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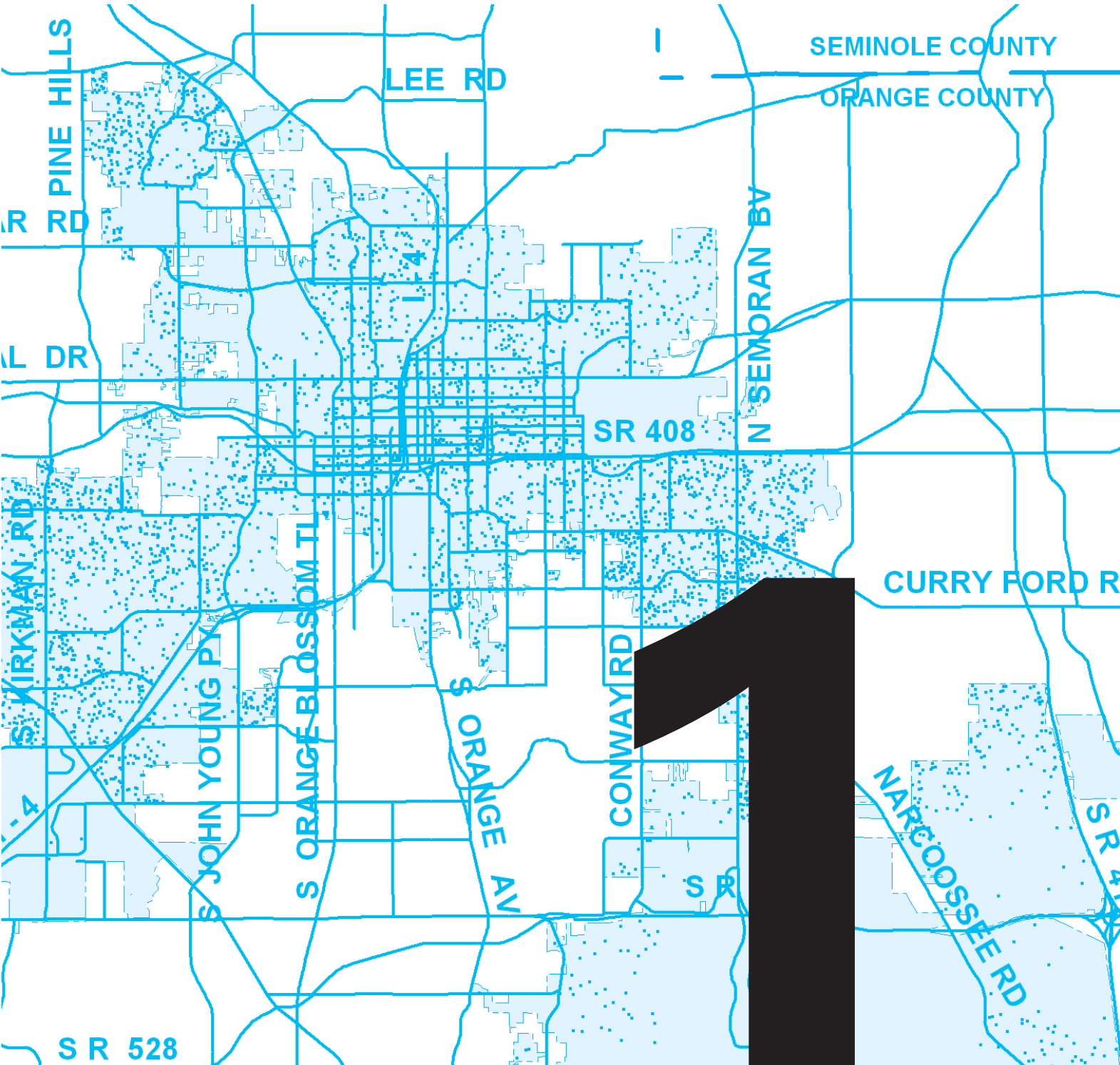
PRACTICE LAND SUPPLY MONITORING



Monitoring Local Land Markets

By Gerrit J. Knaap and Elisabeth Holler, AICP

How to protect open space, encourage redevelopment, and make the most of infrastructure investments by analyzing current and projected land-use patterns.

