
**HOLDING THE LINE:
URBAN CONTAINMENT IN THE UNITED STATES**

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ABSTRACT

Policies designed to deliberately control the spread of urban areas are increasing in popularity throughout the United States. Several states, and many local governments in the west, are adopting urban growth boundaries and other containment measures in their land-use planning laws and legislation. Whatever the primary purpose, it is clear that the precise impacts of containment policies are not well understood. This paper reviews the research on urban containment generally, and also examines the experience of such policies in particular metropolitan areas. It discusses some lessons learned and raises relevant research questions for practitioners as well as policymakers at the state and local level.

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HOLDING THE LINE: URBAN CONTAINMENT IN THE UNITED STATES

I. INTRODUCTION

Over the past decade, the concept of "urban containment" – that is, creating geographical constraints on urban growth – has emerged as one of the nation's most important as well as controversial policy issues associated with metropolitan growth.¹ As policymakers and the public perceive that other land-use planning policies have failed to "curb sprawl," they have become increasingly interested in urban growth boundaries (UGBs) and similar tools. Several states have even made urban growth boundaries and other forms of urban containment central components of their land-use planning systems.

Much remains to be known about urban containment, however. No comprehensive survey has yet been completed to determine how frequently containment policies are used throughout the nation. Scholarly research remains limited regarding the true impact of these policies on both the cost and form of our metropolitan areas. However, much descriptive material does exist about both the incidence and impact of urban containment policies in the U.S. Based on the research and knowledge that does exist, it is possible to draw some preliminary conclusions about the usage and probable impacts of urban containment policies.

The purpose of this paper is to pull existing knowledge about urban containment efforts in the United States into succinct form. The paper provides a new and broader definition of urban containment policies, and argues that all metropolitan areas have a set of policies that shape the physical form of urban growth whether they do so consciously or not. We review the research on urban containment generally as well as survey the experience of such policies in particular metropolitan areas. And we discuss some lessons learned and some relevant research questions for policymakers at the state and local level and also for practitioners.

¹The term urban containment dates at least to 1973, when Hall et al. released their book on the British postwar planning system, [The Containment of Urban England](#).

II. WHAT IS "URBAN CONTAINMENT"?

The spectrum of tools that shape the geographical pattern of urban growth is often discussed in policy circles under the rubric of the "urban growth boundary" (UGB), usually defined as a set of land-use regulations that prohibit urban development outside a certain boundary. But in fact, a wide variety of tools can effect urban containment, including not just regulation but also public ownership of land and policies regarding the timing and sequencing of public infrastructure construction (Nelson and Duncan 1995).

Obviously, the geographical patterns of metropolitan growth are shaped by many other forces as well, including land-ownership patterns, large-scale transportation decisions by state and federal governments, private markets for residential and non-residential development, private investment decisions, and topographical features. Our discussion of "urban containment" is restricted to two of the policies listed above: 1) urban growth boundaries and related strategies, and 2) infrastructure policy. Public land ownership policies are discussed here and also more extensively in a recent Brookings Urban Center discussion paper (Hollis and Fulton 2002).

It is important to note at the outset that virtually all United States metropolitan areas have some type of regulatory policies that shape the geographical pattern of metropolitan growth. However, in most cases they do not do so either consciously or in coordination with one another. "Conscious" containment policies – that is, the use of policies to shape urban growth patterns in a deliberate fashion – have been relatively rare until the last decade. In recent years, the continuing issues of large-scale metropolitan growth have re-kindled discussion – and, in many cases, actual adoption – of urban containment policy tools. Since 1990, urban containment policies have been adopted in states as different as Washington and Tennessee, and in local communities in many parts of the nation, especially California.

It is also important to note that specific "urban containment" tools are really part of a broader array of land-use tools that have traditionally been known as "growth management." Growth management tools include not just UGBs, infrastructure policies, and land acquisition, but also a wide range of other tools that may seek to meter the rate of growth or mitigate its impact (Kelly 1993). These tools may affect the geographical pattern of metropolitan growth, but we do not deal with them in depth in this paper.

Purpose of Urban Containment

The geographical pattern of urban growth in metropolitan areas has usually been shaped in part by natural factors such as the presence of mountain ranges and water bodies. When the large-scale metropolis emerged in the 19th century, urban designers such as Frederick Law Olmsted recognized that naturalistic elements created by humans – including park systems, parkways, and publicly owned "open space" – could also constrain and shape urban growth.

At about the same time, the metropolis also became dependent on large-scale, centralized systems of public facilities, especially transportation (including rail and roads), public water, and public sewer systems. As early as the 1870s – when urban trolley systems were first built – it became clear that these systems also play a major role in shaping urban growth simply because growth could only occur where such systems were put into place.

These two factors – open space constraints and infrastructure location – can be viewed as the "push" and "pull" factors of metropolitan growth. By placing land out of bounds, open space constraints "push" urban growth away from them and therefore in a different direction. By locating in specific areas and along specific routes, public infrastructure "pulls" urban growth toward those areas and therefore away from other locations where it does not already exist.

Urban containment policy seeks to employ an array of public policy tools to manipulate these "push" and "pull" factors so that metropolitan area will take a particular and desirable geographical form. The goals of such a containment policy can vary widely, but they can and do include the following:

1. preservation of natural land, as well as farmland and resource extraction land whose economic value will not be able to compete with urban development,
2. the cost-efficient construction and use of urban infrastructure,
3. reinvestment in existing urbanized areas that might otherwise be neglected, and
4. the creation of higher-density land-use patterns that encourage a mix of uses and patronage of public transit, leading to a more efficient utilization of land in urbanized areas.

In general, urban containment policies seek to use at least three different types of tools to shape metropolitan growth. *Greenbelts* and *urban growth boundaries* are used to affect the "push" factors, while *urban service areas* are used to affect the "pull" factors.

A **greenbelt** usually refers to a band drawn fairly tightly around a city or urban region that planners intend to be permanent or at least very difficult to change. In most cases, greenbelts are created by public or nonprofit purchase of open space lands or of development rights on farmland.

An **urban growth boundary** (UGB) is a line between urbanization and rural lands rather than a physical area. Some jurisdictions use the term **urban limit line** (ULL), **blue line**, or **green line** to mean the actual physical boundary separating urban and rural areas. Sometimes it is possible to change a UGB when conditions demand it. Indeed, as they are used in the United States, UGBs – unlike greenbelts – are often deliberately designated to accommodate growth for a specified period of time (20 to 30 years), revisited periodically, and then changed as necessary. Jurisdictions employ a wide range of techniques to carry out UGBs, many of which will be described in the pages that follow. But, broadly speaking, UGB systems are best-known for using regulatory techniques such as zoning to prevent urban development outside the growth boundary.

An **urban service boundary** (USB), denotes the edges of an **urban service area** (USA), and is typically more flexible than a UGB. It denotes a line beyond which a city has decided that its infrastructure – typically sewer and water – should not extend. In many metro areas, urban service areas support a "tiering" system – that is, a system that directs public infrastructure into new areas in a particular sequence – in order to eliminate "leapfrog" development, encourage orderly urban expansion, and reduce the cost of public infrastructure. Urban services are also often tied to **adequate public facilities ordinances** (APFOs) – tools adopted by municipalities and counties to restrict or prohibit new urban growth unless that growth is served by roads, public water, public sewers, and other urban infrastructure.

In some fashion or other, every metropolitan area in the United States has some form of urban containment, whether explicit or not. Of course, most metropolitan policies and practices are not consciously designed (or deliberately coordinated) to shape the physical pattern of urban growth in a region. Whether they are deliberate or "accidental," however, the particular ways and combinations in which these land-use practices occur go a long way toward shaping the growth of that metropolis. For example, virtually every metropolitan area in the United States is shaped at least to some extent by public land holdings – whether by federal, state, or local government. Especially in the West, the geographical pattern of urban growth in many metropolitan areas has been determined in part by federal land holdings. But in virtually all cases, these public land acquisitions have not occurred as part of a strategy to contain and direct urban growth (Hollis 2002).

Similarly, every metropolitan area in the United States is shaped by the land-use policy and regulatory decisions of local governments, including local comprehensive or general plans and individual planning and zoning decisions to allow or prohibit development of specific pieces of property. However, these local decisions typically do not compose a comprehensive metropolitan strategy to contain or direct growth. Rather, they take place according to the economic, political, and fiscal pressures felt by individual local governments in the region. Furthermore, when they do deliberately seek to shape growth (even on a local level), plans are not always consistently implemented or coordinated with neighboring jurisdictions, and are often subject to changes when local governments feel pressure to do so.

Finally, every metropolitan area in the United States is shaped by the way its public infrastructure is financed and by the timing and geographical sequencing by which that public infrastructure is built. Infrastructure can be paid for by developers or by taxpayers, and it can be targeted geographically according to a specific sequence or it can be constructed anywhere within a metropolis. By design or by accident, these policies help to determine the geographical pattern of growth within a region.

Thus, an urban containment policy is simply an attempt to *deliberately use* their public land acquisitions, land-use regulations, and infrastructure investments to contain, influence, or direct

growth to specific geographical locations.² Very often, a city or metropolitan area that is deliberately seeking to direct growth will employ one or two of these tools but not all three, or will implement them in an uncoordinated way.

² Urban containment therefore overlaps to an extent with growth management, which, as defined by Nelson et al. (2002), is "the deliberate and integrated use of the planning, regulatory, and fiscal authority of state and local governments to influence the pattern of growth and development in order to meet projected needs". Some containment policies neglect to meet projected needs, and not all growth management policies include urban containment, but a containment program that projects and plans for needed growth would qualify as a growth management program.

III. THE INCIDENCE OF URBAN CONTAINMENT POLICIES IN THE UNITED STATES

Urban containment policies – especially urban growth boundaries driven by restrictive land-use regulation – have been promoted heavily in recent years by growth management advocates. However, these policies still appear exceptions rather than the rule in most parts of the United States, and they appear to be focused in certain parts of the nation, especially the West.

Generally speaking, urban containment policies in the United States are adopted at the local and county government level and are rarely coordinated at the level of the metropolitan area. In a few cases – notably Oregon, Washington, and Tennessee – metropolitan-level urban containment policies are required by state law.

About half of the states have overhauled their local planning legislation in the past 30 years, and some of these changes have either required or encouraged some kind of urban containment system. Often, these "growth management" or "smart growth" amendments are designed to encourage more orderly, predictable, and efficient urban growth, and have either required or encouraged local governments to engage in some form of containment. In some cases – Oregon and Washington in particular – the overhauls have explicitly required local and regional governments to designate urban growth boundaries. Statutory overhauls in Minnesota (for the Twin Cities region), Florida, Maryland, and Tennessee have focused on infrastructure policy by combining urban service areas, tiering systems, and local adequate public facilities ordinances.

Beyond these mandatory approaches at containment, other states have enacted new incentives and explicitly permitted local containment programs. For example, New Jersey and Maine both have procedures that require state agencies to give priority to investments in locally designated growth areas and limit them in areas designated for little or no development. Wisconsin, Pennsylvania, and Arizona recently amended their planning laws; explicit language in these states enables municipalities to establish urban service areas or urban growth boundaries (Johnson et al. 2002).

