile overall is closer to Austin, Texas than to traditional Oregon communities*" (Abbott 2004, p.112). Business and transport facilities (port!) are located mainly in the central city, whereas trade spreads out along the main streets too. Electronics and high tech are more decentralised, but tend to locate in the suburban southwest. Industry is mostly spread out.

Table 6-6 Employment in the Portland Metropolitan Area

Portland-Vancouver MSA, Employment by Sector	
Trade, Transportation and Utilities	20%
Professional, Business & Other Services	17%
Government	14%
Manufacturing	13%
Education & Health Services	12%
Information, Financial & Real Estate Services	11%
Leisure & Hospitality Services	9%
Construction & Mining	6%

Source: Portland Planning Commission 2007, p.5

The strongest job and population growth is projected for rural fringe county Clackamas (116%). The Multnomah subareas are the central areas of the region and have little, but positive growth in population and jobs. For an American city, the center of Portland is surprisingly strong. 42 % of the employment of the Portland-Vancouver MSA are located in the central city, 58% in the suburbs. For comparison: In the Cincinnati MSA, 33% are in the central city and 67% in the suburbs (Mayer & Provo 2004, p.22). The great population growth share of Pleasant Valley, a rural fringe area in the south-east of the region, is due to new development projects.

Table 6-7 Population and Job Growth Projections in the Portland Metropolitan Area

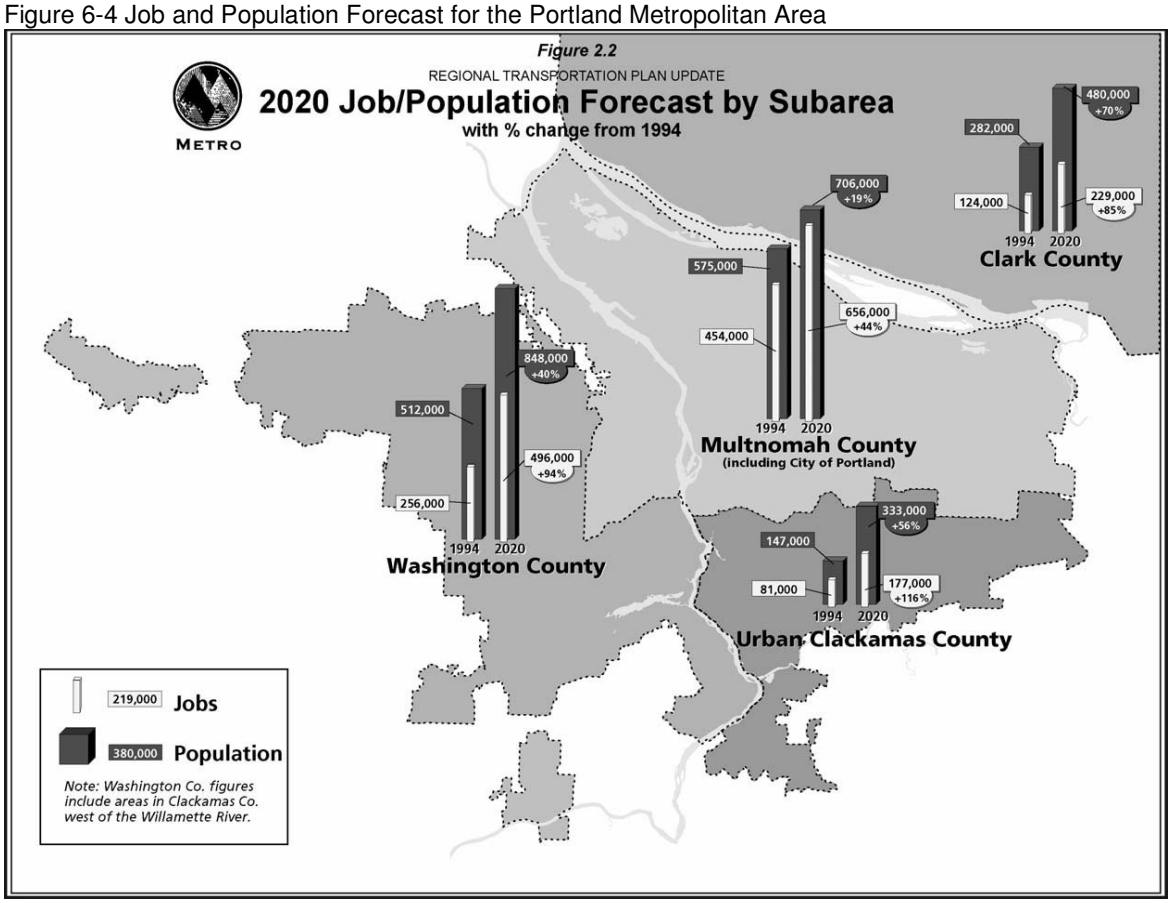
Combined RTP Subarea	Population			Employment		
	1994	2020	Increase	1994	2020	Increase
Multnomah County subareas						
Portland Central City	376,495	428,309	+ 14%	334,882	449,548	+34%
West Columbia Corridor	9,465	18,899	+100%	51,010	98,497	+93%
East Multnomah County	188,734	258,694	+37%	68,195	107,610	+58%
Sub - total	**574,694**	**705,902**	**+23%**	**454,087**	**655,655**	**+44%**
Clackamas County subareas						
Urban Clackamas County	133,322	207,615	+56%	77,691	143,500	+85%
Damascus/Pleasant Valley	13,425	125,397	+834%	3,908	33,084	+746%
Sub - total	**146,747**	**333,012**	**+127%**	**81,599**	**176,584**	**+116%**
Washington County subareas						
North Washington County	229,807	368,064	+60%	134,090	293,477	+119%
South Washington County	195,111	264,722	+36%	122,156	202,873	+66%
Sub - total	**424,918**	**632,836**	**+49%**	**256,246**	**496,350**	**+94%**
Clark County, Wash.	**282,437**	**480,387**	**+70%**	**123,759**	**228, 523**	**+85%**
Areas outside the UGB[17]	**123,868**	**196,806**	**+59%**	**31,956**	**53,844**	**+68%**
Total Region 4-county	**1,552,664**	**2,348,943**	**+51%**	**947,647**	**1,610,956**	**+70%**

Source: Metro 2004, p.2-7

The rural Clackamas County subarea is predicted to have the strongest population growth, which is expected to be bigger than job growth. This will have severe effect on commuting patterns.
Clark County, Washington, falls further behind the rest of the region in terms of having a balanced mix of jobs and housing. Job growth is stronger than population growth, but still not enough to balance.
Fringe areas outside the boundary experience strong growth in both fields (59% in population and 68% in jobs).
Figure 6-4 (see next page) summarizes predicted growth of households and jobs by RTP[18] subarea, indicating the proportion of the region's total growth in households within each subarea.

[17] "*These figures include growth in small cities and rural residential land uses that fall within the 1,260 transportation analysis zones used for RTP modeling. In addition, some of the growth that is expected outside of the urban growth boundary is part of the expected expansion of the current urban growth boundary* " (Metro 2004, p.2-7).
[18] Regional Transportation Plan

Figure 6-4 Job and Population Forecast for the Portland Metropolitan Area



Source: Metro 2004, p.8

6.1.5 Housing Types

Housing types differ between downtown, central city areas, Transit Oriented Developments, infill sites and average suburban areas.

Areas in downtown Portland are of high density and a vibrant center is visible: high rise buildings, grid-system streets, urban functions at pedestrian scale and ground floors that are in use.

As already mentioned, housing types change and densities fall immediately after leaving downtown; changing to lower rise mixed use areas and free-standing single-family houses which are, in some areas, only slightly denser than the average suburban lot.

Figure 6-5 Central City Main Street outside Downtown (heading downtown)

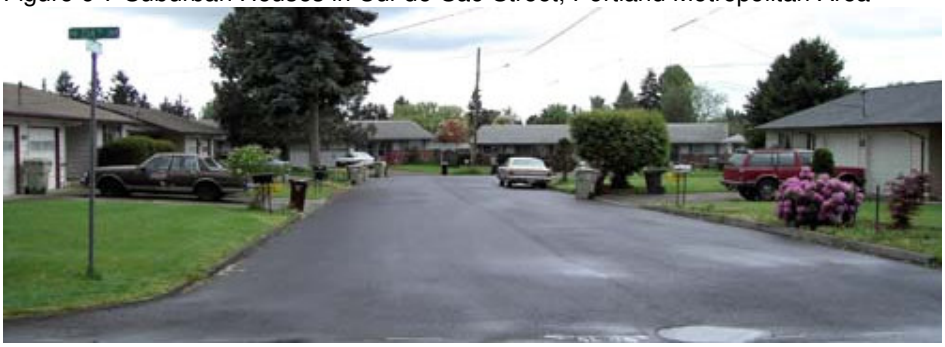
Source: author

Figure 6-6 Central City Single-Family Housing (inner southeast)

Source: author

The average suburban, white middle-class single-family house is basically a one-storey building on a rather large lot, consisting on front- and backyard and a garage. In some areas, more lots tend to be fenced, but generally, the yards remain open. Quite often, the houses are organised in typical cul-de-sac streets designed for abutter traffic. The connecting streets tend to be very wide, as they all are designed for two fire-trucks able to pass at a time.

Figure 6-7 Suburban Houses in Cul-de-Sac-Street, Portland Metropolitan Area



Source: author

Figure 6-8 Suburban Street, Portland Metropolitan Area

Source: author

Lots traditionally tended to be large – but this has ameliorated due to the land use restrictions of Metro. Before the installation of the UGB, the average lot size of vacant buildable land was about 13,000 square feet (~1200m²). Afterwards, it went down to about 8,700 square feet (~808 m²). Today it tends to be around 5,000-6,000 square feet (~500m²). Furthermore, housel demographics are changing due to an ageing population and a changing demand from younger households. The need for large, low density suburban housing is expected to be much less than it is now (cf. Seltzer, Ethan, Portland State University, personal interview on May 29, 2008).

All over the region- and also in suburban areas - infill sites on vacant or brownfield land can be detected. This is a result of Portland land use policies, designated to higher density (see Figure 6-9). The difference between the average suburban house and infill buildings is clearly visible.

Figure 6-9 Typical Structure of Neighbourhood with Infill; Aloha, Portland

Source: Google Earth

Figure 6-10 Typical Structure of Neighbourhood with Infill; Aloha, Portland

Source: author

Figure 6-11 Dense New Area Development in Portland

Source: author

Newer housing developments and infills have comparably very small lots and several floors, which is usually not typical for American suburbs. The architecture of suburban infill sites is in general like the one visible on the pictures. They are always oriented on the basic structure of the single-family- house. Few projects “dare” using other architectural concepts. These areas usually contain only housing functions.

Transit Oriented Developments are organised a bit different, as they are designed to contain more and higher functions, such as public transport, shopping, recreation. Their architecture usually underlines this difference too (see chapter 6.2.4).

Household incomes

The household incomes per person are comparably high in Multnomah County (City of Portland) and Clackamas. The more rural, less affluent areas are the urban fringe counties of Yamhill and Skamania.

Table 6-8 Personal Incomes in the Portland Metropolitan Area

Portand-Vancouver MSA per capita personal income	2005, $
Portland-Vancouver MSA	35,430
Multnomah County	37,798
Washington County	34,626
Clackamas County	39,729
Clark County	31,089
Yamhill County	28,713
Columbia County	29,111
Skamania County	25, 817

Source: Portland Planning Commission 2007, p.8

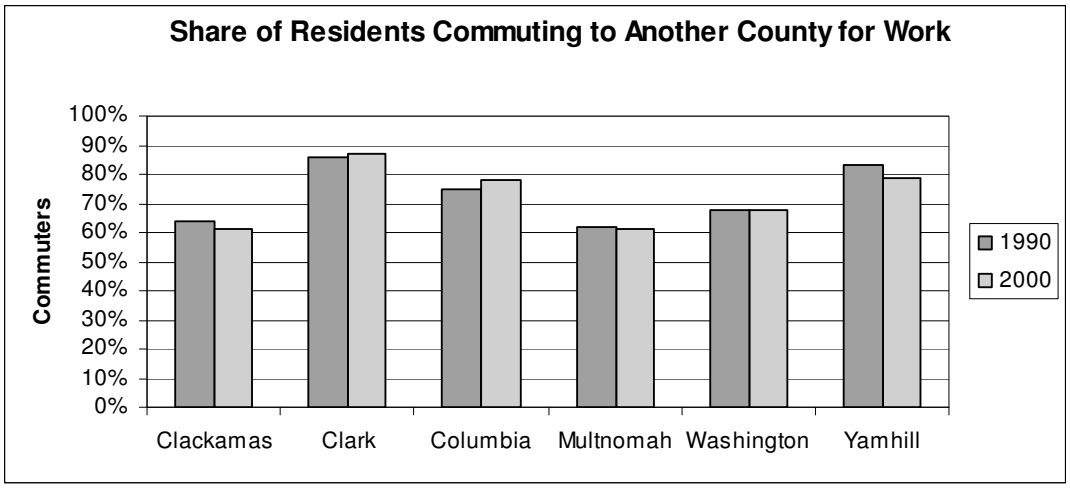
In the city of Portland, West Portland has the highest housing prices (as it includes downtown). Southeast Portland, though, has some of the lowest housing prices in the whole metropolitan area.

The highest median housing prices in the region are found in Lake Oswego, West Portland, Wilsonville and Clackamas. The lowest prices are found in Clark County, which is seen as reason for the relocation of middle class to that area. Housing prices are rapidly dropping in that area, too. A more detailed analysis will be conducted in chapter 6.2.

6.1.6 Commuting

Commuting patterns and types of travel are comparably diverse. The main commute point for office and port work is the city center, most of the important electronics industry jobs are located in the western suburbs. The table below implies a lack of jobs especially in Clark County and the rural Yamhill County. In both, about 80% of the inhabitants commute to another county for work.

Figure 6-12 County-to-County Commuting



Source: Metro 2004

In 2005, 73% of the workers 16 years and older in the metropolitan statistical area drove alone to work by car. The rate of transit commuting is considerably lower – about 6%. In the TOD-settlements (like Orenco Station), this number is around 18% (Adler & Dill 2004, p.247). In the Oregon part of metropolitan Portland, about 0.8% of the commuters drive to work by bike.

6.1.7 Land Use

The main driver for space-saving planning and development in the Portland area seems to be the maintenance of farm and environmentally valuable land outside the Urban Growth Boundary. In public opinion research of 2006, the priorities of planning were the following:

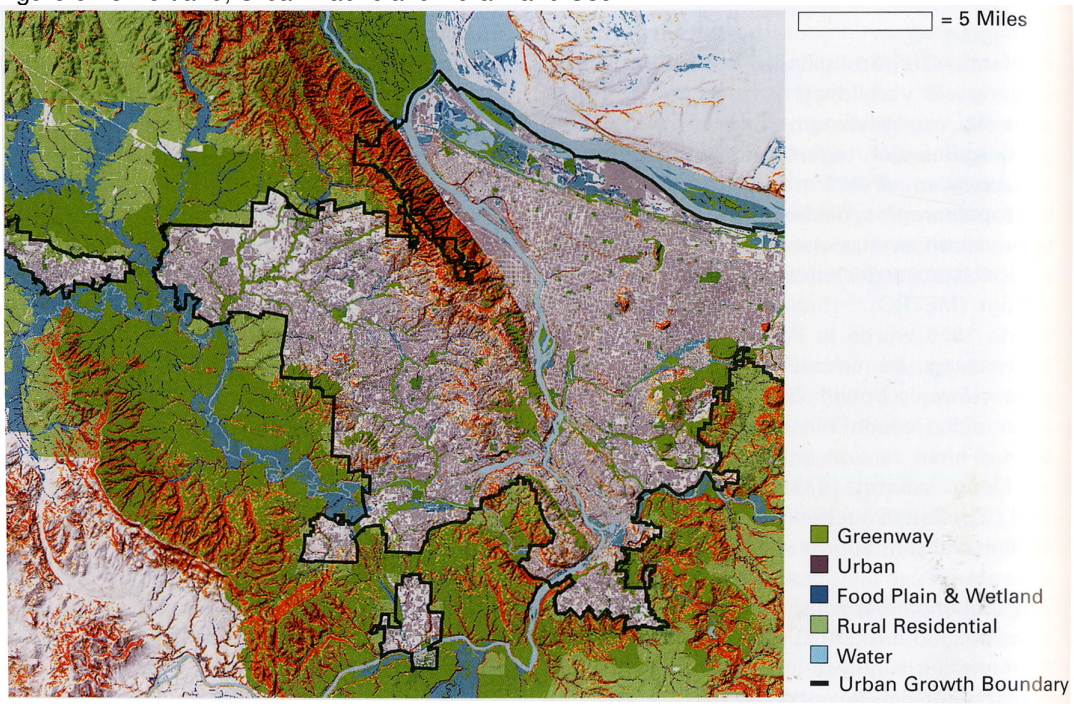
Table 6-9 Public Opinion: Most urgent/high priorities among planning goals over 10 years

Protecting regional rivers and streams	78%
Protecting air quality	74%
Preserving farm and forestland	71%
Protecting existing neighborhoods	64%
Building new roads and highways	46%
Nurturing citizen commitment to community and civic involvement	44%
Acquiring open space for recreation and enjoyment	40%
Building light rail extensions	38%
Revitalizing town centers	23%
Opening up farm and forestland for new and expanding businesses	10%

Source: Davis, Hibbitts & Midghall 2006, p.20

Environmental protection goals are the most important – they make up the first three, whereas “Opening up farm and forestland for new and expanding businesses” is on the last place. Most of the land outside the growth boundary is preserved for nature and farm use. In Figure 6-13, the clear border between urban fabric and countryside is visible in the Oregon part.

Figure 6-13 Portland, Urban Fabric and Rural Land Use



Source: Schönig 2004, p.94

From 1982-1997, urbanised land in the Metropolitan Area grew by 32%, whereas the population grew by 49%. This is a sign that new settlements are developed in a denser way – less space is consumed per person (Metro 2003, p.6). Table 6-10 shows that single family units as well as multifamily ones have been developed in a denser way recently.

Table 6-10 Development of Single-Family Density in the Portland Metropolitan Area

Year	New Single-Family Density	New Multi-Family Density
1990	5.9 homes/acre	16.4 homes/acre
2000	6.2 homes/acre	21.6 homes/acre
Year	New Residential Land devel. inside UGB	Population accomm. inside UGB
1990	1,468 acres	22,000 people
2000	1,087 acres	32,970 people

Source: Metro 2003, p.6

Until 2020, 202,700 dwelling units will be needed according to prognosis, which means a shortfall of about 20,000 units. Metro is aware that this shortfall can be met on several ways: UGB expansion, redevelopment/densification inside the boundary or a mixed way. Reluctance of some inhabitants to “receive” more densificated development in their neighbourhood is visible in some parts of the city (cf. Metro 2002, p.13).

6.1.8 Transport Infrastructure

A main step in the evolvement of Portland's infrastructural system was the refuse of the Mount Hood freeway, a part of Interstate 84, which would have run through downtown and southeast Portland to the suburb of Gresham. It was rejected by public vote, as it would have required the destruction of several long-standing Portland neighbourhoods and one percent of the Portland housing stock. The money freed from this project was spent on the construction of MAX light rail system, which forms the mass transit system together with the Portland streetcar, and is still being expanded: in 2008, the commuter rail in Washington County will be opened, spreading from Beaverton to Tigard to Wilsonville.

Another important step was the reintroduction of the streetcar in 2001: in downtown Portland, densities are high enough to run streetcars. These are integrated with the light rail system, which consits of 3 lines: one crossing the metropolitan areas from the far East (Gresham) to the far West (Hillsboro). The second one connects the western suburb Beaverton with the airport in the Northwest, a third one connects downtown with the northern Expo Center. All of the MAX lines cross downtown and usually run every 15 minutes.

The transport system can be seen in the maps already given. The city center is a fareless square, comprising all of downtown. Bicycling is also forced intensely: Bikes can be carried on buses, trams and Metro trains for free and bike "pressure groups" are keeping the topic in the media.

The 1994-95 Portland Household Activity Survey found that 84% of all personal trips were made in personal vehicles, while 8% were made walking, 3% on transit, 4% on school buses, and 1% on bicycles. For commute trips, people are more likely to use transit and less likely to walk, compared to all trips (cf. Institute of Portland Metropolitan Studies 2007, p.51). The share of transit riders was 2.3% in 2002 (O'Toole 2007).
Growing car stocks and more people driving, combined with no major investments in road infrastructure (as part of the Smart Growth strategy), have led to growing congestion and the need for measurements. According to the Texas Transportation Institute, the region ranked 11th nationwide in 2000 in terms of "Travel Time Index" – a measure of congestion on highways and freeways- and 6th among urban regions of comparable size. In 1982, the region ranked 32nd (Adler & Dill 2004, p.251).

Currently, a fourth light rail line Downtown-Southeast as well as an eastward streetcar expansion is projected. A second Columbia River Crossing (street, cargo, transit) is under discussion (see chapter 6.1.10).

6.1.9 Green Space

There is no "Green Belt" as such, as this function is exercised by the Urban Growth Boundary, which protects farmland and green/open space outside of Portland (see chapter 6.2.5). Green and open space is situated all over the city, and due to large lots also highly privatised.

Though, Metro and several nearby cities including Canby and Sandy have existing agreements that prohibit new non-rural development along established "green corridors." However, recent decisions to expand the region's urban growth boundary have pushed potential development into those "green corridors."

There are two national parks in the west – Mount Hood National Forest and Gifford Pinchot National Forest which restrict growth on the long run. Forest Park is among the largest wilderness parks within city limits in the United States, covering over 5,000 acres (20 km²). Tom McCall Waterfront Park runs along the west bank of the Willamette for the length of downtown. The 37 acre (150,000 m²) park was built in 1974 after Harbor Drive was removed. This was, like the rejection of the Mt. Hood Freeway, initiated by citizens (cf. Mayer & Provo 2004, p.18).

Voters of the region are obviously well aware of the importance of green and open space: In 1995 a $135.6 million bond measure was approved by over 60% of the region's voters (Oregon) with which Metro purchased 8,140 acres including 74 miles of river and stream riparian areas and added to the expanding regional trail network (Institute of Portland Metropolitan Studies 2007, p.39).

The region's voters approved another $227.4 million bond in November 2006, which will allow for the acquisition of another 5,000 acres of natural areas and trail corridors by Metro as well as park, trail and natural area projects by local park providers with their $44 million share of the regional bond.

6.1.10 Present Developments in the Fringe

Currently, there are no big projects realised in fringe areas, most of construction activity is located downtown. Nevertheless, there are several projects affecting the fringe: the fourth light rail line from Downtown to Southeast, as well as an eastward streetcar expansion and the second Columbia River Crossing (street, cargo, transit):

The current I-5 bridge connecting Clark County, Washington and Portland center is characterised by traffic problems lasting several hours each day. Several alternatives are under discussion, with and without light rail and cargo connections. The Columbia River Crossing project is not yet elaborated in detail, but severe impact on the urban area is expected. The bridge will connect two parts of the urban area – the southern center and the northern fringe area of Clark County across the State border - which are expected to get more and more interwoven over the next years.

The light rail to Southeast means an important improvement of transit accessibility of this area. It is an important step of the (at present state) restricted outreach of the light rail and will initiate further higher density development along the line. This is especially important because this area is highly dependent on downtown.