Recent advances in Geographic Information Systems (GIS) have allowed more local communities to analyze land-use patterns using recent and accurate data. Instead of sending teams of interns to survey land uses parcel by parcel, communities are able to use aerial photography, GIS layers, and links to parcel-based databases, such as a property appraiser's, to create detailed results. Such information can be a valuable tool to help communities implement smart growth policies, and ultimately prevent sprawl and inefficient use of public services.

Smart approaches to controlling urban growth take three general forms:

(1) greater use of prices, such as impact fees, system connection charges, and toll roads;

(2) coordinated management of infrastructure using concurrency requirements, integrated land-use and transportation plans, and capital improvement programs; and

(3) more comprehensive use of land-use regulations, such as zoning and urban growth boundaries.

While the first two approaches are firmly in the realm of pricing scarce resources, the third approach has the most potential to incorporate a community's vision for its future. Good land-use decisions can preserve land for future generations and provide a mix of uses that is convenient and valuable to the community as a whole. As communities devote more time, attention, and effort to managing the use of land, many are finding they lack the basic information they need to do solid long-range planning. Most are aware that growth management can be a two-edged sword: If communities open too much land to development, the resulting sprawl can be costly environmentally, socially, and financially. But if they too stringently limit the land available for development, demand can quickly exceed supply and force land and housing prices sharply higher. When communities are in a position of uncertain land supply, meaning no one knows if available land is sufficient to meet demand, the market cannot work efficiently and both public and private land development decisions become more risky.

Better information about a community's inventory of land can help identify the extent and characteristics of various land uses, including undeveloped land.

According to economists, this is a classic "inventory problem." How much land should be primed and ready for development? Holding too much developable land creates costs of underutilized infrastructure, while holding too little bids up prices for land. A community's vision may also influence availability of land. Decisions to allow development on a piece of land necessarily mean that less land is available for conservation, forestry, or agriculture. A historic farming community may not be willing to abandon farmland for houses, even if demand for housing is strong. Furthermore, not all land is equally suitable for development: floodplains, steep slopes, or proximity to undesirable uses can all influence the likelihood that a property will be developed.

THE NEED FOR LAND MARKET MONITORING

Communities need a way to monitor how the land is currently used, assess future demand, and take steps to assure the adequacy of future supply. Fortunately, there are now cost-effective, accessible tools available for almost any community to implement a land market monitoring system. Those that do so quickly discover that such a system can become a critical tool for comprehensive smart growth planning.

Better information about a community's inventory of land can help identify the extent and characteristics of various land uses, including undeveloped land. Over time, this data can be used to spot trends. Continuous monitoring of land absorption makes it possible, at any instant, to describe how much land is available for development, how quickly it is annexed, subdivided, and developed, its selling price, and much more.

Land market monitoring is the process of assessing and inventorying the supply of vacant land over time. To set up a land market monitoring system, planners can use aerial photography, GIS-based data, and parcel-based databases, such as the prop-

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About the Authors

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erty tax assessor's, to identify the existing land use of each parcel. Once the database is set up, annual (or even continuous) data updates can provide policy makers with accurate information about absorption of land.

Land market monitoring explains not only existing land-use patterns, but also allows projections of land availability into the future. If zoning and infrastructure information is available, vacant land can be analyzed to determine the number of residential units that can be accommodated. This becomes the effective supply of housing over time. To estimate demand, population projections from state or national data sources can be adapted to local conditions. A comparison of projected supply and demand for housing can identify gaps or surpluses of supply. Where demand outpaces supply, annexation, expansion of growth boundaries, or another growth management tool is needed. Where supply is able to meet or exceed demand, requests to open new land for development can be postponed until demand catches up.

Land market monitoring can also be tailored to local needs. For example, established communities may not have a large supply of vacant land. Although the land market monitoring process may uncover some pockets of land that can be redeveloped (for example, lots that back up to one another), planners can explore other alternatives. They can estimate a property's redevelopment potential based on the ratio of a structure's value to the value of the land it is built on. Other innovations may also be needed to address large-scale land-use changes, such as closing a military base or building a new airport.

With a land market monitoring system in place, communities can evaluate trends in housing location and type. For example, some communities may see growth in demand for multifamily units as housing prices increase. This would point planners toward a review of vacant land to see if an oversupply of single-family zoning is limiting the locations for multifamily development.

