Right-sizing Urban Boundaries

How to figure out what’s best for your community

Urban growth boundaries are an increasing feature of Oregon, Washington, and Tennessee mandates of “teeth”; Florida encourages them; and others follow.

A line in the sand seems like a simple way to implement a smart growth program or, more cynically, for beleaguered politicians to satisfy their constituents’ qualms about excessive growth.

Arthur Nelson, FAICP, of Virginia Tech and Casey Dawkins of Georgia Tech recently attempted to identify all UGBs or similar development lines for all U.S. counties and cities with populations over 50,000. By the beginning of 2003, they had found 146 examples of counties with multiple UGBs or UGBs surrounding cities of over 50,000 population where the county is not involved.

Despite this flurry of boundary setting, our impression was that UGBs, once fixed, are rarely expanded. Unless states require jurisdictions to review their UGBs periodically, the boundaries tend to get set in stone.

To explore this hunch, we called places with long-term UGBs (Lexington/Fayette County, Kentucky; Montgomery and Baltimore counties, Maryland; and Sarasota County, Florida). With the exception of Lexington/Fayette, which added eight square miles to its urban service area in 1996, we found no significant expansions, especially with the more strictly defined UGBs.

To corroborate our anecdotal information, we surveyed more than 180 places known to have adopted UGBs. The 35 responses received so far, while only a small sample, reinforce our initial impression: Communities are not expanding their UGBs in any significant way (see box on survey findings). Nor do communities appear to be densifying their undeveloped land within the UGBs as an alternative to expansion. Oregon and Florida are exceptions. Oregon requires that cities with UGBs consider this alternative every five years when reviewing their land supplies. Florida cities and counties with urban containment plans (which may or may not include UGBs) must re-evaluate urban development needs periodically.

For planners, the bottom line is that if UGBs are typically a one-shot deal (i.e., where there is no requirement to reconsider UGB size on a regular basis), then their initial size and dimensions are crucial. Is there an empirically based, substantiated method for sizing UGBs? The answer is no. Our inherited rules-of-thumb are not based on the dynamics of land supply and demand. Nor have UGBs been analyzed to see how varying sizes or implementation strategies affect housing costs, growth patterns, and economic segregation. While a fair bit of research has been done on growth management and its effects on housing prices, UGBs typically have not been isolated from other measures.

In theory, the UGB—a bright line dividing urban development from rural areas—is a rational way to phase the expansion of urban growth; it promises to provide discrete amounts of contiguous and relatively compact development as demand warrants.

Along the edge of the urban growth boundary in Hot Springs, Arkansas, the boundary has been expanded by over 18,000 acres, mainly for the development of the Hot Springs National Park.

In some places, a tiered approach is mapped and future expansions of the UGB are identified to broadcast the community’s long-term intentions (as in Florida’s Sarasota and Palm Beach counties and in San Diego County, California).

We see a need to apply some planning logic to UGBs, and offer the following approach as an option.

An approach to right-sizing

As planners, we should try to right-size UGBs so that housing remains available and afford-
Growth Boundaries

Uri Avin, FAICP, and Michael Bayer, FAICP

One popular approach to growth management is the use (although with very different sets of assumptions) that Maryland and California have been doing for decades.

Portlanders: growth is not simply squeezed from second- to third-tier suburbs (as locals optimize their own jurisdiction’s future but compromise the region’s); economic growth and development is not stunted through lack of an accessible labor force; and rural areas are not encapsulated by growth areas and scattered suburban development, effectively frozen in amber, so that they lose their critical mass and economic rationale.

We do not believe that right-sizing will ever be as simple as, say, “providing for your projected 20-year growth plus 25 percent as a safety valve” or as technocratic as “this multivariate simulation model, once fed, will churn out the right UGB multiplier.” Rather, we believe that the best one can do with wicked problems of the UGB kind is to work within a proper framework. In proffering a framework, then, we rely mainly on what little research is available, as well as our professional experience, judgment, and, we hope, common sense.

Our approach assumes that a county or sub-county jurisdiction initiates a growth boundary within a larger metropolitan area, but it does not address municipal annexation as the rationale for the UGB. We also do not assume any regional (or statewide) growth management regime in which development outside the boundaries is uniformly discouraged or in which “fair share” growth allocations are required by individual jurisdictions. Although a fair share approach certainly is desirable, it is very difficult to achieve because of political, institutional, and conceptual hurdles.