The eastward streetcar expansion goes along with the MAX expansion and results in better accessibility of a big car dependent, suburban area.

6.2 PLANNING AND SPRAWL CONTAINMENT IN PORTLAND

The Portland region has adopted numerous and encompassing measures for sustainable urban development and sprawl containment. Anti-Sprawl planning draws through most of Portland's planning documents, strategies and measures – it is a much more present topic than in Vienna. Due to the fact that the functional urban region (the Oregon side of it) is part of a comprehensive land use model – the Metro region - there is not the same need for cooperation platforms or coordination measures as in Vienna, where the fringe areas extend over several administrative boundaries. The strength of the Portland model is its power to apply integrated and comprehensive strategies in various fields of urban development and in all the physical parts of the metropolitan area. So, strategies can be bundled and enforced to serve urban containment and positive development of fringe areas.

As described in the earlier chapters, the Portland fringe also looks significantly different from the Viennese one. Due to this, the expressions used in planning documents are serving other functions: inner and outer neighbourhoods, strip malls or transit corridors. The expression "urban fringe" is used very seldom.

Due to the integration of the measures, it is impossible to separate the overview of the planning documents from the "strategies on sprawl", as it was done in the Vienna chapter. Thus, this chapter gives an overview of the most important general strategies and documents in the Portland area and their implications for anti-sprawl planning.

The "core measure", the Urban Growth Boundary, will be analysed in detail in chapter 6.2.5.

6.2.1 Legal Framework for Planning

Portland is known nationwide as example for outreaching top-down planning with an emphasis on Smart Growth. Benfield et al. (1999, cited in Song & Knaap 2004, p.210) state that "*Portland has become a sort of living laboratory for efficient urban planning and living. The results are benefiting both the environment and the region's economy*". This is only possible on the foundation of Oregon's strict state laws, which provide engaged baselines for this kind of planning.

The Planning System in Oregon (cf. American Planning Association 2002, p. 106)

In the USA, the national state has passed on planning duties to the federal states. The land-use planning system in Oregon is administered by the State Department of Land Conservation and Development and an appointed board, the Land Conservation and Development Commission. It was enacted in 1973 and has, so far, adopted 19 planning goals as well as detailed regulations. The planning goals address most of the important issues of Oregon including land use planning, citizen involvement, urbanisation, housing et cetera.

Through its land use program, Oregon addresses all uses. Local authorities have to carry out the statewide goals through city and county *comprehensive plans*. The plans have to be consistent with these goals and apply to local governments, special districts and state agencies. Coordination is mandated.

Decisions made by cities, counties and regional planning are appealed before a land-use quasi-court. This Land Use Board of Appeals has a mandate to reverse or remand decisions that violate proper procedure, a local comprehensive plan or the state goals.

Local comprehensive plans, like the Viennese STEP, guide land use, conservation of natural resources, economic development and public services. They also contain factual information, long-range objectives and politics as well as - which is different from the STEP - detailed objectives and strategies. Before adopting, the Land Conservation and Development Commission reviews each proposed city and county plan for proper implementation of the state goals. The Commission can reject the plans or impose other sanctions (e.g. block distribution of certain taxes).

State-wide planning goals require local governments to inventory their lands, project future land requirements and zone accordingly to meet affordable housing needs.

Since 1973, every city and metropolitan area state-wide is required to set an *urban growth boundary* to limit urban expansion. Inside, housing at all income levels and multifamily housing has to be provided and certain levels concerning density have to be set. These should be higher in areas with greater growth potential (cf. Chapman & Lund 2004, p.206). Since 1995, cities and metropolitan areas have to work out plans to meet housing needs for a 20-year-period and adopt the growth boundaries accordingly. So, boundaries include built-upon land as well as enough undeveloped land for the next 20-year period. The areas outside the boundaries are designated to rural and agricultural uses. Local governments must monitor land supply and periodically consider adjustments to their growth boundaries (more detail in chapter 6.2.5).

For example, the Land Development and Conservation Commission has established minimum density requirements of 10 dwelling units per net acre in Portland and six to eight dwelling units per net acre in outlying suburban areas. Of the state's 28 million acres, about 2 million acres are within growth boundaries (American Planning Association 1999, p.47).

Another important legal basis is the *Oregon Transportation Planning* Rule (TPR), which enabled the regional government Metro with a legal tool to promote the 2040 plan, redirect transportation funding to non-road capacity projects and convince cities and counties to adopt supportive plans (see below).

On the basis of this strong pro-Smart Growth state law, the regional government for the Portland area - Metro – builds its more detailed regulations (see below). The competencies of Metro are nevertheless described in its charter and not by state law. The relationship state – Metro – communities can be described as a very complex "triangular" one (cf. Deffebach, Christina, Metro, personal interview on June 27th, 2008). In some areas, communities appeal directly to the state, in some areas to Metro. The system is currently under discussion.

6.2.2 Regional Scale Planning and Sprawl Containment – Metro

"Metro", the main element of urban-regional planning in the Portland region, is the nation's only directly elected regional government. It is based on a regulation of the United States congress, demanding each urbanised area bigger than 50,000 inhabitants to establish a Metropolitan Planning Organisation. MPOs are designed in a very different way all over the nation, there are organisations with a wide range of power (e.g. Portland's Metro) and such with little (e.g. Cincinnati's OKI).
Metro is the main body dealing with anti-sprawl measures and growth management in the Portland metropolitan area. Different to the Vienna region, this regional level has legal power and works out detailed objectives, strategies and measures for the urban region, and the local level has to adjust to. It is basically subordinate to the state, but rather independent in some areas. It bases its policies on Oregon State prescriptions and the Metro charter.

Metro's planning area comprises over 1,200 km², 1.4 million residents and 42 cities, including Portland, and was formed in 1979 by popular vote. It is charged with regional land use and transportation planning and established and maintains the *urban growth boundary* - which is its main responsibility. The Portland metropolitan area growth boundary is the joint growth boundary of the comprised 24 cities, which are obliged to have such a boundary due to state law. The area governed by Metro is mainly that of the Urban Growth Boundary.

Furthermore, it allocates federal transportation funds to projects in the region (which is the original purpose of MPOs all over the nation) and handles area parks, public facilities and solid waste disposal.

METRO consists of

- a council (with 6 members elected from districts)
- an appointed manager
- a presiding officer elected-at-large
- a standing system of policy advisory committees

Although it lacks authority to zone and impose subdivision regulations, Metro can require local governments to revise their plans and regulations if it finds that they do not serve regional goals and prescriptions, which are defined by Metro (see below).

It is again important to mention that the jurisdiction of Metro stops at the state border to Washington. The Vancouver part of the MSA, Clark County - element of the functional urban area - is not covered by any of Metro's jurisdictions or plans and is actually under Washington State Law, which has much weaker regulations on sprawl.

Metro's Instruments for Regional Planning and Sprawl Containment

A clear objective of most of Metro's planning instruments is sprawl containment. As already mentioned, this is why this chapter provides an overview of the relevant concepts and plans. The main measure, the Urban Growth Boundary, will be analysed in depth in chapter 6.2.5. It is a core measure built into an elaborate system of strategies and measures affecting different fields of metropolitan development. Without those complementary tools, the UGB alone would not be capable of reaching the goals set.

Complementally to **The Urban Growth Boundary,** Metro worked out

– **The Region 2040 Plan**

The Region 2040 Plan is the main development vision and guideline of the Portland Region. Its content is binding for the municipalities in the region.
Through a process of extensive outreach, Metro – in 1991 - developed a 50-year vision of how and where the region should manage expected growth. It is a framework for the UGB and based on the RUGGOS (regional urban growth goals and objectives), which were developed jointly with citizens and stakeholders in the region. Those were the first steps towards the Region 2040 Plan and have formed its underpinning.

To cope with growth of inhabitants and jobs within the UGB, the 2040 plan encourages redevelopment of areas inside the growth boundary, especially in designated urban centers and transit corridors. Following principles of New Urbanism, the goals of the concept include the development of a multinucleated compact urban form, the development of a multi-modal transport system and the designation of mixed-use regional and town centers. The proximity of nature is a further important point. The concept takes a broader region – including Clark County - into account.

Its principles are the following (cf. Chapman & Lund 2004, p. 207)

- Fundamental 1: Encourage a strong local economy by providing an orderly and efficient use of land, balancing economic growth around the region and supporting high quality education

- Fundamental 2: Encourage the efficient use of land within the UGB including buildable industrial and commercial land and focus development in 2040 mixed use centers and corridors.

- Fundamental 3: Protect and restore the natural environment including fish and wildlife habitat, streams and wetlands, surface and ground water quality and quantity, and air quality

- Fundamental 4: Provide a balanced transportation system including safe, attractive facilities for bicycling, walking and transit as well as for motor vehicles and freight.

- Fundamental 5: Maintain separation between the Metro UGB and neighboring cities by working actively with these cities and their respective counties.

- Fundamental 6: Enable communities inside the Metro UGB to enhance their physical sense of place by using among other tools, greenways, natural areas, and built environment elements.

- Fundamental 7: Enable communities to provide diverse housing options for all residents by providing a mix of housing types as well as affordable homes in every jurisdiction.

- Fundamental 8: Create a vibrant place to live and work by providing sufficient and accessible parks and natural areas, improving access to community resources such as schools, community centers and libraries as well as by balancing the distribution of high quality jobs throughout the region, and providing attractive facilities for cultural and artistic performances and supporting arts and cultural organizations.

As main building blocks of the regional strategy of growth management, the concept defined 10 urban design types *Central city, Regional Centers, Station Communities, Town Centers, Main Streets, Corridors, Employment Areas, Industrial Areas, Regionally Significant Industrial Areas, Inner Neighborhoods, Outer Neighborhoods*. The concept denominates and characterises them, reassigns their functions, gives some design guidelines and allocates them to the regional territory. Their implementation is due to the Urban Growth Management Functional Plan and the communities' comprehensive plans (see below).

Public Involvement and Public Opinion

Through its extensive citizen involvement process, ongoing advisory committees of public and private sector stakeholders were formed. Citizens were invited to comment on and make suggestions for the four 2040 growth scenarios and proposed development alternatives; public hearings and workshop were held, the project was publicised on cable TV and through the news media, newsletters were mailed to area households, presentations were held to local governments and civic organisations. This resulted in over 17,000 comments and suggestions (cf. Seltzer 2004, p.43).

The development model selected by Metro received extensive public review, and videos and information material about it were broadcasted for no charge through a regional chain of video rental stores. Other ways of broadcasting the 2040 Plan as well as other urban planning issues have been used too: articles in free newspapers, presentations, mailings etc. The assessment of achieving the goals – in a periodic review – is also accessible by anyone. This results in the "average" Portlander being aware of urban planning issues and the role of the individual. It could even be called a certain special "spirit" in the city – sociology of the spot – which is made up by environmental awareness and interest in planning issues. This is a fundamental difference to, e.g., Vienna.

In a survey of regional attitude made in 2006 (cf. Davis, Hibbits & Midghall), 49% of the interviewed people "agreed strongly" that "*Land use regulations are an essential tool in protecting our area's quality of life." , 34% "*agreed somewhat". Planning in general is very respected, and combined with a high degree of public involvement and voluntary action, is seen as a precious feature of the environmentally aware community that Portland aims to be (cf. Deffebach, Christina, Metro, personal interview on June 27th, 2008). Of course, this spirit varies over the metropolitan area – the dense, "urban" downtown with its different social structure comprises other levels of interest than the suburbs.

Figure 6-14 2040 Growth Concept, excerpt

Source: Metro, adapted; scale ~ 1: 330.000

– **The Regional Framework Plan**

In 1997, METRO adopted the Regional Framework Plan, which was expected to be the document that unified all of METRO's regional planning activities. The last amendment was made in 2005.

While the Functional Plan (see below) is the implementation vehicle of the 2040 concept and sets out requirements for cities and counties, the Regional Framework Plan is seen as integrated framework for the direction of growth management. It is deduced from the Metro charter and based on the RUGGOs and the Region 2040 concept (which is mainly a plan including descriptions). The RFP is the text document that forms the foundation for Metro's jurisdiction over matters of metropolitan concern.

It includes policies on land use, transportation, parks and greenspaces, water and air quality, natural hazards planning and management and implementation issues. The plan also addresses coordinating these policies with Clark County, Washington (cf. Metro 2000). Recently, a system of regionally significant industrial areas (RIA) has been developed and integrated in the plan. This plan can be compared with the STEP concerning grade of detail and wideness of content.

The objective was a coordinated, integrated plan for accomplishing the Region 2040 concept. It is a catalogue of guidelines and strategies concerning urban development. "*In essence, the Regional Framework Plan would be a collection of regional functional plans* [see below, author's note]*, implemented through a combination of local actions and METRO activities*" (Seltzer 2004, p. 50).

Table 6-11 Excerpt of Regional Framework Plan

Policies

The following section contains the policies for land use. It should be noted that implementation of these policies is through the Urban Growth Management Functional Plan and Chapter 3.01 of the Metro Code (Urban Growth Boundary), Metro's functional plans that include recommendations and requirements for cities and counties of the region.

1.1 Urban Form

It is the policy of the Metro Council to:

1.1.1 Balance the region's growth by:

a. Maintaining a compact urban form, with easy access to nature.

b. Preserving existing stable and distinct neighbourhoods by focusing commercial and residential growth in mixed-use centers and corridors at a pedestrian scale.

c. Ensuring affordability and maintaining a variety of housing choices with good access to jobs and assuring that market-based preferences are not eliminated by regulation.

d. Targeting public investments to reinforce a compact urban form.

Source: Metro 1997

As already mentioned, the implementation vehicle of the 2040 plan is the

- **Urban Growth Management Functional Plan**,

which was adopted in November 1996. It contains binding targets and performance measures according to the goals of the 2040 concept - and required cities and counties to adopt their comprehensive plans accordingly. Through the UGMFP, Metro enacts its land use planning. In terms of transport, the Regional Transportation Plan covers the functions of Urban Growth Management Functional Plan.

The UGMFP is section 3.07 of the METRO Code and comprises the following points (www.metro-region.org)

- the accommodation of projected growth in the local comprehensive plans
- a regional parking policy
- water quality and floodplain management
- regulations of new large-scale retail developments
- coordination with neighbouring cities
- coordination of transportation and land-use planning
- affordable housing program recommendations

Metro sets frameworks and benchmarks (e.g. allocation of housing, general boundaries for centers etc.) – and the municipalities rest with the detailed planning to fulfil the requirements of Metro's plans. For the housing goals, for example, communities calculated their growth and delivered it to Metro, who made it a compulsory growth objective in the Functional Plan. The detailed allocation or concrete densities are left with the communities, who can get support in planning from Metro, if needed (cf. Deffebach, Christina, Metro, personal interview on June 27, 2008).

Metro gathers and analyzes data and determines the level of progress towards the goals. If the requirements are not fulfilled, Metro can set penalties (e.g. no money from tax refunding). Policies are being developed for adjusting the regional plans based on actual performance (cf. Metro 2000).

Below, excerpts of the Urban Growth Management Functional Plan are given as example for benchmarks.

Table 6-12 Excerpt of the Urban Growth Management Functional Plan

3.07.120 Housing and Employment Capacity

A. Each city and county shall determine its capacity for housing and employment in order to ensure that it provides and continues to provide at least the capacity for the city or county specified in Table 3.07-1, supplemented by capacity resulting from addition of territory to the UGB. Local governments shall use data provided by Metro unless the Metro Council or the Chief Operating Officer determines that data preferred by a city or county is more accurate.

B. A city or county shall determine its capacity for dwelling units by cumulating the minimum number of dwelling units authorized in each zoning district in which dwelling units are authorized. A city or county may use a higher number of dwellings than the minimum density for a zoning district if development in the five years prior to the determination has actually occurred at the higher number.

C. If a city annexes county territory, the city shall ensure that there is no net loss in regional housing or employment capacity, as shown on Table 3.07-1, as a result of amendments of comprehensive plan or land use regulations that apply to the annexed territory.

D. After completion of its initial determination of capacity, each city or county shall report changes in its capacity by April 15 of the first calendar year following completion of its initial determination and by April 15 of every following year.

Table 3.07-1
Zoned Capacity for Housing and Employment Units – Year 1994 to 2017
Section 3.07.120(A)(1)(b)

City or County	Dwelling Unit Capacity	Job Capacity
Beaverton	13, 635	21,368
Cornelius	1,285	3,054
Durham	243	522
Fairview	2,929	7,063
Forest Grove	3,054	5,943
Gladstone	880	1,569
Gresham[3]	20,020	27,679
Happy Valley[4]	5,705	1,418
Hillsboro[5]	16,106	59,566
Johnson City	38	82
King City[6]	461	470
Lake Oswego	4,049	13,268
Maywood Park	12	5
Milwaukie	3,188	3,650
Oregon City	9,750	8,298
Portland[3]	72,136	209,215
Rivergrove	20	0
Sherwood	5,216	9,518
Tigard	6,308	17,801
Troutdale	3,260	7,222
Tualatin[7]	4,054	12,301
West Linn	3,732	1,935
Wilsonville[2]	4,425	15,030
Wood Village	458	1,074
Clackamas County[1,3]	13,340	31,901
Multnomah County[8]	0	0
Washington County[1]	51,649	55,921
Regional Total	**246,053**	**516,873**

Source: Metro 1996, Section 3.07 - 12

Below, an excerpt of the 2004 annual compliance report is given as example (cf. Metro 2004a):

Compliance:

Titles 1 though 6

There are five jurisdictions – Gresham, Lake Oswego, West Linn, Wilsonville, and Clackamas County -- that have not yet met all of the requirements of Titles 1 through 6. Lake Oswego and West Linn are not in compliance for Title 3 Water Quality Resource Area Performance Standards. Gresham has not submitted a Centers progress report as required by Title 6 and Wilsonville has not submitted a capacity analysis required by Title 1. Lake Oswego and West Linn are working on their compliance requirements. Clackamas County is requesting an exception to Title 3 for a small portion of the county. Staff recommends that Gresham and Wilsonville formally be requested to attend the public hearing on compliance to explain to the Council the status of their compliance work and when the work will be completed.

- **Regional Functional Plans**

Metro has not been given the authority to engage in comprehensive land use planning, but it has the authority to develop regional functional plans. These plans address one or a narrow set of issues of regional significance, e.g. regional industrial areas. Metro has the power to require changes in local comprehensive plans to make them consistent with regional functional plans. "*This is an astounding power for a regional agency in this country, more so because of the fact that comprehensive plans are such central legal and policy documents for Oregon communities*" (Seltzer 2004, p.38).

- Further concepts are the **Regional Transportation Plan (RTP)** and the **Green Space Master Plan (GSMP).**

The RTP (adopted in 2004) defines regional policies that all transportation plans of city, county, TriMet (the regional transport association), Oregon Department of Transportation and Port of Portland transportation plans must follow. Through financial constraints and priority systems, the plan identifies transportation projects and programs throughout the region for the next 20 years to implement the region's 2040 Growth Concept, and addresses the impacts of future growth on the transportation system. The plan must also meet federal and state requirements. A transportation project is eligible for federal transportation funds distributed through Metro if it is included in the financially constrained system and is consistent with federal air quality standards. It was also worked out with intense consultation of citizens.

The GSMP
As already mentioned, voters in the Metro region made Metro access a 350 million bond to buy land and put it under protection. Metro is now considering a second levy both to add to the inventory and to begin development of sites and corridors for public use. The Metropolitan Green Space Master Plan provides guidance and a prioritized list of future acquisitions (cf. Seltzer 2004, p. 47).

6.2.3 Local Scale Planning in Central Portland

The Bureau of Planning

Planning tasks in the city of Portland are conducted by the Bureau of Planning. But there are several other bureaus that work out regulations affecting spatial development (e.g. water or housing). Many of the local planning tools deal with sprawl containment at some point, even in urban planning on local level it can be seen as "overhead-topic". Due to the fact the city of Portland is only a part of the metropolitan area, the main competence of growth management nevertheless lies with Metro.

Instruments for Urban Planning in Portland

- **The Comprehensive Plan**

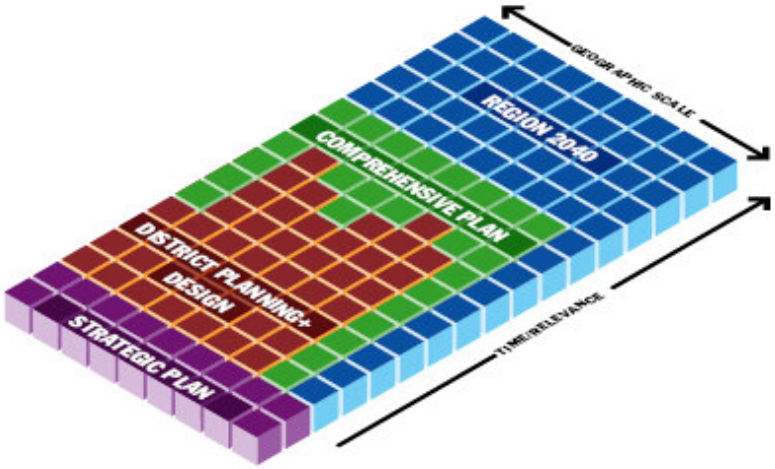
The comprehensive plan (land use plan) for the city includes goals, policies and objectives (measurable benchmarks for assessment of success) concerning urban development. Furthermore, it contains similar goals, policies, and objectives in neighbourhood and community plans that apply only to parts of the city. These features include land use designations, street classifications, the city limits, and the urban service boundary. The documents and maps comprising Portland's Comprehensive Plan have never been printed together in a single volume.
The plan by design has a comprehensive view with 12 different goals (chapters), from Urban Design to Housing to Economy. It is intended to guide many (or most) of the actions of the entire city.
It was first drafted in the late 1970s and adopted by City Council in 1980. State requirements dictate that a city comprehensive plan has a 20-year planning horizon and must be periodically reviewed and updated. Though some sections of the plan have been updated regularly, others have not and are quite dated. The plan is being revised right now and will guide growth and development for the next 30 years ("The Portland Plan"). It will update the city's Central City Plan, the City-wide Economic Development Strategy and sustainability policies. Broad civic participation is being conducted in the process (vision pdx, below).
The city of Portland addresses sprawl issues in its Comprehensive Plan, as it defines coordination with Metro and other regional players. It also defines an Urban Service Boundary (consistent with city limits), for outlining the area where functions of Portland city are provided. To comply with the Metro Functional Plan and its claim for higher density, detailed regulations for urban design have been set within the city. The Portland Comprehensive Plan can not be seen singularly, thus only in connection with the Compre-

hensive Plans of the surrounding cities, like Hillsboro or Gresham and Metro regulations. The sum of them (including smaller area plans) makes up the distinct low-scale growth management in the Portland metropolitan area.

– **The Strategic Plan**

The Strategic Plan is a tool for prioritizing the Planning Bureau's goals and tasks. The objectives, strategies and suggested action planning items are ranked in terms of importance and urgency to support decisions about the Planning Bureau's budget. It is a short term (5 years) work program of the Bureau of Planning based mainly on the Comprehensive Plan. The following chart by the Bureau of Planning (Strategic Plan 2005) outlines the position of the Strategic Plan in the system of plans concerning Portland.

Figure 6-15 Status of Portland Strategic Plan



Source: Portland Bureau of Planning 2005

– **Zoning Codes, District Planning and Design Plans**

The Zoning Codes comply with the Comprehensive Plan. They are legal within the city limits and deal with standards of street design, sidewalk width or shape and height of blocks. Neighbouring cities in the Metro region have their own Zoning Codes – they have not been harmonised as Metro's power is restricted in this respect. For parts of the city of Portland, District Plans have been worked out.