LAND MARKET MONITORING CAN SUPPORT POLICY DECISIONS

A detailed and timely land market monitoring system ensures that policy tools to regulate the supply of land are effective. One effective tool is to adopt an urban growth boundary (UGB), which allows higher densities inside the boundaries and limits development outside. The best UGBs are large enough to allow for adequate housing choices and stable land prices, but small enough to ensure that development is compact and efficiently located. Some communities, pressured by political needs or powerful landowners, may adopt a UGB that is so large that it can be ignored for the next 10 to 20 years as land is absorbed into the housing market. Another pitfall is not expanding a UGB enough: The state of Maryland, for example, restricts most growth-related state infrastructure investments to so-called priority funding areas, yet local governments are not required to expand such areas as development capacity is absorbed. In locations without UGBs, zoning decisions can have similar impacts: A downzoning can decrease the supply of available land as effectively as a UGB. Such inadequate attention to urban land and housing markets can lead to land and housing price inflation and can, by deflecting growth to even less preferred locations, exacerbate urban sprawl.

Land market monitoring can help predict when to add land to a UGB or when to upzone property. Past trends in land absorption provide estimates for how much land should be added. Although there is no exact science to determining when and how much land to open for development, the data supplied by the land market monitoring system can provide ample support for a middle-of-the-road solution, calming developers who fear they will not find available land, and calming residents who fear longer commutes and more traffic that may result from too much uncoordinated growth.

CASE STUDIES

The following jurisdictions show how land market monitoring can be useful at regional, countywide, and city-specific scales. While each takes a different approach to gathering data, over time they have all been able to shape land-use decisions in ways that maximize the use of infrastructure and minimize impacts to the environment.

Portland Metro Area

Land-use decisions in Portland, Oregon, are governed by Metro, the elected regional government for the three-county Portland metropolitan area. Metro adopted an urban growth boundary in 1979. State law requires Metro to manage Portland's UGB by demonstrating that it includes a sufficient supply of land to provide for 20 years of future resi-

Portland has the highest connectivity, the smallest lot sizes, the highest ratio of land-use mix, and the highest ranking of pedestrian accessibility.

dential development. Every five years, Metro reevaluates the UGB to determine if land needs to be added.

When the first UGB was drawn in 1979, the regional government included 78,000 developable acres; of these, 39,000 were actually developed by 1994. Because the UGB was so large, most development was contained within the UGB but occurred at far lower densities and less contiguously than intended.

In 1998, the Metro Council added approximately 3,500 acres to the UGB. Choosing where to add these acres, however, was problematic, in part because such small increases in developable acres create problems in maintaining the balance between jobs and housing, providing regional parks, and planning for large investments in urban infrastructure. Small increments cannot encompass interdependence among land-use locations, facilities, and infrastructure necessary to plan patterns of development for investment and regulation.