A. The 1994 Survey of Urban Containment Policies

The only national survey of urban containment policies was conducted by Pendall in 1994 (Pendall 1995). The survey covered approximately 1,000 jurisdictions in the 25 largest metropolitan areas in the country. The jurisdictions were asked about adequate public facilities ordinances and about urban growth boundaries. This work is imperfect in the sense that it only covers the largest metropolitan areas (for example, it did not include Portland), which makes it difficult to discern the relative significance of differently sized jurisdictions in the same metropolitan area. Another drawback of this survey is that it was only concerned with the existence of containment policies rather than their implementation – a common difficulty in land-use policy analysis.

There are also some differences between the typology of urban containment used in this paper and that which was used in the 1994 survey. Most importantly, the survey did not distinguish between urban growth boundaries and urban service areas. Local jurisdictions were asked: "Does your city have an 'urban limit line' or other growth boundary, imposed by such policies as decisions to limit extension of urban services or designation of a 'greenbelt' of open space around it?" Jurisdictions responding positively to this survey question may have either a rigid urban growth boundary or a flexible urban service area or both. For the purposes of this discussion, we use the term "urban boundary" to refer to the answers to this question.

The survey's results paint a useful baseline picture of urban containment policies at the local level. Among the most important results were the following:

- Over 17 percent of jurisdictions surveyed in the largest 25 metropolitan areas were found to have urban boundaries in 1994 and 30 percent were found to have adequate public facilities ordinances. Although no comprehensive survey has been done since then, there is evidence that conscious urban containment policies have proliferated somewhat in recent years, particularly in the Mid-Atlantic region and the West.
- Close to half (44 percent) of counties used urban boundaries compared to only 15 percent of cities. However, in many cases it appears that the tools counties actually use are not tightly drawn urban growth boundaries, but rather, urban service areas that are more flexible and more focused on directing urban growth rather than containing it.
- At least one urban boundary existed in 23 of the 24 states surveyed.
- The adoption of local urban boundaries has increased steadily over time, and boundaries have been adopted much more frequently since 1980 and especially since 1990 (Figure 1).

The survey also revealed that regional differences in urban growth boundaries were far more pronounced than regional differences in adequate public facilities ordinances. Boundaries were most consistently common in large metropolitan areas in the Mid-Atlantic area, where almost half of jurisdictions in metropolitan Baltimore and Washington had them, and in the West, where 29 percent of jurisdictions had them. Boundaries were also common in Tampa, Florida. In all of these areas, many counties and some municipalities had strong traditions encouraging the use of containment. In some cases the survey found state laws requiring or encouraging them. Boundaries were least prevalent in the Northeast, the Midwest, and those portions of the South outside of Florida.³

³ Institutional differences account for at least part of this variation. Older metropolitan areas in the Northeast and Midwest tend to have more jurisdictions and, in many cases, older jurisdictions close to the center of the metropolis are "boxed in" by other jurisdictions and developed areas, so boundaries are not as relevant. Most metropolitan areas in the West do not fit this profile, though Los Angeles and San Francisco do in some respects.

Figure 1: Local (county, township, city) urban boundaries adopted by time period

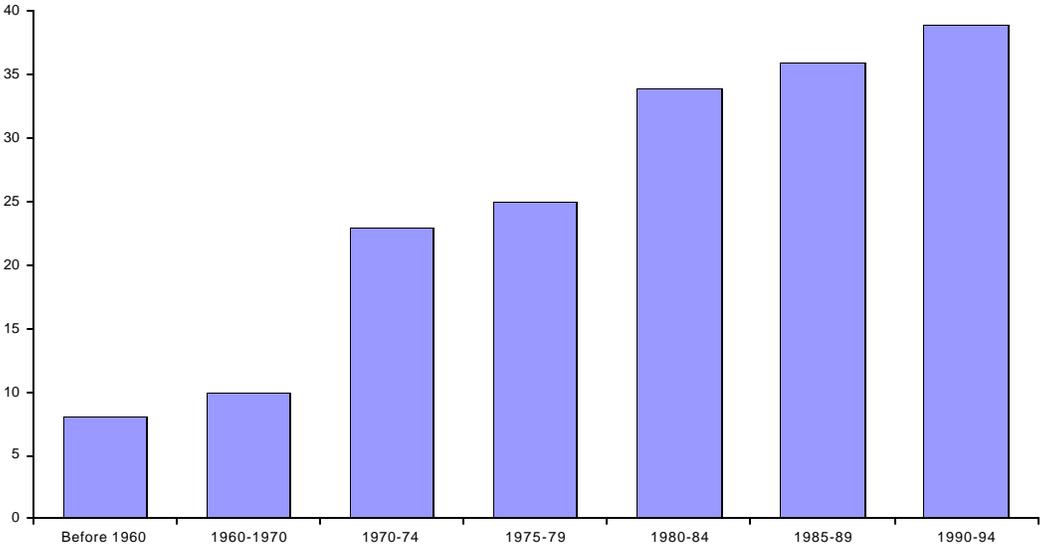


Table 1: Urban Containment Policies in the U.S., Jurisdictions by Select Metropolitan Area

	Number of jurisdictions	With urban boundaries	Without urban boundaries	Percent with urban boundaries
Northeast	297	28	269	9.4%
Boston	68	2	66	2.9%
New York	160	18	142	11.3%
Philadelphia	69	8	61	11.6%
Mid-Atlantic⁴	33	18	15	45.5%
Baltimore	9	7	2	77.8%
Washington	24	11	13	45.8%
Midwest	428	55	373	12.9%
Chicago	114	17	97	14.9%
Cincinnati	31	1	30	3.2%
Cleveland	52	1	51	1.9%
Detroit	69	4	65	5.8%
Kansas City	26	3	23	11.5%
Milwaukee	26	10	16	38.5%
Minneapolis	40	15	25	37.5%
Pittsburgh	32	0	32	0.0%
St. Louis	38	4	34	10.5%
South	121	19	102	15.7%
Atlanta	29	2	27	6.9%
Dallas	33	3	30	9.1%
Houston	18	3	15	16.7%
Miami	26	5	21	19.2%
Tampa	15	6	9	40.0%
West	264	77	187	29.2%
Denver	20	7	13	35.0%
Los Angeles	132	22	110	16.7%
Phoenix	11	3	8	27.3%
San Francisco	71	34	37	47.9%
San Diego	15	4	11	26.7%
Seattle	15	7	8	46.7%
Total	1143	197	946	17.2%

Urban containment policies – especially UGBs – appear to be highly concentrated in a few states. Most of these states either explicitly require UGBs (Oregon, Washington, Tennessee) or implicitly encourage them through their other growth policies (Maryland). A few of these states have no state law either requiring or encouraging UGBs, but there is a long tradition of their imposition by local governments. (By far the most important state in this category is California.) Beyond that, a few metro areas in other states that have unique land resources on the fringe –

⁴ This analysis included Baltimore and Washington in the “Mid-Atlantic” region. This region was broken out because it shows significantly different characteristics than either the South or the Northeast. No Oregon jurisdictions were included in the survey because no Oregon metropolitan area ranked among the 25 largest in the nation. However, Oregon’s statewide land-use law requires the adoption of urban growth boundaries.

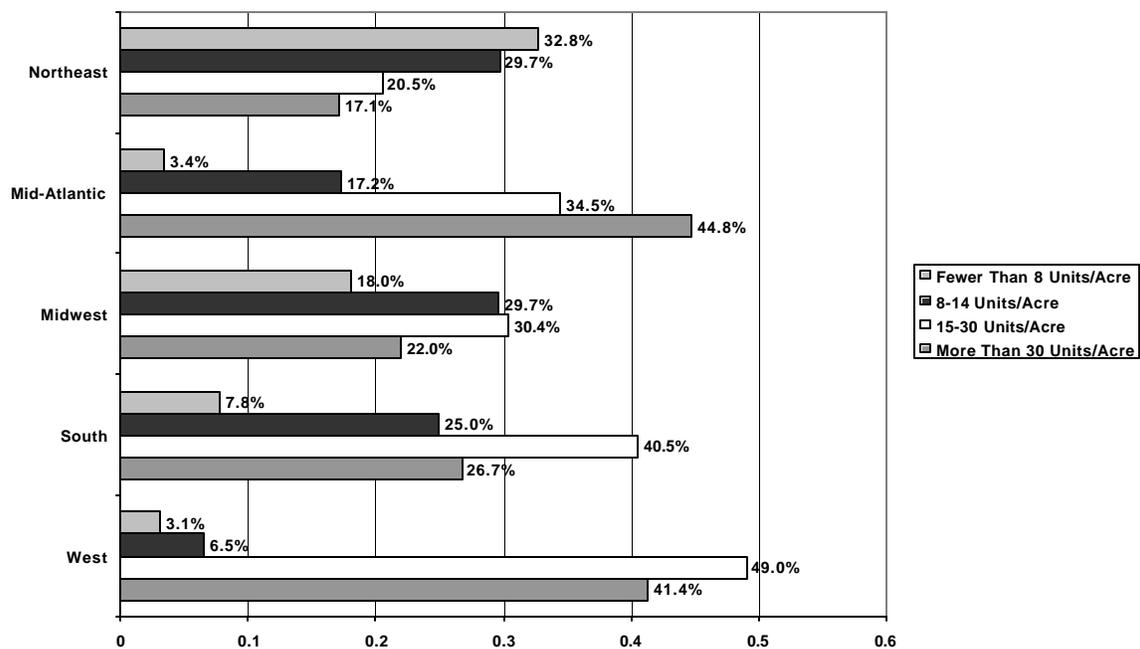
such as Lexington, Kentucky, and Lancaster, Pennsylvania – have used the UGB technique to protect those resources.

1. Low-Density Zoning

As another measurement of possible urban containment strategies, the survey asked jurisdictions about the prevalence of low-density zoning. The assumption is that jurisdictions that do not permit high-density zoning are probably not attempting to contain growth since their zoning decisions tend not to demarcate urban and rural uses. The survey asked respondents how many units per acre were permitted under their highest residential density, and placed those answers into 4 categories: fewer than 8 units per acre; 8 - 14 units per acre; 15 - 30 units per acre; and more than 30 units per acre.

The results reveal strong regional differences, as Figure 2 shows. In the Northeast, 32 percent of jurisdictions permitted no more than 8 units per acre, compared with only 3 percent in the West.⁵ The Western jurisdictions were also more likely to have zoning that exceeds 30 units per acre. The other regions of the country fell in between.

Figure 2: Percent of Jurisdictions Surveyed with Maximum Allowable Densities



⁵ This finding is consistent with the recent finding in the Brookings Institution paper, “Who Sprawls Most?” which found that land is consumed for urbanization on a far more efficient basis in the West than in other parts of the nation, and that the Northeast uses land much less efficiently (Fulton et al. 2001).

At the metropolitan level, low-density-only zoning was more prevalent in older areas of the Northeast and Midwest, including Boston (48.5 percent of jurisdictions), Cleveland (38.0 percent), Milwaukee (34.6 percent), and Philadelphia (30.6 percent). Beyond these metro areas, only Atlanta (25 percent) had a high percentage. Low-density-only zoning was virtually nonexistent in large metro areas in Florida, Texas, the Rockies, and the West Coast (Table 2).