Furthermore, there is

– **VisionPDX**

"*VisionPDX is a City-supported, community-led initiative to create a vision for Portland for the next 20 years and beyond*" (www.visionpdx.com). This is a highly institutionalised process of citizen involvement into the planning and development issues of the next decades. It is projected over several years and tries to get people into functions and responsibilities. Public relations are well made (homepage etc.). The involvement of citizens and their information and education seems to have been successful. Especially inside the city boundaries, people are well aware of the topic.

The next table gives a summary about the planning system concerning the Portland Metropolitan Area:

Table 6-13 Planning System in the Portland Metropolitan Area

Level	Institution	Instrument (s)	Legal Effect(s)
National	American Planning Association	Many	Guidelines, research and recommendations for planning, not binding Different in every state
	National Ministries	Sectoral plans	Binding for planning on state, regional and municipal level
State	Department of Land Conservation and Development	Metropolitan Planning Organisation Senate Bill 100: Statewide planning goals urban growth boundaries (obligatory) Transportation Rule	Different in every state; very powerful in Oregon Binding for regional and local (municipal) planning
Region	METRO	RUGGOs Region 2040 Regional Framework Plan Urban Growth Boundary (establishment and maintenance) Growth Management Functional Plan Regional Functional Plans Regional Transportation Plan Green Space Masterplan	Binding for local planning in the Oregon Metro area, based on Oregon State Law and the Metro charter; amendments to the charter only by public vote
Local	City of Portland	Comprehensive Plan Strategic Plan Zoning Codes, District Plans/Design Plans	Obligatory and binding, general framework based on Metro regulations 5-year workplan for the Bureau of Planning detailed regulations on building and development, binding for landowners, based on comprehensive plan

Source: author

6.2.4 Other Relevant Instruments of Local and Regional Scale

Like in Vienna, there are other instruments influencing urban development and sprawl besides the "traditional" planning concepts, although Metro and the Planning Bureau of Portland have a broader range of tools for urban containment at their disposal. The most important further measures are portrayed here:

Transport

Transport policy is an integral element of anti-sprawl planning. Therefore, regulations and measures in this field are very important building blocks of any strategy. *"[Metropolitan] Portland has sought to use land use planning techniques to reduce reliance on the automobile for several years and is often pointed to as a model for other regions*" (Adler & Dill 2004, p.230).

There is a regional transport agency: The Tri-County Metropolitan District of Oregon (Tri-Met). The city of Portland and Gresham, Multnomah County and Metro joined together in 1986 to establish the Metropolitan Area Express or MAX light rail system. The features of the transit system have been described in chapter 6.1.8.

Inside the city, especially street connectivity is being improved to fight congestion. A dense system of local and collector streets should be able to handle short distance trips and access to property. Recognizing these benefits, all the jurisdictions in the Metro region have amended their development codes to re-

quire 10 to 16 street connections per linear mile in new developments that construct new streets. "*By connecting streets at between 10 to 16 connections per mile, delay on the regional system can be reduced by up to 19 percent and arterial traffic decreased by up to 12 percent. Benefits also accrue to pedestrians and bicyclists who in turn have direct routes to shopping, transit lines or other destinations*" (Metro 2003, p.9).

Nevertheless, the main focus lies on creating car - alternatives. There are many regulations to foster public transport, e.g. employers with 50 or more employees at sites within the Portland Air Quality Maintenance Area are required to offer programs that encourage alternatives to driving. According to the state's transportation planning rule, they are to achieve a 10% reduction in the number of auto-commuter trips taken. Furthermore, there is a (comparably) strong commitment on Biking and Walking (also due to two organizations – the Bicycle Transportation Alliance and the Willamette Pedestrian Coalition), which makes Portland one of the most "bike-friendly" cities of the United States.

Transit Oriented Developments

TODs are encompassing measures for compact, transit-friendly development. They are areas with requirements for minimum density, established to encourage high-density housing and employment growth around station areas. TODs are oriented on stations of the Portland light rail system and should provide their inhabitants mixed-use environments at walking distance and accession to the city center accessible by rail. Each station is the subject to a development plan with a radius of 0.8 km. Approaches like this are also found in Vienna, but, as with other issues of planning, they are designed more individually there. There are no general regulations for planning and designing areas around transit stations like in Portland. The fact of creating areas like this might even not be very special in Vienna, for an American city, though, this is a rather outstanding approach.

Important TODs in Portland are, e.g., Orenco Station or Hillsboro. Every home in a new suburban development in Hillsboro is within a half-mile walk (about 0.8 km) of the light-rail station. The trains go to other suburbs and downtown. Half of the housing units are attached, which is mandatory everywhere within the growth boundary. The biggest lots are 3, 850 square feet (360m²). Before, lots could be as big as 6,000 square feet (~570m²) (USA Today 2001).

Orenco Station was assessed by Song & Knaap (2004, p.215 et seqq.), who compared the Smart Growth settlement built in 2000 to an average Washington County settlement (Forest Glen, built in 1980). They worked out several variables revealing that the TOD really was a big step towards Smart Growth.

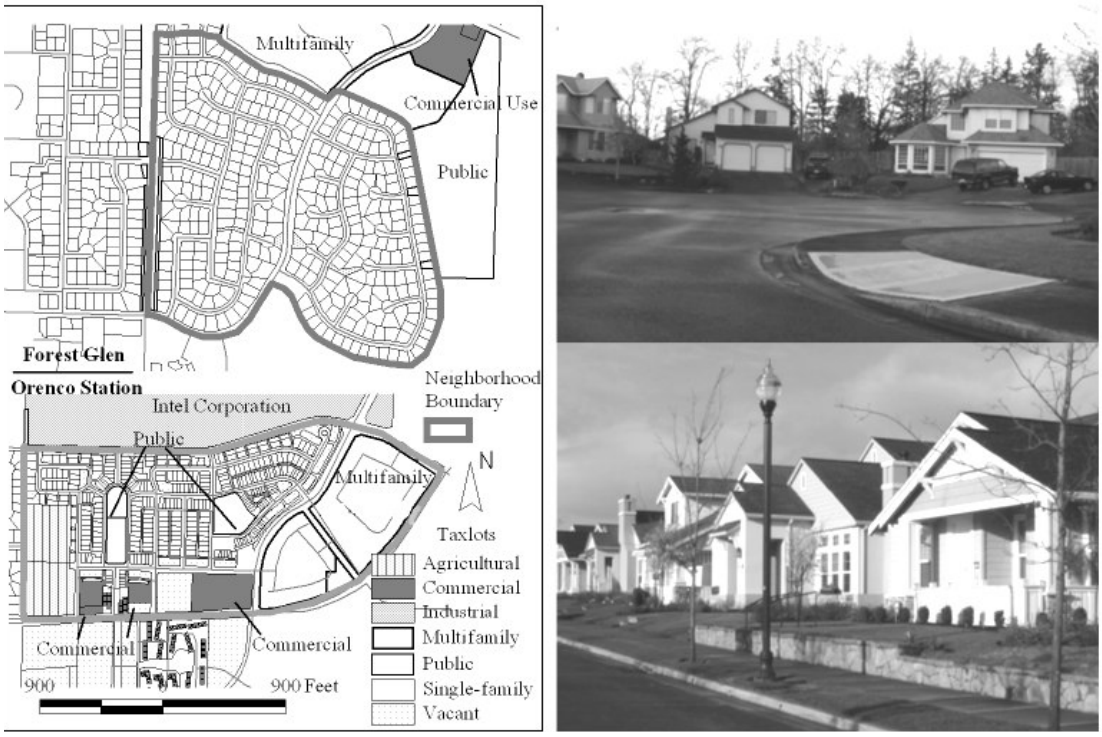
Table 6-14 Comparison Traditional Settlement / TOD

Urban form measure	Forest Glen	Orenco Station
Internal Connectivity (intersections/ [intersections + cul de sacs])	0.67	0.81
External Connectivity (median distance between access points in feet)	569	1,016
Median Block Size (median perimeter in feet)	3,365	830
Number of blocks by SDFU	0.026	0.15
Median length of cul-de-sacs (feet)	203	106
Actual non-residential area per SDFU (sq.ft.)	0	2,058
Zoned non-residential area per SDFU (sq.ft.)	0	6,837
Median distance to nearest commercial use (feet)	3,184	834
Median distance to nearest park (feet)	1,267	873
Median distance to nearest bus stop (feet)	1,474	247
Percentage of SFDUs within ¼ mile of all existing commercial uses	0.04	0.78
Percentage of SFDUs within ¼ mile of all existing bus stops	0.34	1.00

Source: Song & Knaap 2004, p. 216

The difference between the traditional American suburban cul-de-sac with its free-standing single-family homes on large lots and the denser TOD is clearly visible. The TOD has higher internal connectivity rates and lower block sizes than the average settlement in Washington county (this fosters the “human scale” and walking activity). It has more blocks per single family development unit (density) and shorter cul-de-sacs (traffic, connectivity). Bus stops, parks and commercial centers were by far better accessible in Orenco Station. This settlement is seen as a positive example of Smart Growth developments and is seen as a way out of sprawl. External connectivity rates, though, are weaker. This and other facts have led to criticism (see chapter 6.2).

Figure 6-16 Visual Comparison of Orenco Station and Forest Glen



Source: Metro in Song & Knaap 2004, p. 217

Figure 6-17 Orenco Station Center

Source: author

The structure, design and architecture of Orenco Station have had positive reactions among the public. It is seen as one of the best examples of Portland urban development. Criticism on TODs is analyzed in chapter 6.4.

Urban renewal

Portland has an urban renewal agency – the quasi-independent Portland Development Commission. It retains independent reporting structure, is accountable only to the mayor and a governing board appointed by the mayor. It has been successful in downtown renewal and the redevelopment of industrial sites. Pearl District, the most famous urban renewal area, is now the densest area in Portland and, simultaneously, one of the most expensive areas in Oregon. Like in Vienna, urban renewal has brought along gentrification.

Private initiatives

As the individual and his/her freedom are crucial parts of American culture, a certain "do-it-yourself" – approach is visible, also in urban development. Portland has numerous neighbourhood associations who care about the development of their neighbourhood and they are a very important element of urban life in the USA. In Portland, it started with the city's plan to revitalize neighbourhoods: the Office of Neighbourhood Associations (now the Office of Neighbourhood Involvement) was established to assist neighbourhoods across the city. On regional scale, there is the Regional Citizen Involvement Coordinating Committee, which was also involved in the creation of the Region 2040 concept. The institutionalisation of public involvement is an important step towards sustainable community development.

Another example is "1000 friends of Oregon", which was founded in 1975 and has developed into an organisation focusing on education and advocacy, helping "…*to engage Oregonians in a fresh conversation about Oregon's future, and how to make sure it's a future we all want*" (www.friends.org). It has a very broad role: from research organisation to interest group to discussion platform.

6.2.5 Strategies on Sprawl - Focus: The Urban Growth Boundary

After a general outline of anti-sprawl policies in the Portland region, this chapter focuses on the core instrument: the Urban Growth Boundary. Nevertheless, the UGB must not be regarded as single measure, rather as part of a toolkit for growth management of the metropolitan area. For summing up, these tools (to be found in the concepts and plans described in the previous chapters) mainly are:

- The urban growth boundary
- Incentives for infill development in older areas
- Other comprehensive measures and regulations to increase population densities, esp. TODs, maximum lot sizes or density prescriptions
- Expansion of public transport and coordinated urban expansion

As already said, the main responsibility for metropolitan growth management lies with Metro, which has the legal power to claim local municipalities to adjust their tools according to Metro's prescriptions. Consequently, also the UGB lies within Metro's field of competence.

Definition: What is an urban growth boundary? (cf. Metro n.d.)

Under Oregon law, each city or metropolitan area in the state must work out an urban growth boundary separating urban land from rural one. All land outside the UGB – with exceptions – is prohibited from urban development and designated for resource use. It is also a service boundary, as companies (e.g. water supply) are not supposed to extend their services to areas out of the border. "*The boundary controls urban expansion onto farm and forest lands. Land inside the urban growth boundary supports urban services such as roads, water and sewer systems, parks, schools and fire and police protection that create thriving places to live, work and play. The urban growth boundary is a tool to protect farms and forests from urban sprawl and to promote the efficient use of land, public facilities and services inside the boundary*" (www.metro-region.org).

According to Metro, other benefits of the boundary include:

- motivation to develop and re-develop land and buildings in the urban core, helping keep core "downtowns" in business
- assurance for businesses and local governments about where to place infrastructure (such as roads and sewers) needed for future development
- efficiency for businesses and local governments in terms of how that infrastructure is built. *"Instead of building roads further and further out as happens in urban 'sprawl', money can be spent to make existing roads, transit service and other services more efficient".*

The single UGBs of the cities in the Portland metropolitan area have been joined together to form one metropolitan UGB. Metro is responsible for managing this boundary and is required by state law to have a 20-year supply of land for future residential development inside the boundary. Every five years, the Metro Council is required to conduct a review of the land supply and, if necessary, expand the boundary to meet that requirement. Since 2002, also job growth is accounted for. The UGB is integrated into the 2040 Growth Concept of the region.

The Origins of Metro's Urban Growth Boundary

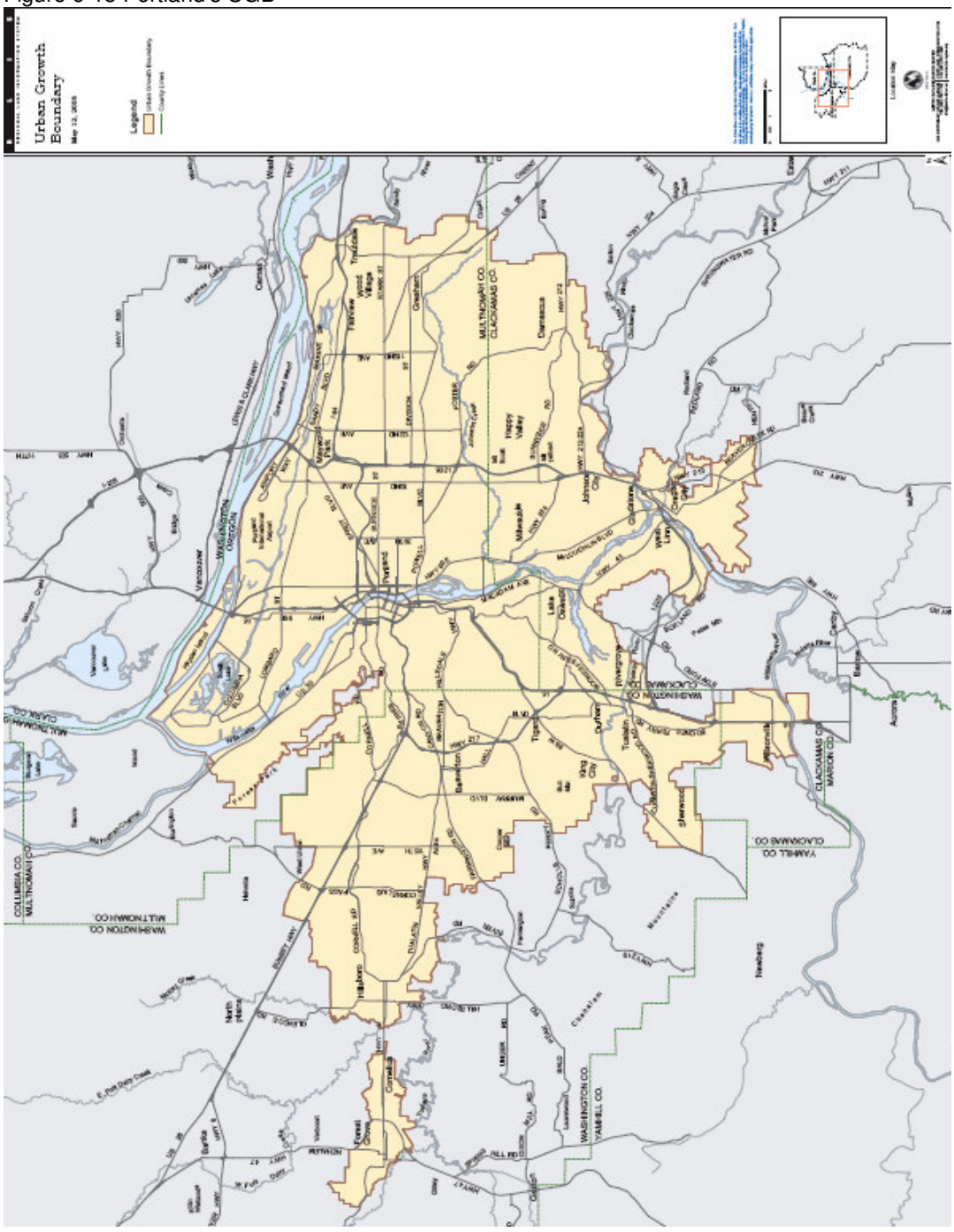
"*The Columbia Region Association of Governments, Metro's predecessor, engaged in a complete planning process and proposed an urban growth boundary for the region in 1977. When Metro was created by voters in 1979, it inherited the boundary planning effort. A year later, the Land Conservation and Development Commission approved the boundary as consistent with statewide planning goals*" (Metro, 2007).

During the construction process of the UGB, plans and growth projections of Washington, Multnomah and Clackamas counties, along with 24 cities and more than 60 special service districts had to be accommodated.

The Situation of Portland's Urban Growth Boundary

As of February 2000, about 1.3 million people lived within the urban growth boundary. The boundary was based on a projection of the need for urban land as well as the land development plans of individual property owners.

Figure 6-18 Portland's UGB



Source: www.metro-region.org; scale:~1:446.000

The boundary was not intended to be static. Since the late 1970s, the boundary has been moved about three dozen times. Most of those moves were small – 20 acres or less. There were three times that Metro authorized more substantial additions:

- In 1998, about 3,500 acres were added to make room for approximately 23,000 housing units and 14,000 jobs
- In 2002, an unprecedented 18,867 acres were added to the urban growth boundary to provide 38,657 housing units and 2,671 acres for additional jobs. These expansions represented an increase of only about 9 percent, even though the population has increased by about 17 percent since 1990
- In 2004 and 2005, 2,301 acres were added to the boundary to address the need for industrial lands identified as part of the 2002 planning process (RIAs)

Annexations: Two Boundaries

The urban growth boundary and the Metro jurisdictional boundary are not the same line. Some areas are inside the urban growth boundary but outside the Metro boundary, and vice versa. The area of Metro is slightly bigger than the UGB area.

Although both boundaries were originally created in the 1970s, they were drawn by two different entities for two different purposes: The UGB was drawn by the predecessor of Metro, which was made up of representatives of cities and counties. It is a land use boundary separating urban uses from rural ones. The Metro boundary was drawn by the Oregon legislature and defines the political entity of Metro. Only inhabitants of the area within the Metro boundary are subject of Metro regulating and taxing authority and can vote the regional body.

State law gives Metro jurisdiction over urban growth boundary decisions, even if the land brought in is outside Metro's legal boundary. Such areas are referred to as "transition zones." Urbanization may not occur until after the property is annexed to the Metro boundary, which requires the consent of at least a majority of the voters in the area that is annexed. Annexations do not need to include the entire area at one time.

The Metro Council can vote to bring an area into the Metro boundary if petitioned by residents of that area with a request of consent annexation. Consent annexation petitions require either 100 percent of voters or 50 percent of the voters and the owners of 50 percent of the property. Once annexed, residents may vote in Metro elections and would be subject to Metro regulations and taxes.

State law defines the criteria that are used to determine the order in which lands are included within the urban growth boundary. There are four categories of priority. In general, high priority lands must be included before lower priority lands can be added.

6.3 OVERVIEW: URBAN FORM AND THE FRINGE

Urban Form

The Portland metropolitan area is most likely to be called "in suburbanisation phase", according to the absolute model of cyclic urban development. This is due to the fact that, although the center is very strong, wide-spread suburban areas are existing, which are growing even faster than the center. Monofunctionality and spatial separation of urban functions throughout the area - outside the center - is visible.

Table 6-15 Phases of Urban Development: Portland

Phase	Type	Change of population			
		Core City	Ring	Urban region	
Urbanisation	Absolute centralisation	++	-	+	Growth due to advantages of agglomeration, industrialisation
	Relative centralisation	+	+	+++	
Sub-urbanisation	Absolute centralisation	+	++	+++	Formation of peripheral housing areas, spatial separation of urban quarters
	Relative centralisation	-	++	+	
Dis-urbanisation	Absolute centralisation	--	+	-	Traffic jams, cost problems due to disadvantages of agglomeration
	Relative centralisation	--	-	---	
Re-urbanisation	Absolute centralisation	-	--	---	Break down of urban structures or new rise due to reformes or external impulses
	Relative centralisation	+	--	-	

Source: Van den Berg et al. 1982, p. 38, supplemented with Lichtenberger, p.102 et seq., adapted

Subcenters are not significantly pronounced in the metropolitan area. Due to the fact that the region has one strong center and lacks an appropriate system of multifunctional subcenters, the respective type according to the model is "absolute centralisation". There are several existing nodes and development efforts, but none has reached real significance so far. Where as professional services tend to concentrate downtown, especially trade and gastronomy are dispersed over wide areas located alongside main streets or in malls.

Wide areas of greater Portland are sprawled mainly due to development in the 1990's and before. Immediately after leaving downtown, densities drop sharply and diminish even more when heading towards the UGB. Since the implementation of the 2040 concept, though, efforts for urban containment have been taken and shown effect (see below).

As already said, the suburbanised areas are usually monofunctional, which makes it difficult for post-suburban functions to develop. Other functions than housing are usually spread over the urban area, and especially trade is developing at greater distance to attempted development centers in car-accessible malls. The area coming closest to being "post-suburban" is the high tech industry arc in Washington county south-east of the city and some of the traditional town centers (e.g. Hillsboro). None of them, though, has reached significant strength.

Concerning transport, Portland has a – for American standards - good, multimodal system of public transit. Along light rail lines and in the center, compact, space-saving development has been realised. Outside those areas, though, low-density settlement is predominant.