Our approach is based on a multiplier of population projections (incorporating employment and other land needs) that is converted to acres. The multiplier assumes a constant proportional relationship between population (or housing units) and jobs over time. This is an important oversimplification and should be handled with caution. Where jobs/housing ratios likely will change significantly over time, planners should disaggregate population from employment projections and address their land needs separately. Our approach also assumes local planners will have data on current land use and the capacity to analyze land markets.

Our system also attempts to use data and analytical tools that are readily available to planners. (Ding, Knaap, and Hopkins at the University of Illinois at Urbana-Champaign have developed an economic model for assessing the efficiency of UGB size, but it requires a complex analysis of marginal versus average costs for infrastructure expansion and public services, data on development costs, land rights, and so forth.)

We identify eight factors, in three sets, that planners should consider when delineating UGBs. The first three factors—growth pressures, potential deflection, and fiscal strength—are the big drivers in sizing the UGB. These factors are deep forces that determine a jurisdiction’s future but are not under the control of a single jurisdiction and not readily susceptible to change. Once you understand these three factors, you can make a first cut at sizing your UGB.

Then, with the second set of factors, which address the status of land ownership around your jurisdiction, you can refine your UGB size estimate. These factors, unlike the first set, may respond to policy or regulatory interventions (either controls or incentives) and can be influenced over time.

Finally, you will need to assess your jurisdiction’s future infrastructure capacity and its institutional capacity to sustain a UGB of any given size. These final factors are the most open to intervention and change.
Frederick, Maryland, Sizes a UGB

What follows is a hypothetical example of how the UGB framework might be applied in the city of Frederick, Maryland (pop. 53,000; land area 20 square miles). In reality, Frederick has not committed to a UGB, and while Maryland requires that jurisdictions designated “priority funding areas,” the state does not mandate a methodology for sizing UGBs.

Our UGB framework diagram (above), marked up for Frederick, shows how our eight factors would rate in our analysis. A simple averaging of our rankings produced a multiplier of 1.8 times the 20-year projections. Current average residential densities in the city are high: 12 dwelling units per gross acre. We assumed that gross densities within the UGB would be lower but would still be higher than Maryland’s smart growth threshold of 3.5 units per (gross) acre.

Using a density of four units per acre, we generated an acreage for residential needs. We assumed residential acres would be 50 percent of future land (a national average) and then added another 50 percent for all other land uses plus infrastructure. This produced a gross acreage need from which we subtracted existing vacant lands within the city. We made no assumptions about redevelopment. The remaining acreage need is shown on the map as an abstract square overlaid on the city. In reality, of course, the UGB’s actual shape would be governed by current development, constraints on utility extensions, watershed boundaries, and so on.

Uri Avin and Michael Bayer

The diagram above summarizes how we rate Frederick, Maryland, on each of our factors. The circles within the arrows denote the individual ratings, which yield the UGB illustrated below. For more detail about this analysis, visit planning.hntb.com, and navigate to the “Resources” page and then to “Frederick UGB.”

Factors in Sizing Urban Growth Boundaries

Each factor in our process can be assigned a value on a continuum. How you synthesize these scores depends on your interpretation of the relative importance of any factor in your jurisdiction. You can use the framework quantitatively and assign weights and scores to the factors, or qualitatively, as the basis for a persuasive narrative. In the end, the adoption of the UGB is a political act, but if you have done your homework right, it can be informed by a responsible planning logic.

Our framework continuum goes from a minimum UGB (at the bottom of the diagram) to an expansive UGB (at the top). We have set the minimal UGB at 125 percent of 20-year projections, following conventional wisdom (and APA’s Growing Smart model statistics). If the prospects for expanding the UGB over time appear slim, however, this approach would be too rigid and invite negative consequences over time. (This should not be the case where state or regional requirements or local custom lead to plan updates every five to 10 years, however.) Accordingly, we have set the upper limits of our bar at 250 percent of 20-year growth projections, or a 50-year time frame. You could vary this upper limit based on local conditions. However, a larger boundary may have little effect and would require substantial growth management within the UGB.

We have purposely expressed the UGB size as a multiplier of projected growth, rather than as a multiplier of land area. Obviously, you must translate projected growth into acreage needs using assumptions about density, intensity, infrastructure, and so forth. The actual area and extent of the UGB, therefore, could be very large compared to an existing community’s land area if low-end densities are assumed, even with a “tight” 1.25 multiplier. Conversely, a liberal multiplier at high density could yield a tight UGB.