Table 2: Maximum Allowable Densities, Jurisdictions by Select Metropolitan Area

	Number of jurisdictions	Fewer than 8 units/acre	% of total	8-14 units/acre	% of total	15-30 units/acre	% of total	More than 30 units/acre	% of total
Northeast	293	96	32.8%	87	29.7%	60	20.5%	50	17.1%
Boston	68	33	48.5%	12	17.6%	9	13.2%	14	20.6%
New York	153	41	26.8%	50	32.7%	34	22.2%	28	18.3%
Philadelphia	72	22	30.6%	25	34.7%	17	23.6%	8	11.1%
Mid-Atlantic	29	1	3.4%	5	17.2%	10	34.5%	13	44.8%
Baltimore	9	1	11.1%	2	22.2%	3	33.3%	3	33.3%
Washington	20	0	0.0%	3	15.0%	7	35.0%	10	50.0%
Midwest	428	77	18.0%	127	29.7%	130	30.4%	94	22.0%
Chicago	107	17	15.9%	38	35.5%	31	29.0%	21	19.6%
Cincinnati	33	1	3.0%	12	36.4%	13	39.4%	7	21.2%
Cleveland	49	19	38.8%	8	16.3%	11	22.4%	11	22.4%
Detroit	69	8	11.6%	27	39.1%	16	23.2%	18	26.1%
Kansas City	26	3	11.5%	8	30.8%	5	19.2%	10	38.5%
Milwaukee	26	9	34.6%	7	26.9%	3	11.5%	7	26.9%
Minneapolis	40	1	2.5%	8	20.0%	22	55.0%	9	22.5%
Pittsburgh	32	10	31.3%	8	25.0%	11	34.4%	3	9.4%
St. Louis	46	9	19.6%	11	23.9%	18	39.1%	8	17.4%
South	116	9	7.8%	29	25.0%	47	40.5%	31	26.7%
Atlanta	28	7	25.0%	13	46.4%	4	14.3%	4	14.3%
Dallas	32	0	0.0%	5	15.6%	17	53.1%	10	31.3%
Houston	15	1	6.7%	4	26.7%	9	60.0%	1	6.7%
Miami	26	1	3.8%	2	7.7%	12	46.2%	11	42.3%
Tampa	15	0	0.0%	5	33.3%	5	33.3%	5	33.3%
West	261	8	3.1%	17	6.5%	128	49.0%	108	41.4%
Denver	20	0	0.0%	3	15.0%	5	25.0%	12	60.0%
Los Angeles	132	6	4.5%	10	7.6%	76	57.6%	40	30.3%
Phoenix	11	1	9.1%	0	0.0%	6	54.5%	4	36.4%
San Francisco	71	1	1.4%	2	2.8%	29	40.8%	39	54.9%
San Diego	15	0	0.0%	0	0.0%	9	60.0%	6	40.0%
Seattle	12	0	0.0%	2	16.7%	3	25.0%	7	58.3%

2. Adequate Public Facilities Ordinances

The survey also found that adequate public facilities ordinances (APFOs) – which can form the basis of an urban service area strategy – were more common and more geographically dispersed than growth boundaries. In fact, APFOs were most frequent in the South (52 percent of jurisdictions) and especially in Florida (83 percent), whose state growth management law is based on an adequate infrastructure concept commonly known as concurrency (Ben-Zadok and Gale

2001). Even in Texas, where only 12 percent of cities that responded to the survey had urban boundaries, almost half had APFOs⁶ (Table 3).

Table 3: Adequate Public Facilities Ordinances In the U.S., Jurisdictions by Select Metropolitan Area

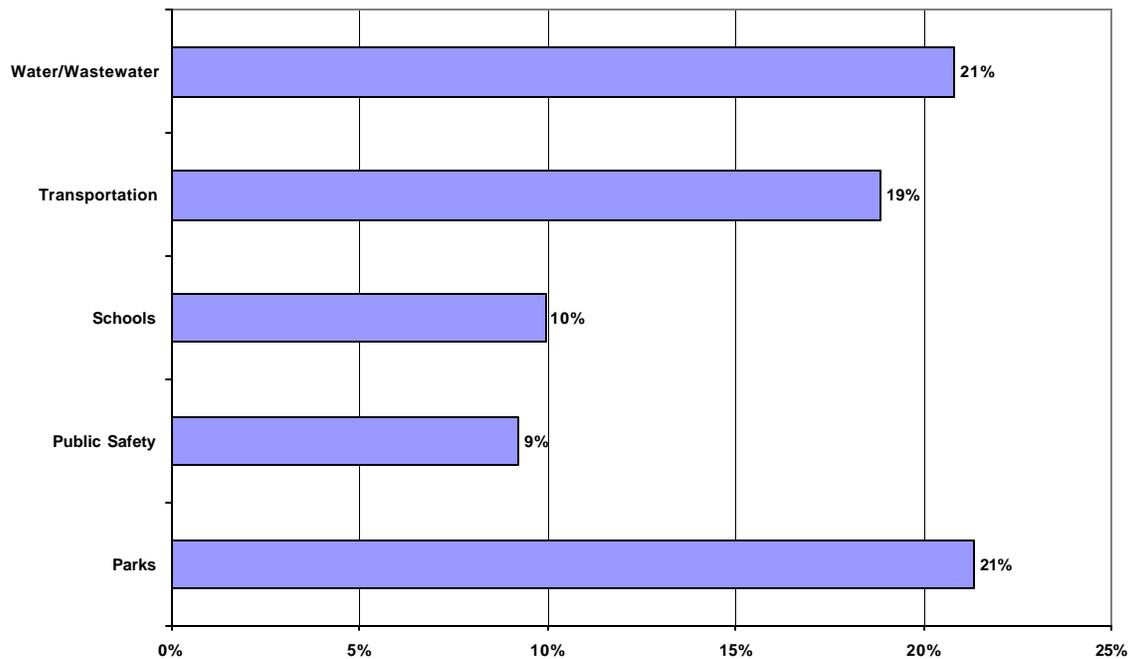
	Number of jurisdictions	With APFOs	Without APFOs	Percent with APFOs
Northeast	301	63	238	20.9%
Boston	71	9	62	12.7%
New York	159	28	131	17.6%
Philadelphia	71	26	45	36.6%
Mid-Atlantic	33	11	22	66.7%
Baltimore	9	7	2	77.8%
Washington	24	4	20	16.7%
Midwest	435	101	334	23.2%
Chicago	115	48	67	41.7%
Cincinnati	32	4	28	12.5%
Cleveland	52	7	45	13.5%
Detroit	70	7	63	10.0%
Kansas City	27	5	22	18.5%
Milwaukee	26	8	18	30.8%
Minneapolis	40	9	31	22.5%
Pittsburgh	34	9	25	26.5%
St. Louis	39	4	35	10.3%
South	123	65	58	52.8%
Atlanta	29	6	23	20.7%
Dallas	33	16	17	48.5%
Houston	20	9	11	45.0%
Miami	26	20	6	76.9%
Tampa	15	14	1	93.3%
West	265	103	162	38.9%
Denver	20	9	11	45.0%
Los Angeles	132	42	90	31.8%
Phoenix	11	4	7	36.4%
San Francisco	71	33	38	46.5%
San Diego	16	9	7	56.3%
Seattle	15	6	9	40.0%
Total	1157	343	814	29.6%

Another observation: The specific infrastructure issues addressed by APFOs divided consistently into two groups around the country. Transportation, water and sewer, and parks were frequently the subjects of APFOs, while schools and police/fire were addressed less often. In general, APFOs are more common in the South and West than in other parts of the country. This is especially true of parks and transportation APFOs. One exception is the Washington, D.C.

⁶ Texas counties were not surveyed because they have very limited regulatory power over development.

area, where school APFOs are common – which accounts for the high percentage of school APFOs in the mid-Atlantic states (Figure 3).

Figure 3: Percentage of Jurisdictions Surveyed with Topic-Specific APFOs, 1994



It is impossible to say based on this data what the impact of these urban containment policies has been on the urban form of these metropolitan areas; whether they are conscious policies; and, as stated above, whether they are implemented rigidly or loosely. However, it is reasonable to conclude that these tools are used more frequently where state law encourages them and where there is a strong local or regional tradition of growth management.

B. Activity Since 1994

Although no major survey of urban containment policies has been conducted since 1994, a series of smaller surveys suggest that urban containment policies are increasing in frequency throughout the nation, though they remain geographically concentrated. Many attempts to require their creation have failed.

1. California

Evidence suggests that the use of growth boundaries has risen sharply in California since the 1994 survey, and that they are geographically concentrated. For the past 15 years, California has perhaps been the most heavily surveyed state in the nation regarding urban containment policies. In addition to the 1994 survey by Pendall, which covered jurisdictions in metropolitan Los

Angeles, San Francisco, and San Diego, California's general growth management landscape, including urban growth boundaries, was surveyed in 1988 and 1992 (Glickfeld and Levine 1992; Fulton, Glickfeld and Levine 1996), in 1998 (Landis 2000), and in 1999 (Lewis and Neiman 2000). In addition, Solimar Research Group (Fulton et al. 2000) analyzed ballot measures on growth management, including urban growth boundaries, over a 15-year period.

The 1994 survey found that one-third of all urban boundaries were in California, and that virtually all counties surveyed had urban boundaries of some sort. All of the other surveys have reached essentially these same conclusions:

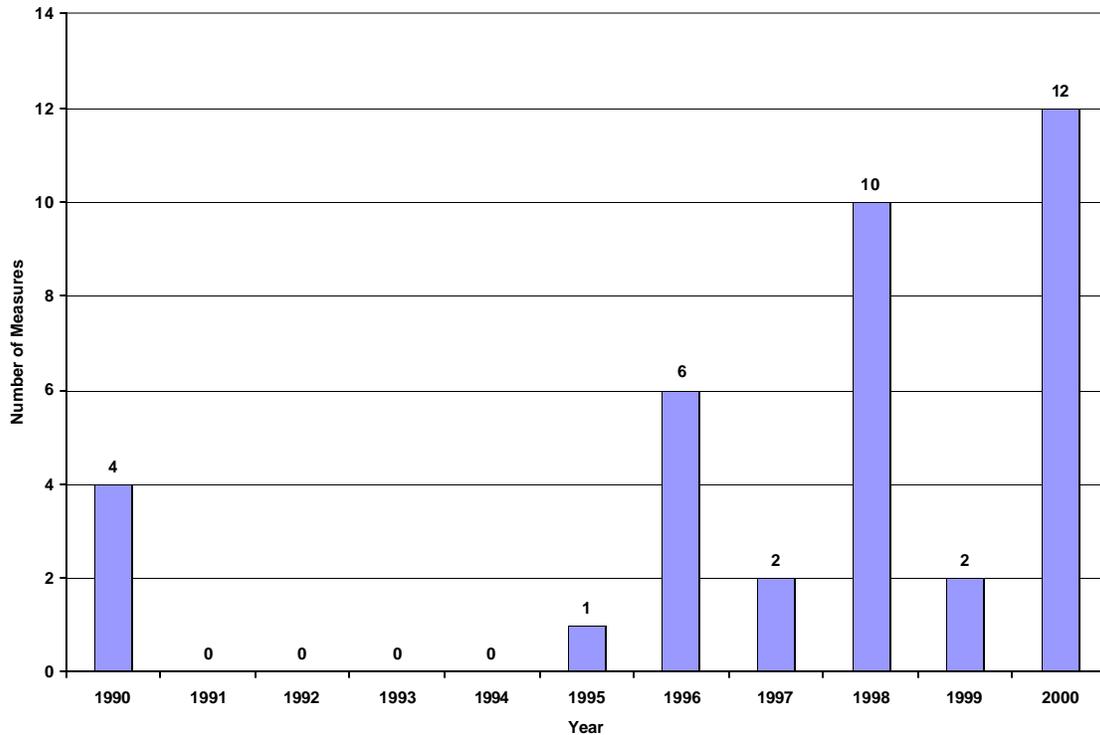
- Urban growth boundaries are prevalent throughout California.
- Their enactment has increased in the last seven years.
- At least among boundaries being enacted via ballot measure, they are concentrated in the large coastal metropolitan areas where most Californians live.