The Urban Fringe

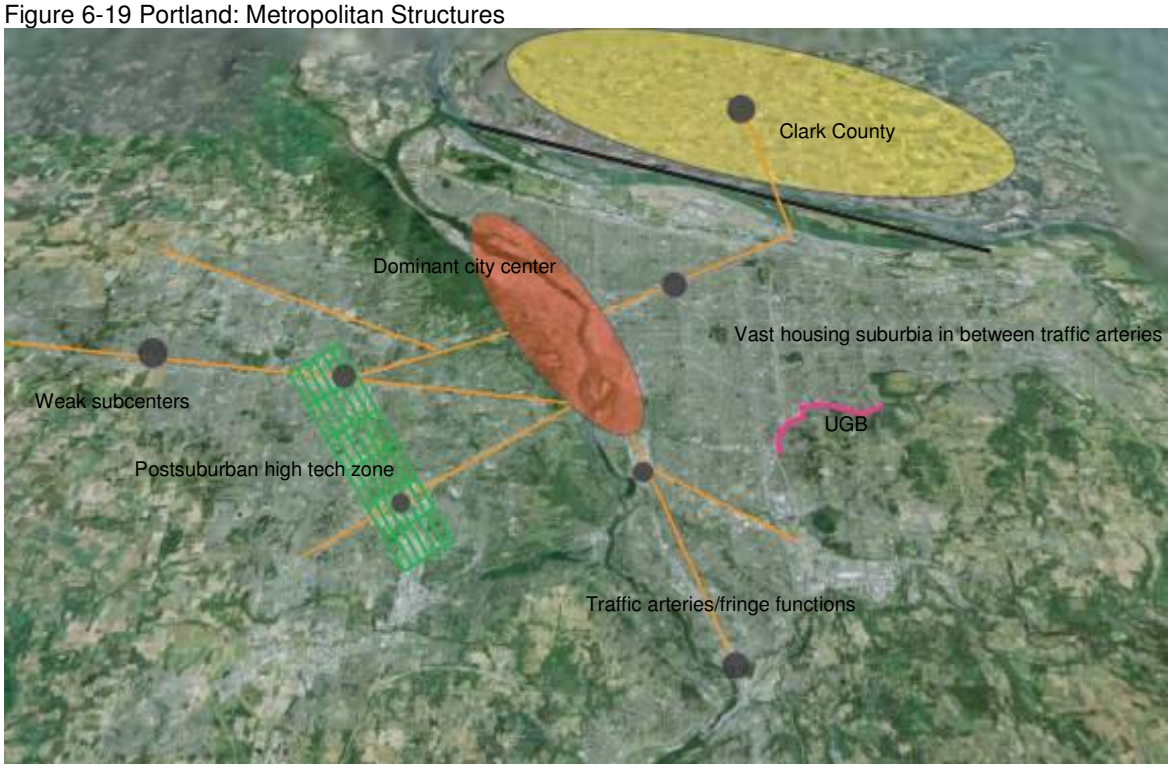
The urban fringe of Portland is to be described like this: Main streets with various urban functions, in between vast areas of monofunctional, mainly one-storey (in upper class neighbourhoods usually two storeys) single family houses on large lots. The majority of the urban area is settled in low density. The impact of 2040 policies, though, is clearly perceptible: in areas close to MAX light rail, but also dispersed over the urban area, higher density infills are perceptible. These are new, densificated infill projects on

brown or green fields, realised on small lots and built compactly. Usually, they have 2-4 storeys and take up the traditional building form of the neighbourhood. Song and Knaap (2004) stated that neighbourhoods in Washington County have increased in single-family dwelling unit density since the 1960s. Much of this increase of density in new development can be attributed to smaller lot sizes for single-family homes. Between 1996 and 2000, there was a 132% increase in single-family homes constructed on lots of less than 5,000 square feet, and lots 5,000 square feet or greater decreased by 32% to 47% (Chapman & Lund 2002, p. 212). A point of criticism, though, remains the mixing of land use: Euclidian zoning (spatial separation of uses, author's note) is still applied, as well as vast shopping centers (megamalls in Washington and Clackamas county) are being built.

According to this paper's definitions, vast parts of the Portland metropolitan area are rather to be classified as suburban housing areas than as fringe ares. This is because they offer structured, monofunctional and designed neighbourhoods rather than unorganised, scale-shifting and multifunctional areas embossed by superstructures, like the "typical" urban fringe area does. Although the individual design of some properties in suburbia may be criticised, those areas usually offer living quality and high amenity values (green, calm, safety, individuality, design structures) which are usually not present in typical fringe areas. These are rather concentrated alongside traffic arteries, where the "drive-through" and consumption part of the culture can take effect. The fringe has not taken a ring like shape, but is rather organised strip like on main streets. Many urban functions – service, gastronomy, entertainment – are located there, usually not at pedestrian scale.

Figure 6-19 shows the urban structures of the Portland metropolitan area. The dominant center and the star like arterial roads, which comprise strip malls, are clearly visible. Some of the historic centers and existing malls form weak subcenters, which are situated unorganizedly in the region.

Figure 6-19 Portland: Metropolitan Structures



Source: base map: Google Earth; adapted by author

The separation of urban fabric and countryside by the Urban Growth Boundary – indicated by the pink line – is clearly visible. Across the state border – indicated by the black line – Clark County, Washington,

is spreading out with much less control. Clark County, Washington, tends to be more fringelike than the Oregon parts of suburbia due to less regulation (see next chapter).

Figure 6-20 Strip-like Fringe Areas in Aloha, Portland

Source: author

6.4 CRITICISM ON THE PORTLAND MODEL

Despite the positive aspects that have been achieved through Portland's wide range of containment measures (more sustainable use of space, promotion of public transport, rising awareness among citizens…), there are some aspects heavily criticised. The following pages give an overview of the arguments.

Clark County

A main weakness of the Smart Growth region is the fact that Clark County in Washington is a functional part of the region, but not included in Metro or the Urban Growth Boundary. Due to the fact that it is not under the law of Oregon State, Metro Region or the City of Portland, none of the strategies or measures designed for the Portland region can be applied there by Metro. The growth containment laws of Washington are significantly weaker than the ones of Oregon. Numbers suggest that a lot of the sprawl which was prevented to happen in the Oregon part actually moved over to Clark County, especially in the 90's (cf. Harvey & Works 2001 and Lewis 1996 cited in Chapman & Lund 2004, p.210). There is the argument that densification/restriction would not have been as accepted among the public if the evasion to Clark County had not been possible. The fact is often addressed with the statement "*Sprawl simply hopped the green fields*" (USA Today 2001). The Clark County area is heavily sprawled and monofunctional, consisting of many bedroom communities depending on Portland center.

A Northwest Environment Watch study (cited in Chapman & Lund 2004, p.210) envisions the differences of land use between the Washington and the Oregon part of the MSA: in the Oregon part, medium density neighbourhoods were more likely to occur than in Clark County. In the 1990s, Clark County also covered 23% more of its land with impervious surfaces and lost 40% more farmland per capita than did the three counties in Oregon. O' Toole (2007) gives US Census data for the decade 1990-2000 and reveals that Portland city grew by 21%, its Oregon "suburbs" Beaverton and Gresham grew by 30 to 40%. Vancouver, Washington, meanwhile grew by 210%.

Wendell Cox (n.d.), a well-known pro-choice advocate, analysed domestic migration data (2000-2004) from the US Bureau of the Census. He found that 98.1 % of domestic migrants to the Portland metropolitan area have moved to counties that are wholly outside the urban growth boundary[19]. He also stresses the fact that the largest percentage gains in domestic migrants occurred in the counties that are outside the state of Oregon – Clark County.

[19] Domestic migrants are people who move to a county from another county in the United States.

Thus, the non-integration of Clark County into the Growth Boundary concept is a major flaw of the model. Against the background of the developments in Clark County, the Portland region as a whole can not claim itself having fought sprawl successfully. The distinct impact of a refuge in the north of the region, where people who do not accept sprawl containment can move to, is not clear yet. Bearing this in mind, the sprawl rankings concerning Portland (see below) have to be examined very carefully.

Some see the possibility of moving to Clark County as a possibility of choice, and thus very important to American culture. People moving to Clark County choose to live in an area of less regulation and a more profitable tax situation: Oregon taxes property and income, but not sales. In Washington, the situation is vice versa. So, many people might chose to live in Washington and shop in Oregon, which enables them to avoid three taxes. This, combined with little regulation on housing and the proximity to the urban functions of Portland, make up the attractiveness of Clark County.

So, from a free choice point of view, Clark County is obviously an important element of the region. From a sustainability point of view and bearing the purpose of the Portland model in mind, though, the present state can not be maintained. Concerning future development, Washington and Oregon officials are confident that Clark County is on the same way as Portland, but 20 years behind (cf. Seltzer, Ethan, Portland State University, personal interview on May 29th 2008). Clark County officials are present in all committees at Metro, but on a voluntary, cooperative basis. Transportation Planning is already done jointly. Keeping this in mind, the situation seems a little less ironic.

Sprawl Rankings

There have been several sprawl rankings made in the last years, each reaching different results concerning Portland. Some state that Portland has actually been sprawling very much, whereas others, using different variables and different system boundaries, say the opposite.

The **USA Today index** (cf. El Nasser & Overberg 2000) has been conducted in 1999 with two variables: *population density today* and *change in population density during the 1990s*. Portland's score was 221, which puts it roughly in the middle of the list of big metropolitan areas (maximum: 478). Portland's share of population in urbanized areas in 1999 was 72.7%. It actually outpaced Los Angeles, which is generally seen as one of the most sprawling cities in America and had a score of 78 and a population share of 94% (Los Angeles-Riverside-Orange County).

The ranking had been conducted also in 1999, where Portland had reached rank 104 of the "most sprawling" regions. In 1990 it was rank 117. This would mean that, although strict regulations have been applied, sprawl could not be stopped.

In this respect it is very important to remember the different metropolitan boundaries of Portland described in chapter 6.1.1. In this ranking, Portland was taken in as Portland-Salem Ore.-Wash. MSA, which actually does not exist any more (after the recent redefinition of the census area boundaries). This means that a wider area of 2.2 million people is considered, which is made up of three cities (Portland, Salem, Gresham) and also a considerable amount or rural land. Clark County is also integrated into the analysis.

The scale of this ranking can be questioned: it takes the dense urban area inside the UGB into account, as well as rural land outside – which is supposed to be protected - including Salem in the South. It treats the area as if it were made up of low-density settlement all over, instead of dense settlement in one part and free space in the other. So, the sprawl score for the region is partly misleading. Nevertheless, it states correct criticism on the sprawled development in Clark County, the traffic problems and the danger of a continually expanding boundary.

In a Growth ranking by **Smart Growth America**, (cf. Ewing, Pendall & Chen 2002) Portland reached the 8th best score of 83 metropolitan regions. This index was based on the four categories described in chapter 2.2.4. The Portland, OR PMSA got the overall score of 126.1. (The average score for each factor is 100).

The detailed score reveal that the particular strengths of Portland lie with street connectivity and centeredness:

- Street Connectivity Score: 128
- Centeredness Score: 121.8
- Mixed Use Score: 102.3
- Residential Density Score: 101.3

Portland, together with New York, San Francisco and Boston, scored better than other regions in all four factors. Portland has a very good street connectivity, as well as a high centeredness. The latter is due to the strong city center of Portland rather than any polynuclear structure, which is comparably weak.

It is again important to notice that the analysis was only conducted for the Oregon part of the MSA. As already said, the Washington part of Clark County is a functional part of the MSA and so, these system boundaries are misleading. Consequently, also the claim for Portland not sprawling, deduced form this ranking, is not true. Nevertheless, it draws a picture of the area where strict growth restrictions have successfully been applied. The score rankings of Portland are very good, which indicates that the strategies have been successful in the area inside the boundary. The range of factors analysed was much broader than the one of USAToday and more variables were taken into account than just density and population growth, which gives a more multi-dimensional picture.

Again, the impact of Clark County as "basin" catching the sprawl that was pushed out of the Oregon part of the MSA, has to be thought of. Possibly, Portland's measures would not have been as successful and Portland's inhabitants would not be that pro-Smart Growth, if there were not Clark County for evasion.

Expanding Belt and Predictability

Some people question the usefulness of a growth belt which is expanded when necessary. There were critics stating that the region was simply adding small charges of land without adequately looking far enough into the future to anticipate what the cumulative impacts might be. The existing long range planning was considered inadequate and leading towards urbanisation of prime farm land. Furthermore, land for industrial uses was not sufficiently considered in the concepts for a long time. Too, there was no guidance for farmers, investors and citizens about when and where the belt would be expanded. This created an unstable environment for inhabitants and economy (cf. Seltzer 2004, p.50).

Recently, in 2007, the Oregon Legislature approved Senate Bill 1011. This bill enables Metro and the counties of the region to establish urban reserves – areas outside the urban growth boundary that, based on a number of factors, may be suitable to accommodate population and job growth over 40 to 50 years – as well as rural reserves protecting farmland. Urban and rural reserves will provide greater predictability for landowners, farmers, and communities as to where future growth may take place outside the current urban growth boundary.

A Reserves Steering Committee has been established to identify potential urban and rural reserve study areas and advice the Metro Council and the commissions of Clackamas, Multnomah and Washington counties on the eventual designation of reserves. Designation of urban and rural reserves will be made through agreements between Metro and the counties in 2009 (cf. www.metro-region.org).

The publication of the processes of expansion was an important step into the direction of predictability and reliability. Especially for businesses, but also for inhabitants, trustfulness in public administration is very important, as it affects supportive behaviour for Smart Growth strategies.

Sprawl Inside

Critics state that even inside the UGB, low-density sprawl is existing. Andréas Duany (in Song & Knaap 2004, p. 223) stated that outside the dense core city, sprawled development is visible *"…as soon as one left the prewar urbanism [of Portland]…the sectors all the way to the urban boundary were chock full of*

the usual sprawl that one finds in any American city, no better than in Miami…in Portland, most of the prewar urbanism is excellent and most of the postwar version is junk". This fact is true, mainly due to bad planning of the 90's, where most of the monofunctional low-density areas outside the center were built. Whereas areas closer to town centers or light rail stations have been developed more densely, the majority of existing suburban areas show typical low density housing. In addition, big box developments are pushing polarization. Furthermore, the infill and redevelopment rate ("refill rate") currently just accounts for around 26% (Metro 2002, p.25). Although this is a high rate for an American city, this means that still 70% of all residential development occur on greenfield areas. The share of nonresidential use is better: here, the refill rate accounts for 50% for commercial and 35% for industrial areas (Metro 2002a, p.3).

As the 2040 concept could not touch existing zonings, it took some time until density regulations could show effect. Consequently, densificated and New Urbanist projects have mainly been realized during the last years and on often punctual sites. They are to be found singularly all over the metropolitan area. Though, especially these new developments are built in space-saving and dense way. Furthermore, all of the new zoning is aimed at some densification at least, depending on the special characteristics of that area. There are some remarkable new quarters, like Orenco Station (TOD) or Pearl District (urban renewal area), which are built at high density and with mixed use. Pearl District has become the densest area of Portland and one of the most expensive areas of Oregon.

Weak Subcenters

As already said, existing zoning was not touched by 2040 regulations. This means that about 70% of present zoning were unaffected by the implementation of the 2040 concept (cf. Seltzer, Ethan, Portland State University, personal interview on May 29th, 2008). This means that, especially in terms of mixed use, success will be seen only on the long run. Currently, companies often prefer areas at greater distance to subcenters/light rail stations because they are cheaper and have less regulation.

Subcenters are also not very present in public view: "Revitalising existing town centers" was only given 9th highest importance (out of 10) when determining the most important goals in planning fore the next 10 years (see Table 6-9). The central city, though, has enough attractiveness to agglomerate functions.

Housing Costs (cf. USA Today 2001)

Housing prices in Portland have risen substantially over the last decades. The growth boundary has been blamed for being the reason through creating an artificial curtness of space. Furthermore, density and design requirements have been partly blamed for forsaking people the way of housing they want. Critics state that both factors are the reason why homeownership has moved out of reach for many Portlanders. Housing "unaffordability" would force more people to live in multifamily housing or in homes on tiny lots (argument of free choice) or push them out to Vancouver, Washington.

This discussion is founded on the cultural value of homeownership, which is a central element of the American Dream. Preventing people from buying their own house and "forcing them to live in multi-family homes without a yard" is seen as highly negative by some people. Proponents of the UGB reply that there have been numerous studies by notable research institutions about the situation which contradict the price argument– e.g. Andrew Downs of The Brookings Institution (2002, see below) and that, despite complaints about high housing prices, Money magazine named Portland the best place to live in the USA.

In Downs' study, he detects that there has been a sharp rise of home prices during the 1990s. Nevertheless, he criticises concluding that the UGB was the reason for it. In fact, housing prices in Portland did not rise nearly as fast as in many other regions in the 1980s, some of them having no UGB.

In fact, the above-average rise of prices was limited to the time-span 1990-1994, although the UGB has been in place all during the 1980s. In this respect, the study is criticized by O'Toole (2007, p.12) for not taking the role of severe recession and population loss in this decade into account. After 1994, Portland's housing price ranking dropped markedly.

Downs searched for the reason of the strong growth and detected the following:

A factor that may have made prices rise is the decision of Metro in its 5-year review of the UGB in 1992 not to expand the boundary significantly. Until then, it had been widely believed that there would be a considerable amount of land added to the UGB to replace land which had already been absorbed by growth. This unexpected change in conditions could have caused land prises within the UGB to rise suddenly (see "Expanding Belt and Predictability", above).

A second factor may have been that, especially in this period, job growth in the region was very strong. Combined with income changes, this may have had an influence.

He also gives a third reason by hinting at a study of Phillips & Goldstein (2000), who called the main cause of rapid home price increase in the Portland region in this period to be due to speculative movements rather than supply restriction within the UGB.

Downs furthermore conducted a multiple regression analysis of 85 large metropolitan areas with a dummy variable for the Portland UGB - measuring that Portland's UGB had statistically significant effects on home prices in the first half of the 1990's[20]. His found out that these were significant for the period from 1990-1994, but not during other periods between 1980 and 2000.

He gives the following reasons:

- The UGB initially contained an estimated 20-year supply of developable land. Until this land had been absorbed, UGB's impact was not felt.
- Job and wage growth – and consequently housing demand – on the demand side and a stringent UGB on the supply side, are likely to raise housing prices. Measures for economical treatment of space within the UGB help diminishing this raise.

His conclusion is that the UGB alone is not inevitably the reason for home prices in a region to rise faster than they do in other regions without such boundaries. In other regions without UGB, housing prices rose much faster during the 1980s. When combined with other factors - such as faster job and income growth and therefore housing demand– an UGB is most likely to push prices upwards and so did Portland's UGB from 1990-1994.

Problems in Traffic

Congestion

Traffic congestion in Portland has become a severe problem, also admitted by the city planning bureau (cf. Portland Bureau of Planning 2005, p.11). As density within the growth boundary and declining attractiveness for cars is part of the overall concept, major investments in this field have not been made over the last decades. Due to the fact that the automobile is still by far the most intensely used transport vehicle in the region, the situation has become very problematic. The debates about the new Columbia River Crossing are showing this.

Subsidised Transit System

Randall O' Toole (2007) states that the city's transit system only works because it is heavily subsidised by federal money. He gives data from the Federal Transit Administration saying that more than 97% of all motorized passenger travel (and virtually all freight movement) in the Portland area is done by automo-

[20] He states that due to the fact that the dummy variable was used to represent the presence of a strong, long-term UGB (like in Portland), the Portland region would be the only one that had a positive value (of 1.0) for that variable. Consequently, it would statistically pick up all the characteristics of any kind that were unique to Portland. Nevertheless, if this dummy variable produces a sizable t-score (a measure for significance), it is likely that this outcome at least partially reflects the UGB's influence.

bile. Transit share of passenger movement was 2.3% in 2002. This low level makes it vulnerable to critics. Analyzing US Census Bureau data, he discovered that between 1970 and 1980, the share of commuters riding transit to work increased from 7.0 to 9.8% (ibid.). In the following years though, due to financial constraints, TriMet raised bus fares and reduced service. In 1990 (four years after the light rail line opened), the share sunk to 6.7% of commuters who rode transit to work. In 2002, it was 7.7%. Transit's share of downtown workers was 38% in 2005 (drive alone was 48%, carpooling 4%).

The overall transit share of passenger movement is obviously low, especially when compared to Vienna. Mobility habits take a long time to change, though, and Metro, as the main regional transport authority, is using its funds according to the set goals. Alongside with probable future nationwide trend changes – declining car use due to high gas prices and climate change – transit will be more cost-effective on the long run. The important point is to adjust transit and settlement structure now to enable sustainable development more easily in the future.

Subsidies for TODs

Transit Oriented Developments (like Orenco Station) are also criticised in O´Toole's report. He especially emphasises that they are heavily subsidised, receive large tax breaks, below-market land sales and direct grants. This is true, subsidies (mainly reallocation of transportation funds, as Metro is an MPO) are given to companies constructing the TODs as well as the small companies settling down in those areas later on. Besides supporting compact, transport integrated development, this is seen as way to support small companies that wouldn't fit into the market elsewhere (cf. Deffebach, Christina, Metro, personal interview on June 27th, 2008).

O'Toole also states that although transit ridership in TODs is higher than elsewhere, this could be partly due to the fact that TODs primarily attract people who are willing to use transit. So, TODs do not necessarily change the habits of the majority of the city's inhabitants. Orenco Station, for example, is also situated on a main connecting street, which is located directly in the "city center" of Orenco. The rail station is situated comparably peripheral and distant to the main mixed use strip and large housing areas.

Furthermore, some developers, even "neo-traditional" ones, chose to build their project at greater distance to the station to avoid the detailed and strict regulations in TODs.

Nevertheless, providing people the possibility to use transit if they are willing to do so is a good step towards sustainability. The possibility for small enterprises to stay in the market is so, too. Especially because many TODs are rather monofunctional and need the mix of uses.

Scepticism among Inhabitants

Not all of Portland's inhabitants are in favour of its growth model. Especially among auto-lobbyists, businessmen (Portland has the reputation for being unfriendly to business due to high taxes and little parking space) and residents seeking single-family accommodations on large lots, there are protests. In 2002, planning opponents even put a measure on the ballot that would forbid Metro to require more neighbourhoods to be rezoned to higher densities – Metro responded with a moratorium on densification through 2015.

In 2004, measure 37 was put on the ballot by property rights activists, allowing those whose property values had been reduced by planning and zoning to ask for either compensation or to have the values waived. The measure passed by 61% (public vote in the region). This was later weakened by Measure 49, letting off communities which can not afford to compensate by allowing homeowners in those areas to ignore the new land use restrictions. This is currently leading to confusion and inefficiencies all over the urban area.

In general, public opinion towards land use restriction is not consistent. Although approving the density refusal ballot and Measure 37 on the one hand, 72% of the Portlanders agree with "*We should add houses in existing/established neighborhoods, rather than converting farm and forestland*" on the other.

When asked if "*Land use regulations hurt too many private property owners*", the "agree" and "disagree" shares are nearly equal (cf. Davis, Hibbitts & Midghall 2006).

Several sources (American Planning Association 2002, Ross 2002, 1000 friends of Oregon 2003 in Schönig 2004, p. 125) state that, in general, opposition became stronger in regions where strong growth regulations have been implemented.

6.5 CONCLUSION: PORTLAND

6.5.1 Urban Structure and the Urban Fringe

Portland is a metropolitan area of engaged anti-sprawl planning, which has shown distinct effects over the last years: rather unusual for an American city, the city has a very strong, multifunctional downtown, a strict separation between urban fabric and countryside (UGB), an emphasis on light-rail oriented development and a growing number of densificated areas. Nevertheless, it has a history of U.S. – American urban development, which is visible in strip ("drive-through")-areas, big box development, large low-density housing areas and monofunctional subcenters.

The urban form can be described as follows:

Immediately outside of downtown, densities drop to mainly free-standing single-family houses. Densities continue to lower, but only slightly, towards the fringe. The main settlement form in vast areas remains the rather sparsely situated free-standing single family house.

Urban growth is currently manifesting on greenfield as well as infill or redeveloped areas. Although the "refill share" of industrial and commercial use is good, the share for residential use needs to be improved. Nevertheless, results of densification are clearly visible all over the metropolitan area.

Subcenters (like Beaverton) are, at present state, not very pronounced, urban functions (outside downtown) are rather situated alongside main roads and in malls. When talking about the urban fringe according to the definition given in this paper, these strip areas are to address ("ribbons"). They contain various urban functions, but miss any coordination of design or development of character. The fringe consequently has no ring like shape, but rather a star like one, following these main traffic arteries.