A word of caution here. You should not simply extrapolate existing land-use acreage ratios. Densities may change, driven by demographic shifts, or excess commercial parking ratios could be re-balanced in an effort to “recapture” infill or mixed-use opportunities. In any case, assumptions will vary in each locale. However, the UGB concept is predicated on a smart growth view that more compact, dense development is better than extensive, low-density development.

Research suggests you get the most substantial benefits when moving from very low gross residential densities (say two dwelling units per acre, the gross residential density of many suburban areas) to, say, five dwelling
units per acre (the typical gross residential density of the 1970s generation of new towns).

A few caveats
In a smart growth world, forecasts tend to be policy-driven rather than market-driven. In other words, jurisdictions with growth management targets can simply say, “This is as much as we choose to grow right now for various reasons,” regardless of market pressures. Although smart-growthers might say they are simply “managing growth” and accommodating their fair share in the right way, rather than controlling or stopping it, in reality, this line is blurred.

To be of use, our UGB framework requires realism about the local market, even if a later decision is made to accommodate only a portion of anticipated growth. This argues for a reality-based regional forecasting framework within which a jurisdiction’s projections are set.

Off-the-shelf projections that are based on econometric models—and that disregard local land-use policies and land supply—provide this kind of framework.

Factors in sizing UGBs
Driving factors
Growth pressures: This is the most important factor in sizing the UGB. Assuming that growth forecasting is done responsibly and the jurisdiction’s “fair share” of development will be accommodated, a forecast of rapid growth requires a roomy UGB. Rapid growth can be characterized as twice the national average or greater, moderate growth as three-quarters to less than twice the national average, and slow growth as less than three-quarters of the national average. Rapid growth can be characterized as twice the national average or greater (less than 2 percent), moderate growth as three-quarters to less than twice the national average (0.75 to 2 percent), and slow growth as less than three-quarters of the national average (less than 0.75 percent).

Potential for growth deflection: Studies in California by John Landis and Ned Levin indicate that UGBs and similar measures will push growth elsewhere—typically, farther out onto cheaper land and into a less-regulated climate. Our experience in Maryland suggests a similar pattern.

Where growth is managed at a countywide scale, this need not necessarily occur. Boulder County, Colorado, has guided growth away from the city of Boulder and toward the city of Longmont.

In general, however, outward deflection also leads to scattered growth, leapfrog growth throughout the region. To act responsibly, a jurisdiction that is adjacent to relatively undeveloped, “unprotected” municipalities should draw its UGB loosely. If this situation doesn’t apply, the UGB can be drawn more tightly. (The current official projections for adjacent jurisdictions should not, of course, be the sole basis for this evaluation; you should conduct an independent assessment.)

Fiscal capacities and fiscal strength: Typically, a moderate-income bedroom community cannot support a massive population expansion unless that expansion brings major economic benefits. Typically, wealthier communities will be more successful in coping over time with the economic stresses of a major expansion.

One indicator of fiscal capacity might be the proportion of the town’s assessable tax base that is non-residential. An assessable base that is 25 percent or more non-residential would be doing well. A non-residential base under 10 percent would be a fiscal red flag.

Secondary factors
Land monopolies within the potential UGB: UGBs should be drawn to minimize distortions from land monopolies. If a UGB is drawn generically but the lands within it are held by only a few landowners who opt to keep the land off the market, limiting the supply of developable land will result in exclusionary housing effects. Half of the undeveloped land within a potential UGB is in the hands of less than 20 owners, say, a jurisdiction should cast a larger net. This also should be done if one or a handful of landowners can prevent the expansion of critical utilities to serve a large portion of a UGB.

Fractured ownership pattern outside the potential UGB: Land outside a potential UGB, if broken into small parcels and unprotected by any highly restrictive agricultural zoning, can be fragmented and result in a pattern of rural estates outside the boundary. After all, these locations benefit from proximity to urban amenities but provide rural lot sizes and “open space” for many, the best of all worlds. Conversely, an ownership pattern of large land holdings, even if “unprotected” by restrictive zoning, may be less likely to subdivide rapidly into urban estates.

Owners of these lands may hold out in order to maintain the UGB and thus receive higher returns, or they may continue to farm or lease their land. Therefore, say, if more than half the parcels outside a potential UGB are larger than 100 acres, the edge condition will be more stable than if half the parcels are 20 acres or smaller. In which case the UGB should be drawn to include these “fractured” lands.