In his survey of cities for the California Department of Housing and Community Development, Landis found a significant increase in the number of UGBs adopted after 1995. Among cities, Landis found that 41 cities, or approximately 12.4 percent of cities surveyed, had UGBs – but of those, at least 15 had adopted UGBs between 1995 and 1998. Unlike previous researchers, Landis found a relatively small incidence of UGBs among counties, and most of them had been adopted prior to 1995.⁷

Fulton et al. (2000) found a notable increase in UGBs enacted by ballot measure since 1995, when the California Supreme Court ruled such measures legally valid. Thirty-three such ballot measures have appeared since 1995, including 11 on the November 2000 ballot alone (Figure 4). All but a few have passed. However, the vast majority of these UGB measures have appeared on the ballot in only three counties: Alameda, Sonoma, and Ventura.

⁷ The research on incidence is probably not completely accurate because it depends on individual planning officials filling out surveys, rather than depending on an independent reading of the ordinances and resolutions in question. This may also account for some of the variation.

Figure 4: California UGB Ballot Measures, 1990-2000



In his 1998 survey, Landis found similar patterns for Adequate Public Facilities Ordinances as he found for growth boundaries: 12 percent and 13 percent of California jurisdictions had residential or commercial APFOs respectively, 24 percent of which had been adopted since 1995. He also found that, in most cases, jurisdictions had adopted these measures in combination. Of the approximately 87 jurisdictions that had adopted either growth boundaries or residential and commercial APFOs, 14 had adopted all three and 42 more had adopted residential and commercial APFOs in combination with one another.

2. *Metropolitan Phoenix*

A 2000 survey by the Morrison Institute for Public Policy at Arizona State University, which replicated some of Pendall's 1994 survey, found an apparent increase in urban containment policies in metropolitan Phoenix (Krutz 2000). This increase was better documented for APFOs than for growth boundaries. The percentage of jurisdictions with APFOs doubled between 1994 and 2000, from 36 percent to 72 percent. The 2000 survey found the same percentage of jurisdictions with growth boundaries as in 1994 (30 percent), but the survey covered 20 of the

region's 25 jurisdictions – including most of the large and fast-growing jurisdictions – whereas the 1994 survey received responses from only 11 jurisdictions.⁸

3. Maryland

Maryland adopted a de-facto set of urban containment policies in passing Gov. Parris Glendening's "Smart Growth" legislative package in 1997. The policies are not regulatory in nature, but rather rely for their implementation on geographically targeted state spending for both land conservation and urban infrastructure (Calthorpe and Fulton 2001). As part of the package, the state has worked together with Maryland's 23 local governments to create "Priority Funding Areas." These Priority Funding Areas include existing municipalities and areas inside the Baltimore and Washington beltways, as well as enterprise zones and other areas designated targeted by revitalization programs. Counties may designate additional areas if they have commercial or industrial uses or minimum residential zoning.⁹

4. Tennessee

Following an adverse court ruling on annexations in 1997, Tennessee passed legislation in 1998 that established a growth management framework including urban growth boundaries. Every Tennessee county must now develop a growth plan that identifies urban growth boundaries for each municipality within the county, as well as planned growth areas and rural areas within the county. Similar to Oregon's system, the Tennessee statute requires that UGBs include enough territory to accommodate the residential and nonresidential growth projected to occur during the next twenty years (Tenn. Code Ann. 6-58-106; see also Austin 2001).¹⁰

5. Washington

Washington state adopted a Growth Management Act in 1990. Somewhat modeled after the Oregon law, it required counties to work with cities to designate Urban Growth Areas. (Rural counties are exempted from the law.) The law has had the greatest impact in the four-county Seattle metropolitan region. Designated in 1994 and 1995, metro Seattle's UGA originally consisted of 985 square miles (15.6 percent of the region's land); by 1997, this had shrunk to 963 square miles (15.2 percent). Approximately 80 percent of the metropolitan area's population lives within these boundaries (Puget Sound Regional Council 1998). The Washington Act also requires concurrency, similar to Florida's growth management statute.

⁸ Ballot measures that would have required local governments to adopt urban growth boundaries were defeated in both Arizona and Colorado in November 2000. Only 30 percent of voters in each state supported the measures. However, in Arizona, the state legislature passed new planning legislation in 1998 that explicitly authorizes urban containment measures; these were only implicitly enabled previously (Colton and DiTullio 1999).

⁹ See the Maryland Department of Planning web site: <http://www.op.state.md.us/smartgrowth/pfamap.html>.

¹⁰ Confusingly, the Tennessee law uses the term "urban growth boundary" not to mean the line separating urban and rural uses but the entire square area inside that line that is available for urbanization.

IV. INDIVIDUAL URBAN CONTAINMENT POLICIES

Greenbelts, urban growth boundaries, and urban service areas are different strategies for implementing containment. Greenbelts are tightest; urban service areas, loosest. In this section, we explore the policies more and discuss examples of each in the United States.

A. Greenbelts

The first of the three possible components of an urban containment policy is the *greenbelt*. As we stated above, greenbelts are usually envisioned as tight bands of green space – either for permanent open space or for working landscapes – around an existing urban area. They may be protected either by public acquisition or by regulation of rural land, though in the most prominent U.S. examples acquisition has been the primary tool.

Only a few communities in the United States have conscious greenbelt policies – the most prominent being Boulder, Colorado, whose experience is described below. However, many other metropolitan areas have growth patterns that are the result of a de-facto greenbelt created by publicly owned open space of one kind or another. Many metro areas in the West, for example, have been shaped by the amount and location of federal land holdings, which have begun to serve as de facto greenbelts as Western metro areas have expanded geographically (Hollis and Fulton 2002) In some cases, topographical features may be so large and imposing that they create *de facto* greenbelts whether or not the land is publicly owned or strictly regulated. This is true, for example, of many Western metro areas surrounded by mountains and metro areas on the Atlantic Coast of Florida, which have begun to butt up against the Everglades.

As it has been practiced in other countries, the greenbelt concept has included the notion that a central city will inevitably create satellite cities outside the greenbelt. This is especially true in Korea and the United Kingdom, two countries with strong and similar greenbelt policies that have been extensively implemented and extensively researched (On England, see Hall et al. 1973; Munton 1983; Simmie 1993; and Pennington 2000. On Korea, see Bae 1998; Cho 1997; Choi 1993; and Kim and Kim 2000.) In the United States, the rise of satellite cities has most often occurred as an unacknowledged but inevitable result of a greenbelt policy, as seen in our case study of Boulder, Colorado.

Case Study: The Greenbelt Experience in Boulder, Colorado

The longest experiment in "greenbelt" planning in the United States has occurred in Boulder, Colorado, which has used both regulation and public acquisition to establish and maintain a "blue line" around the city for more than forty years.¹¹ As Boulder has grown as an employment center, the blue line policy has fostered the creation of a series of satellite towns beyond the line.

¹¹ See the City of Boulder's 2001 Open Space and Mountain Parks Base Map at <http://www.ci.boulder.co.us/openspace/gis/basemap1.jpg>

However, the Boulder satellite towns have not been consciously created as part of the greenbelt policy, and other land-use policies have come into play in shaping the area.

In 1959, voters approved a city charter amendment that prohibited the city from extending water service above 5,750 feet elevation – about 100 feet below the city reservoir’s level – in an attempt to keep development from creeping up the mountains west of the city and to save pumping costs. In 1967, Boulder’s residents adopted a one-cent local-option sales tax, 40 percent of which is used for open space purchases. The city has purchased land not only within city limits, but also in unincorporated areas of Boulder County and even in other adjacent counties; in 1989, voters upped the sales tax, by another one-third of a cent. Boulder has used this revenue, along with proceeds from the state lottery to preserve nearly 29,000 acres. In addition, the city worked with the surrounding county to preserve an additional 55,000 acres of unincorporated land. (Lorentz and Shaw 2000). In addition to its open space purchases, Boulder City worked with Boulder County on planning as early as the late 1960s. In 1970, the City and County adopted a joint comprehensive plan defining the extent of urbanization into the plains. A 1978 revision to the plan gave this policy teeth by adopting an urban service boundary and prohibiting water and sewer extensions beyond that boundary.

As the city has completed its containment program, it has worked to reduce density and the pace of growth within its limits. In 1976, Boulder voters adopted an annual cap on building-permit issuance designed to limit population growth to 2 percent or less annually; around the same time, they imposed a citywide height limit of 55 feet. By the 1990s, the city was close to built out at its current density, and the annual building permit allocation contest began to have fewer applicants than allocations. Within Boulder, housing prices have risen dramatically, because of both reduced housing supply and increased housing demand (Lorentz and Shaw, 2000), even though the city has adopted other programs to promote and require the production of moderately priced dwelling units (Miller 1986). Not surprisingly, new urbanization has been driven to satellite cities. About 55 percent of the city’s workforce lives outside the city limits (Morson 1999).

These issues emerged in part from Boulder’s unilateral actions of buying open space, allowing the creation of new jobs, and discouraging the construction of new housing. But they have been exacerbated by the free-market orientation of most other local governments in the region. Douglas County, one of the fastest-growing in the U.S. during the 1990s, has only four incorporated cities, none of which has more than 20,000 residents. Instead, most of its growth has occurred in unincorporated areas, and most of that has been in the massive Highlands Ranch development. State law, which requires local comprehensive planning, has not encouraged either cooperative planning or anti-sprawl mechanisms. Indeed, the polarized views on growth and sprawl in the Boulder area recently led to the creation of a new county, Broomfield, which was carved out of pieces of four other counties, including Boulder.¹²

¹² Broomfield County’s government is actually a combined city and county government that was formerly the City of Broomfield. The new county officially became operational on November 15, 2001 (Whaley 2000).

There is little question that the Boulder approach has had both beneficial and harmful effects. On the one hand, it has encouraged a systemic approach to protecting open space that has matched land acquisition and land regulation in classic "greenbelt" fashion. On the other hand, the fragmented system of land-use planning in the Boulder area has permitted one city to pursue an aggressive policy without requiring regional collaboration or coordination. Boulder's strategy has created satellite communities. But those communities are not self-contained; rather, they are mostly bedroom suburbs for Boulder, creating a jobs-housing imbalance that has meant workers must commute across the greenbelt to work.