Partly, urban functions are also visible alongside light rail, where efforts are taken by Metro to initiate development axes. The areas behind those arteries are large monofunctional and rather car-dependant housing areas.

Post-suburban functions are visible only in the high tech areas of Washington County and some of the historic centers (e.g. Hillsboro, Oregon City). In other areas, functions are too less concentrated to initiate independent development. In general, it can be stated that the Portland metropolitan area has no strong post-suburban character, which underlines its special position among American cities.

6.5.2 Planning Policies

The driving forces of Portland's urban development are - as typical for an American city – economy (economy of land prices, transport etc.) and society (individual freedom, consumption…). Rather unusual though - for an urban region in the United States – is the fact that policy and planning have a crucial impact on urban form. A distinct feature of the Portland model is its basement on its regional government Metro, which was initially created by public vote and is still elected directly every four years. It follows policies of Smart Growth and its strategies focus on creating a more compact urban body based on an integrated multimodal transport system, densificated forms of housing and protection of natural resources like watersheds and agricultural lands. To achieve this, Metro restricts urban expansion and enforces traffic planning through a complex set of instruments and comprehensive regulations. The main strength of this model is its capability to address regional issues and to create and to enact tools on the very same

level. Especially when it comes to urban enlargement and sprawl, a regional approach with legal power is crucial.

Sprawl containment and the urban fringe are main topics in most of Metro's planning documents. The core measure is the Urban Growth Boundary, which is embedded in a wide range of detailed containment measures and regulations (e.g. minimum densities, maimum lot sizes etc.) for the whole metropolitan area. They are bundled and controlled by Metro, whereas much of the concrete, detailed implementation rests with the municipalities. The basis, though, is delivered by the pro-Smart-Growth Ohio State Law, which makes those regulations possible.

Another important factor is the special sociology of the spot visible in Portland. The inhabitants are interested above average in sustainability and urban development issues and willing to give distinct sacrifice for it. The fact that there is considerate public outreach of Metro results in a high degree of information and public awareness. There are also substantial possibilities for metropolitan inhabitants to influence development policies: the necessity to vote about Metro every four years as well as the possibility to refuse changes of the charter or even claim the introduction or abolition of measures via ballots.

6.5.3 Results

Results of these planning efforts are well visible, especially in new neighbourhood construction – infill or extension – where density indicators have been raised substantially. In combination, by strict enforcement of the UGB, urban encroachment has been kept at bay. Compared to Vienna, achievements of objectives are easier to assess, because concrete, quantified objectives for the whole metropolitan area have been formed and the progress towards their fulfilment is puplished regularly.

The center – downtown – is strong and multifunctional, and has so far contributed to slow down fragmentation. A moderate amount of mixed use is furthermore present in some subcenters and TODs.

Furthermore, the use of public transport has been raised in central areas and along light rail arteries. Likewise, all over the urban area, street connectivity – and so pedestrian scale – has been improved significantly.

Nevertheless, Portland has reached mixed results concerning the city's polynuclear development, as intended by the 2040 concept. Besides the strong center, there is no considerate structure of subcenters which could balance development over the metropolitan area. The existing subcenters are too weak and lack the mix and the centrality of their functions. Furthermore, one has to keep in mind that vast parts of the metropolitan area are settled in low-density single-family house structure. Regulations of the Metro charter and (annexed) documents could and can only be applied to new developments, which left a big part of the urban area rather unaffected.

However, scepticism among some groups of Portlanders is present and "personal-rights-activists" have set an important sign by initiating the approval of Measure 37, calling for compensation of value loss due to land use restrictions. This sets important challenges to the Portland model as a whole and is currently a big topic of discussion.

The main flaw of the model is, though, the non-integration of Clark County. As long as a functional part of the urban area is not integrated into the regulations, all of their results have to be examined with reservation.

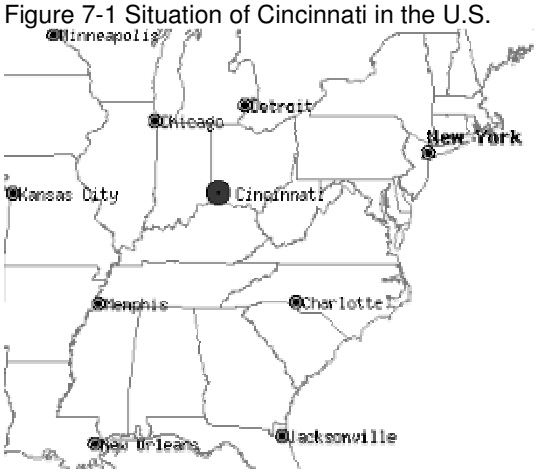
7 EXCURSUS: ANOTHER POINT OF VIEW – CINCINNATI

Whereas Portland chose a rather "non-American" approach to urban planning – top down, with a comparably strong role of public authorities – to address a specific set of problem fields, Cincinnati has no strong regional entity of regulation. The Cincinnati region has a Metropolitan Planning Organisation that is comparably weak in power and does not address land use issues. The main planning power lies with townships and metropolitan development is characterised by the competition among these. The problems of the urban area as well as the design of the MPO will be described in a compact way in this chapter, to illustrate "another point of view" on the problem field of sprawl.

7.1 BASICS

The City of Cincinnati is part of a larger metropolitan area which spreads over three states: the center is in Ohio, but the urban area stretches to Kentucky in the South and Indiana in the West. The metropolitan area comprises 13 counties and 222 local general purpose jurisdictions including 138 municipalities and 84 townships[21] (Orfield & Luce 2001, p. 10). The Cincinnati-Middletown OH-KY-IN MSA was inhabited by 2 million inhabitants in 2000 (OKI 2008, p.I-1). The City of Cincinnati itself had 317,000 inhabitants in 2003 (US Bureau of the Census 2007). The economic basis is diversified and encompasses manufacturing, wholesale and retail trade, insurance and finance, education and health services, government, and transportation. The University of Cincinnati is the city's largest employer (cf. City-data.com).

Figure 7-1 Situation of Cincinnati in the U.S.



Source: www.idcide.com, adapted

The metropolitan area of Cincinnati is seen as severely endangered by sprawl and its effects. Between 1970 and 1990, population density in the urbanized area has diminished 28% (Orfield & Luce 2001, p.1). The USA Today sprawl index calls Cincinnati the 11th most sprawling city in the USA (cf. USA Today 2001).

The Smart Growth sprawl ranking found an overall score of 96 (the average score for each factor is 100), which ranks it pretty in the middle of the 83 analyzed regions (cf. Ewing, Pendall & Chen 2002). Besides centeredness, all factors were below average: the region scored weak in street connectivity, mixed use and density.

[21] Townships are a traditional, 18th-century form of government.

In detail, the sprawl scores are as follows:

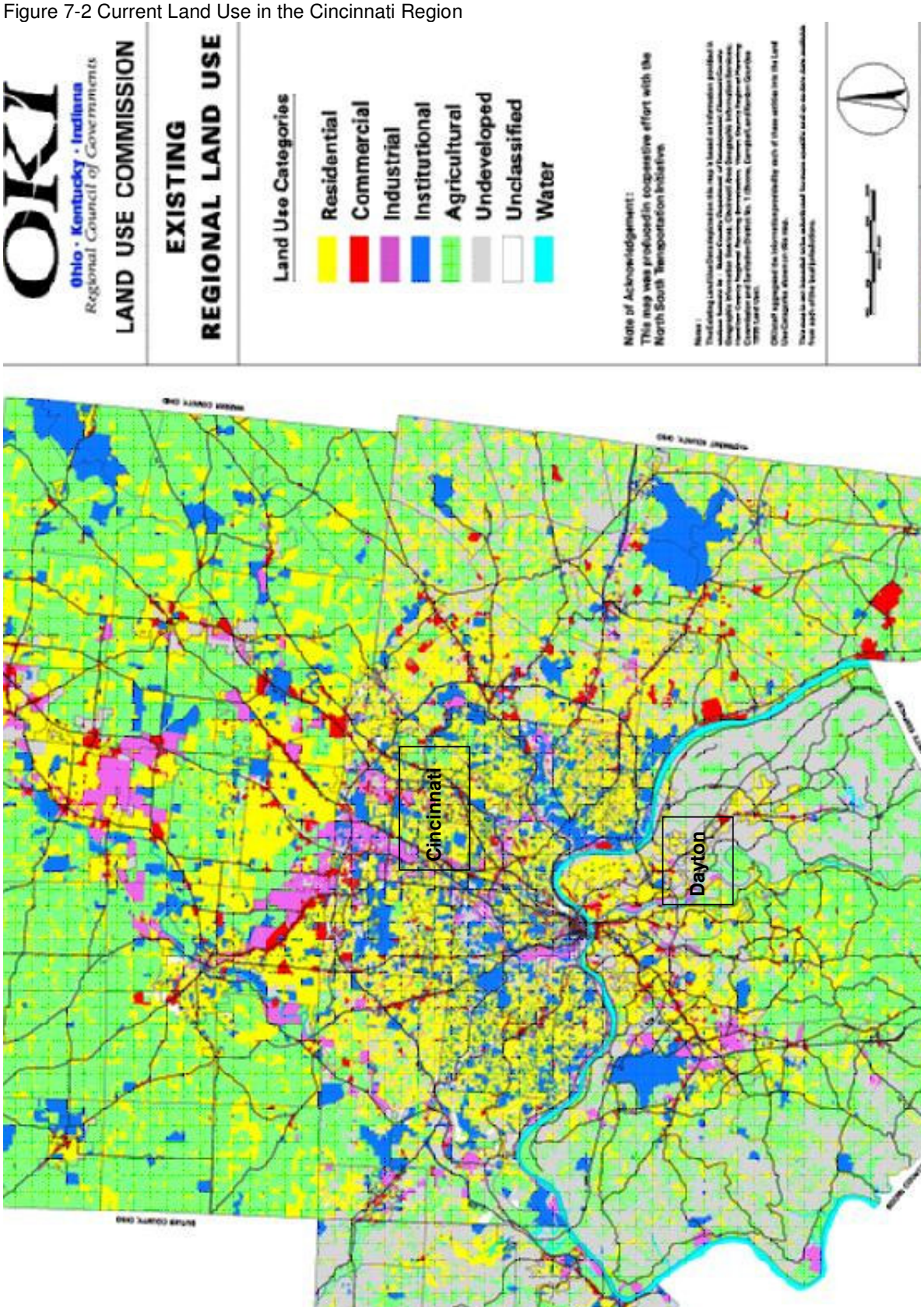
- Street connectivity: 85.4
- Centeredness score: 110.2
- Mixed Use score: 95.8
- Density Score: 88.8

Combined with sprawl, the main problems of the Cincinnati area are pronounced segregation - in economic as well as social and racial terms -, inner city decline and intra-regional competition of the municipalities and townships (cf. Orfield & Luce 2001, p.1).

Cincinnati's sprawl has also seeped into its neighbouring state. Southeastern Indiana saw 11.3 percent growth between 1990 and 1997 due to Cincinnati encroachment, making it the state's fastest growing region. The other axis of expansion is headed south towards the city of Dayton in Kentucky, currently separated by a 17-mile highway route. "*Long range, that corridor - that handful of exits - will be the center of the universe*" (Baker & Boyer 2007). The suburbs of the two cities are already touching (cf. Edelman, David, University of Cincinnati, personal interview on July 15th, 2008).

Figure 7-2 – next page- shows the current land use in the Cincinnati metropolitan area.

Figure 7-2 Current Land Use in the Cincinnati Region



Source: www.oki.org, adapted

7.2 METROPOLITAN STRUCTURE AND PROBLEMS

7.2.1 Doughnut Development and Polarisation

For the metropolitan area as a whole, there is a growth of population projected. For the City of Cincinnati, though, comparisons of year 2000 and 2020 population projections within the CMSA reveal a population decrease of 35%. Despite significant reinvestment in the City of Cincinnati, the city core and areas surrounding it are struggling with increasing poverty and population loss, where as areas, especially along the I-275 beltway, have become regional employment centers (Anderson Township/Union Township Area, the Blue Ash/Kenwood Corridor, the Greater Cincinnati/ Northern Kentucky International Airport/Erlanger/Florence Triangle, and the Springdale/Tri-County/Forest Fair Corridor). "*…the region is still highly polarised compared to other large metropolitan areas*" (Orfield & Luce 2001, p.1).

This type of population decentralization reflects a doughnut effect pattern of development, where the central area of a region is basically empty of both people and commerce (cf. DAAP 2001); the main downtown use is business; the City of Cincinnati, though, is currently taking considerable effort to bring mixed use into downtown (e.g. waterfront development).

7.2.2 Inter - Municipal Competition

Financial problems are present in many of Cincinnati's municipalities, as there is no tax reallocation: there are poorer ones lacking wealthy population and financial resources on the one hand, as well as areas of strongly growing population struggling to finance public service on the other. Some examples for poorer communities suffering from social tensions, loss of businesses and jobs, decline of property values and tax revenues are Covington and Dayton in Kentucky and Silverton, Mt. Healthy and Lockland in Ohio (cf. Orfield & Luce 2001, p.1). Communities with strong growth, but low and modest fiscal capacity are Alexandria, Taylor Mill and many unincorporated areas in several counties. They are "*struggling to keep up the demand and costs of new schools, roads, sewers, parks and many other public services*" (ibid.).

These municipalities suffer from a specific aspect of Ohio and Kentucky law: the municipalities are capable of levying taxes - also earning taxes. So communities, mostly sleeping communities without job centers, "lose" a considerable amount of tax money to neighbouring municipalities having such job centers. This, of course, increases competition. Relatively few municipalities have succeeded in attracting shopping and business centers and then often can not provide affordable housing to the people employed there, which leads to growing transport demand and congestion (ibid.).

"*Many local governments do not provide for mixed-use development or non-traditional land uses, and some townships discourage higher density (multifamily) zoning districts because they believe higher revenues will be generated by single family units or because of the concern that apartments will attract transient or lower income residents*" (OKI 2005, p. 63).

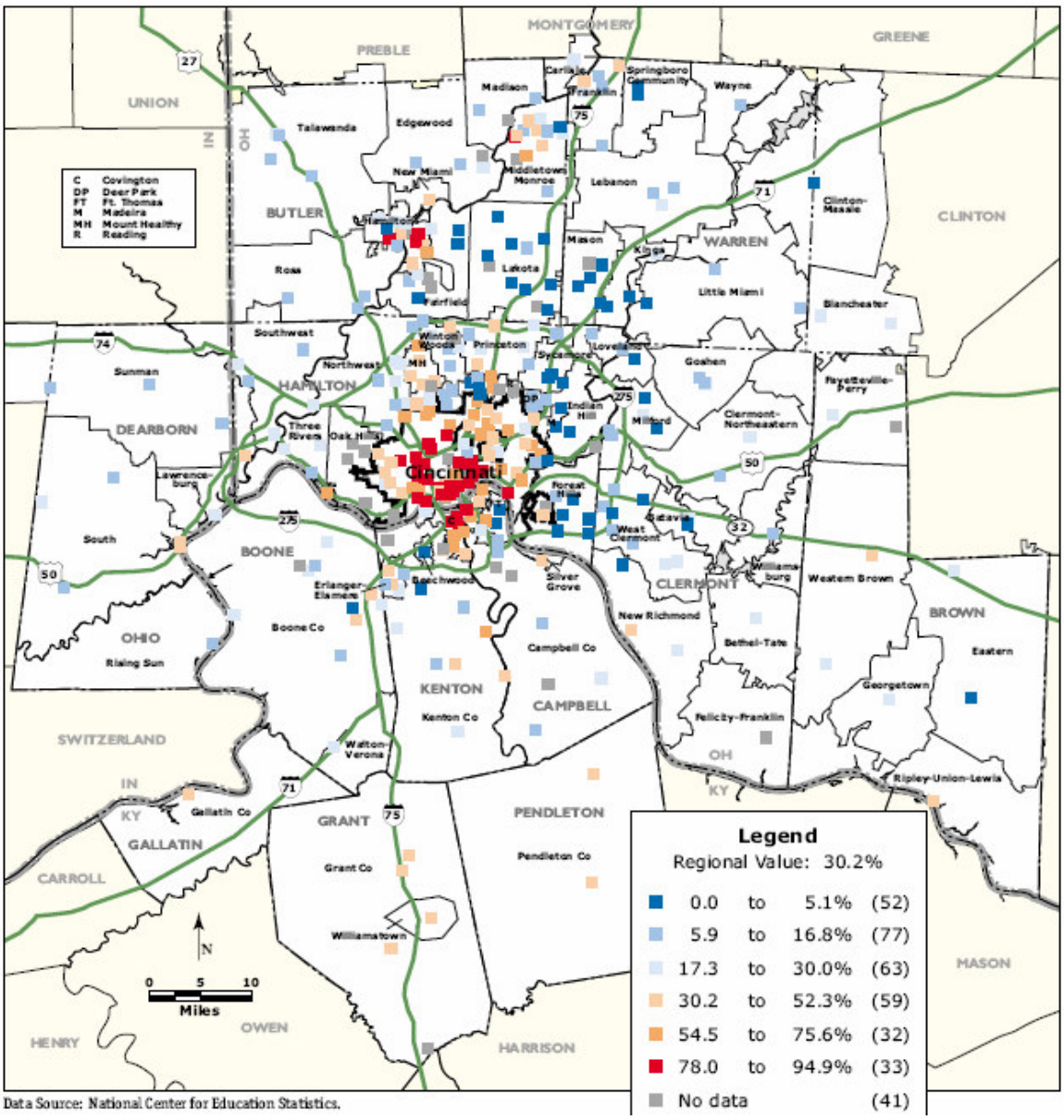
7.2.3 Segregation

"*The Cincinnati region shows some of the most pronounced patterns of separation by race and income in the nation*" (OKI 2005, p.68). The black lower class is concentrated especially in Hamilton County (which makes up the center of the region). "*If the current trend continues, the African-American population for the City of Cincinnati and Hamilton County will be 66% and 28% of the total population, respectively by the year 2020. In contrast, the African-American population in the surrounding twelve counties of the CMSA is not projected to exceed five percent"* (DAAP 2001). Race riots in the late 1960's have induced "white flight" to the suburbs, joined by out-migration of the black upper-class (cf. OKI 2005, p.68).

Orfield & Luce (2001) used school demographic data as a proxy for (future) demographic developments in the region. Poverty problems occur mainly in the City of Cincinnati (18% of the central city population

have been living in high poverty in 1990 – Portland's score, for comparison, was 3% and the average was 12%), but it is nevertheless a regional phenomenon (Orfield & Luce 2001).

Figure 7-3 Percentage of Pupils Eligible for Free Lunch by School, 1997



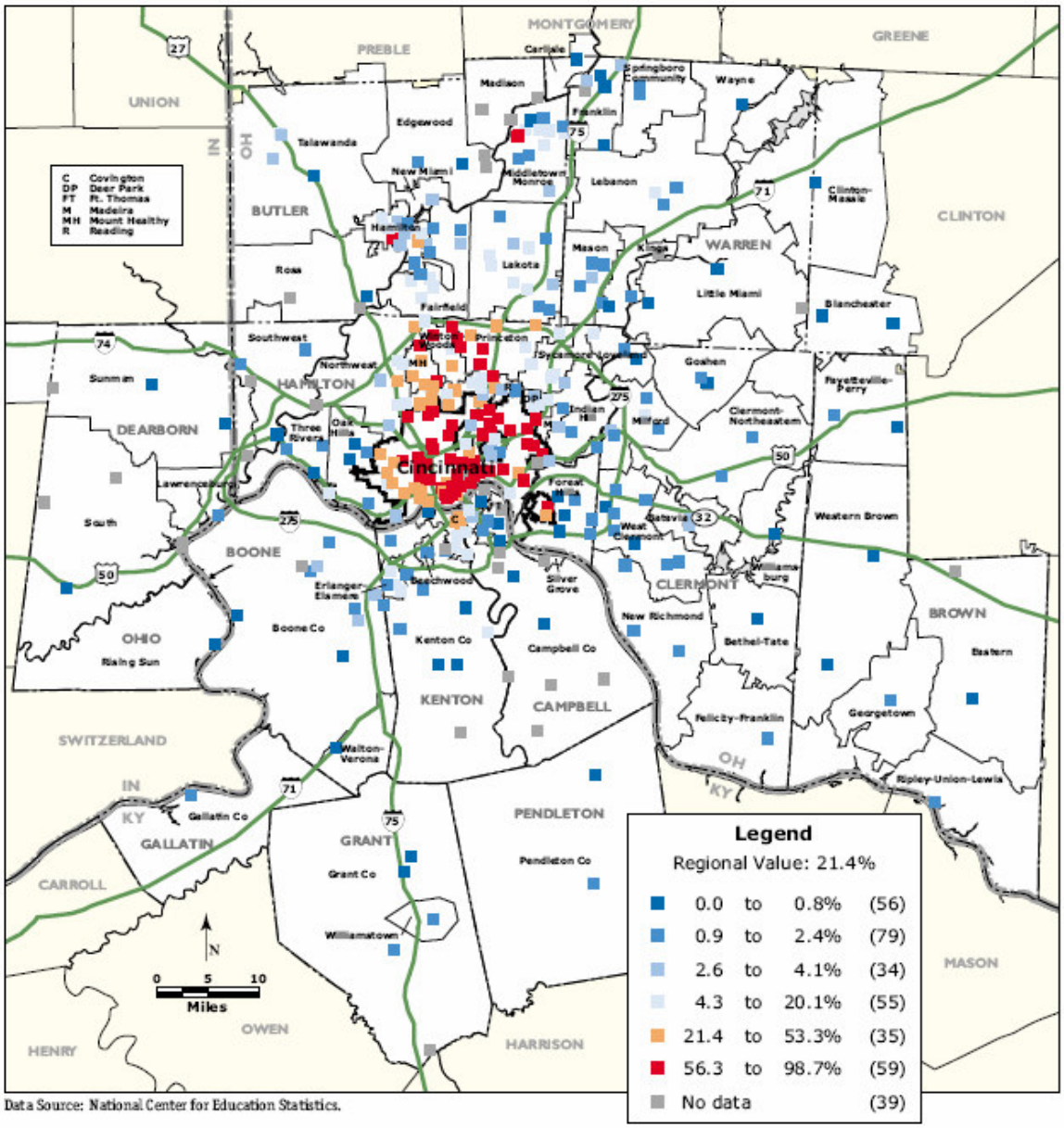
Source: Orfield & Luce 2001

The areas with the highest number of poor students (indicating future development) are found within the City of Cincinnati and in Hamilton.

Intense growth of poverty areas is occurring especially in the north of the city along the beltway and to Hamilton, as well as in regionally dispersed nods.

The racial polarisation draws a similar picture: concentration in the central city. Growth of these areas occurs also north of the city (e.g. Winton Woods, Princeton).

Figure 7-4 Percentage of Non-Asian Minority Elementary Students by School, 1997



Source: Orfield & Luce 2001

7.2.4 Sprawled Development

"*As social and economic problems move outward from Cincinnati into surrounding suburbs, tides of middle-class families – often young families with children – sweep into the rapidly developing communities at the edges of the region where local governments compete for limited tax base to cover their growing infrastructure costs"* (Orfield & Luce 2001, p.5).