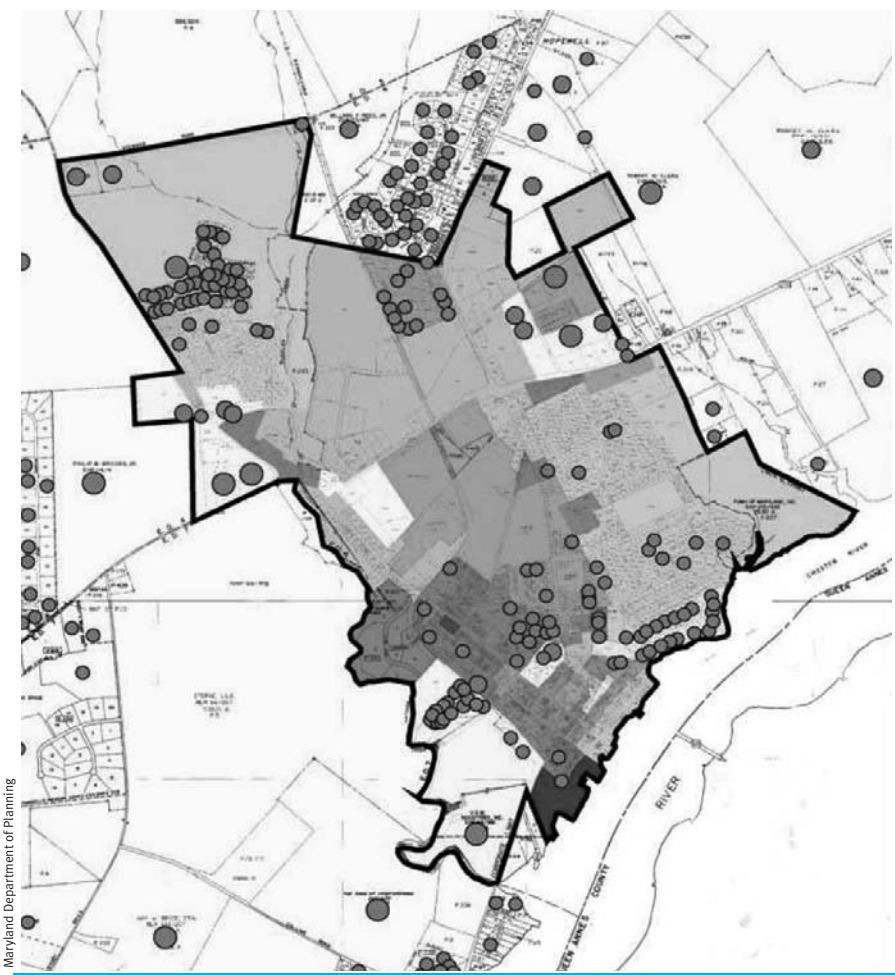
Based in part on these observations, in 2002 Metro approved an increase of 18,867 acres to accommodate approximately 38,000 housing units and 2,600 new jobs. Since that time, Metro has made a few smaller, strategic additions to the UGB, such as 246 acres for industrial development.

Because additions to the UGB are subject to intense public scrutiny and may be appealed (which occurred in 2002, with Metro's approvals largely upheld), the data and analysis supporting such a decision must be quite detailed. Since the mid-1990s, Metro has used air photo interpretation in combination with tax-lot maps and information about land characteristics and public utilities, all registered to common coordinates through GIS, to identify parcels that are fully or partially vacant. Even with this approach, however, specific rules must be adopted concerning how large the vacant segment of a partially developed parcel must be in order to classify that part as vacant land. Given the high-quality base data that are available, Metro has been able to translate this information into easy-to-use GIS data that allow local governments, concerned citizens, and nonprofit groups to perform their own analyses. Today, the Metro GIS provides over 70 GIS map layers, including zoning, building permit information, and undeveloped land on DVDs available to the public.

A recent study of the urban form for neighborhoods built after 1995 shows that Portland, as compared to four other sample jurisdictions, has the highest connectivity, the smallest lot sizes, the highest ratio of land-use mix, and the highest ranking of pedestrian accessibility of the group. The only measure where Portland is at the middle of the pack is the average distance from residential to commercial uses. While Portland takes advantage of many other smart growth and urban design tools that influence these outcomes, it is clear that the UGB helps ensure an efficient growth pattern.

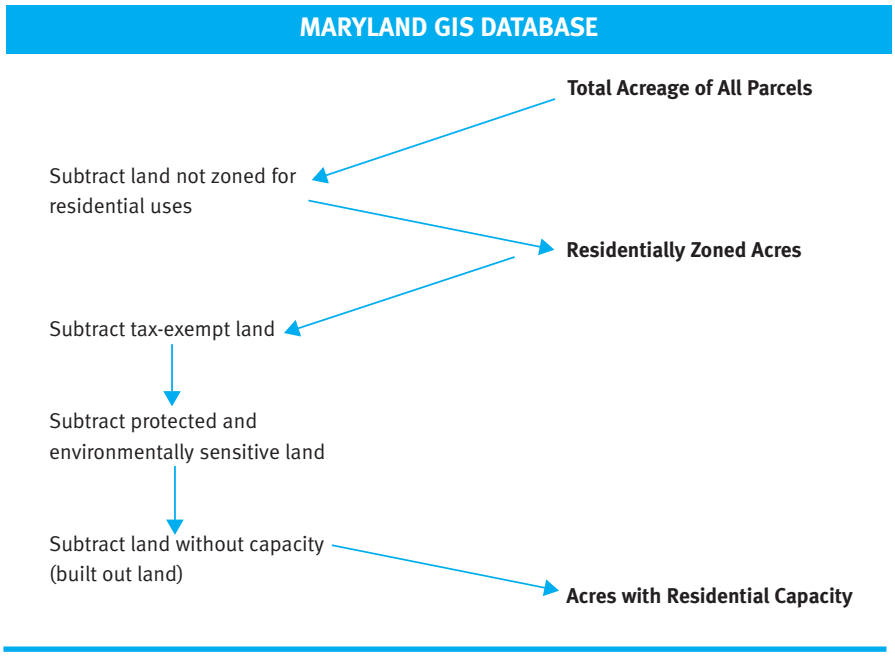
State of Maryland

Maryland is the fifth most densely populated state in the nation, and many communities are expected to reach buildout within