B. Urban Growth Boundaries

Greenbelts constrain the geographical expansion of urban areas largely through public ownership of undeveloped land or purchase of easements on agricultural land. By contrast, urban growth boundaries strive to achieve the same goal through the use of regulatory techniques, such as zoning. Property inside the boundary which is designated for urbanization will be zoned for urban use; property outside the boundary will be zoned for rural uses.

In general, purely regulatory solutions to land-use issues have become more controversial in the last 20 years, especially if they involve downzoning or maintaining non-urban zoning for property on the fringe of metropolitan areas that is subject to intense growth pressure. This is due in large part to a long series of property rights lawsuits brought by landowners and their advocates against government agencies, many of which have been successful in altering the "state of the law" regarding takings of property through regulation.

At the same time, however, UGBs have also been increasingly promoted by land-use planning advocates as a useful and effective tool in constraining urban growth. In part, this is because previous generations of growth management tools (including adequate public facilities ordinances and annual restrictions on the amount of development that is permitted) apparently have not restricted the geographical reach of urbanization in many U.S. metro areas. The growing support for UGBs also reflects the high profile of the UGB system in Oregon and especially in the Portland metropolitan area, which many planning advocates have pointed to as a model of "good planning".

As noted above, UGBs do not appear to be as widely used in the United States as many people perceive. However, it remains perhaps the most widely discussed and controversial tool in the arsenal of urban containment policies.

Case Study: Urban Growth Boundaries in Portland

The Oregon Land Conservation and Development Act (LCDA) of 1973 is probably the strongest state growth management law in the nation. It connected state and local planning programs by requiring that local comprehensive plans be consistent with statewide goals and also created the state Land Conservation and Development Commission (LCDC). It also requires the

drawing of urban growth boundaries around all the state's cities and a metropolitan growth boundary around the Portland region.¹³

Oregon's UGBs do restrict the outward geographical expansion of the state's urbanized areas, but they are also required to maintain a rotating supply of buildable land. Most cities and Portland's directly elected regional government implement this requirement by attempting to maintain a 20-year land supply. Local governments are required to review their boundaries every five years and expand them if they find inadequate capacity.¹⁴ Permit review is streamlined inside the growth boundary and local governments face state-imposed restrictions on their ability to impose impact fees. As a corollary to UGBs, Oregon in general and Portland in particular have a series of goals and rules requiring that localities plan for a variety of housing types that will accommodate all incomes.¹⁵ In 1978, residents of metropolitan Portland created a key actor in implementing growth management, the Portland Metropolitan Service District. In 1990, Oregon voters approved an amendment to the Oregon Constitution giving the Metropolitan Service District home rule status, subject to a home rule charter adopted in November 1992. (At that point, the District was renamed "Metro".) Metro – the only elected regional governance agency in the U.S. – provides transportation and land-use planning services, and sets and changes the UGB. Metro established the Portland regional UGB in 1979. The adopted UGB encompassed about 360 square miles, 130 square miles of which were vacant and undeveloped at that time (Knaap 2000). Then, as now, it included 24 incorporated cities and the urban portions of Multnomah, Clackamas, and Washington Counties. In the last few years, Metro has received national publicity for its "2040 Plan," a regional plan that encourages higher densities and mixed-use centers (Metro 1997).

Throughout the 1990s, much of the debate in Portland focused on whether and how much to move the UGB, which has been subject to only minor changes since its original passage in 1979. Metro's 1997 studies revealed that the Portland UGB had only about 37,500 vacant developable

¹³ See Portland Metro's website for an interactive urban growth boundary study map: <http://www.metro.dst.or.us/growth/ugbursa/ugbursa.html>.

¹⁴ In deciding the size and location of its boundary, Goal 14 of the LCDA requires a municipality to consider seven factors (OAR 660-015-0000(14), 2001): 1) demonstrated need to accommodate long-range urban population growth requirements consistent with LCDC goals; 2) need for housing, employment opportunities, and livability; 3) orderly and economic provision for public facilities and services; 4) maximum efficiency of land uses within and on the fringe of the existing urban area; 5) environmental, energy, economic, and social consequences; 6) retention of agricultural land as defined, with Class I being the highest priority for retention and Class VI the lowest priority; and 7) compatibility of the proposed urban uses with nearby agricultural activities. Outside the urban growth boundary, counties may approve uses, public facilities and services more intensive than allowed on rural lands by Goal 11 and 14, either by exception to those goals, or as provided by Commission rules which ensure such uses do not adversely affect agricultural and forest operations, and interfere with the efficient functioning of urban growth boundaries (OAR 660-015-0000(14), 2001).

¹⁵ These include, most importantly, the LCDA's Goal 10.

acres (58.5 square miles) remaining in 1998, enough to accommodate between 17 and 19 years of growth – less than the 20-year requirement in state law. After lengthy debate, Metro rejected an idea to permit urbanization of the region's "urban reserve," an area of 18,600 acres zoned mostly for rural housing. Instead, Metro decided to expand the boundary by about 4,000 acres, dipping only into so-called "First Tier" urban reserves where provision of infrastructure would be relatively easy (Metro 2000b).

These changes have brought enough land into the boundary to provide almost exactly a 20-year supply of land for housing (Metro 2000a). Because of the nature of the Oregon law, the UGB debates will resurface at least every five years and perhaps more often. These debates provide the framework within which land-use planners, environmentalists, builders, local governments, and other actors decide how much land is and should be available for high-density development. The impact of the UGB on land and housing markets in Portland has been arguably the single most researched topic in the urban containment literature, and that impact will be discussed in Section 5 below.

Case Study: Locally Approved Growth Boundaries in Ventura County and Contra Costa County, California

California does not have a state law mandating growth management or urban growth boundaries. However, for almost 40 years local governments have been encouraged to pursue orderly expansion of urban growth through the use of a "Local Agency Formation Commission" (LAFCO) in every county, which reviews, and may disapprove, municipal incorporations and annexations and special district formation (Nelson and Duncan, 1995). They are guided by the state annexation law, which establishes criteria restricting annexation unless cities and special districts have a plan to provide urban services in the newly incorporated areas. LAFCOs also approve city "spheres of influence," unincorporated areas that the city may annex in the future. The existence of LAFCOs makes it plausible to argue that every city in California faces, at least technically, a form of urban service boundary.

However, urban containment policies in California involve far more than implementation of LAFCO policies. Because LAFCOs do not regulate growth directly, urban containment also includes local ordinances that regulate or otherwise manage the geographical expansion of urban growth.¹⁶ The survey research mentioned above suggests that boundaries are more prevalent among counties than among cities, partly because most undeveloped land lies within county unincorporated areas (Fulton et al. 1996). City boundaries are less common but probably receive more publicity because they are often passed by voter initiative and they tend to regulate outward geographical expansion more strictly. The experience of Ventura County and Contra Costa County reveal the implementation issues associated with a locally driven urban containment system.

¹⁶ Under California's law, local planning functions independent of the LAFCO. Thus, while a sphere of influence is designed as a city's ultimate annexation area, the city may plan for an urban growth area that is smaller than the sphere and control efforts to preserve the remaining land inside the sphere; or it may plan for an urban growth area larger than the sphere and seek to change the sphere to match that planned growth area at a later time.

Ventura County is a mostly affluent county of 750,000 people north and west of Los Angeles. Using LAFCO law and farmland preservation techniques aggressively, the county has a 30-year tradition of channeling urban growth into incorporated cities. However, in 1998 voters in the county and several of its cities created a countywide system of urban containment by placing growth boundaries around the cities and subjecting future rezoning of agricultural and open space land to a vote. These ballot measures were called the SOAR (Save Open-space and Agricultural Resources) initiatives (California Planning & Development Report 1998).

What has resulted, according to estimates prepared by the University of Southern California and Solimar Research Group,¹⁷ is a system in which approximately 150,000 acres of land lie inside the growth boundaries, while 400,000 acres of land lie outside.¹⁸ About half the land inside the growth boundaries remains undeveloped, and topography constrains the development of much of that. About 90 percent of the county's 112,000 acres of cultivated farmland is located outside the growth boundaries.¹⁹ In most cases, these boundaries do not differ significantly from the "sphere of influence" boundaries created by the LAFCO.

At the same time, the state's lack of an Oregon-style growth management law means neither the county nor its cities must estimate or manage the land supply inside the boundary in order to account for future demand – and they have not done so. As required by state housing law, the local governments have set a target of approximately 60,000 units of future housing construction – an increase of approximately 25 percent from the existing stock of 250,000 units. But a recent analysis of city general plans found that the local jurisdictions' capacity for housing construction under SOAR lingers at somewhere between 41,000 and 46,000 units. Furthermore, an analysis of 126 recent cases found that projects tend to be approved at a maximum of 80 percent of general plan capacity, meaning that current plans will likely hold construction in the vicinity of 33,000 units (Fulton, Williamson et al. 2001.)

Contra Costa County, meanwhile, is a suburban county of 900,000 residents west of San Francisco. Like Ventura County, it has a long history of strong growth management. In 1990, county voters rejected a stringent, citizen-sponsored UGB initiative and instead approved a county-sponsored alternative. The alternative permitted some growth in unincorporated areas, but instructed the Board of Supervisors to create an "urban limit line" (ULL) and set aside 65 percent of the county's territory as open space.²⁰ As created by the county, the land inside the urban limit line consisted of 216,000 acres – approximately 44 percent of the county's area. Since 146,000

¹⁷ See the Solimar Research Group's website, "Existing Conditions Maps for Ventura County," http://www.solimar.org/html/vc_maps.html.

¹⁸ This does not include acreage of the Los Padres National Forest, which covers the northern two-thirds of the county.

¹⁹ See the Solimar Research Group's website "Map 2: Farmland and Protected Open Space," <http://www.solimar.org/html/map2.html>.

²⁰ See Contra Costa County's Community Development Mapping Archives for the urban limit line map: <http://www.co.contra-costa.ca.us/depart/cd/transportation/mapbin>.

acres of that land was already urbanized, the line left available for development some 69,000 acres for development (Fulton 1999; Fulton 2000; Contra Costa County 2000).

In 2000, the county shrank the boundary by 15,000 acres, reducing the total land inside the ULL to 200,000 acres and the undeveloped land inside the ULL to 54,000 acres. As part of environmental review, the county also conducted an analysis concluding that the revised ULL contained enough land to accommodate foreseeable future growth (Contra Costa County 2000). However, the revised ULL now conflicts with the spheres of influence for some cities as determined by the county LAFCO, meaning some pro-growth cities may not be able to expand their developed area as far or as rapidly as they had previously expected. This situation has led to a major dispute between these cities and the county (Fulton 2000).

Unlike Ventura County, Contra Costa County has done a good job of relating the demand for urban land with the supply under the ULL.²¹ However, in contrast to Ventura County, Contra Costa County has not been able to achieve its growth boundary objectives while maintaining good relationships with cities in the county, many of which have different growth objectives.