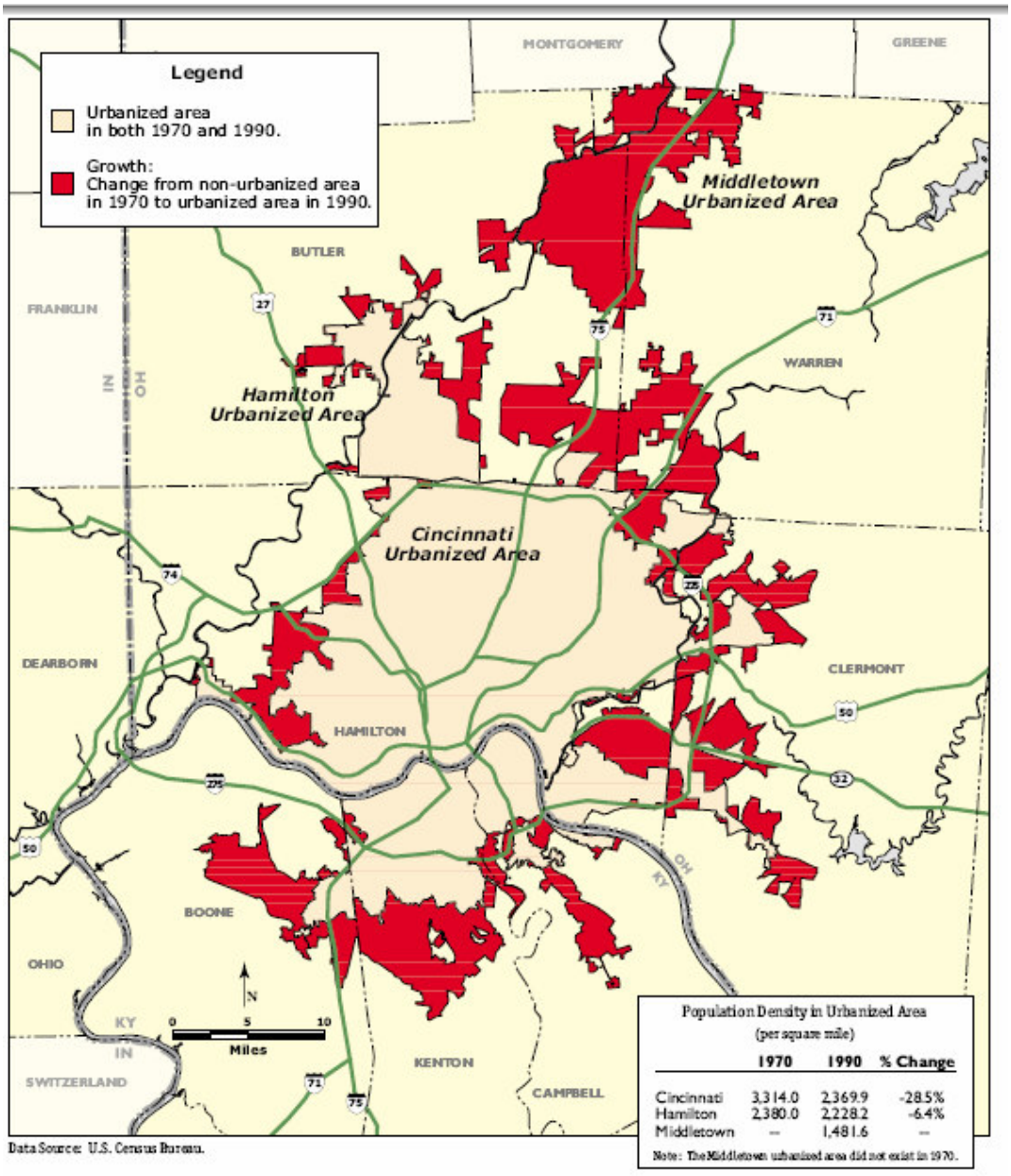
The "*bulk of growth*" (Orfield & Luce, 2001, p.5) is occurring in the outer ring suburbs. During the 1990's, Hamilton County lost population, while Kenton and Campbell (south of Hamilton) counties grew by less than five percent (these make up the center of the region). Butler, Pendleton, Brown and Clermont Counties grew by 10 and 20 percent, while the outer Dearborn, Warren, Grant, Gallatin and Boone Counties grew between 20 and 40 percent (cf. Orfield & Luce 2001, p.5).

Sprawling growth is not limited to housing: in recent years, growth in employment has shifted from downtown to suburban retail parks and office centers (cf. Orfield & Luce, 2001, p.5). Cincinnati is still the major commuting center in the region, but the ratio of jobs to population lies only slightly above the average for the region as a whole (57 jobs/100 persons compared to the average of 46/100). Inner suburbs and the outermost parts of the region show the lowest ratio of jobs/inhabitants. Employment centers are “doughnut places” places like Sharonville (202/100), Springdale (249/100), Evendale (199/100), the Hebron section of Boone County (114/100) and the unincorporated areas around Florence (104/100) (ibid.).

The Cincinnati metropolitan region has four main transportation routes: Interstates 71, 74, 75, and 275. Because of the accessibility provided by these interstates, residents in this area have many employment and residential options, also extending to neighbouring counties. As already said, many workers can not afford housing prices near those employment centers, and consequently have to settle elsewhere and commute. Growing congestion is seen as a major problem in the Cincinnati area (cf. Orfield & Luce, 2001, p.5 et seqq). If the current trend continues, the Cincinnati metropolitan region will experience an increase in congestion that will worsen in the north. Additionally, out-of-county movement for work will keep rising and Butler, Warren, and Clermont continue to experience the most movement (cf. DAAP 2001).

Figure 7-5 shows the development of urbanisation in the Cincinnati region from 1970 to 1990. The Middletown Area in the north, not having existed in 1970, has been settled in a noticeable sparse way. Its population density was only about two-thirds that of the Cincinnati and Hamilton areas (Orfield & Luce, 2001, p.6).

Figure 7-5 Change in Urbanized Area, 1970-1990



Source: Orfield & Luce 2001

7.3 STRATEGIES ON SPRAWL

7.3.1 General Information

Coordination between local and regional entities is weak. *"Most of the OKI region's 138 local zoning authorities focus on incremental zoning and subdivision reviews, rather than the timing, location and cost of land uses over the long-term. As a result, OKI, as the MPO, typically reacts to chronic transportation problems instead of planning for and funding transportation solutions that would be implemented concurrent with the impacts of land development" (OKI 2005, p.97).*

The states of the metropolitan area have very differing state planning laws. Ohio, for example, does not require long-range comprehensive planning from municipalities and also offers no guidelines. The City of Cincinnati has no actual comprehensive plan and does not provide any specific guidelines for fringe development or urban growth management. The situation in the surrounding municipalities is similar, what makes it particularly difficult to harmonize development. Kentucky has a more progressive planning law.

Cooperation in urban development issues is very weak at present state due to the traditionally conservative Ohio government (cf. Edelman, David, University of Cincinnati, personal interview on July 15th, 2008). There is OKI (see below), which enforces transportation planning and therefore has some influence on regional development, but which lacks any competences or traditional engagement in land use planning. Only in the last years, some effort concerning the definition of a regional development strategy and regional cooperation has been made.

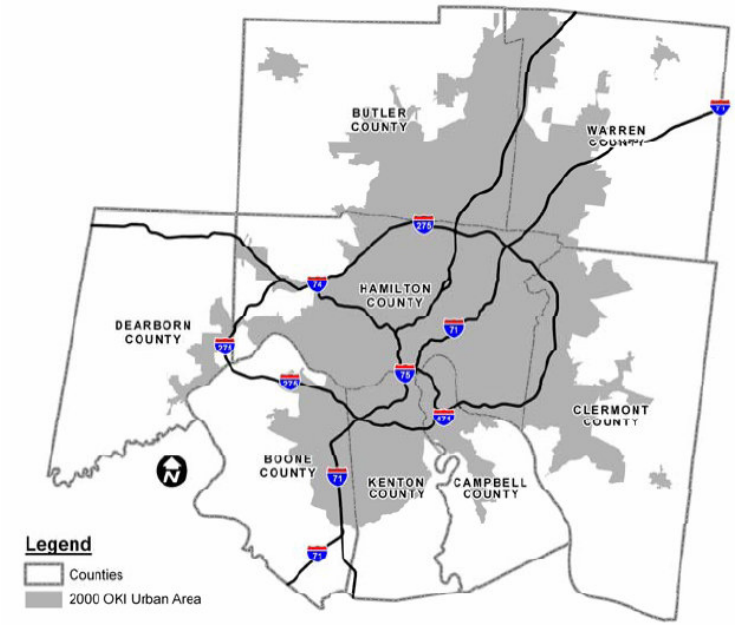
7.3.2 Focus: Cincinnati's OKI

The Cincinnati region has a Metropolitan Planning Organisation (MPO), named "Ohio-Kentucky-Indiana Regional Council of Governments" (OKI). Compared to Portland's Metro, it has very little power. An MPOs' tasks are generally focusing on transport and should "…*manage a setting for effective regional decision-making in the metropolitan area, including involvement of the public"* (U.S. Department of Transportation). Federal funding for transportation projects and programs are channelled through this planning process.

Structure

"The Ohio-Kentucky-Indiana Regional Council of Governments (OKI) is an association of local governments, business organizations, and community groups committed to developing collaborative strategies, plans and programs to improve the quality of life and economic vitality of the tri-state region that includes Butler, Clermont, Hamilton and Warren Counties in southwest Ohio; Boone, Campbell and Kenton Counties in northern Kentucky; and Dearborn County in southeastern Indiana. OKI is also the federally-designated Metropolitan Planning Organization (MPO) for transportation planning, and is the tri-state's only multipurpose regional entity that is in a position to plan for and coordinate intergovernmental solutions to growth-related problems" (OKI 2005, p.1).

Figure 7-6 The OKI Region



Source: OKI 2008, p.I-1

OKI has final authority over all federal dollars spent on transportation in the Cincinnati region. In 2007, OKI approved over $30 million in funding for projects in this region. In the late 1970's, OKI produced pieces of a regional growth plan addressing water quality, open spaces and development policies, but has not been able to keep it up due to lack of financial and legislative power (cf. Orfield & Luce 2001, p.9).

Nowadays, besides creation of the 2030 Regional Transportation Plan (it is currently being updated), OKI projects mainly include (www.oki.org):

- The 2005 Strategic Regional Policy Plan "Where Do We Grow From Here?"
- RideShare: presentation of alternatives for getting to work
- Participation in work on Urban Design and Planning solutions
- Geographic Information System: partnership with local, state, and federal agencies to develop a regional GIS program as a support tool for transportation and environmental planners – gathering of data and analysis
- Transportation Studies for several regional subareas
- Bicycle and Pedestrian Planning
- Homeland Defense organisation

The strategic document "Where Do We Grow From Here? A Strategic Regional Policy Plan" calls for consistent local comprehensive planning and says to be rewarding it with additional consideration in the funding for transportation projects. OKI emphasises that the organisation has no power over land use planning and is not aiming at getting such power, but tries to establish more consistency between local land use and transportation planning, especially through the Strategic Regional Plan (which has been worked out in a joint way together with local governments). OKI sees itself committed to help local governments implement land use and transportation strategies. The document contains specific objectives and strategies in various fields – e.g. housing, center development, land use, brownfield development- but implementation rests voluntary. Due to the strong competition between the townships and municipalities, cooperation and therefore implementation of sustainable strategies is very weak (cf. Edelman, David, University of Cincinnati, personal interview on July 15th, 2008).

7.3.3 Public Opinion

A strong role of government is usually seen much more critical in the USA than, e.g., in Europe. Portland is an exception in this respect, but Cincinnati is more "typical". Planning there has a traditional problematic "leftist" reputation, which leaves people in the more conservative state of Ohio more sceptical about it. Nevertheless, due to latest developments (gas prices, climate change etc.), awareness rises and the issue is being discussed more, among professionals and citizens. Future attitudes, though, can hardly be predicted (cf. Edelman, David, University of Cincinnati, personal interview on July 15th, 2008).

7.3.4 Conclusion: Cincinnati

Urban Structure and the Fringe

In general, the metropolitan area is much less center-oriented than the other case cities. Postsuburban nodes and subcenters have developed alongside the motorway ring and around malls, which are situated in a dispersed way all over the urban region. Downtown Cincinnati is of rather monofunctional use (business) and there is the threat of "doughnut development" due to the attractiveness of especially the "ring" areas. Though, the multifunctionality of downtown may improve in the coming decades due to considerable efforts of the city.

The region is furthermore characterised by a car-based and sparse settlement structure outside downtown and massive growth of this sparse urban fabric. Polarisation and segregation are going along with this.

Fringe regions are difficult to locate in the Cincinnati region, due to the low densities of even the residential areas. Compared to Portland, though, which has a rather star like shape of "fringe roads" cutting through housing suburbia (which is also denser than in Cincinnati), Cincinnati is characterised by the wide motorway ring around the metropolitan area and mostly sparsely settled housing areas. This ring and the punctual, dispersed malls are most likely to be characterised as "fringe".

Policies

The Cincinnati region is characterised by the strong position of the townships and municipalities, which are in competition against each other on several levels, especially concerning taxes. This makes it particularly difficult to implement any regional approach, considering the weak background of Ohio State Law and the weak position of OKI. The fact that the municipalities are not even obliged to establish and maintain comprehensive plans, makes the situation even more difficult than in Vienna. Furthermore, planning is traditionally regarded problematic, but the situation might improve due to actual developments.

OKI has - although it emphasises that it does not want to interfere with local planning competencies - published a strategic document for coordinated regional development. Although the present attitude of the regional actors seems not to be in favour of cooperation, rising awareness of the problem field may change this in the future.

Results

Because of this strong intra-regional competition and the weak regional authorities, considerable joint planning efforts have not taken place. OKI is, at present state, only reacting to regional development by means of transportation planning. The 2005 strategy was the first document pointing in the direction of joint regional development (it is very general and cautious, though), but due to a tradition of non-comprehensive and non-cooperative development, it has not shown any measurable effect so far: the Cincinnati region experiences strong sprawl and polarisation tendencies.

Nevertheless, current national tendencies may signalise a beginning change of mind towards more cooperation. The only visible (partly) anti-sprawl measure is the effort undertaken to keep downtown lively (waterfront development, cultural activities).

8 SYNTHESIS OF FINDINGS

This chapter gives a compact overview of the findings achieved in the analysis of the case cities. As already said, the main comparison is made between Vienna and Portland; Cincinnati is listed to give a better view of an "average" American situation.

In general, the analysis took the respective functional urban region into account. For Vienna, though, it was conducted from the point of view of the City of Vienna, as it is the "biggest player" in the region. For the Portland region, the perspective was that of the regional government Metro, which is the main body dealing with issues of metropolitan development. The analysis of Cincinnati was conducted less extensive and the findings should be seen as general overview.

The following table is a roundup of the analyzed planning approaches and their effects, which result from different basic conditions and frameworks. The findings given have to be seen not only as comparison with each other, but also against each city's urban development background. The table is rather an illustration of different points of view of and strategies on the problem field than a quantitative rating scheme. It nevertheless makes the different approaches and tools visible.

In general, it can be stated that Portland's planning approach towards sprawl is of completely different character than the one of Vienna (and, also, Cincinnati). Whereas metropolitan Vienna relies on city-regional cooperation platforms and project-specific regulations, Portland's Metro fixes quantitative benchmarks for the whole metropolitan area and leaves detailed project-specific regulations to the municipalities. The comprehensive benchmarks are checked regularly and non-compliance can be (and is) punished. Another difference is the integration of the public. Whereas Vienna's urban planning avoids measurable benchmarks in its comprehensive planning documents and keeps public outreach compareably low, Portland regularly publishes detailed compliance reports and information material. This might be due to the fact that Metro would want to inform its voters well, while in Vienna, information of the public seems to be understood as "surplus value". There is no real "institution" judging urban development policies, so more space is left open for "flexibility" and regulations focus on individual projects. Nevertheless, public outreach and information seems to become more important in Vienna in general. Sprawl issues, though, are still not communicated.

Table 8-1 Comparison Vienna/Portland/Cincinnati

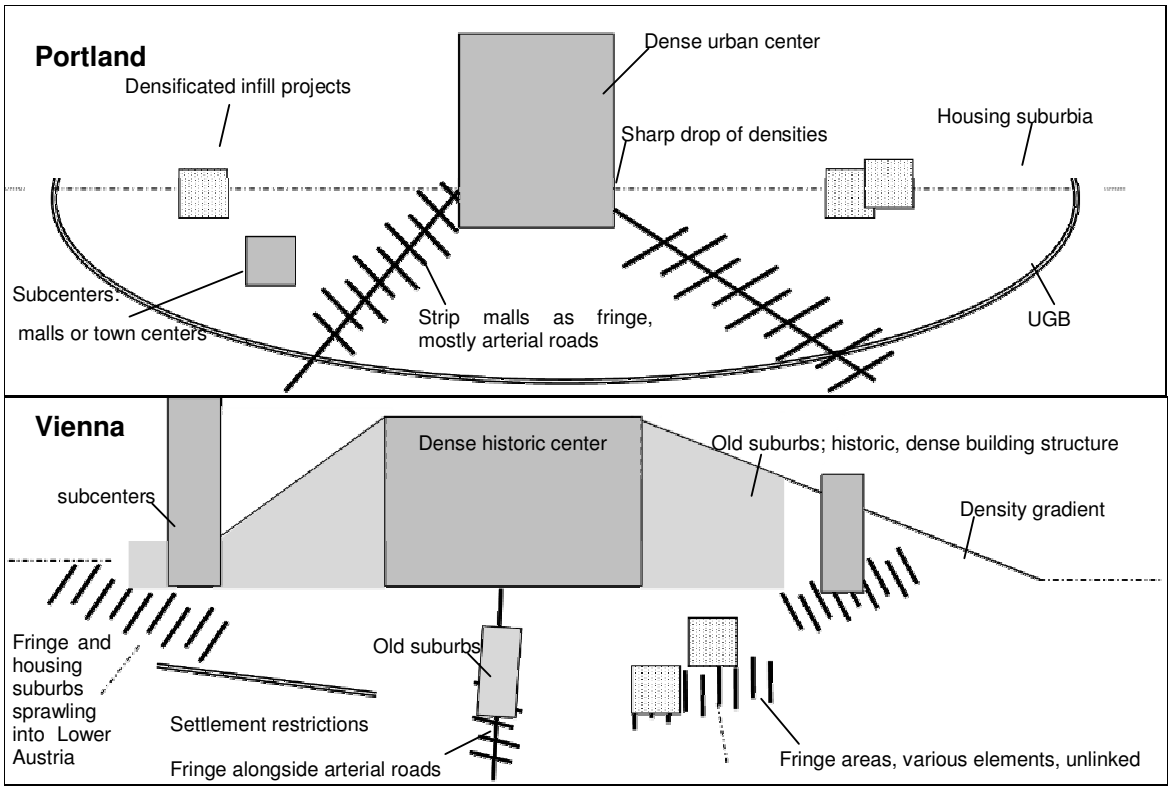
	Vienna	Portland	Cincinnati
Urban form and structure of centers	Strong center with subcenters throughout the urban area; clear center-periphery gradient in density and urban design forms; different housing structure in areas inside administrative boundaries and Umland; mix of functions weak in the hinterlands, improves with smaller distance to the center; FUR spreads over 3 federal states;	Monocentric with large monofunctional housing areas; no center-periphery-gradient – rather step-form with first sharp step at the border of downtown; mix of urban functions mainly in central city, on main streets and in malls; subcenters weak; 2-state FUR;	Polarised, fragmented urban scape; downtown mainly business function, but efforts for mixed use take place; employment centers along ring motorway; urban functions concentrated in malls along ring road and main motorways; first suburbs; low densities; 3-state FUR;
Densities and Trends	Dense central area is comparably larger - history; lower overall number of single family houses and more higher density developments inside the boundaries; Low density in outer districts (is expected to be densificated due to high demand); existing and projected dense large scale developments in the fringe; highly dynamic low-density development in hinterlands (Lower Austria, Burgenland); Growth boundary for city in STEP, metropolitan growth boundary weakly implemented	Wide-spread metropolis due to large lot sizes and comparably low number of densificated developments outside central city - mostly single-family houses; urban space/person much bigger than in Vienna core; Recent densification efforts have taken effect - trend; Clear settlement boundaries for metropolitan area;	Very wide spread, with now tendency of slowing down; Low-density development outside downtown, especially in the north; densities get lower in newer developments; Mostly single-family houses;
Transport	higher share of public transport; streetcar/underground serves wider area; car-dependant forms especially in Umland areas outside the administrative borders, but also in outer districts;	Fareless square in the center; only 3 light rail lines, consequently limited area of service; streetcar in central city since 2001; car dependant form outside the center and light rail axes;	Mainly based on car transport; bus system partly “dangerous” reputation; separate bus system in Kentucky and Ohio; job/housing mismatch – traffic problems (not outstandingly strong in American comparison);
Main decisions aff. urban form	Gründerzeitmodell, Grüngürtel; Shopping City Süd, S1, Aspern;	UGB; Region 2040 concept - densification, TOD; reintroduction of streetcar; UGB expansions;	Ring road; Township form of local government;
Actual tendencies / developments	Intensive development and redevelopment of fringe areas - big projects; strong suburbanisaton in the hinterlands; polarisation in FUR– malls; S1 motorway ring; A5 motorway north towards the Czech Republic; integration Wien-Bratislava;	Infills; higher densities of new developments; projected 2nd Columbia River Crossing; Measure 37/49 claims;	Polarisation; relocation of some businesses from downtown; efforts by the city to bring mixed use and public space into downtown; declining densities; strong urban encroachment mostly by middle class;
Sociology of the spot and public opinion	Planning is facing a partly negative view in the public; awareness for sprawl and planning issues insufficient, personal point of view is predominant; civic involvement in the beginnings; pronounced political dimension of planning; competition with Lower Austria;	Urban development/planning is respected and a big issue due to direct elections, mass media presence and public outreach of Metro; high share of educated immigrants age 25-35; “Pacific Northwest”-Identity; high degree of civic involvement; “Individual rights activists” achieved Measure 37;	Planning has a problematic reputation of being “leftist”; but awareness for sprawl and planning is becoming bigger especially now; still a long way to go concerning cooperation and sustainable thinking;