Maryland Department of Planning

This zoning map for Chestertown, Maryland, was built from scratch using GIS and the town's existing paper zoning maps, with local planning input.



Maryland is the fifth most densely populated state in the nation, and many communities are expected to reach buildout within the next 25 years.

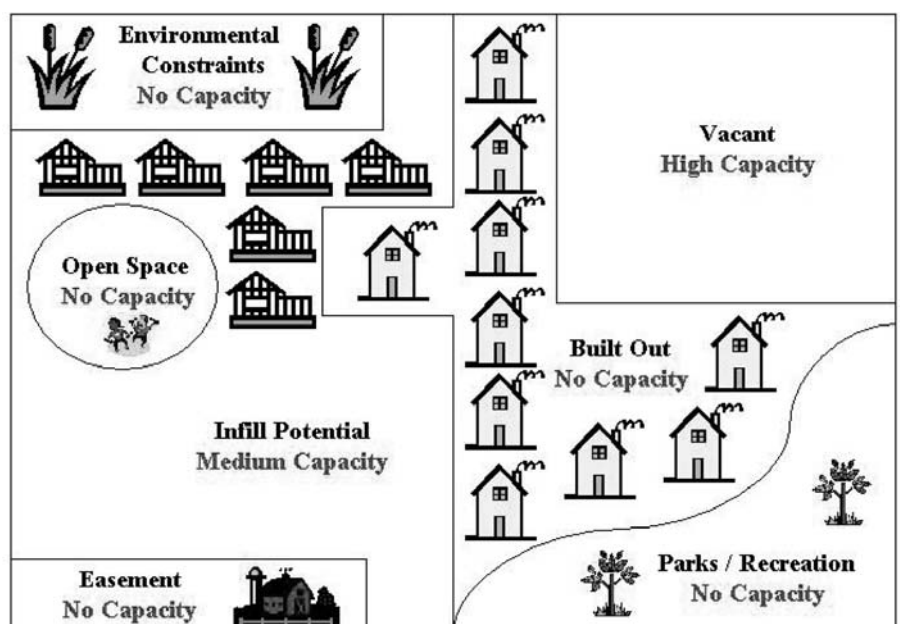
the next 25 years. In 2004, the Maryland Department of Planning (MDP) organized a task force to analyze development capacity within the state. Maryland's Smart Growth initiative requires jurisdictions to designate growth areas as "priority funding areas" (PFAs) that are to be eligible for future state financial assistance for growth. Such areas must be served by, or planned to be served by sewer and water, meet minimum density requirements, and be sized to accommodate growth. However, relatively few jurisdictions conduct a formal capacity analysis.

The task force chose 10 pilot communities (five municipalities and five counties) to represent a diversity of geographic locations, growth rates, and data availability. MDP used a GIS database compiled from local jurisdictions. Data layers include land uses, zoning, environmental features, sewer availability, and other criteria. Net residential development capacity was calculated based on the flow chart shown above.

The task force found that data availability varied across jurisdictions. The rural town of Chestertown, with a population of approximately 4,700, has no GIS and uses a paper map to designate zoning districts. Task force members were able to code the information for GIS relatively easily, given that the land area and number of zoning categories were relatively small. Larger jurisdictions often have more staff and more data analysis capability, but their zoning requirements may be significantly more complex. In Montgomery County, with a population of over one million, significant assistance came from small area plans, which have parcel-specific information about redevelopment potential that can be more accurate than the zoning data. Overall, the study focuses more on the process of collecting and analyzing data than the actual amount of acreage available for development.

The process of collecting and analyzing data brought up a number of important questions regarding how to account for pipeline projects, how to estimate capacity where actual developed densities are less than the maximum allowed by the zoning code, or how to ensure data are standardized and consistent.