C. Urban Service Areas

When "suburban sprawl" first emerged as a metropolitan problem in the 1950s and '60s, debates revolved around the problems of "leapfrog" and "low-density" development (see, for example, Clawson 1962). "Leapfrogging" referred to the fact that much new suburban development was hopping over areas closer in and jumping far beyond the metropolitan fringe where it fragmented farmland or natural lands. The "low-density" problem, which is still pervasive in many parts of the country, was that new suburban development was occurring at extremely low densities (often less than one unit per five acres), thus consuming more land than was necessary to accommodate additional population.

In many states and metropolitan areas, the initial response to this problem entailed a "pull" policy that tethered new urban growth to the provision of urban infrastructure, rather than "push" policies of urban containment. Pull policies employ urban service areas or tools designed to link infrastructure and growth, most notably APFOs or "tiering" mechanisms.

Urban service areas resemble urban growth boundaries in the sense that they create geographical limits on urban growth (at least urban growth that requires the extension of public

²¹ Interestingly, Contra Costa used a combination of current state laws to accomplish this goal. Although the state does not have a growth management law, it does have the California Environmental Quality Act, the state's version of the National Environmental Policy Act, as well as the Housing Element Law, which requires localities to set targets for housing construction. Contra Costa County used these two laws in tandem to achieve the functional equivalent of Oregon's growth management law - using the Housing Element law to document the demand for residential land and CEQA's environmental review requirements to compare that to land supply. This approach did not forestall the dispute with the pro-growth cities, however.

water and sewer systems). But they also tend to be more flexible and easier to move because they tend to be concerned with the geographical sequencing of growth rather than its constraint. However, in many cases APFOs or tiering mechanisms are adopted independently, absent an overall urban service area strategy.

Much of the motivation for adopting these policy tools was financial, not geographic – that is, they sought to reduce the cost of infrastructure to the communities hosting the growth. As a result, they do not always shape growth geographically in an overt fashion.

APFOs require that infrastructure be in place before development is permitted. APFO programs are implemented at the municipal or county level, sometimes based on guidance or mandates from state law. They do not necessarily impose an ultimate outer limit on growth, but they do change the geographical calculus of growth – and some evidence suggests they do increase densities more than urban growth boundaries.

APFO programs were pioneered most famously in Ramapo, New York²²; since then many other local governments have experimented with them. The concept of adequate public facilities for new growth became the centerpiece of Florida's statewide growth management system in 1985, and Washington's 1990 growth management statute adopted the APFO concept for developing areas within urban growth areas.

A second variety of "containment from within" is the "tier" system. Midway between the adequate public facilities approach – which does not necessarily envision any ultimate boundary for growth – and the permanent greenbelt approach, tier systems use infrastructure capacity, current levels of development, and assessments of rural resource viability to identify areas that are currently developed, areas where development should be avoided, and areas for new growth over a given time period.

Among the best-known tier systems are those in Minneapolis-St. Paul, San Diego, and Palm Beach County. Maryland's Smart Growth program may be the newest and most closely watched statewide tier program. Maine and Wisconsin recently overhauled their state planning legislation to encourage an urban service area approach (on Maine, see American Planning Association 2002; on Wisconsin, see Wisconsin Office of Land Information Services 2001).

²² Ramapo is a suburb of New York City that grew rapidly in the postwar era, especially after the New York State Thruway opened in 1965. In 1969, the town adopted a then-innovative growth management system that used the APFO approach and also a "tiering" system that required property owners to wait as long as 18 years to develop their property, depending on when infrastructure would be provided. The Ramapo system survived legal challenge in New York's highest court (*Golden v. Planning Board of the Town of Ramapo*, Court of Appeals of New York, 1972, 285 N.E.2d 291), and thus became the model for growth management ordinances around the nation.

Case Study: The Minneapolis-St. Paul Urban Service Area

One of the first regional applications of the tier system in the U.S. came in the early 1970s in Minneapolis-St. Paul, the first metropolitan area in the nation to gain a regional planning agency with the authority to back and implement its plans. The Metropolitan Council (commonly known as the "Met Council") was created by the state legislature in 1967 in response to a variety of familiar problems in Minneapolis-St. Paul: receding agriculture, central-city population decline, scattering new development, and the rising costs of community services. Despite unusually strong powers, however, considerable evidence indicates that the designated Urban Service Area has not curbed sprawl in the region (see, for example Fulton, Pendall et al.'s findings (2001) on sprawl between 1982 and 1997, placing Minneapolis-St. Paul among the most rapidly sprawling large regions in the United States).

In response to legislative mandates, the Met Council worked in the early 1970s to create a Metropolitan Comprehensive Development Guide, "a compilation of policy statements, goals, standards, programs, and maps prescribing guidelines for an orderly and economic development – public and private – of the metropolitan area" (Freilich 1999). As part of that the Met Council adopted a Physical Development Framework Policy that divided the region into five tiers.

Tiers I and II were the established urbanized areas, and were separated from Tiers IV (rural and agricultural uses) and V (free-standing villages) by Tier III, the area of active urbanization. In 1975, the Metropolitan Council formally established the Metropolitan Urban Service Area (MUSA), encompassing Tiers I through III, an area then incorporating "576,000 acres with a population of one million. Of that acreage, 47 percent (270,000 acres) was already developed and 20 percent [116,800 acres] was vacant and developable. An additional 189,200 acres were vacant yet undevelopable due to environmental constraints" (Dearborn and Gygi 1993). The council had a 20-year planning framework but included enough land in the MUSA to accommodate 25 years of growth (Dearborn and Gygi 1993).

Because the council was responsible for planning and building regional highways, sewers, parks, airports, and solid waste management systems, its own actions would be partially responsible for carrying out the plan (Dearborn and Gygi 1993). In addition, the Minnesota State Legislature moved in 1976²³ to require local governments in the metropolitan area to adopt comprehensive plans, zoning ordinances, and capital improvement programs (CIPs) consistent with the council's plans for airports, parks, transportation, and sewers. Over time the state legislature has given the council more power over local zoning decisions. A municipality with a consistent comprehensive plan must also adopt a zoning ordinance consistent with the MUSA as well.

Between 1976 and 1993, the MUSA was amended 60 times. By 1993, 318,000 acres had been developed (a 17.8 percent increase since 1976), and 48,000 vacant and developable acres remained (Dearborn and Gygi 1993). In 1996, the council adopted a new Regional Blueprint in

²³ Metropolitan Land Planning Act, Minn. Stat. 473.175, 473.851 (1996).

response to growing perceptions that insufficient land remained within the MUSA to accommodate the 330,000 new households expected in the region by 2020. The Blueprint relaxed the MUSA line, drawing 80,000 new acres into the MUSA to accommodate around 110,000 of the new households; it also established 120,000 acres of urban reserves beyond the MUSA to allow urban development after 2020 (Freilich 1999, 116). Poradek summarizes ample evidence that the Minneapolis-St. Paul MUSA line and tier system has failed to contain sprawl:

Over a five-year period in the 1980s, the growth boundary around Portland [Oregon] expanded by only 2,515 acres. By contrast, during a five-year period in Minnesota, the council amended its Metropolitan Urban Services Area (MUSA) to add over 18,000 new acres, even though the metropolitan region remained one of the least densely populated in the country. Portland's population density has risen dramatically while the Twin Cities' density has continued to plummet. The council recently approved a plan to phase in over 200,000 acres to MUSA starting in the year 2000. This will vastly increase the amount of developable land in the metropolitan region (Poradek 1997).

Poradek attributes the weakness of the Minneapolis-St. Paul system to at least two factors. First, the council has not responded aggressively to the language of the 1976 Municipal Planning Act providing that the council "may" suspend local plans when they have a "substantial impact on or contain a substantial departure from" the regional plan. The act itself is broad but not specific enough to provide a clear mandate, and the council's early attempts to use its review powers more actively met stiff local resistance. Second, the council is responsible for both regional planning and local technical assistance – that is, it serves two agendas.

A third factor may be that suburban growth within the MUSA often occurs on septic systems and wells; municipal plans are only loosely governed by the regional plan, and the only additional structuring factor is the regional sewer system. Since on-site water and sewage disposal requires larger lots, it is conceivable that the combination of tight regional controls on sewers and inadequate regional controls on local planning has led to more sprawl, rather than less, in the MUSA.

Case Study: San Diego's Tier System

Another notable tier system, also based on initial recommendations by Freilich, was adopted in San Diego in 1976. As first proposed, the San Diego tier system had an open space tier and three growth tiers for residential development: an urbanized tier, a planned urbanizing tier, and an urban reserve tier, but only the latter three tiers were adopted.²⁴ To implement the tiers, the City Council adopted a special benefits assessment so that new growth would pay its own way; this measure carved the city into separate districts based on areas' differing needs for urban services, and imposed higher charges in districts that required more infrastructure. By requiring all property owners to participate in the benefit assessment district, this aspect of the system had the effect of forcing property owners in the planned urbanizing tier to develop their property (in order to

²⁴ Like Ramapo's scheme, the San Diego tier system excluded commercial and industrial development based on the logic that it paid its own way (Mandelker 1999).

pay the assessments) and therefore encouraged growth in the area where the city had determined it should go.²⁵

The City Council also raised density to a 10-acre minimum in the urban reserve area, but allowed "clustered" development on four-acre lots, allowing some new large-lot development to creep in to the urban reserve and thereby making it more difficult for future urbanization to proceed rationally.

Builders followed these signals by turning inward, redeveloping areas in the urbanized tier, which was not subject to development exactions. They also targeted the urban reserve areas because residents in the urbanizing tier mounted increasingly successful challenges to development there. Calavita reports that the uneven growth resulted in infrastructure breakdown and freeway gridlock (Calavita 1997). As the scale and intensity of the redevelopment in the urban tier overwhelmed neighborhood residents and strained infrastructure, new restrictions were placed on development there, which placed yet more pressure on the urban reserve, which voters agreed twice to relax (Mandelker 1999). The city "adopted a plan for the urban reserve in the early 1990s that made strategic choices in that area, and that called for the preparation of subarea plans" (Mandelker 1999, 811). It is also worth noting that San Diego's tiering system did not prevent anti-growth activists from pressuring the City Council into adopting an annual numerical limit on residential permits in 1987 (Fulton 1997). Most recently, the city has been developing a new "strategic framework" element to its general plan which seeks to place much new growth in higher density "villages". The plan acknowledges the need for \$2.5 billion in infrastructure improvements in existing neighborhoods.²⁶

In some ways, then, the San Diego system succeeded where the Minneapolis-St. Paul system failed. It boosted in-town density to, and perhaps beyond, the maximum levels possible within the established infrastructure system; only then did the City Council decide to relax controls on outlying areas. But the San Diego system also confirmed the difficulty of maintaining the political equilibrium of a system that seeks to simultaneously direct growth to certain areas and maintain a pace of infrastructure construction that can truly accommodate new growth. Furthermore, San Diego's system was not regional. Although San Diego dominates its region, its system did not apply to the other municipalities in San Diego County, nor to unincorporated areas of the county. Although these other jurisdictions did establish growth controls of their own, they often simply sought to suppress growth within their own boundaries and did not seek to place their controls into a regional framework.

²⁵ This system was challenged in court but upheld. *J.W. Jones Cos. v. City of San Diego*, 157 Cal.App.3d 745 (1984).

²⁶ See: <http://www.ci.san-diego.ca.us/cityofvillages/overview>.