Strategies on Sprawl	**Basis of planning law:** Based on Viennese land use and building regulations (same hierarchical level as Lower Austria); **Regional planning:** No - Cooperation platforms with Umland, but no legal influence; **Strategies on Sprawl:** No distinct, formal strategy against sprawl, but issues addressed in STEP; no city-wide general prescriptions, benchmarks (e.g. maximum lot size) or design standards for expansion areas; but: - Growth boundary (concept) for core city in STEP – enacted through nature protection areas and land use plan - (Densification and design) strategies for single projects enacted through strong role of City in the market (s.b.) and land use and building regulations - Subsidies for urban renewal and brownfield development - Cooperation platforms with Umland on several levels (SUM…) **Role of public authorities in sprawl containment:** City of Vienna is strong actor in the land market (infrastructure, land stocking, public housing, renewal subsidisation) and partly uses it to implement its strategies (property regulations via Wohnbauförderung, land use restrictions) Concerning FUR, guidelines can only be developed on cooperative basis with hinterlands in Lower Austria: these regional strategies and concepts based on cooperation have failed so far in critical issues; inter-municipal competition is a problem for development; main focus laid on CENTROPE region;	**Basis of planning law:** Based on pro-Smart Growth Oregon land use law (special MPO, UGB); **Regional Planning:** Yes - by Metro: directly elected regional government comprising FUR (but without Clark County); Metro boundaries and UGB in Oregon expandable; **Strategies on Sprawl:** "Anti-sprawl-strategies" aimed at creating a compact urban body oriented on multimodal transport system. Main measure: UGB, but integrated in complex system of tools with legal effect: - Density requirements: minimum dwelling units per acre, maximum lot sizes for all newly developed lots (details elaborated by municipalities) - Encouraging infill development and urban renewal (through subsidies by Metro) - Integrated development of settlement and transport – emphasis on transit development (by Metro as MPO) **Role of public authorities in sprawl containment:** Metro is actor in land market, but less involved than Vienna (some land stocking of nature sites, transportation funding, TOD and urban renewal subsidisation) Enacts property regulations (UGB, minimum densities, max. lot sizes…) Model is based on joint work with municipalities (most objectives are legally prescribed by Metro, but detailed implementation mostly rests with municipalities); Cooperation is good in this respect; Complex system of legal framework: Oregon State Law, Metro regulations and municipality regulations	**Basis of planning law:** Complex Ohio government structure; weak planning laws at state level, state law does not address sprawl; townships very powerful; no regulations for MPO; **Regional Planning:** No – OKI as MPO (primarily transportation issues; slight attempts to establish recommended guidelines for joint regional development, but not successful so far); Comprehensive thinking and political collaboration at regional level is weak; **Strategies on Sprawl:** No regional strategy; no control over sprawl issues on a higher level (besides transportation planning); City of Cincinnati does not address sprawl issues; but: OKI's 2005 Strategic Plan attempts (no legal effect) to give stimulus to sustainable community planning; **Role of public authority in sprawl containment:** Weak; most planning is done on township level without any steering from higher levels; the market is the main development force; strong influence of townships' competition;
Status of sprawl containment	Focus on economic development and competitiveness; sprawl as a "side-topic"; no bundled strategy against it or quantified objectives; sprawl containment has become more important just recently among experts; but still no public awareness or distinct appeal of "sprawl";	Sprawl containment is backbone of urban planning; seen as key to economic and social issues and success; has high priority and is constant topic of public discussion; bundled set of strategies integrated in other planning issues (design, identity, street connectivity, transport..)	Low, but rising awareness in politics and public due to actual developments;

Design Vision for fringe areas	No comprehensive design vision for the Viennese fringe; projects are planned and approved singularly; certain standards demanded by land use/building regulation plan; missing urban design "framework" to create amenity values of public space in the fringe	10 design types defined by Metro and implemented by municipalities; new areas developed only in higher density (suburbia: ~3 storeys);	No "official" one, as there are no planning documents addressing this field; some suburbs begin to develop design initiatives;
Effects of policies and assessment	+ strong city center + new, bigger developments tend to be more densificated + settlement boundary inside Vienna core is basically implemented + redevelopment of brownfield areas + nature protection successful in urban containment + public transport – rising ridership and extension of net + SUM and New SKO as regional opportunities - lack of distinct thematisation of sprawl and fringe in planning documents – represents low priority; Focus on CENTROPE; - car dependance in fringe areas and hinterlands - smaller projects uncoordinated and sparse – no design frameworks for fringe, lack of amenity values due to non-integration of singular projects and missing clarity - new settlement's movement as political influence on planning – counterproductive - outside the administrative border: sprawl rings of single family houses - cooperation is abandoned in critical issues - public awareness of the topic low - industry tends to increase use of space - polarisation	+ strong city center + efforts towards densification take place and show effect: + UGB keeps urban encroachment at bay + densificated infills in central and fringe areas + housing space/person is declining + public transport system – rising ridership + protection of natural resources through regional strategies + public awareness for urban development issues and willingness for sustainability + TODs alongside light rail - TODs subsidized and often monofunctional - subcenters are underdeveloped/functions too much spreading out - existing forms of housing comparably sparse - car – dependant structures/missing pedestrian scale and large monofunctional housing areas in some suburban neighbourhoods - big box development/polarisation is occuring - UGB can be expanded whenever Metros decides to - Clark County: sprawled patterns an non-integration in Metro	There is little planning on higher level and therefore little effect; from a planning point of view, the system is in need of improvement;

The following figure gives an overview of the the different urban scapes of Vienna and Portland. It is a simplified picture as symbolic visualisation of urban form and elements.

Figure 8-1 Overview of Urban Forms: Portland – Vienna



Source: author

Table 8-2 Overview of Urban Forms: Vienna - Portland

Characteristic	Vienna	Portland
Center	Dense, historic buildings, large area covered	Dense, high rise buildings, smaller area
Subcenters	Historic subcenters; new sc distant to central city (monument protection); polarisation dynamics;	Historic sc weak – malls more important; polarised;
Densities	Mainly core-periphery gradient; subcenters as nodes;	Sharp edge at central city borders, densities low and stable until UGB
Housing suburbs	In Vienna: large public housing projects; “classic” housing suburbs situated in Lower Austria	From central city to UGB; mainly same density
Fringe	Wide spread at the edges	Mainly striplike alongside arterial roads
Settlement restrictions	By nature protection (effective) and in land use plan (variable)	Strict UGB, but expandable by Metro
New projects	Inside Vienna: high density, strong influence of city; outside: strong private sector (lower density)	Minimum densities for new projects; higher density infills all over the metropolitan area

Source: author

9 SUMMARY AND LESSONS LEARNED

Sprawl is a comprising phenomenon. Not only does it result from and affect processes in the whole urban region, but is also influenced by frameworks of society, economy, history and culture. This makes respective comparisons of different culture areas especially interesting.

The executed comparison USA-Europe made different basic conditions – like role of the market or individual freedom – and their influence on sprawl patterns visible. Furthermore, it pointed out their impact on planning approaches and deduced strategies and measures, which are very different in the three case cities. Sprawl can after all be seen as a picture of society's state and desires as well as the approach of planning towards it.

The most challenging aspects of sprawl are the facts that first, it is a city-regional phenomenon that usually crosses administrative borders. This often hinders counteraction because cities and their hinterlands are likely to compete instead of collaborate when it comes to substantial decisions. Second, it is a multifaceted dynamic, driven by many factors and reaching far beyond the range of urban planning. Consequently, planning's traditional tools are often not sufficient. These conditions, though, must not result in planning tolerating sprawl. It is a much too threatening dynamic to ignore.

As it was made clear, sprawl's influence is visible all over the urban area, its obvious "frontier", though, is the urban fringe. This rather new part of the city is diffuse and unknown, as it does neither conform to the picture of the dense, historic city we (as Europeans) have in mind, nor to the one of unspoiled nature many would like to live close to. There is a diverse set of perceptions and expectations projected on and enacted in the fringe. It is even hard for urban planners to define it, what may be a reason for the difficulties that planning obviously has when dealing with it. The results are clearly visible at the edges of cities: autarc elements with residual space in between, scale shifts and forms following function create "placelessness" and lack of amenity values. This is a highly critical development, as fringe areas are dynamic and quickly growing parts of our cities - planners have to be aware that large pieces of the cities' future are built every day; and at present, the produced quality often leaves room for improvement. So, solutions have to be found and formed into development visions and respective strategies. This requires discussion about character, potentials and risks of the fringe as well as its design and the form of "urbanity" that is to be achieved there in the future.

In this respect it is important to mention again that sprawl is the result of many individual decisions – which might be justified from a personal point of view - and can thus only partially be influenced by urban planning. Its traditional role is to steer the results of comprising dynamics (like, e.g., the demand for housing space or the need for traffic) in order to enable positive development of metropolitan regions. Interventions on the "input" side – such as the behaviour level – which would be necessary in this respect, are often no possible option for planning at present state. Especially for European urban planning, this is a rather new field, as a long tradition of top down regulation left its footprints on planning approaches and citizens' interest in urban development issues.

Nevertheless, education and information of metropolitan inhabitants are crucial factors. There is the necessity to inform and educate metropolitan inhabitants about each individual's role in the sprawl process. For this, new fields and channels of communication have to be used.

To conclude, it has to be emphasized that another pivotal point in the process is implementation. All coordination platforms, joint visions and education concepts are - simply – useless, if their measures are not realised accordingly. History of metropolitan development has shown that the variety of actors and administrative bodies with their different range of viewpoints and interests make it difficult to take cooperative action, especially when it comes to decisions about property and economic development. A sufficient degree of committment has to be claimed and fixed.

These aspects, when reflected against the background of Vienna, can be expressed in the "lessons learned" below. Those can be structured in 3 main fields:

1) Discussion and Definition
2) Commitment and Implementation
3) Communication and Education

Lessons

1) Discussion and Definition

Lesson 1a: Sprawl is a comprising phenomenon that goes beyond urban planning's limits: in administrative as well as in professional/methodological terms. Nevertheless, the difficulty of finding solutions must not result in planning completely focusing on other urban issues: sprawl is a too strong dynamic and consequently has to be addressed forcefully.

Lesson 1b: The urban fringe needs special consideration. Keeping the large relationships of regional development in mind should not conceal that fringe areas are substantial and strongly growing parts of our cities. A laisser-faire approach towards urban design and amenity values in the fringe is risky in several dimensions.

Lesson 1c: A development vision for the fringe has to be defined, containing statements and aims about how these areas are supposed to be and look like in the future. This requires a promotion of the discussion process about character, functions, design and potentials of the fringe. The results have to be formed into application-oriented strategies.

Lesson 1d: At present state, the City of Vienna has to be aware of its ability to design the push factors of sprawl. Individual decisions can hardly be influenced, but conditions inside Vienna – and within its present field of competence - can be made more or less attractive. One important factor is to establish higher amenity values in fringe areas. The present "redevelopment wave" offers opportunities to do so.

2) Commitment and Implementation

Lesson 2a: Sprawl is a regional phenomenon and requires a regional platform to deal with it. The existing focus on the CENTROPE-level, though, does not address city-regional issues like sprawl in sufficient detail. The SUM-model has potential to become an effective instrument, as it works on small scale.

Lesson 2b: Without proper implementation, working on visions, strategies and measures as well as coordination is obsolete. A sufficient degree of commitment of all actors is essential and has to be demanded.

3) Communication and Education

Lesson 3a: The knowledge about urban sprawl has to be promoted among the public. As sprawl is driven by individual decisions of citizens, awareness for causes and effects has to be raised and the role of each individual has to be made clear. Especially now, considering global tendencies, receptivity for this topic might be high. To achieve this, planning will have to open up to other disciplines and to continue aquiring of communication competencies.

Lesson 3b: Proper problem definitions are basics for communication. Defining the respective issues among planners is as important as communicating them to the public.

10 GLOSSARY

Development Vision (Entwicklungsleitbild)
"*A development vision comprises the main guiding principles for the development of a region, a city …, as well as basic starting points for strategies. Those development strategies - specified for fields of action – comprise strategic development goals and subordinate targets (objectives) for the single fields of action*."
The original definition was made in German:
„Das Entwicklungsleitbild umfasst die zentralen Leitvorstellungen zur Entwicklung der Region sowie grundsätzliche Strategieansätze. Die handlungsfeldspezifischen Entwicklungsstrategien beinhalten strategische Entwicklungsziele und Teilziele für die einzelnen Handlungsfelder." [22]

Distance Decay (Abnahme mit wachsender Distanz zum Usprung/Stadtzentrum)
"*A function that represents the way that some entity or its influence gets lower with growing distance from its geographical beginning."* [23]

Effect (Effekt, Auswirkung)
outcome[24]

Goal (Ziel)
End result that is being aimed at.

Objective (Zielsetzung, Planziel)
"*Desired outcome of the delivery of the project. An objective can be measured."*[25]

Period of Promoterism (Gründerzeit)
Economic phase in Germany and Austria in the 19th century until the market crash of 1873. Architecture in the tradition of historism.

Planning approach (Planungsansatz)
"*Planning approaches consist of four elements: a set of problems (problem views), a set of goals, a set of methods and background knowledge. They appear in combination with each other. There are many planning approaches and they seem like "glasses", through which planners look at things. The planning approach is not defined by the nature of things, so it is possible to choose between them for planning."*
The original definition was made in German:
"*Planungsansätze bestehen aus vier Komponenten: einem Satz von Problemen (Problemsichten), einem Satz von Zielen, einem Satz von Methoden und einem bestimmten Hintergrundwissen. Diese vier Komponenten kommen jeweils im Verbund vor und sind voneinander abhängig. Es gibt viele verschiedene Planungsansätze, und sie wirken wie „Brillen", durch die wir Dinge betrachten. Welcher Planungsansatz benutzt wird, ist nicht von der „Natur der Sache" vorgegeben; entsprechend kann man beim Planen zwischen verschiedenen Planungsansätzen wählen*."[26]

Postsuburbia (Postsuburbia)
Suburbia emancipated from downtown and gained central functions itself. The center-periphery gradient dissolved over the whole urban area and a polycentric system of functional nodes evolved. [27]

[22] Source: IREK Gießen : www.region-giessen.de/uploads/media/Vorlage_Empfehlungen_zum_regionalen_Entwicklungsleitbild.pdf; retrieved September 9, 2008
[23] Original citation: *"A function that represents the way that some entity or its influence decays with distance from its geographical location."* Source: Personed.com: www.pearsoned.co.uk/wps/media/objects/3133/3209133/glossary/glossary.html, retrieved September 9, 2008
[24] Original citation: "*Refers to the outcomes of a development activity and/or project at the purpose level. Purpose, effect and outcome all therefore convey the same meaning*." Cardno Acil: www.acil.com.au/glossary, retrieved September 9, 2008
[25] California State University; www.csumb.edu/site/x7101.xml, retrieved September 9, 2008
[26] Schönwandt & Voigt 2005 in ARL 2005, p. 769 et seq.
[27] cf. Borsdorf 2004

Problem (Problem, Problemstellung)
"*Problems in planning are unsolved tasks. Starting points can be: actual situations that are rated negatively and have to be improved, or actual situations that are rated positively, but which are estimated not to remain stable themselves and have to be supported. What is viewed as problem depends on the three other components of the respective planning approach. This means that each problem view, each problem description and each problem solution is not "objective", but resulting from the used planning approach*."
The original definition was made in German:
"Planungsprobleme sind ungelöste Aufgaben. Ausgangspunkte können negativ bewertete Ist-Zustände sein, die verbessert werden sollen, oder positiv bewertete Ist-Zustände, bei denen unterstellt wird, dass sie nicht von alleine erhalten bleiben, sondern dass zu ihrer Einhaltung etwas geplant und unternommen werden muss. Was dabei als Problem angesehen wird, ist abhängig von den drei anderen Komponenten des jeweiligen Planungsansatzes. Das heißt, jede Problemsicht, jede Problembeschreibung und jede Problemlösung ist nicht „objektiv", sondern hat ihren Ursprung in dem zugrunde liegenden Planungsansatz."[28]

Strategy (Strategie)
"The design and accomplishment of a general concept, through which the actor [in discussion with others] seeks to reach a certain goal."
The original definition was made in German:
"Der Entwurf und die Durchführung eines Gesamtkonzepts, nachdem der Handelnde [in der Auseinandersetzung mit anderen] ein bestimmtes Ziel zu erreichen sucht." [29]

Suburbanisation (Suburbanisierung)
"Suburbanisation describes the dislocation of uses and population out of the inner city, the rural area or other metropolitan areas into the hinterlands of a city. Friedrichs (1995) sees a simultaneous reorganisation of the structure of uses and population in the whole area. Often used synonymous with "urban sprawl". [30]

Suburbia (Suburbia)
Housing areas "sub"ordinate to the center, monofunctional, monotoneous in urban design (single-family houses), little employment opportunities;

Urban Development (Stadtentwicklung)
"*All time-bound processes that change the physical processes of a city*."[31]

Urban Containment (Begrenzung des Stadtwachstums)
Application of integrated strategies to restrict land consumption in the whole urban area, while definitely limiting expansion at the urban periphery.

Urbanity (Urbanität)
Urbanity has 4 dimensions: *density (buildings, population), size (population, expansion, buildings), traffic/movement/communication*, and *diversity (functions),* that have to be present in varying combinations to make a place "urban". "Urbanity" is usually associated with the historic, medieval city, but often in a glorified way.

Urban Fringe (Stadtrand, Zwischenstadt)
Zone (often, but not solely) at the edge of a city that can not be categorised as urban or rural, but contains elements of both. Zone of urban expansion, mobility, multiple uses and different scales and structures. Form follows function - often lacks high quality public space and amenity values in between big elements. In constant redevelopment.

Urban Sprawl (Zersiedelung, Ausuferung des Ballungsraums)
"*The growth rate of surface consumption exceeds the growth rate of population.*" Further qualitative dimensions added: (low) residential density, (low) neighbourhood mix of jobs, homes and services, (low) strength of activity centers and downtowns, (low) accessibility of the street network.[32]

[28] Schönwandt & Voigt 2005 in ARL 2005, p. 772
[29] Meyers Taschenlexikon 1999
[30] cf. Fassmann 2004, p.103 et seq.
[31] cf. Fassmann 2004, p.86
[32] cf. Ewing, Pendall & Chen (2002, p.6)

11 INDEX OF TABLES

12 INDEX OF FIGURES

13 APPENDIX I

Transkripts of Interviews (Excerpts):

Interview 1: Prof. Ethan Seltzer, Portland State University, May 29th, 2008

Portlanders have a special attitude towards their city. Living in Portland is a life-style choice: people do not move here to get rich – they would move, for example, to Chicago or New York if they wanted that. Portland is a community you come to to live well. And the city kind of self-selects the people who want to live here: High percentage of people who move to work by bike, highest percentage of hydro-vehicles nationwide.

Suburbs

The suburbs are growing faster than the central city, which can be seen as part of a national trend. People who relocate to another city tend to settle in the suburbs rather than the central city, because they know what is expecting them. The suburbs furthermore tend to be more conservative and, concerning voting patterns, republican. This is, interestingly, changing quite a bit.

Structure of Centers

The town centers are not developing as rapidly as we want them to. The reason is that we have too many areas zoned for the activities that we want in town centers, but in places with far less regulation and review. The 2040 concept plan did not undo the zoning that had existed before. This means that the capacity to accommodate uses like industry or commerce outside of town centers is enormous. Developers can consider areas not only in town centers. They use to develop their projects fast, which can be done more easily in places with fewer regulations, which would mean outside of town centers. This happens right now. With housing it is not so like that. Over 70% of the existing zoning for housing were unaffected by the 2040 plan.

On the long run, we would like to see the same functions which are existing in downtown Portland in subcenter places like downtown Hillsboro. Downtown, the modal split is equal between motor traffic, biking and walking. Regionwide it looks nothing like that: The regional automobile shares are probably 90%. So we want to establish, especially in key centers of the 2040 plan, the same mobility rates. We want to give people the possibility to live around the areas where they work, in good living environment, as pedestrians without depending on automobile travel.

We are planning to offer infrastructure that enables an integrated, multi-modal transportation system with a wider range of choices. The aim is to concentrate that in centers so that, over time, urban space will be reorganised. Metro adopted an urban structure plan – the 2040 concept - which identifies the places that we want to emerge as centers and catalysts for urban functions. The aim is to establish a polynuclear system combined with an integrated, multi-modal transport system throughout the urban area, combined with a system of green spaces. This speaks to one of the core values of people living in this urban area – which is living close to nature. This is, though, also driver of sprawl. We want to have nature close to where we live. But history has shown that low density development does not offer greater proximity to nature, as settlement always –if of low or high density - has a crucial impact on natural functions. We will have to face about 1.3 million additional people over the next 50 years – which is nearly a doubling of population. To do that in a low density way flies in the face of other objectives – e.g. to limit green house gas emissions.

Steering of Settlement

We don't tend to concentrate new inhabitants in any particular regions at all. The state has no power over migration anyhow. The driving and steering force is the market. Urban regions nationwide are structured and segregated by economic factors such as income. With the strong growth expected, we have to think of how and where to accommodate people.

A certain percentage of new houses will be in high density. Housel demographics are changing due to an ageing population and a changing demand from younger households. The need for large, low density suburban housing is going to be much less than it is now. The average building lot in the metropolitan region today is about 5.000-6.000 square feet (~500m²). The average single family house – we do not have many of them – is about a quarter of an acre or more (~1100m²), roughly speaking. Before the UGB, the average lot size of vacant buildable land was about 13.000 square feet (~1200m²). Afterwards it went down to about 8,700 square feet (~808 m²). Today it is more down to the 5000-6000 square feet. The optimal mix of different lot sizes and housing densities is and will be a topic of discussion.

There are population expectations for every center. In downtown Portland, this is exceeded. The population projections are increasing, which means in places like downtown Portland, even more housing units will have to be built.

In addition, there are "fare share housing expectations" for every jurisdiction in the region to provide its fare share of affordable housing. Jurisdictions in the past would use zoning to make it highly unlikely that affordable housing be in their communities. A community with developable housing lots of only 10,000 square feet or more will not attract economically weaker citizens. The state put the "Metropolitan housing rule" into place, requiring that every city and county – in their comprehensive plans – fix 50% of their development capacity for affordable housing units. It also assigned a net minimum density for housing for every jurisdiction. This ensured that in every community in the region, multifamily housing could be built. Metro requires the multifamily housing to be affordable, by requiring the comprehensive plans not to put barriers against that. There is a trend all over America do to infill and renewal, going along with higher density.

Metro

Each city in Oregon has to establish an urban growth boundary due to state law. The 24 cities of the Portland metropolitan area share one growth boundary and by that fulfil goal 14 of Oregon state law, which calls for growth boundaries.

Metro is on the other hand not empowered to create comprehensive land use plans, this is a power only given to cities and counties. Metro has though the power to create regional functional plans, which address single issues of metropolitan significance, for example the urban growth boundary or a regional transportation plan. Furthermore, Metro has the power to require that local comprehensive plans meet the prescriptions of regional functional plans. This is a tremendous power for a regional entity. Voluntary arrangements and cooperation platforms are nice, but when confronted with concrete decisions, they fail to enforce important decisions. I don't dare to say that a regional government with absolute power over certain areas is the only solution to metropolitan problems, but when it comes to accountability of the very governments in cooperative platforms, certain things will never happen.

Most regional planning in the U.S. occurs through voluntary arrangements. In Oregon, the people voted to create the regional government Metro, but the powers were described by the state in the Oregon state legislation. The state – this is true for all across the U.S. - developed the possibility for cities and counties to develop a home rule charter. This means that each jurisdiction and the vot-

ers within that jurisdiction have the authority to manage the powers of that jurisdiction. This is literally home rule. Instead of state law defining what Metro can and can not do, Metro has a charter, which was approved by the voters, describing what it can and can not do. The most important step was the adoption of the Metro charter in 1992

Participation

In Washington you have to go through Environmental Impact Assessments for zoning and to negotiate what the zoning really means, project after project. This causes very long processes. In Portland, it is rather quick. The whole reason of planning is to provide certainty. Multifamily housing must be allowed by right without any further bargaining or referendum project by project. The notion is that people should be involved in the planning process, not in the development process. The place to make concerns known is in the development of the plan, not in each individual development of a project.

Some cities and counties vote on annexations too. Not about the UGB revision process, but whether small parts of land shall be included.

Public Opinion

People have seen benefits of denser development and benefits of new activity in places that haven't had it. In many suburban neighbourhoods a lot of activities are possible within walking distance. The style of life possible there is actually attractive. This experience gives people the ability to accept changes in density regulations.