The task force recommends continued data analysis, including an annual report



Maryland Department of Planning

Maryland's model (see Resources) shows types of land supply and compares capacity for new development as part of its system of monitoring land supply.

RESOURCES

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of development activity, to further refine the results and ensure that the amount of land dedicated to priority funding areas is appropriate.

City of Orlando

Orlando is the largest city in the fast-growing Central Florida area. Central Florida has a population of about three million people, with the Orlando population of 224,000 making up about seven percent of the regional total. The city's boundaries have become a de facto urban growth boundary, as state law requires annexed property to be used for urban purposes. Through annexation, Orlando can add to its inventory of vacant land. As of 2006, approximately 13,600 vacant and developable acres are located inside Orlando's city limits, which total 70,500 acres or 110 square miles. Much of the developable land is owned by large-scale developers that have at least a 20-year planning horizon for development. As stated in its 2007 population projections report, the city estimates current population and projects future population based on

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parcel-specific data. The city's land-use database provides the number of housing units on each parcel in the city. Multiplying by standard persons-per-unit and occupancy rates provides a total existing population. Parcel-specific data are grouped into traffic analysis zones (TAZs) to allow for analysis at the neighborhood level. Future population is projected based on best available data from developers (approved site plans, subdivisions, etc.); where no approvals have been secured, vacant land is assigned a density based on the property's zoning and the surrounding land-use pattern. That is, properties zoned R-2 may allow up to seven dwelling units per acre, but the surrounding development pattern shows that four du/ac is more typical for actual development. The timing of development is spread over the next 20 years based on development approvals and estimates reflecting current market conditions.

To ensure that the parcel-based population projections are accurate, Orlando reviews population growth projections published by the Florida Bureau of Economic and Business Research. Because projections are available

only on a countywide basis, historic growth patterns are analyzed to assign a portion of the countywide growth to Orlando. Orange County typically grows at a faster rate than Orlando, meaning that the city's proportion of the population is gradually decreasing even as the overall population increases in both the city and Orange County.

Outside Orlando's boundaries, adjacent land in unincorporated Orange County has also largely become developed, meaning that future opportunities to annex are limited, and demand will have to be accommodated in other ways. By monitoring absorption of land annually, the city can anticipate the need for new policy solutions, such as providing incentives for redevelopment of grayfields and brownfields.

CONCLUSIONS

Land market monitoring has become increasingly available as technology has caught up to data needs and accurate information has become easier to gather and analyze. The technology changes have arrived just as changing market conditions, including a rise in home prices and an increasing desire by the public to preserve land, have shown that an accurate monitoring system is the most convincing response to calls for changes to the prevailing development pattern.

ZONING REVIEWS

ENGAGING THE FUTURE: FORECASTS, SCENARIOS, PLANS, AND PROJECTS
Edited by Lewis D. Hopkins and Marisa A. Zapata (2007; Lincoln Institute of Land Policy; 392 pp.; $35)

Only portions of this book are specifically about zoning, but successful zoning itself clearly depends on accurate projections of future land-use needs. This substantial anthology takes planners into the realm of anticipating change by envisioning alternative futures and the tools for shaping them, with contributions from some of the most knowledgeable experts practicing today. The volume emerged from a 2005 symposium sponsored by the Lincoln Institute.

METROGREEN: CONNECTING OPEN SPACE IN NORTH AMERICAN CITIES
By Donna Erickson (2006; Island Press; 352 pp.; $35)

Creating green communities requires a great deal of thinking about exactly what green is and what purposes it serves. One of the essential lessons of recent decades is that open space is far less valuable when isolated than when it is connected to an entire system of greenbelts, greenways, trails, and other spaces that contribute to the ecological health of whole metropolitan areas. The 10 paired case studies in this lucid volume help the reader grasp the various functions of public and green open space in supporting the health of communities. Needless to say, they all require some serious local and regional land-use planning to achieve their goals.

This month's cover is a 2006 population distribution map for the City of Orlando, Florida. Each dot represents 50 people.

Map by City of Orlando Planning Division, City Land Use Database and 2006–2030 Growth Projections.

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WHERE ARE YOUR DEVELOPMENT OPPORTUNITIES?

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