V. IMPACT AND IMPLEMENTATION ISSUES

Over the past 20 years – and especially in the last decade – much research has examined the impact of urban containment policies and on the implementation issues that arise from their use. But this research is far from definitive.

Much of this work deals with impact and implementation issues associated with a broad array of growth management policies – not just urban containment but also numerical restrictions on development, development impact fees, and the like (Kelly 1993) – and does not always distinguish between the two. Of the research specifically on urban containment policies, a great deal is concentrated on the specific case of the urban growth boundary system in Portland. Relatively little research deals directly with the combination of urban containment policies discussed in this paper, or with urban containment across the nation.

In general, the research has sought to address the following three questions:

1. How do urban containment policies affect land supply and land markets?
2. How do urban containment policies affect housing densities, housing types, and housing prices?
3. How do urban containment policies affect the location, pattern, and pace of development?

These three questions are interrelated, and difficult to unravel and discuss separately. What underlies them, however, is a common understanding that urban containment policies – especially urban growth boundaries and urban service areas – deliberately endeavor to use policy and regulatory signals to affect land markets in order to achieve the desired policy goals.

A. Land Supply and Land Markets

The whole concept of a conscious urban containment policy encompasses a series of assumptions about how public policy can be used to manipulate and alter the supply of land for urban growth and the motivations of property owners. By placing "push" and "pull" factors on the supply of land for urbanization, urban containment policy should be able to direct growth into specific geographical areas. By placing limits on the amount of land available for urbanization, urban containment policy should be able to affect land prices and the type of development as well. In doing so, urban containment policy works deliberately to shape urban land markets, which are typically affected by a series of uncoordinated land-use regulations and policies, infrastructure investments, and measures to secure open space.

A review of the research suggests that – as is so often the case with land-use policy – the impact of urban containment policy depends not so much on the nature of the policy itself but on its implementation. Much of the research regarding the impact of *all growth management policies* on land markets and housing prices proceeds from the assumption that the purpose of the policy is to constrain the overall amount of growth in a given jurisdiction (Fischel 1990). Accordingly, analysts

often conclude that growth management policies either drive up prices in the jurisdiction where the policy was implemented, or "bounce" growth out of the jurisdiction with growth management into other parts of the metropolis.

For example, Levine (1999) concluded that, during the 1980s, more than 500,000 housing units in California were either not produced or displaced to another jurisdiction as a result of growth management policies. Levine acknowledged a great deal of variability in the possible results of his model and recognized that this figure might be high, but nevertheless argued that growth management had a significant impact. Earlier research by Glickfeld and Levine (1992), based on some of the same survey data, concluded that growth management by individual jurisdictions in California created a "bounce" effect, usually to the edge of the metropolis rather than into adjacent jurisdictions.

When unbundling the impact of individual growth management tools, however, Levine found that the tools which had the greatest impact on a reduction in housing construction were not urban containment policies *per se* but, rather, policies that reduced the size or density of allowable construction projects (including commercial and industrial construction as well as residential construction). Neither urban growth boundaries nor adequate public facilities ordinances played an important role.

These results partly support the underlying notion that urban containment policies aim to direct growth and perhaps change its nature, rather than restrict the amount of growth. Theoretically, the price of land inside a boundary should rise, which should motivate urban developers to develop at higher densities. In this way the whole area inside the boundary ought to move toward more "efficient" land utilization (Nelson 1986). Outside the boundary, the price of land should decline, thus ensuring the economic viability of resource-based activities that usually cannot compete in land markets with urbanization.

Land-price increases within a boundary should, moreover, alter the price and type of developed real estate there and the densities at which it is built. Although this is likely true for all developed real estate, most of the policy discussion has centered on housing. If urban containment policies are effective and land prices go up, then the price of housing units should go up as well – unless those land price increases are offset by changes of housing type (more multi-family units or smaller single-family units, for example) or by increases in the densities at which housing is built.

Most research studies on urban containment, greenbelt amenity, and limits on land supply (Correll, Lillydahl, and Singell 1978 regarding Boulder; Frech and Lafferty 1984 regarding coastal California; Gleeson 1979 regarding Brooklyn Park, Minnesota) have had some methodological flaws, and they have usually been place-specific rather than comprehensive. But they clearly suggest the following conclusion:

Urban containment systems – growth boundaries, greenbelts, or urban service boundaries – can raise land prices, and the longer they are in effect and the more tightly they are drawn around existing development, the more severe this inflationary effect. When the boundaries encompass sufficient land to accommodate future growth – or incorporate, as in the Oregon case, adequate developable areas – they may not have this inflationary effect.

In other words, the impact of urban containment policies depends largely on their implementation. In a journal article based on his 1994 survey, Pendall (2000) found – as Levine did – that growth boundaries in and of themselves did not consistently reduce housing growth in the 1980s. In part, he concluded that this was because "growth boundaries often encircle areas that are much larger than needed to accommodate future housing construction."

B. Housing

As a recent Brookings Urban Center paper concluded, the preponderance of evidence about the Portland experience suggests that, in and of itself, the urban growth boundary has not increased housing prices substantially. This was partly because it was drawn expansively to begin with and partly because the Portland economy was depressed throughout much of the 1980s and 1990s, after the boundary was put into effect (Nelson et al. 2002.) After housing prices increased dramatically in the 1990s, Staley, Edgens, and Mildner (1999) speculated that the region would be in a housing deficit situation by 2017 if the UGB was not moved. For this reason, homebuilders and development interests strongly support relaxing the UGB.

However, other analysts suggest that Portland had previously been undervalued, perhaps because of the prolonged economic recession. Phillips and Goodstein (2000) contend that Portland's recent price escalation has merely allowed it to catch up with average levels among 37 Western cities, and they suggest that speculative bidding may have been more of a factor than the UGB. In any event, they found no statistically significant association between the UGB and housing prices. Others have suggested that the entire planning system, of which the UGB is a fundamental component, may have produced regional amenity levels that enhance demand for housing in Portland. Downs (2001) obtained similar results using different data, concluding: "a UGB in itself – even a stringent one – does not always cause rising housing prices. It does so mainly when there is some strong stimulus on the demand side of the market as well as the UGB's strong constraints on the supply side." A subsequent Downs analysis concludes that "between 1980 and 2000, housing prices in the Portland region increased faster than those in comparable areas elsewhere only from 1990 to 1994" (Downs 2002).

Other empirical research regarding Portland confirms that the urban containment policies have shifted land use and densities. A 1991 study found that the volume of multiple family and attached single family development had increased dramatically in the previous decade, and the average lot size of single-family houses had dropped by nearly one-half (ECO Northwest et al. 1991). This shift apparently resulted from both market factors (a prolonged economic downturn that increased demand for affordable dwelling types) and the combined effects of the UGB and the

Metropolitan Housing Rule, which required all Portland jurisdictions to modify their zoning ordinances to achieve specified average densities and assure that at least 50 percent of dwelling unit capacity was in multi-family zones. More recent data for Portland show that the trend toward higher density continued during the economic boom of the 1990s, with average lot sizes falling 13.5 percent in Clackamas and 20 percent in Multnomah County (Phillips and Goodstein 2000).

In sum, considerable evidence indicates that urban containment policies do increase densities and in some cases promote multi-family construction, which is often their intention. But the overall impact of these changes on the metropolis as a whole depends on the way that containment policies work together and the level to which they direct growth into specific areas.

For example, Adequate Public Facilities Ordinances appear to increase densities, largely because it is cheaper to provide new development with public services at higher densities (Carruthers and Ulfarsson 2002). Indeed, one study found that counties with APFOs were much less likely to lose density than counties with UGBs (Pendall 1999).

At the same time, though, the policies entail substantial cost and can have many side effects. APFOs require almost constant monitoring. Not every jurisdiction has the capacity to exercise this scrutiny, and even those with the most capacity sometimes are forced to make seemingly arbitrary decisions about which areas should grow and which need to wait until new infrastructure comes on line. APFOs can also, as in the Florida concurrency system, stimulate construction in areas with slack capacity – which may be far away from established urban areas, in rural zones with still-uncongested highways.

C. Location and Pattern of Growth

Even though land economics and planning policies may move toward higher densities inside urban containment areas, the politics and economics of development in existing urban areas may prevent housing construction at higher density levels.

In both Boulder and California, urban containment policies have been implemented hand-in-hand with significant restrictions of urban growth – especially residential growth – inside the urban containment area. Boulder's urban containment policies - which have included the purchase of almost 30,000 acres of land as well as strict growth controls inside the boundary – clearly stimulated leapfrogging into suburban communities beyond the greenbelt. Dowall (1984) presents strong evidence that containment in the San Francisco Bay Area has often been designed to limit the overall amount of growth as well as shape it. In neither Boulder nor California, it should be added, does state law govern local urban containment policies, which means that no obligation requires localities there to predict and plan for a full complement of future urban growth, as it does in Oregon.

Many local governments in the Bay Area have also gone beyond limiting urban expansion by reducing permitted residential density, imposing annual limitations on the issuance of building

permits, and adopting adequate public facilities ordinances. Some municipal general plans further establish numerical ceilings for city populations (Frieden 1979; Elliott 1981; Glickfeld and Levine 1992). Since all of this has occurred in the context of strong housing demand that has led to the highest housing prices in the United States, little doubt remains that housing demand is "spinning out" of the San Francisco Bay Area region altogether, mostly into the Central Valley to the East and the Salinas Valley to the South. Though other factors are clearly important, some of this spin-out is undoubtedly caused by land constraints resulting from purchase of public greenbelts and regulatory containment policies.

This unintended leapfrog effect stands in clear contrast to the experience from Korea and England, where leapfrog development was embedded in the underlying goals of urban containment. In the case of both England and Korea, the urban containment policy was viewed as part of an overall plan for regional decentralization very much along the lines originally envisioned by Ebenezer Howard more than a century ago. Howard (1898) saw urban containment as part of a regional system that would constrain the size of the central city, protect agricultural belts outside the city, and redistribute some population growth in an orderly fashion into "new towns" outside the greenbelt.

London's boundary was not drawn to accommodate expected future population growth with the designation of ample land for urban development, but rather to avoid expected population growth and in fact to decrease population. London did not stop growing, of course, but it did grow much less rapidly than metropolitan areas beyond the greenbelt. In Seoul, leapfrog development has occurred mainly in six satellite cities planned by the central government beyond the greenbelt as part of a larger strategy to promote more balanced regional development and to reduce the concentration of population and employment in Seoul (Kim and Kim 2000). In these cities, employment growth has lagged behind population growth, so that average commute distances have increased dramatically in some cases.

It bears repeating that the English and Korean containment systems had different objectives than any in the U.S., and were thus designed very differently than most containment systems here. Whereas urban containment programs in the U.S. strive to avoid leapfrog development, the programs in Korea and England actively sought leapfrog development in the form of new satellite cities beyond the greenbelt. Nevertheless, in many high-profile situations in the United States – including both Boulder and California – local urban containment policies, free from regional goals and tied to local growth limitations, have clearly led to *unplanned* leapfrog development.