In the USA, there is a fundamental tension that will never go away – between the rights of the individual and the needs of the collective. We protect private property and the sovereignty of owners over it. On the other hand there are fundamental needs of the collective Were exactly the line of total reign over private property and collective expressions of regulation is, remains in tension. Citizens want 2 things: Protection of private property and planning done by the public. Measure 37 proposed that if regulation diminishes the value of private property, jurisdictions have to compensate for that loss or wave the application of the regulation. Measure 49 weakened Measure 37 – and allowed some regulation depending on when they bought the property. It comes down to where you expect value to come from. Without public regulation, there is no property. Property value people say that value is in the eye of the owner, it's all up to the owner.

Vision for the fringe

The plans define what the fringe should look like inside the UGB. Outside, there should be no development at all. The prescriptions are quite detailed, there are also some concerning design in some cases. The most important thing is to think of how much activity you want to concentrate on the fringe, because the fringe tends to be the least accessible place of the entire urban region.

Performance in achieving objectives

The area is doing very well with the UGB – urban encroachment is kept at bay. We are preserving – buying – green space. Voters have supported 2 bond measures to buy important areas.

We also do very well with the multimodal transport system. VMT per capita are declining, which is not the case all over the country. Work trips are very short. This is a sign that the transportation system matches with the land use plan.

We are doing a job of creating connectivity; and also with creation of private and public places associated with each other. We are doing a better job with linking land use to transportation.

Areas with more mixed results are the emergence of town centers and growth into the polynucleated form that we had in mind. Town centers are growing more slowly than we wanted them to. All the subcenters that we identified have been existing town centers. Every one of them requires redevelopment. This makes development more expensive than development of Greenfield sites. What we underestimated was the challenges of the redevelopment of grey- and brownfields in existing town centers.

We are doing not such a good job at providing infrastructure at some places. We clearly are still allowing big box development and other kinds of strictly automobile-dependant patterns of activity that are associated with sprawled development.

We don't have big territories of monocultural development. A big piece of property here is 100 acres. In California it would be 10.000 or 100.000 acres. So we do development in very small pieces. We have one of the biggest homebuilder association chapters. This differs from regions were development is done by 2 or 3 national chains.

Desire for more tools

We have not addressed landscape very well. We do not deal with issues like beauty at all. Furthermore, we do not deal well with equity and if the development of our community offers barriers for specific groups of our community. We need discussion about that issue. I don't know if the problem is tools or more about the need for conversation: What would our community look like if we addressed questions like equity, racism et cetera. Many things in Oregon are innovations of preservation. We are trying to keep things the way they are – e.g. sprawl and farmland, but in an innovative way.

Clark County

The strong growth rates are due to less restrictions and a complete different tax structure: There is no income tax and a limited property tax; and if you live in Clark County and shop in Oregon you can avoid the sales tax. Clark County is part of the metropolitan region. It offers people an alternative, in fiscal terms and in physical terms. Washington adopted its own growth management plan in 1991. Clark County is on the same path as the Metro region is, it's only 20 years behind. It is becoming more like Oregon every day, buts is still a bedroom community, with employment centers on the Oregon side. It would have no growth rate if it was not across the river from Portland.

Regional Transportation Planning is done jointly, on both sides of the river, land use planning is not done jointly, but it affects Transportation Planning. Clark County representatives sit on all committees of Metro. It is a voluntary platform, but linked to investment, particularly on the Oregon side of the river, and therefore affects investment on the Washington side.

I would not call it a weakness of the urban model – for me, Clark County offers another choice in the metropolitan area. Clark County is sprawled, poorly served and it is going to collapse under its own way. Property values are dropping there, much more than in any other are of Oregon. This is due to the fail of investments and commitments that are necessary to save value. It is growing quickly, but still accounts for less than 25% of the population of the metropolitan region. Over time, it is going to become more like the Portland side anyway.

Interview 3: Christina Deffebach, Metro Long Range Planning Director, June 27th, 2008

Postsuburban structures in the PMA are mainly concentrated in the historical town centers –though weak - of Beaverton, Hillsboro, Oregon City and Gresham. In general, Washington County has more of those. The East is more dependent.

Planning Measures

The UGB is not only a settlement boundary, but also a service boundary: e.g., water supply companies do not extend their service to outside the UGB.

Density requirements are for all newly developed sites inside the UGB. They are legal descriptions, though not worked out in detail by Metro. First, the population prognosis was calculated by the municipalities. Then, the allocation of housing was done jointly with Metro. To fulfil them is obligatory to the municipalities. How they reach it, is more or less up to them. New development goals are being worked out right now.

Infill development is encouraged, this is done by subsidies (Urban renewal fund – surplus of value in redeveloped areas is taken to induce new development). Metro helps the municipalities to do so: "This is what you want to do – and here are the tools", but the municipalities do it themselves.

For TODs, transportation funds are used as subsidies. Metro is a MPO and can allocate its transportation funds to subsidize the construction of TODs and to stimulate Mixed Use developments there. Metro sees this as possibility to strengthen small companies that do not fit in the market in the urban center. The demand situation of small companies in TODs is very good.

Participation

Planning is highly respected in Portland. There is a culture of high citizen participation, the degree of public interest and involvement is greater than in other metropolitan areas. The share of voluntary engagement is also higher. Portland has a special culture and character – people come here because they know that. There is an emphasis on environmentalism, proximity to nature. A large share of people moving here is higher educated and interested in sustainability issues.

Tax sharing

There is no real tax sharing between the counties of the PMA, if this means a divide of tax redirection according to population numbers or else. But, there is some smaller pooling in, e.g., transportation. Another example is a tiny percentage of new property developments (about 0.1%), which is directed to a pool and used for the strengthening of other areas. This mostly takes away some money from the center.

Communities/State/Metro

The cooperation between Metro and the communities is good – there is mutual understanding. The communities are in favour of growth management measures and do not oppose Metros actions. In many ways, Metro offer support for them rather than giving detailed prescriptions.

The relationship between communities, Metro and the state is a triangular one. There are some issues where the state directly addresses the communities, which have to report directly to the state. Some regulations are created and surveyed by Metro and the counties/communities only report to Metro (e.g. Functional Plans). Some areas address state issues which are regulated by Metro. In this case, communities only address to Metro. The relationship is very complex and under discussion.

Interview 3: Prof. David Edelman, University of Cincinnati, July 15th, 2008

Downtown

There has been considerable conversion into housing function (lofts) downtown due to efforts of the city: mostly young and retiring people. The major location factor in the USA is the school system – this is the most influential factor: The Cincinnati schools are not good, what discourages families to live in the city. Downtown, the situation is better: there are a lot of amenities. Although Cincinnati is a comparably small city, it has many amenities which usual big West Coast cities have: opera etc. People with some money are taken advantage of this.

Downtown development: it is getting livelier. Right now, they have broken grounds on a major project: the banks. The area between the two stadiums directly at the waterfront is being developed right now into mixed use, housing, commercial areas and office space. There will be public space too.

Competition between Kentucky (Newport on the Levee) and Ohio

Newport on the Levee has attracted many people, mostly young ones. For a developer, it is easier to develop in Kentucky than in Ohio. There are cooperation platforms, but of course, there is competition to some extent. The major competition, though, is externally. There is an international airport in Kentucky and there are good investment and transportation conditions. A lot of companies have their headquarters here. The decision is not made between Kentucky and Ohio, but between other metropolitan areas across the nation.

Motorway Ring

The oldest companies are still pretty much downtown, especially the headquarters. There back offices, research facilities – where you don't need face-to-face communication are located along the ring. That has contributed a lot to businesses moving out, because there is cheaper real estate and better parking. There is competition between downtown and the areas around the ring.

Structure of centers

There are subcenters along the ring, it is not the whole ring. There are nodes: in the Kenwood area (kennwood mall), where strong development is going on (office space, commerce). This is becoming a new center. Furthermore, Dayton and Cincinnati are growing together. They are only an hour apart and their suburbs are almost touching now. Furthermore, there are nodes along the interstate. For example, interstate 75, which is a major road from Canada to Florida. There are transportation functions (truck tansport, warehousing).

The major steering force is the market.

Urban structure Kentucky/Ohio

Newport was a small town and suburbia before. There are different planning and development laws. Right now, there is a lot of construction, urban renewal going on there (condominiums etc.).

Main decisions affecting urban form

The ring road as a critical thing;Land and gasoline is cheap in the U.S. ; very fragmented local governments and competition among them (esp. tax, there is no reallocation);

Cooperation

is getting better. The system of government is changing and old structures are breaking up. The outlook is good. People realise the stupidity of competition within the region. The state of Ohio is very conservative, so it is difficult to establish cooperation platforms.

Sociology of the spot

People are aware of sprawl, especially now that it is costing them so much. Planning has always had a reputation of being leftist (in the US). That has been a problem. But it is improving, especially now that people realise that they need it. The number of planning jobs in the US is increasing substantially.

Participation: There are a lot of civic groups. Every planning decision requires public hearing. People participate on different levels. That's a very strong characteristic of planning in the US.

Strategies on sprawl

Ohio law is weak and complex. We have a very conservative government structure which makes it difficult to change planning laws. In Kentucky, planning laws are better. All municipalities are required to have a comprehensive plan and to update it regularly. In Ohio, it is not like that. In fact, the last major suspended the planning office. But it is improving with the new planning director. OKI: is mainly engaged in transportation, but they have a land use group. They are no regional authority in comprehensive planning. Northern Kentucky has a planning agency. Ohio has just a board and a strong council. The board recommends decisions to the council and the major decides what to do. Thinking about these issues in a comprehensive way, this has not been done in the last years; but is it improving with the new major. The situation in the metropolitan area is very complex. In the suburbs, we have townships. This is an 18th century form of government of rural areas, which enables them to have a lot of control. And they are competing a lot.

There are strategies and everybody knows them. But getting everybody to agree, that's not realistic. Europeans are often not aware that the American psyche is like that: "If you don't like it, you move" And there is enough land for it. And this happened until the end of the 21st century.

Furthermore, Americans have always been suspicious of government. They don't see governments as serving them, they see it as making things difficult for them. Do it like you want is kind of the American way. So, convincing Americans to get together and collaborate for something that is in common interest is something that is not easy to achieve.

Strenghts and weaknesses of the "Cincinnati model"

That depends on your point of view. As a planner, it's too weak. But not all Americans would think that.

Interview 4: Michael Rosenberger, MA 18, August 14th, 2008

Stellung von Sprawl in der aktuellen Stadtentwicklungspolitik, strukturelle Visionen für den „fringe"

Real spielt die Thematik durchaus eine Rolle, steht in der Planung jedoch nicht an erster Stelle. Denn eigentlich ist es ja ein negativ besetzter Begriff, ein Problem, das man versucht, hintanzuhalten (die Stadt Wien innerhalb ihrer Stadtgrenzen).Das was man landläufig als „sprawl" bezeichnen würde, spielt sich hauptsächlich außerhalb der Stadtgrenzen ab, schon wegen der hohen Bodenpreise in Wien und des knappen Platzes. Es wird wohl so um die 100-1000 EFH pro Jahr geben, die entstehen, das ist im Vergleich der restlichen stadtregionalen Siedlungstätigkeit sehr gering. Die Strategie der Stadt Wien kann man als „die Räume eng machen" bezeichnen, kombiniert mit langfristiger Planung bezogen auf den Bedarf, der im Stadtentwicklungsplan errechnet wurde

Aktuelle Situation der Stadtrandgebiete

Es gibt nicht mehr viele Freiflächen – neu gebaute Einfamilien- und Reihenhäuser (v.a. in Kleingartengebieten) sind primär Verdichtungsmaßnahmen. Jetzt neu bebaute Flächen werden zunehmend eher in höheren Dichten bebaut. Grund dafür sind Siedlungsgrenzen einerseits und das dicht bebaut Stadtgebiet andererseits, was nicht mehr viel Spielraum lässt. Die jetzt bereits bestehenden, damals dispers gebauten Häuser werden von neuen Projekten „eingeholt", die Region nachverdichtet und mit neuen Projekten „angefüllt". Im Wiener Stadtgebiet gibt es im Wesentlichen keinen Platz mehr für das freistehende Einfamilienhaus.

Die zukünftige Entwicklung geht in Richtung mehr Dichte, schon allein aus wirtschaftlichen Gründen (Flächenknappheit, Bodenpreise). Das hat gar nicht so viel mit Stadtplanung zu tun sondern mit dem Wert, den die Liegenschaft repräsentiert. Wenn neue Flächen am Stadtrand für Wohnen gewidmet werden, sind sie primär für verdichtete Wohnformen vorgesehen – in jedem Fall Geschoßwohnungsbau, und in den letzten Jahren zunehmend höhere Dichten (nicht unter GFZ 2);

Eine wichtige Determinante ist die Tatsache, dass beim Wohnungsneubau in Wien fast 90% in gefördertem Wohnbau errichtet werden: das bedeutet größere Projektumfänge, meist realisiert durch Bauträger, die strengen Regulativen – hauptsächlich durch die Wohnbauförderung – unterworfen sind: Kosten- und Umweltkriterien, alle möglichen Standards, ohne die so gut wie kein Bauträger in das Projekt hineingehen wird. Dadurch kommt es im Neubaufall zu wesentlich dichteren Projekten. Die Wohnbauförderung ist für die meisten Leute ein unverzichtbares Finanzierungselement und sie wird nach relativ rigiden Regeln vergeben. Selbst Kleinprojekte (Neubau) sind diesbezüglich einem Wettbewerb unterworfen (Kriterienkatalog, Auswahlverfahren mit Jury..). Um da durch zu kommen, müssen viele Auflagen erfüllt werden – zB. Flächensparen, Energieeffizienz. Die Widmungstätigkeit ist damit harmonisiert. Es gibt zwar Ausnahmen, die hart an der Grenze des Rahmens laufen, den man sich selber gesteckt hat – zB die Neue Siedlerbewegung. Da wurde eine sehr extensive Siedlungsform mit öffentlicher Unterstützung ermöglicht. Wenn man da „eine Tür aufmacht", wird es sofort gestürmt. Das Angebot diesbezüglich muss man möglichst gering halten, damit auch andere Wohnungsformen angenommen werden. Weiters gibt es noch die Infrastrukturkommission, die einem Projekt zustimmen muss, damit es verwirklicht werden kann. Denn sonst ist auch keine Wohnbauförderung möglich. Sonst kann die Errichtung nur im frei finanzierten Wohnbau stattfinden. Das gibt es in kleiner Menge (10-15%), vor allem in Toplagen. Die Masse der Neubauwohnungen (zw. 6000 und 8000 Wohnungen pro Jahr) findet im geförderten Wohnbau statt, der stark reguliert ist (meist Geschoßwohnungsbau gekoppelt an Infrastrukturausbau). Diese Form kann man nicht als sprawl bezeichnen, sondern als kompakte Stadterweiterung. Wien steht eher vor der Frage, wie man trotz der Verdichtung attraktive, familienfreundliche, grüne Siedlungsformen schaffen kann. Sprawl ist somit nicht das Thema Nr. 1 in Wien. Sobald man aus Wien draußen ist, sieht es jedoch anders aus.

Bei anderen Nutzungen der Randgebiete – Fachmärkte, Riesensupermärkte etc. geht es schon eher in die andere Richtung, da ist die Nachfrage nach großen Flächen sehr stark. Man möchte Abstands- und Rangierflächen sowie Reserven für die Zukunft (2000-3000 m^2). Es werden zwar immer mehr Nutzungsarten immer verträglicher (mittlerweile sind etwa 85% der Beschäftigten im Dienstleistungssektor – dieser tendiert eher in die zentralen Gebiete), in den peripheren Gebieten treten jedoch sehr wohl Nutzugskonflikte auf (Lärm, Barrierewirkung etc.).

Visionen und Strategien bez. Gestaltqualität von Stadterweiterungsgebieten

Hier muss man unterscheiden: für große Stadtentwicklungsprojekte wird das durch die Masterplanung abgehandelt. Bei Einzelprojekten (1-20 Wohneinheiten) ist das eher schwächer ausgeprägt - es ist eine Collage von einzelnen Bauführungen. Mir ist keine Design- und Gestaltvision oder Strategie diesbezüglich bekannt. Man orientiert sich natürlich an der Nachbarschaft über den Flächenwidmungsplan, aber flächendeckenden „Designkodex", der bestimmt, „ so sind neue Siedlungsgebiete und –projekte auszuführen", gibt es nicht. Das Problem (aus meiner persönlichen Sicht) sind eher „die Kleinen", weil da der Planungsprozess

(städtebauliche Gutachten, UVP etc.) nicht so umfangreich ist. Selbst bei Großprojekten gelten alle Regelungen eben nur für das Projektgebiet. Bei Einzelbauvorhaben gelten dann halt die lokalen Usancen der Nachbarschaft, aber keine „wienweiten Standards".

Siedlungsgrenze

Ist eher eng um das Bauland gezogen, da gibt es wenig Spielraum. Sie ist eine „konzeptuelle Grenze" im STEP, wird aber durch Genehmigungs- und Begutachtungsprozess, den z.B. jeder Flächenwidmungsplan in Wien durchläuft, in die rechtsverbindlichen Dokumente umgesetzt. Es ist jedoch kein Automatismus, sondern schon ein Abwägungsvorgang – es wird Fälle geben, in denen Siedlungsgrenze auch mal überschritten wird – aber im Wesentlichen wird durch den magistratsinternen Abstimmungsprozess im Zuge der Genehmigung sichergestellt, dass die Siedlungsgrenze eingehalten wird. Das wird auch relativ streng gehandhabt.

S1

Die S1 ist eine kritische Größe. Zur Zeit der Planung waren die Zeichen auf Bewahren (der Landschafts- und Siedlungsstruktur). Ich bin eher der Meinung, dass, da sie direkt an der Stadtgrenze verläuft – die meisten Abfahrten liegen ja in Niederösterreich – , durchaus eine Entwicklung stattfinden wird (Gewerbeparks etc.). Auf Wiener Stadtgebiet gibt es ein paar Flächen, die sicher genutzt werden werden – zB. Bereich Sterngasse/Liesing oder Rothneusiedl (ein prioritäres Entwicklungsgebiet), Eiletzgasse (braucht noch B14), in Großenzersdorf und Süßenbrunn werden sicher noch Grundstücke in Betrieb genommen werden (laut STEP). Das wird sicher kommen, jedoch sind die Nutzungsmöglichkeiten oft relativ eingeschränkt, wenn man sich die verkehrstechnische Lösung mancher Anschlussstellen anschaut (zB Rustenfeld hat keine Abfahrt Richtung Wien). Die Flächenreserven innerhalb Wiens sind jedoch nicht so massiv.

Ich sehe die S1 einerseits als Chance – Anschlussstellen schaffen ja eine große Standortqualität. zB Rothneusiedl, wo man einmal den Idealfall von U-bahn- und Autobahnanschluss vorfinden wird. Dass die S1 als „Motor" für riesige, ungeplante Siedlungen wirkt, ist innerhalb Wiens auszuschließen, weil die Flächen nicht vorhanden sind. Für Niederösterreich ist das oft eine sehr individuelle Entscheidung der einzelnen Gemeinden.

Bewertung der Sprawlsituation in Wien

Der wirkliche Sprawl ist in Wien lange her. In den 60er und 70ern wurden große Areale im Südwesten sowie im Norden und Osten Wiens mit Einfamilienhaussiedlungen bebaut, die man als wenig nachhaltig, schwierig erschließbar und autoorientiert bezeichnen könnte. Derzeit passiert das in relativ moderatem Umfang. Aus der Sicht derer, die dort wohnen, ist das eine sehr erstrebenswerte Wohnform und ich glaube, eine Metropole muss auch das bereitstellen. Für gewisse Einkommens- und Lebensabschnittgruppen gibt es die Möglichkeit, diese Art zu wohnen zu verwirklichen, grundsätzlich besteht aber eher die Tendenz zu Verdichtung. Der Trend geht auch in peripheren lagen dahin, solche Siedlungen „einzubauen", nachzuverdichten und dann mit städtischer Infrastruktur zu erschließen. Man muss beachten, dass das derzeit Gebaute nicht endgültig ist, sondern in einer ersten Welle entstanden ist, die jetzt überformt wird. Momentan ist die Expansion eher zu Ende, jetzt befinden wir uns in einer Phase des Stadtumbaus. Von den inneren Erweiterungspotentialen wurde in den letzten paar Jahren bzw. wird in den nächsten Jahren sehr viel verbraucht – Bahnhöfe, Kasernen, absiedelnde Betriebe.

Praktisch gesehen ist der Stadtorganismus nicht komplett planbar, man muss ihn in einem Planungs- und Optimierungsvorgang organisieren. Und man braucht als Stadtentwicklung Optionen, um in Verhandlungen zu gehen. Man kann die Reihenfolge der Bebauung und Entwicklung nicht genau bestimmen – Dinge scheitern, Investoren fallen aus etc. Es gibt eine gewisse Unvollständigkeit der Planbarkeit, mit der man zurecht kommen muss. Mein persönliches Rezept ist es, kleine Projekte mehr oder weniger „unbemerkt" einzubauen, die man gut anpassen kann und auf der anderen Seite große, mehr oder weniger „autarke" Einheiten (mind. 1000 Einheiten) errichtet. Schwierig sind die Entwicklungen, die eine bestimmte Mindestgröße unterschreiten (~150 WE), für die kann man schwer Vorsorge treffen.

Interesse der Bevölkerung

Die Leute sind durchaus neugierig, jedoch liegt vielen Interessensbekundungen und Beiträgen zugrunde, persönliche Interessen zu verteidigen. Ich sehe hauptsächlich primäre Sichtweisen, diese durchaus engagiert eingebracht, aber der Blick auf die ganze Thematik Stadtentwicklung fehlt. Stadtentwicklung wird oft eher als bedrohlich wahrgenommen, da es sich um große Veränderung handelt.

14 APPENDIX II

Spatial Classification of the Vienna Region after Lengauer (2004, p.3 et seqq.)

Lengauer categorises the Vienna metropolitan area into 6 subareas, the inner 3 ones forming the Functional Urban Region according to the model of cyclic urban development. The outer areas make up the remaining part of the Vienna Region. For better operationalisation, he works on district level.

The core area (subarea 1) is formed by the densely built-up core city and the Gründerzeit areas outside the Gürtel.

The ring is made up by subarea 2 and 3. Subarea 2 being the expansion areas inside the administrative boundaries, subarea 3 the main suburbanisation areas in Lower Austria. They experience similar dynamics, that's why they have to be seen separately from the core area.

As already said, for this thesis, only data of subareas 1-4 was taken into account, due to the focus on the functional urban region.

SA 1	Vienna: core	Districts 1-9, 12-20
SA2	Vienna: outer areas	Districts 10,11,21-23
SA3	Vienna: closer hinterlands	Baden, Bruck/Leitha, Gänserndorf, Korneuburg, Mödling, Tulln, Wien Umgebung
SA4	Vienna: outer hinterlands	Hollabrunn, Mistelbach, nenkirchen, Wr. Neustadt/Stadt, Wr. Neustadt Land, Eisenstadt Stadt, Eisenstadt Umgebung, Rust, Mattersburg, Neusiedl/See
SA5	Edge east	Gmünd, Horn, Zwettl, Waidhofen/Thaya, Güssing, Jennersdorf, Oberpullendorf, Oberwart
SA6	Edge west	Amstetten, Waidhofen/Ybbs, Krems/Stadt, Krems/Land, Lilienfeld, Melk, Scheibbs, St. Pölten Stadt, St. Pölten Land

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