Deferral areas outside the UGB: If a jurisdiction’s hinterlands are subject to very low-density zoning or are otherwise limited in development potential (for example, by regulations that require subdivisions of more than five lots to be served by public utilities, compared to policies that do not allow utility extensions into those areas), then a UGB can be drawn tighter because it is theoretically possible to expand it later on, since it will not be dotted with new rural homeowners.

Conversely, if no protective zoning or subdivision rules limit the conversion of outlying areas, the UGB should be drawn more loosely. Sufficiently protective zoning begins around one dwelling unit per 20 acres in strong land markets. Zoning of less than one dwelling

Moving the Line—a Parcel at a Time
Urban growth boundaries aren’t always inflexible. But even when communities amend their UGBs, they tend to focus on small areas—hundreds, not thousands, of acres—and they tend to do it one parcel at a time, according to a new survey. This also appears to be true of older, established UGBs, as well, so it may not be a function of newness.

For this story, we surveyed more than 180 communities across the country. Of the 35 jurisdictions that have responded so far, only two—Portland and Medford, Oregon—have added 1,000 acres or more to their UGBs since the boundaries were enacted. The boundaries were changed in Oregon in response to the state’s requirement that land supply be reviewed every five years.

One community we surveyed expanded the boundary for a few properties to extend water and sewer service. Others added land to provide lots for a major industry, and two communities actually decreased the size of their UGBs. But most had not amended their boundaries. Despite these findings, 80 percent of the communities surveyed considered their UGBs flexible.

The survey is ongoing. If you would like to participate, contact Michael Bayer at mbayer@hntb.com.
unit per five acres is permissive and warrants inclusion of more such lands within the UGB.

Tertiary factors

Potential for changes in infrastructure capacity: Understanding whether areas can be served by public sewer and water is key to establishing meaningful growth boundaries. Sewer and water planning is typically done on a very long time horizon because of the cost and investment in treatment plants and distribution systems.

Because UGBs tend to be one-shot deals, they also need a long-term horizon. If existing supply, treatment, and conveyance systems cannot serve the potential UGB, the UGB should be tightened, or an adequate long-term facilities plan should be developed and budgeted. Roads are less critical than sewer and water systems because rural areas usually have some underused two-lane roads. Without public water and sewer, however, density development is impossible. Nevertheless, responsible jurisdictions will identify and reserve land for future roads inside the UGB.

Institutional capacity: Managing growth requires sophisticated governing structures, policies, and procedures. The capacity to monitor land, produce and integrate a comprehensive plan with sewer, water, and thoroughfare plans, develop a realistic interagency capital improvements program, and implement this entire package through appropriate zoning, subdivision, and other tools requires institutional sophistication.

Part-time commissioners or supervisors, unsupported by professional staff and lacking a capital improvements program, will be hard-pressed to maintain an adequate UGB-based growth management system. Where institutional capacity is limited, a tighter UGB is warranted.

A few final words

A large UGB will require planners to manage growth in a concerted way within the UGB. This can be done by phasing utilities, applying variable Adequate Public Facilities Ordinance standards or impact fees, interim zoning, selective incentives, and so on. Even a right-sized UGB will require some level of growth management and land supply and price monitoring. As with any tool, however, how the UGB is crafted and carried out will be critical to its success. At the very least, we hope this approach leads to further discussion on rightsizing and prompts planners and academicians to develop an empirical basis for UGBs.

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Portland’s Expansion is the Biggest Yet

Driving southeast on windy Foster Road out of Portland, Oregon, suburban auto dealerships give way to red barns and forested buttes as Southeast Portland ends and the small town of Damascus begins. Farms dominate in this unincorporated community of 3,000, but if anticipated growth follows recent decisions from the regional government, some of those farms will be replaced by industrial and housing tracts.

Until now, Damascus residents considered the urban growth boundary around the Portland metropolitan area as a way to protect their community from urban-style development. In the wake of decisions made in December by the Portland Metro Council, that boundary will shift—if the state’s Land Conservation and Development Commission approves the change.

“I can remember when either side of this road was all strawberries and broccoli,” recalls retired farmer Roy Ledbury, pointing toward 242nd Avenue. “But even then, I remember my father saying, ‘That’d be a great place for a Fred Meyer’s (supermarket).’”

Urban growth boundaries are always controversial in Oregon, and nowhere are battles as fierce as around Portland, where the urban growth boundary surrounds 24 cities, envelopes much of three counties, and stretches 28 miles north-south and nearly 40 miles east-west.