Furthermore, no matter what the policies of a jurisdiction are, slow-growth politics may intervene to suppress growth inside the boundary on a case-by-case basis. In an examination of residential development in Portland from 1985 to 1989, ECO Northwest (1990) found residential land developed at 9.58 units per acre in jurisdictions required to zone for an average of ten units per acre; 8.42 units per acre in jurisdictions required to zone for eight units per acre; and 3.09 units per acre in the jurisdiction required to zone for six units per acre. Jurisdictions in all three

classifications came closer to reaching planned density levels in multiple-family zones than in single-family zones. Overall, single-family densities reached 66 percent of planned densities while multiple-family densities reached 90 percent of planned densities.

In a more recent study, Fulton, Williamson et al. (2001) obtained similar results in Ventura County, California. Analyzing 126 individual project approvals between 1996 and 2001, they found that, on average, residential development was approved at 80 percent of zoning capacity and 54 percent of the capacity delineated in the jurisdiction's general plan. As in the Portland study, multi-family housing was approved at much closer to planned densities. The study period straddled the passage of the SOAR growth boundary initiatives in 1998, and the researchers found no difference in the approved densities before and after the initiative's passage. It could be that the practical political realities of project approval – that is, opposition to higher-density development from neighbors – may overrule prescriptions of higher densities by urban containment policies.

Furthermore, metropolitan development patterns will also depend on the strength of the land conservation policies in the greenbelt itself. Research in California has found that while many jurisdictions have adopted tight urban growth boundaries, the "rural" development permitted outside those boundaries permit low-density suburban growth (one- to two-acre lots), rather than wholesale conservation of either working landscapes or natural areas (Fulton et al 1996). Regarding land outside boundaries, a recent study by Kline and Alig (1999) examined the conversion of farm and forest lands in Western Oregon and Washington both before and after the adoption of Oregon's land-use program. Not surprisingly, the imposition of the UGB increased the odds that a farm or forest parcel inside the UGB would convert to urban use. But the odds of development did not fall for farm or forest parcels located outside the UGB. Based on this evidence, Kline and Alig concluded that Oregon's land-use program has concentrated urban development inside UGBs but has not clearly protected farm and forestland outside UGBs from continued urban development. Hence the picture in this regard, like that on housing prices and values, remains clouded by questions of measurement, context, and secular trends.

VI. CONCLUSIONS AND REMAINING POLICY QUESTIONS

Urban containment encompasses a very broad family of approaches for shaping urban form, including publicly owned greenbelts, urban growth boundaries imposed by regulation, and urban service areas. Despite widespread public debate, however, the national experience on urban containment is not geographically broad. The research conducted to date has not been comprehensive or definitive and very often it has led to mixed results – even in the case of Portland and Oregon, the nation’s longest experiment with a strong urban containment system. However, based on the experience and the literature, we can make the following observations and conclusions:

1. **The urban containment policy of any metropolitan area should be understood as the sum total of a wide array of tools, not just the regulatory tool of urban growth boundaries.**

As we have observed throughout this paper, an urban containment policy is simply the conscious use toward that end of at least three different sets of tools – greenbelts, UGBs, and urban service areas – that are already in effect in virtually all metropolitan areas and most local jurisdictions in the United States. Unfortunately, policymakers rarely understand the likely impact of these tools when they are adopted, changed, or analyzed. Needless to say, an urban containment policy is much more likely to be successful if there is a conscious effort to understand the role of all these tools in shaping the metropolis.

2. **Tighter containment strategies tend to encourage greater increases in density in areas designated for growth, as long as local policy permits it.**

Research on London, Seoul, Portland, and San Diego all suggests that tight containment encourages density increases, especially if policies are flexible enough to accommodate new development inside the boundary. Metropolitan Portland achieved this flexibility by mandating increases in local zoned density and requiring the inclusion of multi-family housing in all jurisdictions.

3. **Tighter containment strategies also make it more likely that new growth will jump the "greenbelt."**

Research from around the world suggests that tight urban containment policies, especially greenbelts, will inevitably drive some urban growth completely beyond the land preservation area surrounding the metropolis and so stimulate what critics call "leapfrog" development. In this regard, the policy question becomes not how to prevent leapfrog development but how to plan for growth in satellite towns in a thoughtful way. Virtually all American experiments with urban containment have failed to address this question, assuming instead that all urban growth in a region will be driven into the designated growth area by the containment policy.

4. **A boundary that is tightly drawn and hard to change will create more dramatic and more rapid change than a boundary that is loose and flexible.**

All else being equal, a fixed boundary is more likely to change the urban pattern than a loose one. Seoul's urban density has grown markedly, right to the edge of the greenbelt, largely because of the impression that the greenbelt is permanent. Density in Portland has taken on some of these characteristics as well, partly because of perceptions that Metro will do all it can to avoid moving the boundary even though it reviews the UGB periodically.

Conversely, very remote boundaries – such as those maintained by many Tennessee counties today – will not necessarily reduce housing space, dramatically raise housing costs, or encourage leapfrog development.

5. **The deliberate creation of an urban containment policy will not automatically lead to high-density urban development inside the boundary and large-scale land conservation outside the boundary; residents and property owners will still have considerable sway in those areas.**

Land-use regulation inside a boundary can remain so strict as to resist higher density, as it has in Boulder. Meanwhile, many urban containment systems continue to permit low-density residential development, hobby farming, and other "rural" uses that may restrict the amount of development but do not necessarily retain working landscapes or preserve natural systems. Land outside the boundary can be very rigorously controlled through land purchase, as in the case of Boulder, Colorado; moderately controlled; or scarcely controlled, as in Minneapolis-St. Paul, where houses beyond the MUSA can be built using septic systems and wells on lots as small as one to two acres.

6. **Urban containment policies raise important questions about housing supply and production at the metropolitan level. The stronger the policies, the more vigorous this debate will become.**

By constraining the supply of land for residential growth in a given housing market, urban containment policies alter the traditional American metropolitan assumptions about how housing for all income groups will be provided. Containment policies can increase land prices and therefore create pressure for higher densities and different housing product types. Homebuilders and other property-rights advocates frequently argue (O'Malley 1998) that this reduces their ability to provide workforce housing, partly because traditional American suburban development patterns are based on the assumption of inexpensive land for new growth. Conversely, limitations on land supplies and increased land cost may motivate affordable housing advocates to seek greater public subsidies – based on the counterargument that metropolitan housing for low-income residents (and some workforce participants as well) simply cannot be provided by the private market under any circumstances. This is a heated debate that will always arise when a strong urban containment policy is considered or adopted.

7. Urban containment works less well when pursued only at the local or municipal level because of the spillover effect and the frequent creation of satellite communities.

Containment can be enacted at the national, state, regional (substate but multi-county), county, or local (municipal) level. Its effectiveness undoubtedly decreases with each step down the scale. Policies at the national level, such as England's or Korea's, can take into account of not only population shifts within regions but also, theoretically, economic shifts among regions. They can favor certain regions with investment as an explicit policy of either concentration or, more often, deconcentration, at the same time that they make decisions about intra-regional urban form and the separation among regions. States in the U.S. lack such broad powers, although they can theoretically regulate how industrial development authorities award subsidies to business. State governments do retain the power to enforce multi-regional growth boundary systems that promote regional separation and self-containment of jobs and housing, but counties in adjacent states may actually welcome sprawling growth. (Of course, states and the federal government do engage in de-facto urban containment policies as a result of their own open-space landholdings.)

Regional governments, at the next step down, have the power to be more effective than single counties acting alone, though they have rarely been given real power. County governments are sometimes as large as regions and sometimes have as many municipalities as some states, thereby functioning as quasi-regional agencies. Washington State's Growth Management Act, for example, hands county governments most of the responsibility for implementing its mandates. And indeed, counties frequently take the lead in practicing growth containment in states where it is not mandatory. But very few counties, even counties that surround small cities, encompass enough land to contain regional economies or labor supplies. For that reason, a regional containment program will probably work better than single-county one even if all or most of the municipalities in the county participate.

Municipal containment strategies, which are adopted without state support most commonly in California, face the biggest challenges, especially when adopted in unsupportive counties. They may promote higher density within the municipality – if the municipality allows higher densities to develop. But they are at least as likely to encourage leapfrogging and the relocation of growth to more accommodating nearby municipalities.

These conclusions are tentative and really represent only the beginning of the research and analysis necessary to fully understand urban containment policies and the impact they have on the shape and form of American metropolitan areas. As this effort moves forward, we believe there are at least five policy questions that must be explored in more detail. These include:

- 1. What is the impact of other land-use policies and their implementation both inside and outside urban containment boundaries?** It is clear from our review of the literature that simply drawing boundaries is not enough. Other policies must encourage different

forms of urban development inside the boundary, as well as protect non-urban land outside the boundary. Furthermore, actual implementation of these other policies (e.g., approving projects inside the boundary at lower than planned densities) may undermine the urban containment strategy in practice. In view of these dynamics, all of these issues must be investigated in the context of the original aims of the containment program to reveal when, where, how, and why containment policies meet their own stated objectives. Policy makers will especially benefit from information on what accounts for differences in program outcomes. However, little systematic analysis of these questions has been undertaken.

2. **Does unintended or unacknowledged containment result from various local land-use regulations?** In this paper, we have concluded that urban containment policies attempt to consciously shape metropolitan growth patterns by using at least three land-use tools (infrastructure investment, land use regulations, and open space acquisition) that exist in every metropolitan area. Other tools may help to shape these growth patterns, though. In addition, the independent use of these tools by uncoordinated local governments inevitably influences the regional growth regime. However, little work has been done to understand how these processes work and the impact they have at the regional or metropolitan level.
3. **How do urban containment strategies interact with policies and programs designed primarily to protect open space?** Every metropolitan area in the United States contains a series of programs to protect open space, primarily through the acquisition of land for parks and open space and the use of easements to protect working landscapes. (Increasingly as well, landowners are deeding over parts of their land for an open space or environmental purpose as a condition of developing the rest of other property.) As a companion paper to this one shows, these efforts have increased dramatically in the last decade (Hollis and Fulton 2002). These efforts clearly shape the form and distribution of urban growth in our metropolitan areas; indeed, in many cases they clearly represent a back-door approach to urban containment. But they are rarely conceived or implemented with that goal in mind; and little research has probed their impact on metropolitan form.
4. **What are the true impacts of containment policy on urban form, especially when viewed in the context of efforts by local, state, special district, and federal government and the private sector to control land use?** Most of the research on urban containment has focused on cost and finance – either the impact on infrastructure cost (mostly dealing with urban service areas) or the impact on housing cost (mostly dealing with urban growth boundaries). Little analysis has assessed the impact of containment policies on urban form – that is, the actual distribution of people, buildings, infrastructure, and open space across the landscape. In particular, such research and analysis needs to take into account all the players whose policies influence this form, including federal government policies.

5. **How are the benefits and costs of containment distributed across race and class in metropolitan areas?** Finally, little work has examined the interrelationship of urban containment policies and race and class issues in metropolitan areas. The spatial relationship among job opportunities, housing opportunities, open space, and different population groups has become a major issue in U.S. metropolitan areas, especially because they have grown so geographically large. Urban containment policies may alleviate this spatial mismatch by limiting geographical expansion; or they may exacerbate the mismatch by creating further segregation; or they may do both at the same time. In any event, these relationships must be explored.

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