Every five years, Portland’s Metro Council juggling growth projections with available dwelling units to see if there’s enough residential land to meet an anticipated 20-year need. Each time the council faces the same dilemma: expanding onto farmland, increasing density in existing neighborhoods, or moving where many would rather have jobs than houses.

At the end of 2002, inspired by studies conducted by 1000 Friends of Oregon as well as recommendations from executive officer Mike Burton, the Metro Council endorsed a large expansion east of Portland into the Damascus area. State law allowed 13,000 acres in Damascus to be included—amounting to two-thirds of the total expansion, the largest in state history.

“I think the package we’re going to turn in (to LCDC) was limited by the cards we have in our hands,” says Metro councilor Rod Park, who chaired the committee that solicited both technical studies and public comment.

Park is referring to existing legal protections for Oregon’s farmland. In addition, Metro is bound by its 2040 Growth Plan, which lays out goals and principles to guide development for 50 years. The plan calls for creating complete communities, increasing density near transit and major roads, and creating good urban form. Metro believes it followed 2040 objectives in approving the latest Portland UGB expansion.

“We wanted to do more than just incremental slivers of ‘shlock’ all around the edge,” explains Metro councilor and president-elect David Bragdon. “Instead we wanted to provide supply in such a way as to create longer range communities.”

1000 Friends of Oregon and several other groups applauded Metro’s move toward planning a “complete community” in Damascus, but there are critics. Skepticism over Metro’s
ability to handle UGB expansions goes back to 1997, when LCDC remanded Metro’s proposal. This time, there was no shortage of opinions as to where the expansion should occur.

Local representatives discussed regional need and supply for more than a year. Numerous residents testified in writing or at Metro’s hearings around the region.

The cities of West Linn and Lake Oswego mounted an effective opposition to the proposed inclusion of 3,900 acres bordering their two cities. On November 21, Metro removed that land from consideration. Hundreds of Damascus residents who voiced opposition got a different result.

The 13,000-acre expansion in unincorporated Damascus must still meet legal requirements, as determined by LCDC. Right now, the area has a mix of farmland and low-level development, and it lacks the roads and sewers needed for rapid development. Services cannot be added quickly, either, due to the area’s streams, steep slopes, and wildlife corridors, which are protected by state law.

Meanwhile, members of the Committee for the Future of Damascus are considering incorporation as a way to manage growth, and the Community Planning Organization from nearby Boring has put together a plan to “meet Metro halfway.”

“I’m proposing a compromise,” says Dean Apostol, author of a paper on what he calls the small town and greenbelt concept. “We can accept a fair share, but by creating a greenbelt, the community can retain farming, its rural character, and help meet Metro’s goals of protecting wildlife,” he says.

Another interested party is also looking into alternatives to the Damascus expansion.

near Portland, Oregon. Workshop sponsors were the Coalition for a Livable Future and 1000 Friends of Oregon.

Dean Apostol at Singing Salads, his organic farm in Damascus. Portland’s UGB expansion would designate Apostol’s property as an industrial site. He prefers a greenbelt that would spare his farm and the surrounding properties.

An Angelo Eaton & Associates study, funded last year by developer Newland Communities, advocated an expansion of only 6,000 acres, balanced with nearly 4,000 acres in Washington County, west of Portland. Newland owns property adjacent to the UGB that it wants included—and commissioned a study when its property was not even looked at for expansion.

1000 Friends has historically sided with Metro’s decisions to avoid including west-side farmland. This time, the group supported the move to Damascus, but only because it failed to push Metro into staying within the current boundary.

While groups around the region fought over parcels and numbers, most advocates and officials agree that affordable housing is likely to remain a problem regardless of the exact location of the Portland UGB.

“We’ve gotten pretty good at the environmental piece and we’re understanding the economy better,” said Clackamas County Commissioner Mike Jordan. “But when it comes to social issues—like affordable housing—we’ve got a long way to go.”

The Oregon Home Builders agree. “Because of (geographic) constraints in Damascus,” says Home Builders’ spokesman Kelly Ross, “we probably won’t see development there for 10 to 15 years. That doesn’t help the current supply shortage.”

Metro’s December decisions are not the end of the story. Now Metro must try to ensure the boundary contains enough industrial land while wrestling with Goal 5 of the 2040 Plan, which looks at how well the region is dealing with wildlife habitat protection.

Planners and others think that future discussions could be even more contentious than those leading up to Metro’s December 2002 decision about residential land.

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